

Walkability Plan

2013–2018



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Introduction

Background

Creating environments that encourage people to choose active travel is increasingly being recognised as a way to foster more sustainable, healthier and safer communities. Walking and cycling are enjoyable, convenient and healthy modes of travel and also assist to reduce greenhouse gas emissions and improve the amenity of our local areas.

“Walkability” is a measure of the effectiveness of community design in promoting walking and cycling as alternatives to driving cars to reach shopping, schools and other common destinations. The Heart Foundation of Australia, the World Health Organisation and other health organisations around the world advocate increasing the walkability of communities to promote fitness, combat obesity and enhance sustainability.

The City’s *Walkability Plan 2013–2018* is a five-year plan designed to encourage and enable safe and accessible environments within the City of Joondalup for all users. It presents the analysis, results and recommendations of a detailed audit of the City’s Key Walking Routes, Key Cycling Routes and Key Trails, and identifies how these can be improved. The Plan focuses on five Key Walking Areas, representing different walking and cycling contexts in the City of Joondalup’s urban and natural environments.

The *Walkability Plan 2013–2018* provides a strategic guide to investing in and managing walking and cycling infrastructure to ensure usability, appropriate signage and efficient and effective linkages. The Plan also identifies opportunities for enhanced community education and awareness of active recreational opportunities in the region.

Objectives

The objectives of the *Walkability Plan 2013–2018* include the following:

Identify opportunities to improve walkability within the Joondalup City Centre and major suburban shopping districts.

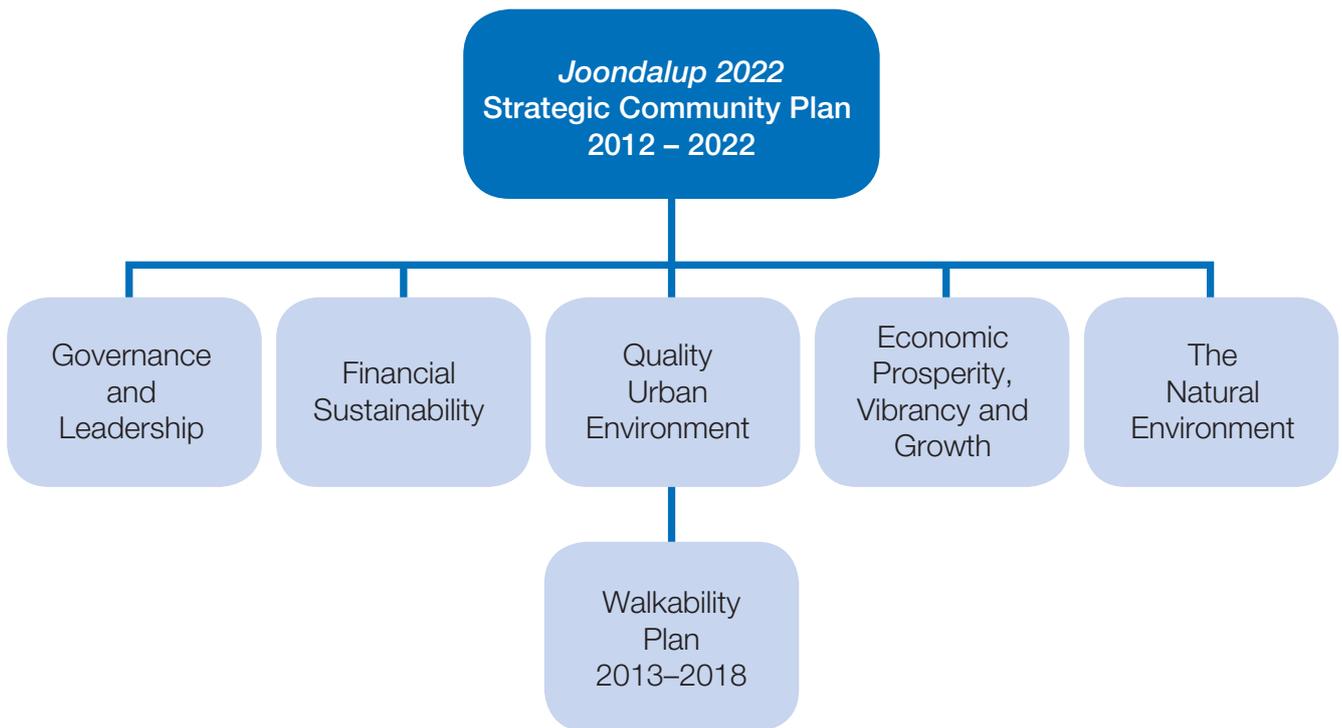
Develop a planned and consistent approach to the establishment and maintenance of trails within natural bushland, wetland and coastal areas.

Promote pathways and trails to the community and ensure they are accessible to residents and visitors.

Planning Context

The *Walkability Plan 2013–2018* has been developed in the context of the City’s broader Integrated Planning and Reporting Framework. The following diagram shows the internal planning context of the *Walkability Plan 2013–2018*.

Figure 1: City of Joondalup Internal Planning Context



Related City of Joondalup Plans and Strategies

The following internal plans and strategies relate to the *Walkability Plan 2013–2018*:

Access and Inclusion Plan 2012–2014

The City's *Access and Inclusion Plan 2012–2014* provides for all members of the community to have equal access to opportunities and places within the City of Joondalup. In the context of the *Walkability Plan 2013–2018*, it ensures that people with disabilities, people from cultural and linguistically diverse backgrounds and people experiencing other access and inclusion issues (for instance, the elderly or parents with prams) are able to access services, facilities, events and public buildings, and receive information in an appropriate format.

Beach Management Plan 2011–2016

The City's *Beach Management Plan 2011–2016* represents an umbrella management framework for the conservation, management and development of the City's coastline. Paths and trails are covered by Key Focus Area 1 (Infrastructure) of the Plan. Objectives of this Key Focus Area are threefold: to provide quality, low-impact infrastructure, to provide adequate infrastructure for the needs of the region and to ensure the preservation of natural areas through effective infrastructure design and location.

Bike Plan 2009

The overarching goal of the City's *Bike Plan 2009* is to promote cycling in the City of Joondalup and to increase the number of cyclists using Joondalup's bicycle network and facilities. The plan recognises the different requirements of all types of road and path users and the different types of cyclist who have various requirements of their route infrastructure. In addition to improving bicycle infrastructure in the City of Joondalup, the *Bike Plan 2009* emphasises the importance of signage and education to encourage, inform and assist cyclists.

Draft Joondalup City Centre Structure Plan

The *Draft Joondalup City Centre Structure Plan* provides a planning and design framework to facilitate the growth of the City of Joondalup whilst ensuring an "intense mix of opportunities to live, work, play and learn with convenient transport links to the surrounding region." The draft Plan underscores the importance of accessibility through the support of public transport, walking and cycling routes.

Related State Government Plans and Strategies

The following external plans and strategies relate to the *Walkability Plan 2013–2018*:

Directions 2031: Draft Spatial Framework for Perth and Peel

The Department of Planning and Western Australian Planning Commissions, *Directions 2031: Draft Spatial Framework for Perth and Peel* provides a framework to guide the detailed planning and delivery of housing, infrastructure and services necessary to accommodate a range of growth scenarios. The draft Framework provides direction on, among other things, where development should be focused, what patterns of land use and transport will best support this development pattern, and what areas need protecting so that the region retains high quality natural environments and resources.

Draft Public Transport Plan for Perth 2031

The Department of Transport's, *Draft Public Transport Plan for Perth 2031* addresses congestion and accessibility issues for the growing Perth Metropolitan Area. The draft Plan identifies the main public transport infrastructure needs and the links required between major activity centres. Key initiatives include the introduction of light rail, the development of rapid transit corridors, expansion of the rail network and the introduction of additional buses and trains.

State Planning Policy 2.8 – Bushland Policy for the Perth Metropolitan Region

This Department of Planning's, *Bushland Policy for the Perth Metropolitan Region* covers "Bush Forever" areas and local bushland. It provides the policy and implementation framework for bushland areas shown in the *Metropolitan Region Scheme* and supports the preparation of local bushland protection strategies by all local governments.

Walk WA: A Walking Strategy for Western Australia 2007–2020

Be Active WA's, *Walk WA: A Walking Strategy for Western Australia* addresses the improvement of health and wellbeing through walking initiatives. The Strategy is a whole-of-government, whole-of-community strategy devised to enable a coordinated, collaborative approach to encourage all Western Australians to walk and to develop environments in which the decision to walk is easier.

Draft Western Australian Bicycle Network Plan 2012–2021

The Department of Transport's *Draft Western Australian Bicycle Network Plan 2012–2021* introduces new initiatives to assist in providing a safe and sustainable cycling network that connects with key activity and attraction areas. The draft Plan represents a progression from Austroad's *The National Cycling Strategy: Gearing up for Active and Sustainable Communities*.

Western Australian Trails Strategy 2009–2015

The Department of Sport and Recreation's, *Western Australian Trails Strategy 2009–2015* outlines a strategic direction for the Western Australian trails sector. The Strategy considers the policies and priorities outlined by existing economic, environmental, health, recreational and community development documents relevant to Western Australian trails.

Yellagonga Regional Park Management Plan 2003–2013

The Department of Environment's, *Yellagonga Regional Park Management Plan 2003–2013* guides the protection and enhancement of conservation, recreation and landscape areas within Yellagonga Regional Park. The Plan provides statutory direction over all lands and waters of the park vested in the Conservation Commission of Western Australia and managed by the Department of Environment and Conservation.

Key Walking Areas

Five Key Walking Areas were chosen for detailed analysis which span the entire City of Joondalup region and represent both the urban and natural context:

1. Joondalup City Centre
2. Suburban Shopping Precincts
 - Centro Warwick Shopping Centre
 - Westfield Whitford City
3. Natural Bushland Areas
 - Craigie Open Space
 - Warwick Open Space
 - Lilburne Reserve
 - Shepherds Bush Reserve
 - Hepburn Heights Bushland
4. Yellagonga Regional Park
5. Sunset Coast

Whilst these Key Walking Areas have been selected for detailed analysis of accessibility and walkability, the recommendations provided within the *Walkability Plan 2013–2018* also apply to areas that are outside of those chosen.

For each of the five Key Walking Areas, a summary of the Key Routes, community feedback, condition audit(s) and any recommendations are provided.

Audit Methodology

The condition audits for the *Walkability Plan 2013–2018* were conducted using three interdependent methods:

1. Department of Transport's Walkability Audit Tool
2. Top Trails Western Australia assessment criteria for inclusion as a "Top Trail"
3. US Department of Transportation's Bikeability Checklist

Walkability Audit Tool

The Key Walking Areas, Joondalup City Centre and Major Suburban Shopping Precincts; were audited using the Department of Transport's Walkability Audit Tool which identifies routes as Key Walking Routes and Key Cycling Routes. The Tool was also used to supplement the audits of the Key Walking: Natural Bushland Areas, Yellagonga Regional Park and Sunset Coast.

The Walkability Audit Tool refers to a number of design standards for pedestrian facilities produced by Austroads and Australian Standards. In particular the Walkability Audit Tool makes reference to the *Austroads Guide to Road Design – Part 6A: Pedestrian and Cyclist Paths*. The guide identifies five key attributes of an environment required to encourage walking which state that a route should be:

1. Connected
2. Comfortable
3. Convenient
4. Convivial
5. Conspicuous

In addition, the Walkability Audit Tool identifies seven elements to be examined in each audited route. These elements are rated as either 3 (satisfactory), 2 (unsatisfactory but acceptable), and 1 (unsatisfactory).

1. General impressions
2. Pathways
3. Crossings (of roads)
4. Street furniture and signage
5. Personal safety
6. Adjacent traffic
7. Aesthetics and amenities

Top Trails Western Australia Assessment Criteria

The Key Walking Areas, Natural Bushland Areas, Yellagonga Regional Park and Sunset Coast; were audited using the Top Trails Western Australia assessment criteria for inclusion as a “Top Trail”.

The Top Trails Western Australia assessment criteria stipulate that, in addition to being of a high standard and providing a memorable or unique experience, ideally trails must already have the following:

1. Appropriate signage — directional trail marking (distance and “locational”).
2. Maps, guide books and track notes, if required.
3. Interpretative material and information, if appropriate.
4. Management and maintenance plans.
5. Community support (e.g. friends’ groups or local government involvement).
6. A promotional brochure.
7. Good information available on a website.

Further to the assessment criteria above, Top Trails Western Australia also list the following as important aspects in the assessment of a “Top Trail”:

- Quality of the experience
- Point of difference
- Accessibility
- Community involvement
- Cultural awareness
- Nearby facilities and services
- Safety.

Bikeability Checklist

In addition to the use of the tools outlined above, the Key Cycling Routes of the Joondalup City Centre were audited using the *Bikeability Checklist* developed by the US Department of Transportation.

The Bikeability Checklist includes six cycling-specific questions, including:

1. Did you have a place to bicycle safely?
2. How was the surface that you rode on?
3. How were the intersections you rode through?
4. Did drivers behave well?
5. Was it easy for you to use your bike?
6. What did you do to make your ride safer?

Community Consultation

The City conducted community consultation to inform the development of the *Walkability Plan 2013–2018*. The consultation initiatives targeted three specific groups representing both public and industry consultation: the general community, user groups and major stakeholders. Details of each consultation group and a summary of their responses are provided below.

General Community and User Groups

The general community was surveyed by means of a City-wide public survey and strategic on-site interview questionnaires. Community consultation was promoted through the following avenues:

- Advertising in the Joondalup Voice.
- Email letters with links to an electronic survey sent to members of the community (sourced through relevant City databases).
- Notice on the City’s e-screens at Customer Service Centres.
- On-site, face-to-face questionnaire interviews at Centro Warwick Shopping Centre and Westfield Whitford City Shopping Centre.

Consultation with user groups involved seeking feedback from stakeholders with an interest in the Key Areas of the Plan.

As with the general community consultation, the City-wide public survey was used. The survey was followed up by phone discussions or face-to-face interviews. User group consultation was promoted through the following avenues:

- Initial phone call informing each group of the project.
- Cover letter mailed or emailed with links to an electronic survey or the City-wide public survey attached.

