City of Charles Sturt

Integrated Transport Plan

Section 2: Walking and Cycling

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1.   Introduction

This document forms the first of a suite of documents that will form the Integrated Transport Plan for the City of Charles Sturt over the period to 2025 and the life of the 30 year plan for Greater Adelaide.

The City of Charles Sturt recognises that walking and cycling are fundamental to healthy, efficient, socially inclusive and sustainable communities. The City of Charles Sturt has been at the forefront advocating for Walking and Cycling for many years, with existing programs being implemented as an outcome of strategies developed almost 10 years ago.

The Strategy for Walking and Cycling places pedestrians and cyclists at the heart of the transport system. All trips begin or end as a pedestrian and there are many opportunities for short trips to be undertaken on foot or by bicycle. Planning and transport practice has however tended to prioritise the demands of the motor car over the needs of people. Planning for the motor car has resulted in the gradual decline of the levels of walking and cycling activity, and this lack of activity is now recognised as a major factor in contributing to increased levels of lifestyle related conditions such as diabetes, cardio-vascular disease, osteoporosis and obesity. (1)

Reversing a declining trend of walking and cycling for work, school, utility and recreational trip purposes is vital to improving the health and wellbeing of residents of the City of Charles Sturt. This Strategy identifies a series of actions that will enable the City of Charles Sturt to achieve measurable increases in the levels of walking and cycling and achieve the vision of a safe, healthy, efficient connected and integrated community.

2. The Value of Walking and Cycling

Walking and cycling directly benefits people and our communities.

Places where walking and cycling are supported through high quality infrastructure have been shown to benefit from a more active and healthy population and more resilient economies. Well-planned neighbourhoods increase the number of people who walk or cycle to shops, schools, parks, services, facilities and public transport, and in turn the local shops and facilities are better patronised and economically stronger (2).

The value derived from high quality, accessible and integrated walking and cycling networks can be grouped under 4 main areas; health, social, environment and economic.

Health

Physical activity is an important factor for maintaining overall health and wellbeing. Physical activity:

- Reduces the risk of many diseases and chronic conditions such as cardiovascular disease, osteoporosis, colon cancer, type-2 diabetes and obesity.
- Is beneficial to mental health and well-being and is known to alleviate depression and anxiety.
- Increases social interaction and integration (1).

Evidence indicates that lack of physical activity has overtaken tobacco as a larger contributing factor in premature death from cardiovascular and heart disease throughout Australia (3). The National Physical Activity Guidelines recommend at least 30 minutes of moderate physical activity on most, preferably all days for adults and 60 minutes of moderate to vigorous-intensity physical activity every day for children and youth (4).

For many people, the easiest and most acceptable forms of physical activity are those that can be incorporated into everyday life. Examples include walking or cycling, instead of travelling by car, bus or train. (5)

When 'health' is integrated into urban planning and design, the choice for people to be active becomes easier, more convenient, safe and enjoyable, contributing to a more active and healthier community.

Social

A walking and cycling friendly neighbourhood enhances its liveability and increases the sense of community and social inclusion that occurs. People interact with one another, exchange knowledge and skills and communities come together. (8)

Walking and cycling friendly streets have the ability to:

- Address social disadvantage by providing affordable transport options.
- Enhance social interaction.
- Increase the connectedness of different communities.
- Increase accessibility and social amenity for all Australians.

Health Benefits

The costs of physical inactivity in Australia (6) and South Australia (7)

- direct healthcare costs are estimated at $1.5 billion per year (6)
- $64 billion cost to the Australian economy from lost productivity associated with obesity (7)
- More than 8,000 deaths associated with physical inactivity each year (6)
- An estimated 77,000 potential years of life lost prematurely (6)
- By 2034 the health budget in SA is projected to exceed the entire State budget (7)

Social Benefits

- Residents of highly 'walkable' mixed use neighbourhoods exhibit at least 80% greater levels of social capital than those in less 'walkable' neighbourhoods (8)
- Every kilometre of cycling has a social benefit of 21 cents/kilometre while driving has a net social loss of 12 cents/kilometre (9)

Environment

Transport in Australia is the second-largest emitter of greenhouse gas emissions after electricity generation, accounting for 87.6 million tonnes of carbon dioxide annually, equivalent to 16% of total emissions, with cars contributing around half of this (10).

Car travel is the dominant mode of transport in South Australia, accounting for over 90% of the total distance travelled (11). Walking and cycling plays an important role in improving air quality by reducing vehicle emissions. A small reduction in short trips made by car can generate a significant reduction in vehicle emissions as it is short journeys, when engines are cold that generate the highest emissions.

A walking and bicycle friendly environment enhances the liveability and amenity of communities not only through reduced vehicle emissions but also through reduced vehicle noise and traffic congestion. (8)

Economic

Walking and cycling have many direct and indirect economic benefits, both from the value derived from walking and cycling infrastructure and the spend levels of walkers and cyclists on local high streets (2).

The Heart Foundation (2) explored the economic benefits of making streets more pedestrian and cyclist friendly and found that:

- Walking and cycling to local shops is good for the local economy and is essential to the success of town revitalisation strategies.
- A high proportion of all retail expenditure comes from local residents and workers who travel short distances.
- Streetscape enhancements to make streets walking and cycling friendly are associated with higher rents, the attraction of new businesses and higher land values.
- Space allocated to bicycle parking can produce much higher levels of retail expenditure than the same space devoted to car parking.
- Car parking is of less significance to local retail activity than is often thought. Space for people on foot is a more significant attribute.
- In many cases, patrons arriving on foot or by bicycle visit main streets more often and spend the most money per month.
- Retail vitality would be best facilitated by traffic restraint, public transport improvements and measures to improve the walking and cycling environment.

Environment Benefits

- Environmental benefits of walking and cycling are approximately 5.9c per kilometre walked or cycled (10)
- Shifting 5% of car trips to walking and cycling would reduce emission impacts by up to 8% (11)
- Cycling in Australia in 2006 equated to a greenhouse gas saving of 45,000 tonnes per year or $1.8M (12)

Economic Benefits

- Commuter cycling levels in Australia in 2006 reduced congestion costs by $63.9M per annum (12)
- Bicycle network construction projects create an average of 11.4 jobs per $1M invested compared to 7.8 jobs for road-only construction projects (13)
- Economic benefits of walking and cycling in Australia are estimated at $2.12 and $1.43 per kilometre respectively (10)

3. The Vision for Walking and Cycling

The vision for Walking and Cycling in the City of Charles Sturt is that undertaking a walking or cycling trip becomes the natural instinct for many local trips and as part of longer trips by public transport.

The message that the vision conveys is clear and concise and identifies the need to overcome the barriers that are now prevalent in the transport networks and enhance the opportunities that increased walking and cycling can provide.

The vision for Walking and Cycling in the City of Charles Sturt

> *To create communities where people choose and are able to walk or cycle for any purpose. This is supported by a Council that recognises the value of walking and cycling and makes a commitment to create safe, healthy, efficient, connected and sustainable communities.*

To achieve this vision, the City of Charles Sturt will:

- Increase opportunities for physical activity and improve the quality of life for present and future communities;
- Work to provide a pedestrian and bicycle network that is safe, integrated, connected and coordinated with other transport modes and other transport authorities;
- Engage with and listen to their community to ensure that the pedestrian and bicycle network will meet their needs;
- Continue to reinforce the change in emphasis of Transport Planning, away from priority consideration of cars and traffic movement; and
- Measure success through increased walking and cycling, recording the level of pedestrian and cycling activity at key locations over time.

Transport Mode Priority

- Pedestrians
- Cyclists
- Public Transport Users
- Cars and Other Vehicles

The City of Charles Sturt is a signatory to the Walk21 International Charter for Walking. By supporting the International Charter, The City of Charles Sturt recognises the health, social, environmental and economic values of walking.

> **The vision of the Walk21 International Charter (14) is:**
>
> *To create a world where people choose and are able to walk as a way to travel, to be healthy and to relax, a world where authorities, organisations and individuals have:*
>
> - *recognised the value of walking;*
> - *made a commitment to healthy, efficient and sustainable communities; and*
> - *worked together to overcome the physical, social and institutional barriers which often limit people's choice to walk.*

The vision for Walk21 can also be applied to cycling, recognising the value of cycling as healthy, efficient and sustainable for communities, yet suffering from many of the same physical, social and institutional barriers as walking.

The City of Charles Sturt Community Plan 2013-2027 (15), has identified a series of 5 themes all of which link directly to the value that can be derived by creating favourable and high quality walking and cycling conditions in local communities. Further details on this are set out in section 4.5 below.

The Strategy for Walking and Cycling links with the objectives of the Community Plan themes, and in turn the vision for Walking and Cycling within the City of Charles Sturt.

4. Setting the Scene

The City of Charles Sturt has been delivering improved opportunities for walking and cycling for many years, dating back to strategies developed and implemented almost 10 years ago. Ongoing community engagement undertaken as part of the development of the Community Plan for 2013-2027 has highlighted community concerns over the footpath and cycling network provision, particularly from a road safety, personal security and connectivity perspective.

Whilst the City of Charles Sturt has direct influence over the local road and footpath networks, it has required a strong advocacy role to achieve improved funding opportunities for walking and cycling and improved facilities on the transport networks owned and operated by other transport authorities.

This section provides the context for the Strategy for Walking and Cycling, within the City of Charles Sturt, its Major Destinations and future Growth Directions, Council Demographics, the Strategic and Statutory Policy Context and major transport networks.

The context identified within this section has subsequently been incorporated as a key part of the prioritisation strategy set out within section 9.

4.1 City of Charles Sturt

The City of Charles Sturt is located to the north west of Adelaide, extending from the edge of the CBD Park Lands to the coast. The City has a resident population of approximately 105,000 with approximately 70% of the City formed of residential development.

The Charles Sturt area has evolved since the early days of settlement of Adelaide, and is characterised by a mix of residential, industrial and commercial land uses, which include contemporary and highly valued heritage areas. The transport networks within the City are well developed and are set to be further developed in future years to make public transport from the West to the CBD even easier.

4.2 Major Destinations

The City is close to the beach, the CBD, the airport and regional shopping facilities and hence has become a popular residential area. The City of Charles Sturt has long been considered the sporting and entertainment hub of Adelaide, with national basketball, soccer and football stadiums, three privately owned golf courses, an international rowing course, the River Torrens Linear Park, the Adelaide Entertainment Centre, the coast and numerous highly regarded local sporting venues in the area. The City is also well catered for in terms of schools, medical services, local sporting and community facilities including libraries and community centres.

Many of the Coastal suburbs provide popular destinations for the wider Adelaide area, notably Henley Beach, West Beach, Grange and Semaphore Park.

There are also several major secondary schools with a wide travel catchment and a large number of primary schools.
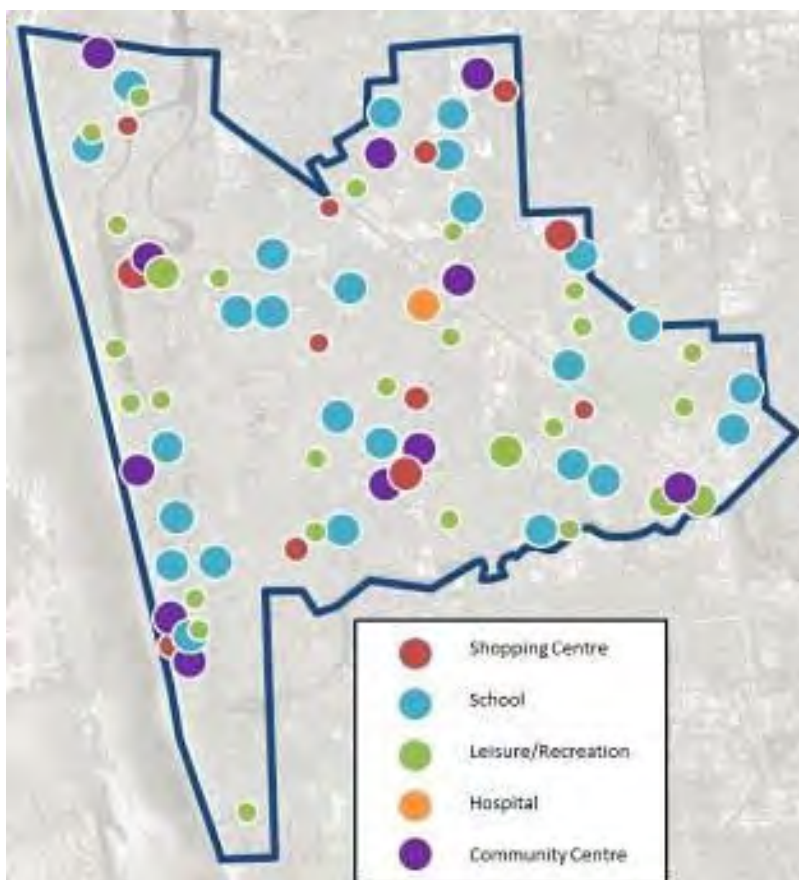
Major destinations include:

- Adelaide Entertainment Centre
- Hindmarsh Stadium (Adelaide United FC)
- Adelaide Arena (Basketball)
- Woodville Oval (Eagles SANFL)
- Royal Adelaide, West Lakes and The Grange Golf Clubs
- Westfield Shopping Centre, West Lakes
- Findon Shopping Centre
- Arndale Shopping Centre
- Welland Plaza Shopping Centre
- Fulham Gardens Shopping Centre

Major Destinations in the City of Charles Sturt

4.3 Growth Directions

In addition to the existing local and strategic destinations, there are a number of major locations and sites that have been identified as part of the future growth directions for the City. These include specific redevelopment sites, transit corridors where increased density has been identified and local suburbs where a general increase in development density would be supported. Key locations for new development and increased density include:

- Bowden Village
- Woodville village and environs
- Kilkenny and St Clair redevelopment sites
- AAMI Stadium site, West Lakes
- Outer Harbor and Grange rail corridors
- Major bus route corridors including Port Road, Grange Road and Torrens Road

4.4 Existing Travel Data

The following section provides an overview of travel data that inform the way people use active forms of transport in Charles Sturt, including walking and cycling. Data reflects the 2011 census and are extracted for the Charles Sturt Statistical Local Area (SLA). (16)

Travel to Work By Public Transport

In 2011 8.4% of residents used public transport to travel to work which is equal to the use for Greater Adelaide. Public transport usage has increased in both Charles Sturt and across Greater Adelaide from 8.1% in 2006 but remains below the Australia wide figure of over 10% in 2011 and around 9% in 2006. Much of the public transport growth in the City of Charles Sturt is as a result of

Travel to Work by Public Transport by 2011

the tram extension.

Levels of public transport use ranged from a low of 5.1% in West Lakes - West Lakes Shore - Tennyson to a high of 13.8% in Brompton, with areas east of Port Road indicating the highest percentages.

Cycling to Work

In 2011, 1.5% of Charles Sturt residents cycled to work which is slightly higher than the 1.1% for Greater Adelaide. Cycling to work has however decreased since 2006 when 1.7% of residents rode to work.
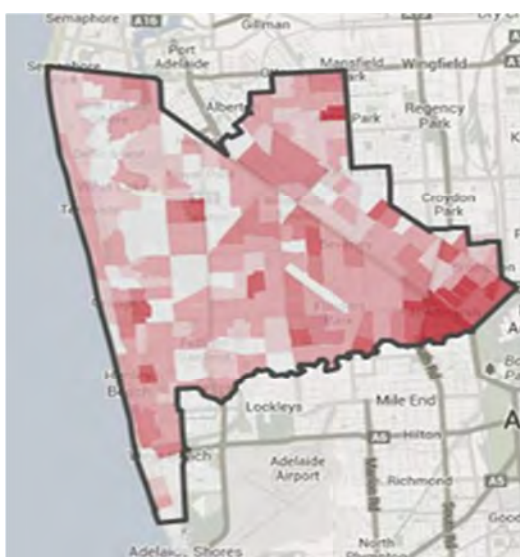
Percentage of people who cycled to work in 2011
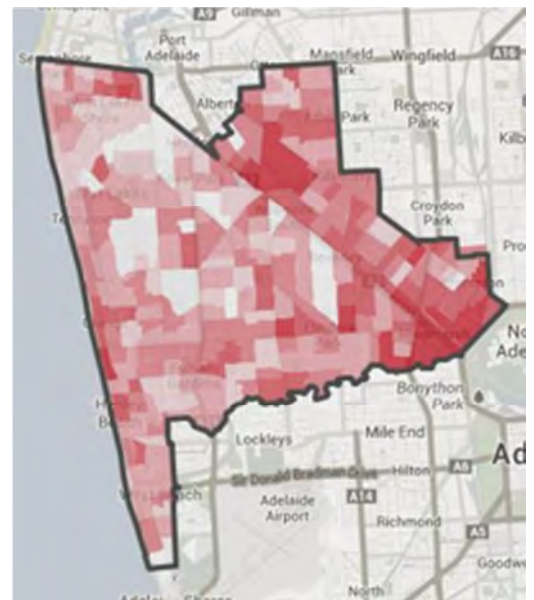
Proportions ranged from a low of 0.5% in Seaton (North) to a high of 3.9% in Brompton, with suburbs closest to the CBD generally recording the highest levels of cycling to work.

A particular increase in cycling to work was noted in Woodville South and Beverley wards.

Walking to Work

In 2011, 1.8% of Charles Sturt residents walked to work which is noticeably lower than the 2.4% of Greater Adelaide. Walking to work has decreased since 2006 when 2.2% of Charles Sturt residents and 2.6% of Greater Adelaide residents walked to work.

Proportions of people who walked to work varied across the City ranging from a low of 0.6% in Seaton (North) to a high of 4.7% in Woodville West. The five areas with the highest percentages were all in the Port Road corridor.

Between 2006 and 2011, the number of residents of Charles Sturt and Greater Adelaide walking and cycling as their main method of travel to work decreased. Elsewhere in Australia cycling as travel to work mode increased and whilst walking generally decreased, in most cases the levels of walking remain much higher than in Adelaide.

The reduction in walking and cycling trips in Charles Sturt and Greater Adelaide was countered by increases in train, tram and bus travel, which are likely to include an element of walking.

However increases in public transport use between 2006 and 2011 were not as high in Adelaide as elsewhere in Australia.
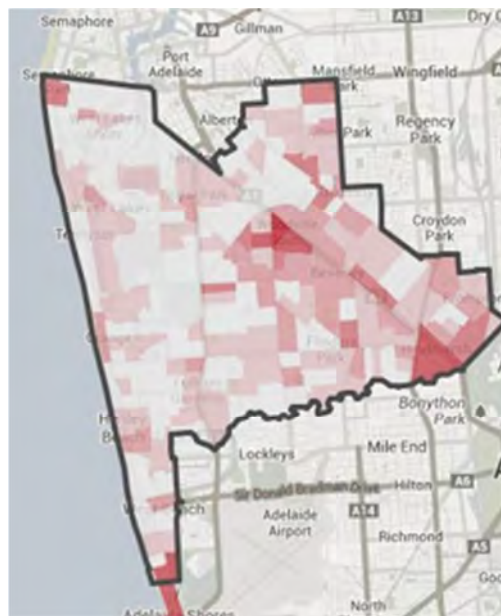
Percentage of people who walked to work in 2011

Location	Travel to Work Mode Percentage 2011 (2006)		
	Walking	Cycling	Public Transport
City of Charles Sturt	1.8(2.2)	1.5(1.7)	8.4(8.1)
Greater Adelaide	2.4(2.6)	1.1(1.2)	8.4(8.1)
Greater Melbourne	2.9(3.0)	1.3(1.1)	13.8(11.7)
Greater Sydney	4.1(4.2)	0.8(0.6)	20.0(18.1)
Greater Perth	2.2(2.0)	1.1(1.0)	10.4(8.2)
Greater Brisbane	3.1(3.1)	1.0(0.9)	12.7(11.3)
Australia	3.7(4.0)	1.0(1.0)	10.4(8.9)

Source: Australian Bureau of Statistics, Census of Population and Housing, 2006 and 2011

Travel to Work transport modes in Australia for 2006-2011

To provide wider context, Adelaide and Charles Sturt is comparable to the similarly sized sister city of Austin in the US while the smaller city of Christchurch has 3-4 times the levels of walking and cycling. Similarly sized European cities of Birmingham and Frankfurt also show higher levels of walking, cycling and public transport use. The European cities of Amsterdam and Copenhagen, which are ranked as the top two cycling cities in the world (according to the Copenhagenize Index 2013), have significantly higher levels of walking and cycling which reflects the ingrained cycling culture.

Location	Mode (%)		
	Walking	Cycling	Public Transport
City of Charles Sturt	1.8	1.5	8.4
Greater Adelaide	2.4	1.1	8.4
Australia	3.7	1.0	10.4
Austin, Texas, USA[1]	2.3	1.9	4.7
Christchurch, New Zealand[2]	4.5	5.1	9.0
Birmingham, UK[5]	10.3	1.7	23.5
Frankfurt, Germany[6]	11.0	7.0	39.0
Amsterdam, Netherlands[3]	24.0	30.0	30.0
Copenhagen, Denmark[4]	5.0	37.0	36.0

Travel to work transport modes for comparable worldwide cities

Sources
[1]   *American Community Survey, United States Census Bureau, 2011*
[2]   *Main Mean of Travel to Work, Statistics New Zealand, 2006*
[3]   *Traffic Planning in Amsterdam, City of Amsterdam, 2012*
[4]   *Green Mobility in Copenhagen, City of Copenhagen, 2008*
[5]   *Office for National Statistics, UK, 2011*
[6]   *2004 Survey data derived from Wikipedia http://en.wikipedia.org/wiki/Modal_share*

Journey to School

The CensusAtSchool 2013 Survey (17) recorded 19.0% and 3.2% of respondents in South Australia walking and cycling to school respectively. This compared to 18.2% and 3.4% nationally. Walking and cycling to school has generally decreased since 2010 with car use increasing. South Australia has the highest level of car based travel to school in Australia at 53.9% compared to 46.0% nationally. Full details are included in appendix 1.

4.5   Council Demographics

Car Ownership

Two or More Car Ownership

In 2011, 45.1% of Households in Charles Sturt have two or more cars which are slightly lower than Greater Adelaide at 49%. This has increased since 2006 when 42.2% of Charles Sturt and 46.7% of Greater Adelaide households possessed two of more cars.

In 2006, 12.3% of households in the City of Charles Sturt did not have a car compared to 10.1% in Greater Adelaide.

The proportion of households with two or more cars varied across the City ranging from a low of 34.4% in Seaton (North) to a high of 54.8% in West Lakes - West Lakes Shore - Tennyson. Similarly the proportion of households without a car varied from a low of 4.8% in West Lakes - West Lakes Shore - Tennyson to a high of 19.2% in Pennington - Woodville North - Athol Park.
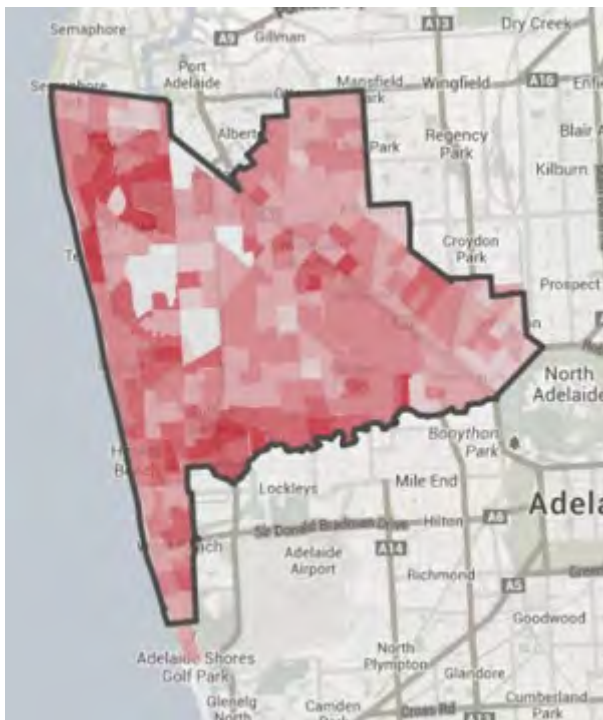
Percentage of households with two or more cars in 2011

4.6   Policy and Best Practice

There are many policy documents that provide a strategic direction to plan for increased Walking and Cycling. At Federal level there is the National Cycling Strategy and Active Travel Statement covering walking, cycling and public transport use. At State level, the 30 Year Plan for Greater Adelaide provides the planning framework for more walking and cycling oriented development, which will be supported by the emerging Integrated Transport and Land Use Plan. Within Charles Sturt documents as far back as 2005 identified the need to improve walking and cycling environments.

There are also a number of Federal and State guidance and best practice documents that identify many of the barriers that have resulted in reduced levels of walking and cycling, and provide advice, guidance and case studies to assist in developing more walking and cycling friendly environments.

