



Warren Health, Sporting And Cultural Precinct

Connections Study - 2016

DRAFT

ABSTRACT

This study identifies options to improve pedestrian and cyclist connections to the Warren Health, Sporting and Cultural Precinct.

Prepared by

Active Planning Consultants & GHD



Active Planning Consultants

1 Lowes Lane, Cowra NSW 2794

T: 0428 254 299 E: michaelpcarter@bigpond.com

GHD

72 McNamara St, Orange, NSW 2800

PO BOX 950, Orange, NSW 2800

T: (02) 6393 6400 F: (02) 6393 6401 E: oagmail@ghd.com

© GHD & Active Planning Consultants 2016

This document is and shall remain the property of GHD & Active Planning Services. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
A	M Carter	Steve Martin	S Martin*	Steve Martin	S Martin *	13/06/2016
B	M Carter	Steve Martin	S Martin*	Steve Martin	S Martin *	20/06/2016
B	M Carter	Steve Martin	S Martin*	Steve Martin	S Martin *	22/06/2016



1.0

1. EXECUTIVE SUMMARY

Warren Shire is located in the Orana Region of NSW and is home to around 2,900 people.

The town of Warren is located on the banks of the Macquarie River, which presents challenges for connections to important destinations either side of the river. The main residential areas and the central business district of Warren are located on the southern side of the Macquarie River, while the multi-purpose (health) centre, sporting and cultural centre, caravan park and other attractions are located north of the river.

All travel patterns across the Macquarie River must negotiate Charles Sturt Bridge, which concentrates motor traffic, pedestrians and cyclist movement in and around this area.

Warren Shire Council has identified a need to investigate whether alternate pathways and river crossings would improve pedestrian and cycling conditions throughout town, and specifically at the health, sports and cultural precinct to the north of the Macquarie River.

Council already has a Pedestrian Access and Mobility Plan, prepared in 2015. This plan provides broad overview of the active travel facilities at Warren, and programs a number of improvements to create a more connected and safe pedestrian and cyclist network throughout town.

This study aims to present more detailed options to improve pedestrian and cyclist access and priority to the Warren Health, Sporting and Cultural Precinct to the north of the Macquarie River. It identifies a range of infrastructure improvements, aimed at enhancing pedestrian and cycling safety conditions and opportunities.

Stakeholder engagement has already commenced through workshops and meetings with various agencies, interest groups and residents. Feedback received so far provides valuable insight on pedestrian and cycling behaviour, attitudes and aspirations. It suggests the community is highly supportive of a more comprehensive and safer active travel network to the Warren Health, Sporting and Cultural Precinct.

Warren Shire Council is particularly interested to engage with all stakeholders that use the Health, Sporting and Cultural Precinct to ensure community views are considered in the planning process.

Public exhibition of the Warren Health, Sporting and Cultural Precinct Connections Study is the next step in developing the options available to better connect Warren Township, both sides of the Macquarie River.



2.0



2. TABLE OF CONTENTS

1. EXECUTIVE SUMMARY	2	10.2 Bridge Crossing Options Assessment ..	20
2. TABLE OF CONTENTS	3	11. Active Travel Plan	22
3. INTRODUCTION	4	11.1 Lawson Street Pedestrian And Cycling Bridge	22
4. BACKGROUND OF WARREN	5	11.2 Footpaths	23
4.1 Warren Shire	5	11.3 Shared Paths.....	24
4.2 Warren Township.....	6	11.4 20km/H Speed Zone	25
4.3 Warren Movement Network.....	8	11.5 Charles Sturt Bridge Underpass Improvements	25
4.4 Flooding At Warren.....	8	11.6 Pedestrian Refuge Crossing.....	26
5. PLANNING FOR PEDESTRIANS AND CYCLISTS IN WARREN.....	9	11.7 Kerb Ramps	27
5.1 Planning and Engineering Standards and Guidelines	9	11.8 Signage and Line Marking	28
5.2 Warren Shire Policies Relating To Pedestrian And Cycling.....	10	11.9 Lighting	29
5.3 Warren Resident Behaviour And Interests In Pedestrian And Cycling	10	11.10 Supporting Infrastructure.....	30
6. STUDY AIMS AND OBJECTIVES.....	11	11.11 Landscape Design	31
7. APPROACH AND METHODOLOGY	12	12. Action Plan	32
8. COMMUNITY ENGAGEMENT	13	13. Maintaining the new Active Travel Network	33
8.1 Identifying User Needs.....	13	14. Supporting a Culture of Active Movement	34
8.2 Constraints And Opportunities	16	Appendix A	
9. SITE ANALYSIS	18	Map Sheets.....	36
10. Options Assessment	20	Appendix B	
10.1 Pre-Determined / Logical Path Extensions	20	Action Plan – Score Matrix.....	44
		Appendix C	
		Project Sheets.....	47



3.0

3. INTRODUCTION

Warren is located in the Orana Region of NSW in the lower Macquarie River valley.

The issues, opportunities and challenges that influence Warren include:

- Access to essential services (health, education, housing and employment / business opportunities).
- Creating a 'sense of place' at Warren to provide an inclusive / supportive centre for the entire Shire community and appeal to visitors.
- The need to boost population levels and employment to limit any decline in population and corresponding reduction in the amount of skilled labour and businesses in the Shire.
- The need to support and strengthen the agriculture sector, and to encourage other industries such as tourism.
- The impact of climate change and water policy, and its impacts on business opportunity in the Shire.
- The need to maintain roads and bridges to acceptable standards, and provide other important infrastructure that supports the wider community.

The Macquarie River is an important aspect of Warren Shire and is a key focus of strategies to achieve positive changes and opportunities for the Warren community.

An important issue that needs to be addressed for Warren is the crossing of the Macquarie River. The river literally bisects the town of Warren into two functioning areas, with only a single crossing point available in the town at Charles Sturt Bridge.

A great deal of community activity is observed along the streets and footpaths leading across the Macquarie River to the Warren Multi-Purpose Service, Warren Sporting and Cultural Centre, Macquarie Caravan Park, Victoria Park, Windows on the Wetland and to other employment, cultural and tourist related facilities north of the river.

The Warren Health, Sporting and Cultural Precinct offers significant opportunities to grow the economy, amenity and social capital of the Warren community into the future. It also has great appeal to emerging business markets, such as tourists seeking interesting and healthy visitor experiences.

The Warren Health, Sports and Cultural Precinct Connections Study aims to present more detailed options on how to improve pedestrian and cyclist access and priority to the urban areas located on the northern side of the Macquarie River. It identifies a range of targeted infrastructure improvements, aimed at enhancing pedestrian and cycling safety conditions and opportunities.

Warren Shire Council is interested in developing the study, which will provide many benefits, including:

- Encouraging healthy lifestyles.
- Improved health and wellbeing of residents.
- A sustainable alternative transport system throughout town.
- Contributing to reducing traffic congestion, noise, and air pollution caused by motor vehicles.
- Improved access and sociability within the community.
- An important recreational activity.

4.0



4. BACKGROUND OF WARREN

4.1 Warren Shire

The Warren community is economically dependent on agriculture (livestock grazing and cereal grain / cotton growing). Aside from those directly employed by the agriculture industry, there are also significant flow-on economic benefits from this industry to other related enterprises.

Important activities and sites within the Warren Shire include:

- **Towns and Villages** - Warren, Trangie, Carinda, Nevertire, Collie, Marthaguy, Marra and Gin Gin.
- **Non-urban lands** - Rural farmland, bushland and riparian areas.
- **The Macquarie Marshes** - Located approximately 40 kilometres downstream of Warren at Marebone Weir, these wetlands are a superb and beautiful waterbird habitat in times of flood and wet weather conditions, making it an ideal birdwatching / wilderness area.
- **Macquarie River and Creeks** – The Macquarie River and it's tributaries are major features and attractions in the Warren Shire. Yellowbelly, carp, cod, black bream, yabbies and catfish are plentiful in the waters of the Macquarie. Aside from Warren Weir, there are good fishing spots eight kilometres downstream of Warren and 16 kilometres upstream. Boats and canoes can be used along the river.





4.0

4.2 Warren Township

The town of Warren is located on the Oxley Highway 545 kilometres north-west of Sydney and 120 kilometres from Dubbo. The town is located 197 metres above sea level and has a population of around 1,530 people.

Important activities, sites and active travel facilities within the town of Warren include:

- **Warren CBD** - the main street of Warren, including Dubbo Street, is located on the southern side of the Macquarie River and is major attraction for residents and visitors, as well as the main business and retail sector.
- **Warren Sporting and Cultural Centre** – is located in Victoria Park. The parklands, playing fields and facilities at the centre are well used by residents.
- **Carter Oval** - sports fields and the town pool are located on the Boar Flat on the south western side of town, and are important attractors.
- **Macquarie Park** - Macquarie Park is located on the banks of the Macquarie River, off Burton Street. It has English-style formal gardens and a monument in honour of John Oxley and Charles Sturt who traced the course of the Macquarie River in the 19th century.
- **Tiger Bay Wetlands** - this park is a natural overflow of the Macquarie River system on the eastern side of town.
- **Warren Weir** - is located to the south of town and is a great spot for picnics and fishing. The eastern side has a small, sandy beach which is good for swimming and boating.
- **Warren Racecourse and Showground** - known as the 'Randwick of the West', is located 3 kilometres north-east of Warren via Dubbo Street. It is an important site for race meetings, polocrosse, rodeos, pony club events and the Agricultural Show in May.



4.0



- **Bob Christensen Reserve** – located on the western outskirts of town, is a river crossing point, boat ramp, fishing and picnic spot.
- **Bryan Egan Weir** – located on the Western Outskirts of town near Bob Christensen Reserve.
- **Window on the Wetlands** – is an emerging tourist destination, located on the northern outskirts of town and adjacent to the Macquarie Caravan Park. The headquarters of RiverSmart’s Macquarie River Trails Initiative is located at the tourist facility, which offers a range of guided tours along trails from Burrendong Dam to the Macquarie Marshes.
- **Red River Gum Walk** - the Red River Gum Walk starts from Macquarie Park and follows the riverbank around to a 500-year-old river gum adjacent the Warren Hole, a natural and permanent waterhole used for swimming and fishing.
- **Matthew Collins Walk** - traverses Oxley Park on the northern side of the Macquarie River.
- **Beemunnel Trail** – connects the Tiger Bay wetland to Warren via a shared path.
- **Rotary Centennial Trail** – a shared path runs out to the Warren Weir Reserve on the upstream side of town.
- **Laurie Elder trail** – shared pathway running parallel with the Warren Golf Club.





4.0

4.3 Warren Movement Network

Warren Shire Council maintains a rural road network of 360 kilometres of regional roads and 928 kilometres of local roads.