The following user groups were contacted directly for feedback:

- Action Outdoors Association
- Burns Beach Café
- Bushwalkers of Western Australia
- Duncraig Senior High School
- Easybeat Walkers
- Ern Halliday Recreation Camp
- Federation of Western Australian Bushwalkers
- Friends of Craigie Bushland
- Friends of Marmion Marine Park
- Friends of Hepburn and Pinnaroo Bushland
- Friends of Mullaloo Beach
- Friends of North Ocean Reef/Iluka Foreshore
- Friends of Warwick Bushland
- Friends of Yellagonga Regional Park
- Joondalup Community Coast Care Forum
- Marmion Angling and Aquatic Club
- Mindarie Diving Academy
- Mullaloo Surf Life Saving Club
- North Coast Triathlon Club
- Northern Districts Cycle Club
- Padbury Catholic Primary School
- Perth Mountain Bike Club
- Sacred Heart College
- Sorrento Surf Life Saving Club
- Warwick Senior High School
- Women's Healthworks.

Commentary – City-Wide Public Surveys

Responses to background and more general questions from the City-wide survey revealed the following:

- The respondent group was equally divided between males and females. Few respondents were aged 25 years or under and the largest sets of respondents were in the 60–69 and the 35–44 age groups. Respondents came from almost all suburbs of Joondalup, with a strong representation from Edgewater and Joondalup.
- The pathways and trails most frequently used by the respondents are the Sunset Coast Trail, the Lake Joondalup trails in Yellagonga Regional Park and the trails in pathways Joondalup City Centre.
- The coastal and Lake Joondalup trails are used by the respondents mainly for exercise and recreation, enjoying the environment and dog walking; the Joondalup City Centre pathways are used mainly for accessing shopping, public transport and services (education, medical) and some recreational walking.
- All parts of the Sunset Coast Trail are used, but the respondent group mainly uses the northern sections.
- Respondents do not use paths in areas that are a long way from where they live.

In addition to the general responses above, the survey questions on each of the Key Areas asked respondents to rank the selected pathways or trails against a set of criteria expressed as “positive statements” (for example, “The path is in good condition.”) The rankings ranged from 1 to 6 (“strongly agree” to “strongly disagree”). Analysis of these responses showed that:

- For almost all of the issues (such as the quality and width of footpaths, crossings and amenities), the percentage of positive rankings significantly outweighed the percentage of negative rankings, revealing that the walking environment is seen in a positive way by the majority of respondents.
- Some issues frequently had more negative than positive rankings. For instance, most respondents did not agree with the statement “I feel safe using the path at night”, whilst the statement “Cyclists and pedestrians share the trail/path well with each other” had a lower than average positive ranking.

Respondents to the City-wide survey also had the opportunity to provide commentary on each Key Walking Area of the Plan. These comments are briefly summarised in the Plan where each Key Walking Area is discussed in detail.

At the end of the survey, respondents were asked to provide any further comments they might have relating to walkability. Comments varied widely and some were not particularly relevant to walkability. The most common (relevant) comments are summarised below:

- Improve signage information on walking and public transport routes (e.g. information kiosks, mobile phone apps, etc.).
- Improve the general amenity on pathways (e.g. shelter, seats, drinking fountains, paving, etc.).
- Improve pedestrian/cyclist safety (e.g. control cycling speed; promote the use of bells/keeping left, install centre lines on paths etc.).
- Improve the walking environment to be more “pedestrian-friendly” (e.g. introduce separate cycle and pedestrian paths, have wider lanes etc.)
- Promote appropriate control of dogs on paths.
- Improve pedestrian/zebra crossings.
- Improve bike parking and end-of-trip facilities.
- Improve access for people with prams and people in wheelchairs.
- Move the focus of Joondalup City Centre away from vehicle traffic and have a greater focus on pedestrians.

Commentary – On-Site Interview Questionnaires

Responses to general questions from the on-site interview questionnaires at Centro Warwick Shopping Centre and Westfield Whitford City Shopping Centre revealed the following:

- At least 50% of respondents are women in the 50+ age group. Most shoppers come from surrounding suburbs.
- Most respondents use “active transport” (i.e. not private vehicles) to get to the shopping centres.
- Respondents who were “active transport” users frequent the shopping centres more often than car drivers. There is a social element to their visits as well as a practical one.
- Problems noted with access to the shopping centres cover difficulties traversing busy car parks on foot, uneven footpaths, problems walking between bus stops and difficulties crossing roads.

Industry Stakeholders

Industry stakeholders were surveyed by means the City-wide public survey through the following avenues:

- Initial phone call informing each stakeholder group of the project.
- Cover letter mailed or emailed with links to an electronic survey or the City-wide public survey attached.

The following industry stakeholders were contacted directly for feedback:

- City of Wanneroo
- Conservation Council of Western Australia
- Department of Environment and Conservation
- Department of Sport and Recreation
- Department of Transport
- Disability Services Commission
- Edith Cowan University
- Experience Perth
- Fire and Emergency Services Authority of Western Australia
- Hillarys Boat Harbour
- Joondalup Business Association
- Joondalup Health Campus
- Lakeside Joondalup Shopping City Management
- Main Roads Western Australia
- Northern Suburbs Reconciliation Group
- Public Transport Authority of Western Australia
- Quality Resort Sorrento Beach
- South West Aboriginal Land and Sea Council
- Top Trails Western Australia
- West Coast Institute
- Western Australia Police Academy.

Commentary – Industry Stakeholders

Discussions were held with a substantial number of major stakeholder representatives. During these discussions the representatives were informed of the nature and broad intent of the *Walkability Plan 2013–2018* and informed of the potential recommended actions that may affect them (e.g. installing “wayfinding” signage, improving road crossings and related issues in the Joondalup City Centre and natural areas).

Responses were received from the following State Government stakeholders:

- Department of Transport
- Department of Environment and Conservation
- Main Roads Western Australia
- Public Transport Authority

– the following local government stakeholders:

- City of Wanneroo

– the following Joondalup Learning Precinct stakeholders:

- Edith Cowan University
- West Coast Institute
- Joondalup Health Campus

– and the following private organisation stakeholders:

- Lakeside Joondalup Shopping City

In general, industry stakeholders are supportive of the need to improve walking and cycling in the City of Joondalup. The City will continue to work with these stakeholders to implement walking- and cycling-related improvements.

General Recommendations

Following initial research and community consultation, the following general recommendations have been developed. Additional recommendations relating to the specific Key Walking Areas of the *Walkability Plan 2013–2018* are shown in the relevant sections of the Plan. A full list of recommendations is shown at Appendix 8.

Recommendation 1

The City of Joondalup becomes a signatory to the *International Charter for Walking*.

Description:

The *International Charter for Walking* was developed by the UK-based organisation Walk21. The Charter exists to provide “a world where people choose and are able to walk as a way to travel, to be healthy and to relax, a world where authorities, organisations and individuals have recognised the value of walking, made a commitment to healthy, efficient and sustainable communities and worked together to overcome the physical, social and institutional barriers which often limit people’s choice to walk.” By becoming a signatory to the Charter, the City will be demonstrating its overall commitment to the principles of walkability.

Recommendation 2

Investigate “mobile optimisation” of the City of Joondalup’s website and the use of Quick Response (QR) Codes to link to the website.

Description:

Low-cost, high-powered and non-intrusive technology can assist “wayfinding” and the provision of public information and education on trails and pathways. The use of QR Codes (similar to a product barcode) has become a popular method of providing directions and information to people seeking guidance in many types of environment. When used in conjunction with smart phones with a QR “app”, QR Codes have the capacity to provide a link to the City’s website. It is recommended that the City investigate the “mobile optimisation” of the City’s website and, in particular, the use of QR Codes to assist “wayfinding” in the City.

Recommendation 3

Liaise with Main Roads Western Australia to investigate the feasibility of reducing speed limits within key areas of the City.

Description:

Reducing the speed limit within areas of the City that are highly utilised by pedestrians can create safer walking environments. Reduction of speed limits needs to consider the potential impact on traffic movement and requires agreement from major stakeholders including Main Roads Western Australia.

Recommendation 4

Develop a Walking and Cycling Counting Program.

Description:

Limited data is available on the level of usage of trails and pathways in the City of Joondalup. The acquisition of such data would be valuable for decision-making, policy development and funding applications for new road crossings and other improvements recommended in this Plan. Development of a Walking and Cycling Counting Program is recommended to determine the level of usage of trail and pathways in the City.

Recommendation 5

In conjunction with the Public Transport Authority, the Department of Environment and Conservation and the City of Wanneroo, develop a program for undertaking counts of walking and cycling traffic across the City and appropriate surrounding areas.

Description:

As noted in Recommendation 3, limited data is available on the level of usage of trails and pathways in the City of Joondalup. It is recommended that the City work in partnership with the Public Transport Authority, the Department of Environment and Conservation and the City of Wanneroo to undertake counts of walking and cycling traffic at a local and regional level.

Recommendation 6

Implement the Walking and Cycling Counting Program.

Description:

As noted in Recommendations 3 and 4, limited data is available on the level of usage of trails and pathways in the City of Joondalup. Following the development of a Walking and Cycling Counting Program, it is recommended that the City appropriately implement this Program through automatic “people counters” and/or utilising video capture technology through the City’s closed-circuit television (CCTV) system.

Recommendation 7

Develop a comprehensive *Signage Strategy* including pedestrian “wayfinding” to improve access and walkability within the City of Joondalup City Centre and the trails within the City’s natural areas.

Description:

The use of “wayfinding” signage forms an important part of the City’s *Walkability Plan 2013–2018*. This type of signage uses pedestrian and cyclist focused map based signs mounted either as free-standing doubled-sided panels or as single-sided panels fixed to walls or other suitable structures. In order to provide consistency in the style, design and content of signage it is recommended that the City develop a *Signage Strategy* to guide the development and installation on new “wayfinding” signage within the City.



Key Walking Area 1

Joondalup City Centre

1.1 Background

The Joondalup City Centre provides employment and shopping opportunities, and continues to build upon its status as a cultural and educational hub. Consequently, it is frequented by many visitors (residential and non-residential). These visitors rely on the area to be pedestrian and bicycle-friendly, and need its many pathways to be connected, safe and functional.

This Key Walking Area (shown in Appendix 1), includes a number of major destinations which include Edith Cowan University, West Coast Institute, Western Australian Police Academy, Central Park, Joondalup Bus and Train Station, Lakeside Joondalup Shopping City and the Joondalup Health Campus. Ideally, these destinations should be linked by Key Walking Routes and Key Cycling Routes.

Additional major destinations planned for the Joondalup City Centre include the Joondalup Performing Arts and Cultural Facility, a new medical facility on Shenton Avenue and Grand Boulevard and expansions to Edith Cowan University, West Coast Institute and Lakeside Joondalup Shopping City. These developments will increase the intensity of activity in the Joondalup City Centre, making improvements to walkability and the availability of “active transport” as a practical choice, vital.

The Joondalup City Centre is well-served by buses and trains. Approximately 180 trains travel to and from Joondalup Bus and Train Station each day; 15 Transperth bus routes serve the Joondalup Bus and Train Station and a free circular Central Area Transit (CAT) bus service provides access to all key destinations. Notwithstanding, most train services are not met by a CAT bus within 10 minutes of the train arriving, making walking to Joondalup City Centre destinations a quicker option than waiting for the CAT bus. Most of the destinations are within a short walk or cycle ride of the Joondalup Bus and Train Station (and each other), although long wait times at road crossings can increase total walk times.

1.2 Key Routes

The Joondalup City Centre has a number of Key Walking Routes and Key Cycling Routes linking major destinations. Optimising this Key Walking Area will increase the capacity of pedestrians and cyclists to access shops, services, and cultural and educational facilities safely and efficiently.

Most of the Joondalup City Centre destinations are within a few minutes cycle of the Joondalup Bus and Train Station (and each other) and all are within a six to 12 minutes walk from the Station. The Key Walking Routes and Key Cycling Routes and a brief description of each are listed in Table 1.2.

Table 1.2 Key Walking and Cycling Routes for the Joondalup City Centre

Route	Description
Key Walking Route 1	<p>Joondalup Bus and Train Station to Joondalup Health Campus (via Lakeside Joondalup Shopping City)</p> <p>Exit north from Joondalup Bus and Train Station; walk through Lakeside Joondalup Shopping City to Boas Avenue; cross Grand Boulevard; use Central Walk to walk north; and access the southern pedestrian entrance to Joondalup Health Campus.</p>
Key Cycling Route 1	<p>Joondalup Bus and Train Station to Joondalup Health Campus</p> <p>Exit south from Joondalup Bus and Train Station; travel south to Collier Pass; turn left (east) onto Collier Pass; ride to Grand Boulevard; turn left onto Grand Boulevard and join the on-road bike lanes travelling north; turn right onto Boas Avenue; use Central Walk on the left to access the southern pedestrian entrance to Joondalup Health Campus.</p>

Route	Description
Key Walking Route 2	<p>Joondalup Bus and Train Station to Civic Area (City of Joondalup Administration and Library) via Lakeside Joondalup Shopping City</p> <p>Exit north from Joondalup Bus and Train Station; walk through Lakeside Joondalup Shopping City to Boas Avenue; cross Grand Boulevard and Davidson Terrace to access the Civic Area on the right-hand side of Boas Avenue.</p>
Key Cycling Route 2	<p>Joondalup Bus and Train Station to Civic Area (City of Joondalup Administration and Library)</p> <p>Exit south from Joondalup Bus and Train Station; travel south to Collier Pass; turn left (east) onto Collier Pass; ride to Grand Boulevard; turn left onto Grand Boulevard and join the on-road bike lanes travelling north; turn right onto Boas Avenue; cross Davidson Terrace to access the Civic Area on the right-hand side of Boas Avenue.</p>
Key Walking Route 3	<p>Joondalup Bus and Train Station to Neil Hawkins Park (Yellagonga Regional Park)</p> <p>Exit north from Joondalup Bus and Train Station; walk through Lakeside Joondalup Shopping City to Boas Avenue; cross Grand Boulevard and cross Lakeside Drive; continue along Boas Avenue to the very end to access Neil Hawkins Park.</p>
Key Cycling Route 3	<p>Joondalup Bus and Train Station to Neil Hawkins Park (Yellagonga Regional Park)</p> <p>Exit south from Joondalup Bus and Train Station; travel south to Collier Pass; turn left (east) onto Collier Pass; ride to Grand Boulevard; turn left onto Grand Boulevard and join the on-road bike lanes travelling north; turn right onto Boas Avenue; cross Davidson Terrace; cross Lakeside Drive; continue along Boas Avenue to the very end to access Neil Hawkins Park.</p>
Key Walking Route 4 and Key Cycling Route 4	<p>Joondalup Bus and Train Station to West Coast Institute Campus</p> <p>Exit south from Joondalup Bus and Train Station; travel south along the western path beside the bus lane on the east side of the Station to Collier Pass; cross Grand Boulevard; continue down the path to access West Coast Institute.</p>
Key Walking Route 5 and Key Cycling Route 5	<p>Joondalup Bus and Train Station to Edith Cowan University Campus or Western Australian Police Academy</p> <p>Exit south from Joondalup Bus and Train Station; travel south along the western path beside the bus lane on the east side of the Station to Collier Pass; turn left (east) onto Collier Pass; travel along Collier Pass; turn right onto Grand Boulevard, travel south until Kendrew Crescent; cross Kendrew Crescent; travel south-east down the path to access Edith Cowan University. (By turning left onto Kendrew Crescent instead and travelling east, the Western Australian Police Academy may be accessed.)</p>

1.3 Community Feedback

From the City-wide public survey, respondents were asked to provide general comments about the Joondalup City Centre:

- Respondents expressed the need for the installation of “wayfinding” signage, the availability of better information and the provision of higher levels of amenity along Key Routes.
- Respondents would like a greater focus on pedestrians (e.g. a better walking environment, ease-of-access through car parks, more road crossings, more time to cross at lights and slower traffic-speed regulations, etc.).
- Some respondents prefer separate facilities for cyclists and pedestrians.
- Respondents expressed safety and security concerns with regard to walking and cycling in the Joondalup City Centre (e.g. night safety, speeding cyclists and dogs off the lead, etc.).