Federal Documents

***Walking, Riding and Access to Public Transport*. Ministerial Statement – July 2013, Department for Infrastructure and Transport**
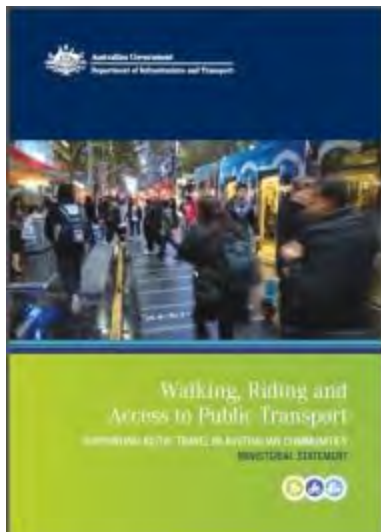
This statement sets out how the Australian Government will work with other levels of government, the community and business, to support and encourage an increase in the proportion of people walking and riding for short trips, and accessing public transport, in our communities. The Statement identified that getting more people walking, riding and using public transport results in:

- increased capacity, and reduced congestion, in the overall transport network
- reduced environmental impacts
- improved public health and reduced healthcare costs
- improved community wellbeing and social cohesion.

***Australian National Cycling Strategy* 2011-2016**
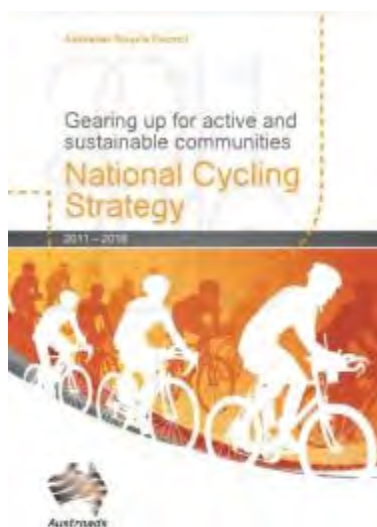
The National Cycling strategy defines the following priorities and objectives:

CYCLING PROMOTION: Promote cycling as both a viable and safe mode of transport and an enjoyable recreational activity

INFRASTRUCTURE and FACILITIES: Create a comprehensive network of safe and attractive routes to cycle and end-of-trip facilities.

INTEGRATED PLANNING: Consider and address cycling needs in all relevant transport and land use planning activities

SAFETY: Enable people to cycle safely

MONITORING and EVALUATION: Improve monitoring and evaluation of cycling programs and develop a national decision making process for investment in cycling

GUIDANCE and BEST PRACTICE: Develop nationally consistent technical guidance for stakeholders to use and share best practice across jurisdictions

State Government Documents

The 30-Year Plan for Greater Adelaide (2010)

The 30-Year Plan for Greater Adelaide is a volume of the SA Planning Strategy covering the Greater Adelaide region. The Plan outlines a vision for Greater Adelaide, identifying areas for population and employment growth, as well as opportunities for new or improved infrastructure and services.
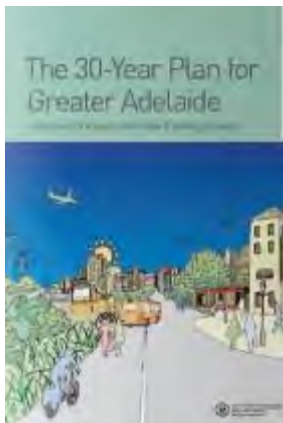
A focus of the Plan is the concentration of infill growth around transit corridors, transit oriented development (TOD) sites and activity centres. The specified targets for increased infill development seek to achieve a more sustainable urban form in terms of transport and infrastructure provision, with particular emphasis on increasing walking, cycling and public transport opportunities.

South Australian Road Safety Strategy 2020, "Towards Zero Together" and the current associated Road Safety Action Plan, 2013-2016.

The Road Safety Strategy and Action Plans recognise the need to better accommodate safe designs for pedestrians and cyclists.

Safety in Numbers – A Cycling Strategy for South Australia 2006, **2010**

This document set out actions for all levels of Government in South Australia with a goal to double the level of cycling activity by 2015. It has not however been updated since 2010.

City of Charles Sturt

Documents within Charles Sturt Council provide a strategic and supporting context for increasing the facilities and investment for walking and cycling.

City of Charles Sturt Community Plan 2013-2027 **(2013)**

The City of Charles Sturt Community Plan sets out the framework for the realisation of the community's aspirations for the City as a place to live, work and play. The Plan recognises the challenges facing the Council area, including its ageing population, the impacts of climate change, and urban consolidation. The Plan was developed over a 12 month period including extensive consultation, the responses to which provides clear support for improving walking and cycling opportunities and the appearance of local streets and major destinations.

Five theme areas have been identified in the Community Plan with a defined objective supported by a series of strategies. The theme areas and objectives are shown in the table.

Theme	Objective
Community Wellbeing	Create a safe, healthy and supportive community which encourages participation, creativity and diversity
Liveability and Place	Build healthy, functional and attractive neighbourhoods
Sustainability and Environment	Protect our environment and minimise our ecological footprint
Economic Prosperity	Build an economically thriving and competitive city
Leadership	Demonstrate effective leadership with strong community cohesion

Theme Areas and Objectives in Charles Sturt Community Plan

Key response issues identified from the Community Plan consultation relating to the walking and cycling environment were:

- Almost a quarter of all responses (24%) identified the need for footpath improvements, high quality bike lanes and paths and improved public transport as the key transport issues to address.
- There was strong recognition of the social and community benefits of promoting main streets and high quality public spaces at destinations and that many current locations did not achieve this.
- Support for strategies that encouraged increased levels of physical activity.
- Access to, and facilities within, open space was highly valued with footpaths a key aspect of making open space more useable.
- Street trees were seen as highly valued and any loss was a major concern.

City of Charles Sturt Corporate Plan 2013-2017 (2013)

The City of Charles Sturt Corporate Plan outlines the Strategies, Key Performance Indicators and Actions that will ensure delivery over the next four years of the next stage of the 20 year Community Plan. The Corporate Plan provides specific details of projects and actions that will support the community plan. Many of the strategies and actions that Council will be taking forward over the next 4 years will directly support and complement the delivery of the strategies and actions identified in the Strategy for Walking and Cycling.

City of Charles Sturt Transport Strategy 2005-2025 (2005)

The City of Charles Sturt Transport Strategy provided the initial framework to better integrate land use and transportation systems in the council area. Even as far back as 2005 when the document was issued, it identified a number of issues and fundamental changes required to the local pedestrian and cycling networks and facilities to support growth in the city.

City of Charles Sturt Traffic Management Strategy (2005)

Developed in parallel to the Transport Strategy, the Traffic Management Strategy provided guidance for managing traffic on the local street network. Whilst it did not specifically identify pedestrian and cycling strategies, many aspects of the strategy would have assisted in improving pedestrian and cycling environments on local streets.

Active Living Plan to Cycle: Local Area Strategic Bicycle Plan Final Report (2008)

The Active Living: Plan to Cycle Report was endorsed by Council in 2008 and has provided the framework for the development of the local bicycle network since.

Some of the key Federal and State documents that assist in guiding improvements in walking and cycling are noted below.

Federal Documents

Healthy by Design was developed in response to local government requests for practical guidance in designing more walkable and liveable communities providing design approaches and case studies to increase active living opportunities.

Healthy Spaces and Places provides practical information and case studies to help Councils create environments that support and encourage physical activity.

Blueprint for an Active Australia provides the background and information for a national physical activity plan. The aim of the plan is to increase levels of physical activity throughout the population, identifying the need for all levels of Government to give priority to physical activity initiatives.

State Documents

Streets for People Compendium was developed by the Active Living Coalition in SA to provide guidance, advice and best practice case studies on the function, design and operation of streets to reduce the dominance of the car and create more people friendly streets.

Healthy by Design SA was developed as a State specific document providing local tools and case studies to assist in planning and implementing urban designs that promote healthy and active living.

4.7 Major Transport Networks

Road Network

The road network in Charles Sturt consists of over 640 km of arterial and local roads,

Charles Sturt Arterial Road Network

providing for the movement of people and goods throughout the City. The Department of Planning, Transport and Infrastructure (DPTI) is the state government agency responsible for the care and control of the arterial road network with Charles Sturt responsible for the remainder of the road network.
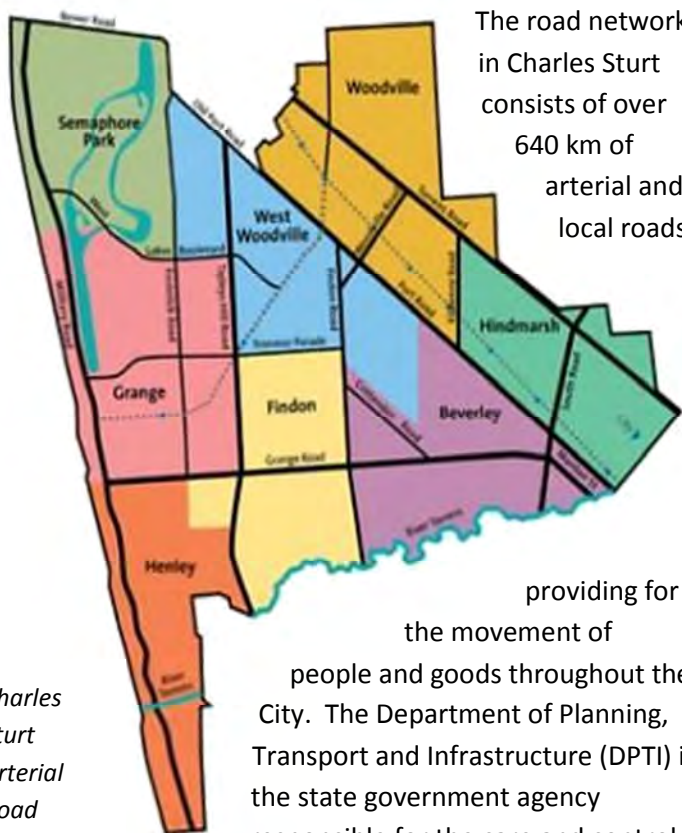
Most of the arterial roads within the City are four lane divided roads which allow on-street parking at some times of the day and operate as clearways during peak periods. Direct access is provided to adjoining commercial and residential properties. The arterial road network in Charles Sturt is shown in the figure below:

The design of the local streets varies widely in terms of road width, layout and alignment and resulting cycling and walking conditions. This is a reflection of the historic development of the area. The grid-type road networks and long streets in areas like Croydon and Woodville Park, which are bordered by arterial roads, are conducive to infiltration by non-local traffic avoiding congestion. This results in higher speeds and volumes but also provides permeable street patterns for pedestrians and cyclists. The road networks in the relatively newer suburbs such as West Lakes are less likely to be subject to undesirable traffic movements but often result in circuitous walking and cycling routes.

Public Transport System

Public transport services are provided by the State Government through the Public Transport Services (PTS) Division of DPTI. The current public transport system comprises a rail service (the City to Outer Harbor and Grange services), the northern terminus of the tram at the Entertainment Centre and numerous radial and cross suburban bus routes.

Rail Services

The rail service comprises a 7.5 km long dual track between the City and Woodville with stations at Bowden, Croydon, West Croydon, Kilkenny and Woodville Park serving both the Outer Harbor and Grange line services. The Outer Harbor service continues north of Woodville with further stations located at Cheltenham and St Clair within Charles

Outer Harbour and Grange Rail Lines

Sturt. The single track Grange line extends from Woodville to Grange with stations at Albert Park, Seaton Park and East Grange. Ovingham station on the Gawler line is located on the south eastern boundary of the Council area.

The Adelaide CBD to Woodville track broadly follows a northwest-southeast alignment parallel and to the north of Port Road, diverging slightly from south to north from around 100 metres at Bowden to around 500 metres at Cheltenham. The Grange line follows a northeast-southwest alignment parallel and immediately south of West Lakes Boulevard-Clarke Terrace and then crosses the Royal Adelaide Golf Course before turning west to its terminus at Military Road. Given the general lack of crossing opportunities, Port Road acts as an effective southern boundary of the catchment area for the rail services as far as Woodville and Cheltenham. The catchment area for the Grange line is generally limited to sections of Grange, Seaton/Findon, Hendon and Woodville West.

The table and figure below show the overall levels of use of the stations, indicating that walking constitutes the majority of access at all stations and that Woodville is the busiest station by a significant margin.

Outer Harbor Line	Total Passengers	Mode of Travel to Station				
		Walk	Cycle	Bus	Park & Ride	Kiss & Ride
Bowden	291	253	29	0	3	6
Croydon	424	352	13	0	51	8
West Croydon	394	335	4	4	32	20
Kilkenny	409	360	4	0	29	16
Woodville Park	354	280	4	0	50	21
Woodville	1598	1190	34	0	340	34
Cheltenham	492	403	10	5	49	30
Grange Line						
Albert Park	186	138	4	0	28	17
Seaton Park	234	180	7	0	37	9
East Grange	165	145	3	0	12	7
Grange	357	250	4	7	71	25
Gawler Line						
Ovingham	307	282	18	0	3	3
TOTALS	**5211**	**4168**	**134**	**16**	**705**	**196**
Modal Percentages	100%	80%	3%	0%	14%	4%

Patronage Levels by access mode at Rail Stations in the City of Charles Sturt

Patronage Levels at Rail Stations in the City of Charles Sturt

Source: DPTI, 2012. Note: Woodville totals exclude train to train transfer

Few of the train stations within or accessible to the Charles Sturt area are advertised as providing commuter-car parking facilities. Glanville to the north of Charles Sturt is the only station formally designated as a Park and Ride facility although long stay or off-street parking is identified as available for use by commuters in proximity to the stations at Ethelton, Woodville, Woodville Park and Albert Park. A small car park is also available at Grange station but is not advertised.

Individual keyed bike lockers are available at Alberton, Glanville and Grange stations within or accessible from the Charles Sturt area

The lack of formal car parking and secure bicycle parking at the stations significantly limits the ability of the rail service to attract increased patronage from a wider catchment area.

Bus Services

Bus routes operating in the City provide both radial and cross suburban services. The radial services are focused on the CBD as a destination/origin and operate primarily along Grange Road, Port Road and Torrens Road. Along most of these routes there is a minimum service frequency of 15 minutes during the day and 30 minutes at night, meeting the frequency criteria to be determined as Go Zones.

The cross suburban services operate between West Lakes, Port Adelaide and Arndale aide and the Outer Suburban Connector between Arndale, Woodville, Grange and Henley within Charles Sturt.

These services do not generally provide GO zone frequencies.

Bus Routes and Interchanges in the City of Charles Sturt

There are small pockets of residential areas located further than 400 metres from a bus or train route offering service frequencies of 30 minutes or less. These are:

- Fulham/Fulham Gardens south of Marlborough Street.
- Flinders Park around Hartley Terrace.
- Woodville South and Beverley between Crittenden Road and Port Road.
- Findon south of Trimmer Parade.
- Seaton, Royal Park and West Lakes/West Lakes Shore

Light Rail

The existing tram light rail service terminates at the Entertainment Centre at the southern end of Port Road and the Charles Sturt Council area. This extension was opened in 2010 and provides free travel to the CBD, supported by a paid Park and Ride facility located next to the Entertainment Centre which was extended in 2013. Future extensions of the tram line to the north remain under long term consideration.

Major Projects

There are a number of major transport projects identified within Charles Sturt that are likely to be implemented in the next few years. These include:

- Grade Separation of local and interstate rail lines in north Park Lands.
- South Road upgrade from Torrens Road to the River Torrens.

Public Transport Summary

- The passenger rail service, particularly the Grange service, is generally poorly patronised. The walk-in catchment area around many rail stations is restricted by poor accessibility in many cases and is of low density.
- Potential longer distance catchments by bicycle or Park and Ride are not generally catered for.
- Buses and trains provide reasonable cross-city and radial services to and from the CBD, with GO zones on the major arterials.
- The tram service provides a popular and free service to the CBD from the southern end of the Council area, together with a paid Park and Ride facility.
- There are small pockets of residential areas from which residents would have to walk more than 400 m to a bus or train stop.
- There is a limited community transport service operating in the City for the benefit of aged residents.

5. Existing Walking and Cycling Network

This section considers the existing walking and cycling networks in the City of Charles Sturt including the nature and performance of the facilities.

5.1   Walking Network

There are over 930 km of sealed footpaths in the City of Charles Sturt and a further 300 km of informal and unsealed footpaths. The sealed footpaths are located adjacent to roadways, through public reserves and along the River Torrens Linear Park, Coast Park and around West Lakes.

The City of Charles Sturt already has a strong focus on the safety and quality of the footpath assets that it manages. These assets represent a large investment as well as providing a significant resource for all members of the community. The City of Charles Sturt commenced a program in 2007/08 to replace failing sections of concrete path and upgrade all kerb ramps to DDA compliance. This program was expanded in 2010/2011 with the creation of a dedicated footpath paving team, which is to be further strengthened following the completion of an audit of all footpaths. The City of Charles Sturt remains committed to continuing this program as a key part of encouraging increased walking activity.

The nature of the pedestrian facilities varies across the City of Charles Sturt, often depending on the age of the suburbs and opportunities that have arisen for upgrade. Typical examples of local pedestrian footpath provision and surface treatments are shown.

In and around activity centres, the provision for pedestrians has been enhanced. In some cases this is to accommodate high levels of pedestrian activity whilst in other locations it is also to enhance the local amenity and streetscape.

The shared use paths along the River Torrens Linear Park and Coast Park also provide a high quality part of the walking network. Whilst primarily designed and mostly used for recreational walking purposes, they also have the potential to fulfil roles for other journey purposes where walking would act as the primary mode of travel.

Concrete Footpath,
Valetta Road, Fulham Gardens

Brick paved footpath,
West Lakes

Wide Shared path,
Brebner Drive, West Lakes

River Torrens Linear Park Shared Path

New section of Coast Park, south of Henley

Elizabeth Street, Croydon

Around the majority of the City of Charles Sturt, the footpath provision is of good quality and can be considered adequate for the anticipated level of use. The future upgrade program can be expected to address any that are of particularly poor quality.

Interaction with the Road Network

Local Streets

As part of the footpath upgrades program, footpath widths and kerb ramp provision are being brought up to current DDA compliant standards. For most local streets, conveniently located kerb ramps at intersections and on pedestrian desire lines provide sufficient assistance to enable pedestrians to safely cross the road. Vehicle speeds and volumes will generally be sufficiently low that additional facilities such as build-outs and median refuges are not required.

Local kerb ramp crossings, Allenby Gardens

Emu crossing, Marlborough Street, Henley Beach

Around schools, the use of emu and koala crossings provide assistance to enable school children to safely cross the road. Again, in most cases, this level of provision at school start and finish times provides suitable crossing provision.

Valetta Road Pedestrian Actuated Crossing, Kidman Park

Where the level of demand for pedestrians to cross the road is higher, the level of crossing provision has been upgraded with wombat or pedestrian actuated crossings provided.

Arterial Roads

Many of the activity centres with the City of Charles Sturt are located along arterial roads with many walking trips including travel along or across the arterial road network.

Around some of the activity centres, wide, well surfaced footpaths are available, such as Port Road, Welland and Woodville Road.

Port Road Footpath, Welland

Woodville Road Footpath, Woodville

However, there are locations where the arterial road footpaths do not provide appropriate and safe facilities, even for basic local trips and access to bus stops.

Pedestrian footpath, River Torrens bridge, Tapleys Hill Road

Bus Stop 35B, Old Port Road, West Lakes Shore

Formal crossing facilities on arterial roads are generally limited to the approaches at most signalised crossing intersections and some mid-block pedestrian actuated signals in the vicinity of locations generating regular pedestrian demand. Median refuges are also available in some road carriageways. However, in many locations arterial roads present a major barrier to accessing destinations and public transport facilities. This is considered further in section 5.3.

Pedestrian Mid-block Crossing, Port Road, Welland

Access for all Abilities

The local footpaths need to provide suitable facilities for all users regardless of their physical abilities. The existing footpath network caters well for the majority of pedestrians. In most cases the footpaths are also suitable for pedestrians with reduced mobility and walking ability, including those with visual or physical impairments, and those using a wheelchair or mobility scooter. However, there are a number of locations where some users would be disadvantaged by the available provision creating obstructions for blind and partially sighted pedestrians and unnecessary manoeuvres for those in wheelchairs or with pushchairs. In many cases these obstructions could have been identified and avoided at the design stage.

By observation, there appears to be very few pedestrian facilities in areas where there is a significant proportion of aged residents.

Bus shelter obstructing footpath, Marlborough Street

Signal pole obstructing pedestrian crossing, Henley Beach

5.2   Bicycle Network

The existing bicycle network within the City of Charles Sturt typically provides three types of facility:

- On-road bike lanes, on arterial roads and a number of local collector roads
- Bike direct routes on local streets
- Off road bike paths and shared paths

On Road Bike Lanes

The City of Charles Sturt is generally poorly served by on-road bike lanes. Along arterial roads, other than Port Road and East Avenue, most bike lanes are only available as dedicated facilities for 1.5 hours either morning or evening peak, according to the peak direction of travel. Cyclists therefore have to travel in the kerb lanes with buses, commercial vehicles and other traffic and avoid parked cars. DPTI, through the Office for Walking and Cycling, is assessing the potential for upgrading on-road bicycle lanes.

Arterial road bike lane, Port Road, Croydon

Arterial road bike lane, Grange Road, Kidman Park

Marlborough Street bike lane, near Henley

Hartley Road bike lane, Flinders Park

There are similarly few on-road facilities on the major local roads with the Marlborough Street, Valetta Road and Hartley Road corridor being the notable exception.

There are currently no on road bike lanes within the City of Charles Sturt that provide physical separation between cyclists and traffic lanes. The photos show examples of separated bike lanes in Melbourne.

Pigdon Street separated bike lane, Melbourne

Albert Street separated bikeway, Melbourne

Bike Direct Routes

Bike Direct routes are signed routes using local streets that are considered safe and suitable for cycling and there is a comprehensive Bike Direct network within the City of Charles Sturt. Bike Direct streets should have low traffic volumes and speeds, limited levels of on street parking and provide reasonably direct routes to local destinations. The Bike Direct routes are typically signed with a mixture of directional and wayfinding signs and on road bicycle logos as shown below.

Off-road Shared Paths

The main off-road shared paths available in the City of Charles Sturt are the River Torrens Linear Park and the Coast Park.

The River Torrens Linear Park provides a continuous off road route from the coast, connecting to the Coast Park south of Henley Beach, through to the Adelaide CBD and continuing to the Adelaide foothills. The shared path is fully sealed throughout, and provides direct access to many local streets and suburbs.

A DPTI program of upgrades is replacing some of the older sections of the Linear Park path that no longer comply with current design standards or meet the current and anticipated future levels of demand. Originally planned mostly for recreational cycling, the route also now carries high volumes of cycle commuters in to the Adelaide CBD.

Similar upgrades are being implemented along the Coast Park route to provide a continuous shared path facility from Sellicks Beach to North Haven. The section along Henley Beach South has recently been completed.

New section of Coast Park, south of Henley

Bike Direct route signage and on street bicycle logo

Linear Park and Coast Park

DPTI undertakes permanent monitoring of the River Torrens Linear Park to record the volume of cycle use. This has shown strong growth in recent years, with volumes peaking between 60 and 70 cyclists per hour on weekdays and Sundays. The figure shows the level of use by day and time of day, indicating the peak hour commuter profile on weekdays and a more recreational oriented profile on weekends.

Bicycle Counts on River Torrens Linear Park by time of day
Source: DPTI

5.3 Future Major Schemes

There are a number of significant cycling and walking projects within the City of Charles Sturt that are in the process of implementation or likely to be implemented in the next few years.

- DPTI is progressing the introduction of shared pedestrian/cycle paths as Greenways along the Outer Harbor and Grange railway corridors, with the Outer Harbor route now completed with the City of Charles Sturt. The facility provides a continuous cycle and pedestrian route to the CBD via the Park Lands. Monitoring of the use of the route and feedback from users should be used to inform the development of future similar routes.
- Completion of additional sections of the Coast Park around Tennyson.
- Upgrades to some existing sections of the Linear Park to meet current design standards and demand levels

5.4 Access to Public Transport

Walking and cycling trips are also used to access public transport. Bus travel is generally accessed by walking trips, whilst walking and cycling are both used to access local railway stations. The access mode to the local stations is shown in the table below, highlighting the importance of walking access.

Rail Line	Walk	Cycle	Park & Ride	Kiss & Ride	Other
Outer Harbor *	78%	2%	14%	3%	3%
Grange	76%	2%	16%	6%	1%
Overall**	78%	3%	13%	4%	2%

Access Mode Percentages for Rail Lines in the City of Charles Sturt
*Outer Harbor line excludes train to train transfer at Woodville
**Overall figures also include Ovingham on the Gawler Line
Source DPTI 2012.

Immediate walking access to most stations can be considered adequate, with the majority having reasonable footpath provision and access arrangements. However, access to some stations is constrained by lack of footpaths and crossings. There is currently little in the way of dedicated cycle access routes available to the stations, although the Greenways project is expected to improve this significantly.

