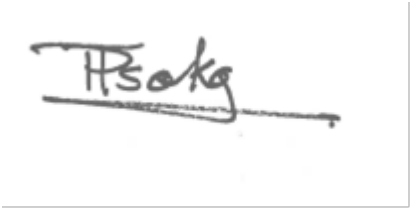
AGENDA

Infrastructure and Sustainability Committee Agenda

Notice is hereby given pursuant to the provisions of the Local Government Act, 1999, that a meeting of the Infrastructure and Sustainability Committee will be held in the Council Chambers, 181 Unley Road Unley on

Tuesday, 12 April 2016 at 6.30pm

for the purpose of considering the items included on the Agenda.



Peter Tsokas
Chief Executive Officer

INFRASTRUCTURE AND SUSTAINABILITY COMMITTEE

MEMBERS:

Councillor Michael Hewitson – Presiding Member
Mayor Lachlan Clyne – ex officio
Councillor Peter Hughes
Councillor Rob Sangster
Councillor Bob Schnell
Rod Hook
Peter Croft
Gavin Brennan

ACKNOWLEDGMENT:

We acknowledge that the land we meet on today is the traditional land of the Aboriginal people and that we respect their spiritual relationship with their country.

We also acknowledge that the Aboriginal people are the custodians of the Adelaide region and that their cultural and heritage beliefs are still important to the living Aboriginal people today.

APOLOGIES:

CONFIRMATION OF MINUTES:

MOVED:
SECONDED:

That the minutes of the meeting of the Infrastructure and Sustainability Committee held on Tuesday, 9 February 2016 as printed and circulated, be taken as read and signed as a correct record.

DEPUTATIONS

PRESENTATION:

WRITTEN REPORTS FROM REPRESENTATIVES

Nil.

OFFICER'S REPORTS

NEXT MEETING

Tuesday, 7 June 2016

INFORMATION REPORT

REPORT TITLE:	INFRASTRUCTURE AND SUSTAINABILITY COMMITTEE ACTION RECORDS
ITEM NUMBER:	18
DATE OF MEETING:	12 APRIL 2016
AUTHOR:	KELLEY JAENSCH
JOB TITLE:	EXECUTIVE ASSISTANT ECONOMIC DEVELOPMENT AND PLANNING

EXECUTIVE SUMMARY

To provide an update to Members on information and actions arising from previous resolutions of the Infrastructure and Sustainability Committee.

RECOMMENDATION

MOVED:
SECONDED:

The Committee recommends to Council that:

1. The report and updated actions be noted.

I&S – Outstanding Items

Date	Item and report title	Resolution	Update
6/5/15	Item 2 Late item - Motion of which notice has been given (Follow up in Item 17)	1. Administration explores how Council can achieve through planning controls guaranteed good environmental outcomes such as reducing the urban heat island effect in the development of multi storey commercial buildings including design requirements covering energy efficiency, water capture and reuse and other environmental considerations (for example 'green roofs' and/or tree site cover).	Environmental Planning Options report provided in this agenda (9 February 2016). **COMPLETED**
8/9/15	Item 5 Development plan support for environmental sustainability (Follow up in Item 17)	1. Administration redraft the report to further highlight the difficulties and opportunities facing Unley in achieving its vision of good environmental outcomes with development, including the use of specific examples.	See above. **COMPLETED**
3/11/15	Item 8 Deferred Item 4 – 8 September 2015 – Second Tier Greening (June 2016 Committee meeting)	2. The Second Tier Greening initiative be strongly supported and its continuation as part of the Footpath Replacement Program be supported. 3. A further report be prepared, taking into consideration the comments made by the Committee.	Report and strategy being prepared for June Committee meeting.
3/11/15	Item 10** Motion on Notice – Open and Green Spaces	1. To help achieve our strategic aims of maintaining the current level of tree shade and permeability across the City that Council ask staff to prepare a report on exploring the costs, benefits and mechanisms to encourage developments that achieve significant areas of green space. This will include the following: • The use of price mechanisms such as special rates open to Council. • The merits of a Green Fund or other means by which funds collected can be used to maintain the	At the current time it is not clear when Administration (policy planning area) will have the in house capacity to produce such a report. If the committee requires the report to be produced in the near future, then it is

		overall extent of green cover, particularly in relation to the new Planning, Development and Infrastructure Bill. • The impacts of any mechanism on low-income members of the community. 2. New developments impacted would include two for ones, extensions covering more than 50% of the site and removal of trees, as well as multi-storey developments.	suggested that funding be sought from Council to engage an external consultant for that purpose. It is suggested that a sum of $20 000 be used for budgeting purposes.
8/12/15	Item 11 City of Unley Walking and Cycling Plan 2015-2020 – draft for consultation (Item 21 in April 2016 agenda)	2. The Draft City of Unley Walking and Cycling Plan (WCP) 2015-2020 as amended be supported for community engagement. 3. A report outlining the outcomes of the community engagement be provided to Council in early 2016.	Community engagement has commenced (4/4/16). Copy of updated plan included as Item 21 in April 2016 agenda.
8/12/15	Item 12 The Living City – Open Space Strategy	2. The Living City – Open Space Strategy (Attachment 1 to Item 12/15) be endorsed and the community be informed that the new strategy has been adopted.	Strategy to be launched on the Council website in April 2016. **COMPLETED**
9/2/16	Item 17 Motion without notice Environmental planning options – development strategy and policy committee (Items 2 and 5 – follow up)	1. The matter be referred to the Development Strategy and Policy Committee with our suggestion that the Council should write to the Minister for Planning; 1.1. To draw his attention to the attached report, namely the Residential Apartments Sustainability Plan for the City of Sydney, asking him to refer the report to his department for review and to determine policies relevant for the development plan across Local Government areas throughout Adelaide. 1.2. The Minister also be advised that the City of Unley is cooperating with the Government and	Draft letter to be tabled at the next DSP meeting (18 April 2016). **COMPLETED**

		other Councils to implement the Minister's development plan policies. We have a vision in Unley for development to be sustainable but we understand our Council cannot proceed independently on this matter. However, we believe there are measures in this report that are relevant for Adelaide and should be applied across our City.	

DECISION REPORT

REPORT TITLE:	ENVIRONMENTAL SUSTAINABILITY STRATEGY
ITEM NUMBER:	19
DATE OF MEETING:	12 APRIL 2016
AUTHOR:	KAT RYAN
JOB TITLE:	COORDINATOR ENVIRONMENTAL PROJECTS & STRATEGY

1. EXECUTIVE SUMMARY

The Environmental Sustainability Strategy is the lead document to guide the Council's activities to achieving the Greening goals identified in the *Community Plan 2033*. The themes, objectives, indicators and targets of the Greening Strategy were worked through by the Infrastructure and Sustainability Committee at its workshop on 1 December 2015.

Feedback from Committee members was integrated and the strategy has been developed into a final draft format. The Environmental Sustainability Strategy is now placed back before the committee for final review prior to Council endorsement and release for community engagement.

2. RECOMMENDATION

MOVED:
SECONDED:

That the Committee recommends to Council, that:

1. The report be received.

2. The council endorse the draft Environmental Sustainability Strategy (Attachment 1 to Item 19/16) for the purpose of community engagement

3. On completion of community engagement, a further report be presented to the Infrastructure and Sustainability Committee on the community feedback and staff recommended changes to the Environmental Sustainability Strategy.

3. RELEVANT CORE STRATEGIES/POLICIES

Greening is one of the four main themes in The City of Unley *Community Plan 2033* with the following strategic objectives;

- *Renowned for its lifestyle and environmental balance*
- *Leaders in waste reduction*
- *Functional open green space throughout the city of Unley*

Linked to the greening theme, the Council's *Four Year Plan 2013-2016* includes the development of an Environment and Sustainability Strategy (Attachment 1 to Item 19/16) to reduce Council's environmental impact. This is the lead strategy to guide the Council's activities to achieving the Greening goals identified in the *Community Plan 2033*.

4. DISCUSSION

The Environmental Sustainability Strategy is divided into five specific themes that guide our direction and inform our priorities for environmental projects.

- **Green Unley:** improving and maintaining Unley's Urban Forest.
- **Waterwise Unley:** maintaining a green Unley through efficient, effective and sustainable water management.
- **Resilient Unley:** increasing resilience for changes in climate.
- **Resourceful Unley:** leaders in waste management through diversion, avoidance and re-use.
- **Energywise Unley:** becoming an energy efficient and sustainable City.

For each theme, one Council target and one community target has been defined. This reflects Council's direct influence and its key role in supporting and enabling improved community outcomes for a shared responsibility.

The accountability for implementing this strategy is assigned across the City of Unley's resources. The primary responsibility sits with the Assets and Environment division through Council's Annual Business Plan and Budget over the next four years. Collaborative partnering projects with other sections of Council, relevant organisations and community groups will be actively sourced. While the life of this document is four years, it is intended that it be part of an ongoing framework that provides for a consistent approach to match the commitment required to deliver our 20 Year Community Plan.

Progress against these targets will be assessed annually in September and reported through the City of Unley's Infrastructure and Sustainability Committee. As new initiatives are developed, the City of Unley can refine and improve these indicators, particularly for the community targets that are more challenging to measure at a Council-wide scale. The targets have been set based on current funding levels being continued.

Once endorsed, a priority suite of initiatives will be developed each year to ensure the identified targets are being achieved.

5. ANALYSIS OF OPTIONS

Option 1 – The Infrastructure and Sustainability Committee recommends to Council that the Environmental Sustainability Strategy (Attachment 1 to Item 19/16) be received and endorsed for the purpose of community engagement.

On completion of community engagement, a further report be presented to Council to endorse the final Environmental Sustainability Strategy.

The themes, objectives, indicators and targets of the Environmental Sustainability Strategy were reviewed by the Infrastructure and Sustainability Committee at its workshop on 1 December 2015. Feedback from Committee members was integrated and the strategy has been developed into a final draft format ready for community engagement.

This strategy uses a common strategic planning hierarchy of; Strategies, Objectives, Indicators and Targets and is consistent with Council's Policy and Strategic Management framework.

Option 2 – The Infrastructure and Sustainability Committee considers the Greening Strategy (Attachment 1 to Item 19/16) and provides minor feedback to enable a final draft Environmental Sustainability Strategy to be prepared

The Infrastructure and Sustainability Committee recommends to Council that the amended report be received and endorsed for the purpose of community engagement

On completion of community engagement, a further report be presented to Council to endorse the final Greening Strategy.

The Infrastructure and Sustainability Committee recommends Council release the draft Environmental Sustainability Strategy for community engagement, pending adoption of minor amendments. These minor changes can be incorporated into the version provided to Council for endorsement without the need to come back to Committee for further consideration.

Option 3 – The Infrastructure and Sustainability Committee note the Environmental Sustainability Strategy

The Infrastructure and Sustainability Committee seeks further detailed amendments to the strategy. These changes would need to be considered, the Strategy amended and brought back for further consideration at a later stage.

6. RECOMMENDED OPTION

Option 1 is the recommended option.

7. POLICY IMPLICATIONS

The Greening Strategy is a key initiative from the City of Unley 4 Year Plan 2013-16 A Community of Possibilities.

8. REPORT CONSULTATION

Detailed consultation has been undertaken with key internal stakeholders during the development of this strategy. Once endorsed the draft strategy will be released for community engagement.

7. ATTACHMENTS

- Draft Environmental Sustainability Strategy

8. REPORT AUTHORISERS

Name	Title
John Devine	General Manager Assets and Environment

DRAFT

Greening Unley

ENVIRONMENTAL SUSTAINABILITY STRATEGY 2016-2020

Pursuing, supporting & creating a sustainable environment for the Unley community

THE CITY of Unley

Greening Unley: Environmental
Sustainability Strategy 2016-2020
The City of Unley

Design: Flux Visual Communication

Contents

Introduction

Greening is one of the four main goals in The City of Unley Community Plan 2033.

Council is committed to pursuing, supporting and creating an environment that will sustain both current and future generations. This goal is shared by our community and is a primary objective of most governments across the world. We are committed to using fewer of our precious resources and looking for smarter ways to achieve this objective.

Our City is a great place for families, with quiet suburban streets and a supportive community – but this must be balanced against the need for more housing choices, increased density of living and commercial growth on our main streets.

Conservation, pollution remediation and environmental sustainability are growing concerns for both the residential and business sectors, particularly in the areas of open spaces, parks and reserves; watercourses and underground water; soil; air; noise; waste management and recycling.

The Environmental Sustainability Strategy 2016-2020 is the lead strategy to guide the Council's efforts implementing the Greening goals identified in the Community Plan 2033. The strategy is divided into five key themes that guide our direction and inform our priorities for environmental projects;

GREEN UNLEY

improving and maintaining Unley's Urban Forest

WATERWISE UNLEY

maintaining a green Unley through efficient, effective and sustainable water management

RESILIENT UNLEY

increasing resilience for changes in climate

RESOURCEFUL UNLEY

leaders in waste management through diversion, avoidance and re-use

ENERGYWISE UNLEY

becoming an energy efficient and sustainable City

For each theme, one Council target and one community target has been defined. This reflects Council's direct influence and its key role in supporting and enabling improved community outcomes for a shared responsibility.

City of Unley staff developed this strategy, with input from the Infrastructure and Sustainability Committee, external stakeholders and our community.

This document outlines the key objectives and targets for each of the five environmental themes and includes some of the specific initiatives which have already been identified.


THE CITY of Unley

Summary of Achievements

While planning for continuous improvement, it is important to reflect and acknowledge past achievements and established initiatives.

This document builds on the significant works already undertaken and underway within the City of Unley. Environmental projects implemented in recent years include:

GREEN

115 artificial habitat boxes installed since 2009 for birds, possums and micro bats.

Commencing in 2014, as part of footpath replacement program, Council encouraged residents to take up an offer of loam to replace existing dolomite on their verges.

Since 2011, the planting of community fruit tree orchards in Morrie Harrell, Fullarton and Henry Codd Reserves

WATERWISE

The installation in 2015 of rain gardens in Randolph Ave to improve the quality of stormwater from our streets before it travels to our local creeks and the sea.

The capturing of water in verges and street kerbs with TreeNet Inlet system, to help supply water to both the street trees and understory plants.

In 2013 a Managed Aquifer Recharge (MAR) was built in Heywood Park to harvest up to 60 megalitres of stormwater for use at Heywood Park and distribution to other parks including Orphanage Park.

RESOURCEFUL

The installation in 2015 of dual recycling bins in key parks and reserves including Unley Oval.

Since 2013 Council offices and community centres improved to three bin recycling system using colour coded Ecobins.

Information and education campaigns for residents to use recycling options to full potential including “all food scraps are good to go” and “take the pledge”.

RESILIENT

The construction in 2015 of Ridge Park Dam as a key aspect for flood mitigation for Brown Hill Keswick Creek. The dam has the dual role of stormwater detention during large storm events and winter harvesting for irrigation purposes on Council reserves in summer.

ENERGYWISE

Energy consumption reduction by 26 per cent in 2011, the equivalent to 158 tonnes greenhouse gas savings, at the Unley Civic Centre and Town Hall through a Building Management System upgrade

In 2015, 10kW solar panels were installed at the Unley Swimming Centre to increase our use of renewable energy sources.


THE CITY
Unley

Shared Responsibility

Creating a more environmentally sustainable City of Unley is achievable through the whole City's involvement.

The Council is taking direct action to create change through initiatives such as installing solar panels on Council owned property and incorporating Water Sensitive Urban Design (WSUD) into infrastructure development. Many opportunities for environmental improvement rely on Council/community partnerships where Council can provide a service enabling the community. For example, Council provides a range of recycling services (bins, collection and education) and the community participates by using the service to its full potential.

Council can also seek to encourage community behaviour change through providing information, guidance and financial incentives.

To reflect this shared responsibility, each key objective in the strategy will have one Council target and one community target (see Fig 1).

FIGURE 1
Dual community & Council targets working to a common objective


THE UNLEY COMMUNITY CENTRE
KITCHEN GARDEN
ALL PRODUCE GROWN HERE

Strategic Context

The City of Unley Community Plan 2033 provides an opportunity to identify, reflect on and envision the priorities for our City over the next 20 years.

The "A Community of Possibilities" initiative asked our community to think about smart and creative ideas that the City of Unley could potentially incorporate into the Plan.

Over six weeks in June and July 2012, 1,200 people provide their ideas to "A Community of Possibilities". This was the Council's largest ever community engagement initiative to date. Four main themes emerged about inspirational and innovative differences we could bring to our City:

EMERGING

new activities and technologies that would support our business and residential communities

LIVING

reflecting issues of culture, diversity and lifestyle

MOVING

concerning accessibility and transport, and

GREENING

covering concerns about environmental initiatives and sustainability.

This Environmental Sustainability Strategy is focussed on implementing the Greening goal of the 2033 Plan. Figure 2 (page 13) illustrates how the Strategy is envisaged in a strategic context. While not intending to be a complete representation of all existing and planned lead strategies, supporting strategies, programs and projects, the diagram shows how this lead Strategy seeks to provide direction to these other relevant initiatives. It is also acknowledged that there are numerous cross-connections and integration across the range of initiatives that are undertaken by Council.

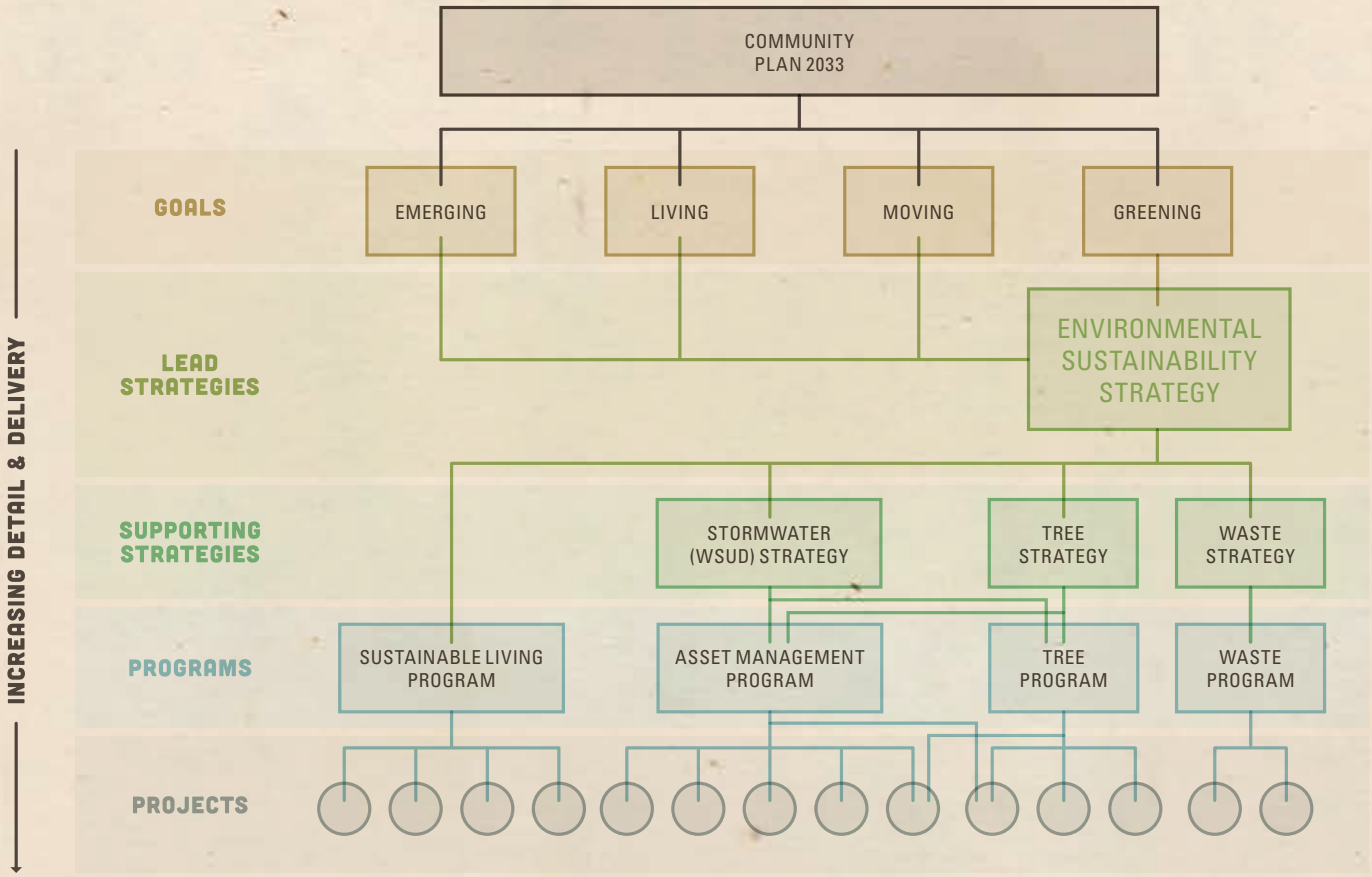


FIGURE 2
Strategic Context

Vision & Pathways to an Environmentally Sustainable City

The development of this document follows the strategic direction set by the Community Plan 2033 with a particular focus on achieving Goal 4: Greening Our Path to a Sustainable City.

The Greening goal aims for the City of Unley to be renowned for its lifestyle and environmental balance, leaders in waste management and functional open green space throughout.

Five key themes have been identified for achieving the Greening goal:

GREEN UNLEY

WATERWISE UNLEY

RESILIENT UNLEY

RESOURCEFUL UNLEY

ENERGYWISE UNLEY

We acknowledge that environmental systems are intrinsically linked and there is overlap between the themes, however these themes classify the work into manageable sections to focus our efforts. For example, a project capturing stormwater to water street trees would fall under the Waterwise theme, but would also be contributing to aims within Green, Resilient, Resourceful and indeed broader community liveability and economic factors.

Implementation

The accountability for implementing this strategy is assigned across the City of Unley's resources. The primary responsibility sits with the Assets and Environment division through Council's Annual Business Plan and Budget over the next four years. Collaborative partnering projects with other sections of Council, relevant organisations and community groups will be actively sourced.

The strategic directions will be progressed through Council's Annual Business Plan and Budget over the next four years. While the life of this document is four years, it is intended that it be part of an ongoing framework that provides for a consistent approach to match the ongoing commitment required to deliver our 20 Year Community Plan.

Measuring Progress

The City of Unley is committed to an evidence based approach to environmental management and has developed a number of indicators and targets to measure success over time within each of the five themes. Each theme considers both a Council and community target as outlined in the Shared Responsibility section on page 10. These are not comprehensive to ensure effort is concentrated on implementation and not data capture, but will provide a good indication of progress against the key objectives. Progress will be assessed annually in September and reported through the City of Unley's Infrastructure and Sustainability Committee.

As new initiatives are developed, the City of Unley can refine and improve these indicators, particularly for the community targets that are more challenging to measure at a Council-wide scale.

Green Unley

OBJECTIVE

Improving and maintaining Unley's Urban Forest

COUNCIL TARGET

Maintain the City's tree canopy cover at 25 per cent

COMMUNITY TARGET

By 2020, 400 street verges converted from dolomite to loam and planted

The City of Unley is an urban environment noted for its tree-lined streets, parks and private gardens. The protection of Unley's trees and street trees is particularly important to mitigating the impacts of climate, the urban heat island effect and a range of other benefits. This work is guided in detail by the City of Unley Tree Strategy.

There is also an excellent opportunity to encourage more of the verges to be planted. Most are currently dolomite which is not water permeable. If these are replaced with loam and low plantings or with lawn maintained by the residents, it will help improve soil moisture, reflected heat and add to the cool, green feel of the City.

While the key targets for the next four years focuses on trees and improving the greening of our streetscapes, ongoing work in parks, reserves, residential gardens and the encouragement of local food production is still very significant and ongoing.

Key initiatives that fall under this theme include;

- Trees
- Habitat boxes
- Verge gardening by residents
- Biodiversity native plantings
- Maintenance of parks and open space
- Encouragement of private plantings
- Food security including encouraging local food production
- Community gardens

Waterwise Unley

OBJECTIVE

Maintaining a green Unley through efficient, effective and sustainable water management

COUNCIL TARGET

Minimum 40 streets with stormwater improvements by 2020

COMMUNITY TARGETS

Inform and educate residents on water saving measures in conjunction with relevant authorities

The City of Unley is committed to have water sensitive urban design as a feature and reducing its dependency on mains water, while also maintaining its parks, reserves and street trees.

There has been excellent progress in recent years to waterproof the City, by providing recycled water options to most of its parks and reserves through the Glenelg to Adelaide Parklands Recycled Water Project (GAP) and Managed Aquifer Recharge schemes (MAR). While efforts will continue on water efficiency to parks and reserves, the focus for improvement for the next four years will be on the streetscapes through stormwater capture and reuse.

There are also a range of Waterwise actions that residents can take such as installing rainwater tanks, selecting water wise plants, mulch and wicking beds, and the time of day gardens are watered.

Key initiatives that fall under this theme include;

- Water Sensitive Urban Design (for example, diversions for watering street trees, bio swales, rain gardens, permeable surfaces)
- Continue expansion of MAR and GAP networks and the use of their recycled water
- Information for residents – reducing water use, planting water wise plants
- Council water use
- Waterproofing parks and gardens

Resilient Unley

OBJECTIVE

Increasing resilience to changes in climate

COUNCIL TARGET

Continue to improve and increase our green space. By 2020, create a minimum of three new spaces, which can include vertical and rooftop gardens

COMMUNITY TARGET

By 2020, educate and enable working with relevant authorities. Present a minimum 2 information sessions on Resilient East and positive actions residents can take

The City of Unley has partnered with the other Eastern Region Alliance (ERA) Councils and Adelaide City Council to develop a Climate Change Adaptation Plan for the eastern region called Resilient East. The plan outlines key vulnerabilities to climate change across the eastern region and a range of adaptation decision making and planning options at a regional and individual Council level.

Currently at draft stage, Resilient East provides a number of preferred options for the eastern region to adapt to the impacts of climate change. Once finalised, the implementation of aspects relevant to Unley will be decided. However many of the proposed actions already align with objectives in this strategy. City of Unley already incorporates environmental considerations and opportunities into all its capital renewal planning.

Initially the targets for this theme have been set around increasing vegetation (or green infrastructure) to help lower the overall temperature of our City. These can include vertical and rooftop gardens. See Figure 3 (page 22) which shows how new spaces can be found while also increasing housing density.

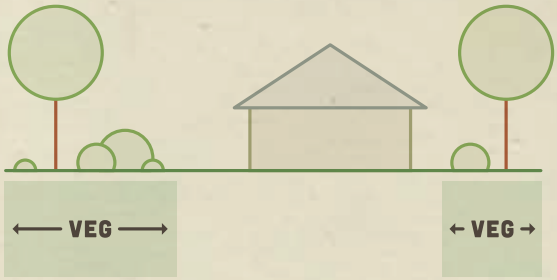
Key initiatives that fall under this theme include;

- Implement Resilient East
- Innovate/new ideas
- Heatwave management
- Urban heat island effect
- Green infrastructure
- Flood management (Brown Hill Keswick Creek)
- Building strategies

1

Vegetation and biomass before any residential building development

2

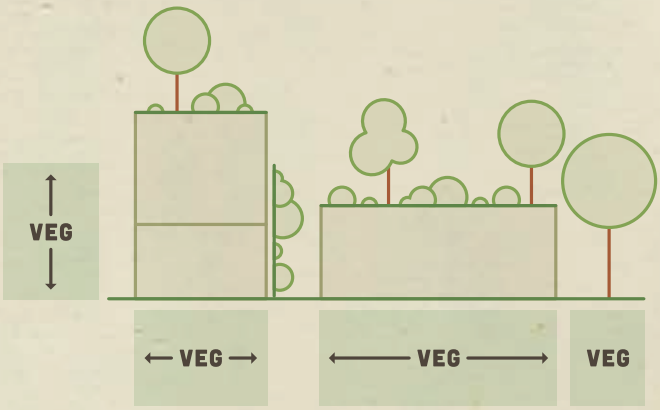


Traditional residential development of single dwelling gives 25-30% of original vegetation

3

Tilt up backyard into living wall retains same amount of vegetation and bio-mass but reduced area

4



Use vacant space for extra dwellings with green roofs resulting in more vegetation than original and higher number of dwellings

FIGURE 3

Increase Open Space while Increasing Housing Density, (Graeme Hopkins, Living Architecture Presentation, Sept 2015).


Bottles, Cans and Cartons ONLY
Steel and aluminium cans
Plastic bottles
Glass bottles
Cartons
Bottles, Cans and Cartons ONLY
Steel and aluminium cans
Plastic bottles
Glass bottles
Cartons
Waste ONLY
Food scraps
Food packaging
Plastic bags and packaging
Picnic ware
Nappies

Resourceful Unley

OBJECTIVE

Leaders in waste management, through diversion, avoidance and re-use

COUNCIL TARGET

By 2020, divert 75 per cent of material from Council facilities and events from landfill

COMMUNITY TARGET

By 2020, divert 70 per cent of residential material presented at kerbside from landfill (54 per cent in 2015)

The City of Unley is committed to reducing waste, from both its own operations and the community, and to the management of waste in a sustainable manner. Council offers several options for recycling and waste disposal including kerbside collections, hard rubbish collections and a range of other services and education programs to support our community.

This work is guided by the Waste Management Strategy 2013-2017 which includes activities to provide innovative and responsive waste management practices that promote recycling and reduce waste. It incorporates best management practices to manage the waste collected by Council. Efficient use and management of our other resources like water and energy are also important but come under other themes.

The waste management sector is continuing to improve and innovate, so it is important that the City of Unley works closely with industry to adopt current thinking and technology, and that we educate our community on new options as they arise.

Key initiatives that fall under this theme include;

- Domestic Waste – education, re-use, organics, hard rubbish
- Commercial Waste – organics, recycle construction
- Council leader in waste management – alternate recycling, operations, our usage

Energywise Unley

OBJECTIVE

Becoming an energy efficient and sustainable City

COUNCIL TARGET

By 2020, reduce total use of grid-based energy by 5 per cent

COMMUNITY TARGET

By 2020, educate and enable the community to increase energy efficiency. Increase the percentage of residential buildings with solar panels to 35 per cent (21 per cent in 2015)

Our modern Australian lifestyle is very energy intensive. We have become high electricity users. Our homes, which are now larger, commonly contain air-conditioning and many electrical appliances which rely heavily on fossil fuels that contribute to greenhouse gas emissions. Electricity prices have increased over the last few years, resulting in increased operation expenses.

There are ranges of old fashioned and improved technology steps we can take to reduce our energy usage. Renewable energy technologies such as solar and wind are clean sources of energy that have a much lower environmental impact than conventional energy technologies and their costs have been declining.

By combining reduction of energy usage with uptake of renewable sources, we can make a big difference in reducing electricity consumption, reduce carbon footprint, contribute to climate change mitigation and reduce risk against future electricity price rises.