1.4 Condition Audits

Condition audits were conducted for the Key Walking Routes and Key Cycling Routes of the Joondalup City Centre utilising the Department of Transport's, Walkability Audit Tool. The condition audits of the Key Cycling Routes were supplemented by the US Department of Transportation's, Bikeability Checklist, as well as local criteria (although these elements were not given a numerical rating). The condition audits are shown in Tables 1.4.

Table 1.4 Condition Audit for the Key Walking Routes and Key Cycling Routes of the Joondalup City Centre (Ratings: 1 = unsatisfactory, 2 = unsatisfactory but acceptable, 3 = satisfactory)

Walkability element	Rating	Comment
Adjacent traffic	1	The current speed and volume of traffic on the Key Walking Routes and Key Cycling Routes are generally too high for pedestrian and cyclist safety.
Aesthetics and amenities	3	This element takes into account litter, dumped rubbish, discarded items and graffiti. There is little evidence of these problems, except in car park stairwells.
Clear sightlines	3	There are no issues on most of the Key Walking Routes and Key Cycling Routes. Intersections are open and clear and undergrowth does not obstruct cyclist' paths.
Comfort	2	Moderately comfortable place to cycle.
Connectivity	N/A	Most of the Key Walking Routes and Key Cycling Routes are short, so connectivity issues are limited to major intersections. Some of these intersections are difficult to cross, especially those with uncontrolled slip lanes, where neither riders nor pedestrians can safely cross to activate the crossing button.
Crossings	1	In order to use the Key Walking Routes and Key Cycling Routes, pedestrians and cyclists need to cross a number of access roads for car parks and roads where there are unassisted crossing facilities. They also need to cross roads at traffic lights, including their associated slip roads which accommodate left-turning traffic.
Information	1	Signage for cyclists is generally poor, missing, incomplete and/or faded. In some cases directions are given, but no distance or time, nor are any intermediate destinations shown.
Pathways	3	Pathways are flat, well-laid and usually straight. They are found on both sides of nearly all streets. However, there is one pathway absent, from Collier Pass to West Coast Institute.
Personal safety	2	In certain parts of the Joondalup City Centre there are some safety issues at night.
Signage	1	There is little or no pedestrian "wayfinding" signage and street name signage could be improved.
Smooth riding surfaces	2-3	Mostly in good condition, the exceptions being at certain crossing points.
Space to ride	N/A	Many spaces to cycle and on-road lanes are of an adequate width. They are, however, not well-marked and therefore a cause of potential confusion for the rider. Dual-use paths are generally wide and free of obstructions.
Speed maintenance	N/A	Adequate speed can be maintained by cycling of all types, although long waiting periods for traffic lights to change can lead to impatience for riders.
Street furniture	3	The Key Walking Routes and Key Cycling Routes are relatively short and the amenity levels (water, toilets, seating etc.) were considered appropriate for short walking and cycling trips.

1.5 Recommendations

Recommendation 8

Support major Joondalup City Centre stakeholders in developing individual Travel Access Guides.

Description:

Travel Access Guides are hand-held or online maps that show the user the easiest ways to access a specific destination by walking, cycling and/or public transport. It is recommended that the City support major Joondalup City Centre stakeholders (e.g. Lakeside Joondalup Shopping City, Edith Cowan University, West Coast Institute, Joondalup Health Campus, etc.) in developing individual Travel Access Guides.

Recommendation 9

Install a comprehensive pedestrian wayfinding signage system in the Joondalup City Centre in accordance with the City's overarching *Signage Strategy*.

Description:

"Wayfinding" signage in the Joondalup City Centre is sparse and does not adequately meet the needs of pedestrians and cyclists. It is recommended that a comprehensive "wayfinding" signage system be installed to assist users of the Key Walking Routes and Key Cycling Routes.

Recommendation 10

Review the pathway network within the Joondalup City Centre and key surrounding nodes to target opportunities to improve useability and linkages.

Description:

Although the condition audits revealed that pathways within the Joondalup City Centre were comprehensive, it is recommended that a review of the pathway network be conducted to identify any "missing" pathways and the inadequate linkages.

Recommendation 11

Investigate the performance of key vehicle and pedestrian intersections within the Joondalup City Centre to determine the best shared outcome.

Description:

Pedestrian and cyclist wait times at vehicle intersections in the Joondalup City Centre can be lengthy. It is recommended that a comprehensive investigation be conducted of the key vehicle and pedestrian intersections to determine if modifications can be made to better serve both pedestrians/cyclists and vehicles.

Recommendation 12

Install tactile ground indicators at all traffic-light crossings throughout the Joondalup City Centre.

Description:

Tactile ground indicators are textured ground surface indicators that can be installed on pathways, stairs and train station platforms to assist blind and vision impaired pedestrians. In order to promote safer pedestrian use of traffic-light crossings, it is recommended that tactile ground indicators be installed at all traffic-light crossings throughout the Joondalup City Centre.

Recommendation 13

Investigate options for developing a continuous path of travel for all entrances across the Joondalup City Centre.

Description:

A continuous path of travel enables pedestrians to navigate crossings safely and without inconveniences (e.g. traffic-light crossings). It is recommended that options for developing a continuous path of travel be investigated for major entrances across the Joondalup City Centre.

Recommendation 14

Undertake a continuous path of travel project within a major Joondalup City Centre car park to develop requirements for future applications

Description:

A continuous path of travel enables pedestrians to navigate crossings safely and without inconveniences (e.g. traffic-light crossings). It is recommended that the project be undertaken within a major Joondalup City Centre car park for a continuous path of travel that can be used as a pilot for future applications.



Key Walking Area 2

Suburban Shopping Precincts

2.1 Background

For this Key Walking Area, two major suburban shopping precincts in the City of Joondalup were investigated — Centro Warwick Shopping Centre and Westfield Whitford City Shopping Centre. Centro Warwick and Westfield Whitford City Shopping Centres are both located in the southern part of the City of Joondalup (shown in Appendices 2 and 3).

2.1.1 Centro Warwick Shopping Centre

Centro Warwick Shopping Centre is situated on the corner of Erindale Road and Beach Road in Warwick. Warwick Bus and Train Station is a five minute walk east on Erindale Road, or one of 10 buses that travel along Beach Road from the Station to the Shopping Centre may be caught.

2.1.2 Westfield Whitford City Shopping Centre

Westfield Whitford City Shopping Centre is situated on the corner of Whitfords Avenue and Marmion Avenue. Buses travel from Whitford Bus and Train Station, located at the intersection of Whitfords Avenue and the Mitchell Freeway. Buses stop directly in front of the Shopping Centre.

2.2 Key Routes

Centro Warwick and Westfield Whitford City Shopping Centres have a number of Key Routes linking public transport hubs to the Shopping Centres. Key Routes through the broad catchment areas of the Shopping Centres were identified and assessed. In listing the Key Routes, differentiation has not been made between Key Walking Routes and Key Cycling Routes (although pertinent points for either are highlighted in the audit results). The Key Routes and a brief description of each are listed in Tables 2.2(a) and 2.2(b).

Table 2.2(a) Key Routes for Centro Warwick Shopping Centre

Route	Description
Key Route 1	<p>Warwick Bus and Train Station to Centro Warwick Shopping Centre</p> <p>Travel west to east along Beach Road (a main road forming the boundary between Warwick and Hamersley (City of Stirling)). This route is an easy walk or cycle from Warwick Bus and Train Station to the Shopping Centre along the dual-use path on the northern side of Beach Road.</p>
Key Route 2	<p>Dorchester Road to Centro Warwick Shopping Centre</p> <p>Approach the Shopping Centre from the north-west along a minor road through a residential area.</p>
Key Route 3	<p>Ellersdale Avenue to Centro Warwick Shopping Centre</p> <p>Parallel and to the north of Ellersdale Avenue, this route approaches the Shopping Centre from the north-west along a minor road through a residential area.</p>
Key Route 4	<p>Erindale Road (north) to Centro Warwick Shopping Centre</p> <p>Approach Centro Warwick along Erindale Road (a major road) from the north. This route passes Warwick Open Space and Warwick Senior High School.</p>
Key Route 5	<p>Beach Road (east) to Centro Warwick Shopping Centre</p> <p>The eastern approach of Beach Road to the Shopping Centre; it is a major road and passes the southern boundary of Warwick Open Space.</p>
Key Route 6	<p>Rannoch Circle and Katrine Way to Centro Warwick Shopping Centre</p> <p>Approaches from the south-east through the minor residential roads of the suburb of Hamersley (City of Stirling) to access Beach Road (via Erindale Road or Sunart Close) and the south-eastern corner of the Shopping Centre.</p>
Key Route 7	<p>Erindale Road (south) to Centro Warwick Shopping Centre</p> <p>The southern approach of Erindale Road to Centro Warwick. This route meets the Shopping Centre at the Beach Road intersection to the south-east of the Shopping Centre.</p>
Key Route 8	<p>Hamersley suburb to Centro Warwick Shopping Centre</p> <p>Provides access through the residential areas of Hamersley (City of Stirling) via a walkway to the Shopping Centre. Taking the route south away from the Shopping Centre, it splits in two across a small park and leads to residential streets.</p>
Key Route 9	<p>Glendale Road to Centro Warwick Shopping Centre</p> <p>This route runs from Eglington Aintree Reserve at the southern end of Glendale Road (where paths skirt the park) to Beach Road at the northern end where it leads to the Shopping Centre.</p>

Table 2.2(b) Key Routes for Westfield Whitford City Shopping Centre

Route	Description
Key Route 1	<p>Camberwerra Drive to Westfield Whitford City Shopping Centre</p> <p>Approach the Shopping Centre from Camberwerra Drive and two nearby cul-de-sacs in the north-east. This route provides walk and cycle access to the Shopping Centre via paths that cross Whitfords East Park and lead to an underpass to the north of the junction at Whitfords Avenue and Marmion Avenue.</p>
Key Route 2	<p>Whitfords Avenue (east) to Westfield Whitford City Shopping Centre</p> <p>Follow Whitfords Avenue to the Shopping Centre from the east and use the traffic lights at the Marmion Avenue/Whitfords Avenue intersection to access the Shopping Centre.</p>
Key Route 3	<p>Marmion Avenue (south) to Westfield Whitford City Shopping Centre</p> <p>Approach from the south with footpaths on both sides of Marmion Avenue. An underpass provides access from the eastern side of Marmion Avenue to Banks Avenue where there is a choice of path gradients. The footpath leads to a crossing of Banks Avenue at a set of traffic lights. Further south, at the Marmion Avenue/Cook Avenue intersection, there are pedestrian crossing points over Cook Avenue.</p>
Key Route 4	<p>Green Road and Solander Road to Westfield Whitford City Shopping Centre</p> <p>Approach from the south along Green Road and Solander Road; the roads are wide and there is a clear view of the Shopping Centre. There are footpaths on the park side of both roads. Between the two roads, on Banks Street, there is a roundabout, and an access road leading to a fitness centre, Whitford Library and Whitford Senior Citizens Centre. The roundabout has crossing places for pedestrians on all sides.</p>
Key Route 5	<p>Hillarys Suburb to Westfield Whitford City Shopping Centre</p> <p>Follow Route through a residential area. A small number of local streets feed onto Endeavour Drive which runs along the western side of the Shopping Centre.</p>
Key Route 6	<p>Whitfords Avenue (west) to Westfield Whitford City Shopping Centre</p> <p>Follow Whitfords Avenue from the west to the Shopping Centre, making use of the path set back from the road on the southern side of Whitfords Avenue.</p>
Key Route 7	<p>Dampier Avenue to Westfield Whitford City Shopping Centre</p> <p>Approach the Shopping Centre along Dampier Avenue from the north and access the Shopping Centre at the Whitfords Avenue/Dampier Avenue intersection.</p>
Key Route 8	<p>Oleander Way and Bridgewater Drive to Westfield Whitford City Shopping Centre</p> <p>Follow local roads to the north of the Shopping Centre and the west of Marmion Avenue. A walkway from Oleander Way (with a link to Bridgewater Drive) connects to the pedestrian underpass. Bridgewater Drive is a circular road that links many of the cul-de-sacs north of the Shopping Centre. Pedestrians along Dampier Avenue can also cut across Whitfords West Park (at the southern end of the route) to the underpass.</p>

2.3 Community Feedback

From the City-wide public survey and interview questionnaires administered at the Shopping Centres, respondents were asked to provide general comments about Centro Warwick and Westfield Whitford City Shopping Centres:

- Most respondents drive to the Shopping Centres and are unaware of the walk, cycle or public transport options.
- Respondents who travel to the Shopping Centres using “active transport” methods (e.g. bus, train, etc.) visit the Shopping Centres more frequently than car drivers.
- Respondents who travel by bus to the Shopping Centres noted problems walking between bus stops and the Shopping Centres.
- Respondents who walk or cycle to the Shopping Centres noted difficulties in crossing roads at traffic-light intersections, the unevenness of some footpaths and the lack of cycle parking.
- “Active transport” users are more common at Centro Warwick Shopping Centre than Westfield Whitford City.