The implications of this are considered further under the Barriers to Walking and Cycling in Section 6.4.

The figures below show the total walking and cycling access levels to each station. This identifies Woodville is by far the busiest station for walking and that Bowden and Ovingham are the most significant stations for cycling access.

Walking Access to Rail Stations in the City of Charles Sturt
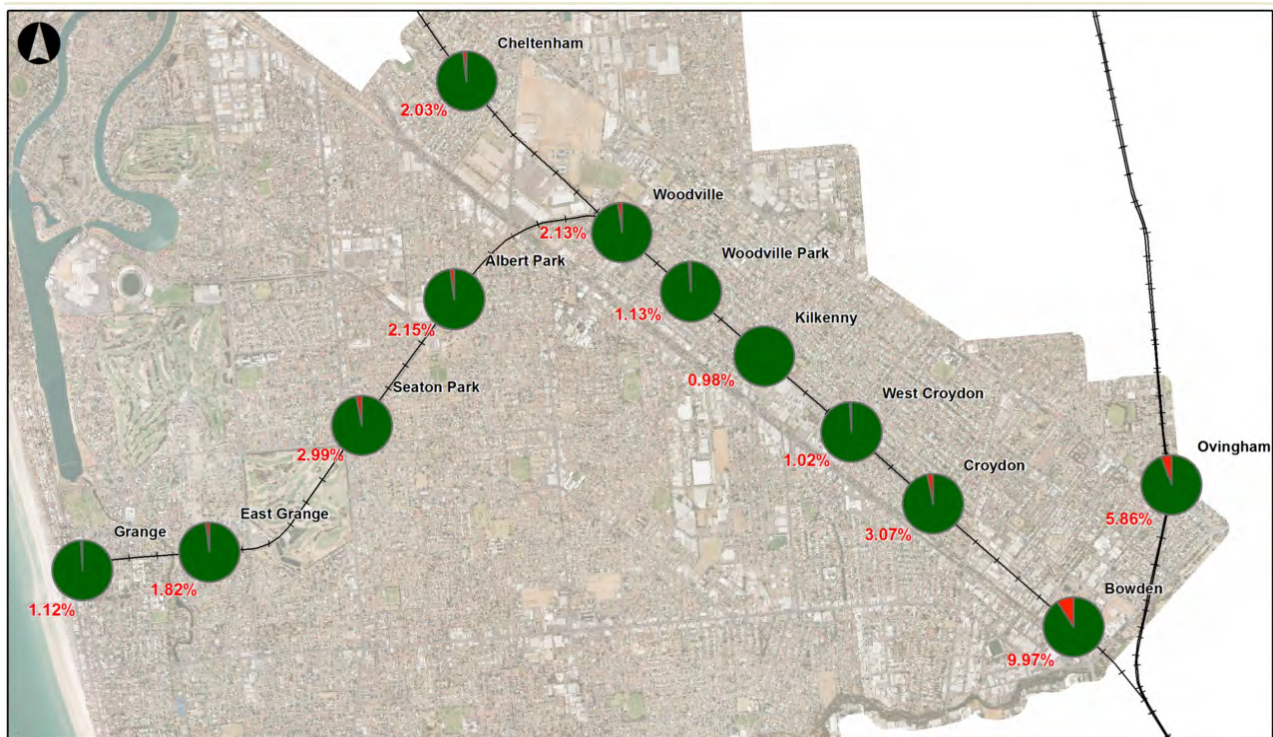
Cycling Access to Rail Stations in the City of Charles Sturt

Sources: DPTI 2012

A sample of the more significant bus stops has been investigated. As would be expected the interchanges at West Lakes and Arndale are the most heavily used, for both commuting and retail journey purposes. Other significant bus stops are identified close to major activity centres such as Woodville, Henley Beach and Fulham Gardens.
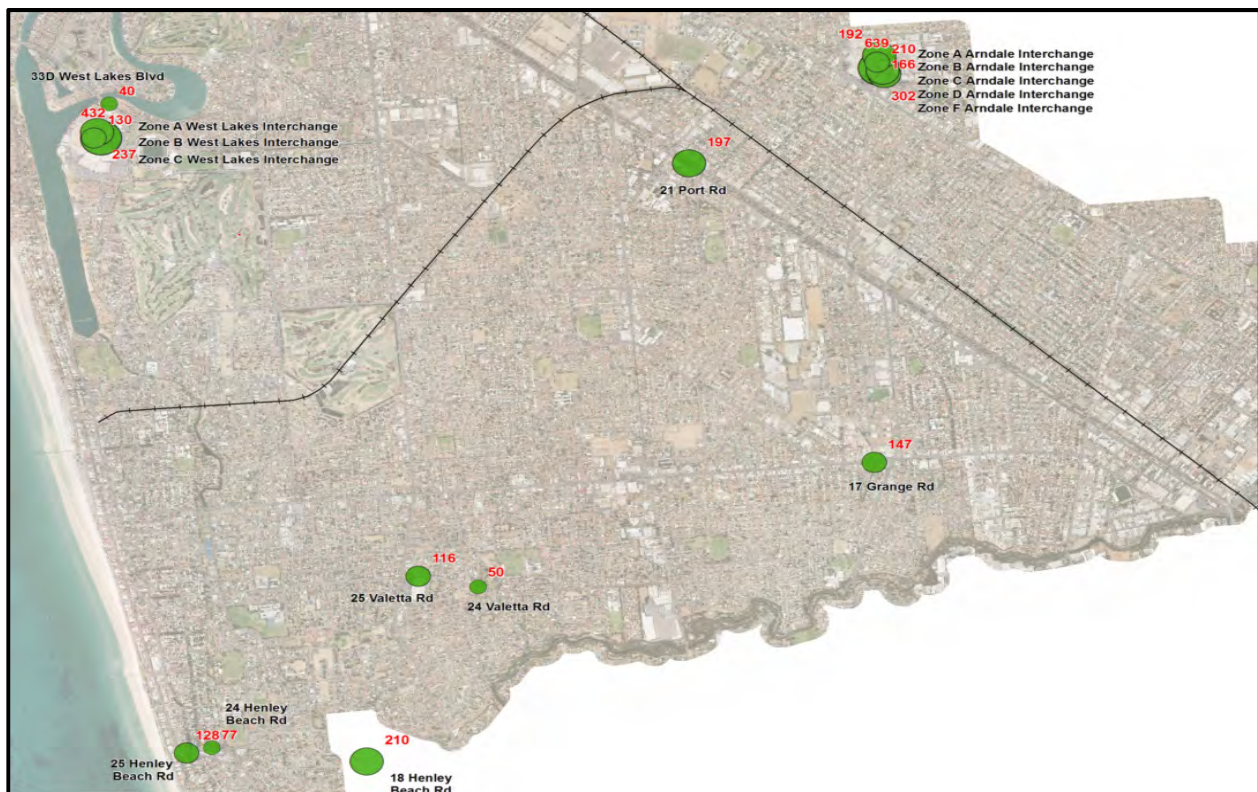
Patronage levels at Major Bus Stops

Source: DPTI 2013

The bus stop on Valetta Road adjacent to the Fulham Gardens Shopping Centre is identified as one of the most popular and well used. However, the facilities and surrounding footpath availability do not match the level of demand and pedestrian activity.

There are also locations where the bus stop facilities have been upgraded and provide a good level of service for pedestrians and passengers. The bus stop on Port Road at Croydon provides a good quality pedestrian and passenger environment. The City of Charles Sturt has a program to implement upgrades to all bus stops to ensure DDA compliance and provide modern and attractive bus shelters.

Footpath and bus stop area, Valetta Road, Fulham Gardens

6.   Designing for Walking and Cycling

This section considers the different types of walking and cycling trips and the needs of users according to their level of ability and the nature of their journey. This shows that there is no one type of facility that will suit all users. The section concludes with a review of the barriers to walking and cycling in terms of local physical and visual barriers in the City of Charles Sturt and more general psychological and cultural barriers that can deter cycling and walking activity.

6.1 Who is Walking and Cycling?

6.1.1 Trip Purposes

Walking and cycling trips are typically classified in to three distinct purposes.

Access mode. The walking or cycling trip is the primary travel mode to reach a specific destination, for example school, workplace or shop. Trips will generally be short in nature (typically up to 1 kilometre for walking and 5 kilometres for cycling) and therefore convenient routes that do not require significant detours or delays will be a major consideration.

Sub-access (public transport access) mode. The walking or cycling trip forms part of a longer trip, with a significant proportion of the trip undertaken by another transport mode, most typically public transport. The majority of these trips will be short in nature (around 400 metres walk particularly for bus stops, and 2-3k for cycling) and therefore convenient routes that do not require significant detours or delays will be a primary consideration. This strategy considers this as the public transport access mode.

Leisure. The walking or cycling trip is undertaken as a leisure activity, with the walk or cycle activity itself the main purpose of the trip. This may include other modes being used to access the leisure venue, for example driving to the coast to walk or cycle along the coast park path. These trips will tend to be longer in terms of distance and duration than access and sub-access trips, and, depending on the nature of the leisure activity, may either be undertaken at a slower pace for recreation purposes or at a faster pace for fitness purposes. In both cases there is likely to be less consideration of time constraints.

6.1.2 Walking Trips

Walking works best for trips up to a 20 minute walk, or about 2.0km for the average person. (10) For a "walking for pleasure" trip this would be expected to be at least 30 minutes and cover about 4-5km where the trip is for fitness (11) and a longer duration at a slower pace where the trip is of a recreational nature. The pedestrian network design must be inclusive of all trip purposes.

Groups with specific requirements for route accessibility will be those using wheelchairs, mobility scooters or walking frames, parents with prams and children on bicycles. Additional consideration around crossing provision is needed where there are large numbers of school children or elderly residents.

6.1.3 Types of Cyclist

Cycling trips are also well suited to trip lengths of around 20 minutes, covering up to 5 kilometres.

The type of the cyclist and their level of confidence in mixing with traffic have to be considered. Cyclists are typically grouped in to 4 categories when cycling for transport purposes (i.e. not recreational cycling) (19)

The **"strong and fearless"** ride regardless of road conditions; riding is a strong part of their identity and they are undeterred by road conditions.

The **"enthused and confident"** already cycle and could be attracted to increase riding by continuing to address barriers to cycling; shorter trip distances, better bicycle facilities, better end-of-trip facilities.

1% strong & fearless	
7% enthused & confident	
60% interested but concerned	
33% no way, no how	

Categories of Cyclist for Transport means

The **"interested but concerned"** hear messages about how easy it is to cycle, but they are afraid to ride. They don't like the cars speeding down the streets; they get nervous thinking about what would happen to them on a bicycle when a driver runs a red light, or

passes too fast and too close. They may be uncertain about the routes to use.

The "**no way, no how"** group is not interested in cycling at all, for reasons of topography, inability, or simply a complete and utter lack of interest.

2011 Census data indicates that around 1.5% of journeys to work were made by bicycle in Charles Sturt (16), equivalent to little more than the "strong and fearless" group. To increase this level to include larger proportions of the next two groups; "enthused and confident" and "interested but concerned" will require the development of facilities that meet their cycling needs and safety requirements.

Austroads further group's cyclists into seven categories, each with specific riding characteristics and network requirements. There may be a need to cater for more than one group in any corridor. The groups are set out in the table below.

Category	Rider characteristics	Riding environment
Primary school children	Cognitive skills not developed, little knowledge of road rules, require supervision	Off-road path, footpath (where permitted) or very low volume residential street
Secondary school children	Skill varies, developing confidence	Generally use on-road facilities or off-road paths where available.
Recreational	Experience, age, skills vary greatly.	Desire off-road paths and quiet local streets, avoid heavily trafficked routes, more experienced will prefer to use road system for long journeys.
Commuter	Vary in age, skill and fitness, some highly skilled and able to handle a variety of traffic conditions	Some prefer paths or low-stress roads, willing to take longer to get to destination, others want quick trips regardless of traffic conditions, primarily require space to ride and smooth riding surface, speed maintenance
Utility	Ride for specific purposes (shopping), short length trips, and routes unpredictable.	Not on highly trafficked roads, needs include comprehensive, low-stress routes, appropriate end of trip facilities.
Touring	Long distance journeys, may be heavily equipped, some travelling in groups.	Often route is similar to that of other tourists.
Sporting	Often in groups, two abreast occupying left lane, needs similar to commuters.	Travel long distances in training on arterials, may include challenging terrain in outer urban or rural areas, generally do not use off-road routes because of high speed and conflict with other users.

Categories of cyclists and their characteristics

Source: Table 2.3 of Austroads, Cycling Aspects (2011)

6.2 Walking and Cycling Network Principles

The perception and appreciation of the walking and cycling networks and surroundings will vary between the trip and user types identified above. However, for all walking and cycling trips, there are consistent principles that all facilities should provide. The principles for walking (20) and cycling (21) networks are set out below.

5C's Principles of Walking Networks
1. Connected
Routes should connect each area with other areas and with key 'attractors' such as public transport stops, schools, work, and leisure/retail destinations. Routes should connect at the local and district level, forming a comprehensive network.
2. Convivial
Routes and public spaces should be pleasant to use, allowing social interaction between people, including other road users. They should be safe and inviting, with diversity of activity and continuous interest at ground floor level.
3. Conspicuous
Routes should be clear and legible, if necessary with the help of signposting and waymarking. Street names and property numbers should be comprehensively provided.
4. Comfortable
Walking should be on high quality pavement surfaces, with attractive landscape design and architecture, and as much freedom as possible from the noise, fumes and harassment arising from motor traffic. Opportunities for rest and shelter should be provided.
5. Convenient
Routes should be direct and designed for the convenience of those on foot or a bicycle, not those in vehicles. This should apply to all users, including those with mobility impairment. Road crossing opportunities should be provided in relation to desire lines.

Principles of Bicycle Networks

1. Coherence

Bicycle networks should form a coherent unit, linking popular destinations with local residential streets via regional and local routes. The network should be continuous and very clear to the user where the facility leads. Intersections should seek to provide a clear path for bicycle riders as well as for other modes. The quality of network facilities should be consistent throughout the route regardless of the format. Routes should be easy to find from local streets and the network density should enable a choice of nearby routes.

2. Directness

Network infrastructure should be as direct as safely practicable within the local topography, with long detours avoided. Regional route design should take into account operating speeds of bicycles up-hill and higher speeds when descending. Delays due to prolonged crossing times of major barriers should be avoided to ensure that riders are able to maintain a safe, comfortable and consistent operating speed throughout the route.

3. Safety

Well-designed bicycle network infrastructure improves and enhances the road safety of riders, pedestrians and motorists. Intersections should be designed to explicitly include bicycles as well as other road users and mid-block treatments of major roads need to provide safe and easy crossings for riders. The design of bicycle routes past bus stops should provide safe accommodation of riders, passengers, pedestrians and vehicles.

4. Attractiveness

Enjoyable cycling requires attractively designed and located facilities. Bicycle network infrastructure should be fitted into the surrounding environment so that the cycling experience is enhanced. Clear well-placed signposting should indicate major destinations. Bicycle routes should also feel safe and offer good personal security, providing well-lit pathways and open-to-view routes rather than dark and dingy alleyways.

5. Comfort

The bicycle network has to be easy to use for all types of riders. A smooth well maintained riding surface is essential for comfort and operating safety. Depending on the speed and volume of other traffic (motor vehicles or pedestrians), some level of separation is often needed. Effective intersection treatments and safe crossings of major arterial roads are critical factors in creating a comfortable route network.

6.3   Path and Bike Lane Typologies

There are four potential typology groups to consider when providing for pedestrian and cyclists; pedestrian footpaths, shared use paths, on-road bike lanes and shared space streets.

Pedestrian Footpaths

Footpaths areas are designed for use by pedestrians and children under the age of 12 are also permitted to ride bicycles on footpaths.

Arterial Road Footpath – Arterial road footpaths are typically adjacent to the roadway within the road reserve. As traffic volumes and speeds are higher, greater footpath widths should be provided so that pedestrians do not feel intimidated by being close to high speed traffic. Increases in width should also be provided in proximity to public transport facilities and commercial activity centres.

Local Street and Collector Road Footpaths – These footpaths provide the standard provision within the road reserve adjacent or very close to the roadway. Local street footpaths are typically 1 to 1.5 metres in width with a variety of surface treatments, providing a good level of local connectivity. Basic requirements are well surfaced (no trip or slip hazards), no vegetation or street furniture encroachment, direct routes with appropriate crossing facilities (kerb ramps, median refuges or controlled crossing where demand is high) and a pleasant and open aspect with natural surveillance and suitable lighting levels. The width to be provided should be determined by the nature of the street and the anticipated level of usage. Collector roads often have public transport routes with increased width around bus stops likely to be appropriate.

Off-road Paths – These are generally provided in off street areas, either connecting in to activity centres or providing routes through open spaces and reserves. The width would be expected to vary according to the nature of the route use.

Port Road Footpath, Welland

Port Road Footpath and Bus Stop, Croydon

Concrete footpath, Croydon

Pedestrian Access Route at West Lakes

Shared Use Paths

Shared use paths are provided for use by pedestrians and cyclists of all ages and abilities, creating safe environments away from vehicular traffic.

Shared paths can be used in road reserves in place of pedestrian footpaths where there is enough width to accommodate pedestrians and cyclists and achieve adequate separation from traffic, such as Brebner Drive in West Lakes and parts of the Coast Park.

Shared paths are also provided through parks and reserves, Linear Park and parts of the Coast Park being the most popular in the City of Charles Sturt.

Linear Park Shared Path

Shared paths need to provide enough width for pedestrians and cyclists to feel comfortable sharing the space. The recommended width is 4 metres, with increases in areas of high activity. The figures indicate the format and width for shared paths when considering the interaction between cyclists and pedestrians. The Linear Park would be representative of a commuter route during the week, whilst Coast Park would be expected to be more of a recreational route. Where the route performs a different function at different times of the day/week, as identified for Linear Park, the path will need to be capable of safely accommodating both profiles.

Shared Path Formats
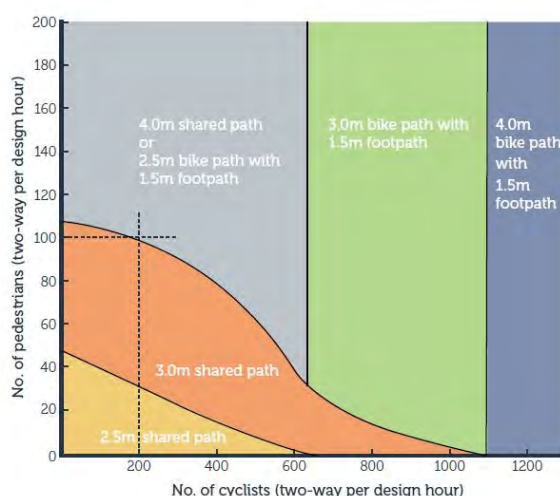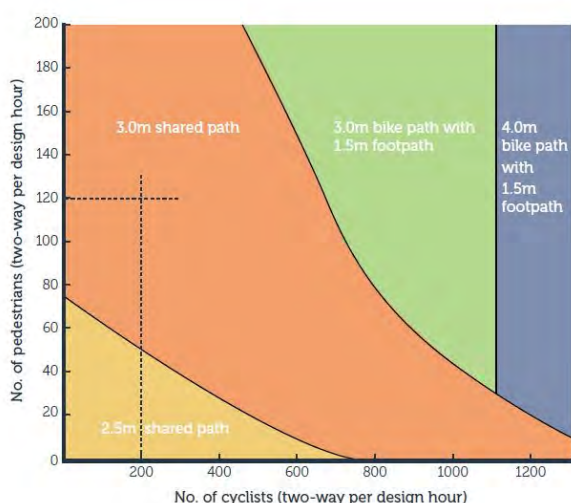
Typical commuter route with 90/10 directional split   Typical recreation route with 50/50 directional split

Source: VicRoads Cycle Notes 21- Widths of off-road shared use paths (June 2010)

On Road Bike Lanes

There are various formats that can be adopted to accommodate cyclists on road.

- On road bicycle markings (e.g. bike direct routes)
- On road bicycle lanes – standard shoulder lane, permanent or time limited
- On road separated bicycle lanes (kerb or parking protected)

The type of on-road bike facility that is appropriate for each location should be identified by reference to traffic volume and speed, cyclist volumes and the available road width. The selection of cycling infrastructure is based on the level and nature of traffic volume and cyclist activity is shown in the figure below.

On streets with generally low traffic volumes and speeds, bike direct signage will usually be sufficient. As traffic volumes and speeds increase the need for dedicated space for cyclists increases. At very high traffic volumes and speeds, the cyclists should be fully separated from vehicles.
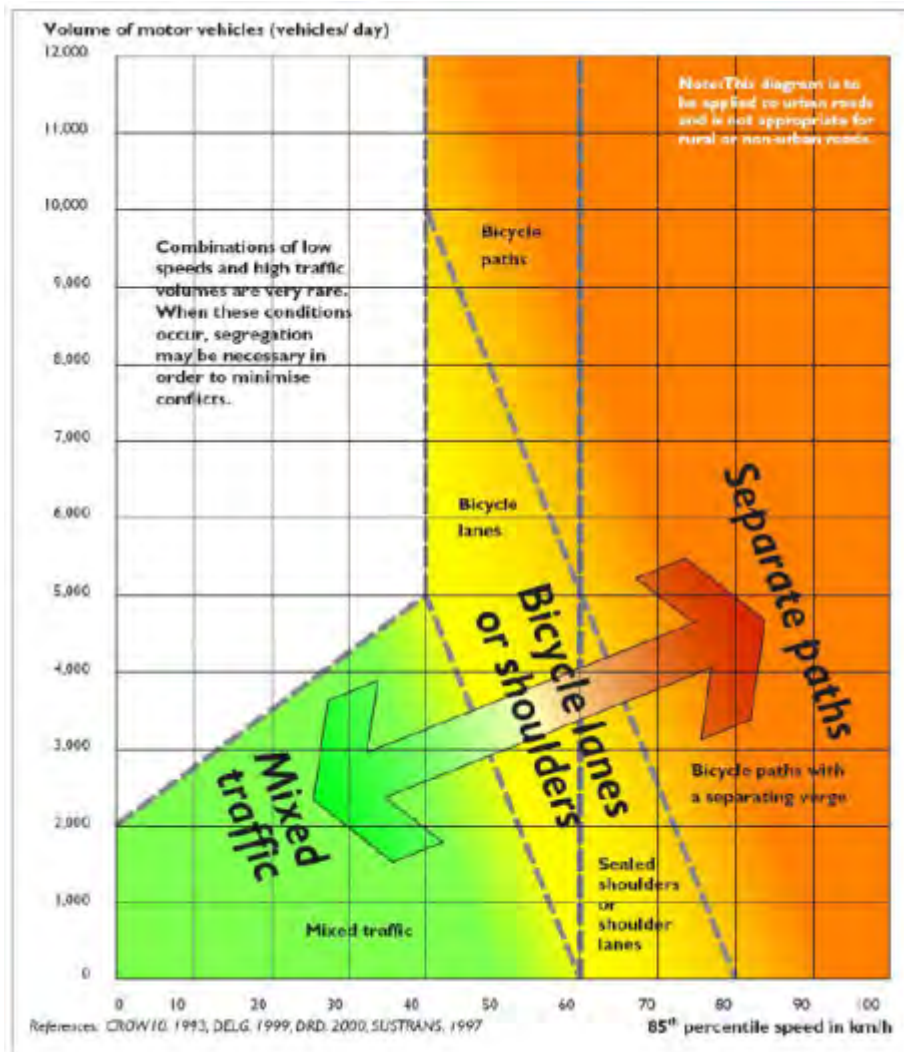
Separation of cyclists and motor vehicles by speed and volume

Source: Cycling Aspects of Austroads Guides, Austroads, 2011

Shared Spaces

Shared spaces or shared streets are designed so that vehicles, pedestrians and cyclists all share the same available space. They are generally used in activity centres where pedestrian volumes are high and traffic volumes are low. The street design ensures that traffic travels at a slow speed with the use of different paving and the removal of kerbs. Shared streets can also be used in quiet residential streets enabling the street to form part of the public space.

Shared spaces have been used in parts of Europe for many years and are now being considered for use in many Australian cities, including Adelaide, to reduce the dominance of the car and encourage more walking, cycling and outdoor activity in areas with high numbers of people. Leigh Street in Adelaide CBD has recently been upgraded to a shared zone street accommodating all users including pedestrians, cyclists and vehicles.

