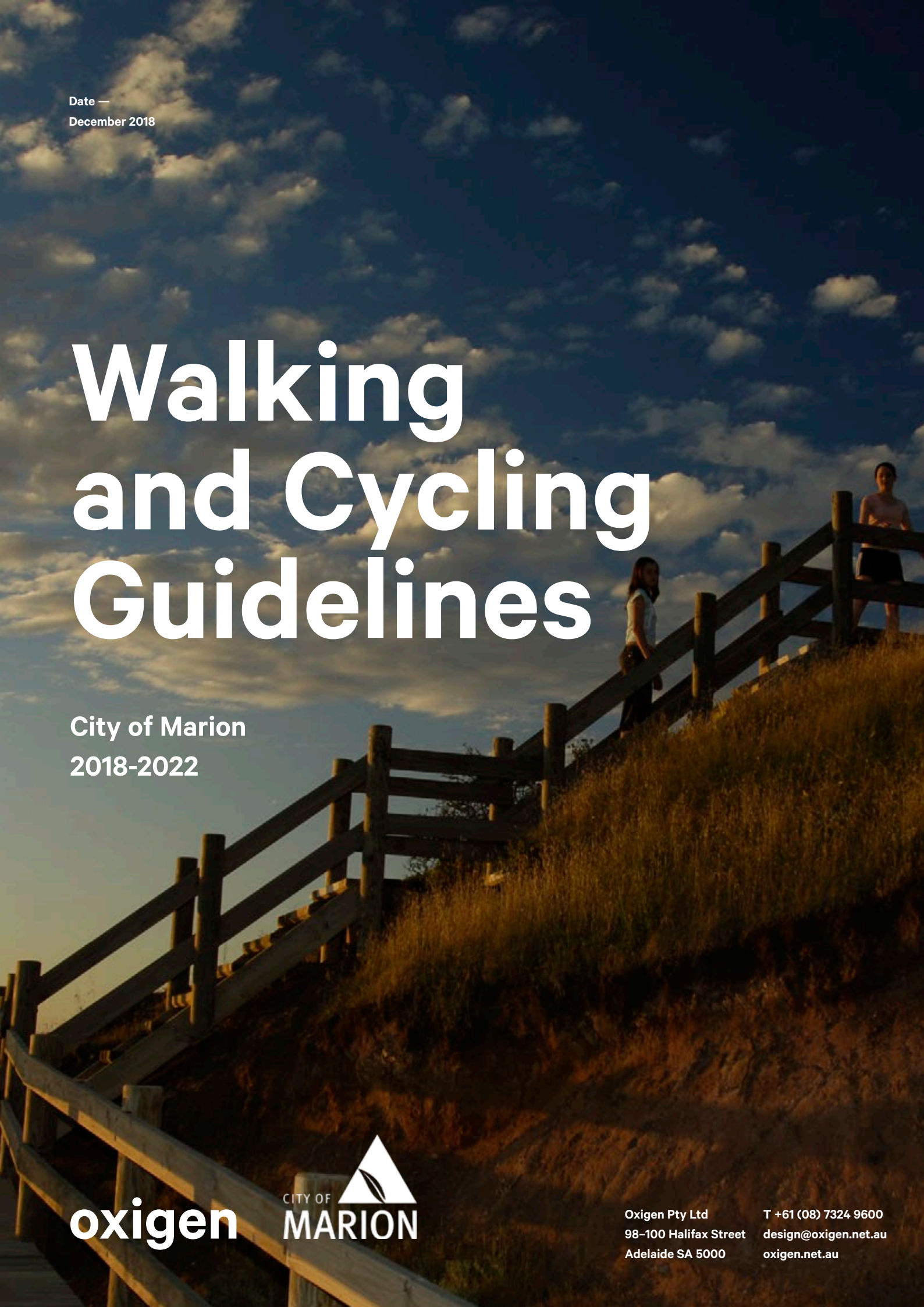

Date —
December 2018

Walking and Cycling Guidelines

City of Marion
2018-2022

oxigen

CITY OF MARION

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Acknowledgements —

This review of the Walking and Cycling Guidelines was commissioned by the City of Marion under the direction of the Project Steering Group:

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G	December 2018	Oxigen 2018

Prepared For —
City of Marion

Contents

Marino Rocks Greenway

Introduction

Overview

This is an aspirational document that details options for improving the walking and cycling network in the City of Marion.

Walking and cycling encourages healthy and active lifestyles, reduces traffic congestion and supports environmental sustainability.

These guidelines describe the benefits of walking and cycling to the community, environment and economy and outline relevant policies, best practices and case studies.

With rising obesity levels, concerns about climate change and dependency on cars, the *Walking and Cycling Guidelines* are a positive vision for the City of Marion.

Background

Since the Second World War, the City of Marion has experienced significant growth and expansion of low-density development structured on car-based transport. Most 'greenfield' land in the city has been developed, and now future growth is focused on infill, transit corridor focused development and urban renewal.

The 30-year Plan, and other key policy documents, promote walking and cycling as sustainable transport modes. Providing supportive environments for walking and cycling, such as safe street networks and connected parks, is essential for active and healthy urban living.

Railway Terrace, Ascot Park (Marino Rocks Greenway)

Structure of this Document

Part 1. Value of Walking and Cycling

— Describes the range of benefits gained from walking and cycling.

Part 2. Vision for Walking and Cycling

— Sets out a clear vision for walking and cycling in the City of Marion.

Part 3. Setting the Scene

— Summarises the City of Marion's character, destinations, key routes, demographics, policy context and major projects.

Part 4. Existing Walking and Cycling Network

— Evaluates the existing walking and cycling network, including key assets, how they perform and barriers to walking and cycling. Achievements in the previous Walking and Cycling Strategy 2012-2017 are described.

Part 5. Best Practice and Case Studies

— Reviews different pedestrian and cycle path options to provide a 'tool-box' of best practice solutions that may be applied within the City of Marion.

Part 6. Recommendations

— Sets out strategies to improve walking and cycling in the City of Marion.

Part 7. Implementation

— Summarises the actions and priorities for delivering an improved walking and cycling environment.

About the Guidelines

The City of Marion defines a connected city at the heart of its strategic planning and decision-making agenda (City of Marion Community Vision > Towards 2040). These Walking and Cycling Guidelines play a key role in delivering Council's goals and supporting connected neighbourhoods.

The guidelines provide direction for ongoing improvement of walking and cycling in the City of Marion. As the urban structure of the City of Marion is essentially determined, the primary method for delivering walking and cycling improvements is through 'retro-fitting'. This includes ensuring walking and cycling is a key component in the planning of future developments and projects (for example, currently consideration is given to projects associated with electrification of the metropolitan rail network, cycling 'Greenways', Tonsley Innovation District, Oaklands Crossing and Oaklands Park transit corridor, and Darlington Upgrade Project and Flinders Link).

These guidelines contain the 'building blocks' for walking and cycling. They inform future developments and strategic planning decisions whilst providing guidance for walking and cycling initiatives into Council urban planning, projects and budget considerations. Collaborative planning with neighbouring Councils and State Government to connect communities is considered.

These guidelines use the terms walking and cycling in their broadest sense. They are inclusive of wheelchairs, prams, mobility scooters and other similar devices, as well as skateboards, kick scooters, rollerblades and the like. It also includes walking and cycling for recreation, fitness and commuting purposes.

These guidelines are intended to guide Council over the next four years (2018-2022).

Minchinbury Terrace, Marion

Purpose of the Guidelines

These guidelines are intended for use by the City of Marion in collaboration with the State Government, other councils, developers and the community, to:

— Provide an appreciation of the benefits of walking and cycling.

— Evaluate existing walking and cycling networks and conditions to assess their adequacy in operation, connectivity, safety, comfort and amenity.

— Propose a walking and cycling network that enhances connected communities and social inclusion.

— Form part of Council's focus on achieving a more integrated and sustainable transport network promoting walking and cycling as viable transport alternatives.

— Provide Council with information that helps assist in assessing existing and future State Government-led transport strategies.

— Deliver strategies for improving the function and amenity of walking and cycling, and reinforce connected transport and recreation options.

— Coordinate planning and delivery of walking and cycling infrastructure.

— Develop long-term management plans for renewing and upgrading Council roads, footpaths and cycle infrastructure.

— Plan for maintenance and management of walking and cycling networks.

— Develop strategies for promotion, education, advocacy and support of walking and cycling.

Mike Turtur Bikeway and 'Which Way' artwork by CHEB Art

Marion Coastal Walk

Part 1

Value of Walking and Cycling

Value of Walking and Cycling

Walking and cycling benefits people and places.

People who participate in walking and cycling are rewarded through improved health and social wellbeing.

Places that offer good walking and cycling opportunities contribute to a healthy community and robust economy.

- Almost 5 out of 10 Australian adults do not meet the recommended guidelines for daily physical activity.[1]
- 8 of 10 Australian children do not meet the recommended guidelines for daily physical activity. [2]
- If no further action is taken to slow the growth of obesity then there will be 2.4 million more obese people in 2025 than in 2011-12 and $87.7 billion in additional costs[3]

1 Australian Bureau of Statistics, 2015
2 Active Healthy Kids Australia: Report Card on Physical Activity for Children and Young People, 2016
3 PWC: Weighing the Cost of Obesity: A Case for Action, 2015

Cost-benefit Examples

Investment in walking and cycling makes economic sense. More and more research is showing evidence that walking and cycling results in significant economic benefits, particularly in the area of health (refer diagram, bottom-right).

— Results indicate that the Queensland economy could expect almost $5 in economic benefits for every $1 invested in cycling infrastructure. **Economic return based on population data, user profiles and path typology.*

Source: Economic Benefits of Cycling Infrastructure At The Program Level, AITPM National Conference, 2017

— A benefit-cost comparison for selected infrastructure projects show for every $1 invested in bicycle infrastructure there are positive returns to the economy of between $3.80 - $7.40 (refer diagram right). This includes quantifiable benefits and costs.

Source: Queensland Government, State of Cycling Report, 2017

— The 2013 monetary value of the health benefits of walking is $2.77 per km and the monetary value of the health benefits of cycling is $1.40 per km for Australian adults aged 18 years and older.

Source: Transport and Infrastructure Council, M4 Active Travel, 2016

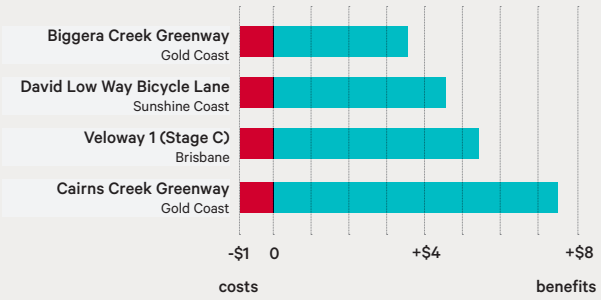
— The NSW Government Premier's Council for Active Living (PCAL) commissioned a study for developing a cost benefit methodology of walking. The methodology estimates that switching 5% of Sydney Metro daily car trips of under 1km to walking would save $134 million over five years.

Source: PWC, Estimating the Benefits of Walking, 2010

— Walk Score is an online interface that measures the walkability of any address. Walk Score aims to make it easier for people to evaluate walkability and transportation when choosing where to live. Houses with the above-average levels of walkability command a premium from $4,000 to $34,000 over houses with just average levels of walkability in the typical metropolitan areas studied.

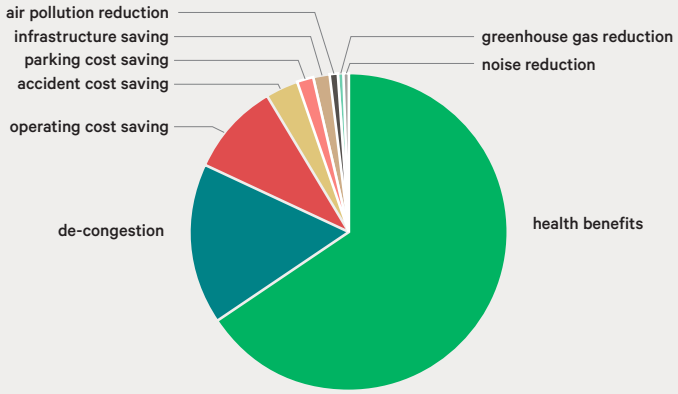
Source: CEO'S For Cities, Walking the Walk, 2009

Example Cost-benefit of Bicycle Infrastructure



Source: Queensland Government, State of Cycling Report, 2017

Possible Distribution of Benefits from Walking



Source: PWC, Estimating the Benefits of Walking, 2010

Refer also:

— Cycling Promotion Fund, Economic Benefits of Cycling for Australia, 2008
— Heart Foundation, Good for Business, 2011
— Victoria Transport Policy Institute, Evaluating Active Transport Benefits and Costs, 2017
— Victoria Transport Policy Institute, Economic Value of Walkability, 2017

Benefits of Walking and Cycling

Health

Research estimates about 65% of the overall benefits of walking are related to health (PWC, Estimating the Benefits of Walking, 2010).

In Australia, walking is the most popular form of regular exercise. Cycling is also popular. Australians are increasingly becoming less active and more overweight, posing significant health risks and increased pressure on public health services (Heart Foundation, Blueprint for an Active Australia, 2014).

Providing a supportive urban environment to encourage walking and cycling in the community. A key part of this is overcoming the barriers that discourage walking and cycling.

Improving public transport (trains, trams and buses) is important as it often involves walking or cycling to and from bus stops and stations.

Walking and cycling:

- Improves general health.
- Lowers blood pressure and improves heart health.
- Reduces weight and obesity levels.
- Improves mental health and wellbeing.
- Improves fitness.
- Increases life expectancy by reducing the risk of heart disease and stroke through improving conditions like high blood pressure, high cholesterol and diabetes.
- Reduces joint and muscular stiffness and pain.
- Increases happiness by reducing stress.
- Reduces stress and depression.

Social

Walking and cycling helps build communities by activating our streets and encouraging social interactions.

It increases our knowledge of local areas and people in the community. Walking and cycling movements are conducive to making connections with people through a nod, smile or greeting.

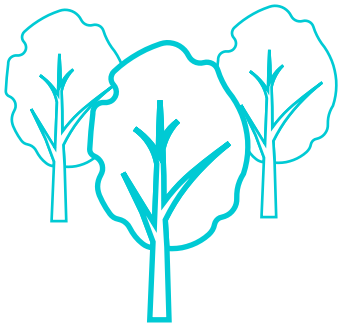
Connected communities are safe as more people out are and about providing passive surveillance of streets and parks.

The inclusive nature of walking and cycling means that everyone receives the rewards of improved health and social wellbeing. In particular, children and the elderly can gain greater independence.

Walking and cycling:

- Increases social interaction.
- Supports community life and more active and interesting streets.
- Reduces crime through passive surveillance.
- Increases road safety, with research showing increased street activity slows vehicles and increases driver alertness.
- Reduces traffic congestion.
- Enhances community pride through tactile experiences of place.
- People walking and cycling make environments safer and more enjoyable, and encourages others to do the same.

Environment



The environmental benefits of walking and cycling are largely related to shifts away from other transport modes. Moving from car-based transport reduces congestion and carbon emissions, whilst improving air-quality and local amenity.

Walking and cycling can connect with public transport for longer journeys that would normally be taken by car. This is important for the City of Marion given its distance from the Adelaide City CBD.

The combined environmental benefits of reducing noise and greenhouse gas emissions, and improving air quality equates to around 5.9 cents per km walked or cycled (SKM and PWC, Benefits of Inclusion of Active Transport in Infrastructure Projects, 2011).

Walking and cycling:

- Are sustainable transport options.
- Do not produce air-pollutants, noise pollution or carbon emissions.
- Increases local amenity by reducing the number of vehicles.

Associated infrastructure, such as appropriate street trees, provide shade, biodiversity and amenity.

Economy

Walking and cycling has many economic benefits and helps alleviate the societal and economic costs related to poor health, traffic congestion and carbon emissions.

At an individual level, walking and cycling is financially rewarding – being a low-cost alternative to the car.

Research demonstrates that connected communities which are pedestrian and cycle friendly boost local businesses. The findings show people who walk and cycle to shops are more likely to stay longer, visit more often and spend more money (Heart Foundation, Blueprint for an Active Australia, 2014). People who walk and cycle are more likely to shop in their local area, supporting jobs and revenue.

Investments in walking and cycling infrastructure are shown to increase the value of nearby residential and commercial properties, and sustain local retail areas and attract new small businesses.

Walking and cycling:

- Reduces economic costs related to poor health, including fewer sick days, and reduces pressure on public health services.
- Reduces congestion for quicker travel times and the number of road accidents.
- Improves urban quality.
- Improves local retail trade.
- Infrastructure is more efficient to maintain compared to roads.
- Has no parking, petrol, car repair and insurance costs.
- Infrastructure can increase the value of residential and commercial properties nearby.

Part 2

Vision for Walking and Cycling

Vision for Walking and Cycling

The City of Marion aims to provide infrastructure to support walking and cycling as an attractive and viable option for recreation and transport.

How walking and cycling aligns with the City of Marion Community Vision - Towards 2040.

Liveable

Where the viable use and amenity of walking and cycling environments is improved by the provision of shady street trees, planting and public art; where streets function as places that contribute toward community life.

Valuing Nature

Where walking and cycling provisions support community connection and interaction with the natural environment with resulting benefits to local flora and fauna.

Engaged

Where integrated promotion, education and advocacy encourages and increases participation in walking and cycling with resulting benefits to community health and wellbeing.

Innovative

Where innovative planning and design facilitate walking and cycling provisions that are inclusive, viable and safe transport options.

Prosperous

Where increased walking and cycling supports local business and drives economic development in the city.

Connected

Where a continuous and integrated network of walking and cycling routes connects people and places, both within and outside of the City of Marion.

City of Marion Community Vision > Towards 2040

New Directions

To achieve this vision, the emphasis is towards public realm, transport planning and design.

Walking and cycling is more than a transport option - it is a key part of city life. Many believe the best places in the world are those that are walking and cycling friendly. Places that integrate pedestrians and bike riders are often valued as the most liveable urban communities.

This vision for the City of Marion requires consideration of an integrated approach to all forms of transportation, where the health and wellbeing of the community is prioritised. Its focus supports an emphasis towards urban infill, increasing densities and transport corridor development as described in The 30-Year Plan for Greater Adelaide 2017 Update.

Progress has been made since the City of Marion adopted its initial Walking and Cycling Strategy in 2012. Implementation of projects, including the Mike Turtur Bikeway, Marino Rocks Greenway (Railway Terrace), Coast to Vines (Patpa Drive) and Ragamuffin Drive have enhanced the network.