Key initiatives that may fall under this theme include;

- Renewable energy (solar, wind, battery storage)
- LED lighting
- Improving energy efficiency of buildings

Summary of Objectives & Targets

	OBJECTIVE	COUNCIL TARGET	COMMUNITY TARGET
GREEN UNLEY	Improving and maintaining Unley's Urban Forest	Maintain minimum canopy cover of 25 per cent	By 2020, 400 verges converted from dolomite to loam and plants
WATERWISE UNLEY	Maintaining a green Unley through efficient and effective and sustainable water management	Minimum 40 streets with stormwater improvements by 2020	Inform and educate residents on water saving measures in conjunction with relevant authorities
RESILIENT UNLEY	Increasing resilience for changes in climate	Continue to improve and increase our green space. By 2020, create a minimum 3 new spaces (includes vertical).	By 2020, present a minimum of 2 information sessions on Resilient East and positive actions that residents can take
RESOURCEFUL UNLEY	Leaders in waste management through diversion, avoidance and re-use	By 2020, Council facilities and events diversion from landfill 75 per cent	By 2020, divert 70 per cent of residential material presented at kerbside from landfill
ENERGYWISE UNLEY	Becoming an energy efficient and sustainable City	By 2020, reduce total use of grid based energy by 5 per cent	By 2020, educate and enable the community to increase energy efficiency. Increase the percentage of residential buildings with solar panels to 35 per cent.

Further Reading

Active Aging Strategy.
City of Unley (2015). unley.sa.gov.au

Blueprint 2013 - Stormwater Management in a Water Sensitive City.
Cooperative Research Centre (CRC) for Water Sensitive Cities (2013).
ISBN 978-1-921912-02-3. watersensitivecities.org.au

Community Plan 2033 – A Community of Possibilities.
City of Unley (2013). unley.sa.gov.au

(draft) Resilient East – Regional Climate Change Adaptation Plan.
URPS for the Eastern Region in association with the Government of South Australia and the Australian Government (2015)

The 30-Year Plan for Greater Adelaide.
Government of South Australia (2010). ISBN 978-0-7590-0114-5.
plan4adelaide.sa.gov.au

Tree Strategy.
City of Unley (2015). unley.sa.gov.au

Urban Heat Island Report: Decision principles for the selection and placement of Green Infrastructure.
Victorian Centre for Climate Change Adaptation Research (2013). vcccar.org.au

Waste Management Strategy.
City of Unley (2013). unley.sa.gov.au

Living Well: Regional Plan for Health and Wellbeing for Cities of Unley and Mitcham.
Healthy Environs (2014). unley.sa.gov.au

THE CITY of Unley

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DECISION REPORT

REPORT TITLE:	BICYCLE TRANSPORT CORRIDOR ACTIONS
ITEM NUMBER:	20
DATE OF MEETING:	12 APRIL 2016
AUTHOR:	SATYEN GANDHI
JOB TITLE:	MANAGER TRANSPORT AND TRAFFIC

EXECUTIVE SUMMARY

To provide an update on actions arising from the Bike Routes Safety Audit (done by Infraplan) and requested actions from Unley Bicycle Users' Group (UBUG)

RECOMMENDATION

The Committee recommends to Council that:

1. The report be received.

2. The initiatives detailed in Attachments 1 and 2 (to Item 20/16) be supported.

3. The actions detailed in Attachment 3 (to Item 20/16) be supported as priorities.

1. RELEVANT CORE STRATEGIES/POLICIES

- Community Plan 2033
  - *An integrated, accessible and pedestrian-friendly City*
  - *Alternative travel option*

2. DISCUSSION

The city of Unley is dedicated to encouraging cycling through the provision of safe and accessible cycling routes and supporting cycling initiatives. In recent months, the City of Unley has established the Walking and Cycling Plan; a strategy to direct future infrastructure and civil works to accommodate a comfortable environment for active transport.

Alongside the Walking and Cycling Plan, an audit of the current cycling routes was conducted. This was in response to a motion endorsed at the December 2014 Council meeting which was detailed as follows:

Council carries out an audit of Unley's cycling transport routes considering both safety and utility as a transport corridor. The audit should consider priority when cycling transport routes cross garage entrances or dead end streets.

Following this Council motion, Administration applied for Department Planning Transport and Infrastructure (DPTI) grant to undertake the work as the above project was not a budgeted initiative. Council was successful in receiving the grant funding (June 2015) and the audits were completed by November 2015.

Council subsequently engaged Infraplan Pty Ltd (Infraplan) to undertake the work. The site inspections of the cycle corridors focussed on all aspects of cyclist safety, including but not limited to: route identification, path condition (maintenance items, width of path), signage, markings, ramps, access, sight distance, obstructions (permanent obstructions such as squeeze points & temporary obstructions such as debris and parked vehicles) and alignment. Refer to Attachment 1 (Item 20/16) for the full report on the inspections.

Attachment 1

In August 2015, the Unley Bicycle Users' Group (UBUG) was invited to provide a list of requests (Attachment 2 to Item 20/16) for Council to consider for implementation. The list was based on the observations and experiences of members of UBUG and provided a prioritisation of the requests based upon UBUG's determination of urgency and ease of implementation.

Attachment 2

There are a number of common items between the actions that came out of the Infraplan audits and the UBUG list of requests. Attachment 3 (Item 20/16) shows the list of actions that have synergies between abovementioned lists. Therefore, the actions listed in Attachment 3 have been prioritised to be undertaken in financial year 15/16.

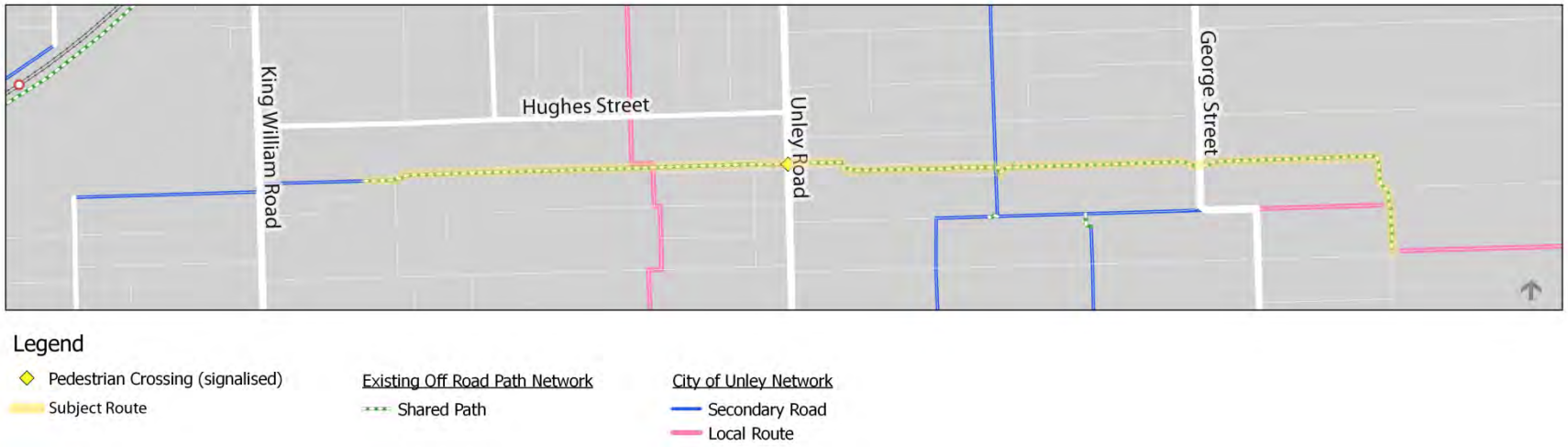
Attachment 3

In the current financial year (2015/16), Council has allocated a sum of $20k for ‘effective and safer Unley bicycle corridor’. This budget will be used to fund the aforementioned list of actions as outlined in the Attachment 3 of this report. The works are planned to be undertaken by end of June 2016.

Between Attachments 1 and 2, there are initiatives and recommendations that were not prioritised into Attachment 3 for immediate action. This is due to some of the initiatives already being addressed by council projects and the Walking and Cycling Plan. It is the intention that all initiatives raised in both Attachment 1 and 2 are to be addressed for further consideration in the near future.

Cycle Route Site Inspections

Route: Glen Osmond Creek Shared Path



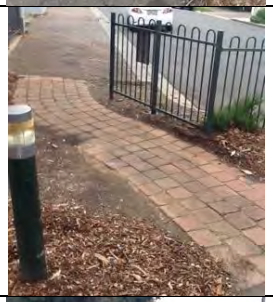
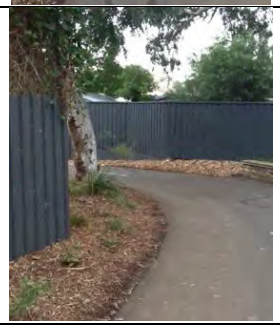
The Glen Osmond Creek Shared Path is an enjoyable east-west route that links the Windsor Street walking trail to King William Road. At Unley Road there is a safe signalised crossing, but no crossing is provided at King William Road. The path has several names ie, Charles Walk, Culvert Street, Glen Osmond Creek trails, and therefore its identification and destinations are not intuitive. Wayfinding would be improved if the route is named and signed consistently at each point of access (eg, Unley East-West Bikeway). Additional improvements include better lighting, signage, access points and priority at driveway crossings. The path terminates at the Council Depot carpark with some confusing signage and then terminates at King William Road without a safe crossing point.

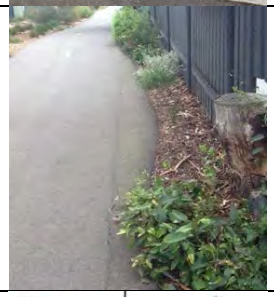
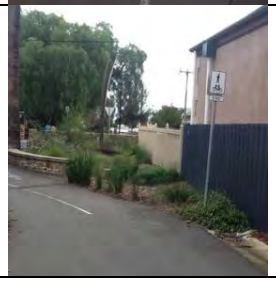
The path has potential for a direct extension to link to the Mike Turtur Bikeway via a new path along Simpson Parade, Trevalyn Street and Bendall Avenue.

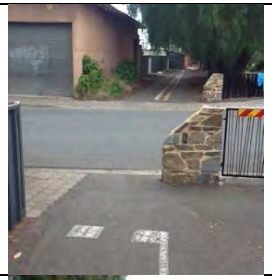
The site inspection photographs, comments and recommendations are listed below.

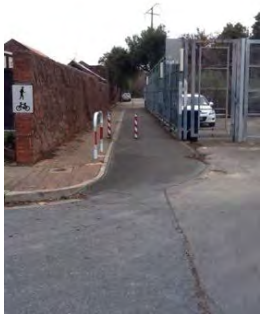
Location	Photo	Deficiency	Action	Ranking
Windsor Street / Marion Street		• Poor identification that shared path route exists • Poor ramp access/egress	• Signage to identify route name and destination • Upgrade access from road to shared path	High
Windsor Street		• Windsor Street Linear Reserve is not wide enough for a shared path. This is a lost opportunity to continue the shared path further. 'No bicycles' signs are installed at every access point to path.	• Increase path width to 3 metres at time of next path upgrade	
Numerous locations throughout		• Lifted, uneven surface	• Upgrade surface	Medium

Exit to Marion Street		• Poor path and ramp access to 90 degree bend in road with pavement bar island around bend	• Review traffic speed and sight distance around bend. Improve access into path from all directions. • Install hand rails	Medium
Numerous locations		Give-Way sign is sized & located for roadways (R1-2A - 750mm high), instead of paths	Replace sign with small size (375mm high) and locate at lower height for visibility for cyclists	Low
Numerous locations		• Worn pavement markings	Upgrade pavement marking	Medium
Numerous locations		• Longitudinal cracking	Repair / replace pavement	High

Numerous locations		• Edge deterioration	Monitor and repair as required	medium
Access to/from Maud Street		Narrow path, not signed for cyclists	Upgrade to shared path	High
Near Henry Codd Reserve		• Bin close to edge of path, dark colour	Ensure all furniture is at least 300mm from edge of path and easily visible at night (eg, light colour, retro-reflective tape, hazard marker as required)	High
Just north of Maud Street		• Poor sight distance at bend	Review feasibility to cut-back fence alignment for sight distance	Low

Pedestrian/cyclist link from Leister Hotel car park		• Poor sight distance to pedestrians/cyclists from carpark • Poor give way sign – likely ignored	• Consider slatted wooden fence that allows visibility through • Paint surface of path to alert cyclists of crossing • Remove Give Way sign & consider custom sign (ie, watch for cyclists)	High
Numerous locations		• Overgrown foliage	Review maintenance procedures to ensure path is clear	Mediumn
Crossing at George Street		• Incorrect GW sign • Narrow kerb ramp	• Replace GW sign with small size (375mm high) and locate at lower height for visibility for cyclists • Increase kerb ramp to full width of shared path	Medium
Numerous locations at road crossings		• End sign not required as path continues over road crossing	• Remove shared path and end sign	Low

Rugby/Porter		• Wall possible hazard, particularly in low-light conditions	• Install reflective delineation marker on wall	
Driveway across path to meals on wheels (and similar driveway crossings in this path section)		• Path end sign not required • Give way sign size incorrect • Is priority correct ?	• Replace GW sign with small size • Remove path end sign • Concept design required to upgrade these driveway crossings. Assess priority on a case-by-case basis - consider changing priority so that vehicles give way to bikes. • Consider pavement messages / coloured pavement to alert cyclists/motorists of crossing	Medium
Culvert Street		• Low concrete walls	• Add edge line and reflective paint increase clearance to, and visibility of walls	High

		• Sharp bends and corner hazards • Poor lighting	• Remove corners and reconstruct as curved radii with reflective paint	High
Just east of Unley Road **(and numerous locations)**		• Signs and light poles within path	• Paint approach edgelines around objects to increase visibility. Install edge delineator sign to light pole	High
Through Council Depot		• Bollard in centre of path creates squeeze point • Edge of metal cage	• Assess requirement for bollard. Remove if possible. If not, install approach linemarking as per Austroads. • Install pavement shared path logos • Install edge delineator sign on corner of metal cage	High
		• Confusing signs. End sign on RHS and path sign on LHS	• Remove end sign • Install pavement logos	Medium

		• Path access via Council Depot carpark. Signed as Shared Zone at King William Road end only.	• Mark shared path through carpark to alert motorists of the potential presence of cyclists and pedestrians • Review legality of Shared Zone and ensure consistent signage at both ends of car park	

Route: Weller Street / Wood Street / Victoria Avenue

This north-south route extends from Cross Road to the Mike Turtur Bikeway and is a parallel, alternative route to busy King William Road. North of Northgate Street, the route follows streets with low traffic volumes, but Northgate Street and Victoria Avenue carry around 9,000 vehicles per day, are signed at 50km/h and are bus routes. Therefore, Victoria Avenue and Northgate Street require cyclist separation to comply with Australian Guidelines and provide a better level of comfort for cyclists. This route would be significantly improved if either bicycle lanes were installed in Victoria Avenue and Northgate Street or an alternative route is provided for cyclists who feel intimidated riding in traffic.

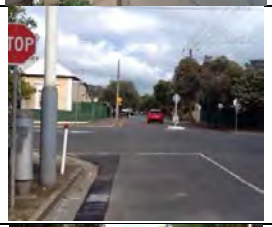
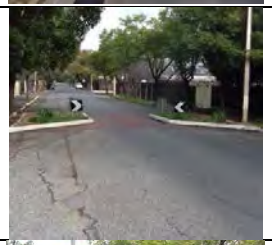
The one-way slow points in Wood Street and Weller Street aim to reduce traffic speed but observations found that the low traffic volumes allowed motorists to track in the centre of the road avoiding any need to slow down to deflect horizontally. Therefore, the slow points create a narrow squeeze points for cyclists. Council has informed us that approximately 40% of traffic on this route is 'through' traffic avoiding King William Road. Parallel Slow Points are found to be effective only if traffic volumes force vehicles to give way to each other. Otherwise, a raised platform at the slow point is also required or the slow points need to be angled to force the horizontal manoeuvre.

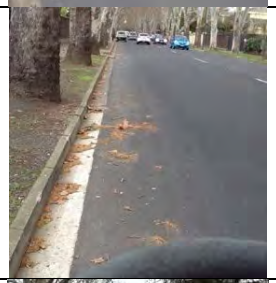
This route is ideal for a north-south bicycle boulevard (similar to Rugby/Porter), and therefore through traffic should be dissuaded, without significantly impacting on local residents. The existing slow points should be replaced with another form of traffic calming that slows traffic down (eg, angled slow points or raised, parallel slow points), and must include a cyclist cut-through. Traffic diversion should also be considered to remove any unnecessary through traffic back onto King William Road.

Some signage exists, but it is not complete or intuitive. Increased directional and destination signage together with Sharrow line-marking would raise the status and usage of this route.

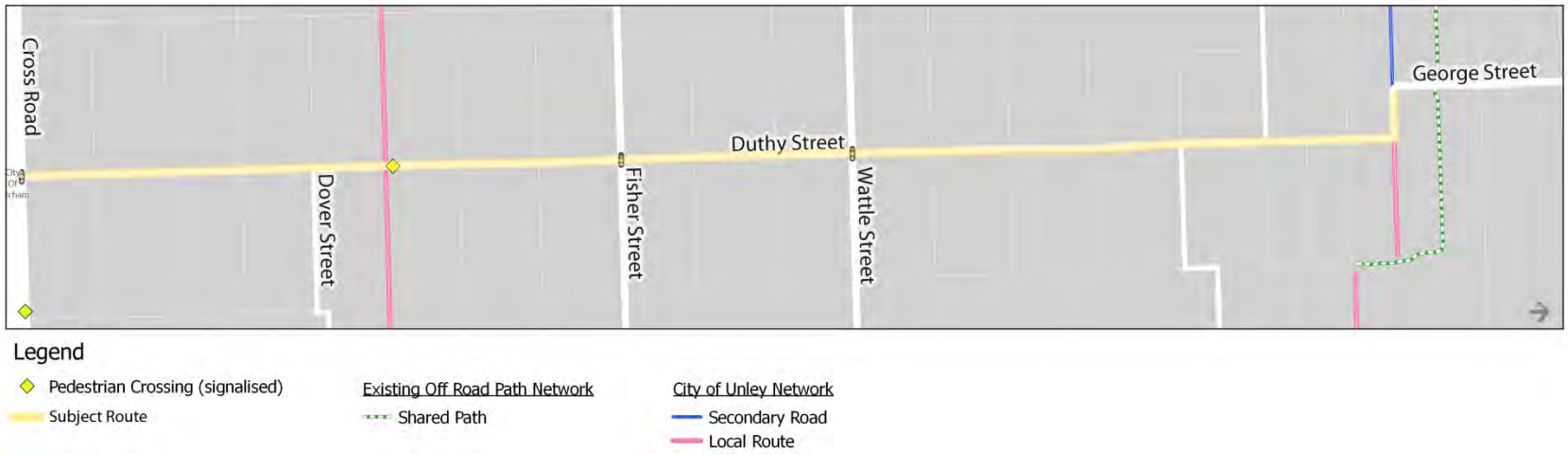
The site inspection photographs, comments and recommendations are listed below.

Location	Photo	Deficiency	Action	Ranking
Entire north-south Route		• Victoria Ave carries high traffic volume and is a bus route • Poor wayfinding signage	• Consider bicycle lanes on Victoria Avenue or find alternative route (eg Whister Ave and Heywood Park) • Route signage strategy required. Name route (eg, Unley Park to City Route, and provide signage at each turn) • Install sharrows for entire north-south route	High
Weller St		• Rough uneven surface from patching • Debris on road	• Resurface roadway	High

		• Redundant BikeDirect signage	• Remove all BikeDirect signage	High
Weller St / Mitchell St junction		• Wide open crossing	• Review safety of road crossing. Note: Road humps create slow traffic on Mitchell Street but delineation for cyclists is required	High
Wood St, near Wooldridge St		• One lane slow point • Squeeze point for cyclists • Low traffic volume means vehicles don't need to slow down	• Review street for new traffic calming/diversion devices	High
Corner of Wood St and Hatherley Ave		• Sign to Hawthorn & Westbourne Park	New signage strategy required	High

Corner of Northgate St and Victoria Ave		• Right turn into Victoria Ave across high volume traffic volumes in Northgate St	• Install cyclist refuge • Install bicycle lanes in section of Northgate Street	High
Victoria Ave		• Bus route • High volumes of traffic – separation required • Debris on street	• Review route and either install bicycle lanes in Victoria Avenue or choose an alternative route • Review maintenance program and remove tree debris more regularly	High
Victoria Ave		• No space for cyclists near Cross Rd	• See notes above	High

Route: Duthy Street

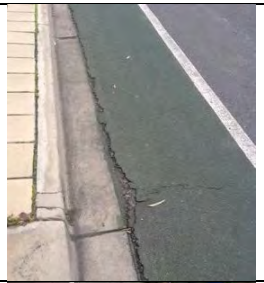


Duthy Street is a direct north-south collector route for motor vehicles (including buses), and cyclists. The speed limit is 50km/h and the traffic volumes are in the order of 12,000 vehicles per day. Bicycle Car Parking Lanes exist but there is scope to improve this facility by strengthening the separation of cyclists with buffer zones between car door opening and also moving traffic, as well as green coloured pavement at busy road junctions.

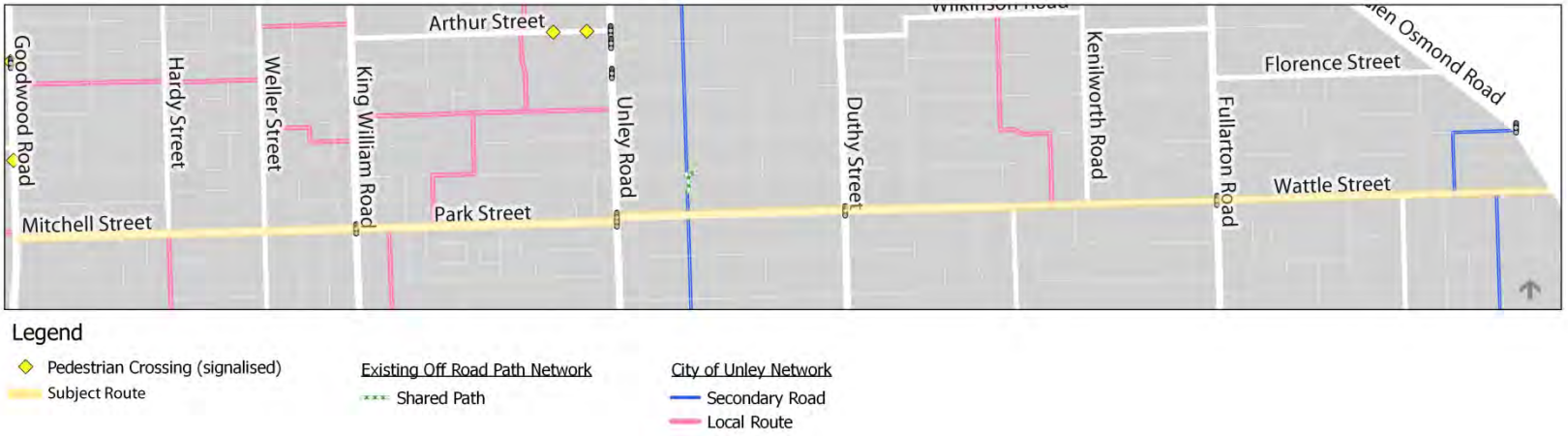
The site inspection photographs, comments and recommendations are listed below.

Location	Photo	Deficiency	Action	Ranking
Duthy Street bicycle lanes - general		• Bicycle lanes installed to basic standard only	• Reallocate lanes to include buffer zones and increase separation	Medium (next time linemarking is programmed)
Duthy Street bicycle lanes at busy road junctions and other hazardous locations (eg, traffic crossing to auxiliary lanes)		• Potentially hazardous for cyclists due to vehicles crossing cycle lane	• Install green coloured sections of road pavement at busy road junctions	High
Between Cross Road and Malvern Avenue		• See above	• See above	
Near corner of Eton St		• Note transition from exclusive bicycle lane to bicycle car parking lane • Faded bicycle logo	• Re-mark logos at locations where vehicle traffic causes additional wear	High

Entire length		• No buffer between car doors opening and bicycle lane	• Install chevron linemarked buffer zone between car parks and bike lane	High
Duthy / George Street bend		• One-way bicycle path around bend – safer alternative that on-road • Logos are worn and faded (several locations)	• Re-mark bicycle logos where required	Medium
		• Horizontal cracking and lifting of path	• Assess surface and repair cracking where required	High
		• Horizontal cracking and lifting of path	• Assess surface and repair cracking where required	High

		• Uneven surface, cracking and edge deterioration	• Repair cracking	Medium
George St / Maud St		• Edge deterioration	• Assess and Repair	High

Route: Wattle Street /Park Street /Mitchell Street



This route is a direct east-west route between Glen Osmond Road and Goodwood Road and ideally located for cross-city commuting. The high traffic volumes (upto 7,000) and speeds (upto 54km/h toward Glen Osmond Road) require separation between cyclists and traffic. As there is insufficient carriageway width to fit bicycle lanes as well as keep the existing on-street parking, cyclists are squeezed between car doors opening and moving traffic.

In the long term, when the road is due for reconstruction and the trees are near the end of their life, a full-street street-scaping design that includes cycling is recommended. Until that time, an interim concept is required that gains more space for cyclists.

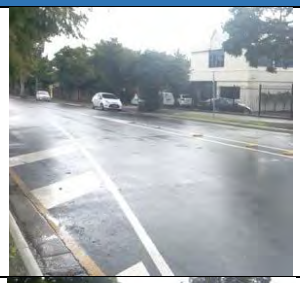
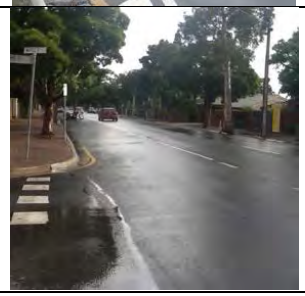
There are some busy retail/commercial driveways along the route where there could be potential conflict between vehicles turning in and straight-through riders. These driveways require attention to reduce potential conflict. When formal bicycle lanes are installed, green coloured sections are recommended at these locations.

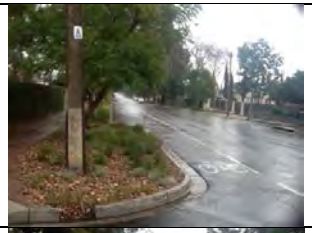
The roundabout at the intersection of Wattle Street and Cambridge Street has experienced 1 cyclist collision per year for the last 5 years and it is recommended that the roundabout be modified to a radial design instead of a tangential design.

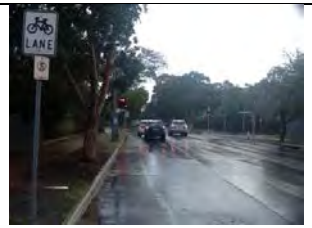
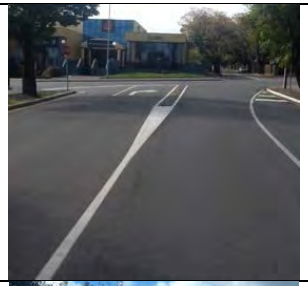
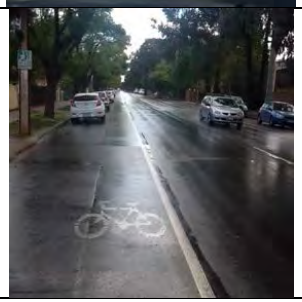
Traffic is calmed along Park Street (west of Cambridge Street) and all of Mitchell Street with road humps, which are successfully moderating the traffic speed to around 40km/h.

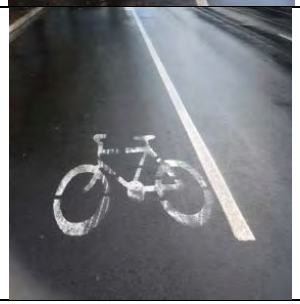
Mitchell Street carries 5,500 vehicles per day and terminates at the hazardous junction of Goodwood Road, with no safe crossing facility. Therefore, an alternative route is put forward that directs east-west cyclists to Angus Street, via Weller Street. Angus Street is located close to a PAC on Goodwood Road and a short section of shared path on the Goodwood Road footpath would facilitate safe access to this crossing. Furthermore, this route could be extended with a section of shared path on the west side of Goodwood Road to link safely to Victoria Street and on to the Marino Rocks Greenway or the Mike Turtur Bikeway. Refer to Cycling and Walking Plan for this alternative route concept.

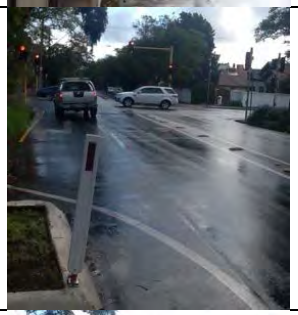
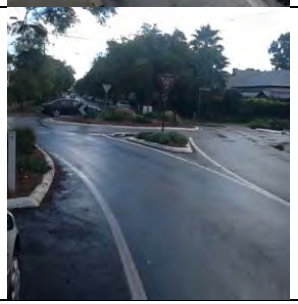
The site inspection photographs, comments and recommendations are listed below.

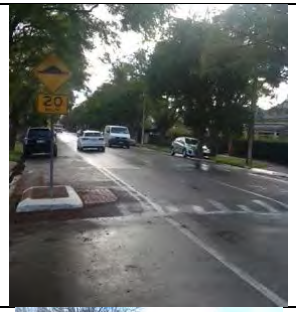
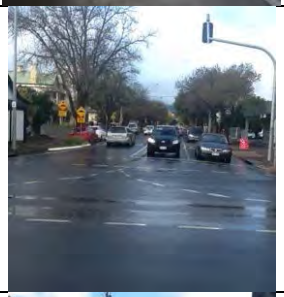
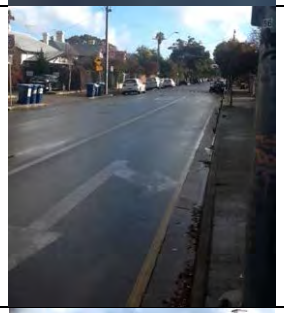
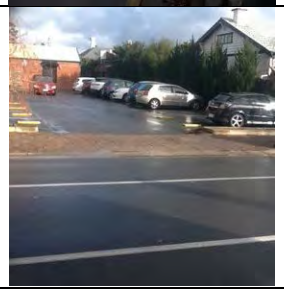
Location	Photo	Deficiency	Action	Ranking
Wattle St, Between Glen Osmond and Fullarton Road		• Entry from Glen Osmond Road – wide entry to squeeze point marked with chevron marking •	• Assess if bicycle lane can replace chevron	medium
		• Protuberances at junctions • Easy to speed (motor car).		