The road network at Warren can become quite busy, particularly around the harvest and during peak shopping times, school zone times, early evenings and around weekend sporting and community events.

The Oxley Highway runs through the town of Warren and crosses the Macquarie River via Charles Sturt Bridge.

All road access to and from Warren is usually lost when the Macquarie River is in major flood.

Pedestrian and cycling facilities are emerging priorities for Warren Shire Council, driven largely by grant funding and a growing appreciation that the provision of such facilities has community health and economic benefits.

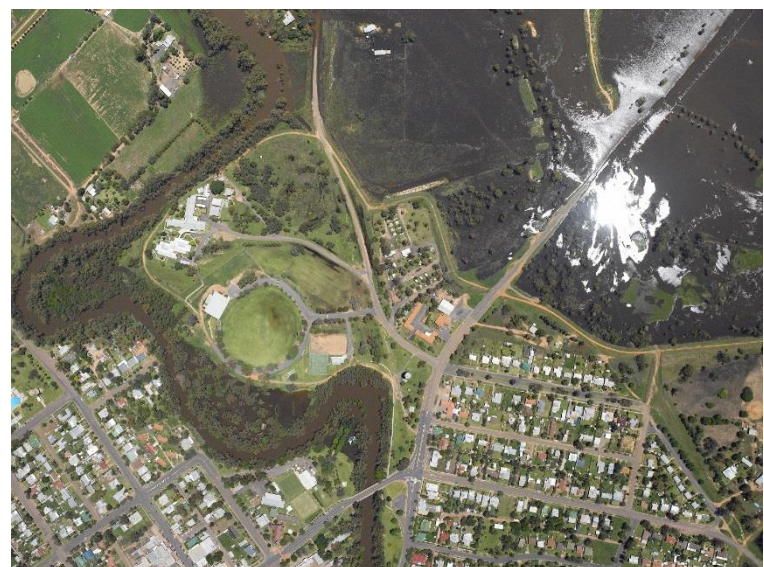
4.4 Flooding At Warren

The Macquarie River is an important positive aspect of Warren Shire, and is a key focus of a number of strategies to achieve positive changes and opportunities for the Warren community.

Warren has been subjected to over 50 floods since 1886, with the largest recorded flood being the 1955 flood which peaked at 10.01 metres on the Warren town gauge.

Warren is protected by a system of levee banks that surround the northern and southern sections of town. These levees have a crest level of 197.7 metres AHD, which corresponds to the level of the 1955 flood plus 1.0 metres. The current levee system is designed to protect the town from a flood of 11 metres on the Warren town gauge.

Warren Local Environmental Plan 2012 requires consideration of flooding of the Macquarie River for new development, and stipulates a flood planning level; being the 1955 flood event + 0.45 metres outside of the Warren town levee.



5.0



5. PLANNING FOR PEDESTRIANS AND CYCLISTS IN WARREN

Pedestrians and cyclists are far more attuned to the environment in which they are moving than faster moving motorists. Planning for pedestrians and cyclists does not follow the same logic as motor traffic planning, which normally involves a 'car' - 'trips' - 'routes' - 'traffic network'. Planning for cycling and pedestrians places more emphasis on the environment and the conditions along routes and at attractors.

Pedestrians and cyclists are considered 'at risk road users' due to their lack of protection against motor vehicles in the event of a crash (NSW Road Safety Strategy 2012-21). It is important for road safety reasons that facilities are available for pedestrians and cyclists that minimises exposure to potential conflict with motor vehicles at areas with high traffic, pedestrian and cycling activity.

To achieve physical and behavioural improvements requires a targeted and systematic approach.

5.1 Planning and Engineering Standards and Guidelines

All tiers of government in Australia are committed to increasing the level of pedestrian and bicycle safety and priority. To achieve this, infrastructure must be appropriate to allow for the safety of pedestrians and cyclists, together with respect from other road users. A combination of infrastructure and behavioural education campaigns is therefore needed to support safe pedestrian and cycling activity.

To provide consistency in approach, the NSW government has a State Plan 2021 and the following policies influence State and local government policy on active travel:

- NSW Road Safety Strategy 2012-21.

- It's a two way street campaign.
- Western Regional Transport Plan 2013.
- NSW Bicycle Guidelines.

The State and Federal governments have also produced a number of technical guidelines that form the basis of consistent design responses to pedestrian and cycling issues. The following policies are particularly important:

- Austroads, Cycling Aspects of Austroads Guides 2014.
- Austroads, The Guide to Traffic Engineering Practice Part 13: Pedestrians.
- Austroads, The Guide to Traffic Engineering Practice Part 14: Bicycles.
- Australian Standards 1428 – Design for Access and Mobility.
- Planning Guidelines for Walking and Cycling 2004.
- Planning and design guidelines on designing places for active living.
- Healthy Spaces and Places: A National Guide.
- Planning for Healthy Urban Environments.
- Promoting Active Transport: An Intervention Portfolio to Increase Physical Activity as a means of Transport.
- Bicycle Guidelines - How to Prepare A Bikeplan.
- How to Prepare a Pedestrian Access & Mobility Plan.
- NSW Speed Zoning Guidelines 2009.



5.0

5.2 Warren Shire Policies Relating To Pedestrian And Cycling

The Warren Shire Community Strategic Plan, 2015-25 identifies a number of strategic objectives that support pedestrian and cycling activity.

Warren Shire Council has adopted the Warren Pedestrian Access and Mobility Plan 2015, which is the principal document guiding the planning and implementation of footpaths facilities.

Warren Shire Council has also developed a Local and Regional Rural Road Network Strategic Plan and has a well-developed roads maintenance and construction program.

The Warren Shire Flood Emergency Sub Plan 2013 is a sub plan of the Warren EM – November 2015 and provides detail on flood planning.

5.3 Warren Resident Behaviour And Interests In Pedestrian And Cycling

In their downtime from work, school and other commitments, many members of the local community pursue activities focussed around walking and cycling, with a particular focus around the Macquarie River.

The Warren Sporting and Cultural Centre, located directly north of the Macquarie River, is a major attractor of passive recreation and sports for the Warren community.

Improvements to the access conditions around the Macquarie River and to the Health, Sporting and Cultural Precinct would likely appeal to a wide cross section of the community and encourage more walking and cycling behaviour in the town.



6.0



6. STUDY AIMS AND OBJECTIVES

The Warren Health, Sporting and Cultural Precinct Connections Study aims to make pedestrian and cycling activities a safe, healthy and attractive travel option to access the facilities north of the Macquarie River.

The Warren Shire Community Strategic Plan 2022 identifies a number of strategic objectives that provide a road map for the future.

Objectives and strategies that are considered relevant to the development of the Warren Health, Sporting and Cultural Precinct Connections Study are listed below:

- Improve social well-being to offer a competitive lifestyle and attract and retain working families.
 - Local access to essential services and less out-reach services, particularly for essential services.
 - Maintain high levels of community cohesion and community spirit.
 - More accessible facilities for youth and a greater range of youth activities are organised and coordinated.
- A safe and clean community.
 - Help ensure safe and sustainable development.
 - Maintain town streets and footpaths.
- Strengthening agriculture and existing local industries and exploring other options.
 - Assist and encourage the development of new business.
 - Implementation of Streetscape Masterplan and Town Improvements.
 - Development of a Tourism strategy.
- Good quality transport infrastructure.
 - Ensure roads and bridges are maintained/constructed to acceptable community standards in a cost effective, efficient and safe manner.
- Good quality community infrastructure and facilities.
 - Maintain parks, gardens and reserves in a safe and attractive condition.
 - Maintain community facilities to an appropriate standard.
- Management of the local environment.
- A community that partners with Council in decision making.
- A Council that provides quality service to ratepayers and residents and delivers cost-effective services to these customers.



7.0

7. APPROACH AND METHODOLOGY

The Warren Health, Sports and Cultural Precinct Connections Study will assist Council to plan, program and apply for funding for footpaths, cycleways, shared paths and associated infrastructure to improve the pedestrian and cycling connections across the Macquarie River.

The Study builds upon existing infrastructure and addresses the key issues and aspirations identified by the community consultation and audits.

The specific objectives of the planning process are to:

- Review the existing situation.
- Undertake a detailed site analysis of the area.
- Identify needs of all types of pedestrians and cyclists.
- Identify infrastructure improvements to deliver a connected network and achieve an appropriate level of pedestrian and cyclist access, priority and safety.
- Prioritise improvements so they can be realistically implemented.
- Ensure prioritised improvements are employed in a consistent and appropriate manner.
- Ensure facilities are managed and maintained to high quality standards.
- Partner with government authorities, advocacy agencies and local community groups to identify potential sources of funding to enhance and maintain active movement facilities.
- Include walking and cycling in all planning decisions.
- Encouraging residents to become more active for their personal health and wellbeing.

To achieve this approach, the following methodology has been followed:

- **Audit / site inspections** – preliminary inspections were undertaken on 2 May 2016, followed by further inspections by the project team to develop base maps and review conditions.
- **Community Consultation** – community workshops were held on 19 May 2016, followed by further stakeholder engagement. The community consultation provided valuable insight about walking and cycling conditions and opportunities in Warren. The main findings of consultation are documented in a consultation and audits findings map.
- **Site Analysis** – a site analysis map has been developed, based on the consultation and audit findings, and further investigations.
- **Active Travel Options Study** – various options to achieve a cohesive, safe, direct and attractive active travel network for the Warren Health, Sports and Cultural Precinct have been documented in an options study map.
- **Active Travel Plan** – the recommended active travel plan for the Warren Health, Sports and Cultural Precinct has been presented in a map.
- **Action Plan** – A Matrix Table provides full visibility of how projects have been prioritised and costed.

8.0



8. COMMUNITY ENGAGEMENT

Community workshops, meetings and one-on-one discussions were held in Warren throughout May / June 2016, to discover the specific needs of pedestrians and cyclists at the Warren Health, Sporting and Cultural Precinct.

The workshops were structured around a series of local area maps. Questions were then asked about the various users of the pedestrian and cycling network and local conditions that led the conversation to address problems, solutions, suggested routes and feedback to be covered within the allocated workshop.

Throughout the workshops and follow-up consultation, the responses given had common themes which reiterated the desire for additional paths to the Warren Health, Sports and Cultural Precinct, located north of the Macquarie River.