6.4   Barriers to Walking and Cycling

There are many barriers that can prevent or discourage people from walking and cycling. A change in approach to plan and design streets for pedestrians and cyclists can remove some of the physical barriers. Overcoming the physical barriers needs to be supported by promotion and education to help to reduce some of the psychological and cultural barriers that also deter people from walking or cycling. (10, 22)

Physical Barriers to Cycling and Walking

Route Availability
Lack of direct routes to destinations
Footpaths or bike lanes are narrow, not available, particularly at intersections and not of consistent and good quality
Footpaths and bike lanes are blocked by temporary or permanent obstructions
Safe Road crossings and not available or not at a convenient location
Directional signs and route information are not provided
Road Safety
Routes are in close proximity or mixing with high traffic volumes
Traffic speed is not appropriate relative to the walking and cycling route
Safe road crossings are not provided
Concern over driver behaviour/awareness of pedestrians and cyclists, particularly at intersections
Personal Safety and Comfort
Routes are away from activity centres or natural surveillance
There is a lack of lighting, shade, signage or resting facilities
Poor design and maintenance of footpaths
Impact of traffic noise and air pollution
Supporting Facilities
No secure bicycle parking at destination
No shower/change/storage facilities
Limitations on public transport access and frequency
Poor integration between transport network providers

Kerb built out obstructing bike lane, Marlborough Street

The most significant barriers within the City of Charles Sturt are likely to be related to the road network and in particular the arterial road network. Whilst many of the local streets provide suitable walking and cycling environments, the arterial roads are often adjacent to the major activity centres and do not provide pedestrian and cyclist facilities that reflect this.

The use of catchment mapping can visually show the physical barriers created by arterial roads when there is no safe crossing provision. Croydon railway station lies less than 400 metres to the east of Port Road, yet residents living on the west side of Port Road face a walk of well over a kilometre to access the station via a safe pedestrian crossing of Port Road. The catchment area map indicates how Port Road creates a barrier to a safe and direct walking route. This walking route also hinders local walking access to the popular Queen Street and Elizabeth Street precinct, located immediately west of Croydon station.

The ease with which pedestrians and cyclists can cross a major road can often be significantly improved with only modest facilities. The figure shows the delays to pedestrians that occur when trying to cross a major road and how a median refuge or extensions from the footpath can reduce the level of delay and the measured Level of Service (LOS) that is achieved. Such measures enable pedestrians to cross only one direction of traffic at a time as well as a shorter distance to cross. Reducing the road width is also likely to slow traffic volumes, providing a further safety improvement for pedestrians.

Croydon Station Catchment Zones
Base map courtesy of City of Charles Sturt
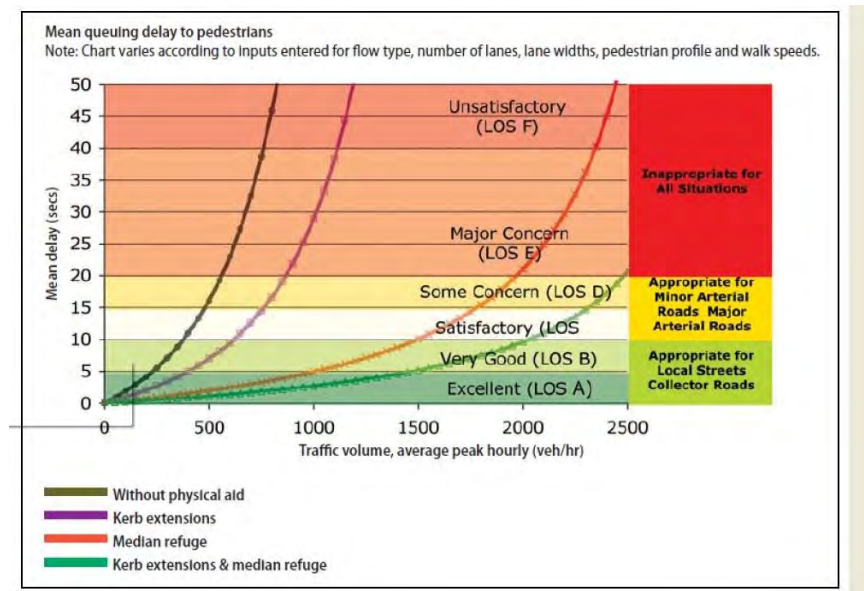
Mean delays crossing two way roads with uninterrupted traffic flows
Source: Austroads Research Report – Guide Information for Pedestrian Facilities (February 2013), derived from NZTA, 2007

Psychological and Cultural Barriers

As well as the physical barriers on the networks there are also psychological and cultural perceptions that inhibit people's ability to see cycling and walking as viable transport options. (10)

In many cases these barriers are not as significant as people perceive theme to be and can be readily overcome with suitable information, education and training programs.

Research in NSW (22) has identified four dominant barriers to cycling:

- The negative image of cyclists and cycling amongst non-cyclists;
- The perceived danger of cycling, and commuter cycling in particular, due to perceived or actual lack of safe places to cycle, and the fear of being hit by a motorist;
- The lack of facilities to store or lock up bicycles; and
- Little or no understanding or acknowledgement of the benefits of cycling.

This is supported by Heart Foundation and Cycling Promotion Fund surveys in 2013 aimed at helping women ride more. From over 1000 responses, over 75% cited greater concern of traffic speeds and volumes and 42% a lack of confidence. 80% of women would cycle more if there were more separated bike paths. (23)

The perceptions of road danger and lack of understanding of the benefits would also apply to walking trips.

Psychological and cultural barriers to cycling

Information availability

Lack of awareness of signage and information on walking and cycling routes

Lack of awareness of route availability or facilities at destinations

Perception of travel times to destinations other than by car

Lack of understanding of road rules

Personal circumstances

Assumption of longer travel times for walking and cycling

Lack of motivation to change mode

Perceived cost of bicycles and equipment

Poor or lapsed skills for cycling

Concern of image perception by others

Governance Frameworks

Lack of strategic direction and leading by example

Lack of strategic and local planning to accommodate walking and cycling

Poor monitoring of performance and strategy delivery

The strategies identified in part 7 of this document recommend measures to assist the City of Charles Sturt to identify and overcome these barriers.

6.5   Road Safety

Road safety and the risk of being involved in a crash is one of the biggest barriers to walking and cycling.

Crash data for the five year period from 2008-12 recorded a total of 462 crashes involving pedestrians (133) or cyclists (329) and highlights the locations that the City of Charles Sturt needs to investigate.

The investigation will need to be in conjunction with DPTI as the majority of the pedestrian and cyclist crashes occurred on the arterial road network, with 66% of the pedestrian crashes and 74% of the cyclist crashes. The proportion of serious injury cyclist crashes was also higher on the arterial road network, with 81% of the serious cyclist crashes.

Pedestrian Crash Locations 2008 - 2012
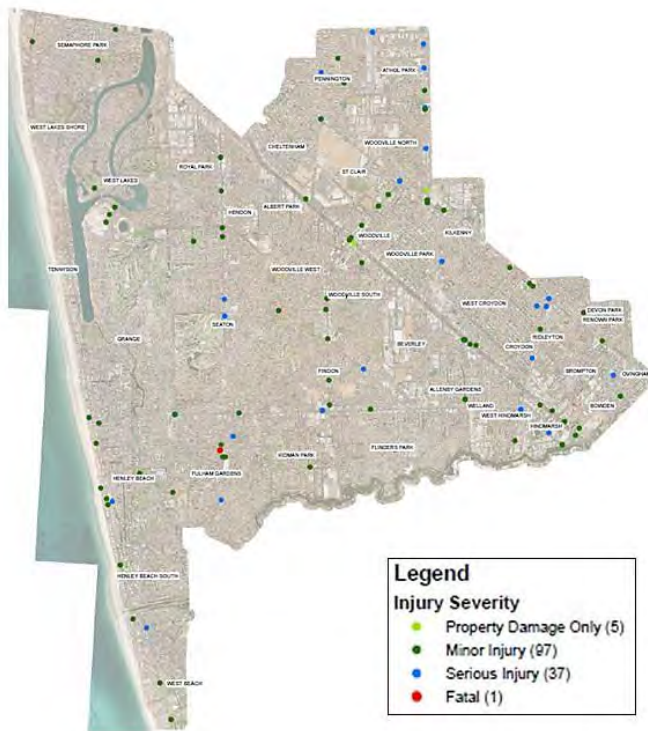
Cyclist Crash Locations 2008 – 2012
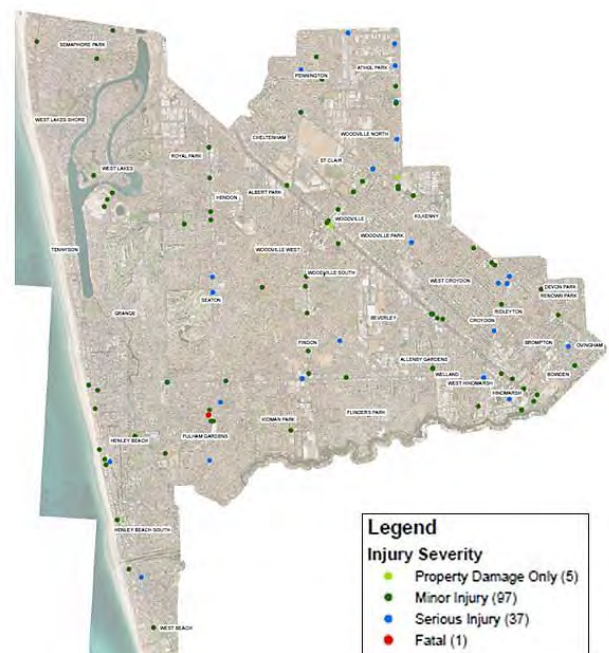
Source: DPTI 2013

Pedestrian Crashes

Crash Severity	Arterial Road		Local Road	
	Crashes	%	Crashes	%
Property Damage Only	3	2	1	1
Minor Injury	61	46	30	22
Serious Injury	23	17	13	10
Fatal	1	1	1	1
TOTAL	88	66	45	34

The main clusters of pedestrian crashes were in Hindmarsh, Woodville, Henley Beach and Fulham Gardens. The most significant arterial roads for pedestrian crashes are Torrens Road, Port Road, Tapleys Hill Road, Hanson Road and Woodville Road.

Cyclist Crashes

Crash Severity	Arterial Road		Local Road	
	Total	%	Total	%
Property Damage Only	50	15	22	7
Minor Injury	171	51	55	17
Serious Injury	25	8	6	2
Fatal	0	0	0	0
TOTAL	246	74	83	26

The cyclist crashes were more concentrated on the arterial roads with the Port Road and Military Road/Seaview Road corridors recording the highest numbers of crashes. Grange Road, Findon Road and Torrens Road also recorded high levels of cyclist crashes. The two most noticeable clusters are around Henley Beach and Port Road between South Road and Park Terrace.

The cyclist crashes indicate that 2 types of crash are most common, covering almost 75% of all cyclist crashes. These are termed as right angle and side swipe crashes. Right angle crashes occur when a vehicle emerging from a side road at junction fails to give way to an oncoming vehicle. In many cyclist crashes, the cyclist is on the main road and is not seen by the emerging vehicle. Side swipe crashes occur mid-block or on the approach to an intersection and generally involve a vehicle failing to leave enough space to pass a cyclist. In some cases, the cyclist may be attempting to pass through a gap that is too narrow.

Strategies are identified in section 7 to assist the City of Charles Sturt in improving the safety of cyclists in these circumstances.

There have fortunately been very few fatal crashes involving pedestrians and cyclists in recent years. The relatively low speeds on roads in Charles Sturt, with no roads currently permitting speeds above 60 km/h, will contribute to this. The risk of death or serious injury to a pedestrian (and a cyclist) has a strong relationship to vehicle speed. Therefore the lower the traffic speed on local roads, the lower the risk of a crash resulting in serious or fatal injuries to a pedestrian or cyclist.

The Importance of Traffic Speed in Pedestrian Crashes

Several research studies have concluded that around 30 km/h is the tipping point where the probability of pedestrian death starts to increase significantly. The graph below shows the risk of a crash resulting in a fatal injury to a pedestrian in relation to traffic speed. This graph is also included in the South Australia Road Safety Strategy 2020: Towards Zero Together, which has identified strategies for improving pedestrian and cyclist safety and reducing average traffic speeds to match speed limits.
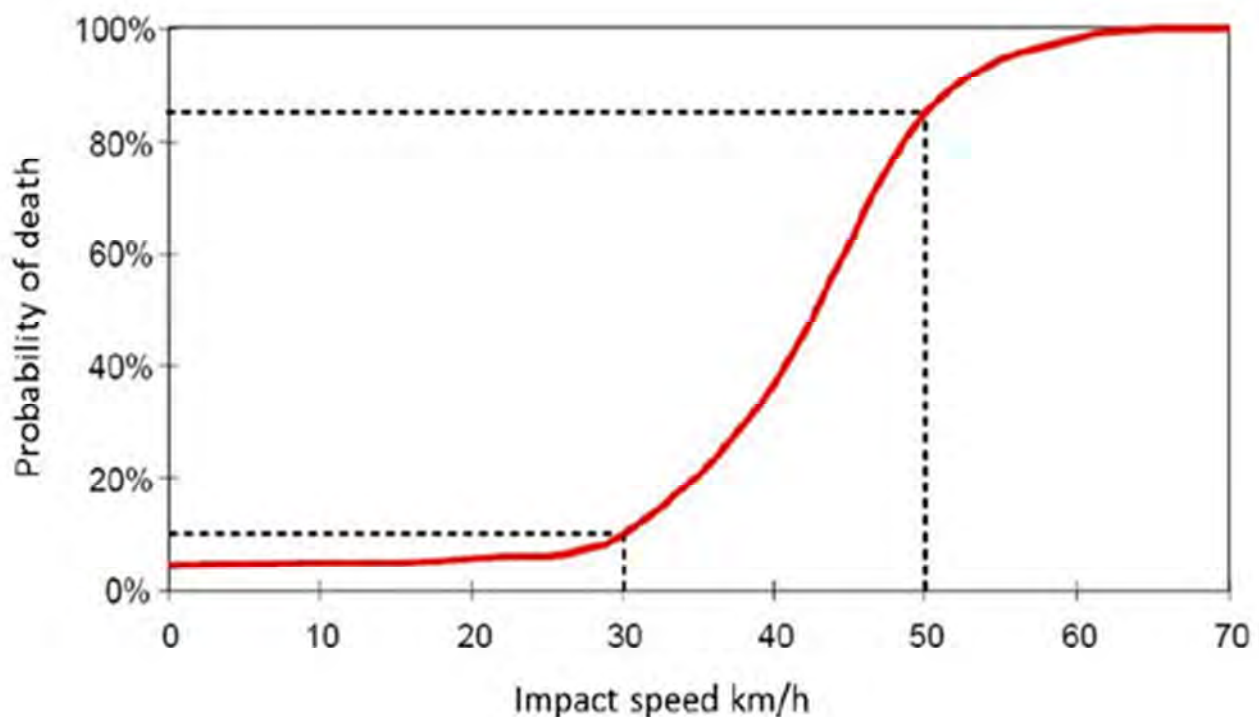
Risk of Pedestrian Death as a result of vehicle speed

Source: Austroads Research Report – Guide Information for Pedestrian Facilities (February 2013)

7.   Case Studies

There are many examples of initiatives locally, nationally and internationally that have delivered successful outcomes for walking and cycling. Some of the initiatives relate primarily to infrastructure upgrades where place making or network enhancements have improved the local environment and encouraged or enabled increased levels of walking and cycling. Other initiatives have focused on the development and delivery of strategies to ensure that pedestrians and cyclists are given the highest priority in all transport and infrastructure planning and that this priority is supported by travel behaviour promotion and education programs.

These case studies have been identified as relevant case studies to the City of Charles Sturt in that they provide schemes and strategies with identifiable and successful outcomes that can be used to inform the basis of scheme design and implementation, policy requirements and travel behaviour programs to support the delivery of the Strategy for Walking and Cycling.

The case studies are identified in relation to the strategy action areas set out in section 9.

Park Lane, Poynton, UK

Creating Places and Spaces

Bank Street Bike Lane and Parklets

Urban design principles are now focused very strongly on creating spaces and places that prioritise people and people movement with less emphasis on vehicles. Scheme designs include road space reallocation, road closures, use of different materials and fully shared streets where whilst vehicles are still allowed, the design ensures that their speed and presence does not impact on the design and operation of the street for pedestrians and cyclists.

Bank Street in Adelaide provided road space reallocation to create additional public realm and a bike lane whilst Leigh Street was closed to through traffic. Prospect Road has also reallocated road space to improve footpath widths and reduce on-street parking. There are no significant shared streets in Adelaide but examples Interstate include Hargreaves Mall in Bendigo, Victoria. There are many high profile schemes throughout northern Europe with Poynton in the UK having recently implemented one of the most challenging, replacing a major traffic signal intersection with a shared space junction.

Local Streets

Upgrades to local streets to improve walking and cycling can take many forms, from cost effective line marking schemes through footpath upgrades to complete reconstruction as a shared street. The City of Charles Sturt has recently created a more pedestrian and bike friendly street along Sansom Road in West Lakes through line marking to formalise parking lanes and travel lanes and creating room to add a bike lane. This replaced a 12 metre wide road carriageway with no markings that suffered from high vehicle speeds. In conjunction with footpath upgrades to shared paths, this has significantly improved the street environment for pedestrians and cyclists and would also be expected to reduce traffic speeds.

Also in Adelaide, the City of Unley completed construction of the Windsor Street Linear Trail, a 950 metre long, linear park through the inner suburbs of Parkside and Malvern in Adelaide with landscaping features and interpretive signage

The use of simple on road marking to designate high profile bike routes is now in limited use in Adelaide on the Greenways. It has however been used in other States for a number of years, with Councils in Melbourne (notably Yarra City Council) and Sydney implementing local schemes to improve on-road cyclist connectivity and safety and when connecting to local paths.

The use of shared zones or "home zones" as they are often designated in Europe is limited so far in Australia but there are now similar designs being developed for sites such as Bowden.

Bike Lane and sharrow markings, Yarra.

Source: Nearmap

Integrating the Networks

Adelaide has made significant progress with the development of strategic bike routes in recent years with The Mike Turtur Bikeway, Marino Rocks Greenway, Coast Park, River Torrens Linear Park and the Greenways all now largely completed including clear signage. These routes have all ensured that the route is continuous with none of the missing gaps at intersections or across major roads that is a frequent complaint in relation to walking and cycling routes. Further strategic routes are planned to connect these existing routes.

The bike direct network assists in providing the local connections to these routes.

Frome Street in Adelaide CBD represents the only route in South Australia where the on-road bike lane goes beyond the standard shoulder lane. Routes such as Bourke Street in Sydney have shown that implementation of such routes with end to end connectivity and resolution of the difficult sections to avoid gaps in provision will achieve significant increases in use.

Overseas, Sustrans in the UK through the Connect2 program has been at the forefront of working with local communities to deliver the key connections to local facilities and overcome the missing gaps.

Directional Signage on the Mike Turtur Bikeway
Source: Google Images

Influencing Travel Behaviour

Whilst the provision of a connected network and attractive streets is a key part of increasing levels of cycling and walking, the infrastructure needs to be supported by promotion, education and encouragement programs to make people aware of the opportunities available and the benefits that can be achieved. Cycle Salisbury is a program run by the City of Salisbury in partnership with Bike SA to "get the community excited about cycling", with a number of programs on offer covering all cycling abilities.

Source: City of Salisbury website

There is also an established network of Heart Foundation walking groups in Charles Sturt and throughout South Australia.

The State Government Way2Go is a program collaborating with local councils and schools to encourage safer, greener and more active travel and focus on school travel routes within the local government area.

The development of wide ranging travel plans is now occurring at major employment sites in Sydney and Melbourne with the Macquarie Park and North Ryde Travel Management Association in Sydney a leading example that is achieving successful active travel and modal shift.

In the UK, research from the Cycle Demonstration towns program showed that targeted infrastructure improvements combined with education and activity programs could achieve noticeable and sustained increases in cycling levels, including within groups that have traditionally been hard to engage and would derive most benefit.

Supportive Authority

Significant changes in walking and cycling activity have typically been achieved where the policy requirements are embedded throughout the organisation, with a high profile champion leading by example. Adelaide City Council has approved Smart Move, a ten year transport and movement strategy to make the city's streets safer, more connected and easier for people to use. A key component of Smart Move is to create a city where people want to spend more time and that is greener, safer, well-connected and cyclist and pedestrian friendly.

The Heart Foundation and Business SA have both supported the Smart Move Strategy to improve transport in Adelaide.

Since 2009, the City of Yarra has had a bicycle strategy that sets out a series of strategies to ensure that the existing network was developed and enhanced in a co-ordinated way, considering the needs of all potential cycling groups and ensuring that associated benefits for pedestrians were also obtained.

Yarra now has a specific council policy that requires all council infrastructure works to include bicycle facilities, a policy which was voted for unanimously. The policy is concise, with its implementation managed by a "champion" officer who monitors its implementation across all council divisions.

The implementation of the strategy contributes to Yarra continuing to have the highest level of non-car use for travel to work in Melbourne.

On an international level, the Welsh Assembly passed the World's first Active Travel Bill on 1 October 2013 requiring all local authorities to develop, monitor and improve active travel networks and fully integrating active travel in to all plans and traffic and transport infrastructure.

8.   Identifying the Priority Areas

In delivering upgrades to Walking and Cycling networks, the City of Charles Sturt will need to plan and prioritise improvements within available resources. This section provides an analysis to assist in prioritising those improvements.

A series of indicators have been used to identify those suburbs that will be most favourable to achieving increases in cycling and walking as a result of infrastructure improvements and promotional activities. These indicators include existing levels of walking and cycling, levels of car ownership, Council demographics, overcoming road safety concerns, existing local destinations, public transport access, future development opportunities and levels of development density.

Each of these indicators has been assessed using a scale of 1 to 5. The totals for all indicators have then been summed to provide an overall score out of 30. Suburbs have then been ranked on these overall scores to create a "walking and cycling opportunity score". This may result in some suburbs having a high overall score even if they do not score highest for individual indicators. A full analysis for all suburbs is included as Appendix 3.

This is not intended to be a rigid framework, as the City of Charles Sturt will need to be able to respond to opportunities as they arise across the whole of the City. The intention is to guide the prioritisation of general upgrades and to focus on a manageable number of areas at any one time. Over the lifetime of the strategy, all areas of the City of Charles Sturt should achieve the desired consistency and clarity of networks.

8.1 Prioritisation Indicators

To assist the City of Charles Sturt in prioritising the implementation of walking and cycling initiatives, a series of indicators have been used to develop profiles of the local suburbs. These indicators include existing modes of travel for work, levels of car ownership, road safety concerns, existing local destinations, public transport access, future development opportunities and levels of development density. All indicators have been assessed based on a 1 to 5 scale, where 5 represents the higher score and thus more opportunity or propensity to achieve walking and cycling. The indicator scores have been aggregated to identify an overall "walking and cycling opportunity score" to prioritise suburbs for area wide assessment and development of localised pedestrian and cycling improvements.

Pedestrian and Cycle crash records. The number of pedestrian and cyclist crashes has been recorded for each suburb area. Where crashes occur on a road that forms the boundary between two suburbs, the crashes have been recorded in both suburbs. This does provide an increase in weighting towards suburbs with multiple arterial road boundaries, and particularly where the specific arterial roads have poor crash records as identified in section 6.5.

The highest ranking suburb areas for pedestrian and cyclist crash records are Henley Beach, Hindmarsh, Woodville, West Croydon and Findon, which are all bounded in part by arterial roads with poor pedestrian and cyclist crash records such as Port Road, Torrens Road, Seaview Road and Grange Road.

Growth Directions. The future development potential of growth areas and corridors has been assessed by considering the likely levels of development and increases in density that are anticipated as part of the Development Plan and associated Development Plan Amendments, masterplans and corridor studies. A measure of development density has been used to reflect likely increases in development density. The highest ranking suburbs for development growth are Bowden, Woodville West, Cheltenham, West Croydon and Brompton.

Access Destinations. This indicator covers all potential locations to which people could walk or cycle. This includes retail centres, schools, reserves and recreation centres and community centres. Each destination has been allocated a point with no weighting for the size or nature of the site, on the basis that smaller destinations would be expected to attract more local trips, where a greater proportion would be within walking and cycling distance. Grange, West Beach, Henley Beach, West Lakes and Flinders Park were identified as the suburbs with the highest number of destinations.

Public Transport Destinations. This includes the rail stations, tram stop and major bus stops known to attract more than 100 passenger boardings on a typical weekday. Each public transport destination has been allocated a point. Only Woodville (rail station and Port Road bus stop), Kilkenny (train station and Arndale Interchange) and Grange (East Grange and Grange stations) suburbs have more than one public transport destination.

Demographic and Travel Data. This considers the public transport use and car ownership data presented in section 4, as well as demographic data relating to resident age profiles and assistance requirements. Each of the 4 demographic data items has been ranked using a scale of 0 to 5 to create an overall score out of 20. This overall total has then been converted to a scale of 1 to 5.

The highest ranking suburb areas for travel and demographic data indicators are Bowden, Renown Park and Kilkenny.

8.2   Priority Areas and Corridors

From the above analysis, the suburbs of Findon, Hindmarsh, Kilkenny, Bowden and West Croydon were identified as having the overall highest walking and cycling opportunity scores and would therefore be expected to provide the greatest opportunities to increase walking and cycling activity levels. The next highest scoring suburbs were Henley Beach, Beverley, Flinders Park, and Fulham Gardens.