Planning and design for implementation of the Tonsley Greenway, Marino Rocks Greenway (from Cross Road to Sixth Avenue) and Oaklands Crossing is underway.

Sturt River Linear Park

Part 3

Setting the Scene

This section 'sets the scene' within the City of Marion, including description of its character, demographics, policy context and major projects.

Key components include:

— Description
— North and South Character
— Destinations
— Major Routes
— Major Projects
— Policy Context
— Demographics

Description

The City of Marion is located about 10km south of the Adelaide CBD, covers 55 square kms, and stretches from the Glenelg to Adelaide Tramline in the north to Hallett Cove in the south.

The City of Marion is predominantly residential in land use, with additional commercial, industrial and open space uses distributed throughout the area.

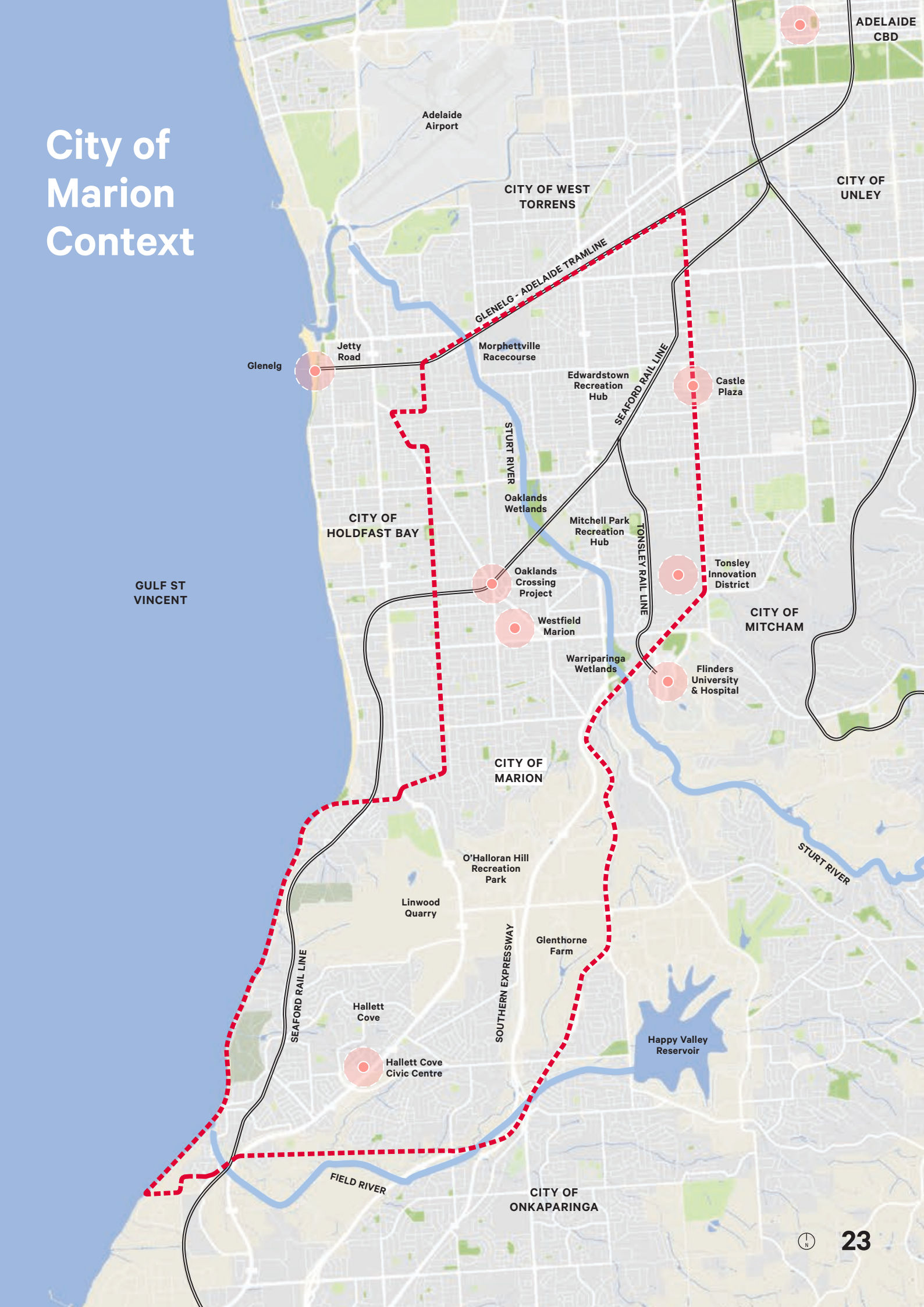
The map on the page opposite shows the council area and key features.

City Snapshot

Council area (hectares)	5,605ha
Council Length (north-south)	15km
Council Width (east-west)	4km
Distance from Adelaide CBD	5-20km
Estimated residential population (ABS, 2016)	90,602
Total (sealed) roads managed	470km
Shared-use paths (sealed)	20.75km
Footpaths	816.39km
Cycle lanes (kms)	25.71km
Walk only to work (2016, ABS) *Note: Does not include people who walk to public transport	1.4%*
Cycled to work (ABS, 2016)	0.9%
Public transport (bus, tram, train) to work (ABS, 2016)	10.8%
Households that do not have a car (ABS, 2016)	8.6%
Bus stops	528
Tram stops	8
Railway stations	13
Schools	24

Source: Profile.id, 2016

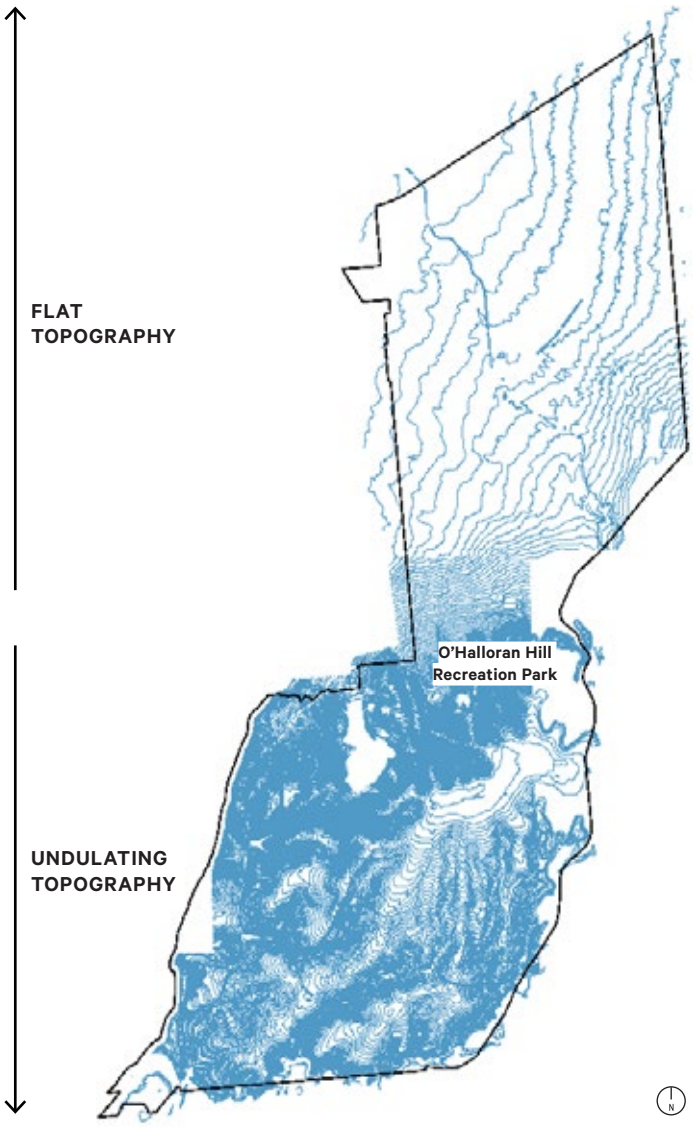
City of Marion Context



North and South Character

The City of Marion's geography presents two distinct landscape character areas (north and south) as a result of different topography and form of development. Northern suburbs were primarily developed prior to the Second World War and follow a grid pattern. The southern suburbs, such as Sheidow Park and Trott Park, have developed incrementally over the past 40 years on undulating topography resulting in a more 'organic' urban layout. The north and south are separated by O'Halloran Hill Recreation Park and Marino Conservation Park.

Approximately three-quarters of City of Marion's population lives in the northern sector of the City.



North

— Older suburbs
— Grid-pattern
— Flatter topography
— Set-back from coast
— Some mixed use development
— Less open space and reserves
— Few large street trees, some in reserves
— Industry (South Road)

South

— Newer suburbs
— Curved layout with cul-de-sacs
— Undulating topography
— Adjacent to coast
— Views to coast
— Predominantly residential land use
— More open space reserves
— Few large street trees, some large copses in reserves

NORTH

Grid Layout. Few large street trees (St Lawrence Avenue, Edwardstown is the exception). Some larger trees in reserves and backyards.

SOUTH

Curved layout with cul-de-sacs. Very few large street trees. Some larger trees located in reserves.

Destinations

Key destinations within the City of Marion include:

1. Edwardstown District Growth Precinct
   - Castle Plaza Shopping Centre
   - Edwardstown Oval Soldiers Memorial Ground
2. Oaklands Recreation Precinct
   - Oaklands Wetland
   - Oakland Recreation Plaza
   - Marion Outdoor Swimming Centre
3. Oaklands Hub Growth Precinct
   - State Aquatic and Leisure Centre
   - Marion Cultural Centre
   - Westfield Marion
4. Warraparinga
   - Living Kaurna Cultural Centre
   - Warraparinga Wetland
   - Marion Holiday Park
5. Tonsley Growth Precinct
   - Tonsley Innovation District
   - Mitchell Park Sport and Community Centre
6. Marion Growth Precinct
   - City of Marion Administration Centre
   - Cooinda Community Centre
   - Marion Sports and Community Club
7. Hallett Cove Growth Precinct
   - Cove Civic Centre
   - Hallett Cove Shopping Centre
   - Cove Sport and Community Centre
8. Hallett Cove Foreshore

Major centres

Schools and child care facilities

Key reserves / open spaces

Key sport and recreation

While located outside the City of Marion, the following destinations also influence movement patterns:

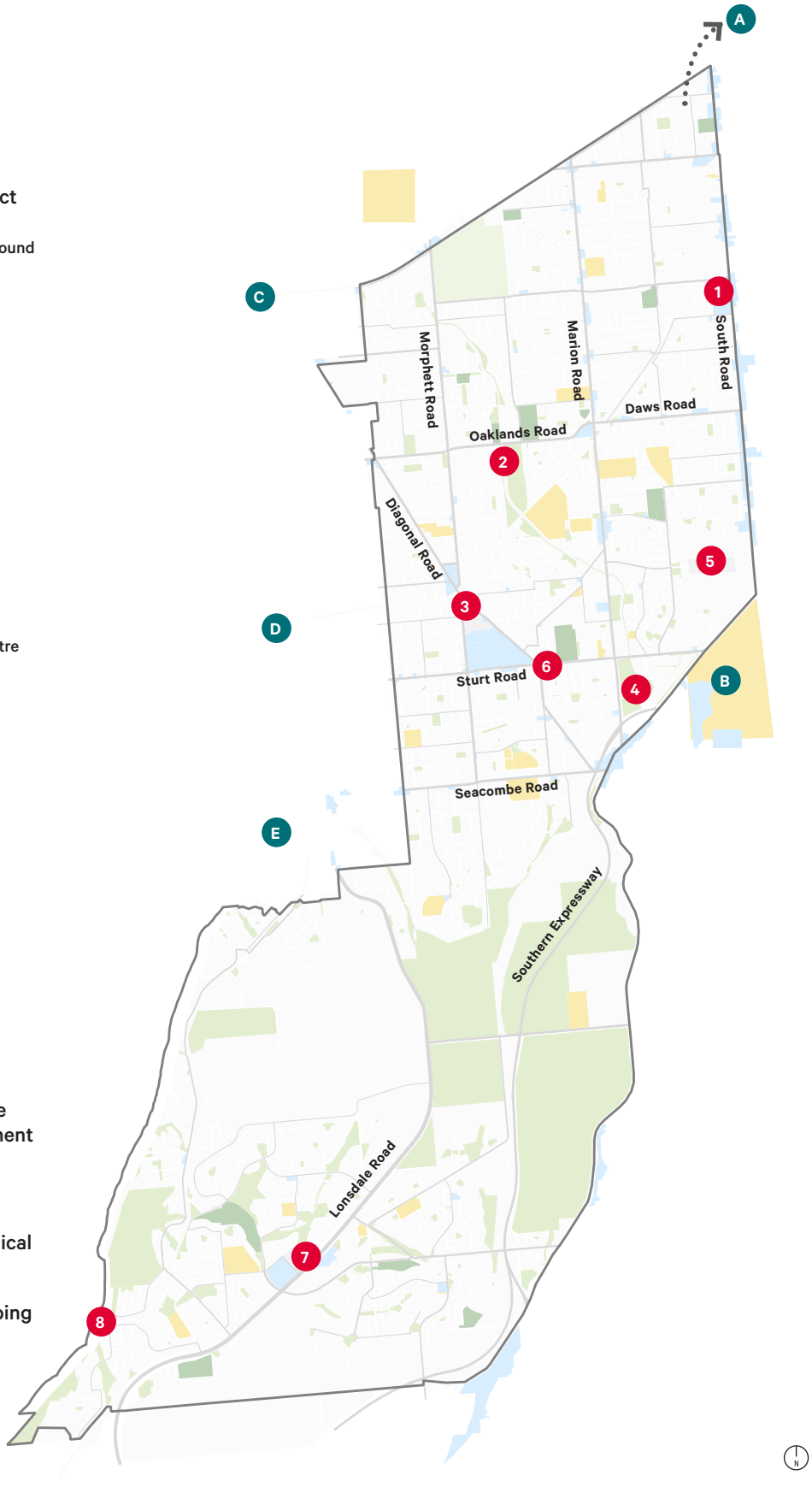
A. Adelaide CBD

B. Flinders University and Flinders Medical Centre

C. Glenelg Beach and Jetty Road Shopping Precinct

D. Brighton Beach and Jetty

E. Seacliff Beach and Brighton Caravan Park



Major Routes

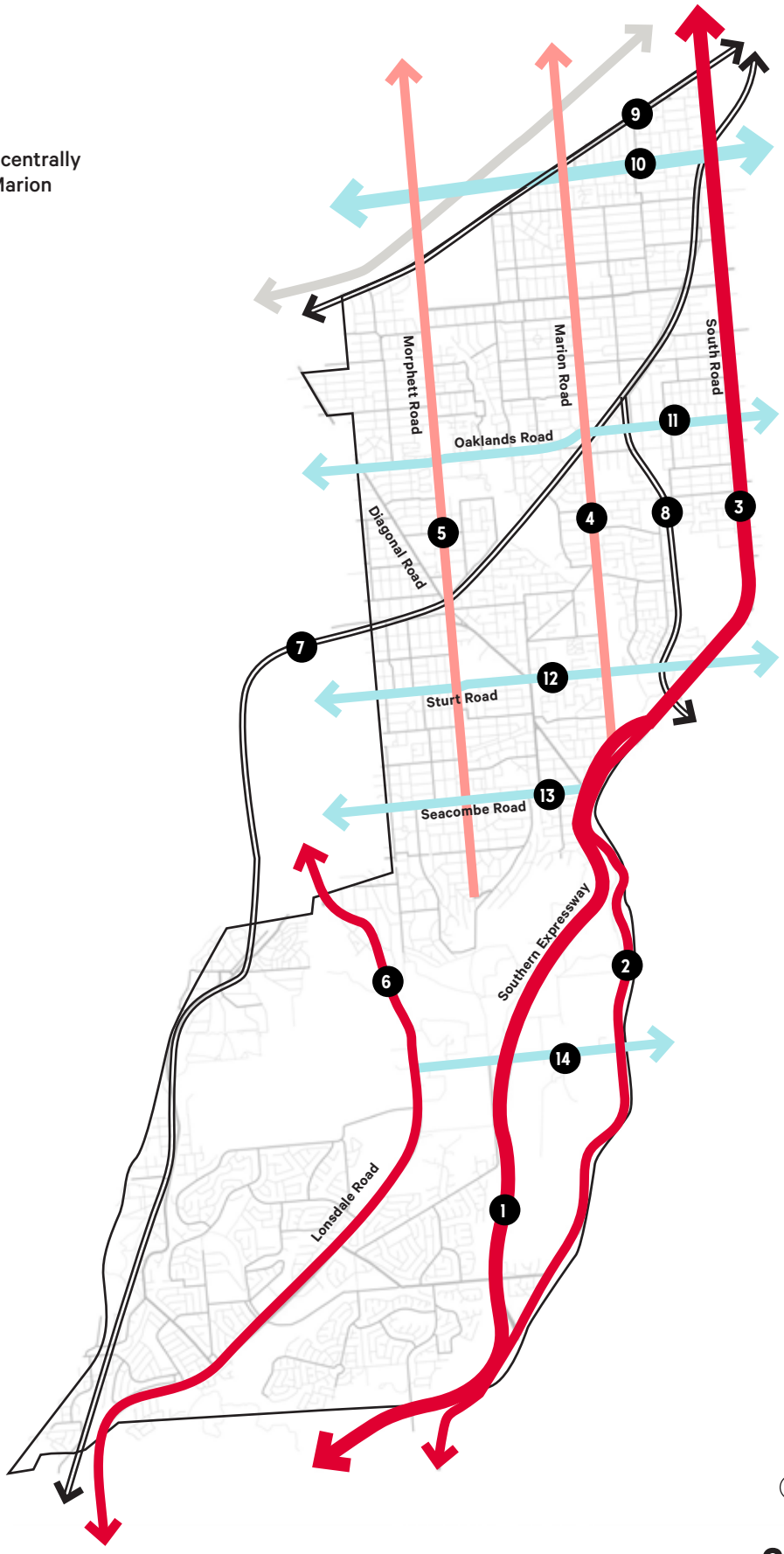
The City of Marion is located in the middle of Adelaide's southern suburbs. Like many other centrally located Local Government Areas, the City of Marion has a high proportion of through traffic.

Key north/south routes include:

1. Southern Expressway
2. Main South Road
3. South Road
4. Marion Road
5. Morphett Road
6. Ocean Boulevard / Lonsdale Road
7. Seaford Rail Line
8. Tonsley Rail Line and Flinders Link

Key east/west routes include:

9. Glenelg to Adelaide Tramway
10. Cross Road
11. Oaklands / Daws Roads
12. Sturt Road
13. Seacombe Road
14. Majors Road



Major Projects

The City of Marion is undergoing change, with a number of major projects currently in the planning and development stage. A strategic approach is required for walking and cycling connections to be efficiently planned, integrated and implemented.