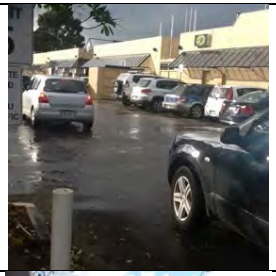
		• Edge line is 3.1 to 3.5m from kerb provides wide parking lane and some space for cyclists. (but not wide enough to comply with Standards for Bicycle/Car Parking Lane). • Location of trees varies and forms narrower squeeze points for cyclists • Cyclists ride close to vehicles and car dooring potential • Bollards need review. • Trees in road / Parking bay	• Low to medium parking demand, and every house has a driveway – consider removal of carparking on one side of road to find room for bicycle lanes. • Refer to Cycling and Walking Plan for Staggered Parking Concept	High
		• Bike logos at junctions only • BikeDirect signs (redundant) still exist	• Redesign required that provides bike lanes along whole length • Remove BikeDirect signage	High
Various locations		• Debris from trees	• Identify cycling routes with trees that drop debris and increase maintenance schedule.	High

		• Regulatory sign location inconsistent and not always to Standard. • Eg, Bike Lane sign installed for short section approach to Fullarton rd , with bike lane end sign 40m further on.	• Review signage as part of whole of street re-design for cycle lanes	High
		• Space for cyclists removed totally at intersections with collector and arterial roads	• Review as part of whole of street re-design for cycle lanes	High
Wattle St, Fullarton Rd intersection		• Note bicycle buttons exist – no deficiency just noted	• Review road section as part of whole of street re-design for cycle lanes	
Wattle St, between Fullarton Rd and Duthy St		• logos mid-block	• Review as part of whole of street re-design for cycle lanes	

		• Bike lane sign on approach to Fullarton rd • no bike lane end signs	• Review as part of whole of street re-design for cycle lanes	
		• Squeeze points at some trees	• Review as part of whole of street re-design for cycle lanes	
		• Logo quality varies	• Review as part of whole of street re-design for cycle lanes	

		• Protuberances at junctions vary.	Review as part of whole of street re-design for cycle lanes	
		• Squeeze point at Duthy St	Review as part of whole of street re-design for cycle lanes	
Wattle St, between Duthy St and Unley Rd		• Roundabouts.	• Modify roundabouts to radial design	Medium

		• Speed plateaus (Cambridge to Unley) across full width between protuberances. Noted only.		
		• Bike buttons at Unley rd signals – noted only		
Park Tce, Unley Rd to King William		• Cyclist squeeze points where auxillary turn lanes created	Review as part of whole of street re-design for cycle lanes	
		• Drive Way's into busy rear car parks - crossing cyclist path	During design review consider green coloured bicycle lanes at these conflict areas	

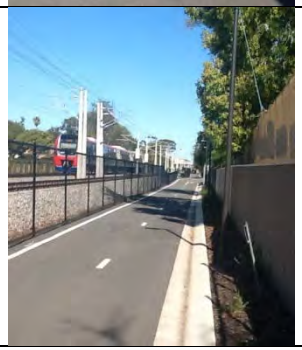
		• High car parking demand	Review as part of whole of street re-design for cycle lanes – some on-street parking may be required for removal	
		• No lanes or bike buttons at KW rd signals.	Install bicycle buttons is	Medium

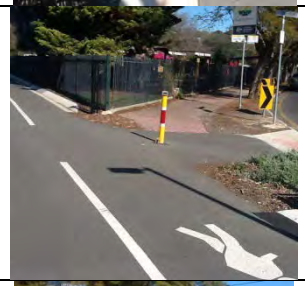
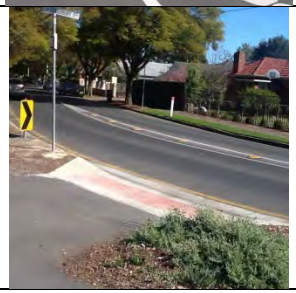
Route: Marino Rocks Greenway

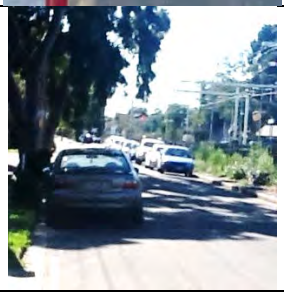
The Marino Rocks Greenway has recently been completed by DPTI. The route runs along the Seaford rail line from the corner of Cross Road and South Road to the corner of Anzac Highway and Greenhill Road (within the City of Unley). Further afield it extends to the Coast and Vines Trail at Marino Rocks (via a shared path on the Cross Road eastern footpath that links to a cyclist/pedestrian underpass of Cross Road (under the vehicle overpass)), to the CBD via the Anzac Highway underpass and the West Terrace Shared Path. The route follows low-traffic streets and/or shared paths. It is an enjoyable cycling route and provides direct access to Stations and the Keswick Route (previously constructed by Council).

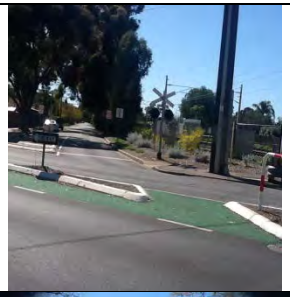
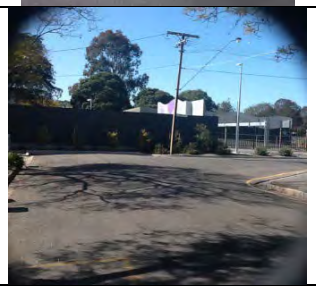
The site inspection photographs, comments and recommendations are listed below.

Location	Photo	Deficiency	Action	Ranking
Near Emerson Train Station		• Typical wayfinding signage (noted only)		
South Road		• Shared path on South Road footpath. Showing appropriate approach line marking and signage to a stobie pole hazard (noted only)		
Access to/from Emerson Rd		• Bollard – no approach linmarking from either direction • Bollard is a potential hazard	• Install approach linemaring - DPTI have been alerted and are reviewing all bollards along route. Liaise with DPTI on progress. (Applies along entire length of Greenway)	High

Shared path – between Emerson Road and Gordon Rd.		• Light obscured by trees	• Cut back foliage to expose light. • Increase maintanence schedule as required • Applies to entire length of shared path	High
Shared path at access to/from Cowper Rd		• Approach line-marking to bollard not to Standard. • Bollard is a potential hazard.	• Install approach linemaring - DPTI have been alerted and are reviewing all bollards along route. Liaise with DPTI on progress. • Applies along entire length of Greenway	High
Solid fence alongside shared path		• Example photo of solid fences that restrict passive surveillance along shared path	• Encourage visually permeable fencing where possible along shared paths	ongoing

Fence alongside Princess Margaret Playground		Example of visually permeable fencing (noted only)	• See above	
Access to path to/from Canterbury Tce		• No approach linemarking at bollard	• Install approach linemarking (liaise with DPTI)	High
Access from Canterbury Tce to Shared Path		• Cyclists cross pavement bars – potential hazard	• Review design of pavement bar island and remove pavement bar at cyclist crossing location	high

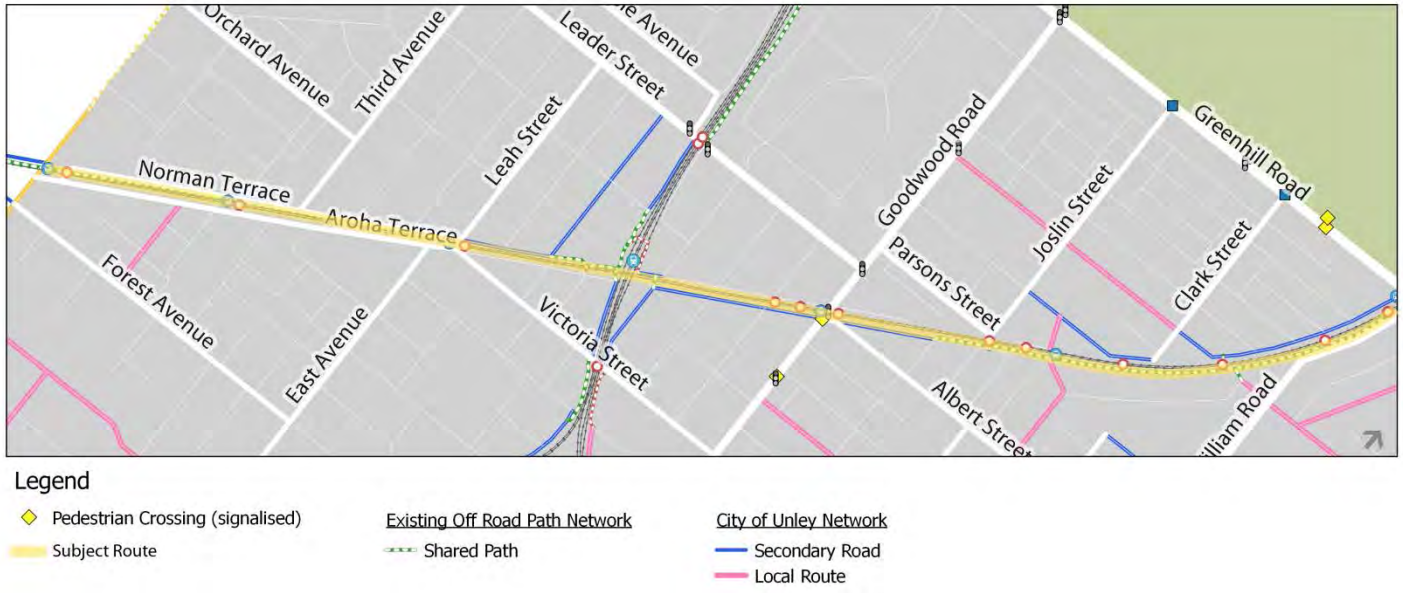
Access to/from Addison Road/Canterbury Tce		• Bollard line-marking not to Standard	Install approach linemarking - DPTI have been alerted and are reviewing all bollards along route. Liaise with DPTI on progress. • Applies along entire length of Greenway	High
Exit from path to Addison Road/Canterbury Tce		• Line of trees restrict sight distance to oncoming vehicles	• Reduce traffic speed	medium
Path – between Addison Road and Fairmont Avenue		• Redundant BikeDirect sign	• Remove all BikeDirect signage	Medium

Near East Ave		• City direction on bottom does not have a straight-ahead arrow (has been drawn in by a cyclist – and distance also changed from 5.2 to 4.5km). • Straight ahead arrows do not appear consistently. Although done on purpose, it appears that is does not make for clear wayfinding	• Alert DPTI to lack of clear wayfinding on signage • Consider adding arrows to signage	medium
Greenway / East Terrace intersection		• Cyclist crossing at East Terrace (noted only)		
Cromer Pde / Chelmsford Ave		• Poor sight distance around bend in road.	• Install pavement bars to track cars around bend instead of corner cutting	High

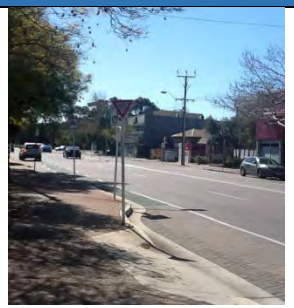
Victoria Street crossing		• Noted only. Cyclists are able to cross Victoria Street when train signals are flashing and vehicles held at stop line		
Lyons Parade		• Sharrows exist – noted only		
		• Wayfinding signage – noted only		

Entry from Nairne Tce		• No approach line-marking to/from bollards	Install approach linemarking - DPTI have been alerted and are reviewing all bollards along route. Liaise with DPTI on progress. • Applies along entire length of Greenway	
Richards Terrace / Leader St / path intersection		• Role of Richards Terrace not defined, but provides access for nearby residents	• Clarify if Richards Tce part of route or should cyclists use Nairne Terrace ? • Consider bicycle logos on Richards Terrace	Medium
Greenhill Road Underpass		• Noted only. Connects to West Terrace Shared Path (ACC) under Greenhill Rd/Anzac Hwy		

Route: Mike Turtur Bikeway

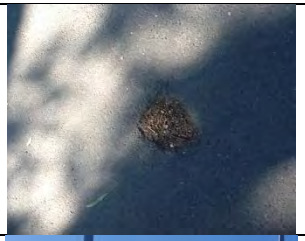
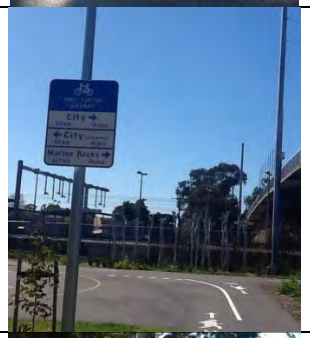


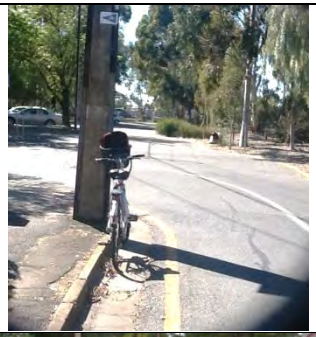
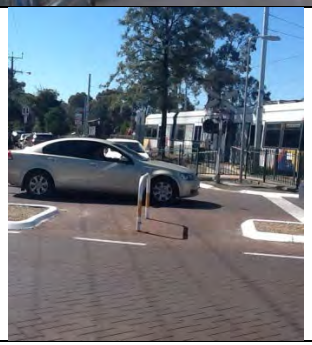
The Mike Turtur Bikeway is the busiest bikeway in Adelaide, with the Super Tuesday survey counting 660 cyclists between 7-9am at the Greenhill Road / King William Road crossing point. Although this is an excellent low-traffic and shared path route, there are some deficiencies such as missing links and poor pavement surface in some areas. The critical missing link is at the crossing of the Seaford Rail Line (also the Marino Rocks Greenway), where cyclists are required to travel anti-directionally to Victoria Street or dismount and walk through the aged, narrow rail underpass. This deficiency is currently being addressed by DPTI as part of the Rail Revitalisation Project and options are being evaluated to provide an overpass for cyclists. There are several deficiencies at the access to and from the bikeway near Greenhill Road which are also addressed below.
The site inspection photographs, comments and recommendations are listed below.

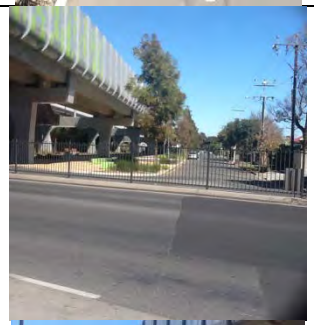
Location	Photo	Deficiency	Action	Ranking
Shared path termination 120m south of Greenhill Road		1. Northbound: Shared Path ends where bike lanes start. Cyclists are forced out to a narrow cycle lane between through lane and left-turn lane (eg vehicles cross bike lane to access left turn lane) 2. Southbound: Bicycle lane squeezed between parked cars and 2 x lanes of moving traffic	1. Extend Shared Path to Greenhill Rd and liaise wth DPTI regarding cyclist crossing to shared path on north side of Greenhill Rd. This will also allow southbound cyclists to access SP at Greenhill Rd signals instead of riding along KW Rd to median refuge & crossing to SP 2. Review need for parking along this section of KW Rd – remove parking and repace with buffered bicycle lane	High
		• Kerbside cyclist refuge to wait for cars to pass before entering median refuge. Linemarking faded.	• Review design for possible improvement and re-mark kerbside refuge	High

Access to shared path from Young Street		• Narrow, overgrown, dim-lit access to shared path from Young Street. Restricted sight distance due to boundary fences. 'Watch for Pedestrians' sign aims to alert cyclists of potential conflict. Bike route sign installed too high to be clearly visible.	• Assess for upgraded lighting without spill to adjacent dwellings and regularly trim foliage to keep lighting clear. Re-install bike route sign at lower height. Install additional Watch for Pedestrians sign close to junction with shared path.	Medium
Near Wayville Tram Stop		• Poor pavement surface caused by tree roots and wear & tear	• Review length of shared path north of Musgrave Street and replace/repair pavers where required to provide smooth riding surface	High
Bendall Ave access to/from shared path		• Steep, narrow ramp with poor quality hand rail and uneven surface • Post at bottom of ramp poorly located and a potential hazard – and may not be visible in low light conditions	• Upgrade path with new handrail, signage and resurface • Attach reflective tape to post in the short-term until upgrade completed	Medium

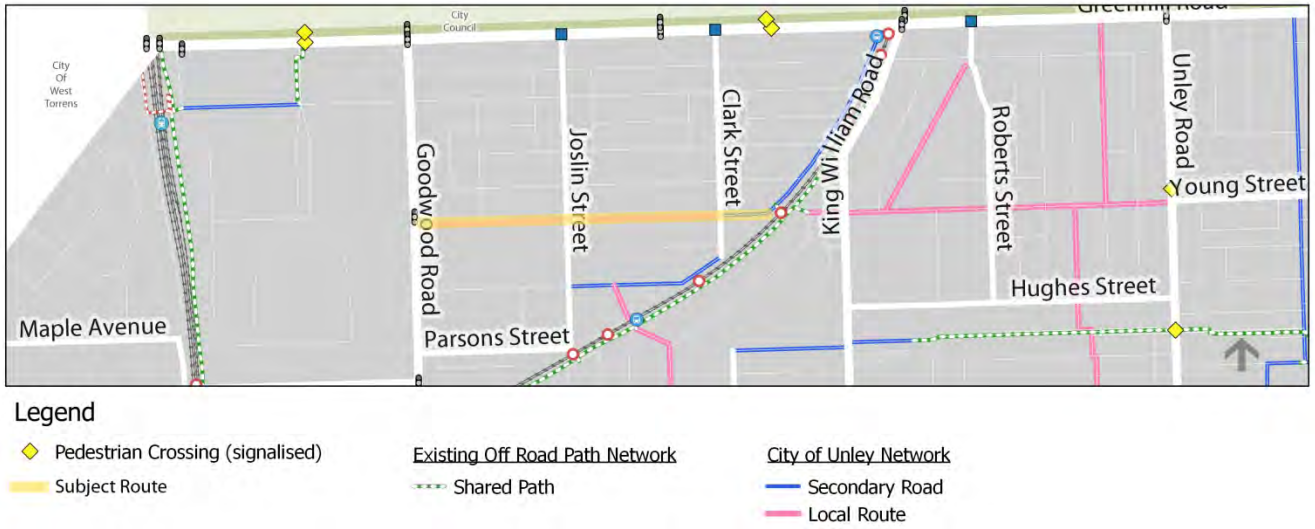
				
North of Musgrave St		• Narrow path, overgrown in places and debris on path • Poor pavement surface caused by tree roots and wear & tear	• Regularly maintain to remove debris and overgrown foliage - as path is narrow, this is critical • Review length of shared path north of Musgrave Street and replace/repair pavers where required to provide smooth riding surface	High
West of Goodwood Rd intersection		• Worn pavement marking and sharrows	• Re-mark sharrows on a regular basis	Ongoing

Railway Tce, just west of Goodwood Road		• Deep pothole in road where cyclists position themselves – visibility is exacerbated due to shadows	• Repair Pothole	High
Near Goodwood Station		• DPTI signage points to 2 x different routes to City but does not clarify which part of the city – therefore cyclists do not know which route to take for their destination	• Discuss the need for more information on these signs to assist wayfinding	Low
Goodwood Station Underpass		• Underpass is poorly designed with restricted sight distance, and lack of passive surveillance • Cyclists are required to dismount	• Continue to liaise with DPTI regarding the Rail Revitalisation Project and cyclist overpass	High

Norman Tce / Forestville Reserve		• Wayfinding signage poor – do not know to ride through car park • Redundant bike direct sign directs cyclists onto road • Poor sight distance around bend	• Review of entire area around Goodwood Station – currently underway by DPTI as part of the rail revitalisation project. • Continue to liaise with DPTI regarding progress	High
Norman Street, between Leah St and Ethel St		• No shared path in this location, cyclists use Norman St. High parking demand reduces road width and space for cyclists (2-way road)	• Review Norman Street with view to streetscaping (remove parking and incorporate Shared Space or Shared Zone as per LATM)	High
Leah St		• Queuing cars at train line block cyclists path across Leah Street	• Review this crossing and determine the need for a Pedestrian Actuated Crossing	High

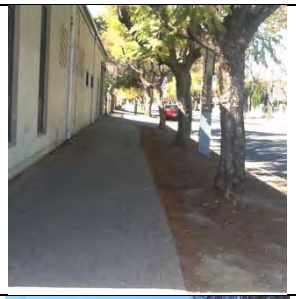
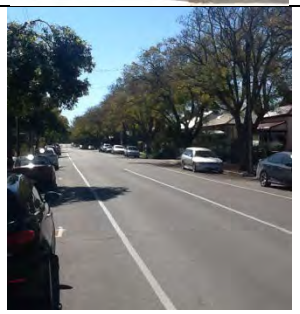
Shared path, near Second Avenue		• Overhanging foliage within cyclist envelope	• Review maintenance program	high
South Road Intersection	 	• Cyclist overpass is provided alongside tram line to cross South Road. This is an excellent facility as pedestrian fencing along South Road prohibits at-grade crossing. However, there is a lack of signage to make cyclists and pedestrians aware of this facility	• Install signage to assist wayfinding to the overpass	High

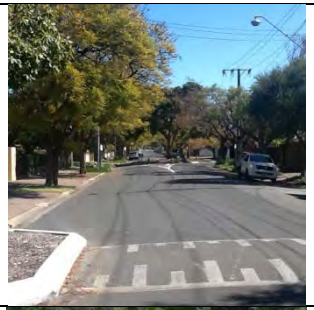
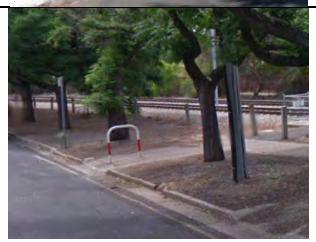
Route: Young Street



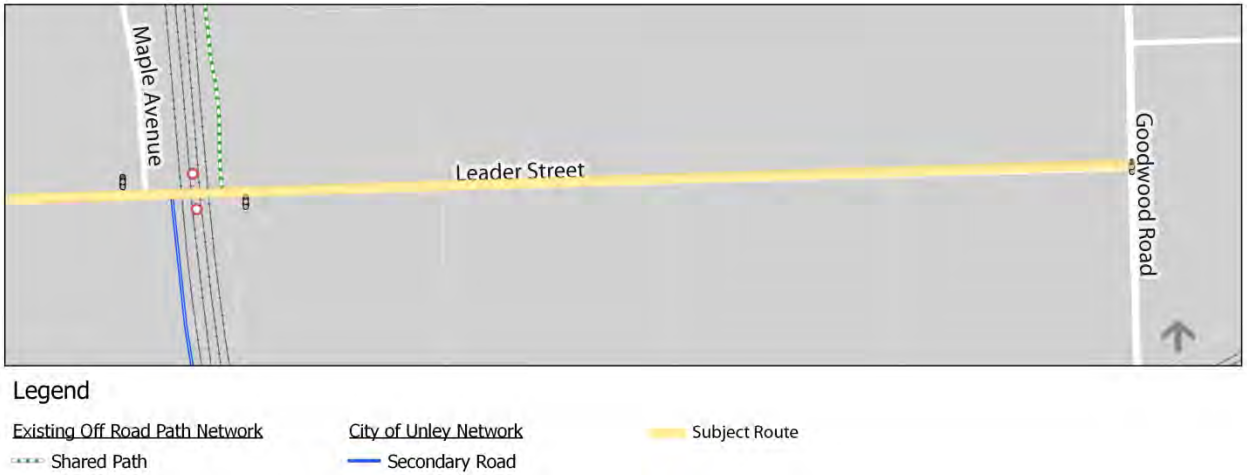
The Young Street route connects the Mike Turtur Path to Goodwood Road. It is an important link to the Adelaide Showgrounds which is a significant cyclist generator. There are no bicycle lanes, pavement logos or cycling signage along this route. There is a Pedestrian Actuated Crossing (PAC) to assist crossing of Goodwood Road located 20 metres to the north of Young Street. Traffic speed (85th percentile) was recorded at around 50km/h even though the speed limit is 40km/h and traffic calming (roundabouts and road hump) exist. Note that roundabouts are at around 300m intervals, and there is a single road humps just east of Clark St. Traffic volumes are relatively low at less than 1000 vehicles per day.

The site inspection photographs, comments and recommendations are listed below.

Location	Photo	Deficiency	Action	Ranking
Goodwood Road, Young Street to PAC		• Access from Young Street to PAC (located 20m north of Young Street) is against traffic flow	• Convert eastern footpath to a Shared Path connection from Young St to PAC. • Provide median refuge in Young Street to assist with crossing to this SP	High
• **Goodwood Road opposite Young Street – west side (to Leader St)**		• Footpath on Western side of Goodwood Road between Young Street and Leader St	• Shared path link can be extended from PAC along western footpath of Goodwood Road to link Leader Street traffic signals	High
Joslin Street junction		• Roundabout exists. New median refuge has been installed at Greenhill Road / Joslin Street – good connection to Park Lands. Cyclists ride between parked cars (potential dooring conflict) and moving traffic	• Joslin Street is earmarked for new streetscape design – support this and ensure that cyclist space and traffic calming is incorporated	Medium

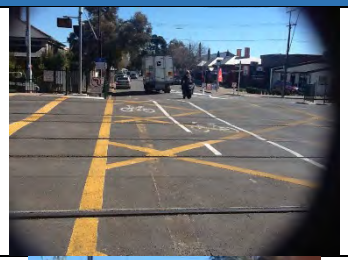
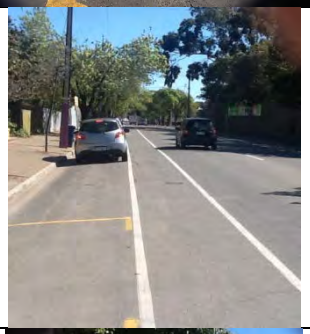
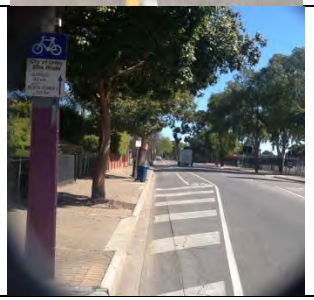
Between Clark St and Bartley Tce		• Single road hump exists 30m west of bend in road at tram line	• Consider installing a series of road humps to reduce traffic speed along rest of Young St	Medium
Access to Mike Turtur Bikeway		• Bikeway is on east side of tram line and cyclists are required to dismount to cross. • Access ramp off of Young St/ Bartley junction is in poor condition and narrow. It has a central holding rail which could be a potential hazard	• Upgrade access and remove holding rail or replace rail on one side of the ramp	Medium

Route: Leader Street

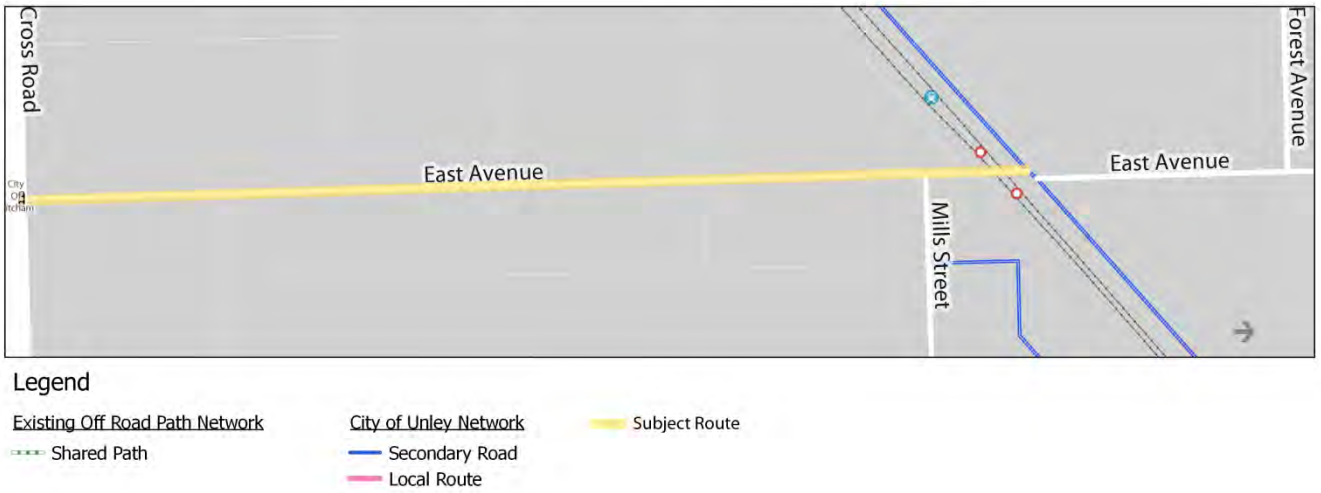


Leader Street is a key east west Collector route (50km/h) and bus route between Anzac Highway and Goodwood Road, linking to the Adelaide Showgrounds, Marino Rocks Trail and, over Goodwood Road to Young Street. Concept plans have recently been prepared for bicycle lanes between Anzac Highway and the Marino Rocks Greenway, where no lanes currently exist. This site inspection comprises the section where existing bicycle lanes run between the Marino Rocks Greenway and Goodwood Road. This section of road carries around 9,000 vehicles per day and the 85th percentile speed was recorded at 49km/h. This environment requires that cyclists be separated from traffic. There are 1.4m wide Exclusive Bicycle Lanes (EBL's) on the north side and 3.7m wide Bicycle Car Parking Lanes (BCPL's) on the south side, with one lane of traffic in each direction (3.5m each). There is sufficient road width to provide better separation for cyclists by reducing traffic lane widths and providing a buffer zone between vehicles and bicycles. This road dieting may also have a minor traffic calming effect.

The site inspection photographs, comments and recommendations are listed below.

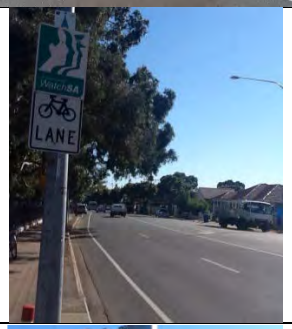
Location	Photo	Deficiency	Action	Ranking
Leader St / Seaford Rail Line (westbound)		• Parallel bicycle lanes across rail crossing line-marking is confusing (note: left lane includes left turn arrow into Nairne Terrace)	• Re-design this section of bicycle lane. Consider 1 x wide bicycle lane with buffer between moving vehicles	High
Leader St - general		• Bicycle Car Parking Lanes minimum width – cyclists squeezed between parked cars and traffic	• Reallocate lane space to reduce traffic lane width and provide buffer to cyclists	High
		• Bicycle lanes terminate 50 before Goodwood Road	• Redesign to extend bike lanes's to Goodwood rd.	High

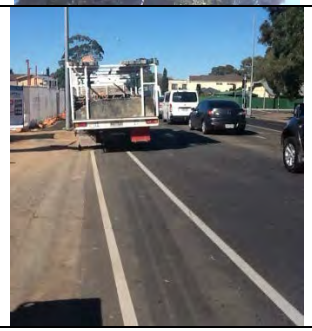
Route: East Ave

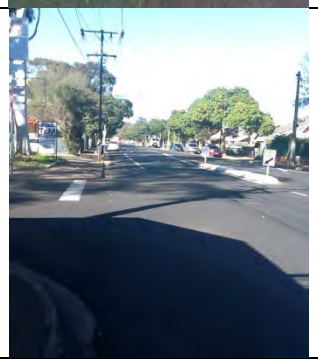


East Avenue is a north-south Collector Route and bus route between Cross Road and the tram line at Leah Street. The Marino Rocks Greenway run across East Avenue at its mid-point. Bicycle Car Parking Lanes exist south of the Greenway, but north of the Greenway there is insufficient road width for bicycle lanes as well as car parking. This site inspection reviews the existing bicycle lanes between Cross Road and the Greenway. This section carries 12,000 vehicles per day and therefore, cyclist separation is critical.

The site inspection photographs, comments and recommendations are listed below.