These suburbs generated the highest scores either because they scored highly on one or two of the indicators or because they generate scores across all the indicators (e.g. Beverley and Fulham Gardens).

The map shows that the higher priority suburbs generally form corridors, extending from West Beach through Henley Beach north to Grange, north-east from Henley Beach towards Woodville and east to west along the southern edge of the City of Charles Sturt towards Bowden and the Adelaide CBD.

To the north of the City of Charles Sturt, in suburbs such as Hendon, Albert Park, Royal Park, Athol Park and Cheltenham, there are few destinations, higher car ownership and less crash records and thus more limited opportunities and drivers for change in local walking and cycling activity.

In contrast, the south-eastern suburbs such as Bowden, Brompton, and Ridleyton have numerous destinations with convenient access to public transport and the CBD. This results in lower levels of car ownership and higher levels of public transport use and in

Priority Indicator Scores for Charles Sturt suburbs

turn, higher levels of walking and cycling. Whilst there are already high levels of walking and cycling in these suburbs, continuing to improve the facilities would still provide opportunities to increase walking and cycling activity. The destinations in these suburbs are also regional destinations with improved facilities benefitting large numbers of visitors as well as local residents.

There will be locations outside these priority suburbs where specific opportunities will arise or localised issues need to be addressed. This would include in particular redevelopment sites with AAMI Stadium at West Lakes and sites in Cheltenham and Brompton likely to provide development related opportunities. Equally community initiatives, third party activities, responding to specific crash cluster locations and timing with maintenance and upgrade initiatives of the City of Charles Sturt will all provide opportunities to identify local walking and cycling upgrades.

The City of Charles Sturt should monitor all of these activities to ensure that the opportunities to incorporate walking and cycling are achieved.
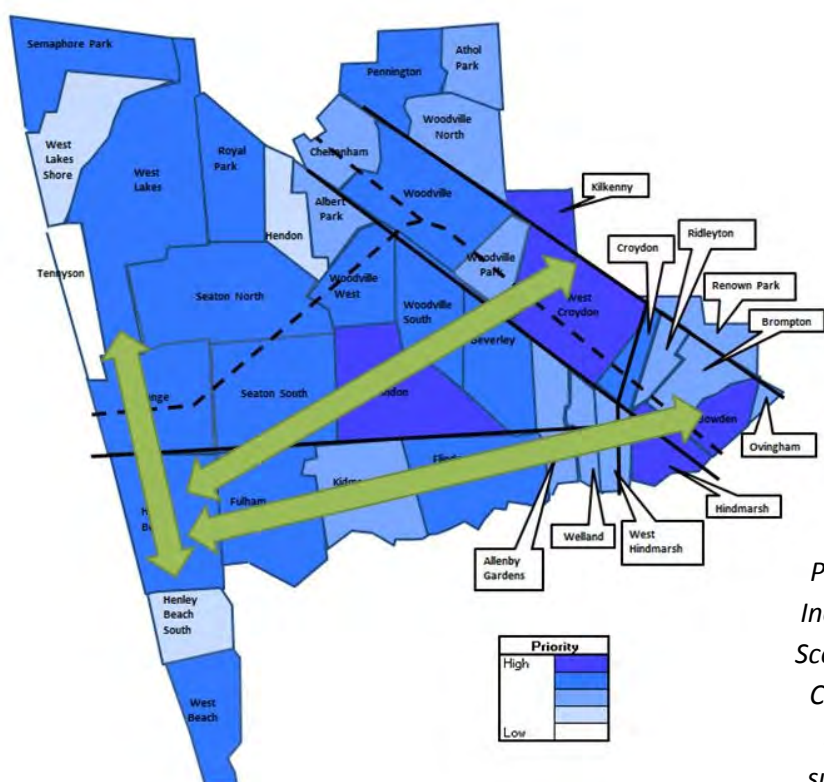
9.   The Strategies for Walking and Cycling

The Strategies for Walking and Cycling provide a framework and actions for the City of Charles Sturt to integrate a culture of easy and safe walking and cycling opportunities throughout the community.

The strategies have been identified under 5 Theme Areas that reflect the different aspects of the Walking and Cycling network and promotion that all need to integrate to achieve the vision and outcomes of the strategy.

9.1 Theme Areas

For Walking and Cycling to become an instinctive and natural choice, the strategies must embrace all aspects of community and Council activities where walking and cycling opportunities and relationships can be developed.

The Strategies have been grouped in five theme areas providing a series of principles and actions for the City of Charles Sturt to achieve the Vision. These theme areas and their inter-relationships are shown in the figure opposite.
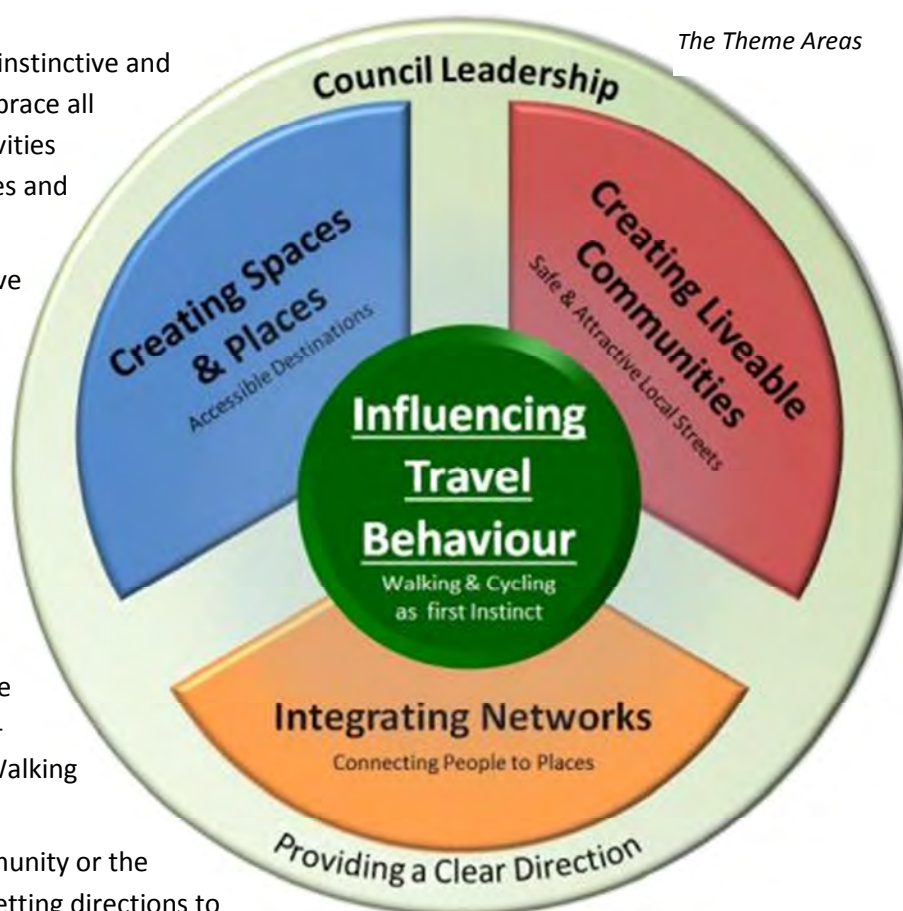
9.1.1 Council Roles and Responsibilities

The roles of the City of Charles Sturt are identified in the Community Plan 2013-2027 (15) and link to the Strategy for Walking and Cycling as follows:

Leader (▲) – Council leading the community or the local government sector by example, setting directions to meet the community's needs. This will include setting of policies and actions on walking and cycling within Council.

Owner/custodian/service provider (■) – Council managing the community's assets and funding and delivering services. This would include the provision of new or upgraded pedestrian and cyclist facilities and related activities and events.

Advocate (●) – Council making representations on behalf of the community. This would include advocating for improvements to DPTI related pedestrian and cyclist infrastructure and public transport.

Partner (❖) – Council contributing funds and/or other resources towards a service or initiative that is delivered with other parties. Council working with DPTI, adjoining Councils and other parties to deliver pedestrian and cyclist infrastructure and facilities, activities and events and promotional material.

Regulator (✦) – Council fulfilling a particular role as determined by legislation. Council will ensure compliance to design standards for pedestrian and cyclist facilities.

Within all of these roles:

- The Walking and Cycling message must be simple, clear and consistent.
- Implementing the Strategy for Walking and Cycling should become the responsibility of the whole of Council.

The Theme Areas

9.2   Creating Spaces and Places - Accessible Destinations

9.2.1   Introduction

To achieve higher levels of walking and cycling activity, the destinations which people access have to be available within suitable distances and designed to encourage and enable walking and cycling. Without local destinations and high quality facilities at those destinations, the opportunities for walking and cycling will not be realised.

The strategies in this theme will support Council to develop standards for walking and cycling provision for key spaces and places and deliver upgrades in partnership with other organisations.

The spaces and places within this context are destinations that will generate travel demand from local and wider networks. Local travel could be on foot or bicycle whilst longer distance travel could include public transport use. Examples of the destinations and land uses considered would include

- Regionally significant leisure, entertainment and spectator destinations including Adelaide Entertainment Centre, Hindmarsh Stadium and Adelaide Arena.
- Regionally significant outdoor leisure destinations such as Coast Park and sections of the coastline;
- Major retail destinations such as Arndale, West Lakes, Findon and Fulham Gardens.
- Local activity centres and high street activity centres such as Henley Beach and Woodville.
- High schools, primary schools and kindergartens.
- Local and neighbourhood shopping centres and community facilities.
- Reserves providing play equipment, sports facilities and other leisure and recreation activities.
- Railway stations, tram stops and major bus stops and interchanges.

Tram Stop: Adelaide Entertainment Centre

Outdoor Dining Opportunities

Clear and Direct Pedestrian Route

Obstructed Pedestrian Route

9.2.2   The Strategies

Revise Development Plan policies to provide desired outcomes for best practise conditions at major developments and activity centres: • Activation of street frontages • Scale of development related to the nature and scale of the street • Avoidance of large scale parking areas on primary street frontages • Location of car park accesses away from primary pedestrian activity locations and routes • Reduced levels of car parking at local destinations • Provision of traffic free, unobstructed, pedestrian routes connecting to new development from street footpaths and local bus stops. • Clear, delineated and signed cycle routes from adjoining streets or cycle paths to safe, secure and conveniently located bicycle parking. • Enforcement remedies to ensure delivery of approved outcomes	▲ ✹
Develop guidelines for Transport Impact Assessments submitted in support of relevant development applications to follow relevant Development plan requirements.	▲ ✹
Develop guidelines for pedestrian and cyclist access and end of trip facilities for all Council owned and operated assets and a program for identified upgrades to meet the guidelines and link to the outcomes in the City of Charles Sturt Open Space Strategy (24).	▪ ●
Develop and implement a program based on an appropriate audit and demand, in conjunction with DPTI where relevant, to upgrade pedestrian and cyclist facilities at, or for access to: • local street and arterial road activity centres • crossing points on the local and arterial road network within 500 metres of major destinations • rail and tram stations, bus interchanges and GoZone routes bus stops, • bus stop facilities to provide sufficient waiting area and shelter for passengers and adjoining pedestrian footpath and public realm.	▪ ◆ ●

Arterial Road Pedestrian Actuated Crossing

Well Placed local Bus Shelter

Tram Stop Lighting

Railway Station Bike Lockers and Bike Parks

Advocate for and partner with the owners/operators of existing major destinations to implement improvements relating to: • Active frontages and natural surveillance • Reducing the impact of car parking areas on primary street frontages • Pedestrian routes within the site and • Connections to and public footpaths and bus stops adjoining the site • Cycling connections to existing local streets or cycle path routes • Conveniently located, safe and secure bicycle parking facilities • Storage and changing facilities where relevant to the destination and staffing levels • Public realm areas within the site including public art • Lighting of public areas within the site and immediately surrounding public roads and footpaths	◆ ●
Advocate for the provision of safe and secure bike parking at local stations and improved travel arrangements for bicycles on local train services.	◆ ●
Advocate for increased flexibility in design standards and guidelines for school zones to improve walking and cycling facilities and manage vehicle conflict risks.	●

9.3 Creating Liveable Communities - Safe and Attractive Local Streets

9.3.1 Introduction

The local streets where people live and where many walking and cycling trips start and finish must provide a pleasant, safe and attractive environment in relation to traffic conditions, street design and the detail of footpath surfaces, lighting and street furniture. If the local streets do not provide the right environment to encourage walking and cycling, the facilities at the destinations are of little value.

The strategies in this section will support Council to plan, maintain and upgrade the local street network to create environments that encourages the community to walk and cycle in their local neighbourhood as their preferred means of travel or leisure activity.

Footpath on Residential Streets

To complement the strategies in the preceding section, the strategies defined here relate to the following examples of local spaces and places:

- All council streets that are primarily residential in nature.
- Pocket parks and small scale local reserves providing public open space for the immediate community.
- Local bus stops served by non-GoZone frequency services and located on local and collector streets.
- Local convenience facilities of up to 2 or 3 retail shops and other local services such as doctors, dentists.

Attractive and well maintained local footpaths

9.3.2 The Strategies

Revise Development Plan policies to provide: • Opportunities for shared street design for low traffic volume local streets • Footpaths in local streets where a shared street design principle has not been adopted based on anticipated demand and routes to local destinations • footpaths in front of a site where this is not already provided and it connects to other footpaths • pedestrian and cyclist route permeability, route ambience and passive surveillance requirements.	◆ ■ ★
Revise Council Road and Path Design Guidelines to provide: • pedestrian and cycling environments and facilities without obstructions introduced to footpaths and	◆ ■ ★
• National and international best practise for vehicle separation, width, surface treatments, line markings, signage, crossings and warrant assessments for pedestrian, cyclist and shared path environments and facilities.	▲ ■

Poorly Maintained Local footpath

Modern Kerb Ramp

Develop guidelines for footpath and cycle path surface treatments based on likely users and heritage considerations.	▲ ■
Maintain ongoing footpath and kerb ramp upgrade program to meet the pedestrian, cyclist (where relevant) demand and desire lines.	■
Incorporate upgrades to pedestrian footpaths, on road cycling facilities crossing facilities / kerb ramps as part of road maintenance/reconstruction whenever possible.	■
Develop a Council wide strategy, including advocacy roles for support from relevant external bodies, for achieving lower vehicle speeds and speed environments on local streets to encourage walking and enable cyclists to confidently share the roadway, with particular emphasis where located close to community facilities and reserves and on bike direct routes.	◆ ● ■
Advocate with SAPOL for improved enforcement of vehicle speeds in local and residential streets	●
Where traffic volumes and speeds on local and collector streets are estimated to exceed Council specifications, implement actions to reduce the traffic volumes and speeds to desirable levels.	■
Develop a series of street typologies based on Streets for People Compendium (11) principles and North West Growth Corridor Transport Study Outcomes (25) for implementation on local streets, where appropriate, as part of road reseal and reconstruction, maintenance, Local Area Traffic Management strategies and Streetscape upgrade projects.	■
All new Local Area Traffic Management measures will be walk and cycle friendly, with particular emphasis on the impact of road narrowings and roundabouts for cyclists.	■
Review Street Lighting and develop upgrades, with particular emphasis on streets located close to facilities likely to be open or used during hours of darkness (e.g. local shops, railway stations, bus stops, bike direct routes, community centres, sports facilities and hotels).	◆ ■
Upgrade footpaths to provide clear, direct and unobstructed route widths and alignments.	■
Implement upgrades to footpaths, crossings and street lighting to accommodate specific needs and local conditions where there are high levels of vulnerable users, especially elderly and young children.	■

Precinct Wide Speed Sign

Lower Speed Street Typology

Zebra Crossing

Bike Lockers

Develop guidelines for pedestrian and cyclist access and end of trip facilities for all Council owned local reserves and pocket parks and identify a program of upgrades to meet the guidelines and link to the outcomes in the City of Charles Sturt Open Space Strategy (38).	■
Develop guidelines for the provision of street trees, landscape planting and street furniture in Council streets, pocket parks and local reserves including consideration of shade, shelter, seating, drinking fountains, bike parking and public art to link to the outcomes in the City of Charles Sturt Open Space Strategy (38).	■

9.4   Integrating the Networks – Connecting People to Places

9.4.1   Introduction

To encourage walking and cycling, the networks must meet the needs of users. Walking and cycling networks must be properly integrated, both with themselves and to the places where people want to walk or cycle. Section 6.1 above identified the nature and requirements of the various walking and cycling users and details of the network formats based on the prevailing traffic, cycling and pedestrian demand and local conditions.

The strategies set out in this section identify the network integration principles that the City of Charles Sturt will adopt to ensure that the networks will be developed to meet the needs of all pedestrian and cyclist users. Key locations and corridors that should be developed to enhance the existing facilities and connect to destinations have also been identified.

Woodville Pedestrian Activated Crossing

9.4.2   The Strategies

Develop crossing format options at locations on local and arterial roads on convenient desires line for nearby destinations and routes to accommodate projected demand and upgrade any existing sub-standard, poor quality or non DDA compliant crossings. DPTI to implement arterial road crossings in conjunction with Council.	■ ● ❖
Ensure that pedestrian crossing phases at all signal controlled locations provide sufficient safe crossing time and minimise waiting time with regard to the nature of users of the crossing (particularly children or elderly pedestrians) and advocate to DPTI for amendments where required at arterial road crossings.	■ ● ❖
Increase footpath widths to achieve as much separation from traffic as possible, as part of upgrade and maintenance schemes.	■
Advocate to and work with DPTI to improve bike lanes on arterial roads to meet the Austroads guidelines through a combination of: • Increased separation of bike lanes and through traffic • Extended hours of availability beyond peak periods (single or bi-directional) • Reduced levels of on street parking in bike lanes • Improved availability of bike lanes on the approaches to, and provision of bike boxes at, intersections • Local crash remediation or black spot schemes to respond to identified cyclist crash clusters	■ ● ❖
In conjunction with DPTI undertake a review of the Outer Harbor Greenway following 6 months of operation	■ ❖

Crossing Signal

Separated Bike Lane

Intersection Bike Box, South Terrace, Adelaide

In conjunction with DPTI and in consultation with the City of West Torrens for the Torrens Linear Park shared path and in conjunction with DPTI for Coast Park:
 	
• Monitor use of the shared paths to ensure they provide the recommended provision for current and anticipated growth in numbers of pedestrians and cyclists.
• Develop guidelines for and provide upgrades to intermediate bike parking and rest, shelter/shade and amenity facilities.
• Upgrade all bicycle only and pedestrian/bicycle access connectors and kerb ramps to best practice design standards.
• Develop and implement a comprehensive wayfinding signage strategy including:
    • at all intermediate path junctions to indicate routes to destinations and suburbs by time and/or distance
    • at all intermediate local street accesses that provide the direct/safest access route to local suburbs and destinations
    • at all connecting local streets with clear street name signs to assist local access
    • promoting safe use of shared paths at appropriate locations.
• For Torrens Linear Park only, upgrade arterial road interfaces to improve access/exit arrangements and enable cyclists to safely join and pedestrians/cyclists to safely cross the arterials in all travel directions without significant detour.
	■
	●
	❖

Monitor and review feedback on the signage strategy for the bike direct network on local streets and arterial road interfaces to identify future upgrades and modifications.	■ ● ❖
Develop and implement a review program for the bike direct network to ensure it provides the most coherent, direct, safe, attractive and comfortable route network with connections to and from local destinations and suburbs, particularly the provision of arterial road crossings and connections complying with current design standards, minimising the Stop" and "Give Way" traffic controls,	■ ● ❖
Develop and implement the proposed Grange Lakes shared path as identified in the City of Charles Sturt Open Space Strategy from Henley Beach Road to Trimmer Parade	■
Develop a cycle route corridor on the south west to north east axis to provide connections generally on a route from Henley Beach to Woodville and Arndale via Fulham Gardens and Findon.	■ ● ❖

Linear Park Local Street Access

Linear Park and Coast Park intersection and signage

Safe Arterial Road median crossing

Sub-standard arterial road median crossing

Well located Sheltered Bike Parking

Upgrade the existing Marlborough Street/Valetta Road/Hartley Road bike lane corridor to: • Provide a continuous connection at the western end to the Coast Park and Henley Beach and at the eastern end to the Linear Park via Beatty Street or appropriate alternative route • Identify and sign intermediate connections between this corridor and the River Torrens Linear Park • Improve cycle facilities at the intermediate roundabout intersections • Improve bike lane treatments across minor entry roads to reduce crash risks to cyclists • Facilitate route continuity along and link to Findon Road through advocating to DPTI for on road bike lanes, cycle crossing facilities and/or shared path facilities	■ ● ❖

Linear Park Signage

Local Street Bike Lane Roundabout Sharrows, Melbourne

Source: Nearmap

9.5 Influencing Travel Behaviour - Walking and Cycling as First Instinct

9.5.1 Introduction

Whilst new infrastructure provision will improve access to walking and cycling, the nature of Australian contemporary society is that the use of the car has become ingrained with little consideration for the use of alternatives that would equally or better meet the needs of the particular journey.

As identified in section 4, there are many actual and perceived barriers to increasing the levels of cycling and walking. Whilst the physical network barriers can be addressed over time, overcoming the psychological or cultural barriers and perceptions will require a number of different approaches.

Ensuring that all people have access to, and a full understanding of, the information and routes available is as important as the infrastructure. Information must be presented in a clear and simple way, and in some cases be supported by accessible and inclusive instruction programs. Information also needs to be available through a variety of sources, reflecting the different media by which people now access information. Messages also need to be constantly refreshed and updated to ensure that they remain interesting, current and relevant.

This section sets out a series of strategies for Council to initiate either as part of their own integration of walking and cycling or in partnership with external organisations.

The strategies have been grouped under 4 headings, promotion, education, advocacy and support.

9.5.2 The Strategies

Promotion	
Increase the number of locations where the Adelaide City Bike Hire Scheme is available.	
Organise community events or promotion through Council literature to mark the opening of new infrastructure, for example new sections of shared path.	▲ ■
Council to organise, support, promote or take park in community events to highlight walking, cycling and public transport, in all possible ways, including local community and leisure group walking and cycling activities, opening infrastructure, walk to school weeks and ride to work days, for example by attendance of Council staff and facilitating walking and cycling groups to attend.	▲ ■ ❖
Ensure that all Council literature identifies walking, cycling and public transport travel opportunities and routes to destinations in a simple and high profile way.	▲ ■
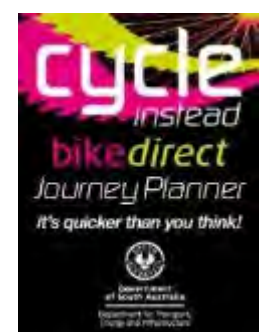
*Examples of Promotional Literature*

Maximise as much as possible the use of Council marketing resources to promote walking and cycling, for example newsletters and website and through social media outlets, such as Facebook and Twitter.	▲ ■
Develop maps, signage and logos to assist in the community recognition of walking and cycling infrastructure, for example bike direct signs.	▲ ■
Education	
Facilitate the continuing delivery and where appropriate assist the expansion of BikeEd programs through primary schools and explore opportunities for additional or refresher BikeEd courses through high schools.	▲ ❖
Facilitate education and training programs for adults to learn to ride or regain confidence on a bike through workplace, interest group or community events run by Council or Partner organisations, for example Bike SA programs for new arrivals from overseas and youth at risk.	▲ ❖
Facilitate education opportunities for people on how to read public transport timetables and how to purchase and use tickets.	▲ ❖
Develop and facilitate education on the benefits of increased walking and cycling and reduced car use, considering financial, health and social as the most likely primary receptors.	▲ ●
Develop in conjunction with road safety organisations, educational campaigns to increase driver awareness and respect for pedestrians and cyclists, particularly in relation to vehicle speeds on local and residential streets.	▲ ● ❖
Facilitate or provide stands at community events for bike training, public transport information, mapping presentations/games, for example estimating travel times by mode.	▲ ■ ❖
Advocacy and Partnership	
Advocate with DPTI and OPAL to extend the scope of existing programs such as Way2Go and School Travel Plans beyond the provision of safe infrastructure.	▲ ● ❖
Work with DPTI to keep the Cycle Instead journey planner up to date.	■ ❖
Work with OPAL and schools to implement upgrades to school travel opportunities, for example Park and Stride locations, traffic exclusion zones and Travel Plan targets.	■ ❖
Continue to advocate the benefits of walking and cycling using specific best practice and local case study examples as they are established.	▲ ● ❖

Examples of Promotional Literature

Advocate to and work with major employers and destination organisations to develop and implement Travel Plans with specific targets for increasing levels of walking, cycling and public transport use.	▲ ● ❖
Advocate for an appropriate legislative framework to enable Council to have a flexible approach to respond to the impact of motor vehicles on local streets, e.g School Zone and Crossing Warrant requirements.	●
Support	
Work with partners to extend and promote existing walking and cycling groups, for example Heart Foundation walking groups, Bicycle User Groups, Bike SA programs and provide community based events and programs.	▲ ❖

9.6 Council Leadership - Providing a Clear Direction

9.6.1 Introduction

Delivering the strategies identified in the previous theme areas to achieve a successful outcome for Walking and Cycling starts with leadership and direction from Council. This leadership and direction will need to originate at the highest levels within Council and flow through all levels, all departments and all Council documents, public consultations and development plan approvals.