Major projects currently being planned and developed in the City of Marion include:

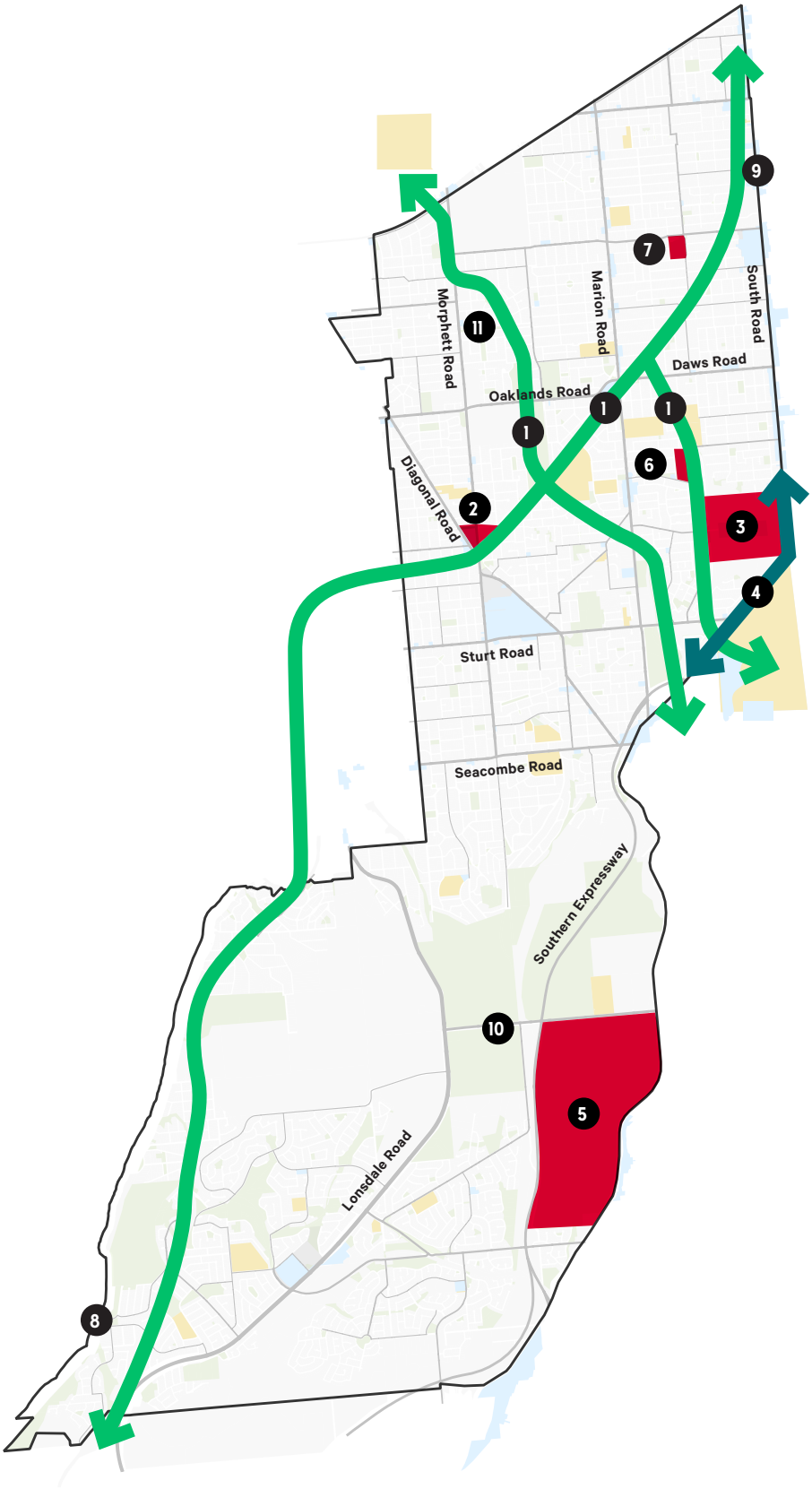
1. Greenways program for walking and cycling, including Tonsley Greenway, Marino Rocks Greenway and Sturt River Linear Park
2. Oaklands Crossing Project
3. Tonsley Innovation District
4. Darlington Upgrade Project and Flinders Rail Link
5. Planning for Glenthorne Farm
6. Mitchell Park Sports and Community Centre
7. Edwardstown Oval Soldiers Memorial Ground
8. Hallett Cove Foreshore Master Plan
9. Castle Plaza
10. Soccer Facility
11. Morphettville Park Sporting Club Re-development

Key walking and cycling considerations include:

— Connections and links being provided to the surrounding networks.

— Safe, convenient and enjoyable walking and cycling facilities.

— Appropriate input by suitably qualified transport planners, urban designers and/or landscape architects focusing on the needs of walking and cycling to DPA's.


Morphett Road
Marion Road
South Road
Daws Road
Oaklands Road
Diagonal Road
Sturt Road
Seacombe Road
Southern Expressway
Lonsdale Road
1
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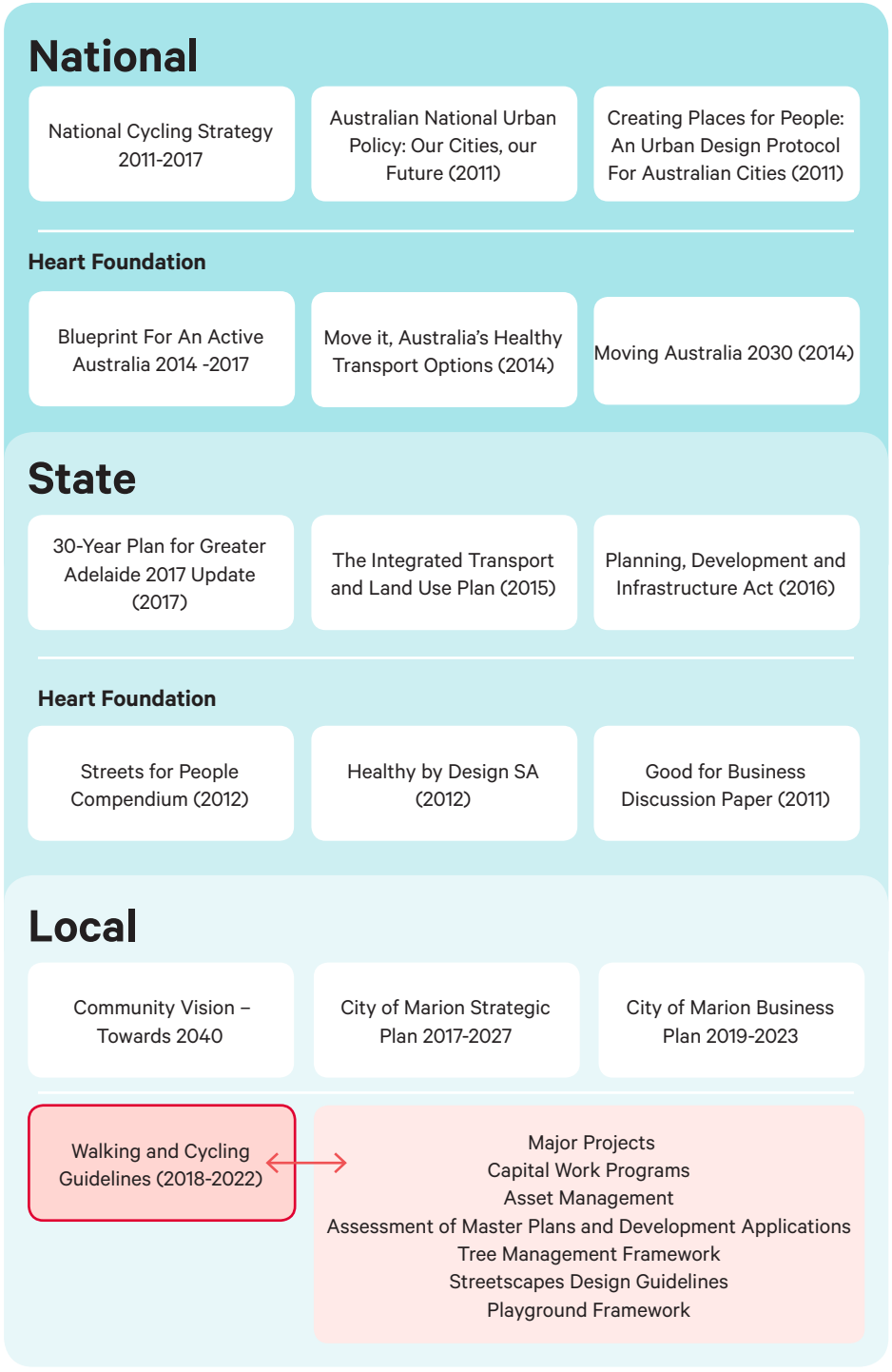
11

Policy Context

Some of the key public policies and guidelines affecting walking and cycling are summarised in the adjacent graphic.

These Walking and Cycling Guidelines:

- Coordinate and direct pedestrian and cycle movement in the City of Marion in support of the strategic goals of Council for a Connected City.
- Align with key planning documents of the South Australian Government, including The 30-Year Plan 2017 Update.
- Inform the development of local policies as well as future capital and recurring work's budgets and transport strategies.



City of Marion Business Plan 2019-2023 *(to be resolved 2019)*

National

National Cycling Strategy 2011-2017

The National Cycling Strategy 2011-17 provides a framework that identifies the responsibilities of government, community and industry stakeholders to encourage more people to cycle.

While the National Cycling Strategy was due to finish at the end of 2016, the strategy has been extended until the end of the 2017. This provides an opportunity for the Australian Bicycle Council to conduct the fourth National Cycling Participation Survey in 2017. The future national approach to cycling (and walking) will be determined in 2018.

The Strategy is underpinned by six key priorities and objectives:

1 Cycling promotion.
2 Infrastructure and facilities.
3 Integrated planning.
4 Safety.
5 Monitoring and evaluation.
6 Guidance and best practice.

Blueprint for an Active Australia 2014-2017

'Blueprint for an Active Australia' provides the information for a national physical activity plan.

The aim of the national physical activity plan is to achieve increased levels of physical activity, leading to community-wide benefits in health, the environment, social policy and the economy.

Implementation will require Federal, State and Local Governments giving priority to physical activity and supporting the community.

State

The 30-Year Plan for Greater Adelaide (2017)

The 30-Year Plan for Greater Adelaide promotes a built-form structure that focuses Adelaide's growth along transport corridors and nodes.

Key targets of the 30-Year Plan relevant to this project are:

1 Containing our urban footprint and protecting our resources.
2 More ways to get around.
3 Getting active.
4 Walkable neighbourhoods.
5 A green liveable city.

There are limited areas available for greenfields development in the City of Marion. Future growth will focus development along train and tram corridors with strategic sites identified in the 30-Year Plan for growth and re-development. These include the Tonsley Innovation District (the former Mitsubishi site) and Transit Corridor Focused Developments at Edwardstown (Castle Plaza) and Oaklands Park (Oaklands Park-Marion Centre). Higher residential densities are planned for these areas.

Designated State Government 'Greenways', including Marino Rocks Greenway and Tonsley Greenway follow rail corridors and connect transit corridor focused developments. Transit corridor focused developments, in particular, are key pedestrian focus areas and necessitate a high-level of urban quality.

The Integrated Transport and Land Use Plan (2015)

The Integrated Transport and Land Use Plan seeks to facilitate a more vibrant Adelaide and a more connected South Australia. The Plan also focuses on active transport, extending our cycling and walking networks and catchments and working to improve the attractiveness and convenience of cycling and walking. Particularly for short trips.

One of the key objectives of the plan is to boost public transport patronage, walking and cycling, reduce reliance on cars, enhance health outcomes and improve the city's liveability.

Key walking and cycling objectives identified in the plan are:

— Extend and improve cycling and walking networks.
— Expand walking/cycling catchments.
— Incorporate cycling and walking options in planning.
— Improve driver education and awareness.

Development Plan Amendments (2018)

The proposed Development Plan Amendment (DPA) aims to amend the Marion Council Development Plan to support development of a range of housing types throughout the council. The proposed DPA also anticipates the introduction of mixed use within and adjacent to activity centres and along transit corridors. The DPA is subject to ministerial review and approval.

Planning, Development and Infrastructure Act (2016)

The Planning, Development and Infrastructure (PDI) Act 2016 establishes a planning and development scheme to replace the Development Act 1993. In addition, the PDI Act 2016 provides for infrastructure planning, implementation and funding.

Key outcomes of the PDI Act affecting walking and cycling include:

— Provision for infrastructure planning, implementation and funding.
— A recognition of ecological sustainability and the needs of diverse communities within the primary object of the State's planning system.
— Engagement of the community in the setting of planning policy through a Community Engagement Charter.

Streets for People: Compendium for South Australian Practice (2012)

The Streets for People: Compendium for South Australian Practice was released in 2012.

The Compendium:

— Identifies appropriate approaches to designing people-friendly streets.
— Collates national and international practice examples.
— Addresses standards and guidelines and their applicability.

Local

Community Vision – Towards 2040

The Community Vision - Towards 2040 identifies six themes that represent the shared values and aspirations that will guide how our city develops.

The six themes include:

— Liveable.

— Prosperous.

— Valuing Nature.

— Innovative.

— Engaged.

— Connected.

Greenways Program

The State Government's Policy is to promote Greenways (walking and cycling paths) that provide links across Metropolitan Adelaide.

Seven Greenway priority projects have been identified, with three of these passing through the City of Marion:

— Mike Turtur Bikeway.

— Marino Rocks Greenway.

— Tonsley Greenway.

City of Marion Strategic Plan 2017-2027

The City of Marion Strategic Plan provides a clear line of sight between the Community Vision – Towards 2040 and everyone involved in contributing to the vision, including Elected Members and staff.

The key themes relevant to the Walking and Cycling Guidelines are 'liveable', 'valuing nature' and 'connected'.

The plan outlines the following opportunities and strategies related to walking and cycling:

— Create a series of streetscaped avenues to improve the amenity of neighbourhoods.

— Provide communities that are safe and inclusive, embracing active living and healthy lifestyles.

— Encourage, where economically feasible, provision for the daily needs of residents within a short walk or bike ride.

— Provide a road network that connects neighbourhoods and supports safe walking, cycling and vehicle travel.

— Support a city that advocates improved public transport systems, linkages and networks that connect people to destinations.

City of Marion Business Plan 2019-2023

The City of Marion Business Plan explains the projects and programs Council will deliver over four years.

This document will be resolved by Council in 2019.

Demographics

Some of the key demographic data relating to walking and cycling is described below.

Journey to Work

The method of travel to work for residents living within the City of Marion (ABS, 2016) shows that the most common transport method was private vehicles (69.3%).

Within the City of Marion (2016):

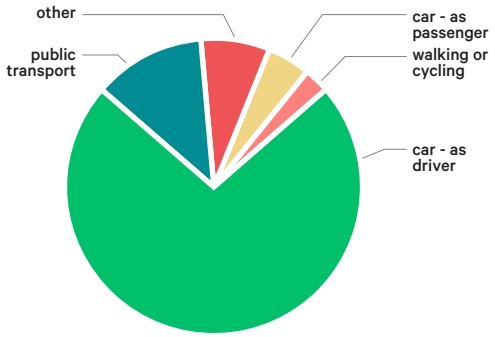
— **1.3% walked only*** to work compared to **2.1%** in Greater Adelaide.
— **0.9% cycled to work** compared to **1.1%** in Greater Adelaide.
— **10.8%** used **public transport** compared to **8.5%** in Greater Adelaide.
— **8.6%** (3,145) of households in the City of Marion **did not have a car** compared to **7.8%** in Greater Adelaide.

* The walk to work figure should be treated with some caution. It counts those that walk only and does not include those that walk to access public transport (estimated at approximately 80-90% of public transport passengers) and other forms of transport.

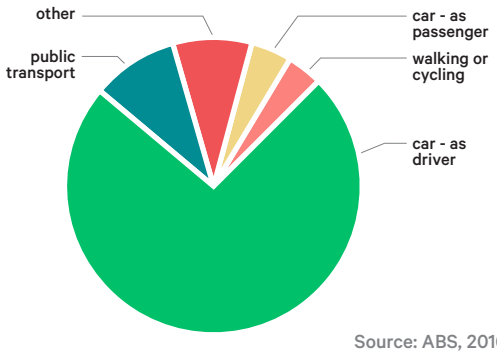
Key points in developing the Walking and Cycling Strategy:

— With 69% of journeys by car there is significant scope for shifting towards other modes of commuting.
— The increasing understanding of the benefits of walking and cycling and with continuing improvements to walking and cycling infrastructure, it is anticipated that future figures will show an increase in numbers of persons walking, cycling and using public transport for commuting.

City of Marion



Adelaide Metropolitan Region



Source: ABS, 2016

Ageing Population

Like many areas of Australia, the City of Marion has an ageing population.

Forecasts suggest that by **2036**, the City of Marion will have **18,955** persons over **65**, representing approximately **19%** of the total population (Forecast.id, 2016).

Key points in developing the Walking and Cycling Strategy:

— The ageing population increases the need to cater for gophers, wheelchairs and accessible path networks connecting to key facilities.

Size and Commuting Pattern

The City of Marion is approximately 5,600 hectares. As a means of comparison, this is about five times the size of Adelaide City Council (refer image bottom-left).

The area is 15 kms from north to south and 4 kms from east to west. At the northern end it is 5 kms from the centre of Adelaide and approximately 20 kms at the southern end (refer image bottom-centre).

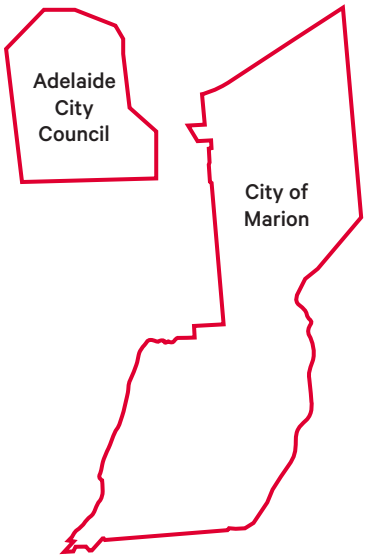
ABS data (2016) indicates most City of Marion residents work within the City of Marion (**18%**). The next highest is in the Adelaide City Council (**20%**). The neighbouring Councils follow next: West Torrens, Mitcham, Onkaparinga and Holdfast Bay (refer image bottom-right).