2.4 Condition Audits

Condition audits were conducted for the Key Routes of Centro Warwick Shopping Centre and Westfield Whitford City Shopping Centre utilising the Department of Transport’s, Walkability Audit Tool. The condition audits are shown in Tables 2.4(a) and 2.4(b).

**Table 2.4(a) Condition Audit for the Key Routes of Centro Warwick Shopping Centre
(Ratings: 1 = unsatisfactory, 2 = unsatisfactory but acceptable, 3 = satisfactory)**

Walkability element	Rating	Comment
Adjacent traffic	2	The 60 kilometres per hour section on Beach and Erindale Road and the complex driving environment present safety issues for pedestrians and cyclists.
Aesthetics and amenities	2	Some graffiti and rubbish was present at the time of the audit.
Crossings	2	On Dorchester Avenue, the roundabout at the intersection with Dugdale Street has limited crossing places. At-grade crossings on Beach Road need barriers and driver warning signs. Erindale Road would benefit from an at-grade crossing near the bus stops. Traffic lights at Beach Road/Erindale Road and Beach Road/Glendale Avenue do not allow for easy crossing of the left-turn slip-lanes. Beach Road/Glendale Avenue need pedestrian lanterns. Dorchester Avenue/Dugdale Street and Erindale Road/Dugdale Street roundabouts have minimal or no crossings provided.
Pathways	2	There are no footpaths on Ellersdale Road northwest of Dugdale Street. A protruding median partially blocks the pathway on the northern side of Beach Road near the Shopping Centre.
Personal safety	1	Residents of Bethanie Warwick Residential Village have difficulties crossing Ellersdale Avenue, and many find the path on the return trip too steep.
Signage	1	“Wayfinding” signage is lacking in the vicinity of the Shopping Centres.
Street furniture	N/A	The existing is fit for purpose.

Table 2.4(b) Condition Audit for the Key Routes of Westfield Whitford City Shopping Centre
(Ratings: 1 = unsatisfactory, 2 = unsatisfactory but acceptable, 3 = satisfactory)

Walkability element	Rating	Comment
Adjacent traffic	2	(See comment under Personal safety above.)
Aesthetics and amenities	2	Graffiti was present in Whitfords Avenue underpass.
Crossings	2	The traffic lights at Whitfords Avenue/Marmion Avenue and Whitfords Avenue/Dampier Avenue do not allow for easy crossing of the left-turn slip-lanes. Whitfords Avenue/Marmion Avenue needs pedestrian lanterns. There is no pedestrian crossing facility over Cumberland Drive in line with the path. The roundabout of Dampier Avenue/Alicia Street has only one pedestrian access, across Dampier Avenue. This is a school crossing during school times but is otherwise unhelpful for walkers. Whitfords Avenue would benefit from an at-grade crossing near the bus stops.
Pathways	1	Access to an underpass on Marmion Avenue from the east side, north of Banks Avenue, is steep. From Hillarys in the south-west, there are no walk-through laneways for walkers to take a shortcut to the Shopping Centre. Access to the Shopping Centre is limited to a small number of local streets which feed onto Endeavour Drive. Walkers along Dampier Avenue can cut across Whitfords West Park to the underpass, but there is no paved route to follow.
Personal safety	2	The 60 kilometres per hour section on Whitfords Avenue and the complex driving environment present safety issues for pedestrians and cyclists.
Signage	1	Wayfinding signage is lacking in the vicinity of the Shopping Centre.
Street furniture	2	Whitfords Avenue underpass is prone to flooding.

2.5 Recommendations

Recommendation 15

Investigate methods and costs of flood-proofing through a functionality assessment of underpasses throughout the City.

Description:

As most Suburban Shopping Precincts lie between one or more major roads, underpasses are an important way for shoppers to access the Precincts. It is recommended that an investigation be undertaken into methods and costs of flood-proofing underpasses to ensure greater useability for pedestrians.

Recommendation 16

The City of Joondalup supports Centro Warwick Shopping Centre and Westfield Whitford City Shopping Centre to improve the availability of walking and cycling information to assist visitors to the Shopping Centres.

Description:

A lack of wayfinding signage and information can discourage visitors to major shopping precincts from walking or cycling. It is recommended that the City support Centro Warwick Shopping Centre and Westfield Whitford City Shopping Centre to improve the availability of walking and cycling information to assist visitors.

Recommendation 17

Review the pathway network associated with key nodes outside of the Joondalup City Centre to target opportunities to improve useability and linkages.

Description:

It is recommended that a review be undertaken into the pathway network of key nodes outside of the Joondalup City Centre to target opportunities for improvement.

Recommendation 18

Undertake a study to assess pedestrian access and road crossability to determine the best shared outcome for key nodes throughout the City.

Description:

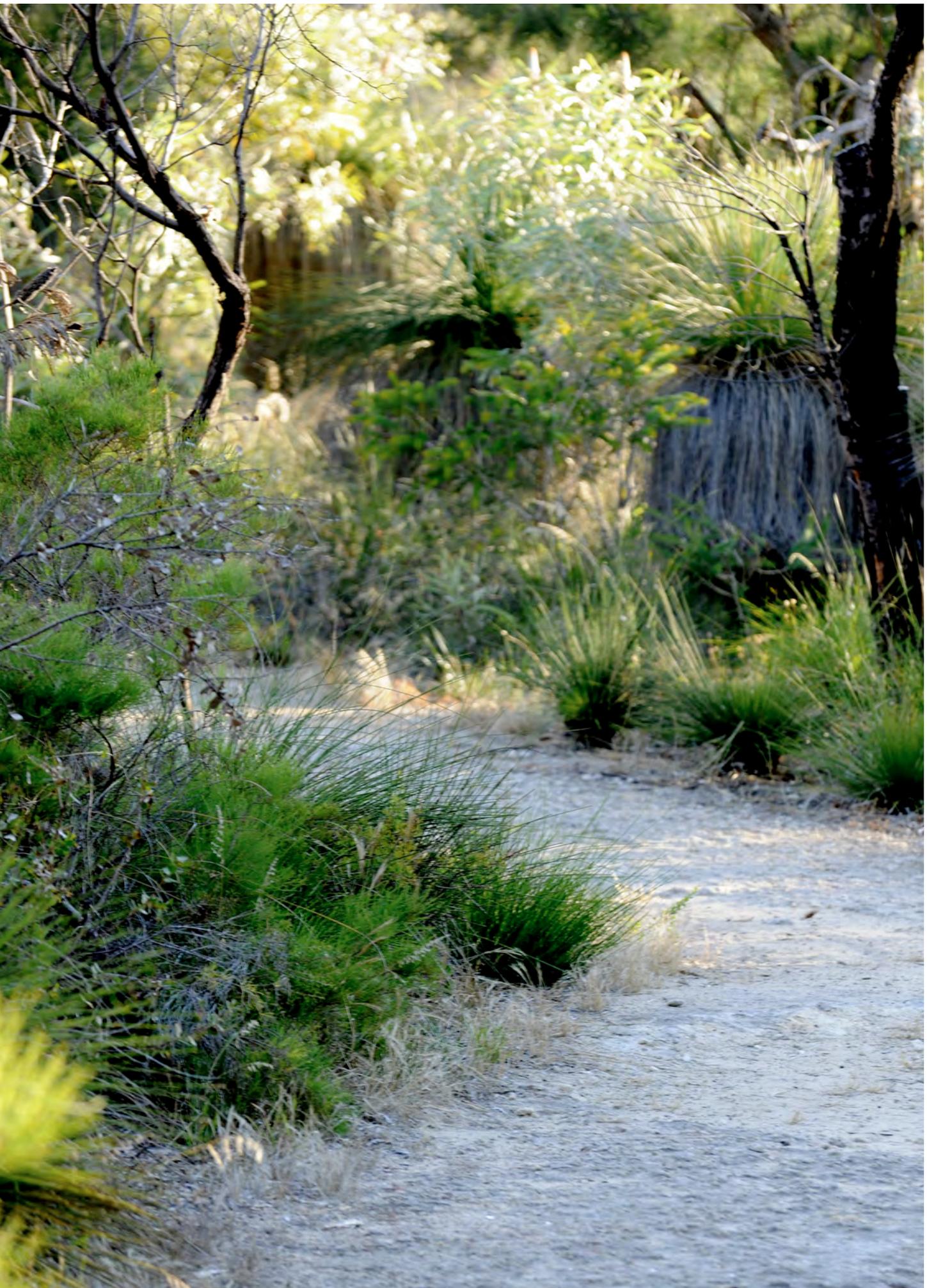
Vehicular infrastructure, such as traffic-light intersections and major roads can provide an impediment to pedestrians and cyclists accessing Major Shopping Precincts. It is recommended that a study be undertaken of key nodes throughout the City to assess pedestrian access through and across roads to determine the best shared outcome for both pedestrians/cyclists and vehicles.

Recommendation 19

Undertake a study to determine options for improving pedestrian crossings at controlled intersections located adjacent to shopping centres.

Description:

Pedestrian and cyclist wait times at vehicle intersections can be lengthy and can deter shoppers from accessing major suburban shopping precincts by these methods. It is recommended that a comprehensive study be undertaken to determine options for improving pedestrian crossings at controlled intersections located adjacent to shopping centres.



Key Walking Area 3

Natural Bushland Areas

3.1 Background

The City of Joondalup is located within the South Western Australia International Biodiversity Hotspot, meaning that the region is recognised internationally for its biodiversity assets. Many City trails offer walking or cycling through diverse natural settings of bushland reserves.

Five natural bushland areas (shown in Appendix 4) in the City have been selected for this Key Walking Area. These areas represent substantial bushland reserves containing native populations of both vegetation and fauna.

1. Craigie Open Space
2. Warwick Open Space
3. Lilburne Reserve
4. Shepherds Bush Reserve
5. Hepburn Heights Conservation Area.

3.1.1 Craigie Open Space

Craigie Open Space is located west of the Mitchell Freeway, north of Whitfords Avenue, south of the Beenyup Wastewater Treatment Plant and is close to Whitfords Bus and Train Station. It covers approximately 50 hectares of land. Craigie Leisure Centre is situated at the bushland's southern edge and there is residential development on the western side. The easiest way to access the area is from the car park and road near Craigie Leisure Centre, or via the steps and gate linking to the adjacent residential area.

3.1.2 Warwick Open Space

Warwick Open Space is on the south-eastern border of the City of Joondalup. Its boundaries are formed by Wanneroo Road to the east, Beach Road to the south, Erindale Road to the west (with Centro Warwick Shopping Centre on the corner of Erindale Road and Beach Road) and Warwick Road to the north. The bushland area is bisected by Lloyd Drive and contains Warwick Senior High School (west of Lloyd Drive), Warwick Leisure Centre, sporting clubs and car parking (east of Lloyd Drive). Whilst the total area of Warwick Open Space is approximately 60 hectares, about one-third of the space is given over to active uses. Warwick Open Space has been identified by the State Government as an area of regional significance and designated as a Bush Forever site.

3.1.3 Lilburne Reserve

Lilburne Reserve covers an area approximately five hectares in size. Its northern boundary is Hepburn Avenue, and Lilburne Road runs along its western boundary. Duncraig Fire Station is located on Hepburn Avenue and is within the Reserve. There are residential areas to the east and west of the bushland and a small shopping area to the south. Duncraig Senior High School is adjacent to its south-west boundary.

3.1.4 Shepherd Bush Reserve

Shepherds Bush Reserve covers approximately 15 hectares in size. It is surrounded by residential development, with Shepherds Bush Drive forming a boundary along the western side, Newhaven Place on the north, and Barridale Drive on the east. Robertson Road Cycleway forms its southern boundary. The reserve contains a small BMX area in its south-eastern corner and a small playground in the northern section.

3.1.5 Hepburn Heights Conservation Area

Hepburn Heights Conservation Area is located to the north of Hepburn Avenue, with the Avenue forming its southern boundary. It is abutted by residential development to the east, and Padbury Catholic Primary School and residential streets to the west. A reservoir forms the northern boundary. The area covers approximately 22 hectares.

3.2 Key Trails

A number of Key Trails exist throughout the five natural bushland areas. Some of these Key Trails are paved; however, many are made of limestone or other materials. In some cases, the Key Trails link up with broader cycle/walking path networks. The Key Trails and a brief description of each are listed in Table 3.2.

Table 3.2 Key Trails for the five Natural Bushland Areas

Route	Description
Key Trail 1	<p>Craigie Open Space</p> <p>A large number of internal trails (covering over 5 kilometres) circuit or cross Craigie Open Space. Two major trails exist, one which follows the external boundary/firebreak around the circumference of a large fence and the other which follows the internal loop trails inside the fence.</p>
Key Trail 2	<p>Warwick Open Space</p> <p>Trails run through the north-west corner and the southern half of Warwick Open Space. The bushland is divided by a road, Warwick Leisure Centre (including sporting grounds) and Warwick Senior High School, producing three different zones in the bushland.</p>
Key Trail 3	<p>Lilburne Reserve</p> <p>There are two main limestone pedestrian paths at Lilburne Reserve. There is also an informal track. The existing paths in Lilburne Reserve are sufficient for the amount of usage the area receives. The paths in Lilburne Reserve are mostly used by pedestrians, dog walkers and a few cyclists. Lilburne Reserve can be used as a thoroughfare to Hepburn Conservation Area.</p>
Key Trail 4	<p>Shepherd Bush Reserve</p> <p>Shepherds Bush Reserve is crossed by limestone paths which meet at intersections in the middle of the area. The Reserve is well-suited to pedestrians and cyclists with the trails connecting to the Robertson Road Cycleway which traverses the southern section of the reserve linking with urban dwellings. (The Cycleway runs from Lake Goollelal (to the east of the reserve) to Greenwood Bus and Train Station (to the west)).</p>
Key Trail 5	<p>Hepburn Heights Conservation Area</p> <p>Hepburn Heights Conservation Area contains a small number of internal limestone trails. The area is well-suited to pedestrians and cyclists with a number of points of interest located along the pathways. The Bushland is connected to public transport (bus) via Hepburn Avenue.</p>

3.3 Community Feedback

From the City-wide public survey, respondents were asked to provide general comments about the five natural bushland areas:

- Many respondents were not aware of the location(s) of Warwick Open Space, Lilburne Reserve, Shepherds Bush Reserve and Hepburn Heights Conservation Area.
- Respondents who are familiar with Craigie Open Space indicated concern about the feral-proof fence at Craigie Open Space and expressed uncertainty about access if and when the fence is closed in the future (particularly dog owners). A lack of signage along tracks also appears to make orientation difficult. Some respondents also stated concerns about the risk of fire.
- Respondents who are familiar with Warwick Open Space noted the lack of signage, seating and lighting.
- Respondents who are familiar Lilburne Reserve also noted the lack of signage, seating and lighting.
- Respondents who are familiar with Shepherds Bush Reserve believed the pathways to be “hilly”, making cycling difficult.
- Respondents who are familiar with Hepburn Heights Conservation Area stated that the bushland had limited amenities and that paths were not suitable for cyclists.