The feedback received from community engagement is shown on Map Sheet 1 (Appendix A) and has been used to achieve informed decisions on the following:



8.1 Identifying User Needs

The needs of pedestrians and cyclists that may wish to access the health, sporting and cultural precinct are not all the same. The following provides some insights into the different needs of pedestrians and cyclists that wish to access the precinct:

Commuters

There was not considered to be a significant thoroughfare of commuters wishing to access the Warren Health, Sporting and Cultural Precinct for work or education reasons. Several people regularly walk or ride to work to access the Warren Hospital and the northern parts of town. A lot of people use Charles Sturt Bridge for commuting purposes, and there was considered to be potential for these people to use alternate river crossings if they were available.

Lighting at Charles Sturt Bridge / underpasses was considered to be an important issue for commuters.

Note 1: *The main objectives of pedestrian lighting are to ensure adequate lighting is provided to identify pedestrian routes and signage, illuminate pedestrians to other road users and to achieve facial recognition of another pedestrian at a reasonable distance.*

Note 2: *The main objective of cycle ways lighting is to ensure adequate lighting is provided so that cyclists, travelling at reasonable speed are able to avoid potholes and any other traffic hazards.*

Utility / shopping

Shopping trips by adults are generated for specific purposes, such as running errands, shopping, visiting friends, local destinations and points of interest. Children and younger adults often access the CBD as part of their downtime. There was not considered to be a significant thoroughfare of shoppers wishing to access the Warren Health, Sporting and Cultural Precinct. New access opportunities, particularly a more direct bridge linking the precinct to the CBD, were



8.0

considered to hold merit for improved activity between these two attractors.

Note 1: *Local businesses can experience economic improvement when people use local shops as part of their active travel routine.*

Note 2: *Evidence suggests that active movement infrastructure, particularly footpaths around local shops and community facilities, are important for encouraging social interaction. Such facilities provide casual and chance interactions with other members of the community as well as providing places for people to meet friends and family and engage in social activities.*

Secondary / tertiary school students

Older students are regular users of the existing footpaths and shared paths to access the sporting facilities available at the Warren Sporting and Cultural Centre. A number of students walk through the precinct to access school facilities and the CBD. Students often walk, scooter, skate, run or cycle to the sporting centre. Many sporting activities for high school students occur in the afternoons and in the early evenings, which places importance on paths that are well lit, have natural public surveillance and are separated from motor vehicle traffic.

Note: *Children's health should include regular physical activity. Health professionals recommend at least 60 minutes of moderate to vigorous physical daily activity for children 5 to 18 years of age to keep healthy. Outdoor activity, such as walking, running and cycling can contribute to children's health, as well as their development of physical, practical, emotional and social skills.*

Infants / primary school students

Children are using the same facilities as secondary students, however they are at more risk from traffic for many reasons. School excursions to the playing fields at the Warren Sporting and Cultural Centre are regular occurrences, either in class groups or whole of school

groups. There is a need to provide more footpaths that are separated from motor traffic, and road crossing points. There is a need to explore opportunities to better connect the Macquarie River and the Warren Sporting and Cultural Centre.

Note: *Kidsafe advise children:*

- *Are easily distracted and focus only on one aspect of what is happening.*
- *Are smaller and harder for drivers to see, and less predictable than other pedestrians.*
- *Cannot accurately judge the speed and distance of moving vehicles.*
- *Cannot accurately predict the direction that sounds are coming from.*
- *Unable to cope with sudden changes in traffic conditions.*
- *Do not understand abstract ideas, such as road safety.*
- *May lack the ability to distinguish between safe and unsafe crossing gaps and sites, putting them at risk as they cross the road.*
- *May lack understanding of the dangers presented under different conditions, such as wet weather or darkness.*

Fitness

Sports people use the playing fields at Victoria Park and the Warren Sporting and Cultural Centre on a daily basis. They often walk, run or cycle to the centre alone or in small groups. They also use the centre as a fitness and training ground.

Fitness and sporting activities can occur early in the morning and into the evenings, which places importance on paths that are well lit, have natural public surveillance and are separated from motor vehicle traffic. Others walk their companion animal along the shared paths and adjoining the river.

8.0



Note: People are more likely to be active when they feel protected from traffic and safe from crime and hazards.



Tourists / visitors

The land-use activities located on the northern side of the Macquarie River are fast becoming tourist destinations. As well as seeking interesting and rewarding visitor experiences, pedestrian and cycling tourists require end-of-trip facilities (seating, toilets and water points) and wayfinding signage and maps.

Note: Evidence suggests that active travel infrastructure is important for encouraging social interaction with visitors, which makes them feel included into the community.

Access Impaired

Disability is an issue that affects a significant proportion of the population. Active travel can represent some of the most socially inclusive modes of transport for all users. Benefits for access impaired persons include improving social skills and networks, reducing isolation and loneliness and enhancing self-esteem and confidence. Access impaired persons appreciate smooth level and clear walking surfaces, end of trip facilities, such as disabled parking facilities, water points and toilets.

Note: In 2012, the ABS Survey of Disability, Ageing and Carers reported that 18.5% of Australians had a long-term disability that restricted their everyday activities.



Aged Persons

With the incidence of disability increasing with age, the rate of disability is expected to increase substantially in the Warren Shire over the next two decades. An aging demographic means that many people in the



8.0

community will require greater assistance to move about in the future.

Age is related to a variety of characteristics and skills that influence the risk of traffic injury. These age-related characteristics can also affect the way in which people of different ages interact with the movement network.

Pedestrian crossings at main roads and kerb ramps at intersections are key investigation areas for the Warren Health, Sports and Cultural Precinct. Development of user-friendly pedestrian paths that allow walking around the precinct are considered important for continued health of residents at the hospital and aged care accommodation.

The main needs of aged persons are for level walking surfaces that are free of hazards. Aged persons also appreciate end of trip facilities, such as seating, water points and toilets.

Note 1: People aged 70 years and older represent around 10% of residents in NSW, however they account for around one third of pedestrian fatalities (Western Regional Transport Plan 2013).

Note 2: In the 2010 NSW Health Falls Prevention Baseline Survey, 26.7% of people aged 65 and older, reported limiting their walking because of fear of falling whilst walking over rough or uneven surfaces, steps or stairs.

Note 3: Active movement, particularly walking in older people can represent some of the most socially inclusive modes of transport. It provides opportunities to socialise with friends and neighbours and creates a safer, friendlier and more connected community. Benefits include:

- Encouraging family and community connectedness.
- Improving social skills and networks.
- Reducing isolation and loneliness.
- Enhancing self-esteem and confidence.

- Prolonging independent living for older people in the community.

Pedestrian and cycling activity can also improve psychological wellbeing, metabolism, muscle strength and flexibility, endurance, respiratory function, energy levels and weight management. In the event of illness or recovery from trauma / surgery, all this aids in a speedy return to good health.



8.2 Constraints And Opportunities

Respondents indicated that they would prefer more dedicated shared paths, particularly around the Warren Sporting and Cultural Centre, Macquarie River and to the CBD.

The construction of shared paths on the levee banks around the Macquarie River was considered to hold merit. Questions about landownership and cost are considered to be constraints to building paths on levee banks.

The new shared paths being built by Council are highly valued by residents, however more paths should be

8.0



constructed of concrete surfaces instead of bitumen sealed paths or gravel.

Speed of traffic along main roads and poor visibility of cyclists and pedestrians returning from the Warren Health, Sports and Cultural Precinct were considered important issues to address.

Providing an alternative pathway across the Macquarie River was considered to have merit. Two bridge options were considered worthy of inclusion in draft Act Travel Plans.

Respondents indicated that they would like to see the development of the following infrastructure improvements to service the Warren Health, Sporting and Cultural Precinct:

- 20km/hr speed limit signs within the grounds of the Victoria Park and the Warren Sporting and Cultural Centre.
- More lighting at the Warren Sporting and Cultural Centre, particularly along known pedestrian routes from Warren Hospital to southern attractors.
- More formal car parking areas at the Warren Sporting and Cultural Centre.
- More dedicated shared paths around the Macquarie River.
- A pedestrian / cyclist bridge that would provide a more direct route to the Warren CBD and primary school, as well as opportunities for socialising, fitness and tourist activities.
- A shared path linking tourist attractions to the Warren Sporting and Cultural Centre, Macquarie River and the Warren CBD.
- Opportunities for loop walks, circuit fitness loops and outdoor fitness equipment nodes within the Warren Sporting and Cultural Centre.
- Opportunities to expand the walking and cycling routes on top of the levy banks that abut the Macquarie River and link the Warren Hospital,

Warren Sporting and Cultural Centre, Macquarie River, and tourist facilities.





9.0

9. SITE ANALYSIS

The following section provides a general overview of the environment, which places the study area in its local and regional environmental context. A more detailed description of the study area is also provided in this section and should be read in conjunction with the Site Analysis Maps included in Appendix A as described below:

Map Sheet 2 – Site Analysis Map – Key Issues

Map Sheet 3 – Site Analysis Map – Constraints

Map Sheet 4 – Site Analysis Map - Opportunities

Locality Description

The site of the Warren Health, Sporting and Cultural Precinct is located on the northern side of the Macquarie River in the township of Warren.

The precinct is accessed by the Oxley Highway and Udora Road as well as shared paths and footpaths.

Land-uses at the precinct include:

- Warren Sporting and Cultural Centre.
- Victoria Park.
- Warren Multi-Purpose Service.
- Warren Ambulance Station.
- Tennis Courts, Cricket Nets and Netball Courts.

Land Ownership

The subject land comprises Council owned land, Crown Land and land owned by the NSW Department of Health.

Property Improvements

The following improvements are located on the subject land:

- Warren Sporting and Cultural Centre (2 storey building, loading area and car park).
- Warren Multi-Purpose Service (several buildings, car parks and landscaped areas).
- Warren Ambulance Station (several buildings and car parking and storage area).
- Warren Tennis Courts and Club Rooms.
- Victoria Park playing fields and lighting.
- Cricket Nets and Netball Courts.
- BMX track.
- Roads, shared paths and footpaths.
- Levee banks and fencing.
- Overhead power lines.
- Stormwater infrastructure.

These assets are shown on the site analysis map.

Surround Land-Use

The Macquarie Caravan Park adjoins Victoria Park and the Warren Sporting and Cultural Centre.

There are no dwellings or other sensitive land-uses in close proximity to the precinct, other than the actual hospital and aged persons accommodation. These uses are well set back from sporting facilities and other parkland activities.

Nearby land-uses on the southern side of the Macquarie River are St Mary's Primary School and Catholic Church, Warren Community Homes, residential housing, Macquarie Park and the Warren CBD.

Road Network and Main Movement Corridors

The Warren Health, Sporting and Cultural Precinct is serviced by the Oxley Highway and Udora Road, shared paths and footpaths. Internal bitumen sealed roads provide access to facilities. The location of the main

9.0



movement corridors is presented in the site analysis map.

Flooding of Macquarie River

The flooding of the Macquarie River in the urban areas of Warren is designed to be contained by levee banks.