This leadership will need to be demonstrated as an instinctive and integrated aspect of all Council activities. The leadership must also follow through when Council is in collaboration with the many external stakeholders with whom it interacts and through all communication with the local communities.

The strategies in this section will enable Council to provide this leadership.

Charles Sturt Civic Centre

9.6.2 Strategies

Identify Walking and Cycling Champion(s) - a high level of Council officer or Council Member who will deliver and reinforce the Cycling and Walking message throughout Council and with key partners and other external organisations.	▲
Develop and Implement a Council wide Travel Plan to encourage increased walking, cycling and public transport use by Council. Monitor feedback to update and enhance Travel Plan to assist in achieving objectives.	▲
Create an Active Travel Group within Council to monitor, review and advise on Walking and Cycling opportunities and outcomes for Council.	▲ ■
Develop an Active Travel Group with adjoining Council's and other external stakeholders to promote and implement joint walking and cycling infrastructure, advocacy and events.	▲ ❖
Identify Walking and Cycling Advocates within Council Officers who will support the champion and provide the following roles: • Implement Walking & Cycling Action Plans • Monitor and evaluate Actions and Outcomes • Identify Strategic opportunities and partnerships • Develop and Implement Council Travel Plan • Manage the integration of culture change within Council (through creating Active Travel Group) • Advocate to external partners and organisations for the development of travel plans, active travel strategies and walking and cycling infrastructure and initiatives	▲ ●

Boris Johnson, London Mayor and Pro-cycling

Direct that all consultation materials fully demonstrate the walking and cycling benefits that will be realised from the proposed strategy and actions.	▲
Revise asset management policies to include a leading, best practice approach to deliver walking, cycling and public transport assets and to manage, maintain and upgrade existing walking, cycling and public transport assets.	▲
Develop partnering opportunities, links and where appropriate formal subscription with best practice organisations (e.g. Walk21, 8-80 cities) and incorporate reports on national and international actions, events and outcomes in internal and external Council information.	▲ ❖

10. Monitoring and Evaluation Strategy

The implementation of a major Strategy with a long time horizon needs to be supported by an appropriate level of monitoring, review and evaluation. The monitoring and review should cover all aspects of the Strategy to ensure that any lessons learnt in the early stages can be used to inform the later stages.

10.1 Introduction

Regular monitoring of the strategies and actions should be used to evaluate the success of the Strategy for Walking and Cycling during the implementation timeframe and continuing once fully established. The administrative and performance indicators recommended should be formally established and measured against regularly, for each of the plans, strategies and actions. At a minimum, an annual review of the Strategy for Walking and Cycling should assess what actions, infrastructure and programs have been implemented, the uptake of these initiatives, value-for-money for health, environment and quality of life outcomes and recommend any changes for subsequent action plans and future monitoring.

10.1.1 Strategy Delivery

When implementing a Strategy of this nature and over a long period of time, it is essential to monitor the delivery and actions of the Strategy. This ensures that the Strategy delivers against identified timescales and is meeting the vision and objectives. This review should be undertaken on at least an annual basis to ensure that the delivery of actions is monitored and review and that the outcomes are meeting the targets. This enables the strategy to be amended to reflect changes to priorities and timescales and to incorporate lessons learnt from early stages of the strategy. This will ensure that successful actions and outcomes can be transferred elsewhere and that less successful outcomes can be amended for future strategies and actions.

10.2 Infrastructure Usage

As a key objective of the Strategy is to increase the levels of Walking and Cycling within Charles Sturt, suitable data must be obtained to enable regular and consistent comparison of infrastructure usage.

10.2.1 Permanent Bicycle Counters

It is recommended that bicycle counters should be included as part of all new bicycle infrastructure works. The counters available can be used for shared path or on road bicycle facilities. Permanent bicycle counters should be installed in existing shared paths to monitor use of the shared path network, by both cyclists and pedestrians to supplement the existing count locations available, notably DPTI sites at the eastern end of the Linear Park within the City of Charles Sturt. A series of locations should be identified along Linear Park, Coast Park and other shared path facilities that form part of a longer route. As well as providing data on the level of cyclist use, this monitoring can also be used to assess the need for any future upgrades, for example to improve physical separation between cyclists and pedestrians.

Installing permanent bicycle counters in new bicycle infrastructure provides a robust, data-based platform to demonstrate regular bicycle use and peak period demand and seasonal variation not typically captured by occasional counts. Cost-effective and unobtrusive counters are available with installation targeted at major cordon locations or near entry/exit points.

10.2.2 Pedestrian and Cycle Count Programs

State and Council organised bicycle count programs have proven to be beneficial for monitoring infrastructure usage. Super Tuesday and Super Sunday count programs, in which the City of Charles Sturt already participates, provide additional monitoring evidence on usage, although they can be subject to variations from weather conditions. These counts should be continued on a regular basis (at least annually) and should at a minimum capture the quantity and direction of travel of cyclists at given location. Additional data such as the age group and gender of cyclists can also be beneficial.

Non-permanent counts should be undertaken consistently during days and times of peak usage such as on a Tuesday, Wednesday or Thursday for a minimum of 7:00am – 9:00am and 4:00pm to 6:00pm. The counts should note the weather conditions during each period surveyed. In addition to the existing permanent count sites, non-permanent count locations in Charles Sturt should be considered along popular cyclist routes such as:

- Coast Park
- Marlborough Street / Valetta Road/ Hartley Road
- Additional Linear Park Sites
- The proposed south west to north east corridor
- Bike direct routes

DPTI also record cyclists at all intersection counts which are undertaken. These can also be used to inform on cycle usage on major arterial bike routes and also the presence of cyclists on routes without existing bike lanes. The City of Charles Sturt should advocate to DPTI to include pedestrian counts within the turning movement surveys to inform future pedestrian provision and upgrades.

It is recommended that Council includes pedestrian and cyclist counts in any turning movement surveys that it commissions. A program of pedestrian counts is also recommended for existing pedestrian crossing facilities and at locations where pedestrian activity occurs and is not adequately provided for, particularly where there is a history of pedestrian crashes. This will assist in identifying locations where improved facilities may be justified, locations where the existing facilities do not meet desire lines, resulting in uncontrolled and unsafe pedestrian crossing movements and locations where new facilities are required.

10.2.3   Bicycle Parking

The lack of end of trip bicycle parking has been identified as a significant barrier to cycling for many trip purposes and the Development Plan now requires all new developments to provide bike parking, which will assist in addressing this over time. Monitoring the use of bike parking will assist in targeting new or expanded provision where it will be most used and ensuring that the Development Plan specifications reflect current demand levels and future growth, resulting in appropriate levels of provision.

Regular bicycle parking audits should be conducted of existing council bicycle parking infrastructure, in order to assess the use of the parking and inform the provision of additional bicycle parking facilities. When bicycle parking provision is observed to be at least 75% full on a regular basis, additional racks should be provided. Through consultation with major destinations and regular bike parking audits opportunities to increase provision can be identified. Areas with significant, observed bicycle parking demand should inform the future program of bicycle parking provision. A feedback opportunity should be provided to enable the community to identify locations where bike parking provision is required and would be utilised.

During audits, areas with abandoned bicycles should be noted. Abandoned bicycles should be 'tagged' for removal with a handlebar notice and removed within a fortnight.

10.3 Road Safety

DPTI collates crash data on traffic incidents in SA. To be reported, a crash must result in $500 worth of damage, lead to a police call out or a hospital visit. Analysis has shown that the reported pedestrian and bicycle crashes in the database generally result in a casualty injury, as most minor incidents are unlikely

to result in a police call out or significant damage. As a result, crash blackspots in the database reflect areas of serious concern.

The DPTI database should be interrogated regularly to establish pedestrian and bicycle crash blackspots and report to the Active Travel Officer and Group and internal/ external transport stakeholders in order to prioritise responses.

As minor incidents and near misses would not raise a crash record, the Active Travel Officer should track any reported incidents and map these in the Council geodatabase. Local Cyclists Forums on websites can be used as a means of sourcing reporting for locations with high incidences of near misses and minor incidents for cyclists, enabling a more thorough investigation to be undertaken.

10.4 Participation

10.4.1   Intercept surveys

It is recommended to conduct intercept surveys with pedestrians and cyclists at major desire lines and activities on a regular basis and following the launch of new infrastructure or wayfinding routes. Intercept surveys could be considered in conjunction with the established Super Tuesday or Super Sunday count programs, with initial locations likely to include Linear Park, Coast Park and the Marlborough Street corridor. The results from the intercept surveys can be used to understand levels of new riders or attracted to the facility from a previous route, origins and destinations and any comments or concerns with the facilities on the route.

Similarly pedestrian intercept surveys would seek to identify reasons for the choice of route, origins and destinations and any comments or concerns on the facilities and nature of the routes.

10.4.2   Events

Participation in events is a valuable measure of program success. The events should be reviewed regularly through this monitoring strategy. Sample indicators could be collected through registrations and confirmed through completed feedback forms, in order to gauge participant response patterns. Given the gender imbalance between men and women participation rates, the first monitoring strategy should gauge participation by women and children to differentiate if the target market is increasing.

Events can take many forms and include community events to mark completions of major new cycling or walking facilities, or walking and cycling promotion stands in conjunction with other community events. Activities such as bike training or taster sessions for adults or children, bike safety checks, route planning and lead walks or rides could be included.

There are also many existing regular events that take place, including Bike SA rides and training sessions and Heart Foundation walking groups. These events should also be promoted through Council and regular reporting received from the organising groups to monitor the level of attendance, the motivators for attendance and how the attendees found out about the events, to inform and refine future promotion.

10.5 Communications Plan

Reporting on the successes of the various initiatives and the increasing rates of cycling and walking will assist council to leverage interest and funding for future bicycle projects and pedestrian improvements. As part of the Active Travel Group initiatives, Council should establish a communication opportunity for reporting comments in relation to walking and cycling, identifying specific locations of concern and poor provision. Assembling this anecdotal and evidence based data will identify locations with repeatedly

raised concerns to prioritise further assessment and investment. Council should also monitor visits to the cycling and walking pages of the Council website and downloads of the relevant Adelaide cycling maps from the website to gauge the interest in cycling and walking.

10.6 Evaluation and Reporting

Results of monitoring activities should be reported regularly (e.g. monthly) to the Active Travel Group, with subsequent dissemination of the activities and outcomes around the wider Council teams and on external newsletters, the website and local and social media outlets. Where data demonstrates performance, inform internal and external stakeholders regarding the outcomes, levels of walking and bicycle use and areas of concern and report the response to successful programs.

Reporting on successes provides a positive news story to encourage others to investigate. Media outlets can also be used to inform on future studies or locations for assessment to encourage further reporting in relation to those sites.

Monitoring should also inform evaluation strategies to assess less successful initiatives to increase future effectiveness.

11.   Action Plan

An action plan for the implementation of identified strategies provides a formal structure through which to plan and monitor the timing and priority level of the various strategies. The action plan should ensure that there is a continual program of actions and schemes that are being implemented from the very start of the overall strategy through to the ultimate delivery of all aspects of the strategy. In the early stages of the overall strategy, short term actions demonstrate a commitment to the Strategy and visible evidence of change to the community. These actions should include localised and small scale interventions and upgrades on the ground as well as ensuring that the less visible, but essential policy, planning, promotion and behaviour change actions are being put in place.

Other actions in the initial action plan will be identified for delivery over a medium or long term time frame as planning, design and funding requirements necessitate. In some cases these longer term projects will require short term actions in order to achieve the long term outcomes, and as the strategy evolves through the various stages of implementation, these long term actions will become short term actions.

Action Plans must be capable of being reviewed and updated within the overall strategy, allowing it to evolve to respond to implementation and outcomes of earlier actions, new opportunities and changes to priorities as a result of other external factors.

11.1   Action Plan Principles

This Action Plan provides recommendations on the priority levels and timing of the various strategies identified within this document. The Action Plan reflects the need for the City of Charles Sturt to prioritise strategies and actions to ensure that resources will be available to deliver effectively on the strategies whilst demonstrating to the community ongoing progress in delivering improvements to walking and cycling. This Action Plan will be implemented over a number of years, linking to longer term planning and funding timescales at Local, State and Federal levels, but should be reviewed on an annual or bi-annual basis to ensure that it continues to reflect current priorities and new opportunities.

The strategies have been identified in relation to three time periods.

Short Term, 1 – 3 years

Medium Term, 4 – 10 years

Long Term, longer than 10 years

Whilst these timescales reflect overall completion of the action, they do not necessarily reflect the immediate level of priority. Many of the long term actions will require short term planning, funding and co-ordination with other projects to ensure their long term delivery and therefore are identified as high priority to reflect the full timescale required. These complement the short term "quick win" or essential actions identified as high priority to support the delivery of the overall Strategy and Vision for Walking and Cycling.

The tables below identify the actions and their respective timescale and priority levels. An ongoing priority indicates either an action that the City of Charles Sturt already undertakes or would commence in the short term with a long term completion target.

11.2   Creating Spaces and Places – Accessible Destinations

Action	Timescale	Priority
Revise Development Plan policies to provide desired outcomes for best practise conditions at major developments and activity centres.	Short	High
Develop guidelines for Transport Impact Assessments submitted in support of relevant development applications to follow relevant Development plan requirements.	Short	High
Develop guidelines for pedestrian and cyclist access and end of trip facilities for all Council owned and operated assets and a program for identified upgrades to meet the guidelines and link to the outcomes in the City of Charles Sturt Open Space Strategy.	Short	High
Develop a program to upgrade pedestrian and cyclist facilities at local street and arterial road activity centres and implement the highest priorities.	Ongoing	High

Action	Timescale	Priority
Develop a program to upgrade pedestrian and cyclist facilities at crossing points on the local and arterial road network within 500 metres of major destinations and implement the highest priorities.	Ongoing	High
Develop a program to upgrade pedestrian and cyclist facilities to access rail and tram stations, bus interchanges and GoZone routes bus stops and implement the highest priorities.	Ongoing	High
Develop a program to upgrade bus stop facilities to provide sufficient waiting area for passengers and adjoining pedestrian footpath and public realm areas and advocate to Metro for increased funding support for shelter upgrades.	Medium	Medium
Develop working partnerships with the owners/operators of existing major destinations to facilitate future upgrades to Walking and Cycling facilities.	Ongoing	High
Advocate to and partner with the owners/operators of existing major destinations to implement improvements relating to active frontages and natural surveillance.	Ongoing	Low
Advocate to and partner with the owners/operators of existing major destinations to implement improvements relating to reducing the impact of car parking areas on primary street frontages.	Ongoing	Low
Advocate to and partner with the owners/operators of existing major destinations to implement improvements relating to pedestrian routes within the site and connections to public footpaths and bus stops adjoining the site.	Ongoing	High
Advocate to and partner with the owners/operators of existing major destinations to implement improvements relating to cycling connections to existing local streets or cycle path routes.	Ongoing	Medium
Advocate to and partner with the owners/operators of existing major destinations to implement improvements relating to conveniently located, safe and secure bicycle parking facilities.	Ongoing	High
Advocate to and partner with the owners/operators of existing major destinations to implement improvements relating to storage and changing facilities where relevant to the destination and staffing levels.	Ongoing	Medium
Advocate to and partner with the owners/operators of existing major destinations to implement improvements relating to public realm areas within the site including public art.	Medium	Medium
Advocate to DPTI for the provision of safe and secure bike parking at local stations and improved travel arrangements for bicycles on local train services.	Short	High
Advocate for increased flexibility in design standards and guidelines for school zones to improve walking and cycling facilities and manage vehicle conflict risks.	Medium	Medium

11.3 Creating Liveable Communities - Safe and Attractive Local Streets

Actions	Timescale	Priority
Revise Development Plan policies to provide best practice conditions for pedestrians and cyclists in relation to footpaths, street design and route permeability.	Short	High
Revise Council Road and Path Design Guidelines to provide national and international best practise for vehicle separation, width, surface treatments, line markings, signage, crossings and warrant assessments for pedestrian, cyclist and shared path environments and facilities.	Short	High
Develop guidelines for footpath and cycle path surface treatments based on likely users and heritage considerations.	Ongoing	Low
Maintain ongoing footpath and kerb ramp upgrade program to meet the pedestrian, cyclist (where relevant) demand and desire lines.	Ongoing	High
Incorporate upgrades to pedestrian footpaths, on road cycling facilities crossing facilities / kerb ramps as part of road maintenance/reconstruction whenever possible.	Ongoing	Medium
Develop a strategy for achieving lower vehicle speed environments on local streets to encourage walking and enable cyclists to confidently share the roadway, with particular emphasis where located close to community facilities and reserves and on bike direct routes.	Short	High
Implement proposed precinct wide lower speed limits in Welland and Henley and monitor the benefits for walking and cycling	Short	High
Advocate with SAPOL for improved enforcement of vehicle speeds in local and residential streets	Short	Medium
Where traffic volumes on local and collector streets are recorded to be 50% higher than the current internal standard with regard to speed and volume. Implement actions to reduce the traffic volumes to desirable levels.	Ongoing	Medium
Develop a series of street typologies based on Streets for People Compendium principles and North West Growth Corridor Outcomes for implementation on local streets, where appropriate, as part of road reseal and reconstruction, maintenance, Local Area Traffic Management strategies and Streetscape upgrade projects.	Short	Medium

Actions	Timescale	Priority
New Local Area Traffic Management measures will endeavour to be walk and cycle friendly, with particular emphasis on the impact of road narrowings and roundabouts for cyclists, in consultation with residents.	Short	High
Review Street Lighting and develop upgrades, with particular emphasis on streets located close to facilities likely to be open or used during hours of darkness (e.g. local shops, railway stations, bus stops, bike direct routes, community centres, sports facilities and hotels).	Ongoing	High
Renew footpaths to provide clear, direct and unobstructed route widths and alignments.	Ongoing	High
Implement upgrades to footpaths, crossings and street lighting to accommodate specific needs and local conditions where there are high levels of vulnerable users, especially elderly and young children.	Ongoing	High
Develop guidelines for pedestrian and cyclist access and end of trip facilities for all Council owned local reserves and pocket parks and identify a program of upgrades to meet the guidelines and link to the outcomes in the City of Charles Sturt Open Space Strategy.	Short	Medium
Develop guidelines for the provision of street trees, landscape planting and street furniture in Council streets, pocket parks and local reserves including consideration of shade, shelter, seating, drinking fountains, bike parking and public art to link to the outcomes in the City of Charles Sturt Open Space Strategy.	Medium	Medium

11.4 Integrating the Networks – Connecting People to Places

Actions	Timescales	Priority
Develop crossing format options at locations on local and arterial roads on convenient desires line for nearby destinations and routes to accommodate projected demand and upgrade any existing sub-standard or poor quality crossings. DPTI to implement arterial road crossings in conjunction with the City of Charles Sturt.	Ongoing	High
Develop a program to implement the identified crossing upgrades on a rolling program from the highest priorities.	Ongoing	High
Ensure that pedestrian crossing phases at all signal controlled locations provide sufficient safe crossing time and minimise waiting time with regard to the nature of users of the crossing (particularly children or elderly pedestrians) and advocate to DPTI for amendments where required at arterial road crossings.	Short	High
Increase footpath widths to achieve as much separation from traffic as possible, as part of upgrade and maintenance schemes.	Ongoing	Medium
Advocate to and work with DPTI to deliver improved bike lanes on arterial roads to meet the Austroads guidelines, prioritising routes and location based on levels of cyclist demand and crash records.	Ongoing	High
In conjunction with DPTI undertake a review of the operation and levels of cycling on the Outer Harbor Greenway following 6 months of operation.	Short	High
In conjunction with DPTI and in consultation with the City of West Torrens for the Torrens Linear Park shared path: Identify and implement upgrades to intermediate bike parking facilities Identify and implement upgrades to rest, shelter/shade and amenity facilities. Upgrade all bicycle only and pedestrian/bicycle access connectors and kerb ramps to best practice design standards. Develop and implement a comprehensive wayfinding and signage strategy that ensures: • all intermediate path junctions indicate routes to destinations and suburbs by time and/or distance • all intermediate local street accesses are signed where they provide the most direct/ safest access route to local suburbs and destinations • all connecting local streets have clear street name signs to assist local access • promotion of safe use of shared paths at appropriate locations.	Ongoing	High
Upgrade the arterial road interfaces along Torrens Linear Park to improve access/exit arrangements and enable cyclists to safely join or cross the arterials as required.	Ongoing	High

Actions	Timescale	Priority
In conjunction with DPTI for Coast Park, monitor use of the shared paths to ensure they provide the recommended provision for current and anticipated growth in numbers of pedestrians and cyclists.	Short	High
In conjunction with DPTI for Coast Park, identify and implement upgrades to intermediate bike parking facilities	Short	Medium
In conjunction with DPTI for Coast Park, review, identify and implement upgrades to rest, shelter/shade and amenity facilities.	Medium	Low
In conjunction with DPTI for Coast Park, upgrade all bicycle only and pedestrian/bicycle access connectors and kerb ramps to best practice design standards.	Ongoing	Medium
In conjunction with DPTI, develop connections to Coast Park through Tennyson and West Lakes Shore via Military Road.	Medium	Medium
In conjunction with DPTI for Coast Park, develop and implement a comprehensive wayfinding and signage strategy that ensures: • all intermediate path junctions indicate routes to destinations and suburbs by time and/or distance • all intermediate local street accesses are signed where they provide the most direct/ safest access route to local suburbs and destinations • all connecting local streets have clear street name signs to assist local access • promotion of safe use of shared paths at appropriate locations.	Short	High
Monitor and review feedback on the signage strategy for the bike direct network on local streets and arterial road interfaces to identify future upgrades and modifications.	Short	Medium
Develop and implement in conjunction with DPTI, a review program for the bike direct network to ensure it provides the most coherent, direct, safe, attractive and comfortable route network with connections to and from local destinations and suburbs, particularly in relation to arterial road crossings and current design standards.	Short	Medium
Develop and implement the proposed Grange Lakes shared path as identified in the Open Space Strategy from Henley Beach Road to Trimmer Parade	Short	Medium
Develop a cycle route corridor on the south west to north east axis to provide connections generally on a route from Henley Beach to Woodville and Arndale via Fulham Gardens and Findon.	Medium	Medium

Actions	Timescale	Priority
Develop and implement a program to upgrade the existing Marlborough Street/Valetta Road/Hartley Road bike lane corridor to: Provide a continuous connection at the western end to the Coast Park and Henley Beach and at the eastern end to the Linear Park via Beatty Street or appropriate alternative route. Identify and sign intermediate connections between this corridor and the River Torrens Linear Park. Improve cycle facilities at the intermediate roundabout intersections. Improve bike lane treatments across minor entry roads to increase driver awareness of the bike lane and reduce crash risks to cyclists. Facilitate route continuity along the section of Findon Road through advocating to and working with DPTI for cycle route and crossing facilities.	High	High

11.5   Influencing Travel Behaviour - Walking and Cycling as First Instinct

Promotion		
Actions	**Timescales**	**Priority**
Increase the number of locations where the Adelaide City Bike Hire Scheme is available.	Short	Medium
Organise community events or promotion of existing events through Council literature to mark the opening of new infrastructure, for example new sections of shared path.	Short	Medium
Council to organise, support, promote or take part in community events to highlight walking, cycling and public transport, in all possible ways, including local community and leisure group walking and cycling activities, opening infrastructure, walk to school weeks and ride to work days, for example by attendance of Council staff and facilitating walking and cycling groups to attend.	Short	Medium
Ensure that all Council literature identifies walking, cycling and public transport travel opportunities and routes to destinations in a simple and high profile way.	Short	High
Maximise as much as possible the use of Council marketing resources to promote walking and cycling, for example newsletters and website and through social media outlets, such as Facebook and Twitter.	Short	High
Develop maps, signage and logos to assist in the community recognition of walking and cycling infrastructure, for example bike direct signs.	Medium	Medium
Advocate for increasing public awareness and acceptance of the safety benefits of a reduction in local area speed limits	Medium	Medium
Education		
Facilitate the continuing delivery and where appropriate assist the expansion of BikeEd programs through primary schools.	Short	High
Explore opportunities for additional or refresher BikeEd courses through high schools.	Medium	Medium
Facilitate education and training programs for adults to learn to ride or regain confidence on a bike through workplace, interest group or community events run by Council or Partner organisations, for example Bike SA programs for new arrivals from overseas and youth at risk.	Short	High
Advocate with Public Transport Authority for education opportunities and accessible information for people on how to read public transport timetables and how to purchase and use tickets.	Medium	Medium
Advocate for the development of education initiatives on the benefits of increased walking and cycling and reduced car use, considering financial, health and social as the most likely primary receptors.	Short	High