3.4 Condition Audits

Condition audits were conducted of the Key Trails for the five natural bushland areas utilising the Department of Transport's Walkability Audit Tool and informed by Top Trails Western Australia's assessment criteria for inclusion as a "Top Trail". The condition audits are shown in Tables 3.4(a) to 3.4(b).

Table 3.4(a) Condition Audit for the Key Trails of Craigie Open Space
(Ratings: 1 = unsatisfactory, 2 = unsatisfactory but acceptable, 3 = satisfactory)

Walkability element	Rating	Comment
Aesthetics and amenities	1	Management decisions on future site use will determine the level of infrastructure development on-site.
Pathways – condition	1–3	Trails are crushed limestone. The condition of the external Trail around the boundary needs improving.
Pathways – connections	1	The gates near Craigie Leisure Centre provide an unwelcoming entry to the bushland. There is a feral-proof fence, double gates, and signs warning people not to enter due to fire risk. Access points need improving to allow easy flow between the external and internal sections of the bushland.
Pathways – ease of use	1	The steps leading down to the bushland from the entrance on the western side are steep and would cause difficulties for some people, particularly those with bikes.
Pathways – obstructions	1	There are fences obstructing both Trails.
Pathways – width	N/A	Trails are between 3–5 metres.
Personal safety	1	It should be noted that the presence of the feral proof fence may be a real or perceived safety concern for visitors.
Signage	1	No navigation signage exists within the bushland.
Street furniture	1	No seats or water are available in the bushland.

Table 3.4(b) Condition Audit for the Key Trails of Warwick Open Space
(Ratings: 1 = unsatisfactory, 2 = unsatisfactory but acceptable, 3 = satisfactory)

Walkability element	Rating	Comment
Aesthetics and amenities	1	Graffiti is present on the seating. Some signage is old, out of date and difficult to read. Rubbish was found scattered along the pathways at the time of audit.
Pathways – condition	2–3	Works are to be completed to improve the current condition of crushed limestone paths. A dual-use path to connect schools and recreational facilities to external areas is needed.
Pathways – connections	1	Trails through the bushland lack connectivity and are disorientating for visitors. A walk/cycle trail network needs to be established to connect all sections of the bushland, providing visitors with both short and long trail options. The Trails need to be clearly marked, indicating access points, crossing points and directional information along the way.
Pathways – ease of use	2–3	The access points along the external boundary of the bushland are unclear. Improvements to access points utilising crime prevention through environmental design principles are required.
Pathways – obstructions	2	The majority of the pathways were free of obstruction.
Pathways – width	3	Trails are between 2–5 metres.
Personal safety	1	See Pathways – ease of use above.
Signage	1	The installation of new orientation signage with detailed maps at main access points is needed, as is directional signage along the route to indicate loops. Preference should be given to areas with the highest standard of pathway.
Street furniture	1	Graffiti should be removed from existing seating, and additional seating provided in sections of the bushland. Water fountains could be installed at the main entrance points to the bushland or within loop trails.

Table 3.4(c) Condition Audit for the Key Trails of Lilburne Reserve
(Ratings: 1 = unsatisfactory, 2 = unsatisfactory but acceptable, 3 = satisfactory)

Walkability element	Rating	Comment
Aesthetics and amenities	2	Some rubbish was found at the site at the time of the audit.
Pathways – condition	2–3	Trails are crushed limestone and are of fairly good condition.
Pathways – connections	2	The bushland is used as a short-cut to Duncraig Senior High School, but the crossing over Lilburne Road requires improvement.
Pathways – ease of use	1–2	The bushland is used as a short-cut to Duncraig Senior High School, but the crossing over Lilburne Road requires improvements to increase useability.
Pathways – obstructions	3	The majority of the pathways are free of obstructions.
Pathways – width	3	Trails are between 3–5 metres.
Personal safety	2–3	The crossing over Lilburne Road giving access to the bushland needs attention.
Signage	1	There are no maps in this bushland. Signage requires installing.
Street furniture	1	No seating exists in this bushland. Seating is needed in the internal section.

Table 3.4(d) Condition Audit for the Key Trails of Shepherds Bush Reserve
(Ratings: 1 = unsatisfactory, 2 = unsatisfactory but acceptable, 3 = satisfactory)

Walkability element	Rating	Comment
Aesthetics and amenities	3	The bushland area was mostly free of rubbish and graffiti at the time of the audit.
Pathways – condition	3	The Trails are constructed with a crushed limestone base and are only suitable for walking and slow bike riding
Pathways – connections	3	Access to the reserve from Barrisdale Drive would benefit from pedestrian crossing points.
Pathways – ease of use	2	See comment above under Pathways – condition. The Robertson Cycleway provides a good environment for cycling.
Pathways – obstructions	3	Pathways were free of obstructions.
Pathways – width	3	Trails are between 2–3 metres.
Personal safety	3	No obvious safety hazards were identified during the audit.
Signage	2	No maps exist in this bushland. The installation of minimal interpretive signage would increase visitors' understanding of and appreciation for species in the area.
Street furniture	2	There is need for additional seating in the internal section of the bushland and water fountains in the central area of the bushland near the children's playground.

Table 3.4(e) Condition Audit for the Key Trails of Hepburn Heights Conservation Area (Ratings: 1 = unsatisfactory, 2 = unsatisfactory but acceptable, 3 = satisfactory)

Walkability element	Rating	Comment
Aesthetics and amenities	1	A razor-wire fence protects the reservoir.
Pathways – condition	1–3	The trails are crushed limestone, and their condition varies. Some sections are highly degraded and in need of improvement.
Pathways – connections	1	Pedestrian access gates are needed at all vehicle access points. At one entrance, visitors are required to enter between the fence and a locked vehicle gate. The installation of a dual-use path, linking the eastern and western sides of the park, would improve trail linkages with the primary school. The establishment of a loop trail connecting existing pathways is also suggested. The north-eastern section of the bushland needs a path to allow connectivity throughout (an unofficial path has been closed off along this section).
Pathways – ease of use	1	See comment under Pathways – condition.
Pathways – obstructions	2	At one entrance, a fence is placed too close to a locked vehicle gate to allow easy access.
Pathways – width	3	Trails are between 3–5 metres.
Personal safety	1	The lack of detailed directional signage may cause users of the area to feel unsafe.
Signage	1	Existing orientation signage is degraded and distorted, and in need of replacement. There is no signage at intersections.
Street furniture	1	There is one seat, which is has graffiti.

3.5 Recommendations

Recommendation 20

Develop and install a Bushland Signage System in accordance with the City's overarching *Signage Strategy*.

Description:

Wayfinding signage in the five natural bushland areas is sparse and does not adequately meet the needs of pedestrians and cyclists. It is recommended that a comprehensive Bushland Signage System be installed to assist users of the Key Trails.

Recommendation 21

Maintain existing internal and external trails to meet trail useability and accessibility standards.

Description:

Useability and accessibility of Key Trails in natural bushland areas are important factors related directly to visitation. It is recommended that existing internal and external Key Trails are maintained to meet trail useability and accessibility standards.

Recommendation 22

Review bushland trail designs to include a network of short and long looped trails for visitors to natural bushland areas.

Description:

The City's natural bushland areas contain abundant flora and fauna which draw numerous visitors. In order to enable easy and accessible pedestrian movements through these areas, a review of bushland trail designs is recommended, including short and long looped trails to cater for different age and ability levels.

Recommendation 23

Review bushland trail linkages with surrounding pathway networks to improve access for all users.

Description:

Access into some Natural Bushland Areas is difficult and inconsistent. A review of bushland trail linkages with surrounding pathway networks is recommended to improve accessibility standards.

Recommendation 24

Review access points to natural bushland areas utilising "crime prevention through environmental design" (CPTED) principles.

Description:

The principles of crime prevention through environmental design rely on the ability to influence offender decisions that precede criminal acts by enhancing the perceived risk of being caught; and hence, deterring criminal activities. A review of access points to natural bushland areas is recommended utilising crime prevention through environmental design principles.

Recommendation 25

Identify a suitable location within Warwick Open Space for the installation of a dual-use pathway to connect surrounding schools and recreation facilities to the area.

Description:

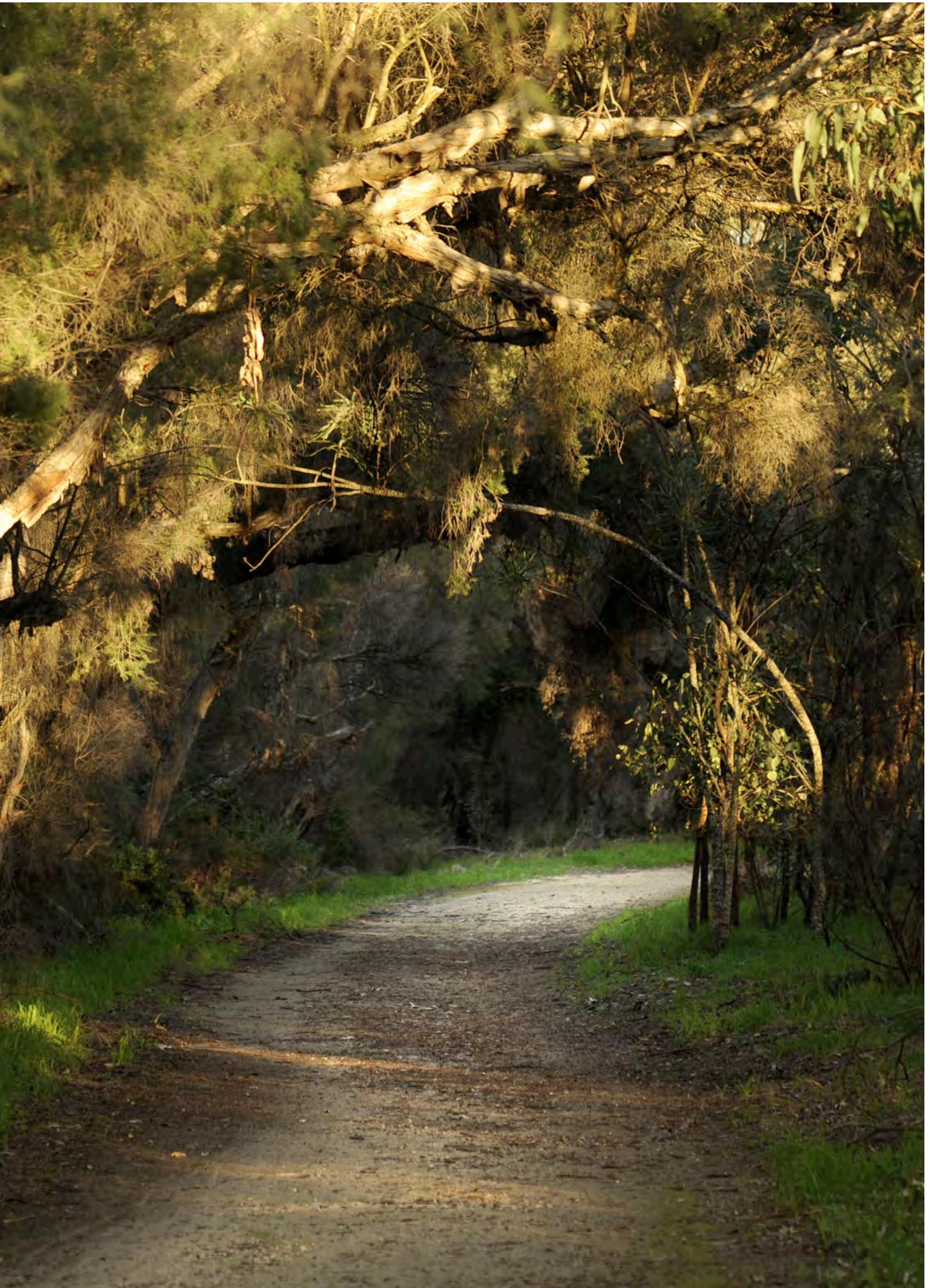
Warwick Open Space is poorly connected to the surrounding schools and neighbouring sporting facilities. Identification of suitable location(s) within the Open Space for the installation of dual-use pathway is recommended to enable better linkages through the bushland.

Recommendation 26

Establish a dual-use pathway within Hepburn Heights Reserve to enable improved usability of the area by walkers and cyclists.

Description:

Hepburn Heights Reserve is poorly connected to the surrounding school and residential area. Establishment of a dual-use pathway within the Reserve is recommended to enable better linkages through the bushland.



Key Walking Area 4

Yellagonga Regional Park

4.1 Background

Yellagonga Regional Park is an area of natural, cultural and recreational significance. It sits within the boundaries of both the City of Joondalup and the City of Wanneroo and stretches from Joondalup Drive/Burns Beach Road in the north to Hepburn Avenue in the south. The Park contains a chain of four, relatively distinct wetland areas: Lake Joondalup, Beenyup Swamp, Walluburnup Swamp and Lake Goollelal.

This Key Walking Area (shown in Appendix 5), offers a network of dual-use paths for walking and cycling, as well as dedicated walking trails. It is an ideal place for leisure and recreation and is easily accessible by walking, cycling and public transport. The Regional Park is approximately 13 kilometres long, 1.5 kilometres wide and covers approximately 1,400 hectares.