The southern edge of the Warren Health, Sporting and Cultural Precinct is subject to flooding. This area has few improvements (BMX track and a cricket pitch) as well as mature River Red Gums.

The location of the levee banks and an indication of flooding is presented in the Site Analysis Maps.



10.0

10. Options Assessment

This section examines the options that are available to achieve the objectives of the Warren Health, Sports and Cultural Precinct Connections Study, and should be read in conjunction with Map Sheet 5 – Site Options Assessment Map, which is included in Appendix A.

10.1 Pre-Determined / Logical Path Extensions

Most of active movement network is established. The main response to improving the network is the extension and enhancement of the existing facilities adjoining the Oxley Highway and the Macquarie River.

10.2 Bridge Crossing Options Assessment

The most important aspects of the connections study that involves assessment of different options is the crossing of the Macquarie River with a new pedestrian and cycling bridge.

Three potential bridge crossing points have been investigated and presented in the Site Options Assessment Map.

An assessment of the possible bridge crossing points is summarised below:

Option 1 – Hilton Lane Pedestrian and Cycling Bridge

This option was identified early in the site analysis and community workshops, as a good river crossing point given the high river banks and absence of floodplain on the eastern approaches to the bridge crossing point.

The bridge crossing would allow for a more circuitous pedestrian and cycling route around the outskirts of town, which is desired by some walkers, joggers and cyclists.

The bridge location was discounted as it would not provide direct connections between the Warren Health, Sports and Cultural Precinct and the Warren CBD.



Extract of Map Sheet 5 – Site Options Assessment Map

10.0



Option 2 – Myra St Pedestrian and Cycling Bridge

This bridge crossing location presents as a logical bridge crossing point when assessed from the northern side of the Macquarie River. It would cross the river and enter the Warren Health, Sports and Cultural Precinct at an ideal location close to the Warren Multi-Purpose Service and the Sporting and Cultural Centre. It would also link with existing paths.

The option would involve construction of a relatively long bridge crossing of approximately 50 metres as well as the need to negotiate the river floodplain on the north-eastern side of the river before reaching the levee bank near Victoria Park.

Inspection of the potential bridge crossing point from the southern side of the Macquarie River reveals a cul-de-sac road (Myra Street) and several private dwellings. The route would connect readily to Carter Oval and the town pool, which is considered to hold merit in connecting these main attractors to the Warren Health, Sports and Cultural Precinct.

This option raises issues about likely impacts on residential amenity, which need to be fully explored with Myra Street residents and the wider community.



Extract of Map Sheet 5 – Site Options Assessment Map

Option 3 – Lawson St Pedestrian and Cycling Bridge

This bridge location provides the most direct connection between the Warren Health, Sports and Cultural Precinct and other attractors in town, including the Warren CBD.

It would cross the river and enter the Warren Health, Sports and Cultural Precinct at an ideal location to readily service the Warren Multi-Purpose Service and the Sporting and Cultural Centre.

The option would involve a relatively long bridge crossing of approximately 50 metres as well as the need to negotiate the river floodplain on the north-eastern side of the river before reaching the levee bank near Victoria Park.

Inspection of the potential bridge crossing point from the southern side of the Macquarie River reveals a logical point of entry to Lawson Street and an existing shared path.

The route would provide excellent connections for St Mary's Primary School and Catholic Church, Warren Community Homes, residential housing, Macquarie Park and the Warren CBD.

No major issues are raised about likely impacts on residential amenity, however, these issues need to be fully explored with nearby residents and the wider community.



Extract of Map Sheet 5 – Site Options Assessment Map



11.0

11. Active Travel Plan

The new facilities and treatments required to create a cohesive, safe, direct and attractive network forms the basis of the Active Travel Plan, presented in Appendix A as Map Sheet 6.

The Active Travel Plan is the result of the consideration of a number of variables that have been examined in previous sections of the plan.

Key elements of the Active Travel Plan are summarised below:

11.1 Lawson Street Pedestrian And Cycling Bridge

Bridge Option 3 is included as the recommended crossing of the Macquarie River in the Active Travel Plan, as it provides the most direct connection between the Warren Health, Sports and Cultural Precinct and the Warren CBD and St Mary's Primary School.

The bridge would be designed to accommodate pedestrians, cyclists and mobility scooters only. Motor vehicles would be prohibited from using the bridge.

The deck of the bridge would be located above RL 197.7 metres to be a AHD, which corresponds to the Flood Planning Level. The northern approach to the bridge would follow a 20 degree grade down to the floodplain.

The bridge would be well-lit to provide safe and convenient access to the facilities located either side of the Macquarie River, which are known to operate into the early evenings and mornings.

11.0



11.2 Footpaths

Several footpaths are proposed around the Sporting and Cultural Centre to complete the walking paths around this building.

These footpaths are required to be designed and built to meet minimum dimension requirements of Austroads Guide to Traffic Engineering Practice Part 13 – Pedestrians. Design elements of footpaths include width, gradient, pavement materials that are slip resistant, type of kerb and adequate setback distance of the footpath from the roadway.

The Table to the right identifies the recommended path widths and clearances for footpaths.

	Local Access Path	Shopping Centre	Recreation & Commuting
Desirable path width	1.2m	3.0m	2.5m
Lateral clearance	0.5 –1m	0.5 –1m	0.5 –1m
Typical features of use	Regular use	See Note 1	See Note 1

Note 1 - Heavy and concurrent use in both directions

Note 2 – Table Adapted from Austroads Guide to Road Design Part 6A: Pedestrians and Cyclists Paths (2009)

Recommended pavement materials are concrete and asphalt, as these surfaces are hard wearing and generally functionally appropriate.

The new footpaths should be free of obstructions and should not include steps, stairways or obstacles that affect the safety of pedestrians, in particular people with a disability.

Long sections of high grade footpaths should be avoided, as they can be extremely difficult for mobility impaired users to negotiate. This is particularly important at the Warren Health, Sports and Cultural Precinct, which aims to provide for all users.

Technical advice on footpath design is provided in:

- Austroads Guide to Road Design Part 6A: Pedestrians and Cyclists Paths, 2009.
- The Austroads Guide to Traffic Engineering Practice Part 13 – Pedestrians.
- AS 1428.1 – Design for Access and Mobility.





11.0

11.3 Shared Paths

Shared paths have been included in the Active Travel Plan as the main pathways to connect the Warren Health, Sports and Cultural Precinct to other areas of town.

A shared footpath is a path which pedestrian and bikes mix, however the cyclist must give way to pedestrians.

The Table to the right identifies the recommended widths for shared paths.

Special signage is required where shared paths meeting public roads, to ensure that pedestrians and cyclists give way to traffic at these intersection points.

	Off-road Path Width			
	Local Access Path	Recreation and Utility	Recreation and Commuting	Major Recreation
Desirable path width	2.5m	3.0m	3.5m	4.0m
Lateral clearance	0.5 – 1m	0.5 – 1m	0.5 – 1m	0.5 – 1m
Typical features of use	Note 1	Note 1	Note 2	Note 3



11.0



11.4 20km/H Speed Zone

A sign posted 20km/h is suggested within the internal roads of the Warren Health, Sports and Cultural Precinct. This will provide safer road conditions throughout the precinct, and may encourage more active movement and activity throughout the precinct, particularly children and aged persons.

The NSW Speed Zoning Guidelines 2009 provides assessment criteria for speed reduction scenarios.

A speed zone review by RMS is required to determine appropriate speed limits and locations of new signs.

11.5 Charles Sturt Bridge Underpass Improvements

Current conditions at the Charles Sturt Bridge underpass are quite poor and need to be improved in order for pedestrians and cyclists to use this asset.

The underpass needs to be better lit at night and the fencing and retaining walls need to be redesigned to provide a more open route through the underpass.

These improvements will increase both actual and perceived safety along the active travel network.





11.0

11.6 Pedestrian Refuge Crossing

A pedestrian refuge island is proposed to cross Oxley Highway, just south of the intersection of Gillendoon Street. This may require approval by the RMS.

A small concrete island in the middle of the Oxley Highway is proposed that allows people to cross in stages. This pedestrian refuge will allow a safe point for pedestrians to 'store' mid-way across the Oxley Highway, which is both a busy and wide arterial road.

Austrroads Guide to Traffic Engineering Practice Part 13 – Pedestrians states in relation to pedestrian refuges that street lighting in accordance with AS 1158.1 should also be provided. It is noted that overhead lighting is available at the location of the proposed pedestrian refuge crossing. The guide also recommends a refuge width of at least 2 metres to allow storage for a person with a pram, bicycle or wheelchair.

Tactile ground surface indicators (TGSi) are recommended to provide information that enables people who have impaired vision to locate the refuge island either tactually or using their residual vision.

A new island refuge is also recommended to cross Gillendoon Street. This crossing would be achieved by extending the existing centre island strip in Gillendoon Street further to the west.



11.0



11.7 Kerb Ramps

Where access from footpaths and shared paths must be provided to the road, a continuous accessible path of travel should be provided to allow access for wheelchairs, prams and trolleys, and pedestrians with impaired mobility.

High grade drop kerbs can cause safety issues for mobility impaired users. Users can become vulnerable to general traffic as they attempt to enter / leave the carriageway and proceed up / down steep kerb ramps. When crossing a road, people who have impaired vision often use the kerb ramp to align themselves and then walk in a straight line to the other side. If the ramp does not align squarely with the kerb, it can lead people on an angle into the roadway, rather than directly across the street.

A blended kerb is recommended, in which there is no significant drop from the footpath to street level; the path simply flows onto the road.

While blended kerbs provide easy transition for sighted people with mobility difficulties, they can be an issue for people who are blind or have impaired vision, as these people rely on traditional kerbs and kerb ramps to indicate where the footpath ends and the road begins. With a blended kerb, they can find themselves in the middle of the road without knowing that they have left the footpath.

One way to improve safety in this scenario is to install tactile ground surface indicators (TGSIs) between where the footpath ends and the road begins. This will alert people who have impaired vision that they are about to step onto a road.

The general design of a kerb ramp is illustrated below. It is important that kerb ramps:

- Comply with standard grades.
- Consider incorporating tactile surfaces for all primary activity areas where appropriate.
- Align squarely with the direction of road traffic.
- Directly align with the kerb ramp on the other side of the road.
- Align with pedestrian refuge islands.





11.0

11.8 Signage and Line Marking

Signage and or markings should be provided throughout the entire network to guide pedestrians and cyclists use of the bicycle and shared path network.

Signage and / or markings should include both directional and informative information and be designed to be easily identifiable and consistent across both on-road and off-road networks. They will inform users of the direction and distance to key destinations, provide warning of changing conditions (e.g. intersection) and of approaching hazards and provide clear travel pattern advice, which is particularly important at intersections.