Actions	Timescales	Priority
Develop in conjunction with road safety organisations, educational campaigns to increase driver awareness and respect for pedestrians and cyclists, particularly in relation to vehicle speeds on local and residential streets.	Short	High
Facilitate or provide stands at community events for bike training, public transport information, mapping presentations/games, for example estimating travel times by mode.	Short	Medium
Advocacy and Partnership		
Advocate with DPTI and OPAL to extend the scope of existing programs such as Way2Go and School Travel Plans beyond the provision of safe infrastructure.	Short	High
Work with DPTI to keep the Cycle Instead journey planner up to date.	Short	High
Work with OPAL and schools to implement upgrades to school travel opportunities, for example Park and Stride locations, traffic exclusion zones and Travel Plan targets.	Short	High
Continue to advocate the benefits of walking and cycling using specific best practice and local case study examples as they are established.	Short	Medium
Advocate to and work with major employers to show the benefits of increased levels of walking, cycling and public transport use.	Short	Medium
Advocate for an appropriate legislative framework to enable Council to have a flexible approach to respond to the impact of motor vehicles on local streets, e.g School Zone and Crossing Warrant requirements.	Medium	Medium
Support		
Work with partners to extend and promote existing walking and cycling groups, for example Heart Foundation walking groups, Bicycle User Groups, Bike SA programs and provide community based events and programs.	Short	High

11.6   Council Leadership - Providing a Clear Direction

Actions	Timescale	Priority
Identify Walking and Cycling Champion(s) - a high level Council Officer and Council Member who will deliver and reinforce the Cycling and Walking message throughout Council and with key partners and other external organisations.	Short	High
Develop and Implement a Council wide Travel Plan to encourage increased walking, cycling and public transport use by Council. Monitor feedback to update and enhance Travel Plan to assist in achieving objectives.	Short	High
Create an Active Travel Group within Council to monitor, review and advise on Walking and Cycling opportunities and outcomes for Council.	Short	High
Develop a Regional Active Travel Group in conjunction with DPTI, adjoining Council's and other external stakeholders to promote and implement joint walking and cycling infrastructure, advocacy and events.	Medium	High
Identify Walking and Cycling Advocates within Council Officers who will support the champion and provide the following roles: • Implement Walking & Cycling Action Plans • Monitor and evaluate Actions and Outcomes • Identify Strategic opportunities and partnerships • Develop and Implement Council Travel Plan • Manage the integration of culture change within Council (through creating Active Travel Group) • Advocate to external partners and organisations for the development of travel plans, active travel strategies and walking and cycling infrastructure and initiatives	Short	High
Ensure community and stakeholder consultation materials fully demonstrate the walking and cycling benefits that will be realised from the proposed strategy and actions.	Short	High
Revise asset management policies to include a leading, best practice approach to deliver walking, cycling and public transport assets and to manage, maintain and upgrade existing walking, cycling and public transport assets.	Short	High
Develop partnering opportunities, links and where appropriate formal subscription with best practice organisations (e.g. Walk21, 8-80 cities) and incorporate reports on national and international actions, events and outcomes in internal and external Council information.	Short	High

11.7   Monitoring and Evaluation

Actions	Timescales	Priority
Implement permanent bicycle counters at key locations on the major cycling networks.	Medium	High
Develop and implement a program of regular pedestrian and cyclist monitoring counts.	Short	High
Advocate to DPTI to include pedestrians within DPTI turning movement surveys.	Short	Medium
Continue to undertake the Cyclist Super Tuesday and Super Sunday count programs, expanding the count location as demand and resources permit.	Short	Medium
Monitor and review the number and location of pedestrian and cyclist crashes and the severity level on at least an annual basis.	Short	High
Develop a standard format questionnaire to undertake pedestrian and cyclist intercept surveys on an annual basis, following changes to infrastructure or as part of events.	Medium	Medium
Develop a monitoring and review report to inform the City of Charles Sturt Active Travel Group on events, surveys and activities that relate to walking and cycling, identifying outcomes and future actions.	Short	High

ATTACHMENTS

Appendix A

Census at School Travel Data

2013   23745 Responses

Method of travel	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Aust
Bicycle	6.1	2	4.2	2.9	3.2	1.5	3.9	5.9	3.4
Boat/Ferry	1.3	0.6	1.1	0.4	0.3	1.2	0.3	0.5	0.5
Bus	28.3	29.2	31.3	26.6	20.6	38.4	19	26.2	25.4
Car	46.1	38.1	44.6	49.7	53.9	42.2	50.5	41.1	46
Skateboard/Scooter/Rollerblades	0.8	1.3	1.8	0.8	1.4	0.4	1.3	2.7	1.3
Train/Tram	0.4	10.2	0	3.8	0.9	0.1	5	2.4	4.8
Walk	16.9	18.3	16.6	15.2	19	15.9	19.8	20.5	18.2
Other	0	0.3	0.4	0.5	0.7	0.3	0.2	0.6	0.4
Total	100	100	100	100	100	100	100	100	100

2012   21617 Responses

Method of travel	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Aust
Bicycle	7.2	1.7	6.1	3.6	3.4	1.1	4.4	4.9	3.4
Boat/Ferry	1.5	0.5	4.2	0.3	0.2	1.4	0.2	0.5	0.5
Bus	22.4	30.1	27.2	20.4	19.3	45.2	18.9	24.7	24.5
Car	52.1	40.1	38.5	55.7	52.7	35	49.1	42.6	46.8
Skateboard/Scooter/Rollerblades	1.1	0.9	1.9	1.4	2	1	2.4	2.1	1.6
Train/Tram	0	9.1	0	3.1	0.4	0.1	4.7	2	4.5
Walk	15.2	17.1	21.6	15	20.6	16	19.9	22.7	18.2
Other	0.4	0.5	0.5	0.6	1.4	0.3	0.3	0.5	0.5
Total	99.9	100	100	100.1	100	100.1	99.9	100	100

2011   25307 Responses

Method of Travel	ACT	NSW	NT	QLD	SA	Tas	Vic	WA
Bicycle	4.7	1.6	6.7	3.1	2.9	1	3.4	4.7
Boat/Ferry	1.2	0.6	1.5	0.3	0.3	0.6	0.3	0.5
Bus	24.6	31	34.9	25.1	19.2	52.7	25.8	21.2
Car	47.7	40	43.1	49.6	52.7	30.1	45.1	46.8
Skateboard/Scooter/Rollerblades	2.2	2	2.1	1.3	1.7	1.3	1.9	2.4
Train/Tram	0.5	3.5	0.3	3.6	1.3	0.1	4	3.8
Walk	18.2	20.7	10.3	16.5	21.4	13.8	19	20.2
Other	0.9	0.4	1.3	0.6	0.4	0.4	0.4	0.5
Total	100	99.8	100.2	100.1	99.9	100	99.9	100.1

2010   22319 Responses

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Method of Travel	%							
Bicycle	7.7	2.5	3.3	4	3.8	1.3	5	5.2
Boat/Ferry	0.8	0.5	2.8	0.5	0.3	0.7	0.4	0.3
Bus	25.3	32.2	40.2	20.9	21.2	40.3	17.6	24.1
Car	46.6	37.7	41.1	56	50.1	38.6	49.5	45.5
Skateboard/Scooter/Rollerblade	0.8	1.3	1.4	1	1.7	1.3	2	1.1
Train/Tram	0.2	4.1	0.5	3.3	1.6	0.3	3.9	2.1
Walk	18.3	21.3	9.8	13.9	21	17.1	21.2	21.1
Other	0.4	0.4	0.9	0.4	0.4	0.5	0.4	0.7

Appendix B

Case Studies

This appendix provides more details on the local, national and international examples of strategies, initiatives and infrastructure upgrades have delivered successful outcomes for walking and cycling. This includes the development of Strategy Documents and their subsequent translation in to facilities on the ground. These case studies are all considered relevant as they provide examples or outcomes that can be used to inform scheme design and implementation or travel behaviour initiatives within the City of Charles Sturt. The case studies have been identified in relation to the strategy action areas set out in section 9 above.

Creating Places and Spaces

Bank and Leigh Streets, Adelaide

The upgrade of Bank and Leigh Streets forms part of the strategy for revitalising Adelaide through upgrades of the city's laneways to link the Riverbank precinct with the Central Market. The Leigh Street project began with closure to through traffic for a six-month trial period which was subsequently made permanent following a positive response from the local businesses.

The central section of Leigh Street is closed to vehicles with 10 kph shared zones for vehicles, cyclists and pedestrians at both ends and left-in and left-out access only.

Bank Street was subsequently upgraded following consultation with traders and involved:

- adding 'parklets' to create new outdoor dining areas
- widening pedestrian areas and including seating
- additional lighting and landscaping
- making the street more bicycle friendly and permitting two-way cycling
- retaining loading zones.

Leigh Street Shared Zone

The Bank and Leigh Streets laneway revitalisation demonstrates how a low-cost upgrade with flexibility could be utilised in activity centres in Charles Sturt.

Prospect Road, Prospect

The $3.4m Prospect Road Master Plan was opened in November 2011 and was designed to take full advantage of the shift of consumers back to main street shopping. Prospect Council's vision

Prospect Road Shopping Strip

was that "The Village Heart redevelopment has transformed the existing arterial road into a shared place for people that will drive economic and social vibrancy." Since the project has been completed, increased activity and business renewal has been reported, as well as increased commercial and property values on and close to Prospect Road. (26) Key features of the project include:

- A design 'first' to slow traffic speed to 40km/h on an arterial road.
- Fully indented parking bays in attractive and wider paved footpaths.
- An additional pedestrian-activated crossing
- Additional and innovative landscaping, street trees, feature lighting, public art and street furniture.
- 24 hour bicycle lane on each side of the road.
- Significant improvement to street signage and identification of parking.

The completed project previews many of the outcomes envisaged in the State Government's 30 year plan for greater Adelaide, and is directly applicable to similar streets in Charles Sturt, such as Woodville Road and Seaview Road, Henley Beach.

Hargreaves Mall, Bendigo, Victoria

Hargreaves Mall is the focal point of Bendigo city centre with shopping areas complemented by cafes, restaurants, offices, local businesses and the town hall. Prior to the upgrade traffic volumes were around 5,000 per day and speeds were perceived as high as a result of vehicle priority. There was a poor pedestrian environment with excessive street and footpath clutter and limited pedestrian and cyclist activity. The scheme removed existing roundabouts, pedestrian barriers and crossings and non-essential signage and street furniture to provide a shared level surface, widened footpaths of over 10 metres, bike parking, changed vehicle parking and new complementary street furniture.

Hargreaves Mall Shopping Area
Source: Google Maps

The changes resulted in vehicle speeds dropping from an average of 41 km/h to 29 km/h as well as a 30% reduction in traffic volumes. Pedestrian volumes increased and the extent of the pedestrian movements and desire lines increased, supporting an increase use of the street for formal and informal outdoor activities. (11)

Opportunities for Charles Sturt would need to focus on major business and tourism centres with significant levels of people activity such as Henley Beach, where a similar initiative is planned, Hindmarsh and Woodville, as the investment commitments are substantial.

Poynton, Cheshire, UK

The village of Poynton in the UK has undertaken one of the most ambitious experiments to date in shared street design with a scheme implemented at a busy junction accommodating 25,000 vehicles per day. The change was initiated by local civic leaders as the historic hub of the town (population 14,000) had become a grim and unwelcoming place.

Gateway Treatment at Poynton Shared Space

The scheme completely reconfigured an intersection in the centre of the town, replacing traffic lights with two "roundels", operating under the general principles of roundabouts but without the guidance of traffic signs. Pavements of varying colours and textures are used to indicate which type of road user belongs where. The overall cost of the scheme was around $6 million.

Whilst initially seen as a controversial move for the community, several people who admit to having been sceptical of the plan say they now see it as a dramatic improvement. Some 88% of businesses in the area are reporting an increase in foot traffic, and real estate agents say they're seeing new interest in buying property in the area. The social interactions that result from shared space are one of the main selling points for advocates. (27)

As with the Bendigo case study, investment opportunities in the City of Charles Sturt would need to focus on streets with substantial traffic impacts and a strong pedestrian demand in a high street environment. Locations could include Grange Road, Seaview Road at Henley Beach and Torrens Road and Hanson Road around the Arndale Centre. Early and extensive state government involvement would be required as well as community support.

Local Streets

Windsor Street, Unley

In 2007 the City of Unley completed construction of the Windsor Street Linear Trail, a 950 metre long, linear park through the inner suburbs of Parkside and Malvern in Adelaide. The Trail includes:

- Landscaping features of native and indigenous plants with a conservation significance;
- A path that echoes a natural creek bed giving the Trail a 'sense of place';
- Interpretive signage on biodiversity conservation.

Source: Google Maps

Prior to the scheme, the site had been an aging, open concrete drain taking storm water and overflow. The trail is always in use by local residents and the Council regularly holds walks and information days for schools and the general public. (28)

The success of the Windsor Street Linear Trail has been formally recognized s through AILA state awards and South Australian Civic Trust awards.

The creation of similar environments alongside drains and watercourses or using wide verges could be used to enhance local streets and reserves in Charles Sturt. A key challenge for such projects is ensuring that the scheme does not result in significant maintenance requirements.

Pigdon Street Park Street, Carlton North, Yarra Council, Victoria

As part of its commitment to increase levels of cycling, Yarra City Council has implemented a number of local schemes to improve cyclist connectivity and safety on local streets.

New on-road bike markings have been installed on Pigdon Street to provide cyclists with a metre-wide on-road cycle lane. There is also a metre-wide buffer zone between cyclists and parked cars, providing some protection for cyclists when car doors are being opened. In

Pigdon Street "sharrow" markings
Source: NearMap Pty Ltd

addition, to assist the transition for cyclists in and out of local roundabouts and to make drivers more aware of the presence of cyclists, high profile sharrows have been added to guide cyclists to the centre of the approach lane.

The bike lane and sharrow markings were introduced as part of a resurfacing project.

The bike lane transition and sharrow markings could be used to assist cyclists on bike lanes such as Marlborough Street and Valetta Road where there are a number of roundabouts.

On the nearby Capital City Trail, improved entry and exit ramps have been installed to assist cyclists leaving and joining the trail to connect to the existing bike lanes on either side of the road rather than having to move across the road when exiting the path. (29)

Park Street kerb ramps: Before…   *…and After*

Source: NearMap Pty Ltd

Upgrades to the access kerb ramps could assist with access to the Linear Park from some of the busier local streets.

Morice Town Home Zone, Plymouth UK

Source: Google Maps UK

Morice Town is an inner suburb of Plymouth with an historic grid layout of local streets, identified for regeneration. As part of the regeneration, improvements to the local street network were identified to reduce high volumes of fast through traffic, a high level of crashes, poor streetscape and a high crime rate.

The scheme reconstructed 2.3km of local streets, raising much of the carriageway to a level surface with some additional horizontal and vertical traffic calming measures. Planting and other environmental improvements as well as on-street play facilities were included in the scheme, which cost a total of $3.9m.

As a result of the scheme, through traffic volumes were reduced by 40% and average speeds reduced from 37 to 21 km/h. There were also reductions in the number of reported crashes and an almost 90% reduction in crime levels. Property prices subsequently increased by 10-15% more than those in the surrounding areas. (11)

The development of similar treatments in local precincts in the City of Charles Sturt could be considered where some or all of the combination of high speed through traffic, poor crash records, low quality housing and streetscape and social issues are present.

Mike Turtur Bikeway

The Mike Turtur Bikeway, previously known as Tramway Park, provides a shared use path and recreational linear park stretching from the City to Glenelg. The path provides residents and commuters with a high standard shared use pathway, recreational resource, enhanced sustainable transport options and greater connection to tram stops and local destinations. It is now the busiest cycling commuter route connected to the city and several crossings and sub-standard sections have been or are being upgraded to meet the demand and make the route safer and more convenient. Plans are in place or under construction to complete the entire route from Glenelg to the City and to improve the final connectivity from South Terrace to the CBD. (30)

Source: Google Images

A series of two and three dimensional public artworks have also been installed along the bikeway.

Marino Rocks Greenway

Source: http://www.infrastructure.sa.gov.au/

The Marino Rocks Greenway provides a safe, direct, continuous and attractive link from the City to the southern suburbs. The alignment generally follows the Seaford railway.

The 15km long route begins at the Anzac Highway and West Terrace shared use path in the Adelaide Parklands and connects to the existing Coast to Vines Trail at Marino Rocks. (31)

The greenway scheme provides a mixture of route typologies including:

- Shared paths through local reserves adjacent to the rail line
- shared path sections along the rail corridor replacing less direct routes on local streets;
- the use of local streets where they provide a direct route and traffic volumes and speeds are low
- controlled crossings of all arterial roads where a grade separated solution was not feasible or desirable, including Greenhill Road, Marion Road, Daws Road and the South Road/Cross Road intersection
- A new shared use bridge over the River Sturt

Bourke Street Bike Lanes, Sydney

Bourke Street was the first large-scale, bi-directional separated cycleway in Sydney and is part of the City of Sydney's cycling strategy to increase the quality and scope of the cycle network in the Local Government Area. In response to extensive community consultation and research, the 3.4 kilometre project converted an existing on-street cycle route on busy city streets and provides improved safety and amenity for cyclists, motorists and pedestrians.

The project was developed through a creative collaboration between traffic, civil and electrical engineers and landscape architects. As a result the transport initiatives in the Bourke Street Cycleway are meaningful for a wide range of user groups in the wider community, resulting in a number of State awards from different disciplines. (32)

Integrated features of the project deliver broad benefits, in addition to the safe transport facility, and include:

• Wider footpaths and kerb extensions with new surfacing and better lighting
• Improvements to the bio-filtering of storm water
• New trees and kerb side planting
• New raised intersections to improve accessibility and safety for pedestrians and bike riders
• Traffic calming, pedestrian crossings (zebras) and new signalised intersections to reduce speeds, improve safety and crossability
• Utility adjustments and renewal to accommodate the scheme.

While the costs of implementation of the high quality urban renewal program associated with the Bourke Street Cycleway are substantial, more modest alternatives focusing on the cycleway outcomes would offer good insights into the development of major "spine" routes at selected locations in the City of Charles Sturt.

Sustrans Connect2 projects (UK)

connect2 was a UK-wide project that aimed to improve local travel in communities by creating new walking and cycling routes making it easier for people to walk and cycle for everyday journeys to shops, work, schools, and to each other. Sustrans launched the 'Connect2' project in August 2006 in a successful bid to win £50 million from the Big Lottery - 'Living Landmarks; The People's Millions' competition.

The Connect2 project subsequently created new walking and cycling links and networks in 79 communities in England, Wales and Scotland, providing new bridges, crossings and networks of walking and cycling routes, delivered over five years from 2008 to 2013. In each case the project has worked with local authorities, the local community and many other partners to identify, design and build the schemes to meet the needs of their communities. Whilst the overall budget was high, many of the local initiatives and schemes were cost effective solutions to localised issues.

In north Birmingham the Connect2 scheme used an existing off-road path as a spine route, extended it and developed a series of local connections with new and upgraded paths, improved crossings and signage to link residential areas to a town centre, neighbourhood centres, local schools employment zones, regional hospital and national bike routes. The local connections were developed through consultation with a reference group including Sustrans, Council officers and community representatives.

The total cost over 4 years was approximately $2m. (33)

Community based groups such as Bicycle User Groups already exist in the City of Charles Sturt and these could be used to create broader based Community Reference Groups to identify practical local schemes to improve local walking and cycling routes. Routes such as Linear Park and the proposed Grange Lakes route provide an existing spine route from which to develop local connections.

Source: Google Maps UK

Influencing Travel Behaviour
Cycle Salisbury

Cycle Salisbury is a program to assist adults in returning to cycling, learning to ride a bike for the first time or learning basic bike maintenance skills. The City of Salisbury has partnered with Bicycle SA to "get the community excited about cycling", and create a more active and healthy community through cycling. (34)

The scheme is about promoting cycling to the community and encouraging people to get back on their bikes or learning how to ride. There are a number of programs on offer including

BikeSTART: An online tool to provide tailored 'Ride Plans', with information and recommendations to identify cycling strengths and also any barriers to cycling with help to overcome them.

Social Rides Program: A series of 'low level' (short distance & low difficulty) social rides with no pre-booking required. At least 10 rides are available each month, each lead by a local leader.

Source: City of Salisbury website

Bike Education Programs: Workshops on cycle safety, bike maintenance and developing cycling skills.

Rides Leader Program: Through the Cycle Salisbury program, currently 10 volunteer ride leaders have been trained by Bike SA to lead local low level social group rides in Salisbury.

There are already Heart Foundation walking groups in Charles Sturt and the development of cycling groups could be used to target social or demographic groups, where additional low impact physical activity would assist their health.

Way2Go

way2Go is a DPTI program collaborating with local councils and schools to develop 3-5 year plans to improve travel routes to schools, encourage safer, greener and more active travel and focus on school travel routes within the local government area. The program aims to provide ways of involving the broader community so that parents and carers can also be involved and understand the objectives and benefits.

All participating schools develop a 5 year travel plan to identify improvements to assist the travel measures around the school and are able to access resources to undertake regular surveys to monitor progress. DPTI also provides related programs such as BikeEd, providing structured cycle training for older primary school pupils. (35)

Connect Macquarie Park + North Ryde, Travel Management Association

Macquarie Park in Sydney has instigated a Travel Management Association in response to increasing car parking pressures and concern from occupiers over the limitations of other transport access modes. It is a non-profit and business-led incorporated association made up of businesses in the local area, state and local government, developers and institutions. Connect Macquarie Park + North Ryde is an innovative collaboration to achieve an efficient and sustainable transport system in the areas of Macquarie Park and North Ryde.

The TMA will be delivering programs, services and other initiatives that reduce the demand for peak-period private vehicle travel by expanding multi-modal access and travel choices for major workplaces and institutions. This will make it easier for staff to get to work and for business to operate efficiently in the area, increasing the number of people catching public transport, walking and cycling to work.

Connect Macquarie Park + North Ryde offers employers in the area an opportunity to learn from one another and introduce new initiatives to do the same. The association has a board which oversees the development and implementation of a three year business plan, funded by the New South Wales government, the City of Ryde, participating employers and institutions. The TMA is one of the first of its kind in Australia and is working to reduce the dependence of the site on high levels of single occupancy car travel. (36)

UK Cycle Demonstration Towns/Cities

Between 2006 and 2009, the UK Department for Transport implemented a series of travel initiatives covering whole towns or cities. All of the towns implemented a range of wider initiatives with the potential to increase cycling levels, for example, school travel planning, cycle facilities at new schools and capital investment in cycle / pedestrian facilities. (37)

As part of the project, programs of cycle activity measurement and in depth surveys were carried out to establish the prevalence of cycling change and any general increase in physical activity.

A summary of the key results across all towns showed:

- A mean increase in cycling levels of 27%, and an average annual percentage change of 4%.
- The proportion of adult residents cycling for at least 30 minutes once or more per month increased from 11.8% to 15.1%.
- The proportion of adult residents who cycled regularly (at least 30 minutes 12 times or more per month) increased from 2.6% to 3.5%.
- The proportion of adult residents cycling in a typical week rose from 24.3% to 27.7%.
- Between 2006/07 and 2007/08 the proportion of children who usually cycled to school increased by 16%.

The surveys also identified changes in behaviour across different demographic and socio-economic groups.

- The largest changes in cycling behaviour was from people in the 'middle' and 'older' age groups, where the health benefits derived from cycling are likely to be more pronounced.
- cycling levels increased amongst male and female respondents by similar levels, from 31% to 35% for males and 18% to 21% for females.
- There was an increase in cycling across all social grades.
- The change in cycling was more marked amongst households with children (+6%-points) than those without children (+3%-points).

Supportive Authority

Adelaide City Council Smart Move (2012)

Adelaide City Council approved a ten year transport and movement strategy to make the city's streets safer, more connected and easier for people to use. 'Smart Move –

The City of Adelaide's Transport and Movement Strategy 2012 – 2022' is a plan to address transport issues of today while ensuring the city can meet future transport needs. The Strategy is part of Council's 'One City, Many Places' vision which aims to create a city where people want to spend more time. (38)

The Strategy sets out plans to create streets that are greener, safer, well-connected and cyclist and pedestrian friendly. Creating space for wider footpaths, more bicycle lanes and activities such as outdoor dining and laneway bars is an integral part of the vision,
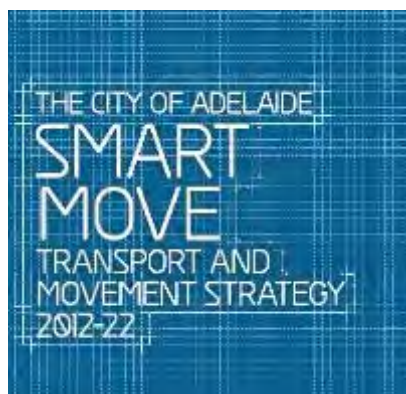
The surveys indicate that good results can be achieved with the right interventions including increased cycling amongst older groups with the resultant health benefits and that school and child focussed cycling interventions also had an influence on parents.

while balancing the needs of on-street parking for businesses who need it.