Combined, **72%** of City of Marion residents work in either the City of Marion, Adelaide City Council or an adjoining Local Government Area. This presents a significant opportunity for commuting by walking and cycling, or in combination with public transport.

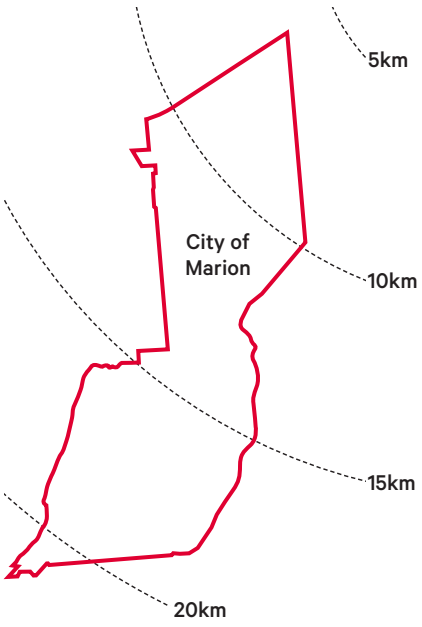
Key points in developing the Walking and Cycling Strategy:

- City of Marion is a large Local Government Area.
- Walking and cycling needs to effectively link with public transport for longer journeys.
- Public transport is seen as a leg of a walking or cycling trip. For example, providing walking and cycling facilities at the start and end of public transport journeys will help achieve greater participation.
- People who take public transport are 3.5 times more likely to meet the recommended physical activity levels for healthy lifestyles.

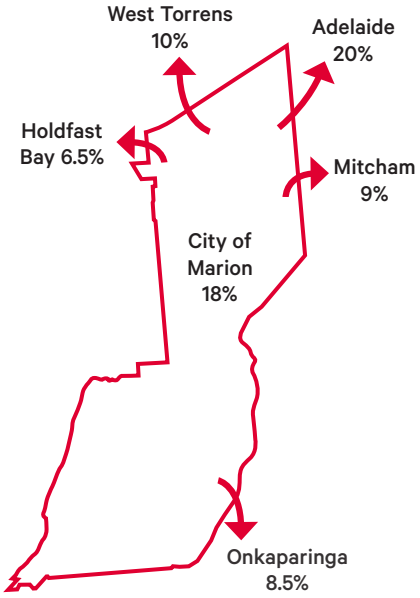
Size Comparison



Distance to Adelaide CBD



Where City of Marion Residents Work



Source: ABS, 2016

Marion Coastal Walk

Part 4

Existing Walking and Cycling Network

This section reviews and evaluates the existing walking and cycling network within the City of Marion. It assesses the general performance of infrastructure and streets and includes a summary of the barriers to walking and cycling.

Key components include:

— Existing Walking and Cycling Network
— Key Walking and Cycling Assets
— Existing Streets
— Barriers to Walking and Cycling

Existing Walking and Cycling Network

Overview

The City of Marion has an established walking and cycling network that can be enhanced with investment in maintenance and asset upgrades.

Completion of the Mike Turtur Bikeway through Marion, sections of the Marino Rocks Greenway and upgrades to streets have enhanced the network since adoption of the Walking and Cycling Strategy 2012-2017.

Bikedirect

The Government of South Australia has developed Bikedirect maps locating bicycle routes across the Adelaide metropolitan area. The Bikedirect maps provide options for people with different abilities, illustrating main roads, bicycle lanes, local streets and off-road paths. The Bikedirect program has helped develop key routes, road crossings, and integrated facilities across different Local Government Areas.

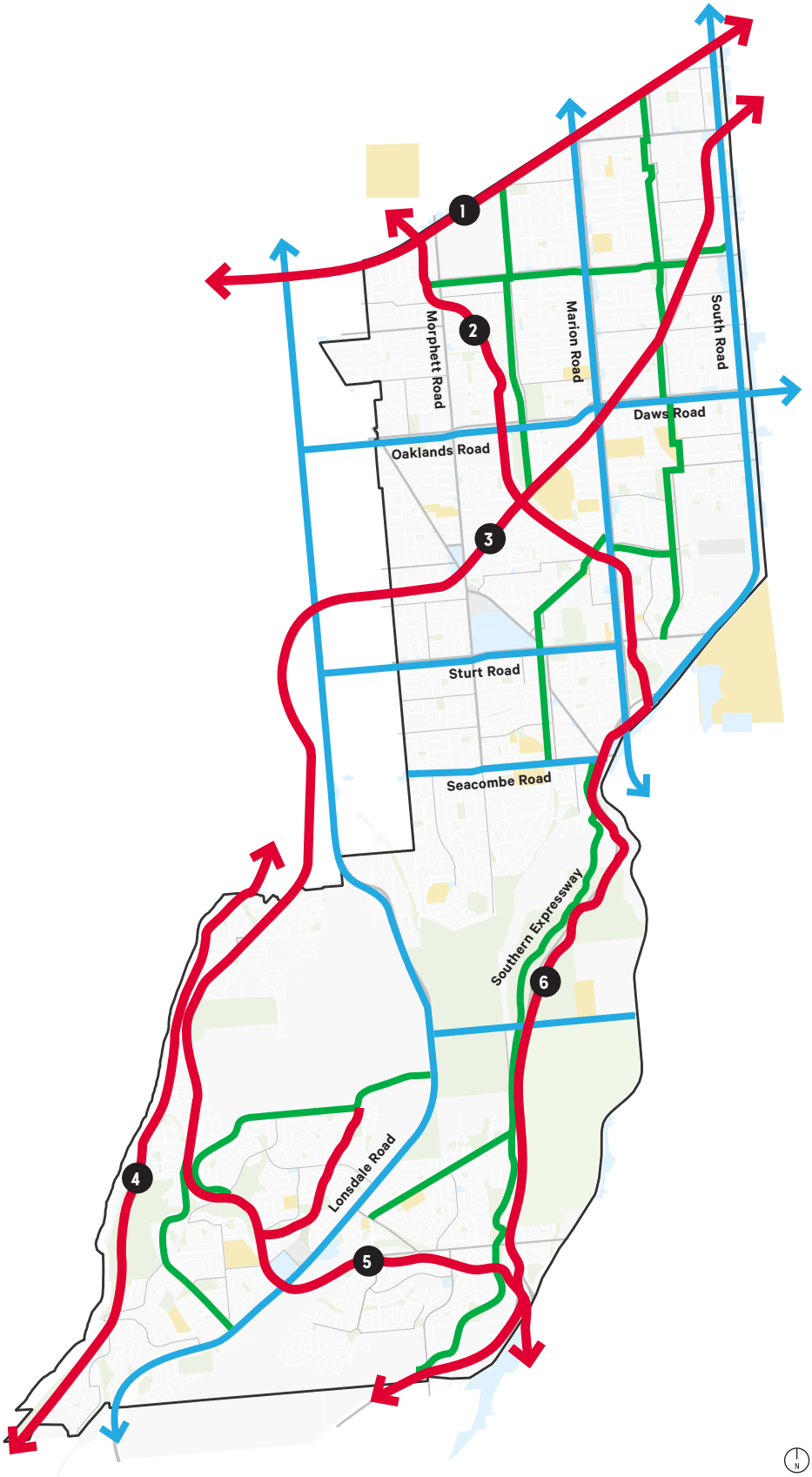
The Cycle Instead Journey Planner uses the Bikedirect network to generate cycling routes along main roads, bike lanes, local streets, off-road paths and some unsealed paths. The Journey Planner allows users to choose different options for considering topography, experience, road conditions and travel speed.

Key Existing Routes

Key existing walking and cycling routes within the City of Marion include:

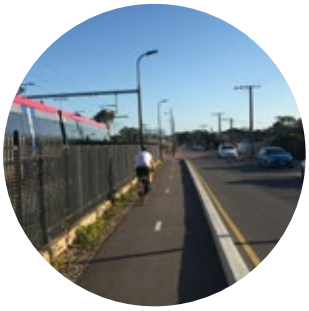
1. Mike Turtur Bikeway
2. Sturt River Linear Park
3. Marino Rocks Greenway
4. Marion Coastal Walk
5. Coast to Vines Rail Trail
6. Patrick Jonker Veloway

- Greenways (existing)
- Regional (existing)
- Local (existing)



Existing Walking and Cycling Network

The existing walking and cycling network in the City of Marion is comprised of the following infrastructure.

	Greenways	Arterial Roads	Sub-Arterial, Distributor and Collector Roads
			
Description	Major infrastructure corridors such as train lines, tramways, expressways and river corridors.	Major roads in State-level ownership, roads with heavy vehicles (Southern Expressway is included in Greenways).	Roads and streets that carry traffic within a particular area only. These connect residential streets with arterial roads.
Typical Existing Walking Infrastructure	Generally sealed shared-use pathways, 2.0-3.0m-wide.	North — Full-width, 'Brick' paving footpaths for main arterial roads and in front of schools. South — 1.2m-wide concrete footpaths on both sides of the street. Some sealed off-road paths are also provided.	— Generally similar to residential streets (refer adjacent). — Some sub-arterials have sections of full-width paving.
Typical Existing Cycling Infrastructure	Generally sealed shared-use pathways. Some mixed traffic on streets adjacent to railway corridor.	North — Most arterials have 1.2-1.5m on-road bicycle lanes. Cycle lanes often 'disappear' at intersections and most are periodic (clearways). South — Some roads have 1.2-1.5m bicycle lanes. Some sealed off-road paths are also provided.	— Most have mixed traffic. — Some provide bicycle lanes or marked shoulders (more so for sub-arterials). — Some are major bus routes.
Examples	Mike Turtur Bikeway, Sturt River Linear Park, Marion Coastal Walk (walk only), Marino Rocks Greenway (in development), Tonsley Greenway (future) Coast to Vines Rail Trail and Patrick Jonker Veloway.	Cross Road, South Road, Marion Road, Lonsdale Road, Oaklands Road, Daws Road, Morphett Road, Diagonal Road, Majors Road, Sturt Road, Seacombe Road, Main South Road and Flinders Drive.	Bray Street, Raglan Avenue, The Cove Road, Lander Road, Towers Terrace, Adams Road, Perry Barr Road, Davenport Terrace, Alawoona Avenue, Celtic Avenue.

Residential Streets	Parks and Reserves	Growth Precincts
		
Local streets, generally short lengths of street with a speed limit of 50km/h or less.	Urban parks, open space reserves, wetlands and formal gardens.	Key activity areas and retail centres.
North — 0.9-1.2m-wide concrete footpaths on both sides of the street. South — 0.9-1.2m-wide concrete (or brick paved) footpaths on one-or two sides of the street – most located against the kerb.	Mostly narrow 'footpath-style' concrete pathways, some shared-use, some walking only, some unsealed tracks.	Tends to reflect the surrounding road network rather than specific treatments. Hubs are often located adjacent to major roads (refer above).
Mixed traffic.	Limited 'formal' cycle paths or shared-use paths through reserves, particularly in the north.	Tends to reflect the surrounding road network. In some places bicycle lanes 'disappear' reverting to car parking.
Many and various, eg: William Street, South Plympton; Ailsa Avenue, Warradale; Wangary Terrace, Seaview Downs; Curlew Street, Sheidow Park; Allan Street, Marino.	Includes local and regional parks such as Oakland Reserve, Hazelmere Reserve, Glade Crescent Reserve and Cove Sport Reserve as well as DEWNR managed areas, including Hallett Cove Conservation Park, Marino Conservation Park and O'Halloran Hill Recreation Park.	— Oaklands Hub incorporating Westfield Marion, South Australian Aquatic and Leisure Centre, and Marion Cultural Centre. — Tonsley Innovation District , including Flinders University (adjacent to the City of Marion). — Hallett Cove Growth Precinct. — Edwardstown District Growth Precinct.

Key Walking and Cycling Assets

The following assets form the 'backbone' of the City of Marion Walking and Cycling Network.

Coast To Vines Rail Trail

The Coast to Vines Rail Trail is a sealed shared-use path for cyclists and pedestrians that follows the route of the original rail corridor from Marino to Willunga. The 3m-wide trail is approximately 37km in length, of which 8 kms is within the City of Marion.

The trail starts just south of the Marino Rocks Railway Station and travels south between Cove Road and the Seaford Rail line. The trail crosses the railway line at Hallett Cove Station, travelling east, crossing the Southern Expressway shared-use path near the intersection of Panatalinga, Southern Expressway and Main South Road, where it leaves the City of Marion Local Government Area. From there the trail continues south through Morphett Vale, Hackham, Seaford Rise, McLaren Vale and on to Willunga.

Sturt River Linear Park

The Sturt River Linear Park includes a shared-use trail adjacent the Sturt River. Within the City of Marion the trail travels approximately 5 kms from Anzac Highway to Warriparinga (Sturt Triangle). The sealed shared-use path is 1.8-3.0m-wide and accessible by pedestrians, cyclists, prams and wheelchairs. Some sections of the trail are developed to a higher standard than others.

The Linear Park extends from the coast at Glenelg to the hills at Coromandel Valley. The Linear Park also links to walking trails at Warriparinga.

Mike Turtur Bikeway

The Mike Turtur Bikeway, previously known as Tramway Park, provides a 10 km shared-use path and recreational linear park extending from the Adelaide Parklands to Glenelg alongside the Glenelg to Adelaide Tramline.

The Bikeway links to Sturt River Linear Park at Maxwell Terrace.

Patrick Jonker Veloway

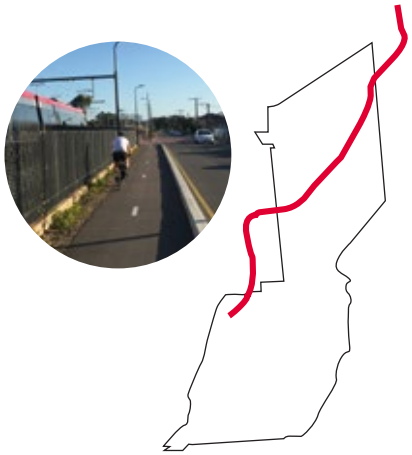
The Patrick Jonker Veloway is a sealed path on the eastern side of the Southern Expressway corridor. It is for exclusive use by cyclists. Pedestrians are not permitted.

The 3.5m-wide path is steep in places. It starts at the intersection of Marion and Main South Roads, heading south to intersect with the Coast to Vines Rail Trail, where it continues as a shared-use path.

Shared-use Paths

The western side of the Southern Expressway includes a series of unsealed paths and maintenance tracks.

A well-established trail follows the Southern Expressway corridor for the same extent as the Veloway (cycle only), providing an important pedestrian link. The path also links into trails of the O'Halloran Hill Recreation Park and Field River.



Marino Rocks Greenway

The Marino Rocks Greenway provides a 15 km long shared-use path extending from the Adelaide Parklands to the Coast to Vines Rail Trail at Marino Rocks and following the Seaford railway line.

The path alignment varies along the length of the route and includes off-road and on-road sections.

The path provides important connections to other walking and cycling infrastructure within metropolitan Adelaide, including the Patrick Jonker Veloway via the proposed Tonsley Greenway, Sturt River Linear Park and the Coast to Vines Rail Trail.

Marion Coastal Walk

Marion Coastal Walking trail forms part of the Adelaide Coast Park. This pedestrian trail (no cycle access) is 7.2 kms in length from Marino Esplanade to Hallett Headland Reserve. The trail is divided into five 'Walks' and travels through the Hallett Cove Conservation Park.

The trail surface varies, including sections of boardwalk, paving and compacted gravel.

Existing Streets

Whilst progress has been made since the adoption of the Walking and Cycling Strategy in 2012, many streets in the City of Marion are still car-focused providing little amenity for pedestrians or cyclists.

The following examples represent typical streets in the City of Marion that provide opportunities for enhanced walking and cycling facilities.

Opportunities for Upgrade

Seacombe Road

Arterial Road

Existing condition

— Small street trees.

— High vehicle speeds and volume.

— Wide vehicle lanes (~4.20m).

— Narrow bikelane (~1.2m).

— Wide footpath (up to 6m).

— Provides an important east-west link, particularly for cyclists accessing the Patrick Jonker Veloway.

Refer to Part 7 for streetscape upgrade opportunities

Minchinbury Terrace

Local Street

Existing condition

— Wide verge.

— Narrow footpath.

— On-street parking.

— Green Street sharrow linemarking.

— Forms part of the Marino Rocks Greenway.

Refer to Part 7 for streetscape upgrade opportunities

Images sourced from Google Maps

The following streets have been upgraded since adoption of the Walking and Cycling Strategy 2012-2017. The upgraded streets provide safer and more accessible walking and cycling supported by tree planting, signage, incorporation of Water Sensitive Urban Design (WSUD), furniture and amenity.

Recently Upgraded Streets

Railway Terrace

Collector Road

Key outcomes

— Off-road shared-use path with vegetated buffer to vehicles.

— Street trees for shade and amenity.

— WSUD for managing and filtering stormwater runoff.

Ragamuffin Drive

Local Street

Images sourced from Google Maps

Key outcomes

— Shared street with equal priority given to pedestrians, cyclists and vehicle users.

— Trees for shade and amenity.

— WSUD for managing and filtering stormwater runoff.

— Seating, bicycle parking and pedestrian amenity.

Barriers to Walking and Cycling

There are a number of barriers that discourage pedestrians and bike riders from using the walking and cycling network. A continued focus is needed to fund, plan and design walking and cycling friendly environments.

	Barriers	Issues	Response
1	**Poor Walking and Cycling Routes**  Narrow footpaths	Footpaths are often: — Narrow (often 0.9m). — Only one-side of the street (southern suburbs). — Disrupted by objects and furniture. — Located adjacent to the road edge (southern suburbs). — Not supportive of access for all (eg. wheelchairs and gophers). Bicycle lanes are often: — Narrow, (often 1.2m) with little separation from parked cars and travel lane. — Discontinuous, particularly at intersections of Greenways with main roads (eg. Sturt River Linear Park at intersection with Marion Road). — Inconsistent with adjoining Councils and DPTI roads. — Periodic, with parallel parking and clearways on most arterial roads (eg. Daws, Diagonal, Seacombe, Cross Roads).	Provide suitable walking and cycling routes that allow the physical space to walk and cycle safely and comfortably. This requires a shift from the minimum provision to encourage walking and cycling as viable transport options. Refer Part 6 - Strategy 1.
2	**Car Dominance in Streets**	— Lack of safety (and feeling vulnerable) from fast moving vehicles and higher numbers of vehicles. — Lack of pedestrian and cycling priority at traffic lights (long waits and distances to cross). — Lack of safe crossing points and often many vehicle lanes to cross.	Work with the requirements for safe and efficient traffic flow to balance the needs of pedestrians and cyclists. Refer Part 6 - Strategy 2.
3	**Poor Supporting Infrastructure**  Streets with no large street trees for shade	— Lack of large street trees for comfort and amenity (shade). — Limited rest spots such as seats. — Lack of priority for walking (eg. vehicle slip-lanes that disrupt access and driveway paving over footpaths (particularly in the southern suburbs that indicate priority is for vehicles). — Poor lighting along designated walking and cycling paths.	Develop routes for walking and cycling with supporting infrastructure, such as street trees and furniture for comfort and amenity. Refer Part 6 - Strategy 3.