Signage and / or markings should be provided when new on-road bicycle and shared pathways are constructed and should be progressively retro-fitted across the existing network.

Special signage is required where shared paths meet public roads, to ensure that pedestrians and cyclists give way to traffic at these intersection points.

Technical advice on signage and marking treatments is provided in:

- Austroads Guide to Road Design Part 6A: Pedestrians and Cyclists Paths, 2009.
- NSW RTA bicycle Guideline (Section 9 – Signage and network information).
- Austroads – Cycling Aspects of Austroads guides.
- Vic Roads Cycle notes No. 10 – Shared path behavioural signs, 2005.

Many people who have impaired vision have some residual vision and some are able to read print signage. It is necessary to provide braille, symbols and large print signage to ensure effective communication for all users.



11.0



11.9 Lighting

Night-time outdoor lighting has most often been designed for the vehicle driver, rather than for pedestrians and cyclists.

All footpaths and shared pathways that carry a substantial number of pedestrians and cyclists to and from the Warren Health, Sporting and Cultural Precinct should be improved with path lighting.

This lighting will increase both actual and perceived safety along the active travel network.

The main objectives of pedestrian lighting are to ensure adequate lighting is provided to identify pedestrian routes and signage, illuminate pedestrians to other road users and to achieve facial recognition of another pedestrian at a reasonable distance.

The main objective of cycle ways lighting is to ensure adequate lighting is provided so that cyclists, travelling at reasonable speed are able to avoid potholes and any other traffic hazards.

Additional lighting is recommended for the Charles Sturt Bridge underpass and the proposed new pedestrian and cycling bridge.

Austrroads Guide to Road Design Part 6A: Pedestrians and Cyclists Paths, 2009 (Section 6.5 and 7) provides guidance on the key considerations for the lighting of pathways.

All path lighting should be designed in accordance with AS/NZS 1158.3.1:2005, Pedestrian area (Category P) lighting – performance and design requirements.





11.0

11.10 Supporting Infrastructure

A range of supporting infrastructure needs to be provided, including toilets, signage, lighting, seating, end attractors such as bike racks and / or lockers, water points, shade and facilities for people with a disability. Technical advice on the provision of supporting infrastructure is provided in:

- NSW RTA Bicycle Guidelines, 2005 (Section 10: Maintenance and provision at worksites).
- Austroads Guide to Traffic Engineering Practice Part 14: Bicycles, 1999 (Section 10: End of trip facilities).
- Bicycle Victoria The Bicycle Parking Handbook, 2004.
- Austroads, Cycling Aspects of Austroads Guides 2014.



11.0



11.11 Landscape Design

Landscaping can have positive impact on pedestrian pathway and cycle ways use. It is important that landscaping is designed, constructed and managed to:

- Provide clear sightlines.
- Promote good visibility.
- Provide safe side clearances.
- Prevents intrusion into pedestrian / cycling operating space.
- Manages tree root damage to pathways.
- Provide passive surveillance and promotes an open easy – supervised environment.
- Manage weeds, especially catheads.

Austrroads Guide to Road Design Part 6A: Pedestrians and Cyclists Paths, 2009 and the NSW RTA Bicycle Guidelines, 2005 provides guidance on the key considerations for landscape design.





12.0

12. Action Plan

There are limited resources available to Warren Shire Council to undertake improvements at the Warren Health, Sports and Cultural Precinct over the next 10 years. It is necessary to prioritise projects that make up the new Active Travel Plan.

The Matrix Table included in Appendix B provides full visibility of the proposed projects and the assessment criteria used to determine priorities.

The location of each project is shown clearly on Map Sheet 7 included in Appendix A.

A series of questions were asked and given a ranking score to reflect their importance in pedestrian and bicycle planning outcomes. These questions include:

- Does it fill a gap in the network?
- Was it identified in consultation, surveys, audits or inspections?
- Will it benefit more than one user type? (recreation, commuter, fitness, shopping / short trips, student)
- Will it be suitable for all users? (safe, direct, comfortable, coherent)
- Is it located in a high activity area? (primary activity area, secondary activity generator, primary routes)
- Is it located in a hazard area? (in a black spot, or near miss area, arterial or collector road, school zone, a place visited at night or in poor visibility conditions, or place where alcohol is available)
- Will it lead to an appropriate reduction in vehicle speed?
- Does it improve pedestrian / cyclist visibility?
- Does it improve motorist, pedestrian, cyclist safety awareness behaviour?

- Is it the right type of facility / path?
- Would it be supported by experts / professionals in other areas of the country considering similar issues, problems, ideas and innovations?
- Is it practical in the Warren Shire context?
- Is it cost effective?

Each scoring criteria is scored between 1 and 10 with all scores summed to give a total score for each potential project.

13.0



13. Maintaining the new Active Travel Network

The development of a comprehensive maintenance program which identifies key tasks and frequency of works is an important part of a quality active movement network.

It is important that maintenance procedures are developed specifically for footpath and cycleway facilities, given the active travel network is perceived differently than other transport planning aspects.

In developing adequate maintenance programs, emphasis needs to be placed on the following:

- Removal of trip hazards as soon as practical.
- Removal of low over hanging tree branches as soon as practical.
- Choosing footpath and shared path pavements that are long-lasting and easy to maintain.
- Management of weeds - particularly catheads along footpaths and shared paths.
- Lighting improvements at areas frequently used by pedestrians at night.
- Landscaping maintenance to create attractive pathways and end-of-trip facilities.

Strategies that reduce / calm motor vehicle speed are important features of an improved active movement network.

Technical advice on a maintenance and hazard reporting systems (including templates and pathway safety checklists) is provided in:

- Austroads Guide to Road Design Part 6A: Pedestrians and Cyclists Paths, 2009.
- The NSW RTA Bicycle Guidelines, 2005.



14.0

14. Supporting a Culture of Active Movement

Even a locally tailored evidence-based plan of action is not a guarantee of lasting results once completed and implemented. According to the WHO Pedestrian Safety Manual 2013, safe road-user behaviour and increasing user support depends on a number of factors, including:

- Knowledge and skills.
- Leaders.
- Community support.
- Perception of vulnerability and risk.
- Social acceptance to norms and change models.
- Engineering measures.
- Law enforcement.

As this is a strategic document, detailed behaviour-change interventions and road safety programs have not been considered comprehensively. These issues need to be addressed over a longer period and with greater community input.

The following community awareness, education and activation strategies are suggested for further consideration by Warren Shire Council and the wider community.

Road Safety, Education and Training

Road safety education is an adjunct to other measures, rather than a stand-alone intervention. For example, road safety educational programmes may include raising driver awareness about care, prudence, kindness, consideration, speed, pedestrian and cycling right-of-the way and traffic rules.

School-Based Education

School-based education programmes help children acquire knowledge and skills for pedestrian safety. While these are important life skills and all children should be taught the rules of the road, school-based traffic education will only result in reduced pedestrian collisions when combined with other interventions (WHO Pedestrian Safety Manual, 2013).

Media Campaigns

Media campaigns can be used to inform the public about pedestrian and cyclist safety legislation, risk factors, impact of collisions and solutions available.

Targeted and planned media and social marketing campaigns that inform the public about pedestrian and bike safety laws and risk factors are necessary to improve driver, pedestrian and cyclist behaviour and enhance understanding of traffic issues such as traffic signs, road rules and right-of-way for all road users. Information alone is rarely sufficient to bring about changes in road user behaviour.

Traffic Law Enforcement

Traffic laws affecting pedestrian and cyclist safety are largely aimed at controlling behaviour at intersections, crossings and other locations. Driver, pedestrian and cyclist compliance with other laws relating to speed, drink driving, jay walking, riding on footpaths, illegal parking in disabled parking spaces and bus zones, and aggressive behaviour are also important.

14.0



A full appreciation of the road rules applying in NSW can be gained from the Transport for NSW website by using the following link:

<http://roadsafety.transport.nsw.gov.au>

New road rules have been introduced in NSW (1 March 2016) to help drivers, bicycle riders and pedestrians under the *Go Together Safely* campaign.

Map Sheets

Appendix A includes the following Map Sheets:

Sheet No.	Description
1	Consultation & Audit Findings Map
2	Site Analysis – Key Issues Map
3	Site Analysis – Constraints Map
4	Site Analysis – Opportunities Map
5	Site Options Assessment Map
6	Active Travel Plan
7	Project Location Map

APPENDIX A

MAP SHEET 1

Consultation & Audit Findings Map

Warren Health, Sporting & Cultural Precinct

LEGEND

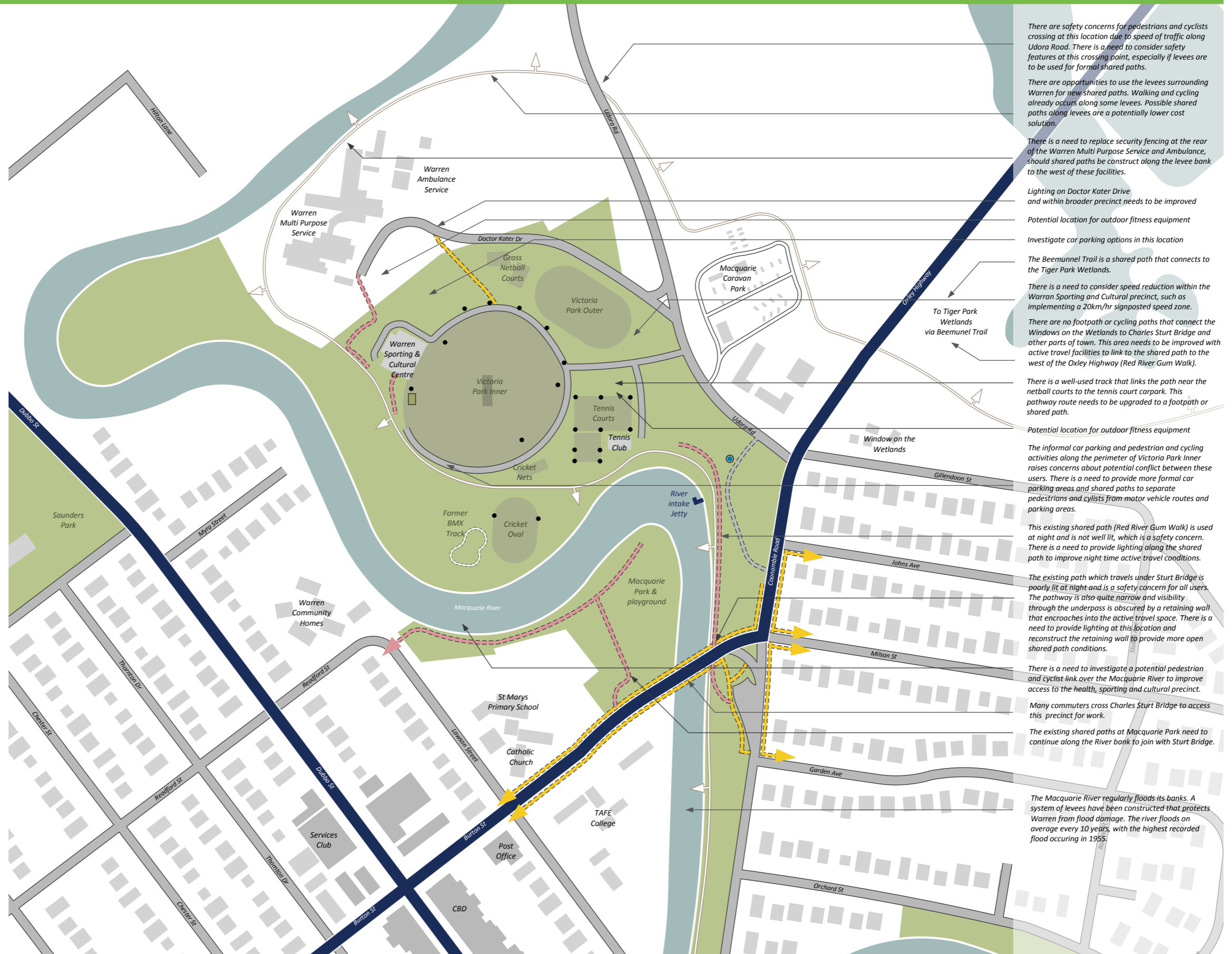
-  Main Road
-  Minor Road
-  Natural waterbody
-  Parkland
-  Sports playing field
-  Existing buildings
-  Existing 1.2m footpath
-  Existing 2.5m shared path
-  Informal slip road
-  Existing Levee bank
-  Existing flood light / street light
-  RV Dump point
-  Tiered seating