4.2 Key Trails

A number of Key Trails exist throughout Yellagonga Regional Park. Currently, individual trails circle Lake Joondalup, Beenyup Swamp and Lake Goollelal, and there is a partially built route around Walluburnup Swamp. The route on the west side of Walluburnup Swamp is accessed via Duffy Terrace, much of which is constrained by private ownership. The completion of the route around Walluburnup Swamp on its east side (largely in the City of Wanneroo) is under construction by the Department of Environment and Conservation and is planned for completion in 2012/13. In the near future there will be a complete route around each of the four wetland areas. In addition to the four circular routes there are three link-routes between them. The link-routes require trail users to walk on public footpaths located within the City of Joondalup. Much of the Regional Park area containing the Key Trails is within the jurisdiction of the Department of Environment and Conservation, whilst other parts lie within the jurisdiction of the Cities of Joondalup or Wanneroo. The Key Trails and a brief description of each are listed in Table 4.2.

Table 4.2 Key Trails for Yellagonga Regional Park

Route	Description
Key Trail 1	<p>Joondalup Drive to Viewing Platform</p> <p>Follow the shared path south from Joondalup Drive, passing through magnificent stands of Tuart, Jarrah and Marri trees. The walk concludes at the Viewing Platform, an elevated area which provides fantastic lake vistas.</p>
Key Trail 2	<p>Beenyup Swamp Circuit</p> <p>Start at the northern entry point to the Park off Woodvale Drive and take the limestone path over the boardwalk amongst Flooded Gum and Freshwater Paperbark stands. Continue along the limestone path over the bridge and veer left. Turn left at the shared path and continue along for 800m and veer left onto the limestone path and continue back to Woodvale Drive, the starting point.</p>
Key Trail 3	<p>Lake Goollelal Circuit</p> <p>Starting at Reverend John Smithies Park, follow the shared path south along Woodlake Retreat and enter the Park. Continue to Hepburn Avenue and turn right.</p> <p>Continue along Hepburn Ave for 300m and then turn right into the Park. Follow the path north as it takes you through stands of Marri trees, Freshwater Paperbarks and Bull Banksias. You will pass the Lake Goollelal Viewing Platform on the right, continue north to Hocking Road and turn right.</p> <p>Follow Hocking Rd for 180m and then turn right into a limestone path at Reverend John Smithies Park. Continue along Lakeway Drive to the car park.</p>
Key Trail 4	<p>Neil Hawkins Park to Ocean Reef Road And Return</p> <p>Start at Neil Hawkins Park jetty. Head south from Neil Hawkins Park on the shared path – watch for the array of native birds which can be found inhabiting these trees, and a variety of waterbirds on Lake Joondalup.</p> <p>After 2.5km, arrive at Picnic Cove Park which offers picnic shelters, barbeques and play equipment.</p> <p>Continue to cycle a further 1.9km to Ocean Reef Rd before turning around to return to Neil Hawkins Park.</p>

Sourced from *Your Travelsmart Guide to Yellagonga*

4.3 Community Feedback

From the City-wide public survey, respondents were asked to focus their comments on the Key Trails around Lake Joondalup and Lake Goollelal (within the City of Joondalup boundaries).

- In the Lake Joondalup area respondents noted the unsealed section of the trail at Picnic Cove Park and the lack of signage to the cycle-path detour. There was significant support for the completion of the Lake Joondalup Trail. Other comments were made on the speed of cyclists, dogs being off the leash and the lack of lighting. Some people noted difficulties in crossing Ocean Reef Road, the lack of signage to streets leading to the trails, as well as limited amenities such as toilets and drinking fountains.
- Commentary on the Lake Goollelal Trails focused on the lack of readily-available information. Respondents stated that they did not know much about the area. Some respondents noted that it was difficult to access on foot; others stated that they would use it if they knew more about it.

4.4 Condition Audits

Condition audits were conducted of the Key Trails of Yellagonga Regional Park utilising the Department of Transport's Walkability Audit Tool and informed by Top Trails Western Australia's assessment criteria for inclusion as a "Top Trail". The condition audits are shown in Table 4.4.

Table 4.4 Condition Audit for the Key Trails of Yellagonga Regional Park
(Ratings: 1 = unsatisfactory, 2 = unsatisfactory but acceptable, 3 = satisfactory)

Walkability element	Rating	Comment
Aesthetics and amenities	2	Amenities, such as drinking fountains and appropriately-placed seating, are limited.
Pathways – condition	3	The majority of the Trails are in excellent condition, although there are places where sand and soil has washed over the pathways after heavy rain.
Pathways – connections	2-3	Bent steel directional signs (installed by the Department of Environment and Conservation) exist at some intersections on the Trails. These are not easily visible from all directions, nor do they have the capacity to provide directions for all possible routes. Some directions are not sign-posted. A missing link needs to be completed to create a shortcut for cyclists on the Lake Joondalup dual-use path around Picnic Cove Park. (Cyclists are prohibited from entering Picnic Cove Park.)
Pathways – ease of use	2-3	The missing link mentioned in Pathways – connections above causes a 50 metre break in the Lakeside Trail for cyclists travelling around Lake Joondalup on the dual-use path.
Pathways – obstructions	3	The majority of the pathways are clear of obstructions.
Pathways – width	3	In most locations the pathway is of suitable width for use by walker and cyclists.
Personal safety	2	There is no assisted road crossing for the new section of the Trail over Whitfords Avenue.
Signage	1-2	The existing map of the Regional Park requires updating. Six interpretive signs have been installed in the Neil Hawkins Park area and they are of excellent quality. Maps in the information huts require updating. There is no map in the information hut at Neil Hawkins Park.
Street furniture	2	There is only one existing marked drinking fountain on the Trail (at Neil Hawkins Park) Elsewhere there are few places where drinking water is available. There are a number of seats within the Regional Park, some better positioned than others, but most leave sitters exposed to the elements. Seating should be located at scenic points of interest, at the tops of climbs and at regular intervals along pathways. It is recommended that they are located every kilometre (12–15 minutes walk apart), enabling people to rest on the longer parts of the trail.

4.5 Recommendations

Recommendation 27

Review the trail network within Yellagonga Regional Park, in partnership with the Department of Environment and Conservation and the City of Wanneroo, to target opportunities to encourage useability and install missing linkages.

Description:

Yellagonga Regional Park is a large bushland area and is co-managed by the Cities of Joondalup and Wanneroo and the Department of Environment and Conservation. It is recommended that the trail network within the Park be reviewed in partnership with all organisations vested with managing the land to ensure a comprehensive and coordinated approach.

Recommendation 28

Review the trails linkages between Yellagonga Regional Park and the surrounding pathway network to improve access for all users.

Description:

Some Key Trails within Yellagonga Regional Park have poor linkages with the surrounding pathway network. This makes it difficult for pedestrians, and especially cyclists, to maintain continuous access. A review of the linkages between the Key Trails of Yellagonga Regional Park and the surrounding pathway network is recommended to improve accessibility for both pedestrians and cyclists.

Recommendation 29

Identify key points for the installation of drinking fountains within Yellagonga Regional Park Key Trails.

Description:

A lack of drinking fountains may be deterring users of Key Trails within Yellagonga Regional Park, particularly pedestrians. Identification of key points for the installation of drinking fountains is recommended to attract more long-term visitors to the Park.

Recommendation 30

Develop and install a Yellagonga Park Trail Signage System in accordance with the City's overarching *Signage Strategy*.

Description:

Current signage in Yellagonga Regional Park is sporadic and incomplete. In partnership with the Department of Environment and Conservation and the City of Wanneroo, development and installation of comprehensive wayfinding signage is recommended for Yellagonga Regional Park.



Key Walking Area 5

Sunset Coast

5.1 Background

The Sunset Coast Trail is already listed as a “Top Trail” for walking and cycling in Western Australia. This Key Walking Area (shown in Appendices 6 and 7) extends from the southern suburb of Munster (City of Cockburn), to Burns Beach. The 14 kilometre section within the City of Joondalup includes the coastline from Marmion to Burns Beach. The Trail is an easy, half-day cycle that contains many highlights, including Hillarys Marina, Marmion Marine Park and various forms of coastal vegetation. The official start point for the Trail is located in Marmion.

5.2 Key Trail

The Sunset Coast contains just the one Key Trail which runs along the entire stretch of coastline. This Key Trail, including a brief description is listed in Table 5.2.

Table 5.2 Key Trail for Sunset Coast

Route	Description
Key Trail 1	<p>Sunset Coast Trail</p> <p>The southern part of this Key Trail runs alongside West Coast Drive from Beach Road to Tenerife Boulevard. This appears to be the most heavily used part of the Key Trail. The proximity of this part of pathway to the road presents issues with competition between pedestrians and cyclists, and between them and adjoining road and public space users. This southern section represents approximately 25 per cent of the length of the pathway. The rest of this Key Trail is largely separated from the parallel roads, either by a fence or by coastal dunes. Heading north from Hillarys, the Trail passes through the busy area of Mullaloo and Tom Simpson Park, and then on to Ocean Reef Marina. North from Ocean Reef Road there are numerous access pathways linking the Key Trail to nearby roads (and residential areas) parallel to the coastline.</p>

5.3 Community Feedback

From the City-wide public survey, respondents were asked to provide general comments about the Sunset Coast.

- Respondents noted actual and potential conflict between pedestrians and cyclists on the Key Trail; and between cyclists, pedestrians, mobility scooter users and drivers wishing to cross the Key Trail to enter car parks.
- Some respondents stated that there were a limited number of maps and signage.
- Some respondents believed there was limited shade and limited drinking fountains.

5.4 Condition Audit

A condition audit was conducted of the Key Trail utilising the Department of Transport’s, Walkability Audit Tool and informed by Top Trails Western Australia’s assessment criteria for inclusion as a “Top Trail”. The condition audits are shown in Table 5.4.

Table 5.4 Condition Audit for the Key Trails of Craigie Open Space
(Ratings: 1 = unsatisfactory, 2 = unsatisfactory but acceptable, 3 = satisfactory)

Walkability element	Rating	Comment
Aesthetics and amenities	2	Drinking fountains are limited along the Key Trail, especially on the northern section, and could be installed where public toilets (and associated plumbing) already exist. Seating for the northern section is also limited.
Pathways – condition	3	The majority of the Trail is in excellent condition. There were places where sand and debris (e.g. glass) were observed on the Trail.
Pathways – connections	2	Whilst there is ample signage for drivers into the car parks, there are a number of pedestrian/cyclist access links to the main Trail with no indication of direction or distance. Similarly, there are a number of trail intersections with no clear indication of where the intersecting sections lead.
Pathways – ease of use	1-2	Centre-line marking, which indicates the ongoing direction of the Key Trail and the side access pathways, is inconsistent. In some places, where the Key Trail intersects the pathways, it is difficult to identify the direction of the Trail.
Pathways – obstructions	2-3	The presence of a small number of bus stop indents, and associated bus stop posts, in the Trail lane impinge upon the ease-of-use for people travelling south on the Key Trail. These have the potential to cause conflict or difficulties between pedestrians/cyclists and people alighting from buses.
Pathways – width	3	The trail is generally of a good width in most locations.
Personal safety	1-2	Traffic speeds along certain parts of West Coast Highway (where the bus stop indents are located) is high. In addition there is a lack of assisted road crossings on roads adjacent to the Key Trail. Users of the Trail do not have right-of-way where certain car park entrances intersect.
Signage	1	There is limited wayfinding signage for pedestrians and cyclists along the length of the Key Trail. Where signage does exist the design and information is inconsistent. Some signage is aged and requires replacing. There are also 12 interpretive signs illustrating the biodiversity of the coast; these are of high quality. It is recommended that signage at car park entrances be installed to give pedestrians priority over drivers.
Street furniture	1-2	The supply of seating is sufficient along the Key Trail, although some is located too close to the Trail to be safe for either the person occupying the seat or the Key Trail user.

5.5 Recommendations

Recommendation 31

Undertake a study to assess conflict points along the Sunset Coast Trail and determine appropriate measures to ensure accessibility and safety of users.

Description:

Due to the popularity of the Sunset Coast Key Trail, usage is very high. This has created conflict, particularly at car park entrances, pathway intersections and bus stop indents. It is recommended that a study be undertaken to assess identified conflict points along the Key Trail and determine appropriate measures to ensure accessibility and safety of both pedestrians and cyclists.

Recommendation 32

Install drinking fountains at key sites along the Sunset Coast Trail where drinking water is already available.

Description:

A lack of drinking fountains may be deterring users of the Sunset Coast Key Trail, particularly pedestrians. Identification of key points for the installation of drinking fountains is recommended to attract more visitors and cater for those pedestrians/cyclists already using the Key Trail.

Recommendation 33

Undertake a review to ensure seating along the Sunset Coastal Trail is located appropriately to ensure greater pathway useability.

Description:

Along the Sunset Coast Key Trail, seating is placed at regular intervals. Whilst the existing supply is sufficient, some are poorly located (many being too close to the pathway). A review of seating placements is recommended to ensure all seating is located appropriately to enhance the useability of the Key Trail and provide an adequate stopping point for users.

Recommendation 34

Implement a program to install bike parking racks at key sites along the Sunset Coast.

Description:

The parking needs of cyclists using the Sunset Coast Trail are not being adequately catered for. A program to install appropriate bike parking facilities at key locations along the Sunset Coast is recommended to ensure cyclists are able to safely park their bikes close to amenities and attractions (e.g. toilets, cafés, beaches, etc.)

Recommendation 35

Develop and install a Sunset Coast Trail Signage System in accordance with the City's overarching *Signage Strategy*.

Description:

Some signage does currently exist along the Sunset Coast Key Trail, much of which is informative and aesthetically pleasing. However, there are some portions of the Key Trail where signage is inconsistent. The development and installation of a Sunset Coast Trail Signage System is recommended, including infrastructure such as map-based signs, car park signs, regulatory signs and centre-line and stop-line markings.





Monitoring and Review

The recommendations within the *Walkability Plan 2013–2018* will be implemented over a five year period.

Infrastructure related projects resulting from recommendations in the *Walkability Plan 2013–2018* will be scheduled for implementation through the City's Capital Works Program. Quarterly progress reports will be prepared in accordance with the City's Corporate Reporting Framework.