	Barriers	Issues	Response
4	**Planning and Layout**  Periodic bicycle lanes	— Low-density and single land-use environments (as opposed to mixed-use) means residents often have large distances to travel to work or shops. — Indirect routes created by cul-de-sacs (particularly southern suburbs). — Poor integration of walking and cycling with public transport for longer journeys (eg. bikes not permitted on buses and trams - permissible on trains - uninviting bus shelters, lack of seats at bus stops. — Steep terrain (southern suburbs). — Main transport routes (eg. Main South Road, Southern Expressway, Noarlunga rail line) disrupt and limit movement, particularly east-west links.	Integrate walking and cycling with transport planning and the built form. Refer Part 6 - Strategy 1.
5	**Lack of Maintenance**  Poor construction maintenance of routes	— Walking and cycle paths can have cracks, holes, raised paving, broken glass, overhead vegetation, etc.	Develop plans for maintenance and management of walking and cycling infrastructure. Provide adequate maintenance budgets. Refer Part 6 - Strategy 4.
6	**Promotion and Education**	— Lack of information (eg. signage, maps) on walking and cycling routes and facilities.	Develop strategies for promotion, education, advocacy and support to encourage walking and cycling. Refer Part 6 - Strategy 5.

Part 5

Best Practice and Case Studies

This section reviews best practice examples and outlines opportunities for the City of Marion.

Walking and cycle path techniques include:

— Shared-use Paths
— Footpaths
— On-road Bicycle Lanes
— Separated Bicycle Paths
— Shared Spaces
— Green Streets

Walking and Cycling Techniques

Shared-use Paths

Technique 1

What

— Shared-use paths are where pedestrians and cyclists use the same infrastructure. They are mostly located off-road (in verges), parks and reserves.

Advantages

— Efficient in providing both cycle and pedestrian access together.
— Improves cyclist safety compared to on-road lanes, particularly for roads with higher speeds and vehicle numbers.
— 'Sharing' the path is generally well-understood by the community.

Disadvantages

— Can create conflicts between pedestrians and cyclist. Centre-line markings to encourage pedestrians and cyclists to travel on the left.

Footpaths

Technique 2

What

— Footpaths are areas designated for use primarily by pedestrians.
— Bicycle riders of all ages are now permitted to ride on the footpath unless a 'no bicycles' sign is present.

Advantages

— Provides a separate facility for pedestrians and slow moving cyclists.

Disadvantages

— Does not provide dedicated provision for cyclists.
— Risk of potential conflict between walkers and cyclists.

On-road Bicycle Lanes

Technique 3

What

— On-road bicycle lanes are marked lanes on roadways for exclusive use by cyclists.
— Buffered lanes provide extra clearance from adjacent parking and/or vehicle lane.

Advantages

— Cost-effective to existing streets with line marking.
— Generally well understood by the community (although not always respected).

Disadvantages

— Not kerb separated, therefore bicycle lanes may be encroached by vehicles (eg. veering left, accessing parking, opening doors).
— Can be an uncomfortable cycling environment particularly for less-experienced bike riders when there are higher vehicle volumes and speeds.

Separated Bicycle Paths

Technique 4

What

— Bicycle paths adjacent to a roadway but separated and protected by a kerb or other barrier.
— Separated bicycle paths can include contraflow lanes where a single bicycle path allows for multi-directional travel.

Advantages

— Provides a physically separated facility that offers increased safety and comfort for cyclists. The separation provides extra protection for cyclists compared to on-road lanes.

Disadvantages

— May require removal of parking or travel lane to install.
— More expensive than on-road cycle lanes.
— Can reduce pedestrian footpath space.
— Difficult to integrate where intersections are closely spaced.
— Can create potential conflict points at intersections, particularly with left turning vehicles.

Shared Spaces

Technique 5

What

— Where road space is shared between pedestrians, cyclists, vehicles and other road users.

Advantages

— Makes streets places for people, not just for vehicles.
— Creates a more vibrant place and an environment more suited to outdoor dining and personal interaction.
— Improves amenity and reduces through traffic.

Disadvantages

— Perceived increase in vehicle travel times.

Green Streets

Technique 6

What

— Green Streets prioritise walking and cycling over cars.
— Bike riders share the full-width of the roadway with vehicles.
— Pedestrian amenity is improved through increased trees and plantings.
— Also known as 'Bicycle Boulevards', 'Complete Streets' or Neighbourhood Greenways'.

Advantages

— Creates direct, comfortable and safe routes.
— Promotes lower vehicle volumes and speeds.
— Street trees and plantings provide an attractive and comfortable route for pedestrians and assist in stormwater management.
— Provides cyclists with alternatives to arterial road bicycle lanes and more comfortable conditions for less experienced riders.
— Cost-efficient, using existing infrastructure.

Disadvantages

— Difficulties in implementing slower speed limits.
— Perception of cyclists having control of the street and potential conflict.

Technique 1
Shared-use Paths

Design Guidance

1 Width

— Provide adequate width to comfortably accommodate pedestrians and bike riders. Preference for 4.0m width (5.0m in high-activity areas). Minimum width 3.0m.

— Allow 0.5m clearance from fixed objects on both sides of the path.

2 Paving

— Provide Hotmix (AC7) surface to pathways. Hotmix (AC7) uses a small aggregate to provide a smooth and consistent surface for walking and cycling. It is easily maintained and less likely to cause a trip hazard when compared to unit pavers.

— Refer also DPTI Guide to Bikeway Pavement Design, Construction and Maintenance for South Australia.

3 Line marking

— Provide centre-line marking to pathways with higher volumes of pedestrians and cyclists (as per Australian Standards). Line marking is generally not required for less busy routes (eg. local parks).

4 Planting and trees

— Use tree and groundcover planting adjacent pathways to assist in water management and provide shade and amenity.

5 Intersections and cross-overs

— Preference is for shared-use paths to be designed to have priority over driveways and minor side streets.

— Pedestrian and cyclist activated crossings should be provided at signalised intersections.

Useful references:

— DPTI Guide to Bikeway Pavement Design, Construction and Maintenance for South Australia.

— City of Marion Streetscapes Design Guidelines.

— Austroads Guide to Road Design Series.

Winsor Street, Unley

Marino Rocks Greenway, Railway Terrace, Ascot Park

Mike Turtur Bikeway
Case Study

The Mike Turtur Bikeway provides a 10km shared-use pedestrian and bicycle path along the Glenelg to Adelaide Tramline from South Terrace to Glenelg.

The City of Marion completed 4.6 km of the shared-use path in 2013 as an outcome of the Walking and Cycling Strategy 2012-2017. The section from Morphett Road to Brighton Road has been completed in partnership with the City of Holdfast Bay.

The bikeway provides the community with a high standard shared-use path that supports sustainable transport, community health and wellbeing and connections to tram stops and local destinations.

The bikeway links to sections of the Sturt River Linear Park and the Westside Bikeway (City of West Torrens).

The Mike Turtur Bikeway supports Marion's Walking and Cycling network by providing the infrastructure that makes walking and cycling viable for recreation and transport.

The shared-use path is supported with signs, public art and amenities.

10km
from CBD to Glenelg

4.6km
within COM


Mike Turtur Bikeway through Marion


'Link People' artwork by Groundplay

Signage and wayfinding


'Which Way' artwork by CHEB Art

Technique 2
Footpaths

Design Guidance

1 Width

— Provide footpaths of sufficient widths to allow comfortable pedestrian movement and clear access for all (eg. pram or wheelchair). Provide wider paths around activity areas such as shops and schools.

Street	Width
Local (minor streets)	— 1.8m preferred width (allows two wheelchairs to pass). — Consider full-width paving (kerb to property boundary) where appropriate. — 1.2m (absolute minimum) is permissible over a short distance where significant constraints exist. This allows one wheelchair access.
Arterials, hubs, schools, shops and activity areas:	— Full paving kerb to property boundary preferred. In the City of Marion this is generally 3m. — 2.4m minimum.

2 Paving

— Use surfaces that are flat and even, and slip resistant in accordance with Australian Standards.

— Consider use of permeable paving for stormwater run-off and to enhance street tree growth.

3 Trees

— Plant streets with suitable tree species that provide shade and amenity. Large street trees can improve a walking and cycling environment. Refer also Part 6 - Strategy 3 'Trees'.

4 Layout

— Give priority to footpaths over driveways and minor streets. Provide suitable paving at driveway crossovers to allow vehicle movement.

— Provide adequate sight distance for pedestrians and approaching vehicles at crossing points.

— Keep footpaths, kerb lines and medians straight where possible.

— Ensure footpath crossfall slope is less than 1 in 40 (2.5%). Incorporate access for people with disabilities.

— Avoid the use of barricades and bollards.

— Locate objects (street furniture, shop signage) in consistent locations along footpaths to provide a clear and predictable pedestrian walkway.

— Align paths and kerb ramps to provide direct routes for crossing intersections.

Useful references:

— DPTI Guide to Bikeway Pavement Design, Construction and Maintenance for South Australia.

— City of Marion Streetscapes Design Guidelines.

Typical footpath

Footpath and cycle lane with two rows of large trees providing shade and amenity

Technique 3
On-road Bicycle Lanes

Design Guidance

1 Width

— Provide on-road bicycle lanes of appropriate width (Austroads, 2017: Cycling Aspects of Austroads Guides).

Speed limit	Width
60km/h	1.5m (preferred) 1.2 - 2.5m (acceptable range)
80km/h	2.0m (preferred) 1.8 - 2.7m (acceptable range)

2 Buffers

— Where space allows, provide buffers to:

a. Parallel parking for door opening clearance.

b. Vehicle travel lanes.

— Buffers provide cushion space between cyclists and vehicles in the travel lane and parked cars. Buffers are important where there are higher vehicle speeds and volumes. The Austroad Guide recommends a 'buffer' width of 0.4-1.0m to parallel parking (widths vary for angle on-street parking). Where space prohibits a full-buffer, an extra thick white edge line to the travel lane can also be effective.

3 Surface

— Provide smooth surfaces for comfortable and safe travel without obstacles. Bikes have narrower tyres than vehicles and are more vulnerable to rough surfaces.

4 Colouring

— Provide green coloured surface treatment at busy intersections and conflict points to promote cyclist safety. Green coloured treatments are used to distinguish the bicycle lane and alert drivers and cyclists of conflict areas. The Cycling Aspects of the Austroads Guide states that green coloured surface treatments 'should be used sparingly to maintain effectiveness'.

5 Intersections

— Provide exclusive space for cyclists at intersections (refer image bottom right). Ensure bicycle lane continuity at intersections ensuring they do not 'disappear'.

6 Maintenance

— Provide regular maintenance for a smooth cycling surface.

Summary:

On-road bicycle lanes can provide a safe and efficient cycle facility when implemented with:

1 Appropriate width.

2 Buffers to parallel parking and travel lane as required.

3 Smooth surface treatment.

4 Colouring at conflict points.

5 Continuity at intersections.

6 Regular maintenance.

Standard on-road bicycle lane

On-road bicycle lane with colouring at intersection

Technique 4
Separated Bicycle Paths

Types of separated bicycle paths

There are three main types of separated bicycle paths (refer diagram and images across):

Channel Bicycle Path

— Channel paths use existing road paving and stormwater infrastructure but add a wide-kerb separating the bicycle lane from vehicles. The bicycle lane is a 'channel' between the footpath and new kerb.

Raised Bicycle Path

— A raised path is located on footpath level and provides an exclusive bicycle path clearly distinguished from a walkway for pedestrians.

Parking Protected Bicycle Path

— Parking protected bicycle paths are exclusive bicycle lanes located against the kerb and separated from the vehicle travel lane by a parallel parking lane.

Determining whether to use a channel, raised or parking protected path depends on existing site conditions such as width of road reserve, footpath condition and location of stormwater infrastructure.

Design Guidance

1 Extent

— Implement over a reasonable length to provide a useful link.

2 Width

— Provide adequate width (refer Austroad Guides).

— Provide a buffer that is sufficiently wide to allow bicycles to safely pass open car doors on the passenger's side and allow room for passengers to disembark or unload.

3 Kerb

— Consider whether to use full-kerb, semi-mountable kerb or flush kerb.

4 Planting

— Provide trees and plantings for amenity and shade, and to define the separated bicycle path areas.

— Include WSUD planting adjacent paths where possible.

5 Intersections

— Give priority to cyclists at intersections with minor streets and driveways.

— Restrict parking at main intersections and convert the raised bicycle paths to cycle lanes to increase visibility of cyclist for motorists.

— Consider priority signal phases for cyclists.

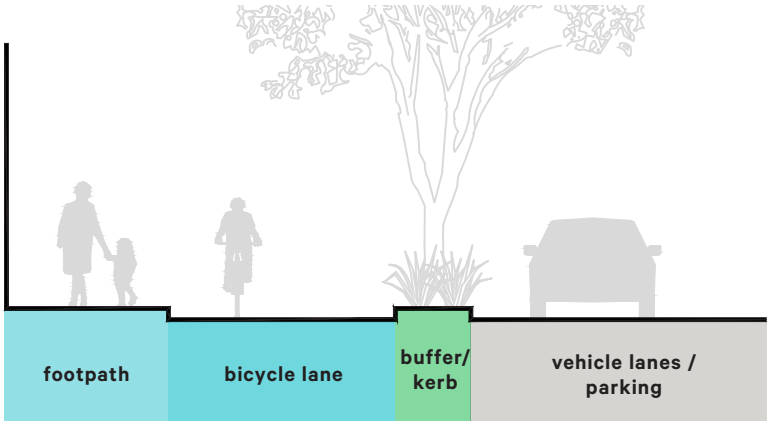
6 Colouring

— Provide green surface treatment at intersections to differentiate the bicycle lane from other roadway and footpath features.

Useful reference:

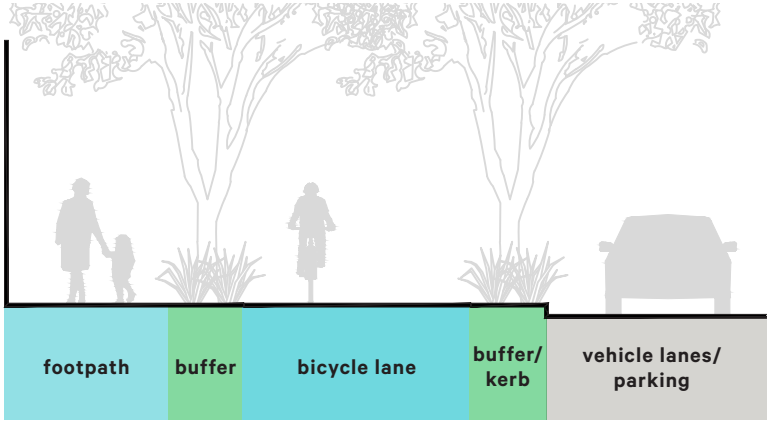
— Austroads Guide to Road Design Series.

Channel Bicycle Path



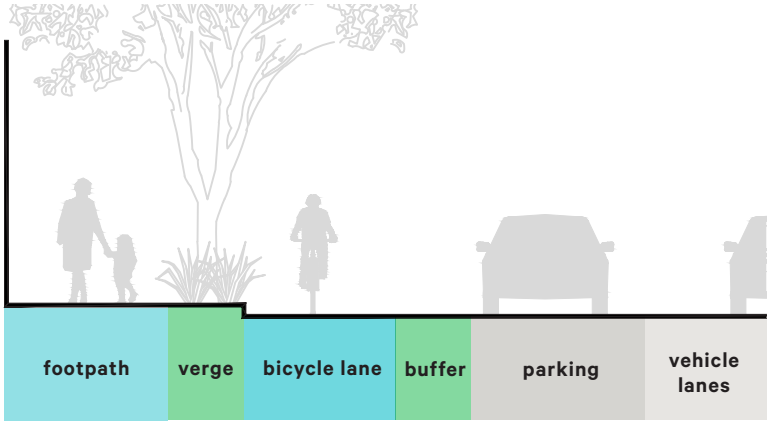
Channel bicycle lane, Frome Street Bikeway, Adelaide

Raised Bicycle Path



Raised bicycle lane, Bourke Street Cycleway, Sydney

Parking Protected Bicycle Path



Parking protected bicycle lane, Portland

Technique 5
Shared Space

Design Guidance

1 Layout and design

— Design shared spaces with people in mind.

— Do not 'over-design' streets with clutter and infrastructure.

— Increase the level of ambiguity for drivers so they drive slowly and understand pedestrians and cyclist have priority.

— Allow access for loading and emergency vehicles.

— Integrate tree planting to improve amenity and assist circulation.

— Incorporate street furniture that enhances pedestrian priority and amenity.

2 Paving

— Use paving to define shared spaces as a pedestrian-focused environment (refer Part 6 - Strategy 3 'Paving').

— Consider a single surface (ie. no kerb and gutters) that allows free flow of pedestrian movement and water sensitive urban design opportunities.

3 Vehicle speeds and volumes

— Use traffic calming devices and speed limits (refer Part 6 - Strategy 2).

— Use diversion techniques to reduce traffic from adjoining streets.

Useful Reference:

— Streets For People: Compendium For South Australian Practice.

— City of Marion Streetscapes Design Guidelines.

Shared space, Charenton-le-Pont Town Centre, France

Shared space, Leigh Street, Adelaide

The rebuilding of New Road, Brighton, UK as a shared space resulted in a 162% increase in pedestrians and a 600% increase in people gathering and socialising.

2010, Gehl Architects: Paving the way for city change: Brighton New Road Case Study.

Ragamuffin Drive
Case Study

Ragamuffin Drive in Hallett Cove demonstrates this approach to a shared space design for pedestrians, cyclists and motorists.

The design slows traffic through diversion techniques, paving and landscaping.

The street integrates WSUD initiatives, including raingardens, to capture and filter stormwater runoff.

85% percentile average vehicle speed

42 km/h
before upgrade

28 km/h
after upgrade

Shared space, Ragamuffin Drive, Hallett Cove

Example of pavement treatment used to slow vehicle traffic

Technique 6
Green Streets

Design Guidance

1 Traffic calming

— Reduce vehicle speeds to 40km/h (or below) using traffic calming methods and speed limits.