General Notes

The precinct is used for multiple purposes including rugby league, netball, cricket, tennis, carnivals, concerts, conferences, yoga, playgroups, debutante balls, touch football, vocation care, official functions, town events, little athletics, boot camps, occasional events, markets and weekend events.

There are many groups with stakeholder interests in this precinct including sporting clubs, gyms, Arts Council, vocational care providers, Warren Shire Council, District Schools, Hospital patients and gohper users.

There is a need for wayfinding signage to help pedestrians and cyclists navigate to the precinct



There are safety concerns for pedestrians and cyclists crossing at this location due to speed of traffic along Udonia Road. There is a need to consider safety features at this crossing point, especially if levees are to be used for formal shared paths.

There are opportunities to use the levees surrounding Warren for new shared paths. Walking and cycling already occurs along some levees. Possible shared paths along levees are a potentially lower cost solution.

There is a need to replace security fencing at the rear of the Warren Multi Purpose Service and Ambulance, should shared paths be constructed along the levee bank to the west of these facilities.

Lighting on Doctor Kater Drive and within broader precinct needs to be improved

Potential location for outdoor fitness equipment

Investigate car parking options in this location

The Beemunel Trail is a shared path that connects to the Tiger Park Wetlands.

There is a need to consider speed reduction within the Warren Sporting and Cultural precinct, such as implementing a 20km/hr signposted speed zone.

There are no footpath or cycling paths that connect the Windows on the Wetlands to Charles Sturt Bridge and other parts of town. This area needs to be improved with active travel facilities to link to the shared path to the west of the Oxley Highway (Red River Gum Walk).

There is a well-used track that links the path near the netball courts to the tennis court carpark. This pathway route needs to be upgraded to a footpath or shared path.

Potential location for outdoor fitness equipment

The informal car parking and pedestrian and cycling activities along the perimeter of Victoria Park Inner raises concerns about potential conflict between these users. There is a need to provide more formal car parking areas and shared paths to separate pedestrians and cyclists from motor vehicle routes and parking areas.

This existing shared path (Red River Gum Walk) is used at night and is not well lit, which is a safety concern. There is a need to provide lighting along the shared path to improve night time active travel conditions.

The existing path which travels under Sturt Bridge is poorly lit at night and is a safety concern for all users. The pathway is also quite narrow and visibility through the underpass is obscured by a retaining wall that encroaches into the active travel space. There is a need to provide lighting at this location and reconstruct the retaining wall to provide more open shared path conditions.

There is a need to investigate a potential pedestrian and cyclist link over the Macquarie River to improve access to the health, sporting and cultural precinct.

Many commuters cross Charles Sturt Bridge to access this precinct for work.

The existing shared paths at Macquarie Park need to continue along the River bank to join with Sturt Bridge.

The Macquarie River regularly floods its banks. A system of levees have been constructed that protects Warren from flood damage. The river floods on average every 10 years, with the highest recorded flood occurring in 1955.

north



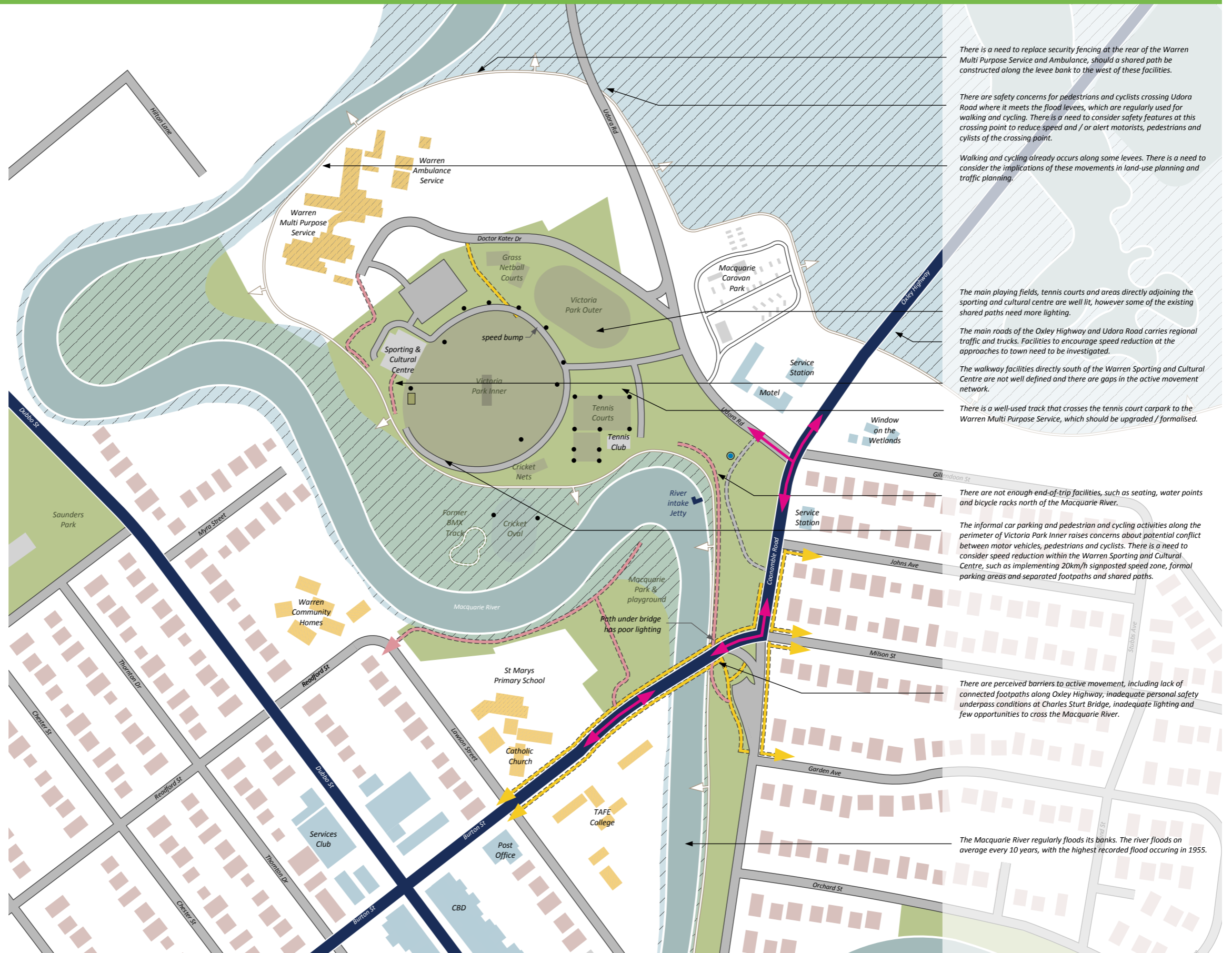
MAP SHEET 2

Site Analysis - Key Issues Map

Warren Health, Sporting & Cultural Precinct

LEGEND

-  Main Road
-  Minor Road
-  Natural waterbody
-  Parkland
-  Sports playing field
-  Existing commercial buildings
-  Existing Residential buildings
-  Existing community use buildings
-  Existing 1.2m footpath
-  Existing 2.5m shared path
-  Informal slip road
-  Existing Levee bank
-  Main movement corridor
-  Existing flood light / street light
-  Floodprone land 1:100 ARI
-  Connections to existing footpath network
-  RV Dump point
-  Tiered seating



There is a need to replace security fencing at the rear of the Warren Multi Purpose Service and Ambulance, should a shared path be constructed along the levee bank to the west of these facilities.

There are safety concerns for pedestrians and cyclists crossing Odora Road where it meets the flood levees, which are regularly used for walking and cycling. There is a need to consider safety features at this crossing point to reduce speed and / or alert motorists, pedestrians and cyclists of the crossing point.

Walking and cycling already occurs along some levees. There is a need to consider the implications of these movements in land-use planning and traffic planning.

The main playing fields, tennis courts and areas directly adjoining the sporting and cultural centre are well lit, however some of the existing shared paths need more lighting.

The main roads of the Oxley Highway and Odora Road carries regional traffic and trucks. Facilities to encourage speed reduction at the approaches to town need to be investigated.

The walkway facilities directly south of the Warren Sporting and Cultural Centre are not well defined and there are gaps in the active movement network.

There is a well-used track that crosses the tennis court carpark to the Warren Multi Purpose Service, which should be upgraded / formalised.

There are not enough end-of-trip facilities, such as seating, water points and bicycle racks north of the Macquarie River.

The informal car parking and pedestrian and cycling activities along the perimeter of Victoria Park Inner raises concerns about potential conflict between motor vehicles, pedestrians and cyclists. There is a need to consider speed reduction within the Warren Sporting and Cultural Centre, such as implementing 20km/h signposted speed zone, formal parking areas and separated footpaths and shared paths.