Location	Photo	Deficiency	Action	Ranking
		• Busy road with heavy vehicles – not a pleasant cycling route • Bicycle lanes are narrow	Noted only	
Just north of Cross Road		• Bicycle lanes are narrow	• Review design to reallocate traffic lane widths to provide buffer zone separation to cyclists	High
Just north of Cross Road		• 2 x signs mounted on one post and top sign overlaps Bicycle Lane sign	• Relocated Neighbourhood Watch sign to another post	High
North of Cross Road		• Direction sign mounted too high to read by cyclist	• Reposition sign	High

Sporadic locations		• Debris in bicycle path reduces its width	• Increase maintenance of bicycle routes	High
		• Damaged sign. End sign bent and Bicycle Lane sign facing wrong direction	• Repair sign	High
Just north of Cross Road (east side)		• Construction vehicle parked in bike lane.	• Increase policing of illegal parking	High

Between Cross Road and Langdon Ave		• Vehicles parked in bike lane	• Increase policing of illegal parking	High
Several Junctions		• Green coloured bicycle lane recently installed (noted only)	• This action is supported	Ongoing
Mills St intersection		• Bicycle lane terminates suddenly prior to Mills St on east side • Potentially hazard crossing from Mills St	• Redesign to extend bicycle lane to Greenway. • Consider removal of car parking in front of shops • Install median crossing at Mills St	High

South of rail line		• Bicycle Lane End sign exists but lane continues for additional 80 metres	• Relocate sign	Low
East Terrace / Greenway		• Poor wayfinding for northbound cyclists	• Install signage to encourage cyclists to use Marino Rocks Greenway instead of continuing north along East Terrace where there are no bicycle lanes	High

UBUG initiatives for improvements to infrastructure

(This is a list of requests identified by UBUG as needing attention across the City of Unley. UBUG designated the priorities for the purposes of this initiatives list. Some topics on this list require on-going investigation)

Initiative *(as indicated by UBUG)*	**Status** *(as indicated by Council Admin)*
Mike Turtur Bikeway The Mike Turtur Bikeway (MTB) is one of the major cycling routes through Unley. There are several issues that need to be addressed as a priority.	
• The section between King William Rd & Goodwood Rd is very bumpy and the bumps are often not only severe, but unexpected. There is a need for an urgent maintenance program to rectify dangerous spots. **(priority – HIGH)**	Actioned to be completed by end of June
• Several patches of loose pavers in stretch between Greenhill St & Young St need to be fixed **(priority – HIGH)**	
• Install convex mirrors at several blind spots on the bike path along the tramline between King William Rd & Goodwood Rd.. The main contender is where the bike path 'touches' Almond St. Second place is a toss-up between Young St, and Rogers St – both near miss spots **(priority – medium)**	
• Remove “Cyclists Dismount” signs along Rogers St on Mike Turtur Bikeway. It is not clear why they are there. **DONE!**	Done
• Install a sign where the pathway joins Musgrave St (heading west). The sign should indicate the presence of a black spot and for bike riders to slow down. A black spot sign should also be installed on Musgrave St heading north **(priority – HIGH)**	This has been addressed with “please slow” signage and yellow hazard line painting
• Bike repair station - all tools missing. A regular replacement program is required or a more secure replacement found **(priority – low)**	Under investigation
• consideration be given to installing bollards at the spot immediately after the tramline on Norman Terrace near Stop 4 (across the tramline from Cherry Darlings) either on the south western aspect of the intersection or along Norman Tce between Charles and Ethel streets.(**priority medium)**	Under investigation
Charles Walk/ Culvert St	
• The priority should be changed on crossings along Charles Walk and Culvert St to favour cyclists and pedestrians rather than the driveway users. **(priority – HIGH)** and the priority should be changed on the pathway behind Ultra Tune on Unley Road to favour cyclists and pedestrians. (**priority – HIGH)**	For FY 16/17 and in conjunction with the Walking and Cycling Plan
• Remove 'end of path' sign at intersection Marino Rocks bikeway/Leader St/Richards Tce. **(priority – HIGH)**	Work Order actioned

Goodwood Station • The MTB route around Goodwood station is unclear. The bypass around the underpass needs to be properly formed. General signage needs improving and the following specific improvements are needed **(priority – HIGH)** *Westbound route* 1) direction signage identifying train underpass 2) identify an alternative route along Richardson Tce, across train line at Leader and return along Marino Rocks Greenway 3) better signage through the park on west side of Goodwood station. *Eastbound route* 1) a sign at the end of Norman Tc pointing into the park. 2) a sign to indicate cyclists should turn right under the tram line • Goodwood Tram station – east of Goodwood Rd - requires contra-flow signage or sharrows as cyclists must move onto wrong side of the road to get up onto the shared path to cross Goodwood Rd **(priority – medium)** • Install sign to indicate you have to turn right off Railway Tce (exactly where the cyclist in black is positioned – below) and go under the tramline to continue on the Mike Turtur bikeway. **(priority – HIGH)** • Seal the bypass near Goodwood Station (dirt path on right, below). Also install sign for Mike Turtur Bikeway pointing into underpass underneath 'cyclists dismount' sign **(priority – HIGH)**.	Under investigation
Rugby/Porter: Rugby/Porter bike route is also a heavily used route. A number of improvements should be made to it. • Place stop signs on Young St and make Porter St the priority route **(priority – HIGH)** and change priority at Marlborough and Oxford to give Rugby St right of way **(priority – HIGH)** • The crossing at Greenhill Rd, which can take a significant amount of time to cross, needs to be improved. Ideally there should be cyclist/ pedestrian activated lights **(priority – medium)** • Install more signs warning car drivers of cyclists at Edmund roundabout (near miss spot) **(priority – medium)**	Under Council consideration in conjunction with the Walking and Cycling Plan Investigation / Consultation with DPTI required To be considered at a later date

• Remove 'end of bike lane' signs at Oxford, Marion & Greenhill. Prune trees that cover up the new Rugby/Porter signs – predominantly southern end **(priority – medium)** and remove blue bike sign between Eton & Wattle (west side) – it's covering up a newer Rugby/Porter sign **(priority – medium)**	Actioned to be completed by end of June
• The new bike crossings across some dead ends are excellent. They should also be installed at Fisher, Wattle. (Note, Wattle has particularly poor visibility and lots of car traffic). **(priority – medium)**	To be considered at a later date
• The bicycle symbol on the road surface should be in the middle of the road, together with arrows (as along the Adelaide Hallett Cove bikeway) **(priority – medium)**	Actioned to be completed by end of June
• End of route sign on Rugby St at Edmund should be replaced with a warning sign on Edmund **(priority – medium)**	Under investigation
Glen Osmond Creek bike route:	
• Improve crossing at George Street to allow children to get to Parkside schools from Unley and Parkside. For example, initiate design for a Wombat crossing **(priority – HIGH)**	To be considered at a later date
• Put in a ramp at Burnham Ave and Palmer St **(priority – low)**	Under investigation
Signage - general	
• Install consistent, high visibility, way-finding signage for all of the UCC acknowledged routes - using a new design theme if possible with signs of sufficient size and prominence to be easily seen. A program to implement may take 2 or 3 years but a start can be made at key points of directional change and high activity. For example, Leader St -- install signage showing connections with other bike ways and where to go. **(priority – medium)**	Under Council consideration in conjunction with the Walking and Cycling Plan
Marino Rocks bikeway:	
• Richards Tce (north bound) - 'One Way' street sign requires a 'bicycles excepted' sign underneath it to alert all road users that the street allows for contra-flow bikes **(priority – medium)**.	Work Order actioned
Young Street	
• Put in ramps at George St dead end **(priority – medium)**	To be considered at a later date
Wattle St:	
• Install sign at Cambridge Tce roundabout to warn car drivers of cyclists (accident spot) **(priority – HIGH)**	To be considered at a later date

• Bicycle painting on road should be in the middle of the road, together with arrows as along the Adelaide Hallett Cove bike way **(priority – low)**	Actioned to be completed by end of June
• In some sections there are trees which are in the bike lane, not on the footpath. At these spots riders are forced to ride outside the lane marking. Remove trees and replant on footpath when opportunity arises (eg when tree dies) **(priority – low)**	Noted. To be considered at a later date
East Ave: • Fix pot holes **(priority – HIGH).**	Actioned to be completed by end of June
• Install signs at roundabouts to warn car drivers of cyclists (and preferably to give way to cyclists) **(priority – medium)**	To be considered at a later date
Unley Community Centre, Arthur St • Install two bike racks that are easily accessible. The only current bike rack is so well hidden that someone had to point it out. It's also relatively inaccessible, requiring squeezing past a number of large pot plants on a narrow walkway **(priority – low)**	Under investigation
Duthy St • Winchester St bike & pedestrian crossing - paint a new stop line south of the pedestrian crossing to include the bike crossing. The bike crossing is slightly south of the pedestrian crossing. The pedestrian crossing lights can be activated by a button on the east side of Winchester. Cars travelling north regularly queue across the intersection, thus preventing cyclists from actually using the bike crossing **(priority – low).**	Noted. To be considered at a later date
• Repair pothole in West Terrace, Highgate on western side (closest to Duthy Street) (**priority – HIGH)**	Actioned to be completed by end of June
Wood St • There are 6 “slow points” on Wood St. Car drivers squeeze cyclists going through these slow points and often to not give way when required. White lines should be painted showing the bike trajectory and signs erected to indicate give way to cyclists. General signage needs improvement **(priority – low)**	Noted. To be considered at a later date
Roundabouts - general • Install signs on roundabouts warning drivers to give way to cyclists approaching roundabout. Could trial on 2 or 3 locations in first instance **(priority – medium)**	Noted. To be considered at a later date

	Priority actions identified through UBUG members and Council's audit of designated bike routes (as per Council endorsed motion). Please note the following actions include items that have synergies between the UBUG list and Audit report. Council's UBUG Liasion Officer provided this inforamtion at a previous UBUG meeting.

Please note there are some actions which will requrie further investigations and design work.

Types of Work	Action	Location	Completion Schedule
Signage and marking	· Replace large Give Way road signs with smaller Give Way path signs	· GOC · Leicester St hotel car-park · Crossing point at George St of GOC	End of June 2016
	· Remove instances where “end of path” signs occur and blue bike route signs	· Charles Walk & Culvert St · Leader St · Rugby / Porter route · Rugby St at Edmund · GOC · Through Council Depot · Weller St · Eton and Wattle St’s · On MRG at Addison Rd and Fairmont Ave	
	· Install and relocate painted bicycle symbols as appropriate	· Rugby / Porter · Wattle St · GOC · Duthy / George bend · On MTB west of Goodwood Rd intersection	
	· Introduce green paint in the bike lanes where driveways intersect especially on high traffic roads	· Rear car-park access to commercial sites, priority to busy locations	
	· Improve signage around the Goodwood Station	· Goodwood Station	
	· Provide safety edge lines and reflective strips to sharp bends, walls and bollards	· Charles Walk & Culvert St · Rugby / Porter · Through Council Depot · To MRG at Emerson Rd · On MRG at Cowper · On MRG at Canterbury and Canterbury/Addison · On MRG at Nairne Tce	
	· Improve lighting	· Charles Walk & Culvert St	
	· “Black Spot” signage	· Musgrave St on MTB	
Maintenance	· Fix pot holes	· East Ave · Duthy St (west side of West Tce) · On MTB, Railway Tce west of Goodwood Rd	End of June 2016
	· Upgrade pavement surfaces where repairs needed	· King William Rd & Goodwood Rd section of MTB · Greenhill St and Young St section of MTB · Near Wayville tram stop on MTB · GOC · Weller St · Duthy / George bend	

	· Repair edges of paths	· GOC · George / Maud st	
	· Trim overgrown foliage and increase cleaning of debris from the paths	· Rugby / Porter · GOC · MRG between Emerson and Gordon · On MTB north of Musgrave St · On MTB near Second Ave · East Ave	
Priority change	· Priority change to crossovers that intersect the bike path (requires re-design)	· Charles Walk & Culvert St crossing point · Rear of Ultra Tune on Unley Rd · Crossing to meals on Wheels on GOC	FY 16/17 - following endorsement of Walking and Cycling Plan. Inform Community of intended improvements in line with budget priorities.

MRG= Marino Rocks Greenway
GOC= Glen Osmond Creek shared path
MTB= Mike Turtur Bikeway

Actions for next FY

Widen Bike paths when next doing line-marking
Roundabout improvements
Improve end of path locations where bike ways meet roads. Make bike paths safer, wider and more comfortable
Install Way Finding Signage as per Walking and Cycling Plan

INFORMATION REPORT

REPORT TITLE:	UNLEY WALKING AND CYCLING PLAN
ITEM NUMBER:	21
DATE OF MEETING:	12 APRIL 2016
AUTHOR:	KELLEY JAENSCH
JOB TITLE:	EXECUTIVE ASSISTANT ECONOMIC DEVELOPMENT AND PLANNING

EXECUTIVE SUMMARY

In December 2015, a draft Walking and Cycling Plan 2016-2021 was presented to the Infrastructure and Sustainability Committee, seeking endorsement to proceed to community engagement. The following was endorsed:

MOVED: Councillor Schnell
SECONDED: Councillor Hughes

The Committee recommends to Council that:

1. *The report be received.*
2. *The Draft City of Unley Walking and Cycling Plan (WCP) 2015-2020 as amended be supported for community engagement.*
3. *A report outlining the outcomes of the community engagement be provided to Council in early 2016.*

CARRIED UNANIMOUSLY

The draft Plan is now out for consultation with the community. This will involve several forms of engagement, including:

- Your Say Unley website
- Posters/feedback forms at community centres and libraries
- Posters at popular walking and cycling locations around the City of Unley (ie signalised intersections, cyclist crossing points)
- Targeted engagement with cyclist community groups

As per the Council endorsement, a report outlining the community engagement outcomes and an updated draft Walking and Cycling Plan will be presented to Council for endorsement at the May Council Meeting.

RECOMMENDATION

MOVED:
SECONDED:

The Committee recommends to Council that:

1. The report be received.

infraPlan

THE CITY of Unley

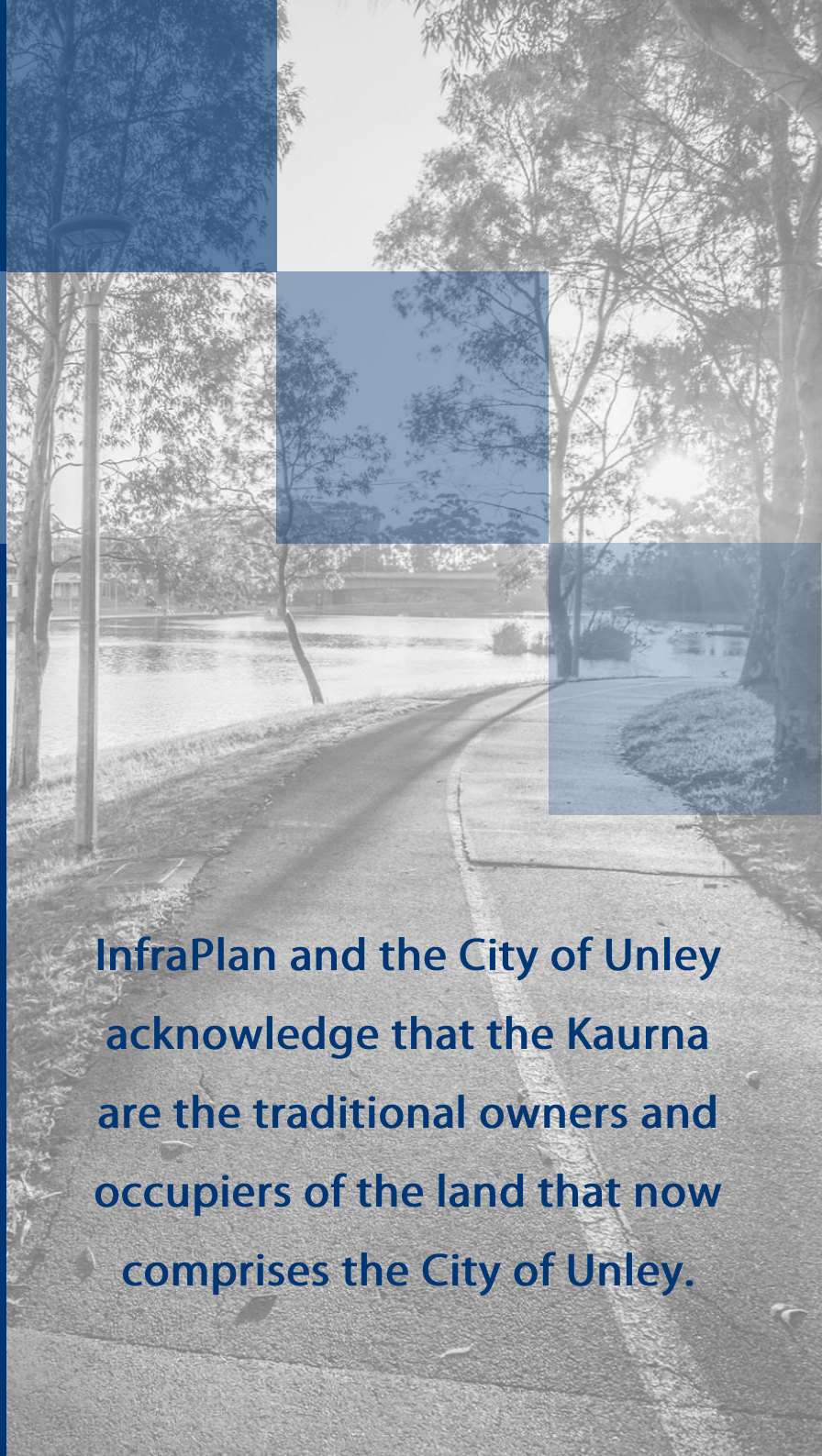
City of Unley Walking and Cycling Plan 2016–2021

Draft for Consultation

January 2016

Project	The City of Unley Walking and Cycling Plan 2015-2020
Client	Satyen Gandhi City of Unley 181 Unley Road, Unley SA 5061 Telephone: 08 8372 5195
Consultant	Gayle Buckby Senior Movement Planner InfraPlan (Aust.) Pty Ltd. Level 3, 66 Wyatt Street Adelaide SA 5000 p: 08 8227 0372 e: gayle@infraplan.com.au ABN: 29582803072
Last saved	21/01/2016 5:07:11 PM
Authored by	Gayle Buckby and Brad McCormack
Reviewed by	Ben Russ
Approved by	Gayle Buckby
Issued by	Gayle Buckby

The Walking and Cycling Plan 2015–2020 is the City of Unley's strategy for walking and cycling infrastructure and programs to make the City safer and more attractive for current and future users.



InfraPlan and the City of Unley acknowledge that the Kaurna are the traditional owners and occupiers of the land that now comprises the City of Unley.

Contents

'Our city is recognised for its vibrant community spirit, quality lifestyle choices, diversity, business strength and innovative leadership.'

1. Introduction

A walking and cycling friendly city is one with less noise, cleaner air, healthier citizens and a stronger economy. It's a city that is a nicer place to be in, where individuals have a higher quality of life, accessibility is high and there is a simple route from thought to action to participate in social, cultural, work / leisure activities or buy locally. Active transport (a form of transport that involves physical activity) is therefore not a singular goal but rather an effective tool to use when creating a vibrant city with space for diversity and development.

Adelaide is one of the world's most liveable cities. Active transport supports our liveability status by taking pressure off public transport, reducing congestion and noise and supporting a zero carbon future. **The purpose of this Walking and cycling Plan is to outline actions that will assist people of all ages and abilities to choose active transport more often.**

Cyclists and pedestrians need to feel legitimate, safe and supported. Cyclists are particularly vulnerable where they share the road with moving vehicles. Research shows that in most cities, over half of the population is interested in cycling, but have some reservations about doing so (Figure 1).

Figure 1: The four types of cyclists and potential cyclists (source: City of Melbourne Bicycle Plan 2012-2016).

Fortunately, it pays off to invest in urban cycling. Studies show that 1000 cyclists per day will generate benefits of around $15 million/km of cycle infrastructure over a 30-year appraisal period ($1.43 per km/person). This means that for each person who cycles 20 minutes to and from work, the economy saves up to $14.30 in related costs (Figure 2). Increased volumes of active transport also translate to less congestion, fewer sick days, longer life expectancy, less wear and tear on the roads and less pollution.

Figure 2: Benefits per km cycled for a typical project.

(Source: Queensland Department of Transport and Main Roads, cited in Department of Infrastructure and Transport 2013, 'Walking Riding and Access to Public Transport: Supporting Active Travel in Australian Communities', p. 7).

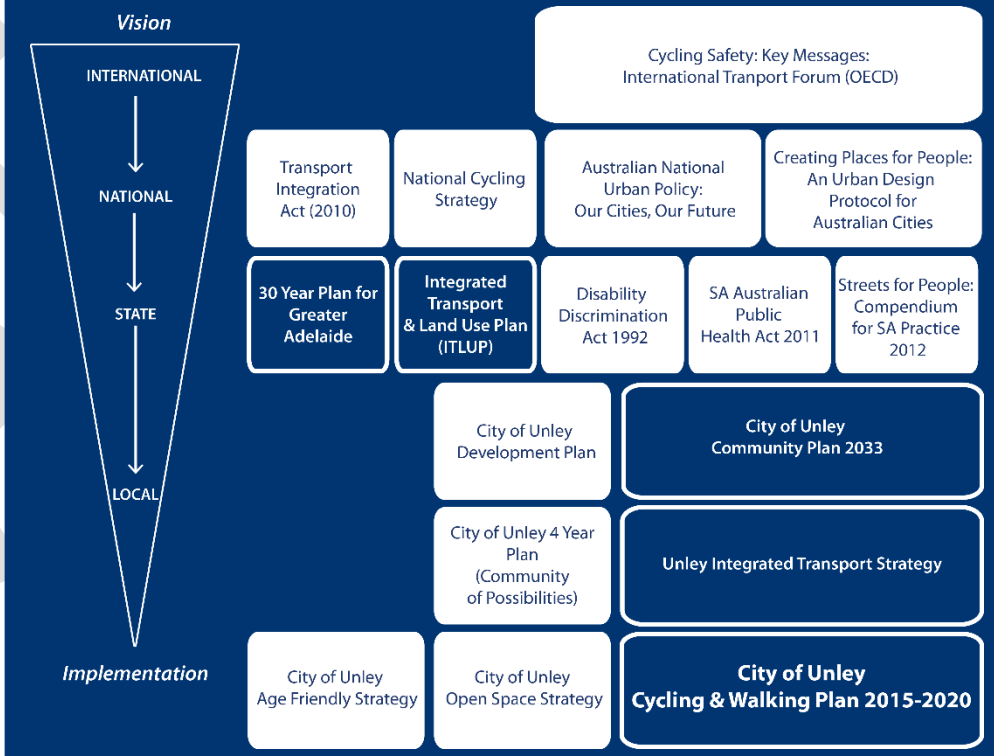
The City of Unley can be proud of its significant network of designated cycling routes, high quality infrastructure, traffic calmed streets and 40km/h local street speeds, all of which contribute to a great walking and cycling environment. While there has been a considerable effort to improve the walking and cycling environment, further work is needed for them to become more locally dominant modes of travel. By continuing this momentum, we strive to maintain the many positive interpretations about the City of Unley that contribute to it being a leader in liveability, innovation, sustainability and diversity. By aiming to be the best, we can lead the way and raise the bar for what is possible.

1.1. Background

The City of Unley Walking and cycling Plan 2015-2020 seeks innovative and practical actions to build on the existing networks and vision outlined in the 2005 Pedestrian and Bicycle Plan to make the City safer and more attractive for current and future users. The Plan has been prepared in support of key projects and strategies outlined across a suite of strategic documents.

- As the corresponding volume of the State Planning Strategy, the **30 Year Plan for Greater Adelaide** sets out the policies and targets aimed at managing growth and development within the region. The plan advocates active transport and recognises the environmental, economic, health, and social benefits.
- The **Integrated Transport and Land Use Plan** seeks to facilitate a more vibrant Adelaide and better connected South Australia and draws attention to active transport through extending cycling networks and catchments, and improving the accessibility and amenity of active transport routes (refer Figure 8 for future project map).
- The **City of Unley Community Plan 2033** identifies the priorities for the City over the next 20 years. The Plan is reinforced by 4 key goals: 'Emerging', 'Living', 'Moving' and 'Greening', which encourage an integrated walking and cycling network.
- This Plan has also been developed in response to the **Unley Integrated Transport Strategy**, which identifies a number of opportunities, constraints and strategies that seek to increase transport options and facilitate sustainable forms of transport, such as walking and cycling.

Strategic Overview

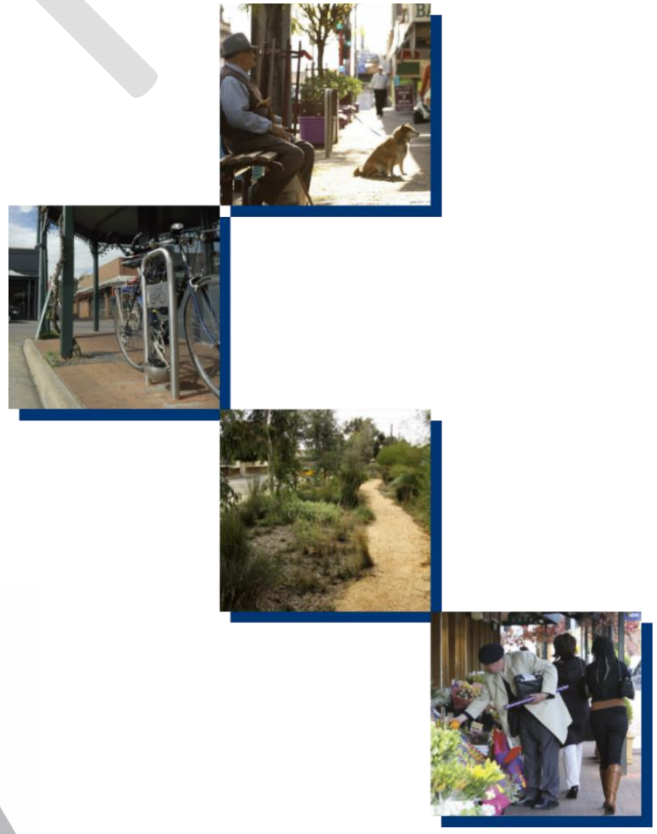


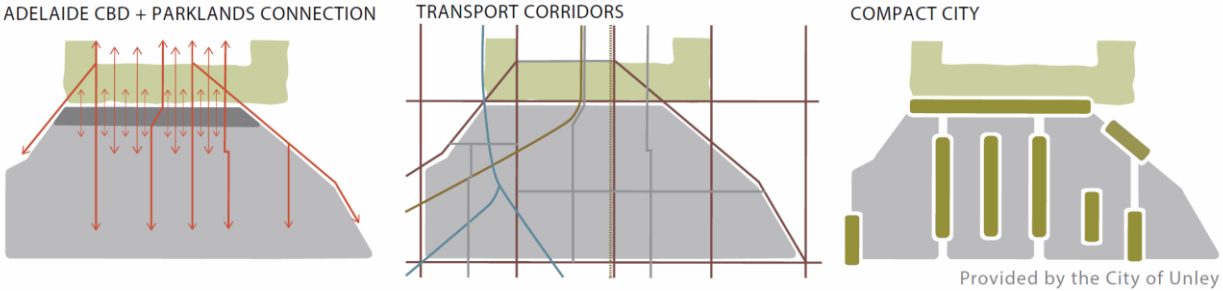
2. The City of Unley

With a population of around 39,000 (2014), the City of Unley is a vibrant and diverse inner-urban municipality. It joins the City of Adelaide immediately south of the Parklands. Its boundary is made up of major arterial roads (Anzac Highway, Cross, Glen Osmond, Greenhill and South Roads) with the local street network characterised by a grid. Major north/south arterials (Fullarton, Goodwood, King William and Unley Roads) intersect the council with strip centres that are integral to the economy and vibrancy of the City. However, Adelaide's north/south growth has exposed the City to heavy regional and sub-regional traffic. Commitment to seek a balance between transport modes, demands and the protection and enhancement of local amenity and accessibility underpins this Plan.

With South Australia's highest population density (27 persons/ha), the City of Unley is ideal for walking and cycling. It has a Mediterranean climate, relatively flat terrain and most services provided within short distances. Unley's close proximity to Adelaide's central business district – around 4km – represents an easy ride for able-bodied residents who work in the city, as well as bus, tram and train routes that encourage walking and cycling components.

The City of Unley is also recognised by the World Health Organisation as an Age Friendly City and Community. Ensuring accessibility for all ages is critical to uphold this status. Providing safe walking and cycling networks delivers low impact opportunities for physical activity, improved health, well-being, socialisation and inclusion.





Provided by the City of Unley

OUR COMMUNITY

Source: .id City of Unley

TOTAL POPULATION

36,842

MEDIAN AGE

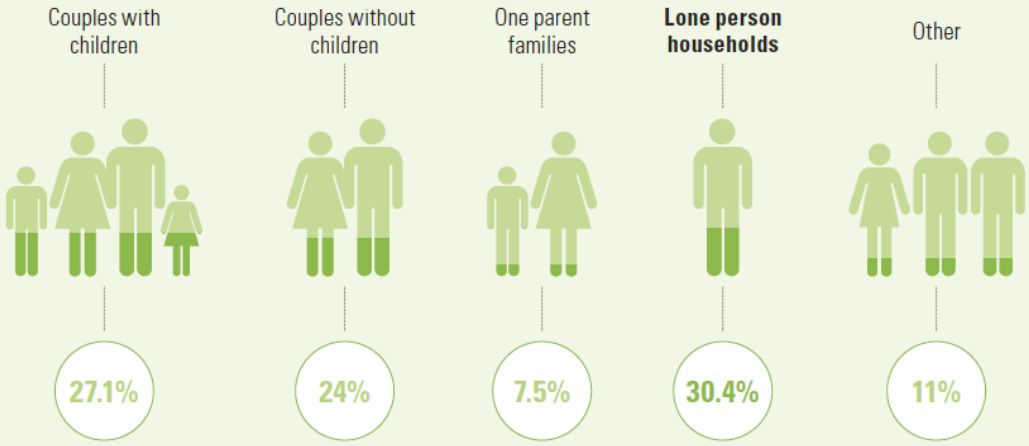
39

NEW RESIDENTS

11,257 since 2006.

30%

HOUSEHOLD TYPES



SNAPSHOT

Prosperous yet not necessarily a wealthy community.

High average income

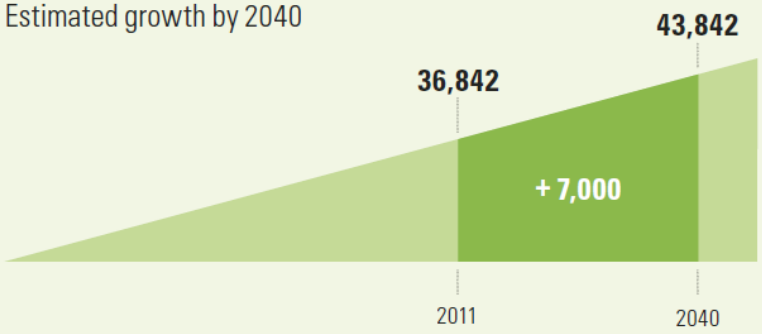
Low unemployment

High education

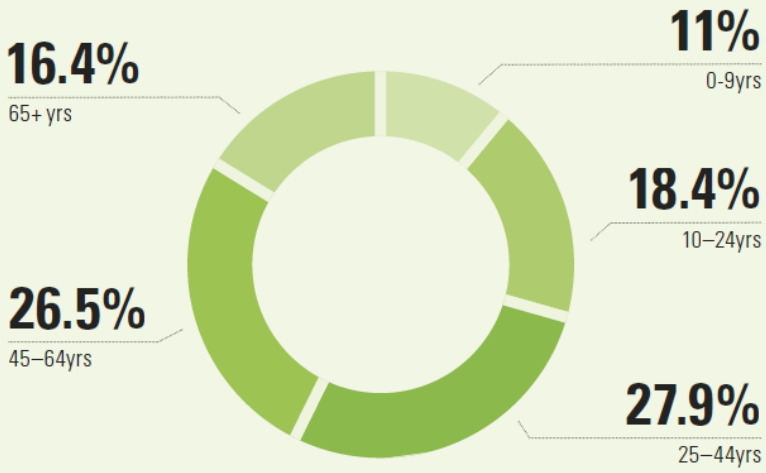
High housing mortgages

INCREASING POPULATION

Estimated growth by 2040



AGE SEGMENTATION



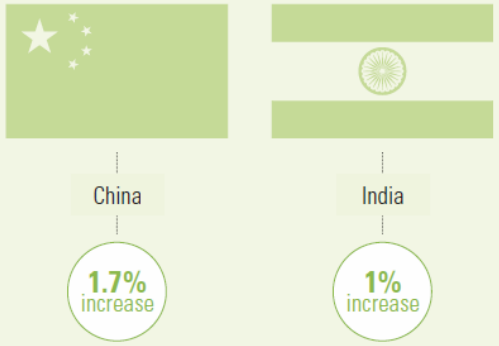
INTERNET ACCESS

Most are broadband connections.