— Reduce the width of streets, plant street trees in parallel parking areas and narrow entrance and exit points to promote pedestrian and cycle priority (refer Part 6 - Strategy 2).

2 Traffic reduction

— Undertake Local Area Traffic Management to divert through-traffic and reduce vehicle numbers. Preference is for less than 500 per day.

— Consider strategic 'dead-ends' for vehicle traffic and creation of pocket parks. Ensure pedestrian and cycle access is maintained.

— Maintain local traffic access.

3 Branding Green Streets

— Provide a distinctive look to Green-Streets recognisable to motorists, cyclists and pedestrians.

— Use large cycle pavement signs (sharrows) and directional signage.

4 Prioritise travel

— Undertake Local Area Traffic Management to adjust give ways/stops allowing Green Streets to have priority for travel and reducing disruptions for bicycle riders.

5 Intersection treatments

— Provide safe crossing of major roads to link Green Streets.

6 Pedestrian amenity

— Enhance pedestrian amenity through suitable paving, large street trees and planting to assist in stormwater management (refer Part 6 - Strategy 3).

Green Street, Mike Turtur Bikeway

Neighbourhood green street, Portland

Minchinbury Terrace, Marion

Beulah Road bicycle boulevard
Case Study

Beulah Road bicycle boulevard provides a safe on-street cycling route between Portrush Road and Fullarton Road, Norwood.

The bikeway offers an alternative to cycling on main arterial roads, such as The Parade.

The design incorporates safety and amenity improvements, including paving, trees, planting and signs.

The boulevard incorporates bicycle safe round-a-bouts and crossings at intersections with local streets.

Key objectives of the boulevard include:

— Providing safer and more attractive routes for people to cycle.

— Reducing traffic volumes and speeds.

— Providing shared roadway for vehicles and cyclists.

— Improving pedestrian accessibility and safety.

— Enhancing connections to local hubs.

— Providing Streets for People.

Proposed intersection design incorporating bicycle oriented crossing

Bicycle oriented intersection

Summary

Walking and cycling solutions are influenced by individual circumstances such as vehicle speed and volumes, movement hierarchy and physical constraints. Low vehicle speed and less busy streets are generally more suited to mixed traffic solutions. Higher vehicle speeds and busier streets are more suited to off-road separated paths.

Best practice examples provide a 'tool-box' of walking and cycling solutions that may be applied within the City of Marion.

The various techniques are by no means definitive. Other solutions may be explored to ensure appropriate practical outcomes for specific sites.

The City of Marion Streetscapes Design Guidelines provides design solutions, materials and templates.

The table below provides a general guide on where to integrate different path options.

Path Option	Where to Apply					
	Greenways	Arterials	Collectors	Residential streets	Parks and reserves	Hubs
Shared-use off-road paths	●				●	
On-road bicycle lanes		●	●			●
Separated bicycle lane	●	●	●		●	●
Footpaths	●	●	●	●	●	●
Shared spaces					●	●
'Green-Streets'	●		●	●		

Table: General guide on where to investigate different path options

Best Practice - Jan Gehl

Jan Gehl is a Danish architect and urbanist who focuses on city's activation through walking and cycling. He has undertaken studies in Australian cities, including Adelaide.

Recommendations from Jan Gehl to enhance walking and cycling are:

1 Locating the cycle path between parking and footpath.

2 Providing wide footpaths clear of obstacles.

3 Providing bicycle lanes on a raised level.

4 Avoiding guard rails to allow freedom of movement for pedestrians.

5 Increased presence and width of walking and cycling infrastructure.

6 Eliminating slip lanes.

7 Using parallel parking rather than angle parking.

8 Providing active built edges.

Jan Gehl, Cities for People, 2010

'The best cities in the world are those that are pedestrian and cycle friendly'.

Jan Gehl

Examples of best practice walking and cycling infrastructure

Example Footpath and Water Sensitive Urban Design

Adelaide

Part 6

Recommendations

This section sets out strategies to continue the improvement of walking and cycling in the City of Marion.

The preferred approach to delivery is an integrated program that responds to challenges and opportunities. Where possible the emphasis is on achieving outcomes through existing processes rather than new ones.

The Strategic Approach

This section of the guidelines is divided into five-strategies:

Strategy 1. Planning the Route

— Allowing space to walk and cycle.

— Integrated with built form.

— Shift to a balanced planning approach considering the needs of pedestrians, cycles and cars.

Strategy 2. Working with Vehicles

— Shift from car-dominance.

Strategy 3. The Details

— For safety, comfort and amenity.

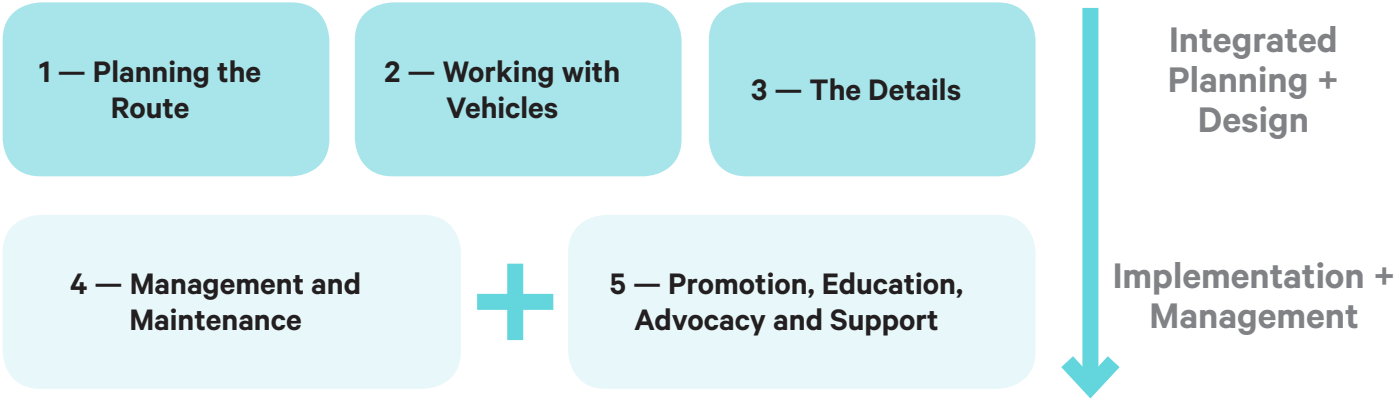
Strategy 4. Management and Maintenance

— For ongoing use and function.

Strategy 5. Promotion, Education, Advocacy and Support

— Encouraging walking and cycling.

Continued implementation of the recommendations outlined in these guidelines will provide the platform for improving the function and amenity of walking and cycling so they continue to be viable transport and recreation options.



Strategy 1
Planning the Route

Recommendation 1: Develop an integrated network of walking and cycling routes, in accordance with the Walking and Cycling Network Plan.

Overview

'Planning the Route' includes new projects and upgrade and maintenance of existing infrastructure.

The Walking and Cycling Network Plan (refer overleaf) illustrates existing and proposed routes for expanding the pedestrian and cycle network across the City of Marion.

The plan provides an integrated network and hierarchy of routes. The routes are indicative and subject to area specific studies (eg. Castle Plaza precinct).

For many areas within the City of Marion, improving the walking and cycling environment simply means making better use of the existing space.

The plan will be reviewed and updated as State Government, development projects, new facilities and community needs develop.

Walking and Cycling Network Plan

The Walking and Cycling Network Plan:

— Provides an integrated network connecting key locations, including retail hubs, schools and major open spaces.

— Offers a hierarchy of Greenways, Regional and Local walking and cycling routes.

— Plans efficiently, by connecting with and expanding from existing walking and cycling infrastructure.

— Includes routes that connect to key places and locations adjacent the City of Marion (eg. Flinders University and Glenelg).

— Incorporates the Bikedirect network as well as providing new opportunities.

The Walking and Cycling Network Plan is structured on three 'levels' - Greenway, Regional, and Local, based on the significance and context of the route. The hierarchy assists in the legibility of the network both on the ground and on paper.

Greenways

Greenways are located along major infrastructure corridors such as train lines, tramways and expressways providing important connections throughout Adelaide.

In the City of Marion, Greenways include the Coast Park, Mike Turtur Bikeway (along the Tramline), Sturt River Linear Park, Marino Rocks Greenway (along the Seaford Rail line), Tonsley Greenway (along the Tonsley Rail line), Patrick Jonker Veloway (along the Southern Expressway) and Coast to Vines Rail Trail.

Greenways form the 'backbone' of the walking and cycling network in the City of Marion. Typically, Greenways are shared-use off-road paths. In some locations, Greenways may include streetscape upgrades (Green Streets) or pedestrian only paths (Marion Coastal Walking Trail).

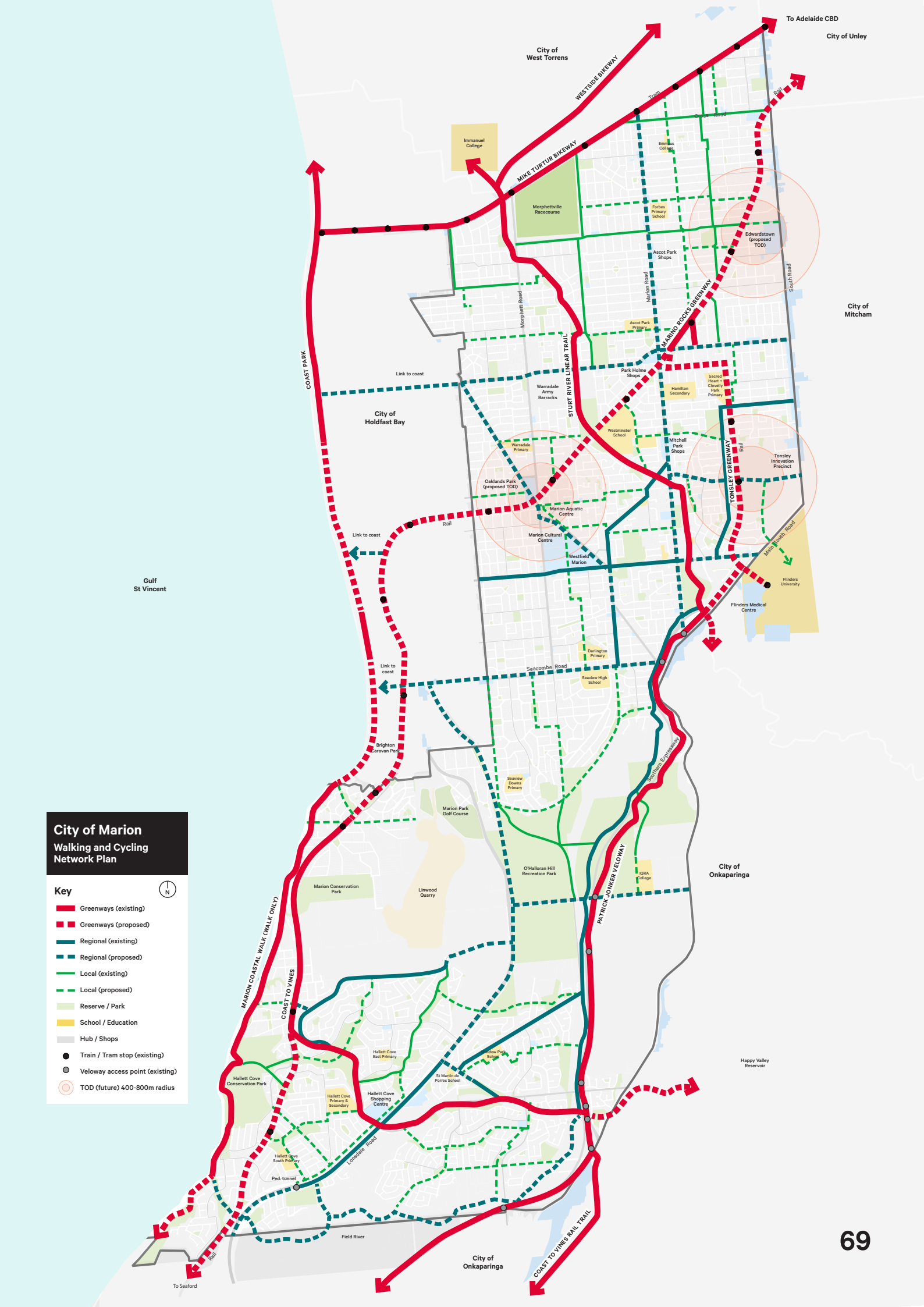
Regional

Regional routes are a level below Greenways and provide regional connections. They include both off-road and on-road treatments.

In the City of Marion regional routes include Field River shared-use path (proposed), Lonsdale Road shared-use path, Seacombe Road, Marion Road, Daws Road, Oaklands Road and Perry Barr Road. They include the existing shared-use paths adjacent to the Southern Expressway.

Local

The local network is generally located in reserves, local and collector roads. These provide connections to local destinations and act as links to Greenways and Regional routes.


City of Marion
Walking and Cycling Network Plan
Key
Greenways (existing)
Greenways (proposed)
Regional (existing)
Regional (proposed)
Local (existing)
Local (proposed)
Reserve / Park
School / Education
Hub / Shops
Train / Tram stop (existing)
Veloway access point (existing)
TOD (future) 400-800m radius
To Adelaide CBD
City of Unley
City of West Torrens
WESTSIDE BIKEWAY
MIKE TURTUR BIKEWAY
Immanuel College
Morphettville Racecourse
Edwardstown (proposed TOD)
Ascot Park Shops
Morphett Road
Marion Road
South Road
City of Mitcham
MARINO ROCKS GREENWAY
STURT RIVER LINEAR TRAIL
COAST PARK
Link to coast
City of Holdfast Bay
Warradale Army Barracks
Park Holme Shops
Hamilton Secondary
Westminster School
Mitchell Park Shops
TONSLEY GREENWAY
Tonsley Innovation Precinct
Oaklands Park (proposed TOD)
Marion Aquatic Centre
Marion Cultural Centre
Westfields Marion
Main South Road
Flinders University
Flinders Medical Centre
Gulf St Vincent
Seacombe Road
Darlington Primary
Seaview High School
Brighton Caravan Park
Seaview Downs Primary
Southern Expressway
Marion Park Golf Course
O'Halloran Hill Recreation Park
IQRA College
City of Onkaparinga
PATRICK JONKER VELOWAY
Marion Conservation Park
Linwood Quarry
MARION COASTAL WALK (WALK ONLY)
COAST TO VINES
Hallett Cove East Primary
Hallett Cove Conservation Park
Hallett Cove Primary & Secondary
Hallett Cove Shopping Centre
Happy Valley Reservoir
Lonsdale Road
Hallett Cove South Primary
Ped. tunnel
Field River
To Seaford
COAST TO VINES RAIL TRAIL
City of Onkaparinga

Recommendation 2: Work with developers to achieve a built form that supports walking and cycling.

1 — Accessibility and Circulation

Accessibility and circulation in the street network and choice of route is important for pedestrians and cyclists. The grid plan works best, providing connections and choice of routes, and should be encouraged for large scale re-developments (eg. Tonsley Innovation District).

— Cul-de-sacs should be avoided for streets and site designs. Where unavoidable, ensure pedestrian and cycle links are maintained.

— Undertake Local Area Traffic Management with consideration for pedestrians and cyclists (refer Strategy 2).

2 — Built Form

The built form has significant influence on encouraging or discouraging walking and cycling. Design objectives should consider:

— Active frontages that avoid blank walls/fences. This encourages walking and cycling by creating interesting environments with improved safety through passive surveillance.

— Shift from 'big-box' built form to pedestrian-scale environments (refer image below).

— Verandahs and pergolas for shelter on footpaths.

— Destinations that encourage walking and cycling.

— Quality urban design that is comfortable at a human scale.

— Car parking to the rear of developments for an active frontage and to encourage arrival by walking or cycling.

— Street furniture such as seating and bicycle parking.

Example of permeable shared street

Example of active and engaging building frontage

3 — Mixed Land Use

Mixing compatible land uses provides a range of uses (eg. shops, housing, offices) closer together and increased accessibility for walking and cycling. It also increases activity, improving safety and adding interest to the street environment.

The 30-Year Plan for Greater Adelaide 2017 Update supports mixing compatible land uses particularly along transit corridors.

‘If you plan cities for cars and traffic, you get cars and traffic. If you plan for people and places, you get people and places’.

Streets are People Places, Fred Kent

4 — Site Layout and Car Parking

The City of Marion has a large amount of off-street and on-street parking.

Destinations with large areas of car parking addressing the street are visually unattractive and discourages travel and arrival by walking or cycling. Design objectives should consider:

— Appropriate site planning and building designs that focus on pedestrian and cyclist arrival.

— Location of off-street car parking behind the building line.

— Investigate pedestrian and cycle movements in the same way traffic studies are undertaken.

— Prominent walking and cycling links through surface car park areas to the local network.

— A review of planning policies (eg. car parking requirements) to provide a balanced approach to provision of other modes of transport.

— Provision of end-of-trip facilities (eg. bicycle parking).

— Traffic management planning to redirect vehicle access to the preferred arterial or collector and not local streets (ie. reduce vehicle volumes on the local network).

5 — Planning System

The following table summarises opportunities within the existing planning system for the incorporation of the strategies outlined in this report.

Overview	Description
Structure Plans *Embed Walking and Cycling strategies into spatial planning for growth areas*	The State Government is preparing a feasibility study for the remaining north-south corridor between Darlington and Anzac Highway. The plan will set out a spatial vision for urban growth and infrastructure delivery. There is an opportunity to integrate walking and cycling into the plan for the north–south corridor.
Precinct Plans *Embed Walking and Cycling into the detailed planning and approval of defined regeneration areas.*	Precinct Plans aim to provide an area-wide approval instrument for integrated planning of defined mixed-use regeneration areas. Precinct planning provides a powerful tool for delivering urban renewal around transit nodes. Precinct planning should ensure that walking and cycling strategies form an integrated component of area-wide re-development schemes. Planning for walking and cycling should happen up-front rather than at the end. Priority should be on walking and cycling linked with public transport.
Master Plans *Embed Walking and Cycling into plans for urban projects*	Master plans have a direct influence on the range and quality of walking and cycling environments delivered from new and re-developed urban spaces and buildings. Government Agencies prepare master plans for infrastructure projects (such as new schools, hospitals or highways) and for major urban development projects (such as Tonsley Innovation District). Councils prepare master plans for public realm upgrades (squares, parks and town centres). The private sector prepares master plans for development projects, including new residential estates or major commercial buildings. Master plans should reflect walking and cycling strategies and key routes at the project and/or area scale. As with Precinct Plans, Master Plans should have priority on walking and cycling, then public transport and then car movement. The focus should be on creating a walking and cycling focused precinct that links with the broader walking and cycling network (particularly Greenways), public transport and the surrounding community.
Planning and Design Code *Embed Walking and Cycling directions into the Planning, Development and Infrastructure Act 2016*	The Planning, Development and Infrastructure Act 2016 includes the Planning and Design Code to guide development and desired character. There is opportunity to integrate walking and cycling directions into the Planning and Design Code to have a direct influence on new developments. This may include translating key walking and cycling principles and plans to the Code. This will assist Council staff and developers to plan and design for walking and cycling and ensure they are integrated and considered up-front for new developments.
Council Plans *Embed Walking and Cycling directions into Council plans and policies* *Embed Walking and Cycling facilities into Council plans for infrastructure delivery*	The City of Marion are involved in preparing a range of strategic, statutory and operational plans. It is recommended that the City of Marion integrate walking and cycling directions across all its plans and policies. For example, walking and cycling strategies and implementation should inform Asset Management Plans, Recreation Plans, Traffic Management Plans, Road Re-sealing Programs, Public Arts Strategies, Street Tree Strategy reviews etc. The process of informing and aligning with other plans and policies will allow for increased efficiency in infrastructure delivery.