There are perceived barriers to active movement, including lack of connected footpaths along Oxley Highway, inadequate personal safety underpass conditions at Charles Sturt Bridge, inadequate lighting and few opportunities to cross the Macquarie River.

The Macquarie River regularly floods its banks. The river floods on average every 10 years, with the highest recorded flood occurring in 1955.



MAP SHEET 3

Site Analysis - Constraints Map

Warren Health, Sporting & Cultural Precinct

LEGEND

-  Main Road
-  Minor Road
-  Natural waterbody
-  Parkland
-  Sports playing field
-  Existing commercial buildings
-  Existing Residential buildings
-  Existing community use buildings
-  Existing 1.2m footpath
-  Existing 2.5m shared path
-  Informal slip road
-  Existing Levee bank
-  Main movement corridor
-  Existing flood light / street light
-  Floodprone land 1:100 ARI
-  Connections to existing footpath network
-  RV Dump point
-  Tiered seating



north

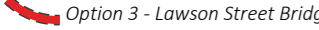
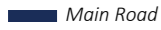

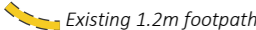
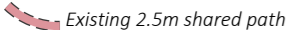




MAP SHEET 5

Site Options Assessment Map

Warren Health, Sporting & Cultural Precinct

LEGEND

-  Option 1 - Hilton Road Bridge
-  Option 2 - Myra Road Bridge
-  Option 3 - Lawson Street Bridge
-  Main Road
-  Minor Road
-  Natural waterbody
-  Parkland
-  Sports playing field
-  Existing buildings
-  Existing 1.2m footpath
-  Existing 2.5m shared path
-  Informal slip road
-  Existing Levee bank
-  Proposed shared path on levee bank
-  Existing flood light / street light
-  RV Dump point
-  Tiered seating

























MAP SHEET 6

Active Travel Plan

Warren Health, Sporting & Cultural Precinct

LEGEND

-  Main Road
-  Minor Road
-  Natural waterbody
-  Parkland
-  Sports playing field
-  Existing buildings
-  Existing 1.2m footpath
-  Existing 2.5m shared path
-  Informal slip road
-  Existing Levee bank
-  Proposed shared path on levee bank
-  Proposed shared path
-  Existing flood light / street light
-  New street / path lighting
-  Shared path signage locations
-  Shared path ahead signage locations
-  Proposed Pedestrian Bridge and shared path connection
-  RV Dump point
-  Road crossing upgrade
-  Seating installation
-  Bicycle rack and water point installation
-  Tiered seating



north



MAP SHEET 7

Project Location Map

Warren Health, Sporting & Cultural Precinct

Project List

- Project 1 - Sturt Bridge Underpass Improvements
 - Project 2 - Shared Zones
 - Project 3 - Levee Shared Path - South
 - Project 4 - Coonamble Rd Shared Path
 - Project 5 - Pedestrian Refuge Islands
 - Project 6 - River Red GumWalk shared path connection
 - Project 7 - Victoria Park Car Park
 - Project 8 - Multi Purpose Service shared path link
 - Project 9 - Lawson St Pedestrian & Cyclist Bridge
 - Project 10 - Pedestrian Bridge shared path connection
 - Project 11 - Shared path lighting improvements
 - Project 12 - Bike racks / water points
 - Project 13 - Levee shared path - North
 - Project 14 - Levee shared path - Udora Rd
 - Project 15 - Macquarie Park shared path extension
 - Project 16 - Seating
- existing paths
 --- existing informal roads



north



0 75 150m

APPENDIX B

Project Description		From	To	Does it fill a Network Gap?	Has it been identified in Consultation?	Has it been identified in Audits?	Are there User Type Benefits?	Is it suitable for all users?	Is it in A Primary Activity Zone?	Is it in a Secondary Activity Zone?	Is it on a Primary Pedestrian or cyclists Route?	Is it in or near a Hazard Area?	Will it reduce Speed?	Will it separate pedestrian and cyclists from vehicles?	Will it increase pedestrian and cyclist Visibility?	Will it increase Safety Awareness?	Would it be peer supported?	Is it practical?	Is it cost effective?	Total
8	Multi Purpose Service shared path link	Warren Multi-Purpose Centre	River Red Gum Walk	9	9	8	8	8	7	8	8	7	7	8	7	8	8	8	8	126
9	Lawson Street Pedestrian and Cyclist Bridge	Existing shared path on the Southern side of Macquarie River	Northern side of the Macquarie River	9	9	9	9	9	7	8	9	7	6	8	7	6	8	8	6	125
10	Shared path connection from Lawson Street Pedestrian and Cyclist Bridge to levee bank shared path	Lawson Street Pedestrian and Cyclist Bridge	Levee Bank Shared path	8	9	9	8	8	7	7	8	7	6	8	6	8	8	8	8	123
11	Lighting improvements along shared paths to Warren Sporting and Cultural Centre	Charles Sturt Bridge and new Lawson Street Bridge	Warren Sporting and Cultural Centre	8	8	8	8	8	7	7	8	8	6	7	9	8	8	8	7	123
3	Levee shared path South - connection to the Warren Sporting and Cultural Centre	River Red Gum Walk (existing shared path)	Warren Sporting and Cultural Centre	9	8	8	8	8	7	8	7	6	6	8	7	7	9	8	8	122
5	Pedestrian island refuge crossings x 2 (Oxley Highway and Gillendoon Street)	Gillendoon Street	Oxley Highway	8	8	8	7	7	6	6	6	7	8	8	8	8	7	8	7	117
4	Oxley Highway shared path – connection to Windows on the Wetlands	Windows on the Wetlands	Johns Avenue	8	8	7	8	8	6	6	6	7	7	8	8	8	7	7	7	116
12	End of trip facilities	Along shared paths	Along shared paths	8	8	8	7	8	8	8	7	8	5	5	6	7	7	8	8	116
16	End of trip facilities	Along shared paths	Along shared paths	8	8	8	7	8	8	8	7	8	5	5	6	7	7	8	8	116
6	Shared path link from Oxley Highway crossing to the River Red Gum Walk (shared path)	Oxley Highway	River Red Gum Walk	7	7	7	7	8	6	6	6	8	6	8	8	7	7	7	8	113
2	Speed zone review (20km/h within Warren Sporting and Cultural Centre)	Entrance to Udora Road	Internal roads	6	7	7	7	8	3	8	7	5	9	5	6	8	8	8	9	111
1	Charles Sturt Bridge Underpass Improvements	Charles Sturt Bridge	Charles Sturt Bridge	3	8	8	8	8	6	7	7	9	3	6	6	8	8	8	7	110

Project Description		From	To	Does it fill a Network Gap?	Has it been identified in Consultation?	Has it been identified in Audits?	Are there User Type Benefits?	Is it suitable for all users?	Is it in A Primary Activity Zone?	Is it in a Secondary Activity Zone?	Is it on a Primary Pedestrian or cyclists Route?	Is it in or near a Hazard Area?	Will it reduce Speed?	Will it separate pedestrian and cyclists from vehicles?	Will it increase pedestrian and cyclist Visibility?	Will it increase Safety Awareness?	Would it be peer supported?	Is it practical?	Is it cost effective?	Total
7	Victoria Park road works improvements and car park	Adjoining Warren Sporting and Cultural Precinct	Adjoining Warren Sporting and Cultural Precinct	6	7	7	7	8	7	7	6	6	7	5	7	7	7	7	6	107
15	Macquarie Park shared path extension	Macquarie Park	Charles Sturt Bridge	6	6	7	7	6	6	6	6	7	3	7	6	6	6	6	6	97
14	Levee shared path – Udora Road	Udora Road	Windows on the Wetlands	6	6	7	7	6	6	6	6	7	3	7	6	6	6	6	6	97
13	Levee shared path - North	Warren Sporting and Cultural Centre	Udora Road	6	6	7	7	6	6	6	6	6	3	7	6	6	6	6	6	96

APPENDIX G

Project Sheets

Appendix C includes Project Sheets for the sixteen improvements to the active travel network for the Warren Health, Sporting and Cultural Precinct, as identified on the Active Travel Plan (Map Sheet 6) and Project Location Map (Map Sheet 7).

PROJECT NO. 1

Charles Sturt Bridge Underpass Improvements

Description	This project involves improvements to the existing path under Charles Sturt Bridge, including the installation of lighting, widening of the existing path to a shared path standard, and reconstruction of the existing retaining wall.
Specification	1 x light installation, 1 x retaining wall @ 10 metres.
Estimated Cost	\$23,000



Charles Sturt Bridge Underpass



Project location map – (extract of Active Travel Plan)



3D Concept Drawing – typical cross section – improvements to existing path under Charles Sturt Bridge.

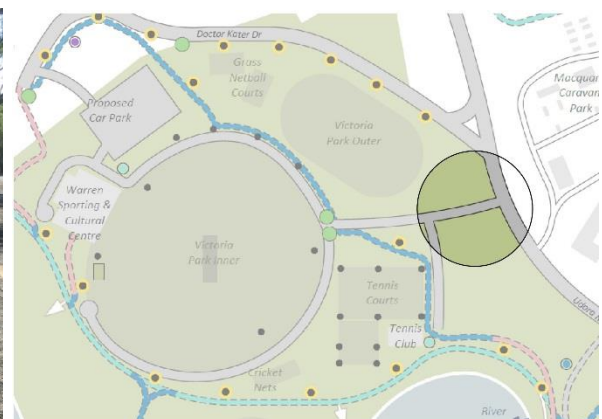
PROJECT NO.2

Internal Roads Shared Zone and Improvements

Description	This project involves the implementation of shared zones for all internal vehicle access roads within the Warren Health, Sport and Cultural Precinct. Appropriate shared zone signage is to be erected at the internal road intersecting with Oxley Highway.
Specification	2 x shared zone signs
Estimated Cost	\$4,600



An example of a internal access road within the precinct.