MEDIUM DENSITY HOUSING MEDIAN

Compared to greater Adelaide.

INCREASING CULTURAL DIVERSITY



HIGH VEHICLE USAGE

45.4% of households have two or more vehicles.

3. Walking and Cycling in Unley

The City of Unley has a busy and comprehensive walking and cycling network. Traffic calming measures and 40km/h precincts contribute to an accessible and enjoyable walking and cycling environment. The existing street network has footpaths on both sides and the shared paths provide both enjoyable and practical walking routes.

The latest Census data from 2011 indicates that the percentage of Unley residents walking and cycling to work is higher than other Adelaide Metropolitan Council areas. Unley has a significant proportion of its population in the key cycling age bracket of 10-64 (higher than the State average), which combined with its near city location, is likely to contribute to more people cycling.

Figure 4 illustrates the origin of the resident labour force who cycled to work (3.9%, including cycling to available public transit stops). This is in contrast to the 1.3% recorded across Greater Adelaide. It is important to note the higher concentration of these riders live near the off-road network.

Figure 5 illustrates the origin of Unley residents who walk to work (15.45%, including walking to public transport stops). Again, there are concentrations near shared paths, high frequency public transport corridors and typically within closer proximity of the Adelaide CBD.

3.1. The Challenge of Increasing Active Transport

Increasing the number of walking and cycling trips to, from and within the City of Unley is achievable. For round-trips less than two kilometres, walking is the preferred mode of transport although bikes can easily be used for short trips. For trips longer than two kilometres, cycling is ideal as it reduces congestion and pollution and takes pressure off motorised transport networks. Given Unley's proximity to the Adelaide CBD, the average round-trip length to and from the City of Adelaide is about eight kilometres. Trips within the municipality average around three kilometres. **The challenges we face include balancing the regional through traffic with a safe local walking and cycling network for users of all ages, confidence levels and abilities (refer to Figure 3 for the various types of cyclists), and finding ways to move people from cars and public transport to bicycles for longer trips.**

Figure 3: The four cycling domains (source: *Bicycle Victoria, Bike Plan Workbook).*

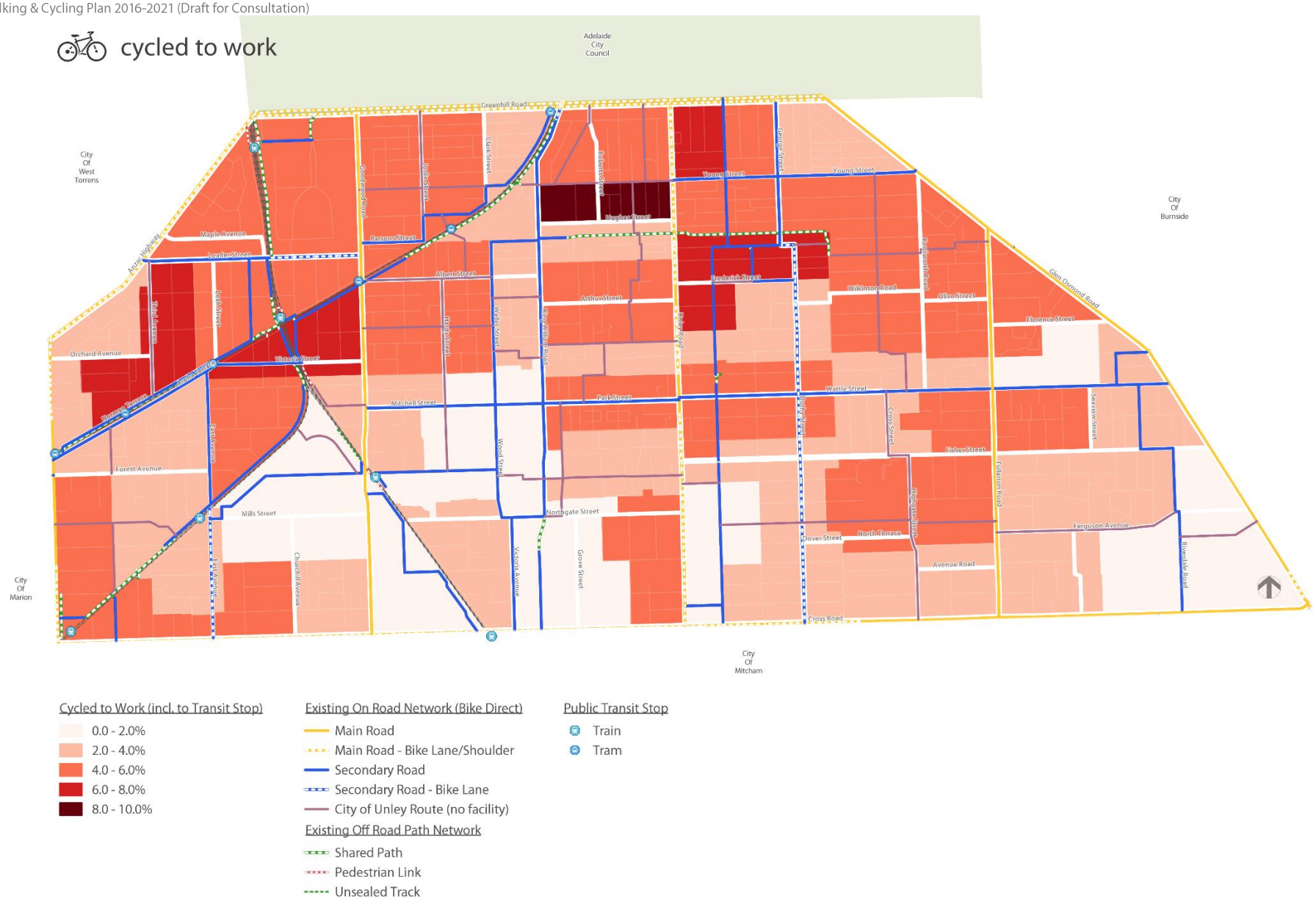


Figure 4: Percentage of the City of Unley's resident labour force who cycle to work (data source: 2011 Census, ABS).

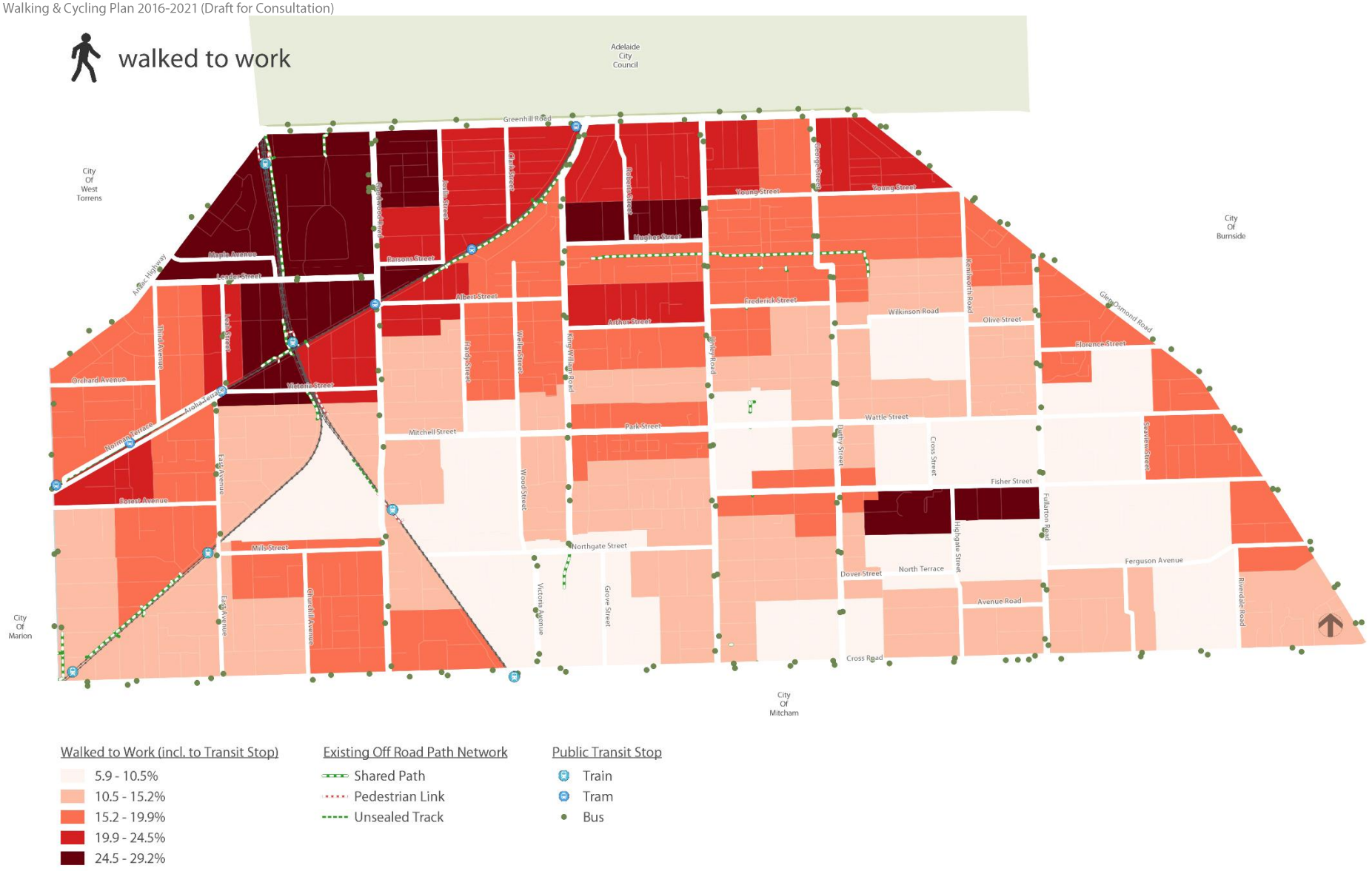


Figure 5: Percentage of the City of Unley's resident labour force who walk in full, or as part of their journey to work (data source: 2011 Census, ABS).

3.2. Cyclist Counts

Results from the City of Unley's 2014 and the Adelaide City Council's 2015 Super-Tuesday cycling counts have been mapped in Figure 6. Key findings within the City of Unley are as follows:

- The **Mike Turtur Bikeway**, which starts/finishes at King William Road is the busiest commuter cycle route in Adelaide.
- The busiest site in the City of Unley was the **intersection of Railway Terrace South, Devon Street South and Railway Underpass** with a total of 346 riders.
- **Railway Terrace** is a key north-east commuter route and **Porter Street and King William Road** are key north-south commuter routes
- The **intersection of Greenhill Road and King William Road** (start/finish of Mike Turtur Bikeway) recorded the highest number of cyclists of all count locations, with 661 commuters between 7-9am. This busy route is likely to continue to increase with its extension from South Terrace to Victoria Square (current Adelaide City Council/DPTI joint project).
- **Porter Street** now has the benefit of a new crossing on Greenhill Road and an upgraded Park Lands path leading to the Adelaide CBD. According to Adelaide City Council's 2015 Super Tuesday counts, the number of cyclists travelling from Porter Street to the Park Lands increased from 227 to 290 (28%), which means that Porter Street is now the most popular suburban street for cyclists commuting to the CBD.

Case Study — Yarra City Council, Victoria

Although the City of Unley can be proud of the highest cycling numbers in Adelaide (3.9%), these figures are still low in comparison to other inner-city Council areas, such as the Yarra City Council in Melbourne's inner-north, which has 14% of residents cycling to work.

Yarra is ambitious in its approach to cycling infrastructure, setting high targets such as in their 2010 cycling plan to provide at least 5 separated on-road bike routes, 5 major off-road bike route upgrades, removing car parking in 15 locations to be replaced by bike parking by 2013. The council also committed in following the cities of Melbourne and Copenhagen in publishing a regular 'Bike Account' in order to monitor, evaluate and communicate its progress in meeting the objectives.

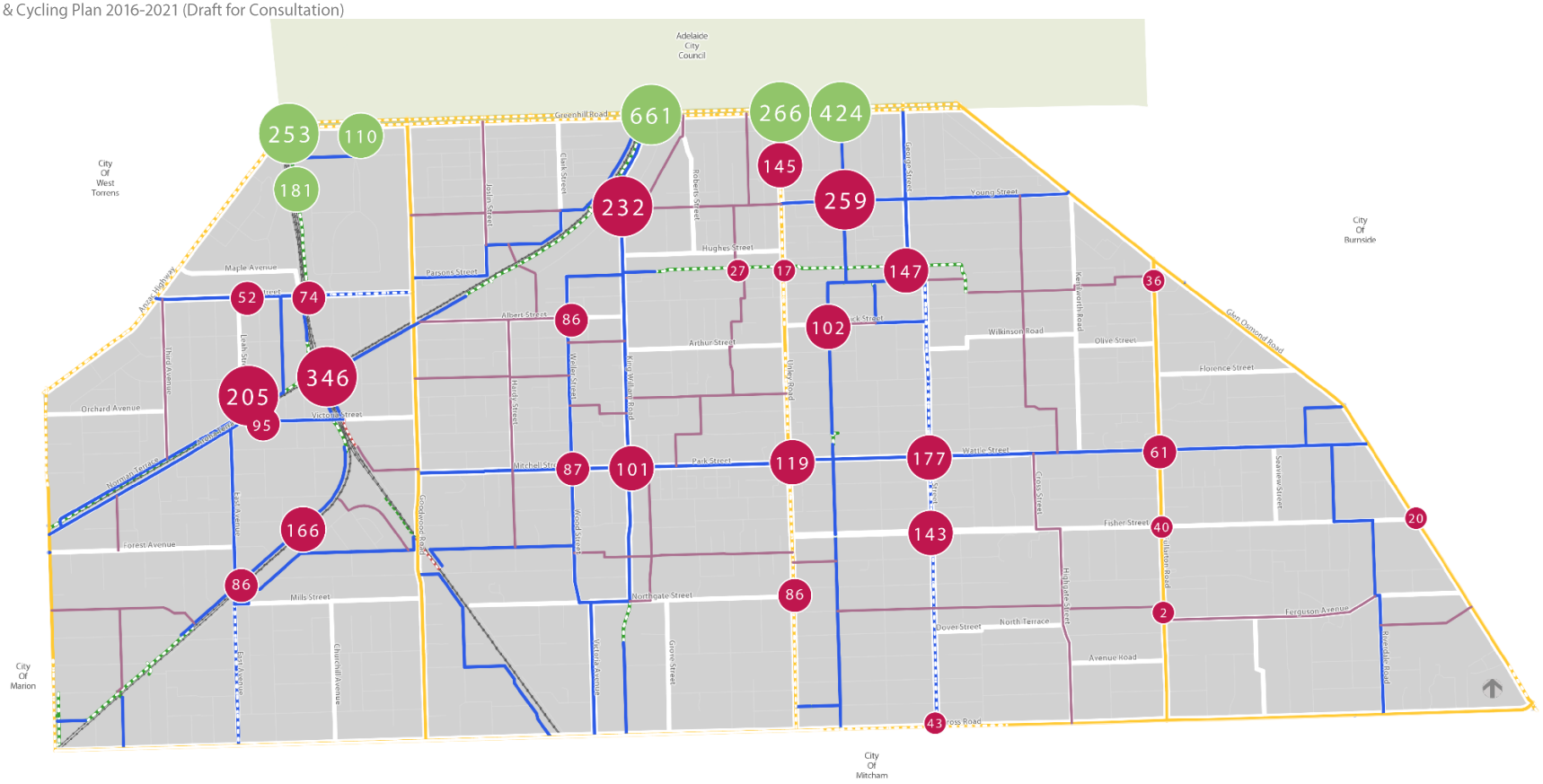
Along with infrastructure spend, the Yarra City Council's planning objectives also assist in reducing reliance on private vehicles by requiring 'all new developments to prepare and implement integrated transport plans to reduce the use of private cars and to encourage walking, cycling and public transport'. However, Yarra City Council has a long-term policy of refusing to issue on street parking permits to residents of developments constructed after December 2003 if the construction increased the number of dwellings on the site. This seeks to shift accountability for meeting the parking or transport needs of future residents to the developer. This can then be achieved by providing bike parking facilities, on-site car parks or allocated spaces for shared cars.

Bicycle Expenditure Index — BiXE

The Bicycle Expenditure Index (BiXE) was an annual publication showing generally how much money a local government spent on bicycle infrastructure. It stated that a $5 spend per resident indicated a meaningful commitment to bicycle infrastructure.

The 2012 BiXE reported that the City of Unley spent $1.16 per person on cycling infrastructure. In 2014/15, the City of Yarra allocated $2.79 million on bicycle infrastructure which equated to $32/ person on the following works:

- $740,000 on new bicycle paths in open space
- $420,000 on renewing bike paths in open space, and
- $1.01 million on on-road bike projects



On Road Bicycle Network (Bike Direct)
- Main Road
- Main Road - Bike Lane/Shoulder
- Secondary Road
- Secondary Road - Bike Lane

City of Unley Network
- Local Route

Off Road Path Network
- Sealed Path
- Unsealed Track
- Pedestrian Link

2015 Data (City of Adelaide) 2014 Data (City of Unley)
- 200 +
- 100-200
- 50-100
- <50

# of cyclists through Intersection between 7am - 9am

Figure 6: Cyclist counts within the City of Unley.

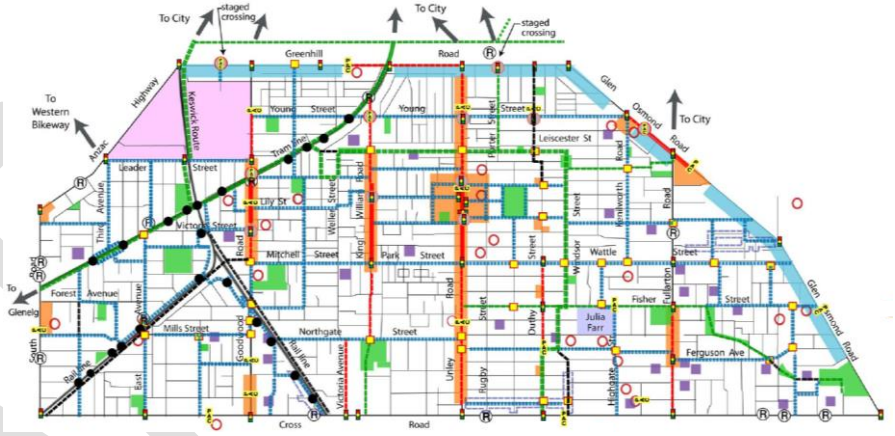
3.3. The 2005 Pedestrian and Bicycle Plan

The 2005 Pedestrian and Bicycle Plan was prepared within the context of the Unley Integrated Transport Strategy. The Plan was underpinned by the 'City of Villages' vision, with cyclist and pedestrian networks that linked villages, schools, workplaces and local shops with the surrounding residential areas and into neighbouring Council areas.

Council and DPTI have rolled out significant walking and cycling infrastructure since 2005, focusing on shared path construction. Separation of cyclists from motorists has resulted in more enjoyable cycling trips and Adelaide's highest numbers of people cycling to work (refer section 3).

However, there are still some missing links in the networks. Issues such as cyclists mixing with high traffic volumes/speeds, routes ending at a busy road without a safe crossing point and missing/illegible signage and wayfinding. In addition, some sections of shared path are in poor condition with a lack of lighting.

2005 Pedestrian Network



2005 Bicycle Network

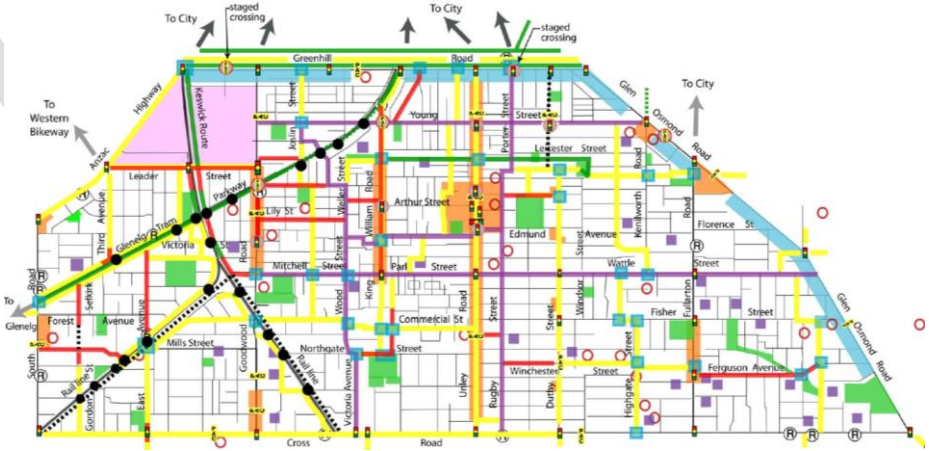


Figure 7: Walking and cycling network maps from the City of Unley Pedestrian and Bicycle Plan 2005 (QED).

3.3.1. Projects undertaken since the 2005 Pedestrian and Bicycle Plan

Below is a summary of key Council and/or DPTI projects that have updated the walking and cycling networks and/or facilitated a change in local walking and cycling movements:

- Mike Turtur Bikeway – Shared Path along the Glenelg Tramway.
- Marino Rocks Greenway – shared path along the Seaford rail line.
- Shared Path underpass at the Greenhill Road/Anzac Highway intersection – links to West Terrace shared path.
- Culvert Street shared path (part of Glen Osmond Creek).
- Sharrows on Victoria Street between Marino Rocks Greenway and Mike Turtur Bikeway.
- Greenhill Road median refuges at Porter Street, Clark Street, Roberts Street & Joslin Street.
- Pedestrian Actuated Crossings at Greenhill Road / Hamilton Boulevard.
- Shared use path adjacent to the South Road tram overpass.
- New Wayville Station, including pedestrian overpass of the rail line, just south of Greenhill Road.
- New Pedestrian crosswalk at Anzac Highway/Greenhill Road intersection (south leg).
- Installation of Bike Repair Stations. (King William Road / Mike Turtur Bikeway, King William Road / Hughes Street, Little Charles Street/King William Road).
- Reopening of Millswood railway station.
- Goodwood Junction rail upgrade, with new shared path on the western side and pedestrian path on the eastern side.

3.3.2. Current and future projects

A number of projects are proposed by Council and/or DPTI in the near future that have been reflected in the updated walking and cycling networks.

- Rugby Street / Porter Street Bicycle Boulevard (currently being designed)
- Leader Street bicycle lanes – Keswick Route to Anzac Highway (2015/16)
- Pedestrian Actuated Crossing at Porter Street / Greenhill Road (DPTI Blackspot program 2016)
- Simpson Parade Shared Path
- Joslin Street Route: street-scaping
- Cross Road – bicycle lanes from Glen Osmond Road to West Terrace

In addition, the Integrated Transport and Land Use Plan (ITLUP) has identified future projects related to walking and cycling within the City of Unley. These are illustrated in Figure 8.

Future Upgrades by Integrated Transport and Land Use Plan (ITLUP)

1 Rugby Street/Porter Street
Complete the Belair– City Bikeway, including crossings of arterial roads.
Time frame: next 5 years

2 Unley Road
Targeted upgrades of key intersections and sections of road to improve efficiency and safety performance.
Time frame: within 5-15+ years

3 Greenhill Road
Improve the efficiency and safety of the Inner Ring Route, including intersection and mid block upgrades.
Time frame: within 5-15+ years

4 Glenelg Tramline
Increase service frequencies and increase tram size and tram fleet.
Time frame: within 5-15+ years

5 Goodwood Road
Targeted upgrades of key intersections and sections of road to improve efficiency and safety performance, On-road bus priority measures & Mike Turner Bikeway
Time frame: within 5-15+ years

6 Seaford line/Tonsley Line
Increase service frequencies, review, upgrade and extend train stations and platforms.
Time frame: within 5-15+ years

7 Glen Osmond Road
Targeted upgrades of key intersections, sections of road to improve efficiency and safety performance, on-road bus priority measures and construct bus 'Super Stops'.
Time frame: within 5-15+ years

8 Belair Trainline
Electricity with new electric trains – increase service frequencies.
Time frame: 15+ Years

9 Fullarton Rd (Glen Osmond Rd to Wattle St)
Targeted upgrades of key intersections and sections of road to improve efficiency and safety performance.
Time frame: within 5-15+ years

Figure 8: Future DPTI projects and upgrades as outlined in the State's Integrated Transport and Land Use Plan (ITLUP).

4. Consultation

The public consultation strategy for the review of the 2005 Pedestrian and Bicycle Plan was undertaken in two stages:

- Stage 1: Workshop with the Unley Bicycle User Group (Unley BUG).
- Stage 2: Request for feedback on the Draft Plan – open to anyone interested.

4.1. Unley Bicycle User Group Workshop

A workshop with the Unley BUG was held on 22nd September 2015, with eight members (including one Councillor) and three Council staff attending. InfraPlan presented the findings and First Draft of the proposed network followed by a workshop discussion. The Draft Plan was updated to reflect this feedback where possible. The issues raised at the workshop and InfraPlan's responses are included in the appendices.

Figure 9: The Unley BUG workshop, 22nd September 2015.

4.2. Consultation of Draft Plan

This section to be compiled upon completion of consultation on the DRAFT Plan.

‘Against the backdrop of a growing population, the highest ever obesity levels and significant environmental challenges – cycling offers a wealth of benefits.’

-Austroads

5. Updating the Cycling Network

Cycling related research and the design of cyclist infrastructure has been rapidly evolving, with surveys Australia-wide showing that feeling unsafe due to traffic speed and volume is a key reason for not cycling. This plan aims to encourage more people to cycle more often, and focuses on providing stronger separation between vehicles and bicycles on busy roads and providing low-traffic bikeways that are practical alternatives to busy roads. A snapshot of typical recommendations are illustrated in Figure 10.

The 2015-2020 cycling network is comprised of five route categories as follows:

Low-Traffic Bikeways. These routes are located on residential streets. North-south and east-west routes run parallel to, and in-between each main road. Traffic calming is recommended on these routes where required, and road crossing facilities are recommended where the route crosses roads that carry 5,000 vehicles per day or more. These routes are named intuitively, e.g. 'Unley Park to City Bikeway', and identified by high quality directional signage at every turn. The low-traffic cycling network is illustrated on Figure 11.

Cycle Corridors. These routes are the choice of many cyclists due to their direct and fast alignment. Cyclist separation (bicycle lanes) is required on these routes due to higher traffic volumes and speed (e.g. Duthy St, Leader St), but do not fit on all of these routes due to current road widths (e.g. Wattle Street, Park Street). Recommendations include installing bicycle lanes where possible, strengthening existing bicycle lanes with buffer zones, calming traffic where required and improving road crossings. Long-term projects are also recommended, such as street-scaping of Wattle Street and Park Street to include bicycle lanes at the time when the existing trees reach the end of their life.

Greenways/Shared Paths. These are iconic routes that are used for commuting as well as recreation. They link to other existing greenways and shared paths to form long and continuous off-road routes throughout the City of Unley. The updated network includes an extension of the Glen Osmond Creek route from Windsor Street to Ridge Park to provide off-road cycling opportunities for residents in the south-eastern side of the City of Unley where currently none exist; a Greenway along the Belair rail line, and upgrading the surface and lighting along some existing routes.

Main Roads. These include all the arterial roads maintained by DPTI as well as King William Road and Victoria Avenue, maintained by Council. They are the most direct routes for all transport modes, and are therefore the choice of many confident cyclists. DPTI have installed bicycle lanes (generally part-time) on these roads where they fit, but the high traffic volumes on Goodwood Road and Glen Osmond Road make the installation of bike lanes difficult. Recommendations include continuous footpaths across side streets, increasing Clearway hours to extend bicycle lane accessibility, central median islands for mid-block pedestrian crossings and reducing traffic speed limit to 40km/h through areas of high pedestrian activity (Unley Central and Goodwood Rd between the rail line and Angus Street).

Local Links. These links are short route sections that provide important links between the key routes and destinations. They are on low traffic streets, and traffic calming is recommended where required.