Marino Rocks Greenway

Strategy 2
Working with Vehicles

Recommendation 3: Investigate the reduction of vehicle speeds and volumes on local streets.

'Working with vehicles' involves a series of moves to shift the balance from cars dominating the streetscape to a balance of alternative means of movement. This requires a change in thinking to a pedestrian and cycle integrated approach.

Priority is for local streets identified as key walking and cycling routes and streets identified in Asset Management Plans for renewal or replacement.

Advantages

Reducing vehicle speeds and numbers on local streets:

— Provides a safer pedestrian and cycle environment.

— Reduces vehicle crashes.

— Reduces noise.

— Improves physical and mental health and associated economic benefits.

— Improves residential amenity.

— Increases property values.

— Improves quality of life and wellbeing.

— Enables opportunities for streets to become 'places'.

Key considerations include:

1 — Lowering vehicle speeds

2 — Calming traffic and narrowing streets

3 — Reducing vehicle numbers

4 — Providing separate space on arterial roads

1 — Lowering Vehicle Speeds

Lowering vehicle speeds significantly increases safety for people. The priority is for slowing vehicles on local streets, particularly those identified as key walking and cycling routes (refer Proposed Walking and Cycling Network Plan).

‘As soon as you take out cars, or [slow] cars down to a walking pace, people [start] to change their behaviour. People [start] to connect. Because a new layer of intimacy has been created’.

Gilbert Rochecouste

Design Considerations

— Slow vehicle speeds through changing the physical environment (eg. traffic calming and narrowing of streets) that tend to ‘self-regulate’ rather than requiring enforcement.

Advantages

— Improves safety for pedestrians, cyclists and motorists.

— Discourages motorists from cutting through residential streets.

— Relatively cost-effective.

— Enhances neighbourhood amenity.

— Reduces vehicle numbers within residential areas.

Disadvantages

— Some traffic calming measures (eg. speed bumps) can increase traffic noise through braking and accelerating vehicles.

— Can result in anti-social behaviour.

Example of slowing local traffic, Railway Terrace, Ascot Park

2 — Calming Traffic and Narrowing Streets

Traffic calming includes a variety of methods intended to slow vehicle speeds and reduce vehicle numbers.

Most of the City of Marion's streets, particularly in the north, were designed wide and straight, which tends to support fast vehicle movement and high traffic numbers.

Narrowing of streets is one way to slow traffic and increase safety for cyclists and pedestrians. Narrow streets slow drivers in comparison to wide streets which lead to faster speeds.

Example of traffic calming by narrowing street

Design Considerations

— Reduce the width of vehicles lanes (2.8-3.2m instead of 3.5-4.0m).

— Plant trees between on-street parallel parking to 'enclose' the street.

— Provide raised central medians.

— Use on-street parallel parking.

— Provide mid-block pedestrian crossings and kerb out-stands at intersections.

— Provide vehicle slow-points while ensuring they are pedestrian and cycle-friendly.

— Traffic calming measures are pedestrian and cyclist friendly.

— Integrate Water Sensitive Urban Design (WSUD) to support amenity and sustainability outcomes.

— Preserve and enhance streetscape aesthetics.

Advantages

— Can be as simple (and cost-efficient) as repainting lines to 'narrow' vehicle lanes.

— 'Narrowing' can provide more space for footpaths and street tree planting.

— 'Self-regulates' rather than requiring enforcement (eg. speed limits).

Disadvantages

— Speed bumps and raised 'driveway-links' can create noise for residents.

— Can delay emergency vehicles.

3 — Reducing Vehicle Numbers

Roads and streets within the City of Marion accommodate a high proportion of through-traffic (refer Part 3). Most through-traffic is focused on the main arterial roads. In some cases 'rat-running' (people taking short cuts) occurs increasing vehicle numbers on local streets.

'Rat-running' should be discouraged to help support local streets becoming places that people can enjoy.

A way to improve local streets is through Local Area Traffic Management. One option is to consider strategic 'dead-ends' for traffic where it will create a better environment for pedestrians and cyclists. It is then possible to create pocket parks at the end of streets. Where pocket parks are created it is important to maintain pedestrian and cycle access.

4 — Providing Separate Space on Arterial Roads

Arterial roads carry high numbers of fast moving vehicles. Dedicated space for walking and cycling on these roads is vital for the safety and comfort of pedestrians and bike riders. Where off-road routes cannot be provided, space and separation for cyclists is desired.

Design Considerations

— Continue bike lanes at intersections.

— Opportunities for advanced bicycle stop lines at intersections to allow space and increase visibility of cyclists.

— Opportunities for separated bicycle lanes (refer Part 5 - Technique 3 Separated 'Bicycle Paths').

— Provide green surface treatments for bike lanes at intersections and conflict points.

— Explore traffic management solutions to improve safety for pedestrians and cyclists at locations with reduced vehicle slip lanes.

Example of Local Area Traffic Management, Railway Terrace, Marion

Example of bicycle oriented crossing, Christchurch, NZ

Strategy 3
The Details

Recommendation 4: Provide the infrastructure that supports walking and cycling; in particular quality paving and large street trees.

Successful implementation of these guidelines depends on provision of infrastructure and consideration of functionality.

This strategy provides guidance for the following:

1 — Paving
2 — Trees
3 — Planting
4 — Furniture
5 — Signage
6 — Public art
7 — Lighting
8 — Crossings
9 — Standards and guidelines

For additional reference refer to City of Marion Streetscapes Design Guidelines

1 — Paving

Providing suitable paving is important for encouraging walking and cycling.

Generally hotmix (AC7) is preferred to segmented paving which has a tendency to lift and cause trip hazards.

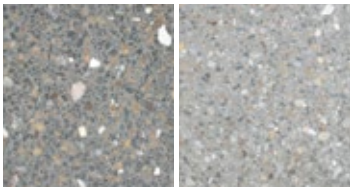
Footpaths should take priority over driveways.

Refer to the following for further details and guidance.

— Part 5 - Technique 2 'Footpaths'.

— City of Marion Streetscapes Design Guidelines.

— DPTI Guide to Bikeway Pavement Design, Construction and Maintenance for South Australia.

Paving Type	Use	Benefits	Example
Type 1 High-quality unit paving	— Limited to key pedestrian gathering areas / civic precincts	— High-quality finish	
Type 2 Insitu concrete	— Higher use areas near hubs, commercial precincts and local centres (eg. Tonsley)	— Attractive and long lasting solution	
Type 3 Hotmix (AC7) — Black — Line marking	— Most footpaths (excluding Types 1, 2 and 4) — Shared-use paths	— Avoids lifting — Ease of maintenance — Cost-effective	
Type 4 Compacted sand/gravel	— Lower use paths and trails in reserves and parks.	— Blends well in 'natural' settings — Cost-effective — WSUD around trees	

2 — Trees

Large trees help provide effective shade, vertical scale and streetscape presence as well as environmental benefits.

Smaller trees should be restricted to narrower, minor streets where space limits planting larger species.

Power line infrastructure and services should be addressed prior to tree selection.

Tree planting should be formal and regular. Continuity and consistency should be promoted along the length of the street. Preference is to establish a single character along the length of a street rather than breaking streets into a number of precincts with different species.

A mix of evergreen and deciduous, as well as native and exotic species should be used to reinforce identity and promote diversity.

WSUD treatments for street tree establishment should be considered.

For tree selections and design guidance refer to:

— City of Marion Street Tree Strategy
— City of Marion Streetscapes Design Guidelines

Street tree canopy cover: Castle Street compared to St Lawrence Avenue, Edwardstown

Example of streets and cycle lanes with large trees

3 — Planting

Support planting that contributes to local character and amenity by:

— Enhancing biodiversity and habitat.

— Offering structure and marking key locations (eg. corners, entries).

— Assisting in stormwater management.

— Defining edges and paths.

— Providing seasonal change to the area.

Opportunities for the City of Marion include:

— Planting low-maintenance vegetation adjacent to walking and cycling paths, in particular off-road shared-use paths and Greenways.

— Utilising new walking and cycle path development as an opportunity to remove weeds and exotic species and replace with native grasses, groundcovers and trees, particularly along watercourses and railway lines.

— Selecting species appropriate to the site conditions, with suitable form, compliance with CPTED principles, maintenance and watering requirements.

— Using native plants to increase the biodiversity of vegetation, assist with Water Sensitive Urban Design (WSUD) and habitat creation in the area.

— Incorporating WSUD initiatives along Greenways and off-road shared-use paths.

Example of planting adjacent walking and cycling routes, including WSUD

4 — Furniture

Furniture is part of a well-integrated and functional public realm.

Street furniture should be located close to the kerb to maintain a clear path of travel against the buildings/property line in addition to other safety requirements.

Design Considerations

Furniture and amenities supporting walking and cycling include:

Seating

— Providing seating adjacent to paths in locations that correspond with public need and usage.

Shelters and picnic settings

— Locating within reserves and parks in accordance with open space policy and playground policy.

Bike stands

— Providing at destinations and reserves responding to public needs and usage.

Bins

— Locating suitably in response to usage and collection.

Drinking fountains, and dog-bowls/ bag dispensers

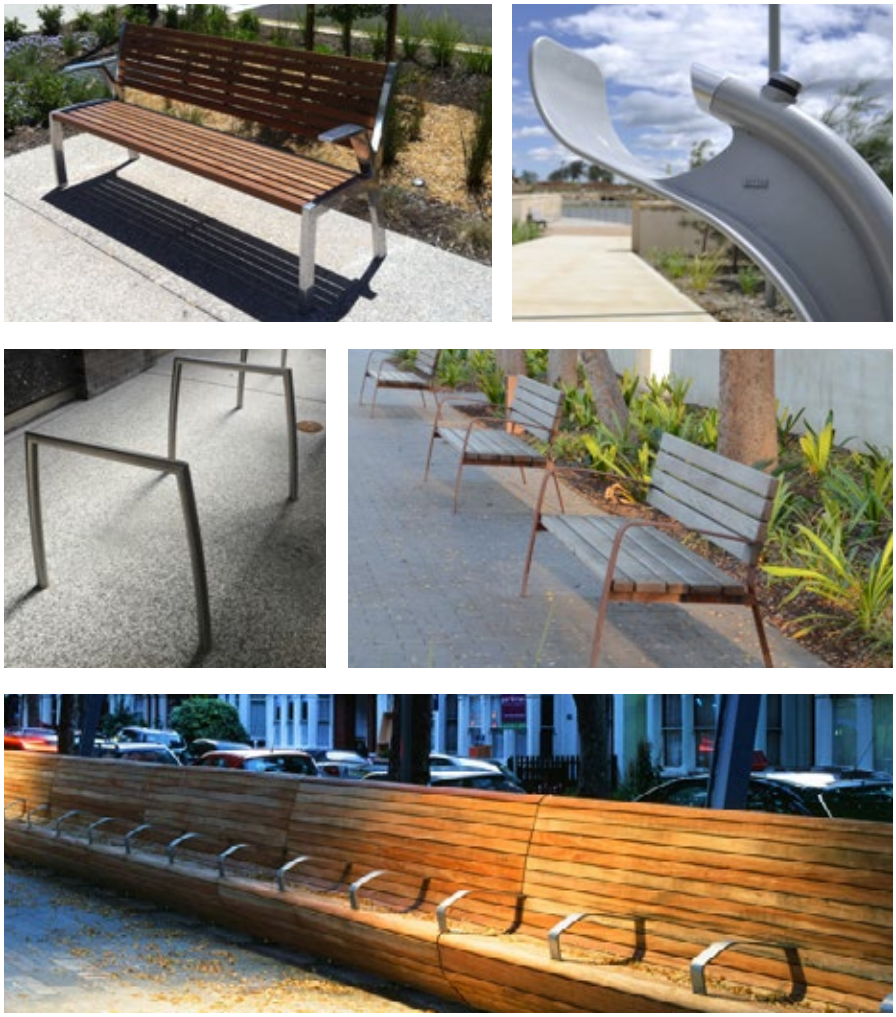
— Providing within parks and reserves accessed via the walking and cycling network.

Toilets

— Considering the planning of assets such as public toilets with key walking and cycling routes.

For furniture selections and design guidance refer to:

— City of Marion Streetscapes Design Guidelines
— Open Space Framework
— Playground Framework
— Asset Management Plans



Examples furniture, refer City of Marion Streetscapes Design Guidelines for selections

5 — Signage

Signs should promote walking and cycling routes and include clear directions and information about local landmarks, and flora and fauna.

Design Considerations

— Directional signage guides routes and indicates open spaces, community facilities and other destinations. Directional signage may include arrows, 'markers' and maps.

— Interpretive signage can inform of local history, flora and fauna, cultural heritage, etc.

— Advisory signs provide legal information (eg. 'give way') and advises of potential hazards (eg. road crossing). Signage requirements are detailed in the Australian Standards.

— Innovative technology solutions can be integrated to enhance accessibility.

Examples of signage and wayfinding along walking and cycling routes

6 — Public Art

Public art helps communicate a socially and culturally rich environment. It provides identity and creates a unique and meaningful sense of place.

Design Considerations

Opportunities for integrating public art in the City of Marion walking and cycling network include:

— Activating places by providing an original, innovative and stimulating environment.

— Linking and highlighting key transport nodes and places of interest, interpreting of local cultures and natural character.

— Proposing narrative elements that connect different parts of the network.

— Fostering a sense of place, social interaction, community ownership and capacity building.

— Integration of art into street furniture and directional signage.

'Link People' artwork by Groundplay and 'Which Way' artwork by CHEB Art, Mike Turtur Bikeway

'Locally Indigenous' artwork by Aurelia Carbone

7 — Lighting

Lighting provides safety and extends the usability of the network into the night.

For many areas existing street lighting is sufficient for walking and cycling.

Design Considerations

Lighting options for walking and cycling pathways include:

— Pole top lights (4.5m – 6m).

— Bollard lights.

— Incorporating fittings into built structures (eg bridges, underpasses).

— Automatic control and sensing.

— Illuminating key features such as landmark buildings, trees, bridges and pedestrian gathering points.

— LED and solar lights.

— Street lights (may include a pathway outreach).

Pathway lighting service standards should be determined by an assessment on safety and Crime Prevention Through Environmental Design (CPTED).

Lighting design and implementation to comply with Austroads Guidelines, Australian Standards and DPTI requirements.

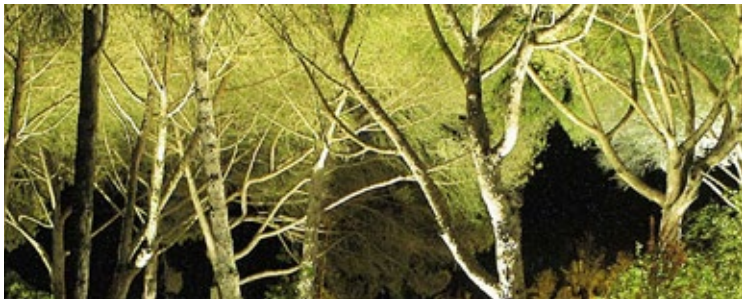
For lighting selections and design guidance refer to:

— City of Marion Streetscapes Design Guidelines

Example LED path lighting

Example LED Street lighting

Example bollard lighting



Example feature lighting

8 —Crossings

There are a number of major road and rail routes that pass through the City of Marion **(refer Part 3).** Safe pedestrian and cycle crossings are required to connect communities.

Design Considerations

— Providing safe pedestrian and cycle crossings where key routes meet major roads and rail lines.

— Providing pedestrian and cycle overpasses/underpasses with the Darlington Upgrade, Oaklands Crossing Project and Flinders Link.

— Providing pedestrian and cycle traffic signals for main roads along Greenways and connections to activity centres.

— Providing generous width crossings and consider 'land-bridges' for major connections (eg. Oaklands Park).

— Increasing 'green' crossing times for pedestrian and cyclists, particularly around hubs.

— Providing median 'safe-havens' with cyclist hand-rails for cyclists (at road edge and median) to assist crossing of wide and busy roads.

— Providing adequate site-lines at crossings.

— Avoiding barricades and bollards that can be a hazard.

— Providing pedestrian and cycle priority at local street crossings, particularly in activity hub areas.

— Designing crossings to comply with Australian Standards.

— Considering Crime Prevention Through Environmental Design Principles (CPTED).

Example of designated cycle crossing, Christchurch, NZ

Marion Road crossing

Pedestrian and cycle connection along Mike Turtur Bikeway

9 — Standards and Guidelines

The detailed design of walking and cycling infrastructure is required to comply with the relevant standards and guidelines. Key standards and guidelines are summarised below.

Austroads

The Austroads Guides provide useful guidance and measures to assist with the planning and design of streets and pathways for pedestrians and cyclists.

Key considerations include (but are not limited to):

- Austroads Guide to Traffic Management Series
- Austroads Guide to Road Design Series, in particular:
  - *Guide to Road Design Part 6A: Pedestrian and Cyclist Paths.*
  - *Cycling Aspects of Austroads Guides.*

Australian Standards

The Australian Standards outline the minimum requirements for pedestrian and cycling infrastructure.

Key considerations include (but are not limited to):

- AS 1742 Manual of uniform traffic control devices; in particular 'Bicycle facilities' and 'Pedestrian control and protection'.
- AS 1428 Design for Access and Mobility.
- Lighting for roads and public spaces.