Project location map – (extract of Active Travel Plan)



3D Concept Drawing – typical cross section – new 2.5m wide concrete shared path and shared path signage

PROJECT NO.3

Levee Shared Path - South

Description	This project involves the construction of a 2.5m wide concrete shared path from River Red Gum Walk to the Warren Sporting & Cultural Centre, via the existing levee bank on the southern side of Victoria Park Inner.
Specification	430 metres x 2.5 metre wide concrete shared path
Estimated Cost	\$158,240



The existing levee bank south of Victoria Park Inner



Project location map – (extract of Active Travel Plan)

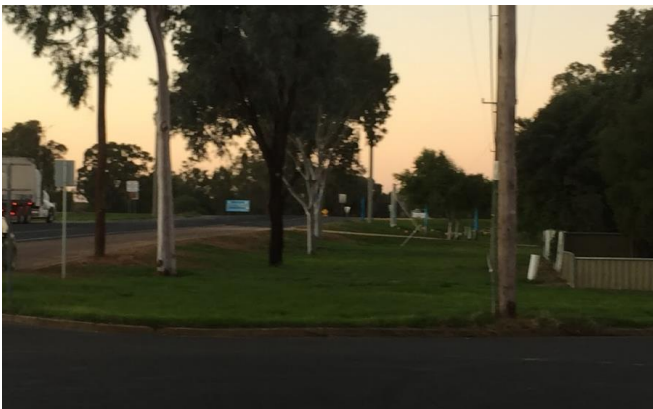


3D Concept Drawing – typical cross section – new 2.5m wide concrete shared path on existing levee bank formation

PROJECT NO.4

Oxley Highway Shared Path

Description	This project involves the construction of a 2.5m wide concrete shared path from the intersection of Oxley Highway and Gillendoon Street to the existing levee bank approximately 160 metres to the north.
Specification	160 metres x 2.5m wide concrete shared path
Estimated Cost	\$58,880



Corner of Oxley Highway and Gillendoon Street – view north



Project location map – (extract of Active Travel Plan)



3D Concept Drawing – typical cross section – new 2.5m wide concrete shared path and signage examples

PROJECT NO.5

Pedestrian Island Refuge Crossings

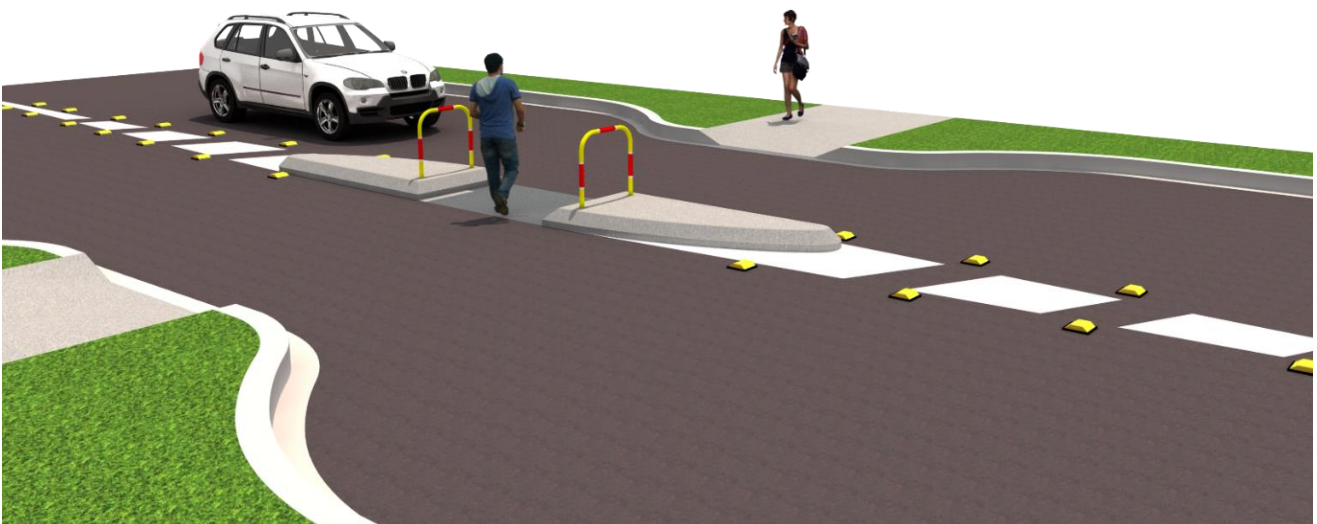
Description	This project involves the construction of a new pedestrian refuge crossing at the corner of Oxley Highway and Gillendoon Street and across Oxley Highway. The new refuge crossing will link new shared paths between River Red Gum Walk and Windows on the Wetland.
Specification	4 x new kerb ramps, 2 x new pedestrian refuge islands, 4 x new kerb blisters
Estimated Cost	\$68,080



Existing median on Gillendoon Street – view east



Project location map (extract of Active Travel Plan)



3D Concept Drawing – typical design for a pedestrian refuge island and new kerb ramp installation

PROJECT NO.6

Shared Path connection to from Oxley Highway to River Red Gum Walk

Description	This project involves the construction of a new 2.5m wide concrete shared path from River Red Gum Walk to the new pedestrian refuge location on Oxley Highway.
Specification	82 metres x 2.5 metre wide concrete shared path
Estimated Cost	\$30,176



View west towards the parkland adjoining Red River Gum Walk.



Project location map (extract of Active Travel Plan)



3D Concept Drawing – typical cross section – 2.5m wide concrete shared path and signage examples.

PROJECT NO.7

Victoria Park car park

Description	This project involves improvement works to the existing vehicle access roads within the Warren Health, Sporting and Cultural Precinct as well as the construction of a new carpark in the area between the Multi-Purpose Service and Victoria Park Inner.
Specification	1 x new car park
Estimated Cost	\$184,000



An example of a internal vehicle access within the precinct.



Project location map (extract of Active Travel Plan)

PROJECT NO.8

Multi Purpose Service shared path link

Description	This project involves the construction of a 2.5m wide concrete shared path from the Warren Multi-Purpose Service to the existing River Red Gum shared path.
Specification	454 metres x 2.5 metre wide concrete shared path
Estimated Cost	\$167,072



Location of new shared path – south of existing Tennis Courts



Project location map – (extract of Active Travel Plan)



3D concept drawing – typical cross section – 2.5m wide concrete shared path

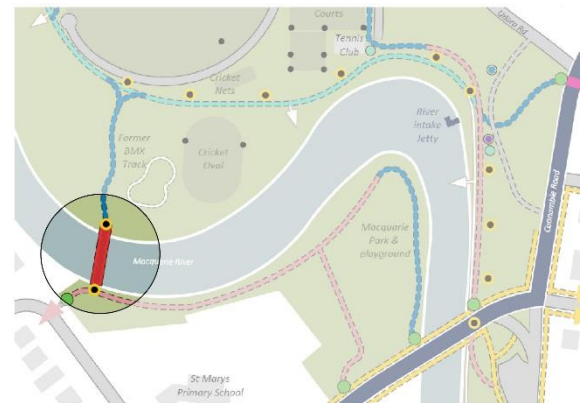
PROJECT NO.9

Lawson Street Pedestrian and Cyclist Bridge

Description	This project involves the construction of a new pedestrian and cyclist bridge over the Macquarie River, extending from the existing shared path at the end of Lawson Street to the opposite side of the river, including a shared path extension to the existing levee bank on the southern side of Victoria Park Inner.
Specification	15 metres x 2.5 metre wide concrete shared path, 1 x new pedestrian and cyclist bridge
Estimated Cost	\$810,520



Location of new pedestrian bridge – Macquarie River



Project location map (extract of Active Travel Plan)



3D Concept Drawing – typical pedestrian and cyclist bridge crossing over Macquarie River

PROJECT NO. 10

Lawson St pedestrian bridge shared path connection

Description	This project involves the construction of a new shared path to connect the Lawson St pedestrian bridge to the proposed levee shared path south of Victoria Park Inner.
Specification	138 metre x 2.5 metre wide concrete shared path
Estimated Cost	\$50,784



Area between pedestrian bridge and levee south of Victoria Park Inner



Project location map (extract of Active Travel Plan)



3D Concept Drawing – typical cross section – 2.5m wide concrete shared path

PROJECT NO.12

End of trip facilities – bicycle racks and water point installations

Description	This project involves the installation of end of trip facilities including bicycle racks and water points at key locations throughout the Warren Health, Sporting and Cultural Precinct.
Specification	3 x bicycle rack installations, 3 x water point installations
Estimated Cost	\$17,250



River Red Gum Walk



Project location map (extract of Active Travel Plan)



3D Concept Drawing – typical cross section – bike rack and water point installation

PROJECT NO. 13

Levee shared path - north

Description	This project involves the construction of a 2.5m wide concrete shared path from the south eastern side of Victoria Park Inner to the Udora Road via the existing levee bank that follows the banks of the Macquarie River.
Specification	540 metres x 2.5 metre wide concrete shared path
Estimated Cost	\$198,000



Existing levee bank north of precinct



Project location map (extract of Active Travel Plan)



3D Concept Drawing – typical cross section – 2.5 metre wide concrete shared path on existing levee bank formation

PROJECT NO.14

Levee Shared Path – Udora Rd

Description	This project involves the construction of a 2.5m wide concrete shared path from Udora Rd to Windows on the Wetlands via the existing levee bank.
Specification	450 metres x 2.5 metre wide concrete shared path
Estimated Cost	\$165,600



Existing levee bank – Udora Road



Project location map (extract of Active Travel Plan)

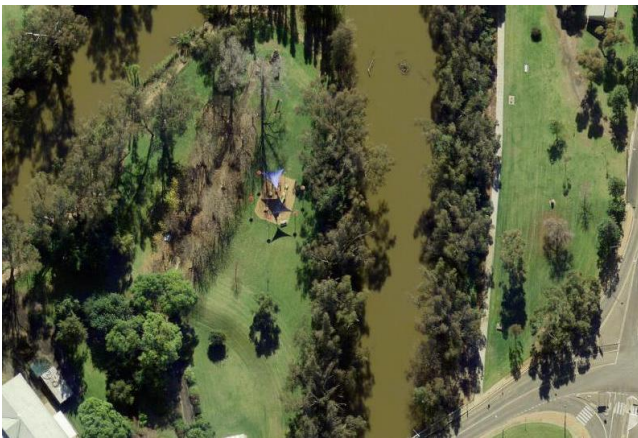


3D Concept Drawing – typical cross section – 2.5m wide concrete shared path on existing levee bank formation

PROJECT NO. 15

Macquarie Park shared path extension

Description	This project involves the construction of a 2.5m wide concrete shared path linking the existing path in Macquarie Park to the existing path on Charles Sturt Bridge
Specification	151 metres x 2.5 metre wide concrete shared path
Estimated Cost	\$51,340



Aerial photo of Macquarie Park



Project location map (extract of Active Travel Plan)



3D Concept Drawing – typical cross section – 2.5 metre wide concrete shared path

PROJECT NO. 16

End of trip facilities – seating installations

Description	This project involves the installation of end of trip facilities (seating) at key locations throughout the Warren Health, Sporting and Cultural Precinct.
Specification	2 x new seat installations
Estimated Cost	\$3,000



Existing levee bank – Udora Road



Project location map (extract of Active Travel Plan)



3D Concept Drawing – typical cross section – 2.5m wide concrete shared path with rest seating installation