Low Traffic Bikeway

> Designed for people who do not like riding on busy roads + to encourage new cyclists
> On streets with low traffic volume + speed
> Safe road crossings at busy intersections
> Direction signage at every turn
> Not always the most direct route

Cycling Corridor

> Direct routes on collector roads with bicycle lanes
> Bike lanes buffered from car doors + adjacent traffic
> Green coloured lanes at hazardous locations

Greenway/Shared Path

> Safe, off-road routes
> Upgrade existing paths whereuneven surfaces or poor lighting
> Extend Glen Osmond Creek route to Ridge Park (long-term project)
> Construct Simpson Parade culvert shared path (missing link from King William Rd to Mike Turtur Bikeway)

Main Roads

> The fastest route for confident cyclists
> Cycle lanes not always possible
> Construct continuous footpaths across junctions
> Lobby DPTI for 40km/h through Activity Centres + extended Clearway operating times

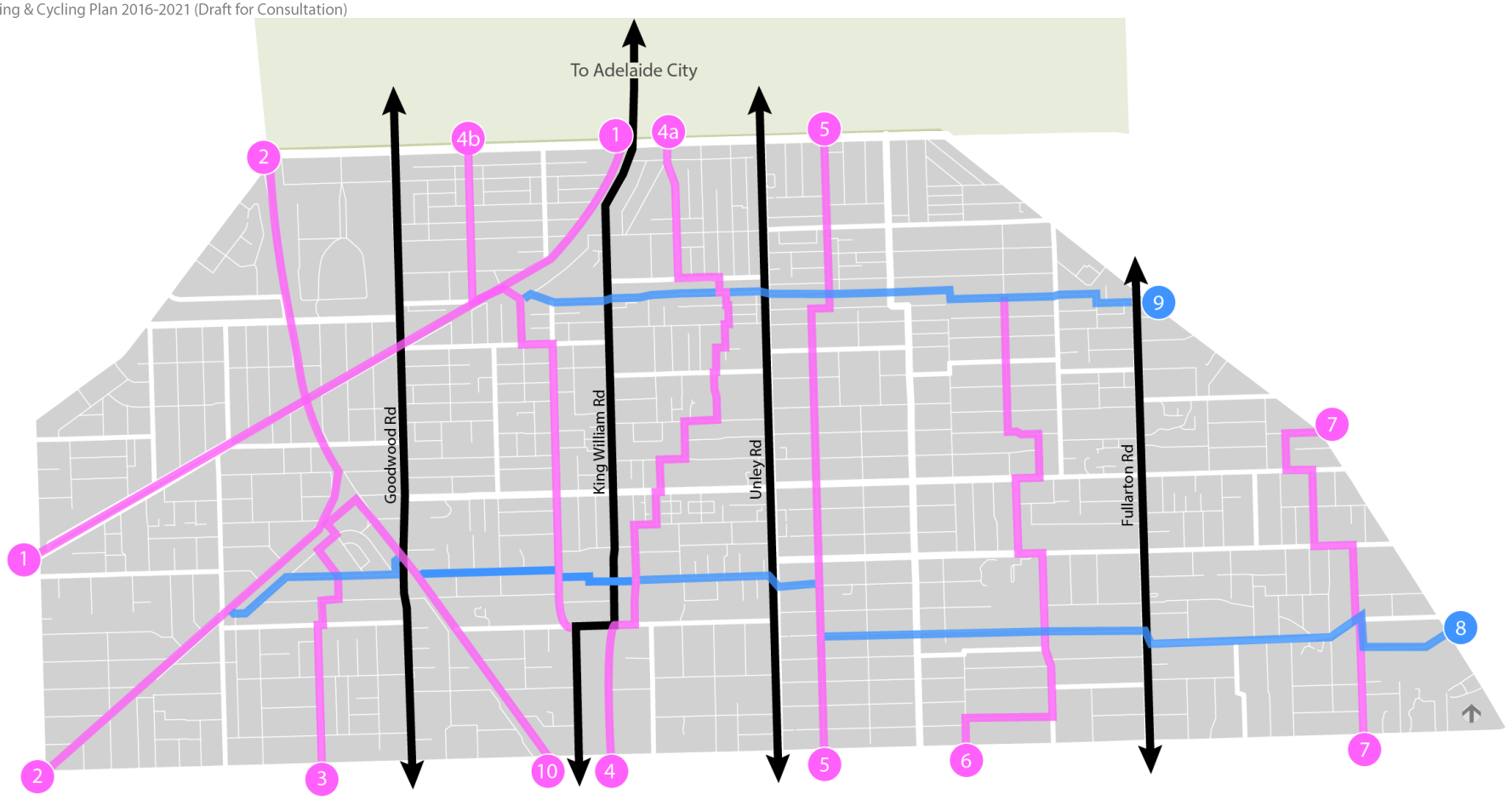
Wayfinding

> Develop consistent signage strategy
> Update + distribute cycling maps

Etiquette + Safety

> To reduce conflict between pedestrans and cyclists on shared paths and footpaths
> Install messages using pavement stickers and / or signage

Figure 10: Recommendations for cycling.



Proposed Low-Traffic Bikeway & Greenway Network

1 Mike Turtur Bikeway
2 Marino Rocks Greenway
3 Clarence Park - City Bikeway
4a Unley Park - City Bikeway (Via Unley)
4b Unley Park - City Bikeway (Via Goodwood)
5 Belair - City Bikeway (Rugby/Porter)
6 Malvern - Parkside Bikeway
7 Myrtle Bank Bikeway
8 Malvern East-West Bikeway
9 Unley East-West Bikeway
10 Belair Line Greenway
North-south Bikeways
East-west Bikeways

Figure 11: Low-Traffic Bikeway & Greenway Network.

6. Cyclist Safety

Streets with less traffic and slower speeds move at a human pace and contribute to a more enjoyable cycling journey where all transport modes are balanced.

Traffic calming devices and 40km/h areas throughout the City of Unley aim to divert unnecessary traffic from local streets to arterial/main roads, and facilitate slow speeds, however, traffic data collection reveals that vehicles are continuing to speed in some streets and more work is required to reduce the speed differential between bikes and cars.

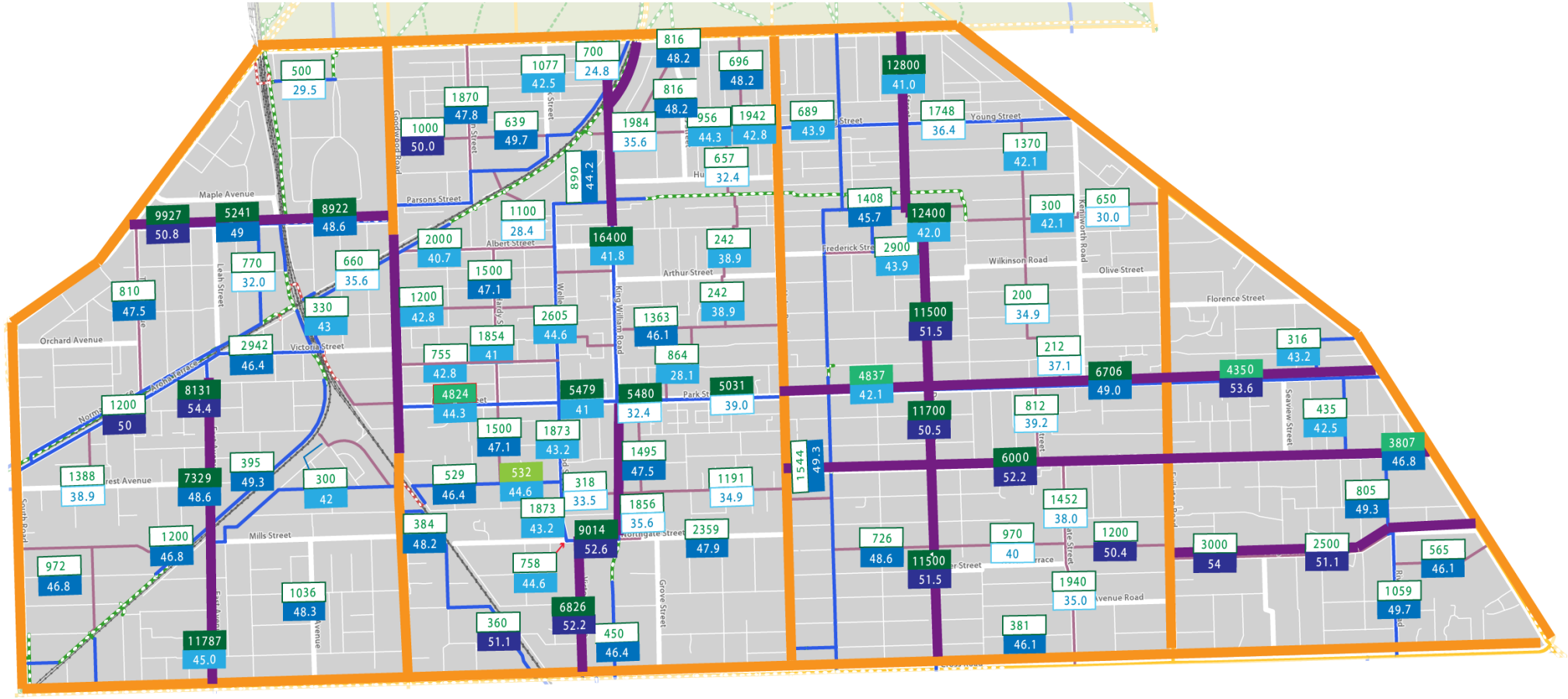
6.1. Vehicle Counts and Speeds

The City of Unley regularly collects traffic data city-wide which greatly assists the analysis of cycle route selection. Figure 12 illustrates the most recent traffic data collected on streets that form the cycling network.

Austroads Guidelines recommend that cyclists be separated from traffic when a street carries 3,000 vehicles per day with a speed of 50km/h; or 5,000 vehicles per day with a speed of 40km/hr. Cyclists and motorists can share the roadway when traffic volumes and speeds do not fall into those categories. Most residential streets in the City of Unley are signed at 40km/h with the exception of designated collector routes. Regardless of the signed speed limit, the streets that are of interest carry traffic volumes greater than 3,000 vehicles per day and/or traffic speeds higher than 40km/h because these are tipping points where the separation of cyclists should be considered, refer to Table 1.The above analysis is transferred to Figure 13, which illustrates which roads require cyclist separation or traffic calming to meet the guidelines. The need for traffic calming has been prioritised according the extent of speeding, with the highest speed roads requiring works in the short-term.

Table 1: Mixed traffic or separate cyclists.

	Traffic volume (vehicles per day)			85th percentile Traffic Speed (km/h)		
Cyclist facility	<3000	3000-5000	>5000	<40	40-50	>50
Mixed traffic	✓			✓		
Consider separation		✓			✓	
Separation			✓			✓



Signed speed

- 60km/h speed limit
- 50km/h speed limit

All other streets are 40km/h

Recorded Traffic data

Traffic Volume - Vehicles/Day

- More than 5000 vehicles per day
- 3000 -5000 vehicles per day
- Less than 3000 vehicles per day

85th%ile speed

- 50km/h or faster
- 45km/h - 50km/h
- 40 km/h - 45km/h
- 40 km/h or slower

Figure 12: City of Unley traffic volume and speeds.

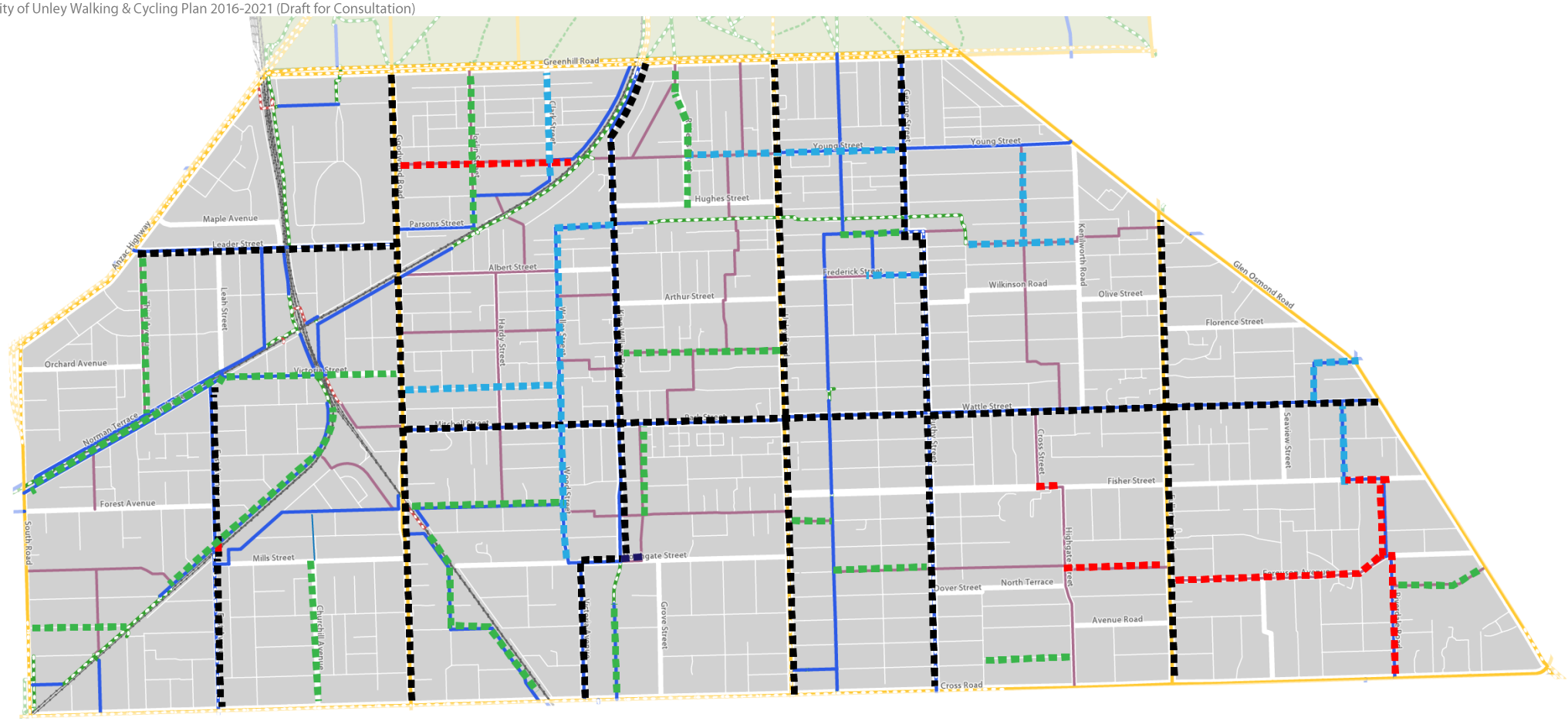


Figure 13: Recommendations derived from the traffic speed and volume data.

6.2. Cyclist Collision Data

To help identify specific hazardous locations, cyclist collision data for the last 5 years (from DPTI) has been analysed. The cyclist collision map is included in the Appendices, and locations where clusters of cyclist collisions were reported are discussed below.

- **Cambridge Street roundabouts.** 10 cyclist collisions were recorded at the roundabout of Cambridge Street and **Fisher Street** and 5 at the Cambridge Street and **Wattle Street** roundabout. All collisions were right-angle with the driver failing to give way. The roundabouts are 'tangential' design which directs cyclists to the edge of the lane while motor vehicles remain in the centre of the lane. Recent research suggests that 'radial' design is preferred as it directs cyclists to the centre of the lane where they 'claim their space' in front of motorists, and are hence more visible to motorists. If these roundabouts are modified to a radial design, it is likely that there would be safety improvements.(It is noted that Cambridge Street and Fisher Street is not on the cycling network, but given the crash clusters it's safety improvements should be addressed).
- **Wattle Street.** 13 collisions have occurred on Wattle Street. Excluding the 5 collisions at the roundabout (described above), all were either side-swipe or right angle crashes. Mid-block, cyclists ride between parked cars and moving traffic; and at signalised intersections, additional turn lanes are provided which force cyclists to claim their space in the centre of the lane, which may be intimidating with the significant volumes (4-6,000vpd) and speeds (43-54 km/h).

Other significant crash clusters are on arterial roads as follows:

- **Anzac Highway.** There were 36 cyclist collisions recorded along Anzac Highway, 19 of which were side-swipes.
- **Anzac Highway at Maple Avenue.** Of the 11 collisions at the junction of Maple Avenue, 8 were side-swipes and 3 were right turn collisions. The bicycle lanes along Anzac Highway are narrow (approximately 1.1 metres), and adjacent to narrow traffic lanes which have been squeezed to fit the bike lanes. DPTI installed green coloured pavement in the bicycle lane across the Maple Street junction in January 2014, which should assist with motorist awareness of the lane edge. Two cyclist collisions occurred since that installation, which indicates that further consideration is required. The footpaths are wide enough for the kerb to be relocated to enable wider lanes. This would be a high cost project, but should be considered, in particular when kerb replacement is due.
- **Unley Road.** There were 49 cyclist collisions recorded along Unley Road, one of these being a fatality. Of these, the type of crashes that occurred more than once were; 5 x car doors opening onto cyclists, 18 x vehicles turning into a side street without seeing oncoming cyclists and 19 x side-swipes. Cluster locations were at the T- junctions of Unley Road with Hughes Street (4 x), and Frederick Street (3 x). The current upgrade of the Rugby/Porter Bikeway may attract some riders to change their direct than Unley Road and not appropriate form confident, commuter cyclists. Unley Road is a clearway during the peaks but cars are allowed

to park on the road (the space used by cyclists) between peaks which causes squeeze points.

- **King William Road**. There was a total of 34 cyclist collisions recorded along King William Road. Of these, the common crash types were side-swipes (12 x), opening door (x 6), right angle/right turn (10). King William Road carries high traffic volumes and does not have bicycle lanes installed. Cyclists ride between moving traffic and parked cars (with high parking turnover). The concrete pavers facilitate slower traffic speeds which improve cyclist amenity but are uncomfortable to ride on.
- **Greenhill Road, at cyclist crossing locations**. DPTI have recently installed median refuges at these locations, green coloured bicycle lanes across the junctions and bicycle lanes on the major approach roads. These works are expected to result in significant safety improvements.
- **Anzac Highway / Greenhill Road intersection**. DPTI have recently constructed a shared path underpass at this location for north-south cyclists and an at-grade crosswalk for east-west movements. These upgrades are significant safety improvements.

7. Cycling Network 2015-2020

The updated cycling network is illustrated in Figure 14, and coloured-coded to identify the five route categories (Low-Traffic Bikeways, Cycle Corridors, Greenways, Main Roads and local links.

Critical considerations in selecting and updating the route network were:

- To fill in the missing links;
- To mitigate safety risks at hazardous locations;
- To link to existing road crossings;
- To connect to land-uses that are cyclist generators (e.g. schools, shops, places of employment, villages, city routes, greenways, Showgrounds, Adelaide CBD etc.);
- Suitability of traffic speed and volume; and
- To identify future routes.

Key new routes that have been added to the existing network include:

- Simpson Parade shared path – between King William Road and Mike Turtur Bikeway;
- Shared Path along Greenhill Road (northern footpath) – partner with Adelaide City Council and DPTI;
- Glen Osmond Greenway; and
- Several low-traffic Bikeways (north-south and east-west).

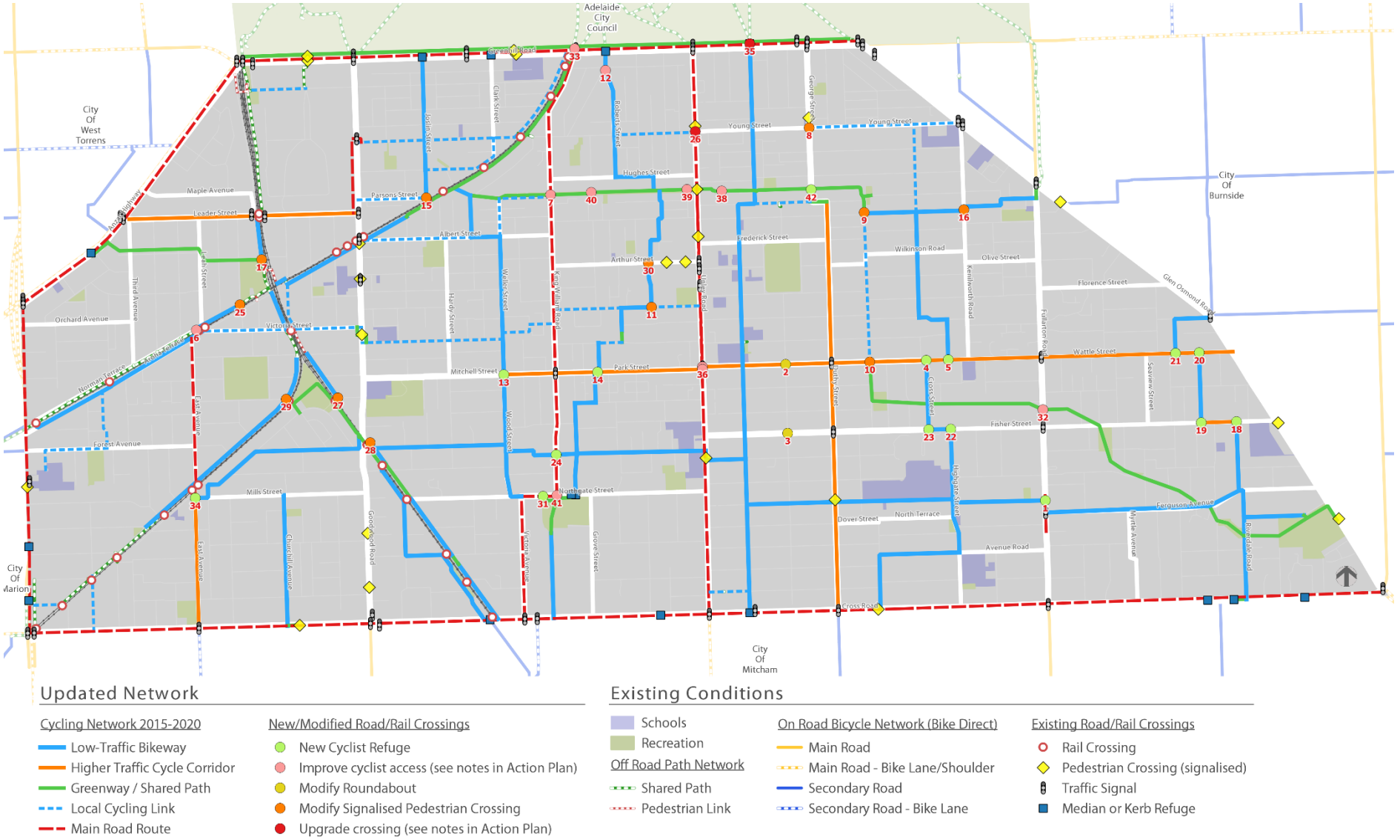


Figure 14: City of Unley cycling network 2015-2020.

7.1. Updated Cycling Infrastructure

The type of infrastructure works required to complete the network are illustrated on Figure 23. Route sections are numbered which reference to the details, priorities and costings provided in the Action Plan. Extensive saddle surveys and route inspections were undertaken to identify specific issues on key routes and a detailed separate site survey report has been prepared. The report includes a Google Maps web-link that identifies each specific issue along every route and geo-referenced photographs. The Action Plan herein, refer Section 12 lists all infrastructure deficiencies identified during the surveys, as well throughout the entire cycling network. The type of recommendations and actions are as follows.

7.1.1. Enhanced Bicycle Lanes

Enhanced bike lanes offer stronger separation between cyclists, moving vehicles and/or parked cars, and/or provide higher visibility. They strengthen standard lane types such as Exclusive or Bicycle Car Parking Lanes and are achieved through various measures, such as chevron line marking, green-coloured lane marking or tactile marking.

Duthy Street / Leader Street / East Avenue

Simple reallocation of lane widths can achieve better separation and is recommended on Duthy Street, East Avenue and Leader Street as shown in Figure 15. This concept design reallocates lane space to provide buffer zones between cyclists and car doors, and cyclists and moving traffic. The traffic lanes are reduced to 3.0m wide which provides sufficient width for buses when taking into account the speed limit of 50km/h and the buffer zone.

Wattle Street / Park Street

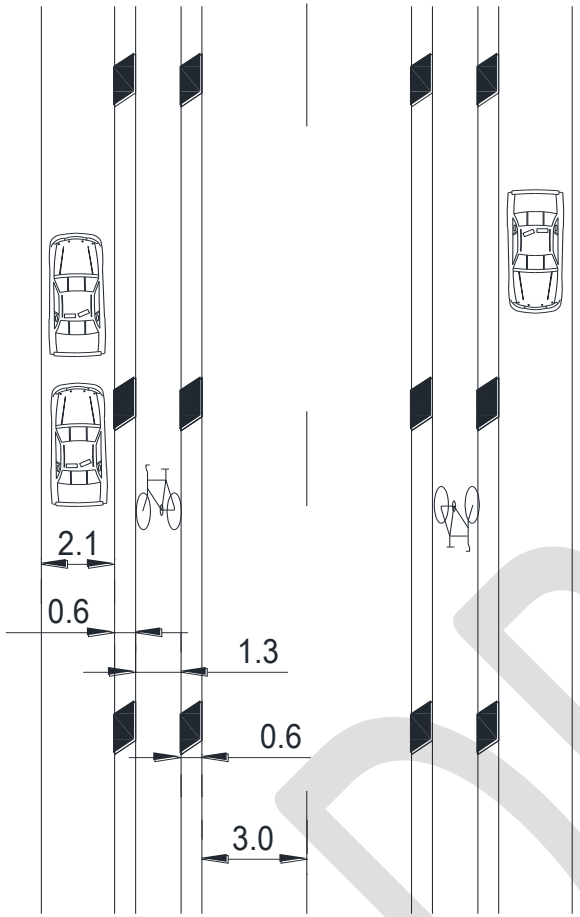
The roadway in Wattle Street and Park Street is currently not wide enough to fit bicycle lanes and car parking on both sides of the road. The traffic volume (up to 7,000) and speeds (up to 54km/h), mean that separation of cyclists from traffic is required. Currently, cyclists are squeezed between car door opening and moving traffic.

In the long term, when the road is due for reconstruction and the trees are near the end of their life, an entire new street-scaping design is recommended. Until that time, an interim concept is shown on Figure 16 that uses staggered parking (parking on one side of the road at a time) to gain space for bike lanes. In addition, the staggering also creates a meandering road alignment that would facilitate slower speeds. Observations indicate that there is not a high demand for car parking in these streets and every house has a driveway.

As car parking and some trees would require removal, the detailed design would be subject to a car park utilisation and tree health survey, with the aim to positioning the staggers to suit these outputs.

Green Coloured Bike Lanes

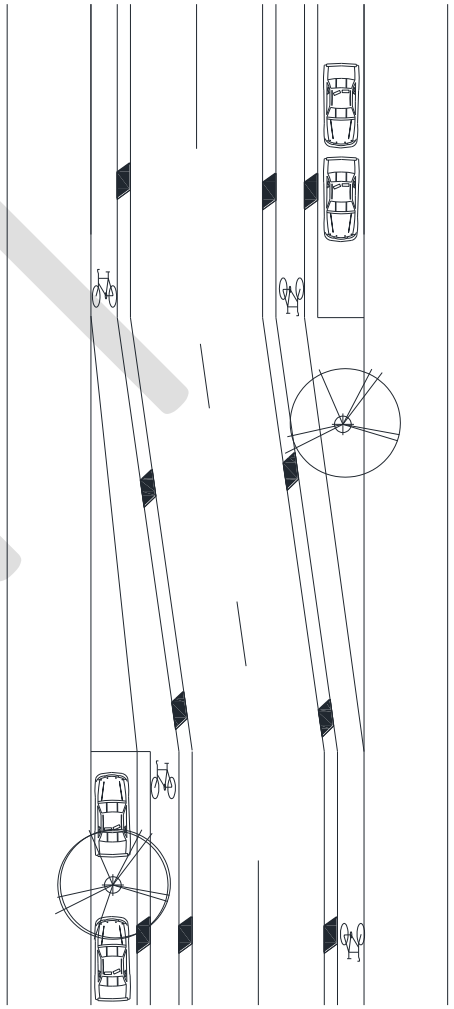
The City of Unley has already started to roll-out green-coloured bicycle lanes in areas of potentially high conflict between cyclists and motorists, such as road junctions along East Avenue, and this treatment is recommended at locations where bicycle lanes exist or new bicycle lanes are recommended.



Feasibility depends on:

1. Detail design to ensure sufficient width.
2. Liaison with Public Transport Division on bus routes.

Figure 15: Cycle Corridor typical cross section.



Feasibility depends on removal of on-street car parks.

Figure 16: Possible Wattle St / Park St Concept.

7.1.2. Bikeways - Traffic Calming

For bicyclists and vehicles to comfortably share the road space (mixed traffic), vehicle speeds should be 40km/h or less. Although local streets in Unley are signed at 40km/h, traffic data shows that many vehicles are travelling faster, refer to Figure 12. Therefore, on the cycling network, strategies are needed to reduce speeds to 40km/h or less; by either an uptake of speed detection and issuing of fines, or the installation of traffic calming devices. Recommendations for traffic calming on Local Street cycling routes are as follows:

- 85th percentile speeds above 50km/h – high priority
- 85th percentile speeds 45-50km/h – medium priority
- 85th percentile speeds 40-45km/h – low priority

The Collector roads are signed at 50km/h and therefore traffic calming has been recommended where traffic speeds were recorded higher than 50km/h (e.g. Wattle Street between Fullarton Road and Glen Osmond Road). It is recommended to review the signed speed of these roads, and in particular to consider **reducing the speed limit on Ferguson Avenue and Fisher Street to 40km/h.**

7.1.3. Safer Road Crossings

Where a route on the cycling network crosses a road with more than 3000 vehicles per day, safe crossing infrastructure is recommended. This can be in the form of a median or kerbside refuge, signalised intersection or pedestrian actuated crossing. Figure 17 illustrates a typical concept of central median refuges where a Low-Traffic Bikeway crosses a busy road such as Fisher Street, Wattle Street and Northgate Street.

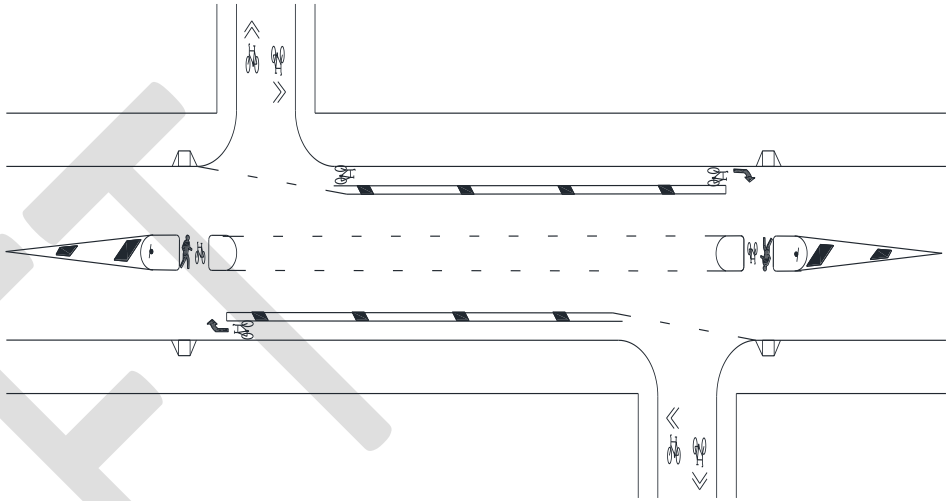


Figure 17: Typical median refuge crossing for staggered routes across busy roads (typical example only – detail design required).

Cycling routes have been planned to line up with existing signalised crossings of arterial roads. In some locations, a Pedestrian Actuated Crossings (PAC) is located to one side of the route. It is recommended that in these locations, the footpath between the side-street cycle route and the PAC be marked with shared path pavement logos to guide cyclists to the safe crossing point, and alert pedestrians that cyclists are encouraged to be on the footpath in that locations. Examples of these locations are on Goodwood Road between Young Street and the PAC (east side of Goodwood Road) and then from the PAC to Leader Street (west side); Cross Road between cycling routes and median refuges, Maple Avenue and the median refuge on Anzac Highway; Barr Smith Avenue and the PAC on Glen Osmond Road and to link the PAC on Goodwood Road to Angus Street & Victoria Avenue either side.

Where there is no safe crossing facility to link with, a new crossing is recommended. For instance, to connect the Glen Osmond Creek Path to the Mike Turtur Greenway, a crossing is required at King William Road. This could be in the form of a median refuge, wombat crossing or Pedestrian Actuated Crossing and assessment is required to determine the best solution.

The roundabouts along Cambridge Street have recorded significant collision rates, and it is now accepted that roundabouts are safer for cyclists if they are designed as 'radial' instead of 'tangential'. Therefore a recommendation has been made to modify these roundabouts.

7.1.4. Access through Traffic Control Devices

Cyclist access is provided at most traffic control devices throughout the City of Unley with the exception of:

- Several road closures / half road closures without cyclist access (for example; access to Glen Osmond Creek shared path at Windsor St/Hill St)
- Traffic control devices that create a squeeze point for cyclists (for example; slow points in Wood Street, Millswood).

A number of locations are identified in the Action Plan for upgrade, but a city-wide assessment of all traffic control devices along every cycling route has also been recommended.