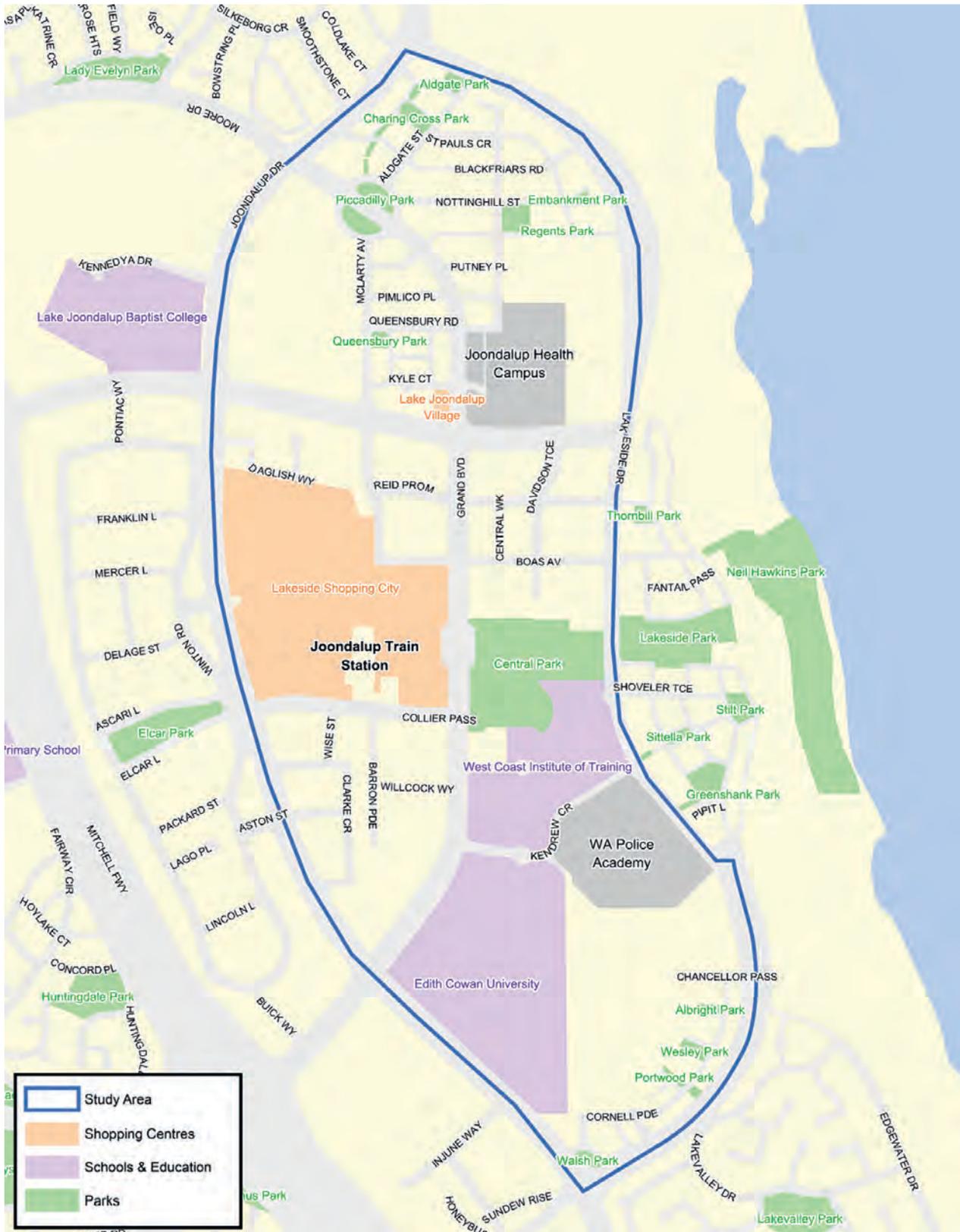
An annual review will be undertaken to monitor the progress of the implementation of the Plan with a major review being scheduled for 2017/18.



Appendices

Appendix 1

Map of Key Walking Area 1 – Joondalup City Centre



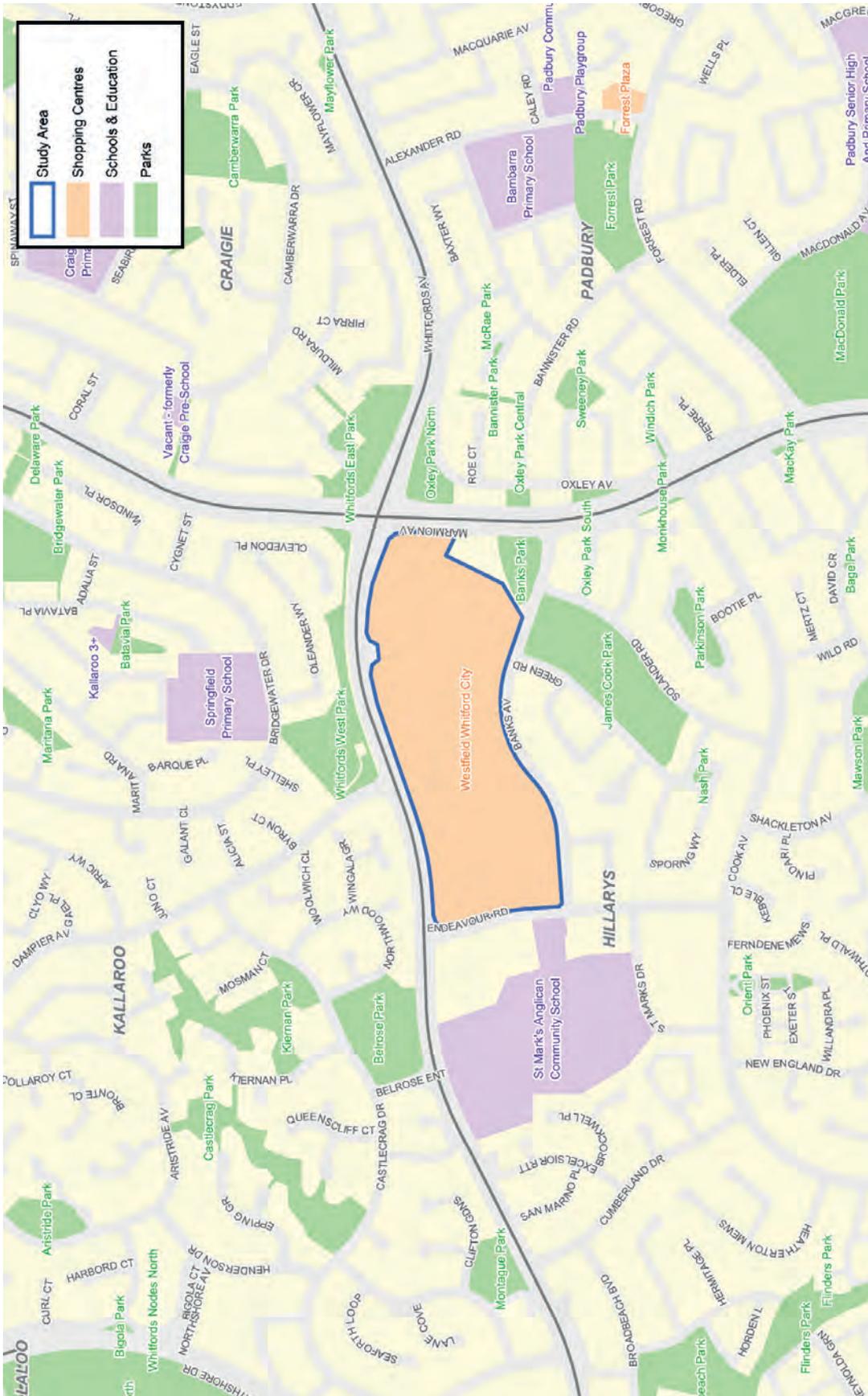
Appendix 2

Map of Key Walking Area 2(a) — Suburban Shopping Precincts (Centro Warwick Shopping Centre)



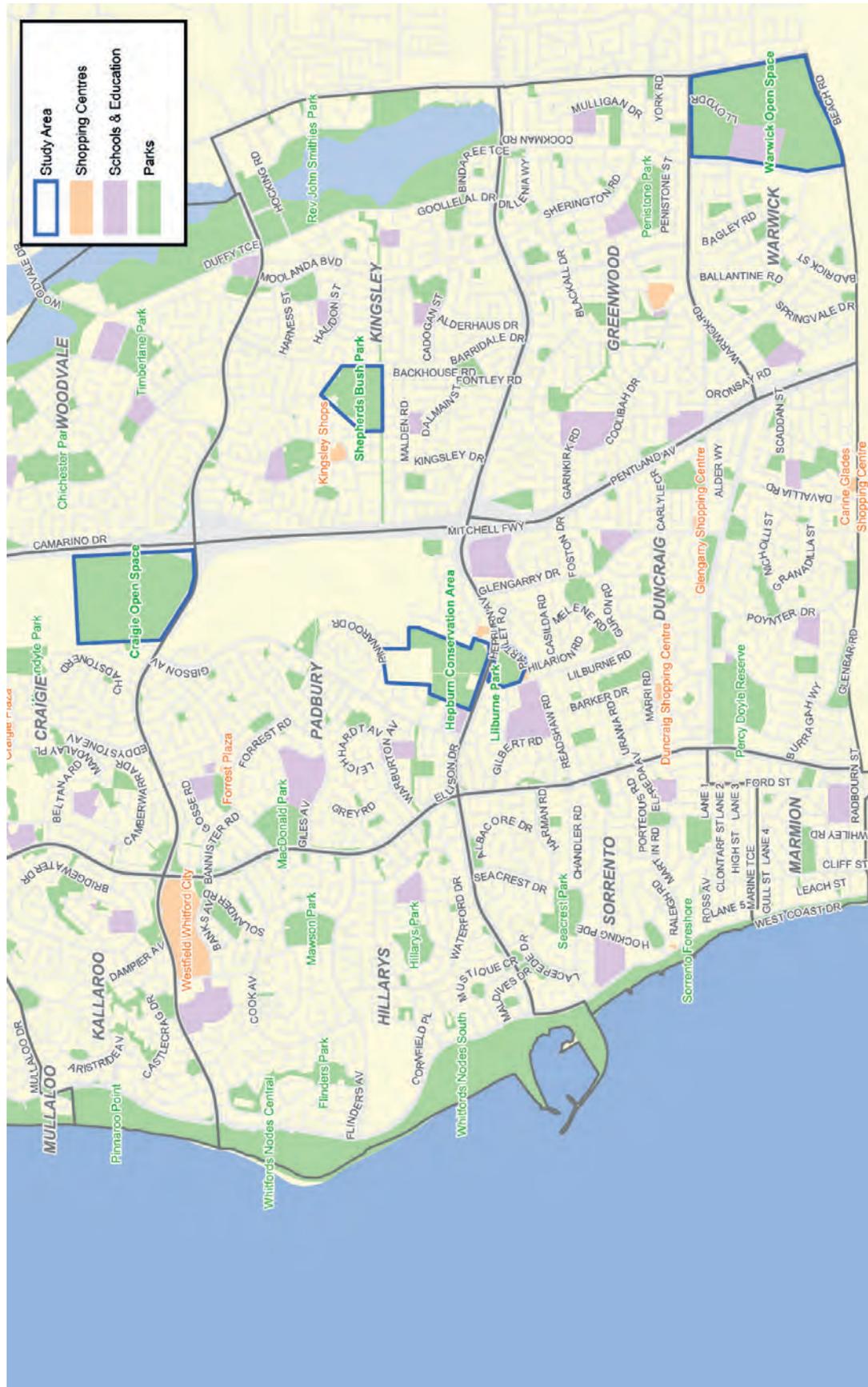
Appendix 3

Map of Key Walking Area 2(b) – Suburban Shopping Precincts (Westfield Whitford City Shopping Centre)