Department of Planning, Transport and Infrastructure (DPTI) Standards and Guides

The South Australian Department of Planning, Transport and Infrastructure (DPTI) has also published useful Standards and Guides, for example:

- Guide to Bikeway Pavement Design, Construction and Maintenance for South Australia.

Strategy 4
Management and Maintenance

Recommendation 5: Recognise the need and plan for increased funding for maintenance and upgrading of walking and cycling infrastructure.

Opportunities for the City of Marion to improve management and maintenance of walking and cycling infrastructure include:

- Appropriate funding for maintenance and upgrade of existing facilities in accordance to service levels.
- Developing a business case for a small street-sweeper, dedicated to walking and cycling maintenance, including key public spaces, shared-use pathways and footpaths.
- Ensuring maintenance of walking and cycling infrastructure and routes is included in Council maintenance staff programs and budgets.
- Undertaking regular paving audits and maintenance for walking and cycling infrastructure.
- Exploring opportunities for upgrading walking and cycling facilities when undertaking scheduled maintenance such as road resurfacing etc.

Well maintained paths, Marino Rocks Greenway

Maintenance and Servicing

The table below provide a list of maintenance tasks and frequency for servicing walking and cycling infrastructure. Regular maintenance supports public use and safety and also extends the life assets through timely maintenance and rehabilitation.

Maintenance frequency is to be reviewed in line with Council's Asset Management Plan Framework and Council budgets. Frequency of street-sweeping may need to increase during autumn or following heavy wind or rain events.

Cycling and Shared-use Paths

Maintenance Task and Frequency (Indicative Timing)	Greenways	Other Shared-use Paths / Off-road Cycle	Major Roads and Veloway	On-Road Cycle Lanes and Shoulders
Street sweeping	Every 3 months	Every 3 months	DPTI	Every two-months
Pruning of vegetation	Every 12 months	Every 18 months	DPTI	Every 18 months
Inspect surface (including shoulders) and repair and re-line mark as needed.	Every 2 years	Every 2 years	DPTI	Every 3 years

Footpaths

Maintenance Task and Frequency (indicative timing)	High Use (Hubs, Shopping precincts)	Medium Use (Schools, parks)	Low Use (Local, residential)
Street sweeping	Every 3 months	Every 3 months	On demand
Pruning of vegetation	Every 12 months	Every 18 months	Every 18 months
Inspect surface (including shoulders)	Every 2 years	Every 2 years	Every 2 years

Strategy 5
Promotion, Education, Advocacy and Support

Recommendation 6: Promote and advocate for walking and cycling through a range of Council initiated programs.

Overview

The guidelines support advocacy and promotion of walking and cycling as an alternative mode of transportation for commuters and recreation.

1 — Promotion and Education

Opportunities include:

— Using Council's marketing resources (including newsletter and website) to promote walking and cycling.

— Educating and updating the community about new or upgraded walking and cycling facilities.

— Developing maps, signage and logos to assist in the community's use and legibility of walking and cycling infrastructure. Link with broader network promotion (eg. Bikedirect).

— Exploring new-technology such as smart-phones, Google Maps and GPS to promote walking and cycling routes.

— Working with the Department of Planning, Transport and Infrastructure (DPTI) to keep Bikedirect and 'Cycle-instead Journey Planner' up to date.

— Working the Heart Foundation to develop local walking and cycling programs.

2 — Measuring Performance

In an effort to measure performance and quantify outcomes of walking and cycling improvement, it is recommended that indicators are developed.

Opportunities include:

— Monitoring trends and usage of infrastructure.

— Working with the Heart Foundation to develop other key performance indicators (KPIs) and gather baseline data to measure walking and cycling levels in the community. Understanding travel to school data may be a useful starting point. Some information may be available through SA Health and SA Walks.

— Obtaining measuring equipment to ascertain the level of walking and cycling activity.

— Seeking opportunities to partner with university research to collect and monitor data.

Providing broader indicators that link with the Strategic Plan, including healthy lifestyles, cultural vitality and healthy environments.

3— Advocacy and Support

Advocacy and support for walking and cycling from community leaders such as City of Marion staff and elected members is vital for successful implementation.

Opportunities include:

— Supporting the development of community walking and cycling groups.

— Coordinating with adjoining Councils, Government agencies, developers and the community.

Mike Turtur Bikeway

'Which Way' artwork by CHEB Art

Part 7

Implementation

This section outlines strategies and actions for implementing walking and cycling in the City of Marion.

Implementation strategies include:

— Actions and Priorities
— Funding Opportunities
— Partners

Action Plan

The following table summarises key actions for implementing walking and cycling improvements in the City of Marion. The suggested priority is related to upcoming external projects and needs identified.

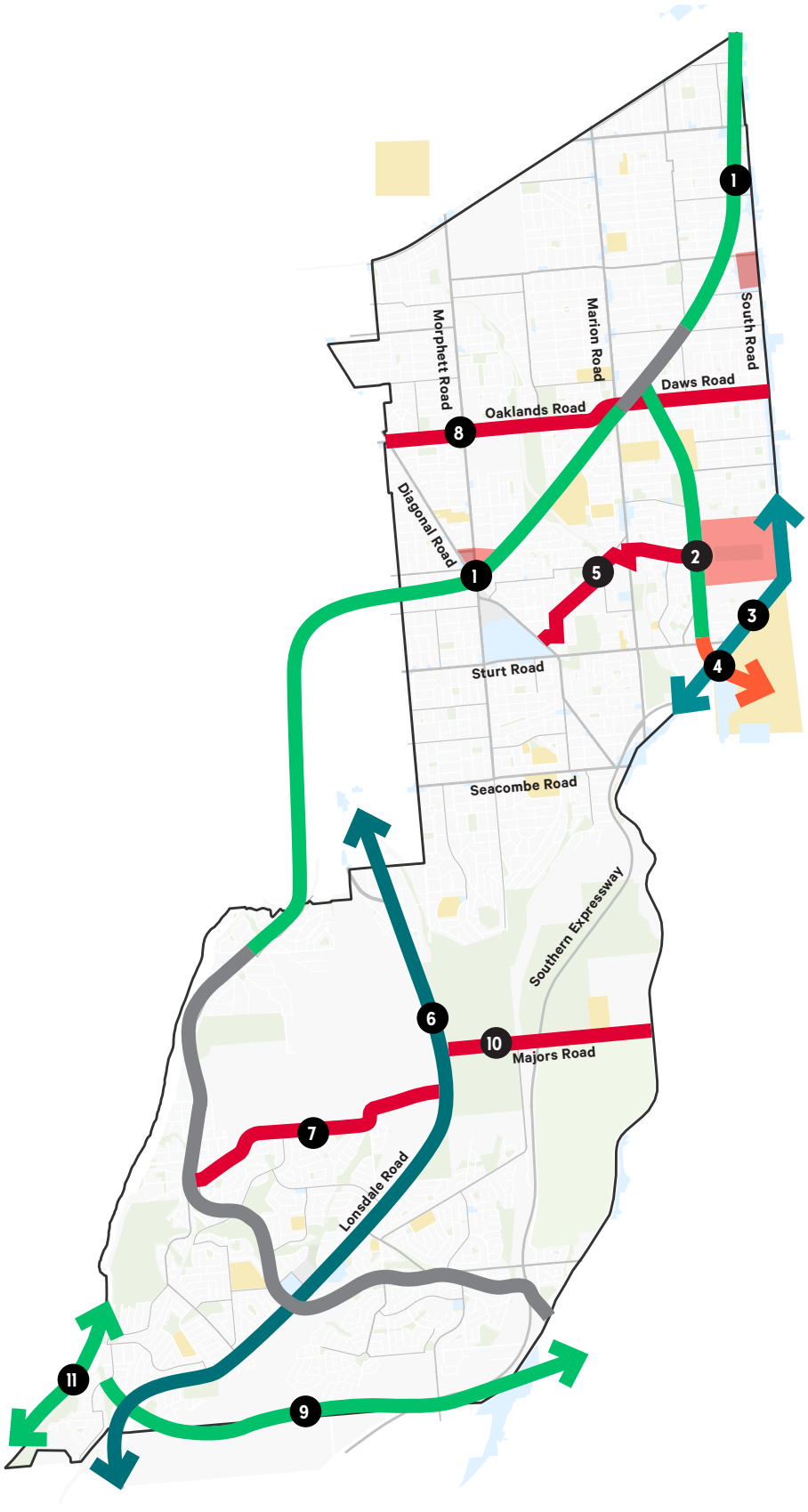
Strategy and Action	Priority
Strategy 1: Planning the Route	
Greenways	
Marino Rocks Greenway – Complete the northern section first. Prepare a Master Plan for development of the corridor and align implementation with other projects for efficiency.	High
Tonsley Greenway – Align timing with other projects, including the Darlington Upgrade, Tonsley Innovation District, Flinders Link and Sturt Road.	High
Sturt River Linear Park– Review alignment, width and upgrade remaining sections.	High
Coast Park upgrade – Work with State Government and adjacent councils to upgrade signage, boardwalks and sections of path not completed.	High
Upgrade links through Warriparinga (Sturt Triangle).	High
Maintain the existing Coast to Vines Rail Trail.	Ongoing
Regional	
Link Tonsley Innovation District site to Westfield Marion via Finnis Street (Chrysler Trail).	High
Seacombe Road – Explore opportunities to improve infrastructure (DPTI road).	Low
Field River shared-use path from coast to Expressway (land ownership to be considered).	Low
Lonsdale Road - complete off-road shared-use path (DPTI road).	Medium
Daws/Oakland Road. – Explore route opportunities (DPTI road).	Medium
Perry Barr Road – Explore route opportunities.	Medium
Castle Plaza to Marino Rocks Greenway (Development partnership opportunities).	Medium
Local	
Streetscape upgrades – Footpaths and tree planting of large species in line with ongoing capital works and maintenance programs.	Ongoing
Integrated with Planning and Built Form, and Shifting the Balance	
Add the proposed Walking and Cycling Network Plan to the City's mapping system to assist in day-to-day management decisions.	Medium
Integrate walking and cycling directions across other City of Marion plans and policies as necessary.	Ongoing
Avoid creating dead-ends and cul-de-sacs. Enhance pedestrian and cycle links for existing cul-de-sacs.	Ongoing
Ensure developments have appropriate site planning and building design that focus on movement and scale of pedestrians and cyclists.	Ongoing
Review existing planning policies (e.g. car parking requirements).	Medium
Seek opportunities for PLEC funding to underground power lines, supporting mature tree establishment.	Medium

Strategy and Action	Priority
Strategy 2: Working with Vehicles	
Reduce the width of vehicles lanes (2.8-3.2m instead of 3.5-4.0m) and increase cycle lane widths through road line-marking renewal process where appropriate.	Ongoing
Provide traffic calming that is walking and cycling friendly. Priority is for local streets identified as part key walking and cycling routes (e.g. Proposed Walking and Cycling Network Plan) and streets identified in Asset Management Plans for renewal or replacement.	Ongoing
Advocate with DPTI to provide space for cyclists on arterial roads (e.g. continuous cycle lanes) and separation at intersections (e.g. bicycle boxes).	Ongoing
Integrate Water Sensitive Urban Design (WSUD) in local streets. Priority is for streets identified for upgrade in long-term Asset Management Plans and the Proposed Walking and Cycling Network Plan where appropriate.	Ongoing
Strategy 3: The Details	
Street trees – Plant street trees of larger species (where appropriate) to provide shade. Aim to increase canopy cover of the public realm. Coordinate incremental tree planting program with ongoing capital works and maintenance programs.	High
Planting – Provide planting of native species along walking and cycling routes, particularly Greenways.	High
Furniture – Provide furniture at key locations along walking and cycling routes.	Medium
Paving – Continue the use of hotmix (AC7) for shared-use paths and increase footpath widths where appropriate.	Ongoing
Public Art – Integration of public art where appropriate.	Medium
Lighting – Integrate lighting (where necessary) for walking and cycling routes.	Medium
Crossings – Advocate for safe pedestrian and cycle crossings where key routes meet major roads and rail lines (DPTI).	High
Strategy 4: Maintenance and Management	
Appropriate funding for maintenance and upgrade of existing walking and cycling facilities.	Ongoing
Continue to upgrade walking and cycling facilities with ongoing maintenance works.	Ongoing
Undertake regular paving audits and maintenance for walking and cycling infrastructure.	Ongoing
Strategy 5: Promotion, Education, Advocacy and Support	
Use Council's marketing resources (including Council's e-news, social media and website) to promote walking and cycling to local residents.	Ongoing
Develop maps, signage and logos to assist in the community's use and legibility of walking and cycling infrastructure. Link with broader network promotion (e.g. Bikedirect).	Medium
Monitor walking and cycling trends.	Ongoing
Support the development of local programs (e.g. 'Active Communities', walking school bus) and community walking and cycling groups.	Ongoing

Key Walking and Cycling Opportunities

Key projects from the Proposed Walking and Cycling Network Plan include:

1. **Marino Rocks Greenway**
   — Complete the northern section first
2. **Tonsley Greenway (partnership with Renewal SA)**
   — Provide off-road shared-use path adjacent rail corridor. Complete section adjacent Tonlsey Innovation District first
3. **Darlington Upgrade (DPTI)**
   — Off-road shared-use paths
4. **Flinders Link (DPTI)**
   — Off-road shared-use paths incorporated within proposed rail overpass
5. **Chrysler Trail**
   — Provide shared-use path from Tonsley Innovation District to Westfield Marion, including Alawoona Avenue
6. **Lonsdale Road**
   — Advocate to complete the shared-use path
7. **Perry Barr Road**
   — Provide on- and off-road bicycle paths
8. **Daws and Oakland Roads (DPTI)**
   — Improve pedestrian and cycle routes
9. **Field River Trail (dependent on land ownership)**
   — Advocate to provide off-road shared-use path to link coast with the Expressway
10. **Majors Road O'Halloran Hill (DPTI)**
    — Advocate with State Government to improve walking and cycling connections
11. **Coast Walk**
    — Complete section of trail south of Hallett Cove Foreshore


1
Morphett Road
Marion Road
South Road
Daws Road
Oaklands Road
8
Diagonal Road
1
5
2
3
4
Sturt Road
Seacombe Road
Southern Expressway
6
10
Majors Road
7
Lonsdale Road
11
9

Funding Opportunities

Funding opportunities for detailed design and implementation of walking and cycling projects include:

— Developer contributions

— State Bicycle Fund

— Places for People grants

— Open Space grants

— Department of Planning, Transport and Infrastructure

— Office of Local Government

— Office for Recreation and Sport

— Community grants

— Arts South Australia

— Power Line Environment Committee (PLEC)

— Black Spot Programme

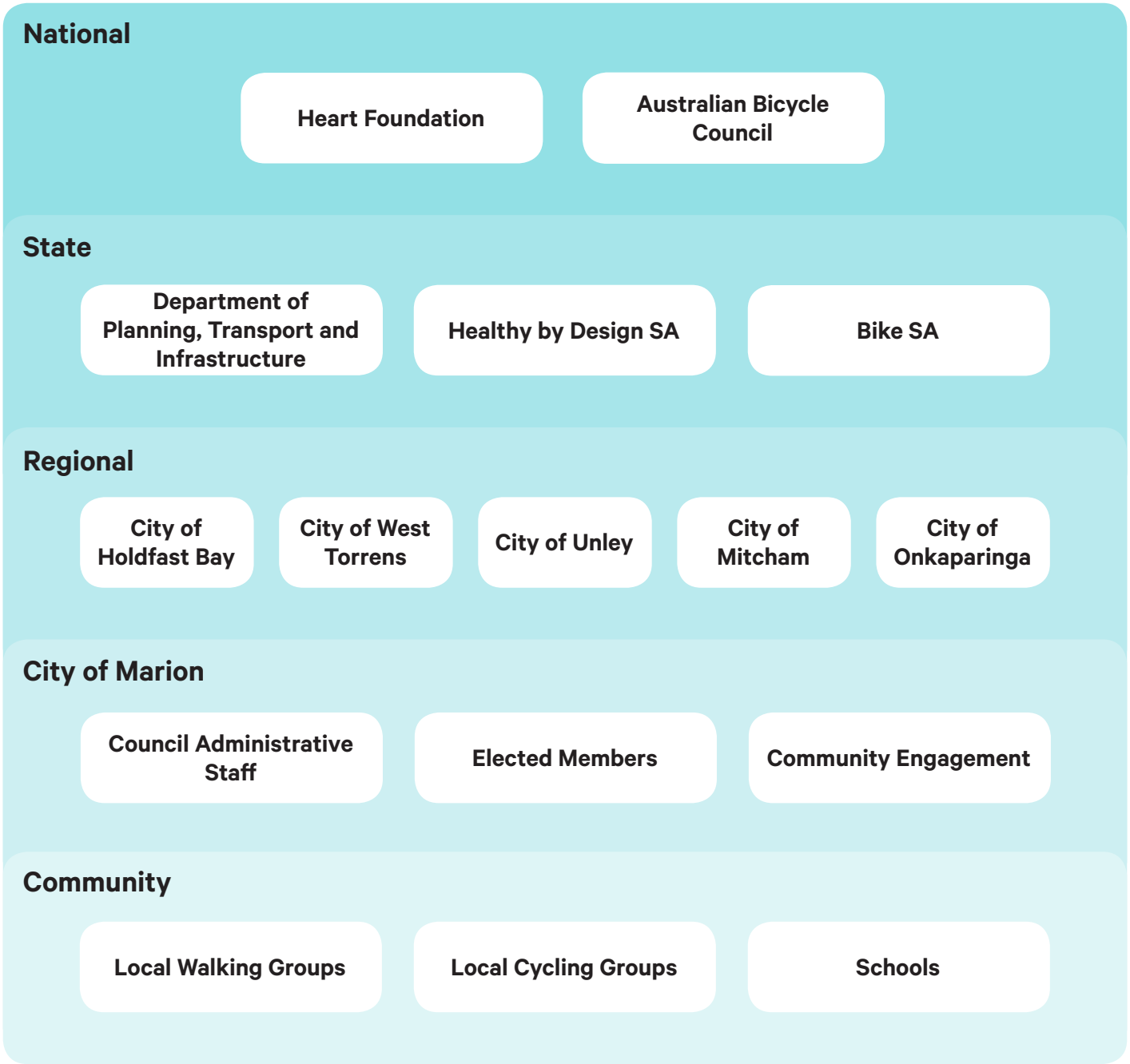
— Cycling Promotion Fund

Funding opportunities may also be available through Federal Government programs.

Plan ahead on walking and cycling projects to take advantage of Federal and State Government funding opportunities as they arise.

Partners

Possible partners for input and delivery of walking and cycling improvements are summarised below.



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CITY OF MARION

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