7.1.5. Smooth Road Surface

A smooth riding surface is important for cyclist comfort and also safety. Road and path upgrade and maintenance programmes need to prioritise the cycling network. Although there is an extensive off-road network, the surface in some areas is uneven due to tree roots, water damage and age of pavers. The poor level of rider comfort on a path can significantly discourage users. Surface construction works include; road or path reconstruction, repairing pot-holes, filling of longitudinal cracking, edge deterioration and chamfering build up of bitumen at concrete gutter interface. Maintenance works include removal of plant debris and glass from the riding area. Particular attention should be given to times of the year when trees drop berries, leaves etc.

7.1.6. Sharrows

Shared Lane Marking (Sharrows) are recommended on key routes. Sharrows are a new form of treatment, and were approved for use in South Australia in 2015. They assist cyclists with lateral positioning and wayfinding, and alert motorists that they are on a designated cyclist route. Sharrows have been recommended on routes where traffic volumes are less than 3,000 vehicles per day and traffic speeds are 50km/h or less. Where 85th percentile speeds were recorded higher than 50km/h, traffic calming has been recommended so that the installation will comply with the DPTI requirements.

7.1.7. Cycling on Footpaths

Traditionally, the road has been for motorised vehicles and the footpaths for pedestrians, often leaving no space for people to ride a bike. Recent changes to the Road Rules in South Australia (October 2015), have made it lawful for people of all ages to ride on footpaths, unless a sign prohibits cyclists from doing so.

This law change is of particular benefit at locations where a bicycle lane or path suddenly terminates or there is a squeeze point in the roadway, allowing cyclists to avoid a potential hazard. It is anticipated that this rule will encourage more people to cycle for short trips (to shops, school etc), who feel intimidated by traffic. Fast and confident cyclists are less likely to use the footpath, except in particularly hazardous situations.

There is concern in the community that there will be conflict between cyclists and pedestrians, and particularly the elderly, hearing impaired and/or fragile pedestrians feel intimidated by a cyclist approaching from behind.

Pedestrians and cyclists move differently as pedestrians meander, and cyclists move in a direct line. In countries where cyclists regularly ride on footpaths, pedestrians are more aware of the potential approach of a cyclist and look behind before changing their path, and cyclists are considerate. Footpath etiquette is required by all footpath users, such as: Cyclist etiquette: ride at walking pace, ring a bell as an approach warning, and give way to pedestrians. Pedestrian etiquette: be aware that cyclists may approach and pass, keep on a relatively straight path, look behind before changing direction, be aware that listening to music reduces hearing of an approaching bell.

Cycling on footpaths is not appropriate where a footpath is narrow (less than 1.5m), has high pedestrian activity, and/or there is lack of space due to outdoor dining and/or street furniture. However, it is not appropriate to install 'Bicycle Prohibited' signs throughout the city, due to the signage clutter and visual amenity.

Cycling on footpaths should not be seen as an alternative to providing cyclist infrastructure as footpath cycling is generally inconvenient, can create conflict with pedestrians and may place cyclists out of clear sight-lines from motorists. Therefore, the law change has not impacted on the development of the cycling network herein. However, more attention has been given to footpath construction so that widths are maximised where possible, particularly around Schools.

Where it is not possible to provide continuous high-quality cyclist infrastructure, signage or pavement stickers can be installed to remind users of pedestrian priority and encourage rider/walking consideration (refer Figure 18). Alternatively, formerly converting a short section of footpath to a shared path helps to alert pedestrians that cyclists may be present.

Figure 18: Example of footpath sign in area of cyclist/pedestrian conflict.

7.1.8. Shared Paths/Greenways

New shared paths are recommended to fill in some critical missing links such as a shared path alongside the culvert in Simpson Parade (route assessment recently prepared by GTA Consultants), and some long-term major projects such as along Glen Osmond Creek (Ridge Park Reserve to Windsor St), a Greenway along the Belair Rail Line, and a shared path along Greenhill Road (north side – between Park Lands and Kerb). In addition, upgrades to existing shared paths include resurfacing of Mike Turtur Greenway (northeast of Goodwood Rd), upgrading of lighting where required, and reallocating priority to the shared path alongside Charles Street and Culvert Street (at garage crossovers) and minor side-streets so that vehicles give way to cyclists and pedestrians, rather than the existing scenario where shared path users must give-way at every crossover and junction (see typical example Figure 19).

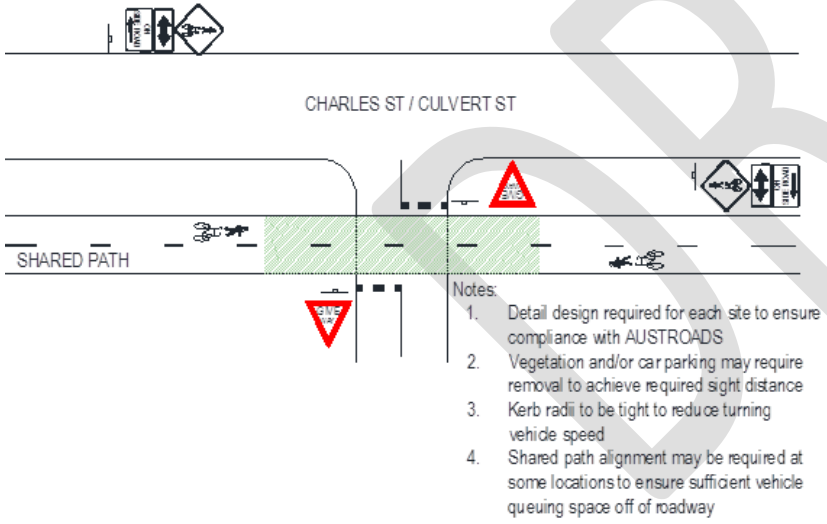


Figure 19: Changed priority - vehicles give way to shared path (typical example only).

7.1.9. Wayfinding Signage, logos and maps

The Low-Traffic Bikeways are not as direct as collector or main roads and wayfinding signage at every turn is critical for the success of these routes. The route name, destination and length in kilometres and/or minutes to major destinations assists cyclists in choosing the route. It is recommended that a new and consistent signage strategy be developed to suit Councils urban design criteria with lettering size to meet Australian Standards (in addition to DPTI's Greenway signage). An updated cycling route map of the City of Unley is also required, and a distribution strategy prepared (e.g. letter boxes, cafes, convenience stores, libraries, sports clubs).

Signage along commuter corridors (main roads with bicycle lanes) are not as critical as the direction of travel is more obvious. The map in Figure 11 can be used as a guide for the signage of low traffic bikeways within and through the City of Unley.

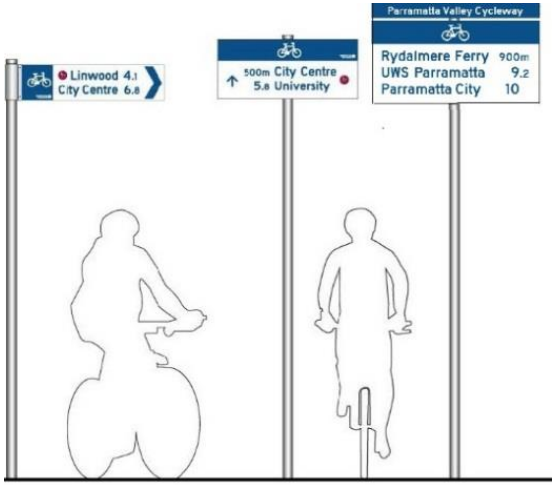


Figure 20: Bicycle Wayfinding Signage (Austroads).

7.1.10. Arterial Roads

Recommendations along arterial roads require partnering with DPTI, and include the following:

- Extend clearway times to increase the effectiveness of part-time bicycle lanes.
- Reduce traffic speed limit to 40km/h through hubs (e.g. Unley Central, Goodwood Central (rail line to Victoria St), and Fullarton Road shops.
- Construct continuous footpaths across junctions through hubs (refer Figure 21.
- Improve cycling on Unley Road as part of corridor upgrade. Unley Central and Goodwood Road Central to be improved with reduced lane widths and median islands to improve cyclists and pedestrian amenity.
- Install shared path signage on footpaths between side street cycle routes and closest signalised pedestrian crossing or median refuge (refer Section 7.1.3).
- Liaise with DPTI to reduce waiting times for pedestrians at traffic signals. In particular Young Street and Glen Osmond Road.

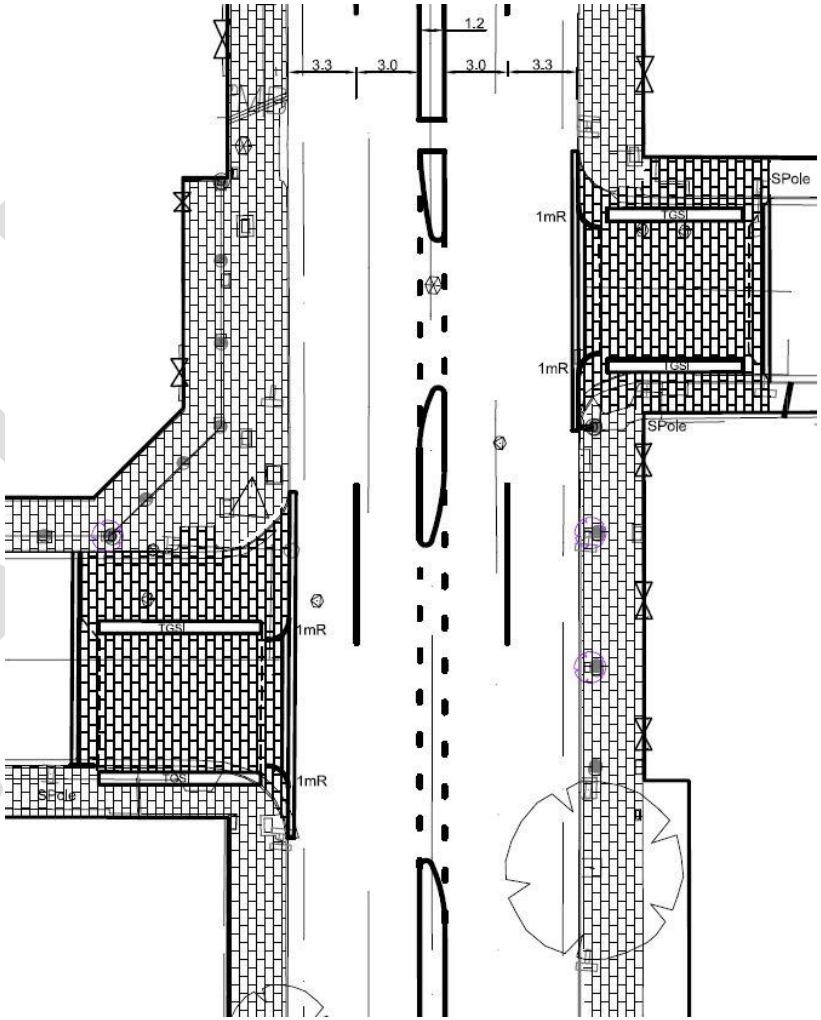


Figure 21: Goodwood Road concept (with possible future median islands).

7.1.11. Shared Path Etiquette Signage

Some shared paths within the City of Unley are narrow due to site constraints and in busy periods there can be conflict between pedestrians and cyclists. As walking and cycling increases it is important to remind users to be considerate of each other. Signage and pavement stickers are recommended in narrow path sections or where conflict has been recorded. Messages can include (but not be limited to) those in Figure 22 below:

- Keep left.
- Give way to pedestrians.
- Ring your bell early.
- Control your pets.
- Be polite and aware of others.

Figure 22: Shared path signage and etiquette (courtesy of Sydney Cycleways).

7.1.12. Lighting

For cycling to be considered a legitimate transport option, particularly as an alternative to the car for short journeys, it must be promoted as an around-the-clock opportunity, rather than just a daylight activity. It must be realised that cycle journeys will be made after dark, particularly during the winter months when daylight hours are reduced.

7.1.13. Quick Wins

There are numerous cost effective and simple solutions that make a big difference for cyclists. These include improved road crossings (median refuges), route wayfinding signage and logos/Sharrows, footpath links (short sections of shared paths to link to safe crossing points), high rotation maintenance schedule of cleaning leaf debris on the cycling network and promoting shared path etiquette.

*ID numbers refer to action plan for detail and priority.

Black - Network treatment

Red - Crossing treatment

Proposed Treatments

- New or Upgrade Bike Lanes
- Existing Bike Lanes
- New or Upgrade Shared Path
- Mixed traffic Street
- Other Treatment - refer Action Plan
- Traffic Calming (high, medium & low priority, refer Action Plan)

New/Modified Road/Rail Crossings

- New Cyclist Refuge
- Improve cyclist access (see notes in Action Plan)
- Modify Roundabout
- Modify Signalised Pedestrian Crossing
- Upgrade crossing (see notes in Action Plan)

Figure 23: Proposed treatments by route and segment number. See Action Plan for detail.

7.2. Actions and Priorities

A detailed Action Plan will be completed after consultation. Several key recommendations are illustrated Figure 24 for the purpose of this Draft Plan.

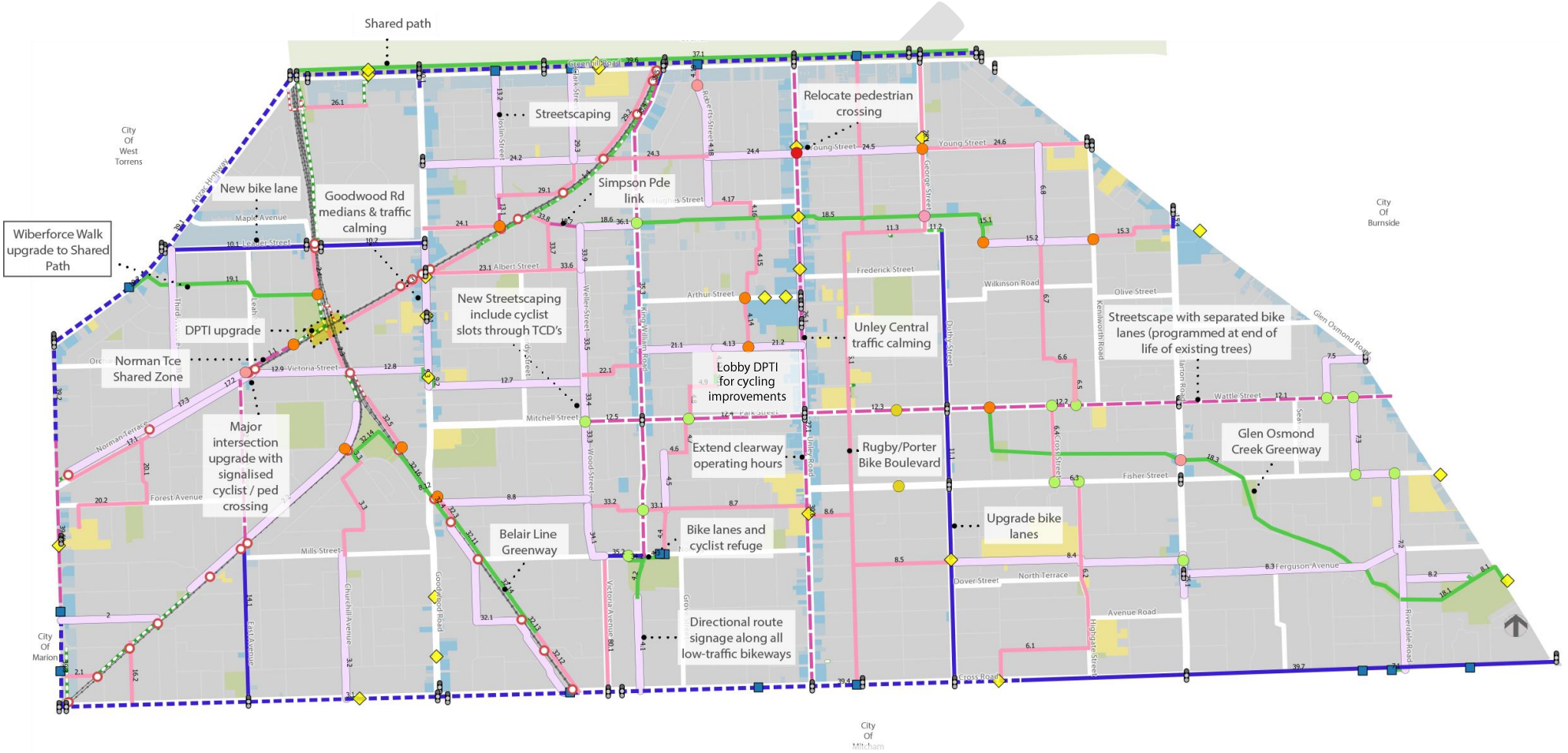


Figure 24: Key recommendations for the City of Unley Cycling Network 2015-2020.

‘Pedestrian activity is a most basic and fundamental human activity. It promotes health and wellbeing, and social interaction. It increases vibrancy for places and communities, and is an environmentally friendly way to travel.’

-Institute of Public Works, Engineering Australia

8. Updating the Walking Network

Now more than ever streets play an integral role in sustainable urban life, supporting our social needs and reflecting cultural shifts. Historically, streets have focussed on motor vehicle movement and access with no or little further consideration. As society evolves, our living patterns and societal demands change along with the way we think. Streets are fast becoming multi-purpose, multi-use spaces that serve as part of the open space network and destinations in their own right. They have become places for people to experience, providing multi-modal network connectivity and encourage communities to connect with each other and their surrounds.

In many instances walking and cycling networks can overlap to utilise crossing points, rest areas and established routes; access transport and places of interest; and improve vibrancy. However, this plan acknowledges the distinct differences between them and what planning for each should achieve. Streets play host to a range of activities in addition to simply travelling on foot. Different street environments support these activities in various capacities while reflecting nearby land uses and demographics with street design responding accordingly.

Building upon the 2005 network, the revised network seeks to retain established routes and build upon them. The walking network has been reviewed to assess problematic locations, crossing points of road and rail infrastructure and links between Unley's unique village zones to minimise land-locking and improve city-wide permeability. The outcome is a cohesive plan offering improved social spaces, a pleasant walking environment, safer streets and quality neighbourhoods, all of which encourage active living.

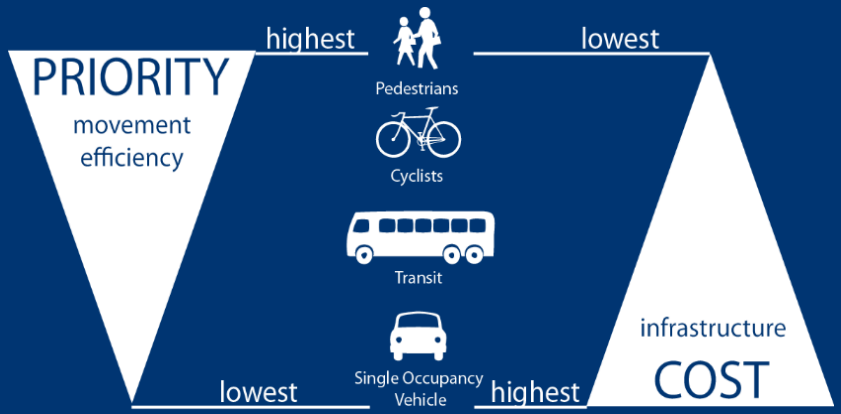
Pedestrian use	• Commuting. • Walking or running for exercise and recreation. • Accessing adjacent land uses.
Pedestrian activity	• Waiting for public transport. • Alfresco/footpath dining. • Socialising. • Exercise. • Resting/relaxing. • Shopping/trading (i.e. markets). • Playing and busking/entertaining.
Supportive infrastructure	• Public transport stops. • Legible paths, ramps, steps and kerb ramps. • Safe crossing points (signalised, refuge etc.) • Lighting. • Seating. • Shade/shelter. • Accommodating path widths. • Public artwork. • Gathering spaces. • Play spaces. • Drinking fountains.

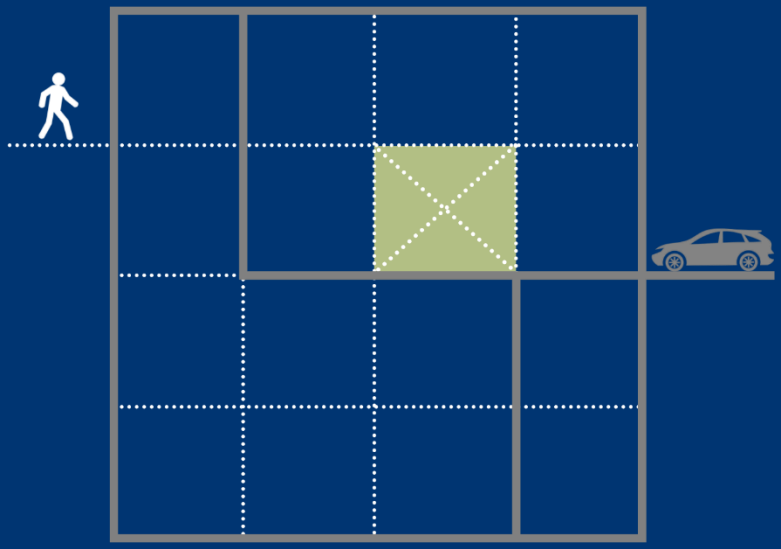
8.1. Planning for Pedestrians

The City of Unley walking network needs to effectively integrate safe and enjoyable walking facilities along and across roads and trails to form a continuous network in line with the 'Streets for People' framework (Heart Foundation South Australia 2012). The network should seek to prioritise pedestrian movement where appropriate and be universally designed, enabling pedestrians of all abilities to easily and safely navigate the built environment by foot, bike, wheelchair, pushing a pram or wheeling luggage. Characteristics of a prioritised pedestrian environment include:

- Reduced traffic speeds.
- Well-connected networks with continuous footpaths and road crossings.
- Well distributed access to public transport (Figure 25, next page).
- Places for social interaction - to meet, stay and sit.
- Signage/way-finding.
- Well-maintained, unobstructed paths without overhanging foliage.
- Shade and shelter where appropriate, i.e. awnings and trees.
- Paths, ramps, steps and kerb ramps that meet Australian Standards.
- Path widths that accommodate anticipated pedestrian volumes.
- Road crossings located at practical locations and at frequent intervals guided by proximity of destinations.
- Traffic signals or pedestrian refuges on busy, wide roads where possible.
- Waiting times of 60 seconds or less at all signalised crossings with high pedestrian volumes, and 90 seconds maximum at other locations.
- Adequate lighting.

Pedestrians can be a priority on some streets





Pedestrian permeability and vehicle movement

8.2. Footpath Provision and Design

Footpaths and road crossings provide the basic means to walk from one destination to another. They should be continuous, well-maintained, unobstructed and clear of overhanging foliage. The width of the footpath needs to accommodate the anticipated pedestrian volume and reflect adjacent land uses. The tables on this page provide guidance on clear desirable widths based on Austroads Guidelines. It is important that additional space is provided for other features such as lighting, signs, seating, bicycle parking, outdoor dining and planting. The 2015-2020 network is underpinned by these guidelines.

Table 2: Footpath provision by road type and land use (source: Guide to Austroads part 6a).

	Footpath provision			
	New Roads		Existing Roads	
Road type/Land use	Preferred	Minimum	Preferred	Minimum
Activity Centre	Both sides		Both sides	
Bus Route	Both sides		Both sides	
School	Both sides		Both sides	
Arterial Road (residential)	Both sides		Both sides	
Collector/ Distributor (residential)	Both sides		Both sides	
Local Road (residential)	Both sides		Both sides	One side
Laneway	Shared Space / slow speed (10km/h)		Shared Space / slow speed (10km/h)	

Table 3: Desired footpath widths by situation (source: Guide to Austroads part 6a).

Situation	Desired width	Comments
High pedestrian demand	2.4m (or higher based on demand)	Generally commercial and shopping areas.
Average pedestrian demand	1.5m (1.2m minimum)	General minimum is 1.2m for most streets. 1.0m absolute minimum at a squeeze point. Clear width required for one wheelchair.
Low pedestrian demand	1.2m (1.0m absolute min)	Clear width required for one wheelchair.
Shared Path	2.5m to 4m	Refer design toolkit.
For wheelchairs to pass	1.5m to 1.8m (desired minimum)	Allow for two wheelchairs to pass (1.5m minimum, 1.8m comfortable). Narrower width (1.2m) can be tolerated for short distances.
For people with other disabilities	1.8m to 2.0m	Provisions for differing abilities can, at times, cause conflict.

Using widely accepted measures of walkability[1], it can be seen that the City's west is well-served by bus, tram and train, while the central and eastern areas are serviced only by bus. Bus routes predominantly run north-south through the City, which are shown to have higher pedestrian demand with further requirements.

Two pockets of reduced transit access are visible in the east and as shown in Figure 5, have comparatively lower rates of walking to work.

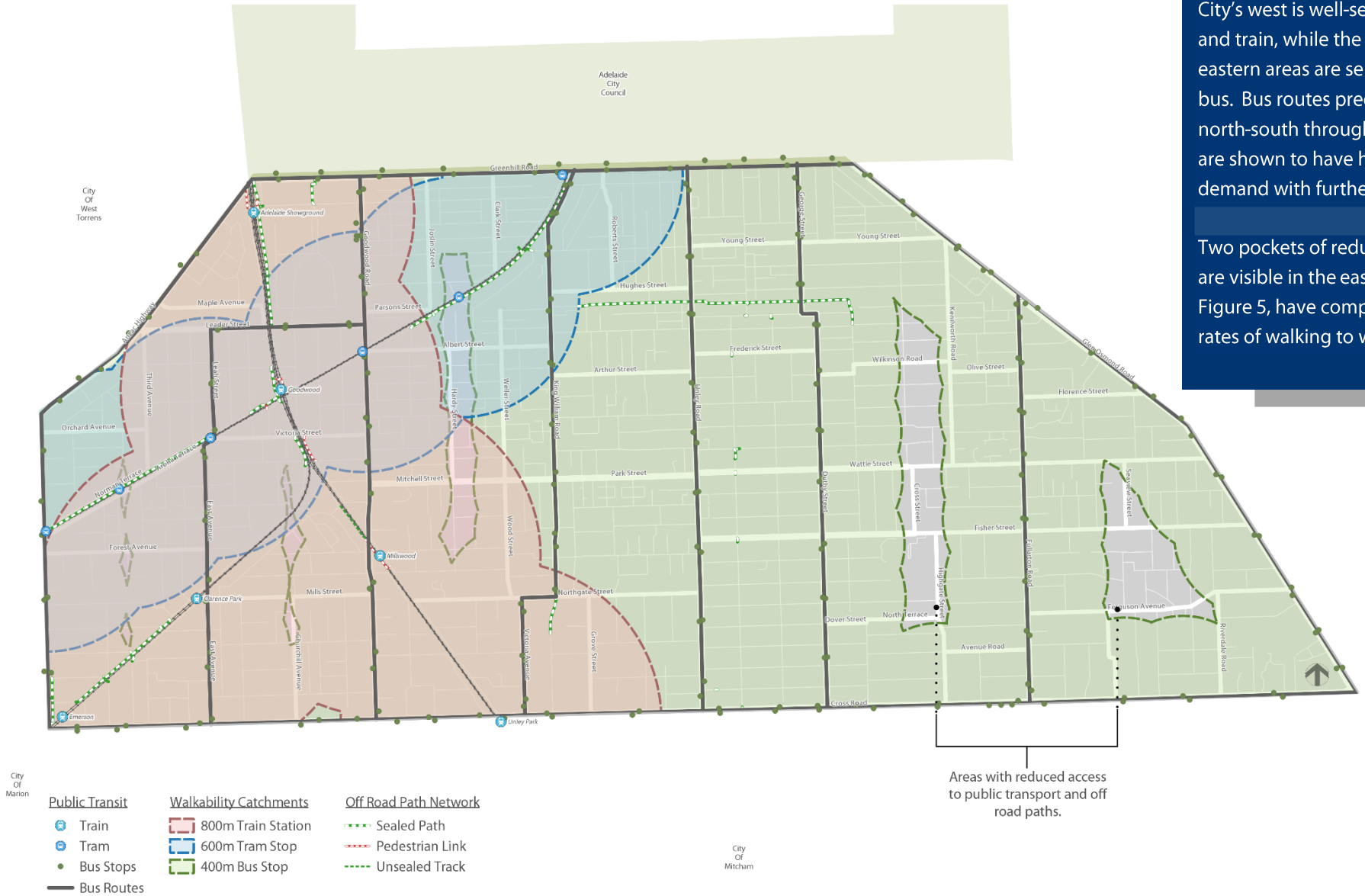


Figure 25: Access to public transport by walkability catchment.

[1] See for example: *http://sydney.edu.au/business/__data/assets/pdf_file/0013/106501/Daniels-Mulley-Explaining.pdf*

9. Pedestrian Safety

9.1. Traffic Speed

Traffic speed is a significant factor that affects the perception of how pedestrian-friendly a street is. Pedestrians are among the most vulnerable of road users, while motor vehicles have airbags, crumple zones and seatbelts for protection. Reduced speed limits lower the overall likelihood of an accident occurring as motorists are more likely to see and be able to stop in time to avoid conflict. The likelihood of surviving a collision is increased, whilst the severity of consequential injuries is decreased.

Lower speeds also mean less need for expensive traffic controls, road safety barriers, mode separation as well as expensive and disruptive traffic management for temporary works. Also, when speeds are lowered, more roadside furniture and trees can be installed enhancing the pedestrian environment. The City of Unley has been at the national forefront of reducing traffic speeds in local streets and served as an example to many local governments.

9.2. Collision Data

The map in Figure 26 shows the pedestrian collision locations (2009-2013), while highlighting areas of increased pedestrian activity and how they are intrinsically linked given the higher probability of a collision occurring. Notable collision clusters occur on arterial roads and areas with significant pedestrian activity; including Cross Road and Goodwood Road intersection, Greenhill Road and George Street intersection, Goodwood Road activity area, Unley Road activity area (particularly near the Unley Shopping Centre), King William Road activity area, Fullarton Road and Fisher Street intersection, Leader Street and Anzac Highway intersection and Glen Osmond Road (Arkaba signalised crossing).

9.3. High Pedestrian Activity Areas

The main pedestrian activity zones are made up of activity centres and main streets, which together reflect Unley's villages and are illustrated in Figure 26. These are calculated by extrapolating high density areas of retail uses that promote foot traffic, which are located along Goodwood, King William, Unley, Fullarton and Glen Osmond Roads, and to a lesser extent Duthy Street. Greenhill Road's office/commercial nature facilitates lower levels of pedestrian traffic.

The City of Unley hosts to a number of large-scale events at various locations throughout the year, which can impact the transport network and travel patterns. For example, road closures may eliminate immediate traffic barriers around an event space, while putting pressure on the surrounding network creating new barriers elsewhere. Special event locations in Unley are listed below and annotated in Figure 26:

1. Wayville Showgrounds.
    - Royal Adelaide Show (annual).
    - Fairs and expositions (sporadic).
    - Adelaide Farmers' Market (weekly/Sundays).
2. King William Road (street closure).
    - Tour Down Under (annual).
    - Gourmet Gala (annual).
3. Unley Oval.
    - SANFL games (weekly/seasonal).

Figure 26: Map showing crash locations that involve pedestrians and areas with high pedestrian demand.

9.4. Vulnerable Pedestrians

Specific requirements of the following demographic groups must be considered.