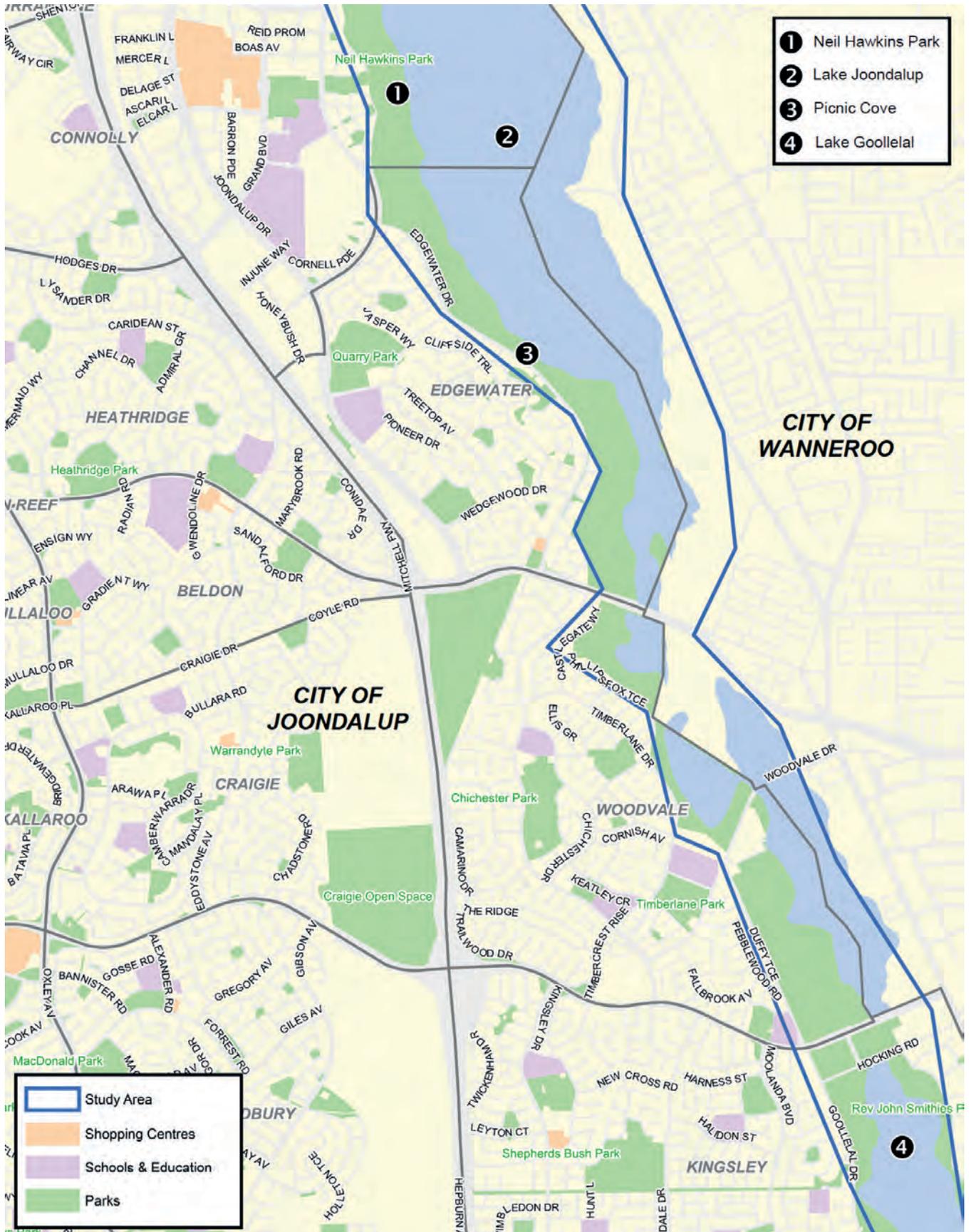
Appendix 4

Map of Key Walking Area 3 – Natural Bushland Areas



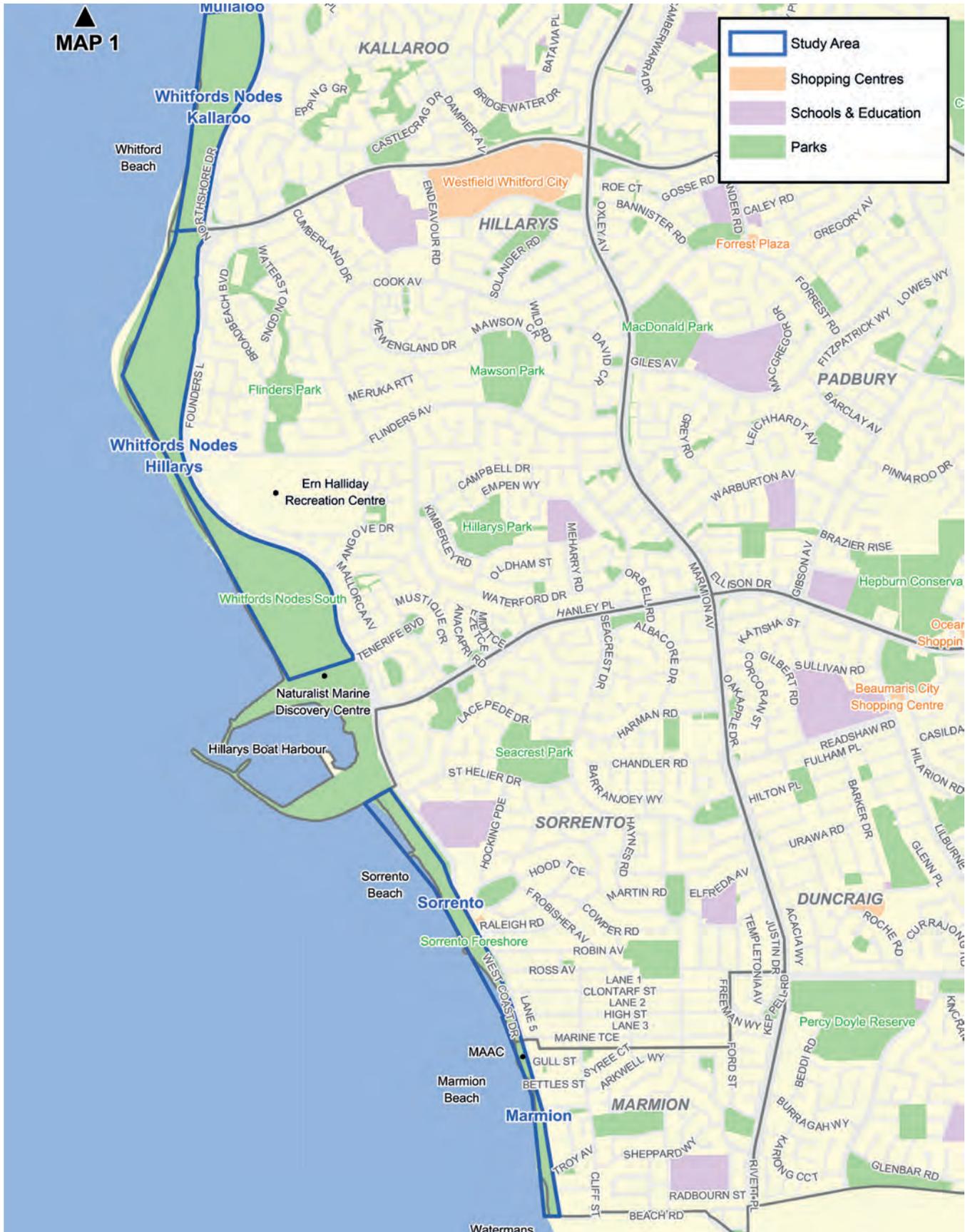
Appendix 5

Map of Key Walking Area 4 – Yellagonga Regional Park



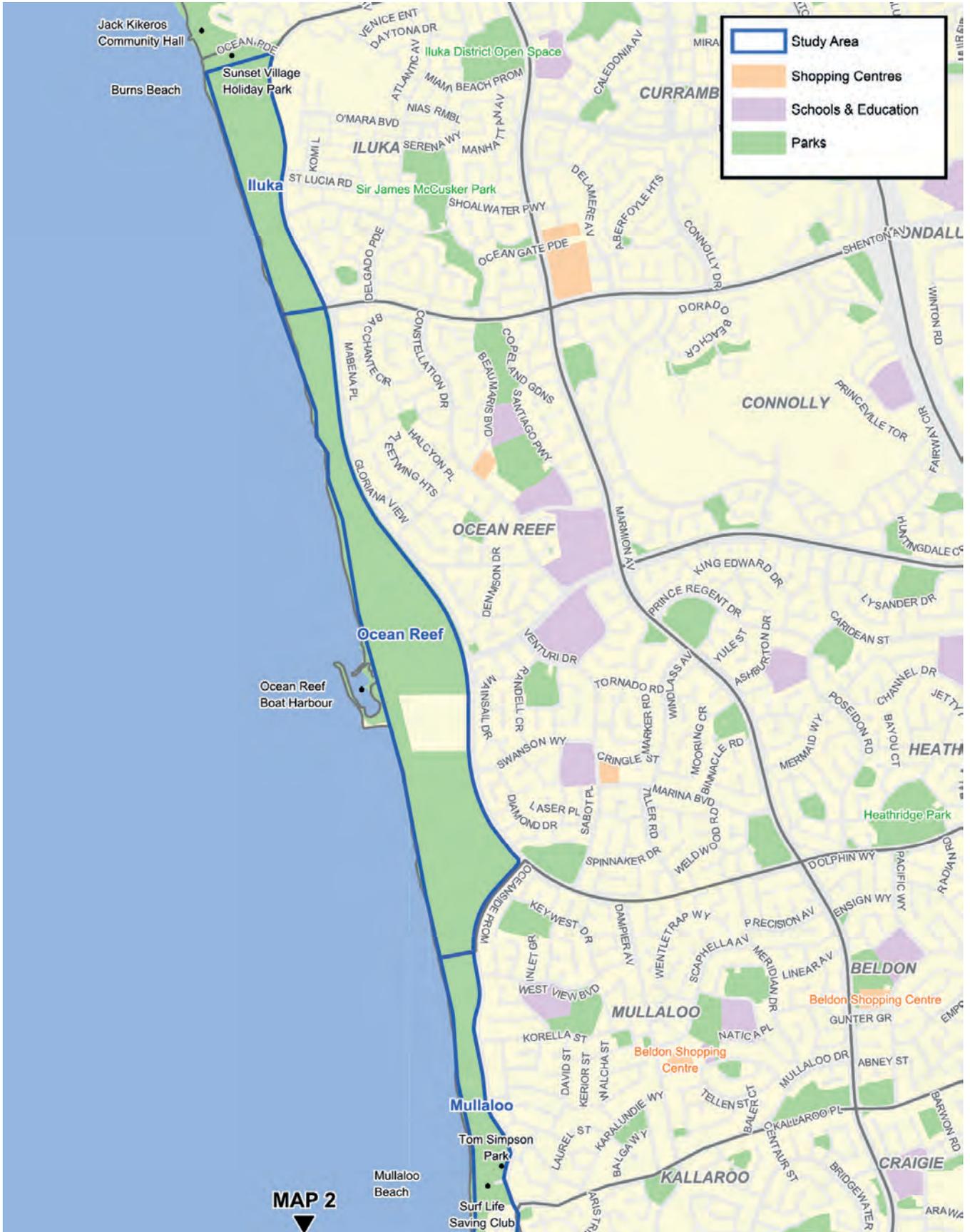
Appendix 6

Map of Key Walking Area 5(a) — Sunset Coast (north)



Appendix 7

Map of Key Walking Area 5(b) – Sunset Coast (south)



Appendix 8

Recommendations

No.	Recommendation
1	The City of Joondalup becomes a signatory to the <i>International Charter for Walking</i> .
2	Investigate “mobile optimisation” of the City of Joondalup’s website and the use of Quick Response (QR) Codes to link to the website.
3	Liaise with Main Roads Western Australia to investigate the feasibility of reducing speed limits within key areas of the City.
4	Develop a Walking and Cycling Counting Program.
5	In conjunction with the Public Transport Authority, the Department of Environment and Conservation and the City of Wanneroo, develop a program for undertaking counts of walking and cycling traffic across the City and appropriate surrounding areas.
6	Implement the Walking and Cycling Counting Program.
7	Develop a comprehensive <i>Signage Strategy</i> including pedestrian wayfinding to improve access and walkability within the City of Joondalup City Centre and the trails within the City’s natural areas.
8	Support major Joondalup City Centre stakeholders in developing individual Travel Access Guides.
9	Install a comprehensive pedestrian wayfinding signage system in the Joondalup City Centre in accordance with the City’s overarching <i>Signage Strategy</i> .
10	Review the pathway network within the Joondalup City Centre and key surrounding nodes to target opportunities to improve useability and linkages.
11	Investigate the performance of key vehicle and pedestrian intersections within the Joondalup City Centre to determine the best shared outcome.
12	Install tactile ground indicators at all traffic-light crossings throughout the Joondalup City Centre.
13	Investigate options for developing a continuous path of travel for all entrances across the Joondalup City Centre.
14	Undertake a continuous path of travel project within a major Joondalup City Centre car park to develop requirements for future applications
15	Investigate methods and costs of flood-proofing through a functionality assessment of underpasses throughout the City.
16	The City of Joondalup supports Centro Warwick Shopping Centre and Westfield Whitford City Shopping Centre to improve the availability of walking and cycling information to assist visitors to the Shopping Centres.
17	Review the pathway network associated with key nodes outside of the Joondalup City Centre to target opportunities to improve useability and linkages.
18	Undertake a study to assess pedestrian access and road crossability to determine the best shared outcome for key nodes throughout the City.
19	Undertake a study to determine options for improving pedestrian crossings at controlled intersections located adjacent to shopping centres.
20	Develop and install a Bushland Signage System in accordance with the City’s overarching <i>Signage Strategy</i> .
21	Maintain existing internal and external trails to meet trail useability and accessibility standards.
22	Review bushland trail designs to include a network of short and long looped trails for visitors to natural bushland areas.
23	Review bushland trail linkages with surrounding pathway networks to improve access for all users.
24	Review access points to natural bushland areas utilising crime prevention through environmental design principles.
25	Identify a suitable location within Warwick Open Space for the installation of a dual-use pathway to connect surrounding schools and recreation facilities to the area.
26	Establish a dual-use pathway within Hepburn Heights Reserve to enable improved usability of the area by walkers and cyclists.

No.	Recommendation
27	Review the trail network within Yellagonga Regional Park, in partnership with the Department of Environment and Conservation and the City of Wanneroo, to target opportunities to encourage useability and install missing linkages.
28	Review the trails linkages between Yellagonga Regional Park and the surrounding pathway network to improve access for all users.
29	Identify key points for the installation of drinking fountains within Yellagonga Regional Park Key Trails.
30	Develop and install a Yellagonga Park Trail Signage System in accordance with the City's overarching <i>Signage Strategy</i> .
31	Undertake a study to assess conflict points along the Sunset Coast Trail and determine appropriate measures to ensure accessibility and safety of users.
32	Install drinking fountains at key sites along the Sunset Coast Trail where drinking water is already available.
33	Undertake a review to ensure seating along the Sunset Coastal Trail is located appropriately to ensure greater pathway useability.
34	Implement a program to install bike parking racks at key sites along the Sunset Coast.
35	Develop and install a Sunset Coast Trail Signage System in accordance with the City's overarching <i>Signage Strategy</i> .

Appendix 9

Glossary

active transport	Relates to physical activity undertaken as a means of transport. This includes travel by foot, bicycle and other non-motorised vehicles. Use of public transport is also included as “active transport” as it often involves some walking or cycling to pick-up and from drop-off points.
continuous path of travel	A continuous, unobstructed pathway between all accessible elements and areas of a building, including corridors, ramps, and elevators.
crime prevention through environmental design	An urban design strategy that relies upon the ability to influence offender decisions that precede criminal acts by enhancing the perceived risk of being caught; and hence, deterring criminal activities.
end-of-trip facilities	Facilities useful for the end of a cycle trip (e.g. bike parking, toilets, change rooms etc.)
pedestrians	Pedestrians include all non-vehicular mobility (including the use of, for example, wheelchairs, guide dogs or other mobility aids).
tactile ground indicator	Textured ground surface indicators that can be installed on pathways, stairs and train station platforms to assist blind and vision impaired pedestrians.
walkability	A measure of the effectiveness of community design in promoting walking and cycling as alternatives to driving cars to reach shopping, schools, and other common destinations.
wayfinding	The ways in which people orient themselves in physical space and navigate from place to place.

Appendix 10

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