As well as drawing on feedback from the public, Council has engaged with business and the community over the last 18 months to develop the 10 year strategy.

Smart Move directly links to the State Government's 30 Year Plan for Greater Adelaide, the South Australian Road Safety Strategy and the National Urban Policy

The Heart Foundation and Business SA have both supported the Smart Move Strategy to improve transport in Adelaide.

Due to its proximity to Adelaide, there will be opportunities for the City of Charles Sturt to continue some of the route upgrades and initiatives in to its own Council area.

Yarra City Council, Victoria

The City of Yarra had an established and extensive on and off-road bicycle network prior to the development of its first bicycle strategy in 2009. At that time the existing on and off-road bicycle network had been achieved through annual capital works allocations under the Council Plan and other Council and State strategies. (29)

The 2009 bicycle strategy for the period 2010-2015 set out a series of strategies to ensure that the existing network was developed and enhanced in a co-ordinated way, considering the needs of all potential cycling groups and ensuring that associated benefits for pedestrians were also obtained.

Yarra now has a specific council policy that requires all council infrastructure works to include bicycle facilities, a policy which was voted for unanimously. The policy is concise, with its implementation managed by a "champion" officer who monitors implementation of the policy across all council divisions.

The implementation of the strategy contributes to Yarra continuing to have the highest level of non-car use for travel to work in Melbourne with more than two in every five residents walking, cycling or catching public transport to go to work (42%), well above the Melbourne average (16%).

Large numbers of cyclists from other municipalities also pass through Yarra due to the existing cycling infrastructure and Yarra's proximity to the Melbourne CBD.

Both the policy framework and the implementation strategy are of direct relevance to the City of Charles Sturt, while the innovative design solutions (eg the "Sharrows" in Pigdon Street, Carlton North) can be implemented in many local streets.

Welsh Assembly, UK

The Welsh Assembly passed the World's first Active Travel Bill on 1 October 2013. (39)

Although the bill is quite concise, it is very specific and targets essential walking and cycling programs and policies to ensure that the facilities and information is available to enable an increase in uptake of active Travel.

The bill requires (specifying "must") the following key elements:

• Local Government Authorities (LGAs) to submit "existing routes maps" and facilities within 12 months

• LGAs to submit "integrated network maps" (future routes and facilities) every 3 years

• Consultation with stakeholders by LGAs in the preparation of the maps

• Monitoring & reporting by both LGAs and Ministers

• Report and explain changes in mode share

• Publication and display of the maps

• LGA policies to promote active travel

• LGA programs to integrate general plans for traffic and transport infrastructure with active travel infrastructure

The development of a Council wide Travel Plan for the City of Charles Sturt could set a new model for the enhancement of Active Travel in Metropolitan Adelaide.

Appendix C

Prioritisation Analysis

Suburb	Access	Social	Accidents	Land Use	Overall Rank
Albert Park	3	2	1	1	7
Allenby Gardens	3	1	3	1	8
Athol Park	2	2	2	1	7
Beverley	3	4	3	2	12
Bowden	3	5	0	5	13
Brompton	2	3	1	1	7
Cheltenham	2	2	2	2	8
Croydon	1	4	3	2	10
Findon	4	4	5	1	14
Flinders Park	5	2	4	1	12
Fulham Gdns	4	3	4	1	12
Grange	5	2	3	1	11
Hendon	1	3	1	1	6
Henley Beach	5	1	5	1	12
Henley Beach S	2	1	2	1	6
Hindmarsh	3	4	5	2	14
Kidman Park	2	3	3	1	9
Kilkenny	3	5	4	2	14
Ovingham	2	3	0	2	7
Pennington	3	4	2	1	10
Renown Pk	2	5	1	1	9
Ridleyton	2	4	1	2	9
Royal Park	3	3	3	1	10
Seaton North	3	3	3	1	10
Seaton South	4	3	3	1	11
Semaphore Pk	3	4	2	1	10
Tennyson	2	0	1	1	4
Welland	1	4	2	1	8
West Beach	5	1	4	1	11
West Croydon	3	3	5	2	13
West Hindmarsh	1	2	3	1	7
West Lakes	5	1	3	1	10
West Lakes Sh	3	1	1	1	6
Woodville	4	2	5	1	12
Woodville North	1	4	3	1	9
Woodville Park	1	3	3	1	8
Woodville South	3	2	4	1	10
Woodville West	2	3	2	3	10

min	3.50
Q1	7.50
35th	8.45
median	9.50
65th	10.22
Q3	11.25
85th	11.64
max	13.50

Crash Data and Summary

Suburb	Cyclist	Pedestrian	Total	Score
Albert Park	6	1	7	1
Allenby Gardens	10	3	13	3
Athol Park	3	6	9	2
Brompton	6	2	8	1
Bowden	3	2	5	0
Beverley	11	0	11	3
Cheltenham	7	2	9	2
Croydon	6	5	11	3
Findon	15	8	23	5
Flinders Park	14	2	16	4
Fulham Gardens	9	9	18	4
Grange	10	2	12	3
Hendon	4	2	6	1
Henley Beach	19	10	29	5
Henley Beach South	9	1	10	2
Hindmarsh	18	9	27	5
Kidman Park	10	2	12	3
Kilkenny	13	5	18	4
Ovingham	2	1	3	0
Pennington	5	5	10	2
Renown Park	4	3	7	1
Ridleyton	3	4	7	1
Royal Park	11	2	13	3
Seaton North	8	6	14	3
Seaton South	11	4	15	3
Semaphore Park	7	3	10	2
Tennyson	7	0	7	1
Welland	4	5	9	2
West Beach	12	4	16	4
West Croydon	16	7	23	5
West Hindmarsh	9	2	11	3
West Lakes	7	4	11	3
West Lakes Sh	7	0	7	1
Woodville	17	9	26	5
Woodville N	8	7	15	3
Woodville Park	12	2	14	3
Woodville South	13	6	19	4
Woodville West	7	3	10	2

Score	No of crashes
0	<=5
1	6 to 8
2	9 to 10
3	11 to 15
4	16 to20
5	>20

cyclist	343	min	3.0
pedestrian	148	Q1	9.0
		median	11.0
		65th	14.0
		Q3	15.8
		85th	18.5
		max	29.0

Rank	Range	
0	3.00	0.0%
	5.00	10.0%
1	5.01	
	8.00	25.0%
2	8.01	
	10.00	50%
3	10.01	
	15.00	62.0%
4	15.01	
	20.00	86.0%
5	20.01	

Growth Summary

Suburb	High Density	% Total	Indiv. Rating	Medium Density	% Total	Indiv. Rating	Low Density	% Total	Indiv. Rating	Rank
Albert Park	0	0%	0	0	0%	0	4	100%	5	1
Allenby Gardens	0	0%	0	0	0%	0	5	100%	5	1
Athol Park	0	0%	0	0	0%	0	3	100%	5	1
Brompton	0	0%	0	7	100%	5	0	0%	0	2
Bowden	2	100%	5	0	0%	0	0	0%	0	5
Beverley	0	0%	0	0	0%	0	4	100%	5	1
Cheltenham	0	0%	0	6	100%	5	0	0%	0	2
Croydon	0	0%	0	3	100%	5	0	0%	0	2
Findon	0	0%	0	0	0%	0	12	100%	5	1
Flinders Park	0	0%	0	0	0%	0	10	100%	5	1
Fulham Gardens	0	0%	0	0	0%	0	16	100%	5	1
Grange	0	0%	0	0	0%	0	14	100%	5	1
Hendon	0	0%	0	0	0%	0	3	100%	5	1
Henley Beach	0	0%	0	2	13%	1	13	87%	5	1
Henley Beach South	0	0%	0	0	0%	0	6	100%	5	1
Hindmarsh	0	0%	0	1	100%	5	0	0%	0	2
Kidman Park	0	0%	0	0	0%	0	8	100%	5	1
Kilkenny	0	0%	0	4	100%	5	0	0%	0	2
Ovingham	0	0%	0	2	100%	5	0	0%	0	2
Pennington	0	0%	0	0	0%	0	10	100%	5	1
Renown Park	0	0%	0	0	0%	0	4	100%	5	1
Ridleyton	0	0%	0	3	100%	5	0	0%	0	2
Royal Park	0	0%	0	0	0%	0	7	100%	5	1
Seaton North	0	0%	0	0	0%	0	14	100%	5	1
Seaton South	0	0%	0	0	0%	0	13	100%	5	1
Semaphore Park	0	0%	0	0	0%	0	7	100%	5	1
Tennyson	0	0%	0	0	0%	0	2	100%	5	1
Welland	0	0%	0	0	0%	0	3	100%	5	1
West Beach	0	0%	0	0	0%	0	8	100%	5	1
West Croydon	0	0%	0	10	100%	5	0	0%	0	2
West Hindmarsh	0	0%	0	0	0%	0	5	100%	5	1
West Lakes	0	0%	0	1	7%	1	13	93%	5	1
West Lakes Shore	0	0%	0	0	0%	0	7	100%	5	1
Woodville	0	0%	0	0	0%	0	6	100%	5	1
Woodville North	0	0%	0	0	0%	0	5	100%	5	1
Woodville Park	0	0%	0	0	0%	0	4	100%	5	1
Woodville South	0	0%	0	0	0%	0	8	100%	5	1
Woodville West	2	29%	2	5	71%	4	0	0%	0	3

Suburb	POINTS			Total Points	Ranking
	Access Points	PT Access Points	Leisure Points		
Albert Park	1	1	1	3	3
Allenby Gardens	1	0	2	3	3
Athol Park	0	0	2	2	2
Brompton	1	0	3	4	3
Bowden	0	1	2	3	3
Beverley	1	0	1	2	2
Cheltenham	1	1	0	2	2
Croydon	0	1	0	1	1
Findon	3	0	3	6	4
Flinders Park	2	1	4	7	5
Fulham Gardens	1	1	3	5	4
Grange	3	2	5	10	5
Hendon	0	0	1	1	1
Henley Beach	7	0	2	9	5
Henley Beach South	1	0	1	2	2
Hindmarsh	2	1	0	3	3
Kidman Park	1	0	1	2	2
Kilkenny	2	2	0	4	3
Ovingham	0	1	1	2	2
Pennington	1	0	3	4	3
Renown Park	1	0	1	2	2
Ridleyton	1	0	1	2	2
Royal Park	2	0	2	4	3
Seaton North	2	1	1	4	3
Seaton South	3	0	2	5	4
Semaphore Park	2	0	2	4	3
Tennyson	0	0	2	2	2
Welland	1	0	0	1	1
West Beach	4	0	5	9	5
West Croydon	1	1	2	4	3
West Hindmarsh	1	0	0	1	1
West Lakes	3	1	4	8	5
West Lakes Shore	1	0	3	4	3
Woodville	2	2	1	5	4
Woodville North	0	0	1	1	1
Woodville Park	0	1	0	1	1
Woodville South	2	0	2	4	3
Woodville West	0	1	1	2	2
min	0	0	0	1	
max	7	2	5	10	
mean	1.421052632	0.5	1.710526316	3.631578947	

Rank	Points
1	1
2	2
3	4
4	6
5	10

Access Data

Access Type		Name	Suburb	Access, PT access and leisure		
				Access	PT Access	Leisure
Leisure	Parks/Fitness Centres	ICA Sportzworx	Albert Park	0	0	1
Access	School	Our Lady Queen of Peace Primary	Albert Park	1	0	0
Sub Access	Train Station	Albert Park	Albert Park	0	1	0
Leisure	Parks/Fitness Centres	Allenby Gardens Reserve	Allenby Gardens	0	0	1
Leisure	Parks/Fitness Centres	Linear Park Reserve*	Allenby Gardens	0	0	1
Access	School	Allenby Gardens Primary School	Allenby Gardens	1	0	0
Leisure	Other Reserves	Unnamed	Athol Park	0	0	1
Leisure	Parks/Fitness Centres	Fawk Reserve	Athol Park	0	0	1
Leisure	Parks/Fitness Centres	Adelaide Arena	Beverley	0	0	1
Access	School	St Michael's College	Beverley	1	0	0
Leisure	Parks/Fitness Centres	Gibson Street Reserve	Bowden	0	0	1
Leisure	Parks/Fitness Centres	Parfit Square	Bowden	0	0	1
Sub Access	Train Station	Bowden	Bowden	0	1	0
Leisure	Other Reserves	Ivan Franko Reserve	Brompton	0	0	1
Leisure	Other Reserves	Josiah Mitton Reserve	Brompton	0	0	1
Leisure	Other Reserves	Thomas Harkness Reserve	Brompton	0	0	1
Access	School	Immaculate Heart of Marys Primary School	Brompton	1	0	0
Access	Community Centre	Cheltenham Community Centre	Cheltenham	1	0	0
Sub Access	Train Station	Cheltenham	Cheltenham	0	1	0
Sub Access	Train Station	Croydon	Croydon	0	1	0
Access	Community Centre	Findon Community Centre Inc	Findon	1	0	0
Leisure	Parks/Fitness Centres	Barker Ave Park*	Findon	0	0	1
Leisure	Parks/Fitness Centres	Findon Oval	Findon	0	0	1
Leisure	Parks/Fitness Centres	Matheson Reserve	Findon	0	0	1
Access	School	Findon High School	Findon	1	0	0
Access	Shopping Centre	Findon Centre	Findon	1	0	0
Sub Access	Major Bus Stop	Grange Road	Flinders Park	0	1	0
Leisure	Other Reserves	River Torrens Park*	Flinders Park	0	0	1
Leisure	Parks/Fitness Centres	Bass Place Courts*	Flinders Park	0	0	1
Leisure	Parks/Fitness Centres	Flinders Park Oval	Flinders Park	0	0	1
Leisure	Parks/Fitness Centres	Ross Ave Park*	Flinders Park	0	0	1
Access	School	Flinders Park Primary School	Flinders Park	1	0	0
Access	School	Nazareth Catholic College	Flinders Park	1	0	0
Sub Access	Major Bus Stop	Tapleys Hill Road	Fulham Gardens	0	1	0
Leisure	Other Reserves	Parkway Reserve	Fulham Gardens	0	0	1
Leisure	Parks/Fitness Centres	Devonshire Avenue Park*	Fulham Gardens	0	0	1
Leisure	Parks/Fitness Centres	Sunningdale Reserve	Fulham Gardens	0	0	1
Access	Shopping Centre	Fulham Gardens Shopping Centre*	Fulham Gardens	1	0	0
Access	Local Centre	Charles Sturt Museum	Grange	1	0	0
Access	Local Centre	Grange Bowling Club	Grange	1	0	0
Leisure	Other Reserves	Sierra Reserve	Grange	0	0	1
Leisure	Parks/Fitness Centres	Grange Recreation Oval Reserve	Grange	0	0	1
Leisure	Parks/Fitness Centres	Kentdale Street*	Grange	0	0	1
Leisure	Parks/Fitness Centres	Kirkcaldy Reserve	Grange	0	0	1
Leisure	Parks/Fitness Centres	Lines Reserve	Grange	0	0	1
Access	School	Grange Primary	Grange	1	0	0
Sub Access	Train Station	East Grange	Grange	0	1	0
Sub Access	Train Station	Grange	Grange	0	1	0
Leisure	Other Reserves	Clarice Sutherland Reserve	Hendon	0	0	1
Access	Community Centre	Henley and Grange Community Centre Inc	Henley Beach	1	0	0
Access	Local Centre	Western Hospital	Henley Beach	1	0	0
Leisure	Parks/Fitness Centres	Henley Grange Memorial Reserve	Henley Beach	0	0	1
Leisure	Parks/Fitness Centres	John Mitchell Reserve	Henley Beach	0	0	1
Access	School	Fulham Gardens Primary School	Henley Beach	1	0	0
Access	School	Fulham North Primary	Henley Beach	1	0	0
Access	School	Henley High School	Henley Beach	1	0	0
Access	School	St Michael's College	Henley Beach	1	0	0
Access	Shopping Centre	The Grange	Henley Beach	1	0	0
Leisure	Other Reserves	Fletcher Road Reserve*	Henley Beach South	0	0	1
Access	School	Henley Beach Primary School	Henley Beach South	1	0	0
Access	Local Centre	Adelaide Entertainment Centre	Hindmarsh	1	0	0
Access	Local Centre	Hindmarsh Stadium	Hindmarsh	1	0	0
Sub Access	Tram Station	Entertainment Centre	Hindmarsh	0	1	0
Leisure	Parks/Fitness Centres	Collins Reserve	Kidman Park	0	0	1
Access	School	Kidman Park Primary School	Kidman Park	1	0	0
Sub Access	Major Bus Stop	Arndale Interchange	Kilkenny	0	1	0
Access	School	Challa Gardens Primary School	Kilkenny	1	0	0
Access	Shopping Centre	Arndale Central	Kilkenny	1	0	0
Sub Access	Train Station	Kilkenny	Kilkenny	0	1	0
Leisure	Parks/Fitness Centres	North Adelaide Fitness Centre	Ovingham	0	0	1
Sub Access	Train Station	Ovingham	Ovingham	0	1	0
Leisure	Other Reserves	Pennington Gardens Reserve	Pennington	0	0	1
Leisure	Parks/Fitness Centres	Pennington Oval	Pennington	0	0	1
Leisure	Parks/Fitness Centres	Butler Court Park*	Pennington	0	0	1
Access	School	Pennington Primary School	Pennington	1	0	0
Leisure	Parks/Fitness Centres	Sam Johnson Sports Ground	Renown Park	0	0	1
Access	School	Brompton Primary School	Renown Park	1	0	0
Access	Local Centre	Croydon Foodland	Ridleyton	1	0	0

Leisure	Parks/Fitness Centres	Albert Greenshields Reserve	Ridleyton	0	0	1
Access	Community Centre	Drakes Supermarkets Royal Park	Royal Park	1	0	0
Leisure	Parks/Fitness Centres	Cooke Reserve	Royal Park	0	0	1
Leisure	Parks/Fitness Centres	Fisher Reserve	Royal Park	0	0	1
Access	School	Hendon Primary School	Royal Park	1	0	0
Access	Local Centre	The Grange Golf Club	Seaton North	1	0	0
Leisure	Other Reserves	Pedlar Reserve	Seaton North	0	0	1
Access	School	Seaton High School	Seaton North	1	0	0
Sub Access	Train Station	Seaton Park	Seaton North	0	1	0
Access	Community Centre	Seaton Swim Centre	Seaton South	1	0	0
Access	Local Centre	Royal Adelaide Golf Club	Seaton South	1	0	0
Leisure	Other Reserves	Bunker Reserve	Seaton South	0	0	1
Leisure	Parks/Fitness Centres	Gleneagles Reserve	Seaton South	0	0	1
Access	School	Seaton Park Primary School	Seaton South	1	0	0
Access	Local Centre	Semaphore Surf Life Saving Club	Semaphore Park	1	0	0
Leisure	Parks/Fitness Centres	Semaphore Park Reserve	Semaphore Park	0	0	1
Leisure	Parks/Fitness Centres	Point Malcolm Reserve	Semaphore Park	0	0	1
Access	School	Westport Primary School	Semaphore Park	1	0	0
Leisure	Other Reserves	Tennyson Dunes	Tennyson	0	0	1
Leisure	Parks/Fitness Centres	Inlet Reserve	Tennyson	0	0	1
Access	Shopping Centre	Welland Plaza	Welland	1	0	0
Access	Local Centre	West Beach Surf Life Saving Club	West Beach	1	0	0
Access	Local Centre	Adelaide Sailing Club	West Beach	1	0	0
Access	Local Centre	Drummond Golf Driving Range	West Beach	1	0	0
Leisure	Other Reserves	River Torrens Park*	West Beach	0	0	1
Leisure	Other Reserves	Anderson Reserve	West Beach	0	0	1
Leisure	Parks/Fitness Centres	University Playing Field	West Beach	0	0	1
Leisure	Parks/Fitness Centres	Harold and Cynthia Anderson Reserve	West Beach	0	0	1
Leisure	Parks/Fitness Centres	Barratt Reserve	West Beach	0	0	1
Access	School	West Beach Primary	West Beach	1	0	0
Leisure	Parks/Fitness Centres	McInerney Reserve	West Croydon	0	0	1
Leisure	Parks/Fitness Centres	Carnarvon Reserve	West Croydon	0	0	1
Access	School	Kilkenny Primary School	West Croydon	1	0	0
Sub Access	Train Station	West Croydon	West Croydon	0	1	0
Access	School	St Joseph's School	West Hindmarsh	1	0	0
Access	Local Centre	AAMI Stadium	West Lakes	1	0	0
Access	Local Centre	West Lakes Glof Club	West Lakes	1	0	0
Sub Access	Major Bus Stop	West Lakes Interchange	West Lakes	0	1	0
Leisure	Other Reserves	Scullen Reserve	West Lakes	0	0	1
Leisure	Other Reserves	Midcourse Reserve	West Lakes	0	0	1
Leisure	Other Reserves	Anthea Reserve	West Lakes	0	0	1
Leisure	Other Reserves	Aquatic Reserve	West Lakes	0	0	1
Access	Shopping Centre	Westfield West Lakes	West Lakes	1	0	0
Leisure	Parks/Fitness Centres	Semaphore Park Football Club	West Lakes Shore	0	0	1
Leisure	Parks/Fitness Centres	Jubilee Park	West Lakes Shore	0	0	1
Leisure	Parks/Fitness Centres	Heysen Reserve	West Lakes Shore	0	0	1
Access	School	West Lakes Shore Primary School	West Lakes Shore	1	0	0
Leisure	Parks/Fitness Centres	St Clair Rec Centre	Woodville	0	0	1
Access	School	Woodville High School	Woodville	1	0	0
Access	Shopping Centre	St Clair Shopping Centre	Woodville	1	0	0
Sub Access	Train Station	Woodville	Woodville	0	1	0
Sub Access	Train Station	St Clair	Woodville	0	1	0
Leisure	Parks/Fitness Centres	Finsbury Reserve	Woodville North	0	0	1
Sub Access	Train Station	Woodville Park	Woodville Park	0	1	0
Access	Local Centre	The Queen Elizabeth Hospital	Woodville South	1	0	0
Leisure	Parks/Fitness Centres	Ledger Oval	Woodville South	0	0	1
Leisure	Parks/Fitness Centres	Woodville Oval	Woodville South	0	0	1
Access	School	Woodville Primary School	Woodville South	1	0	0
Leisure	Parks/Fitness Centres	Frank Mitchell Park	Woodville West	0	0	1
Sub Access	Train Station	Albert Park	Woodville West	0	1	0

Suburb	No. of Statistical Areas in Suburb	Social Ranking System- Points				Avg. Suburb Points per Stat. Area	Social Rank
		High level of public transport use (over 17%)	Level of Car Ownership (over 24%)	People aged 65+	In need of Assistance (over 15%)		
Albert Park	4	11	11	8	11	10	2
Allenby Gardens	5	17	6	7	8	8	1
Athol Park	3	8	8	4	10	10	2
Beverley	4	13	12	6	12	11	3
Bowden	2	10	9	2	8	15	5
Brompton	7	30	27	10	20	12	4
Cheltenham	6	16	15	12	15	10	2
Croydon	3	13	12	5	7	12	4
Findon	12	32	39	39	46	13	4
Flinders Park	10	24	20	30	22	10	2
Fulham Gardens	16	42	30	64	39	11	3
Grange	14	36	28	42	36	10	2
Hendon	3	8	8	8	8	11	3
Henley Beach	15	40	30	32	21	8	1
Henley Beach South	6	16	16	12	9	9	1
Hindmarsh	1	5	4	1	3	13	4
Kidman Park	8	22	13	33	17	11	3
Kilkenny	4	16	16	10	13	14	5
Ovingham	2	10	10	1	1	11	3
Pennington	10	24	38	24	37	12	4
Renown Park	4	16	19	11	14	15	5
Ridleyton	3	9	12	8	11	13	4
Royal Park	7	16	22	17	22	11	3
Seaton North	14	37	39	41	50	12	3
Seaton South	13	34	32	39	37	11	3
Semaphore Park	7	17	20	27	23	12	4
Tennyson	2	3	2	6	2	7	0
Welland	3	11	13	6	9	13	4
West Beach	8	25	14	20	9	9	1
West Croydon	10	34	23	18	32	11	3
West Hindmarsh	5	15	18	7	12	10	2
West Lakes	14	17	19	56	28	9	1
West Lakes Shore	7	11	9	22	13	8	1
Woodville	6	21	17	9	12	10	2
Woodville North	5	18	19	11	15	13	4
Woodville Park	4	15	14	7	9	11	3
Woodville South	8	15	19	18	22	9	2
Woodville West	7	16	22	19	24	12	3

min	6.50
Q1	9.71
median	10.84
Q3	12.40
85th	13.00
max	15.00
mean	10.90

Rank	
0	5.00
	7.50
1	7.51
	9.00
2	9.01
	10.50
3	10.51
	12.00
4	12.01
	13.50
5	13.51

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