9.4.1. School children

Children have less experience and cognitive ability than adults and are among the most vulnerable of pedestrians. High volumes of traffic at schools during arrival and pick-up times can lead to hazardous conditions, such as reduced sight distance, confusion and inconsistent driving behaviour as a result of vehicle congestion, queuing, unorganised high turnover parking areas and lack of traffic controls. Schools generally provide assistance with road crossing at the school gates during start and finish times, but additional crossing assistance may be required further afield such as:

- Signalised crossing;
- Wombat crossing;
- Emu crossing;
- Traffic calming to ensure a slow speed environment;
- Kerb extensions to reduce crossing distance and position children waiting to cross within view of oncoming motorists; and
- Refuge in the centre of the road to enable a 2-stage crossing.

9.4.2. Seniors

Localities that have significant populations of seniors, as well as popular destinations within walking distance should provide the specific requirements, as well as preferred walking conditions for them. This may include upgrades of footpaths and pedestrian crossings, seating, rest areas, lighting, shade, and artwork that tells local stories and encourages social interaction.

9.4.3. People with a disability

The Disability Discrimination Act 1992 (DDA) requires that every area open to the public should be open to people with a disability. People with a disability should expect to enter and make use of places used by the public if people without a disability can do so. Therefore, the design, construction and maintenance of walking infrastructure and access facilities must meet the needs of all users, including those with various disabilities.

While people with different abilities may have common needs, such as safe and unrestricted paths of travel, they can also have competing needs. For instance, the use of tactile surface indicators generally benefit people who are vision impaired, yet they may cause discomfort to a person in a wheelchair. In most situations, it may prove to be best practice to resolve conflicts as they arise within appropriate contexts.

The following design principles are reflected within the proposed network and have been developed in consultation with a range of peak body representatives, organisations and individuals and are extracted from the DPTI, 'Guidelines for Disability Access in the Pedestrian Environment':

- Safe and Accessible for all.
- Simple, Logical and Consistent.
- Well aligned and Clear of obstruction.
- Smooth and Accessible Ground Surface.
- Bigger, Brighter and Bolder.
- Monitor and Maintain.

10. Walking Network 2015-2020

Unlike a cycling network comprising a series of routes, every street with a footpath forms part of the walking network. A strategy that reflects demand, land use, access to public transport and local demographics has been prepared as the City of Unley's walking network 2015-2020 shown in Figure 27. Proposed shared paths and crossings have been adopted from the updated bicycle network to highlight efficiencies in streamlining improvements for both transport modes.

Main street hubs, bus routes and key links have been identified as providing for high and average pedestrian demands as per Austroads Guidelines (refer

Table 3). All remaining streets in the network serve low pedestrian demand. In addition to the dimensions provided in

Table 3, it is important that in particular areas additional space be provided for features such as lighting, signs, seating, outdoor dining and planting.

The 2015-2020 walking network will guide Council to:

- Provide footpaths wherever pedestrians will use them.
- Use footpath dimensions and geometry that provides access for all.
- Choose surface materials for safety, convenience and aesthetics.
- Manage design and location of street furniture.
- Locate and design driveways appropriately.
- Manage conflict on shared paths by good design and operation.
- Provide quality connections to public transport.

Footpath Type
- High Pedestrian Demand
- Average Pedestrian Demand
- Low Pedestrian Demand

Proposed Off Road Path
- Shared Path (see Action Plan for detail)

Proposed Crossings
- New Refuge
- Pedestrian Crossing (signalised)
- Other, see action plan for detail

Existing Road/Rail Crossings
- Rail Crossing
- Pedestrian Crossing (signalised)
- Traffic Signal
- Median or Kerb Refuge

Existing Off Road Path
- Shared Path
- Pedestrian Link

Walking Origins and Destinations
- Office Commercial
- Public Open Space/Reserve
- Retail Commercial
- Schools
- Retirement Villages
- Bus Stop

Figure 27: City of Unley walking network 2015-2020.

‘Transport networks that encourage walking and cycling will support the vitality and sustainability of communities, adding to the state’s liveability, as well as boosting economic growth.’

-SA Government (Integrated Transport and Land Use Plan)

11. Encouraging Walking and Cycling

In addition to the physical walking and cycling networks 2015-2020, there are a number of additional actions that Council can do to encourage and increase active travel. This section details a number of recommendations for Council.

11.1. Walking and Cycling Promotion

Cycling promotion seeks to encourage people to start cycling or to encourage existing riders to cycle more often. Promotion can take many different approaches, from mass-market advertising that reaches a wide audience, to programs delivered to a target market such as a specific demographic, location or business. Promotion can be quite cost-effective at changing behaviour, especially when the built environment is bicycle-friendly.

Cycling promotion that focuses on achieving specific behaviours such as commuting by bicycle can be an effective way of leveraging major investments made in infrastructure. What starts as an isolated behaviour such as commuting to work by bicycle once a week, can lead to permanent behavioural change that can last a

Examples include:

- the national 'TravelSmart' program;
- 'Ride To Work Day';
- localised events, such as those run in conjunction with the Tour Down Under; and
- using social media to promote cycling and the details of new and upgraded routes.

Recommendation:

- **Support 'Ride to Work Day' and other similar events to raise the profile of cycling within the City of Unley.**
- **Support and promote the Heart Foundation's 'Unley Walkers' group and similar events at key locations and on the Council website, see <http://activeinparks.org/activity/unley-walkers-5061-536/> .**
- **Continue to collaborate with DPTI on the 'Way2Go' program, by identifying schools which can become involved in the program and budgeting and resourcing to assist with the program implementation and any related engineering treatments.**

11.2. Infrastructure Elements

Some infrastructure elements work to encourage walking and cycling by improving safety, amenity and comfort. A lack or absence of such facilities can discourage people from considering active transport, preferring the convenience of a private vehicle. The Design Toolkit (Appendix) provides a comprehensive listing, with a short summary provided below:

- Bicycle lanes.
- Footpaths and Shared paths.
- End of trip facilities, for example:
    - secure bicycle parking; and
    - shower facilities at the workplace can encourage cyclists.
- Mid-trip facilities, such as:
    - seating;
    - drinking fountains; and
    - bicycle repair and adjustment stations.
- Bicycle hire/ bike share initiatives.

Recommendation:

- **Continue to support bike hire initiatives that provide value for money and consider cycling supportive infrastructure elements along the network where appropriate.**

11.3. City of Unley Policy

The City of Unley Development Plan contains the objectives and principles of development control relevant for new local development. The provisions within the Development Plan augment improvements for the pedestrian and cyclist environments and should be considered in the context of the actions and strategies contained within this walking and cycling Plan. Council is encouraged to adopt policies that ensure consideration of this Walking and cycling Plan when assessing all forms of development applications, including: Development Assessment, Development Plan Amendments, Structure Plans, Master Plans and other forms of land use and transport development.

The following section summarises the key aspects that are pertinent to walking and cycling.

11.3.1. Objectives: Council Wide

Objective 1: Focus development to achieve the 'Unley Strategic Vision'

"… The early village hubs and main roads which primarily developed in the late 19th Century are now some of Adelaide's iconic strip shopping and services destinations … Urban design quality will be improved by reinforcing distinctive parades of buildings, pedestrian amenity and integrated parking areas to the rear of village strips. Commuter traffic calming and accessibility to local services, and adjacent CBD, *will be improved by giving priority to pedestrian, cycle and public transport through enhanced convenience and quality*."

11.3.2. Objectives: Transportation (Movement of People and Goods)

Objective 15: A network of roads, paths and tracks, to accommodate satisfactorily a variety of vehicular, cycle and pedestrian, traffic.

Objective 16: A safe and efficient vehicular and pedestrian movement system.

Objective 17: Safe and easy movement of pedestrians across arterial roads.

Objective 25: A co-ordinated and integrated bicycle movement system which complements other vehicles movement systems.

11.3.3. Principles of Development Control: Walking and cycling

44 Development should ensure that a permeable street and path network is established that encourages walking and cycling through the provision of safe, convenient and attractive routes with connections to adjoining streets, paths, open spaces, schools, pedestrian crossing points on arterial roads, public and community transport stops and activity centres.

45 Development should provide access, and accommodate multiple route options, for pedestrians and cyclists by enhancing and integrating with:

a. open space networks, recreational trails, parks, reserves, and sport and recreation areas;

b. Adelaide's principal cycling network (Bike*Direct*), which includes arterial roads, local roads and off-road paths.

46 New developments should give priority to and not compromise existing designated bicycle routes.

47 Where development coincides with, intersects or divides a proposed bicycle route or corridor, development should incorporate through-access for cyclists.

48 Development should encourage and facilitate cycling as a mode of transport by incorporating end-of-journey facilities including:

a. showers, changing facilities and secure lockers

b. signage indicating the location of bicycle facilities

c. bicycle parking facilities provided at the rate set out in Table Un/6 – Off-street Bicycle Parking Requirements for Mixed Use and Corridor Zones.

49 On-site secure bicycle parking facilities should be:

a. located in a prominent place;

b. located at ground floor level;

c. located undercover;

d. located where surveillance is possible;

e. well lit and well signed;

f. close to well used entrances;

g. accessible by cycling along a safe, well lit route.

50 Pedestrian and cycling facilities and networks should be designed and provided in accordance with relevant provisions of the *Australian Standards and Austroads Guides*.

11.3.4. Off-street Bicycle Parking Requirements for Mixed Use and Corridor Zones

The following bicycle parking requirements apply to development specifically in Mixed Use and Corridor Zones.

1. In residential and mixed use development, the provision of bicycle parking may be reduced in number and shared where the operating hours of commercial activities complement the residential use of the site.
2. Residential and mixed use development, in the form of multi-storey buildings, should provide bicycle parking in accordance with the following rates:

Form of development	Employee/resident (bicycle parking spaces)	Visitor/shopper (bicycle parking spaces)
Residential component of multi-storey building/residential flat building	1 for every 4 dwellings	1 for every 10 dwellings
Office	1 for every 200 square metres of gross leasable floor area	2 plus 1 per 1000 square metres of gross leasable floor area
Shop	1 for every 300 square metres of gross leasable floor area	1 for every 600 square metres of gross leasable floor area
Tourist accommodation	1 for every 20 employees	2 for the first 40 rooms plus 1 for every additional 40 rooms

Recommendation:

- **Review current bicycle parking rates for new development (Table Un/6 - Off-street Bicycle Parking Requirements for Mixed Use and Corridor Zones) to encourage more sustainable transport options and lessen reliance on vehicle parking.**
- **Review the City of Unley Development Plan to update/improve policies for cycling and encouraging bicycle-friendly workplaces, such as:**
  - **providing end of trip facilities, such as: parking, lockers, showers within proximity of key trip generators; and**
  - **Including best practice facilities, treatments and networks in new developments.**

11.4. Enforcement

It is illegal to drive, park or stop a vehicle in a bicycle lane.

Council can assist with cyclist and pedestrian safety by enforcing the law.

Recommendation:

- **Council parking officers to seek out vehicles parked in a bicycle lane illegally.**
- **Council to liaise with SAPOL to ensure ongoing fining of motorists driving in or crossing over a bicycle lane.**

11.5. Safety Training

Cyclists have the same rights and responsibilities as any other road user. However, as private cars are the predominant type of vehicles on the road and are of larger size and can travel at higher speeds, cyclist vulnerability is increased. Evidence shows that driver behaviour is a key concern for cyclists and forms a barrier to encouraging new cyclists.

Related to this is the behaviour of pedestrians and cyclists in a mixed environment, specifically shared use paths. Conflicts between pedestrians and cyclists are infrequent, however it is the responsibility of all path users to be courteous and exercise a degree of caution.

Guidelines for using shared paths have been established by the Bicycle Network (Victoria). The main points of etiquette to observe on shared paths include:

- Be considerate of other path users;
- Keep left unless overtaking (overtake on the right);
- Ride at an appropriate speed - keep it at running pace or below (about 20-25km/h maximum);
- Wheeled traffic gives way to foot traffic;
- Ring your bell gently, call 'Passing' and slow down when passing others; and
- Move off the path if stopped.

Recommendation:

- **Provide information and generate awareness on 'shared path etiquette' in locations with a high number of pedestrians/cyclists.**
- **Engage with DPTI and MAC (Motor Accidents Commission) to consider undertaking a specific driver/cyclist awareness campaign.**
- **Promote and provide bicycle education programs at Community Centres and Libraries**

11.6. Route Information, Legibility & Wayfinding

Providing easy to access, reliable and relevant information is key to increasing the mode share of cycling. Not knowing where to find safe and convenient route information is a barrier for those who do not currently cycle. Providing information across varying media platforms increases accessibility and caters to a diversifying demographic. Examples include:

- Directional signage and pavement logos along Bikeways
- Update the City of Unley Cycle Route Map and make readily available. Distribute in letter boxes and place in cafes, convenience stores, libraries, sports clubs (etc.) throughout Unley.
- Provide localised maps of areas around schools or local shops or neighbourhood centres e.g. 3km radius and show the approximate time it takes to walk or cycle.
- Promote online maps and route information, including route difficulty ratings, such as:
    - http://maps.sa.gov.au/cycleinstead/
    - http://www.rms.nsw.gov.au/roads/using-roads/bicycles/cyclewayfinder/index.html
- Consider City of Unley smartphone apps, such as:
    - 'CycleStreets Journey Planner', which helps plan journeys and notifies users of potential route difficulties, such as steep inclines,
    - http://www.cyclestreets.net/
    - 'Bike Blackspot', which allows bicycle users to submit locational information on trouble areas could be linked to a Council data base, http://www.bikeblackspot.org/

Recommendation:

- **Plan for sufficient wayfinding, route notification and directional signage along key routes (see Figure 11 for recommended wayfinding routes).**
- **Ensure adequate public access to route information and maps.**
- **Consider additional media platforms for a diverse demographic.**

11.7. Data Collection and Evaluation

Council's commitment to continuous research to develop a better understanding of the barriers facing residents, and those who are interested in walking and cycling is essential. Such studies and research should also examine what factors would enable people to take up active transport, or cycle and walk more often in the City of Unley and to inform programs to support more people walking and cycling.

Research methods and objectives may include:

- Understanding the barriers and enablers of residents walking and cycling, or walking and cycling more frequently and use the results to inform the design of projects and programs.
- Smartphone applications where network/infrastructure issues can be identified/photographed by members of the community and relayed directly to Council staff for action.
- Actively work with community groups and schools to promote bicycle safety education and awareness and provide support for them to apply for funding.

Recommendations:

- **Continue to conduct Super Tuesday counts.**
- **Participate in the Super Sunday Recreation Counts along Greenways.**
- **Supplement the data with additional counts on other days (at the discretion of Council) at these select locations for comparative data.**
- **Continue to collect traffic speed and volume data.**
- **Conduct a review of the Bicycle Plan every five years.**
- **Develop a City of Unley smartphone application that members of the community can download and notify Council staff of network/infrastructure issues.**
- **Develop administrative protocols for 'End Task Administration' to update records and asset registers. When bicycle facilities are implemented tasks should include: updating GIS layers, asset registers, recording an action database to assist in future updates of the Council Bicycle Plans.**

12. 5-year Action Plan

The following table prioritises works for the next 5-years (2016-2021) under categories of high, medium and low. However if other road projects are planned within the next 5 years, the cycling infrastructure for that road should be considered and incorporated in the new works even if it is not included in this programme.

The cost estimates for these works is approximately $1M, which equates to $5/person per year, over the 5 year life of this Plan, which according to BiXE (refer page 8) is a meaningful Council commitment to bicycle infrastructure.

It is recommended that the Plan be reviewed in 2021 for updating and to prioritise the works for 2021 to 2026.

Route ID	Section ID	Section	Route Type	Priority	Comments	Estimated Cost (AUD)
7	7.3	Fisher St, Rossington Ave to Milton Ave	Higher Traffic Cycle Corridor	High	Refuge crossings (x 2)	$10,000
10	10.1	Leader St	Higher Traffic Cycle Corridor	High	Buffered Bicycle Lanes	$18,415
12	12.4	Park St - Unley Rd to King William Rd	Higher Traffic Cycle Corridor	High	Feasiblity study for bicycle lanes / parking removal	
12	12.5	Mitchell St - King William Rd to Weller St	Higher Traffic Cycle Corridor	High	Feasiblity study for bicycle lanes / parking removal	
14	14.1	East Tce - Cross Rd to Rail line	Higher Traffic Cycle Corridor	High	Upgrade to Buffered Bike Lanes & Green Coloured at Junctions	$19,278
38	38.1	Devon St South	Local Link	High		
1	1.1	Norman Tce, Leah St to Ethel St	Low Traffic Cycle Route	High	Shared Street, traffic rearrangements	
1	1.2	Railway Tce, Rail line to rail xing near Devon St Nth	Low Traffic Cycle Route	High	Existing	
2	2.2	Cromer Pde	Low Traffic Cycle Route	High	Signage, sharrows and Traffic calming	$6,221
2	2.4	Nairne Tce	Low Traffic Cycle Route	High	Existing	
4	4.1	Whistler Ave	Low Traffic Cycle Route	High	Add street to Cycling Network - signage and sharrows	$2,285
4	4.13	Thomas St	Low Traffic Cycle Route	High	Signage and sharrows	$816
4	4.4	Westall St	Low Traffic Cycle Route	High	Signage and sharrows	$1,115

Route ID	Section ID	Section	Route Type	Priority	Comments	Estimated Cost (AUD)
7	7.2	Riverdale / Rossington Route (Myrtle Bank Bikeway)	Low Traffic Cycle Route	High	Signage and sharrows + traffic calming	$4,921
7	7.4	Milton Ave	Low Traffic Cycle Route	High		TBA
7	7.5	Moore St and Katherine St	Low Traffic Cycle Route	High	Cyclist access through one-way street sections	$2,000
8	8.3	Ferguson Ave	Low Traffic Cycle Route	High	Reduce to 40km/h Speed Limit	
13	13.1	Joslin St, Mike Turtur Bikeway to Le Hunte St	Low Traffic Cycle Route	High	Signage, sharrows and Traffic calming	$753
13	13.2	Joslin St	Low Traffic Cycle Route	High		
33	33.1	Commercial Rd, King to Westall St	Low Traffic Cycle Route	High	Signage and sharrows	$562
33	33.2	Commercial Rd, King William Rd to Wood St	Low Traffic Cycle Route	High	Signage and sharrows	$1,477
33	33.3	Wood St	Low Traffic Cycle Route	High	Upgrade/replace existing streetscaping / traffic calming	
33	33.4	Wood St	Low Traffic Cycle Route	High	Upgrade/replace existing streetscaping / traffic calming	
33	33.5	Wood St	Low Traffic Cycle Route	High	Upgrade/replace existing streetscaping / traffic calming	
33	33.8	Bendall Ave	Low Traffic Cycle Route	High	Signage & sharrows	$440
24	24.1	Goodwood Road, Young St to Leader St	Main Road	High	Shared Path on footpath (links Young St to Leader St via PAC)	$8,427
25	25.1	Fullarton Rd, Village	Main Road	High	Reduce to 40km/h through Highgate Village	
26	26.1	Unley Rd, Culvert St to Wattle St	Main Road	High	Existing	
27	27.1	Unley Road, full length	Main Road	High	Extend Clearway hours - liaise with DPTI	
35	35.2	Northgate St, Victoria Ave to King William Rd	Main Road	High	Buffered Bicycle Lanes - or traffic calming	$5,126
35	35.5	King William Rd - Park Lane to Greenhill Rd	Main Road	High	Improve design of road / footpath for cyclists - review car parking removal, buffered bicycle lanes, footpath logos	$9,508

Route ID	Section ID	Section	Route Type	Priority	Comments	Estimated Cost (AUD)
39	39.1	Anzac Highway	Main Road	High	Liaise with DPTI re: future kerb realignment to make space for bike lane	
39	39.58	South Rd, Cowper St to Forest St	Main Road	High	Future Bicycle lanes, South Rd Upgrade	
1	1.4	Mike Turtur Bikeway	Shared Path	High	Surface uneven in places - assess and repair where required. Assess lighting and improve where required	
1	1.5	King William Rd, Greenhill Rd to Shared Path	Shared Path	High	Mark footpath with shared path logos	$122
4	4.2	Heywood Park	Shared Path	High	Separated cyclist path through park 1.5m wide (or similar)	$45,501
4	4.3	Heywood Park	Shared Path	High	Shared Path parallel to Northgate Street (to link to ped refuge)	$21,234
8	8.1	Ridge Park Reserve	Shared Path	High	Connects to PAC on Glen Osmond Rd	$54,018
8	8.12	Ellesmere Tce, Millswood - link	Shared Path	High	Signage and sharrows	$440
9	9.2	Goodwood Road Footpath	Shared Path	High	Shared path logos on footpath	$58
9	9.3	Goodwood Road Footpath	Shared Path	High	Shared path logos on footpath	$60
15	15.4	Fullarton Rd, Hone Street to Glen Osmond Rd	Shared Path	High	Install logos on footpath, behind bus stop	$117
18	18.3	Glen Osmond Creek	Shared Path	High	Feasibility study	
18	18.5	Glen Osmond Creek Shared Path	Shared Path	High	Feasibility study	
18	18.6	Simpson Pde Culvert	Shared Path	High	Shared Path	$660,000
18	18.7	Culvert St to Mike Turtur - Shared path along creek	Shared Path	High	Future link - investigate feasibility	
30	30.6	Unley Rd, Commercial Rd to Marlborough St	Shared Path	High	Shared path logos on footpath	$73
32	32.11	Rail Reserve - Northgate St to Malcolm St	Shared Path	High	Feasibility study for shared path along rail line	
32	32.4	Rail Reserve - Goodwood Rd Overpass	Shared Path	High	Feasibility study for shared path along rail line	

Route ID	Section ID	Section	Route Type	Priority	Comments	Estimated Cost (AUD)
34	34.2	Heywood Park - Footpath parallel to Northgate St (to Wood St)	Shared Path	High	Shared Path	$21,265

13. Appendices

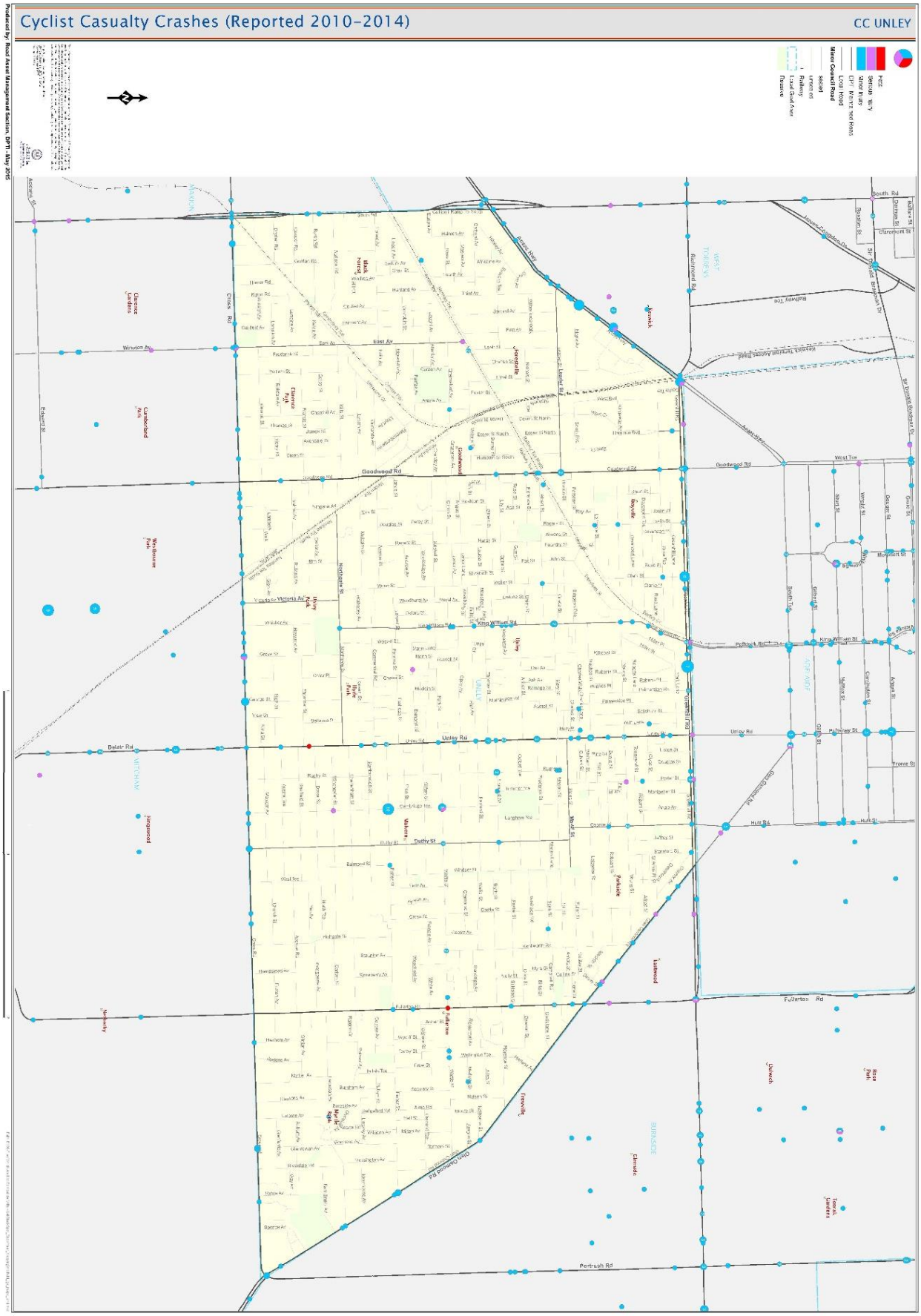
Appendix A: Unley Bicycle User Group (BUG) Workshop Summary

Where and when: Tuesday 22nd September 2015, City of Unley Offices.

Comment from Unley BUG	InfraPlan Response
It is recognised that the Rugby/Porter Bikeway will be a preferred route by some cyclists, however bicycle lanes are still required on Unley Road for commuter cyclists. A long-term vision for cycling along this corridor is required.	Agreed and plan updated.
Illegal parking in bicycle lanes needs to be enforced and fines applied.	Agreed and plan updated.
Cyclist infrastructure is required in Victoria Avenue – this is a critical route and busy, wide road.	Agreed and plan updated – this will be subject to consultation.
Cyclist infrastructure is required along entire length of East Avenue and Leah Street.	Cycle lanes will not fit within the road reserve of East Ave north of the rail line. Therefore, signage is proposed to alert northbound cyclists of the route diverting to the Greenway. East Ave can still be used by confident cyclists without bicycle lanes.
Install Bike Boxes at Wattle Street/Unley Road signals.	Agreed and plan updated.
Cyclist priority is required along Culvert Street and Charles Walk – cyclists should not need to Give Way at all crossing points.	Agreed and concept design added to Plan.
Safe crossing is required at Glen Osmond Creek Route & George Street crossing (access to School).	The narrow road width of George Street restricts a wider refuge at this location, however it is noted for Council to review this site for improvement.
Traffic signals at Young Street / Glen Osmond Road take a long time to react. This is an important crossing for cyclists.	Noted and Action for Council to discuss signal timing with DPTI added to report.
Ensure network links across Council boundaries to other cycle routes.	This was done. Maps have been updated to show bike routes in adjacent councils.

Crossing of Northgate Street – consider raised plateau junction.	Agreed and added to Plan.
Fisher St may be better route than Wattle St – to be assessed.	Fisher St was assessed and the width is not sufficient to provide car parking and bicycle lanes to Australian Standards. Traffic volumes are around 6,000vpd and speed above 50km/h. Therefore, Wattle Park route remains.
Change Church St route to Avenue Road.	Plan updated.
Weller Street – on-street car parking = poor route and poor sight distance.	Noted. Plan recommends street-scaping on Weller to improve cycling. This route is a major Low-Traffic Bikeway and Bicycle Boulevard and high quality cyclist infrastructure is mandatory.
Roundabouts need to be considered in network improvements.	Yes, included in Action Plan.
Mike Turtur Bikeway/Greenhill road crossing is dangerous for cyclists.	Yes, Action included in Action Plan.
Consider Windsor street as a future link and provide sharrows – low volume 30km/h roadway.	This route would be appropriate when the Glen Osmond Route is completed. Until then, Castle St is the preferred route.
Crossing of King William road at Simpson Parade/Charles walk – needs a refuge.	Agreed, included in Action Plan.
Consider changing pavement colours/road surface to make cars feel like they're in a different territory.	This is a good traffic calming device, added to Plan.
Link though Heywood park may be dangerous for park users if it is used for fast commuter cyclists.	Fast commuter cyclists would be expected to continue to use Victoria Avenue. The Heywood Park link would form part of the Low-Traffic Bikeway.
Remove end of bike lane signs at council boundaries if they do continue.	Signage must be installed/modified to meet Australian Standards. This action is included in Action Plan.

Appendix B: Cyclist Collision Map



Appendix C: Design Toolkit

Appendix D: Safety Inspection of Routes

INFORMATION REPORT

REPORT TITLE:	OPEN SPACE MAINTENANCE PROGRESS
ITEM NUMBER:	22
DATE OF MEETING:	12 APRIL 2016
AUTHOR:	JOHN DEVINE
JOB TITLE:	GENERAL MANAGER, ASSETS & ENVIRONMENT

EXECUTIVE SUMMARY

Over the last 2 years the Open Space Maintenance teams have been undergoing a progressive change process. These changes have included how they are structured, the equipment used, work methods and the development of better defined maintenance programs.

As a result of this change program the community is noticing a sustained improvement in the quality of the City's open spaces, and there has been a marked increase in the overall efficiency of the crews.

RECOMMENDATION

The Committee recommends to Council that:

1. The report be received.

2. The improvements made by the Open Space teams resulting in an improvement in the overall condition of the City's open space areas and the efficiency of the teams be noted.

1. RELEVANT CORE STRATEGIES/POLICIES

4.3 Functional open green space throughout the City of Unley.

2. DISCUSSION

The positive feedback received from our residents indicates that there is a growing consensus amongst them that the City's open spaces are certainly looking good and being maintained at very good level of service to the user. This is not accidental but the result of a planned changed program over the last two years. During this time, there have been significant changes to the way our Open Space crews undertake their maintenance. These changes have included how they are structured, the maintenance programs used, some work practices have changed and equipment used.

Maintenance is now undertaken in an improved cyclic programmed approach with service specifications being developed for each park, reserve and oval. This work is completed by dedicated crews, with each crew working to a Work Order specifying the work to be completed, or service specification to be met.

Each park is being assessed to identify an operational plan of how it can be improved to deliver a better result for our community. This assessment covers aspects such as tree risk, irrigation design and access to recycled water, plant species and garden bed layouts and content.

Weekly work plans were introduced a couple of years ago and these have been progressively improved and tightened to better define the work required, allocated time to complete the work, and resources required. Today checklists of the service specification have been provided to each crew to ensure all aspects of service delivery are completed and the park is fit for use

The introduction of mobile tablets into the crews at the end of January 2016 has added further improvements to the teams by linking the work to be undertaken to the asset directly; providing better control of the work to be completed and its status; and supplying the crews improved information in the field, particularly photographs of issues to be resolved and records of work undertaken. This has resulted in improved and more responsive customer service.

The crews have also started to apply continuous improvement or "lean" techniques and tools to systematically examine their work methods on how they can become more effective and efficient. This has included examining equipment and tools used, and starting to develop standard kits for each truck.

Feedback from residents has strongly indicated that the changes have been effective and results are being noticed. Many believe that the parks have never looked better. Our crews and their leadership deserve credit for the vision, planned approach and willingness to support the changes that have brought these improvements.

The next stages of improvement for the teams is to continue to better define the service outcomes expected for each open space area, and continue to examine our work methods and tools used.