TraffixGroup

Traffic Engineers and Transport Planners

MILDURA

STRATEGIC BICYCLE PLAN

Prepared by

Traffix Group

for

Mildura Rural City Council

EXECUTIVE SUMMARY

The Rural City of Mildura appointed Turnbull Fenner to undertake the Mildura Strategic Bicycle Plan in December 2001. The objectives of the study included the identification of existing cycling infrastructure, the preparation of a 10 year program of works to achieve an ideal cycling infrastructure with an emphasis on connectivity of facilities, establishment of priorities and cost estimates for proposed works with a detailed works program for the first three years and an increase in the participation rate of cycling within the municipality.

The study process has involved extensive consultation to ensure the plan addresses the requirements of all local cyclists and residents. In addition, the study has involved collection and collation of data from road accident analysis statistics to road side inspections of existing and proposed facilities and previous bicycle studies.

The Rural City of Mildura contains a large regional population with an active cycling club for competitive cyclists as well as a great number of tourist destinations. It is envisaged that the bicycle plan will not only cater for the local residents but also that facilities will be provided to form another valuable tourist asset in the form of both training routes and recreational facilities.

Overall the majority of existing bicycle infrastructure within the Mildura Rural City Council is located in the urban area of Mildura or the nearby satellite townships. The most common form of bicycle facility found in the urban area is the bicycle/parking lane, whilst crusher dust shared paths are provided close to schools in the satellite townships. In order to ensure continuity of bicycle networks across municipal boundaries, the Shire of Wentworth was contacted to determine what bicycle networks existed and what were proposed.

An investigation into the accident history of cyclists in Mildura Rural City Council has revealed that there have been 118 recorded casualty accidents involving 119 cyclists from January 1991 to April 2002 inclusive, and these included one fatality. These accidents represent approximately 6% of all road casualty accidents in the municipality. Of the 118 cyclist accidents, 80% occurred in the urban area of Mildura with up to five accidents occurring at some individual sites. Most accidents occurred between 8am and 9am in the morning and between 3pm and 6pm in the afternoon when commuter and school age cyclist volumes are at their peak. Most cyclist casualty accidents occurred during dry and light conditions with 95% occurring in the dry and 85% during the daytime. The age groups where the most cyclist accidents have occurred are 5-15, 18-21 and 30-49. Mildura Rural City Council has a high proportion of cyclist accidents per head of population compared to other municipalities in the region.

A questionnaire was delivered to all schools within the municipality, with responses received from 13 of them. Those contacted who did not respond to the questionnaire stated they did not have substantial concerns regarding bicycle usage of school students. The surveys sought to determine common cycling routes to school as well as locations thought to be dangerous for school cyclists. Survey results showed that a large proportion of school cyclists are in the 10 to 14 year old age bracket with more male cyclists than female. The most common routes used by school cyclists were identified along with a number of improvements that could be made to cycling routes.

A community questionnaire was also distributed via copies at Council libraries, a Council media release and circulation from a cycling focus group with responses received from 140 individuals. The results of this survey indicated that improving on and off road bicycle facilities and end of journey facilities could attract a number of people to cycling. Short cycling distances (2 to 5 kilometres) were the most common trip lengths. Those cyclists responding to the questionnaire were mainly recreational cyclists and this indicates that there is likely to be a reasonably high demand for off-road recreational paths where conflict with traffic is minimised. The survey responses also indicated a spread in the type of cyclists and hence a demand exists for various types of facilities. The questionnaire was aimed at gaining information from training and recreational cyclists who cycle regularly around the municipality.

The major bicycle foci and generators identified throughout the municipality have been used to identify strategic bicycle links, as well as tourist and recreational cycling routes that will take in some of the area's major attractions.

The Bicycle Network for the municipality has been developed based on many factors. Inputs have included well utilised bicycle routes, input from the community consultation including the questionnaire, school consultation, as well as local knowledge of suitable routes that could be improved to provide adequate cycling facilities. Additionally, the network has been developed to cater for different cycling groups, so that direct routes on main roads and safer on- and off-road routes will also be provided catering for different cyclists' needs. The network has been created based on the five principles of a useable network (Bicycle Victoria, 1996):

- Coherence
- Directness
- Safety
- Comfort, and
- Attractiveness.

Maps of the proposed bicycle networks are provided at Appendix A. Some streets will require only signing, some linemarking, while more extensive works such as construction of paths, parking bans, and alterations to kerbs will be required to complete other sections of the network.

Generally, the Municipal network will provide links throughout the townships and between townships to cover the most frequently cycled routes. The network has been designed so that facilities are spread equally throughout the municipality and the major townships. Major bicycle foci or areas of interest are catered for with a variety of routes to access these points so that there is an equality of facilities provided for the different cycling groups. Within small townships there is generally no need for special bicycle facilities, except perhaps along the major through route, as traffic volumes are low and often even footpaths are not provided.

A proposed program on works has been developed which includes the cost of the various treatments and their priority as either high, medium or low. This program is set out in Table 6.1 of the report. A description of the bicycle facilities proposed on each street is also set out in Section 6 of the report.

Section 7 of the report includes a detailed description of each type of bicycle facility that could be included in the bicycle plan. Many of these facilities are major traffic control items and consequently may require either the approval of VicRoads to implement.

Cycling is often found to be inconvenient due to the lack of end of journey facilities. These facilities are required so that cyclists can change facilities or mode of travel at the end of their cycling journey. This issue was identified in the questionnaire to Mildura residents. The type of facility required will depend upon the location. End of journey facilities include:

- bicycle stands,
- bicycle lockers,
- drinking fountains and taps to fill water bottles,
- toilets, and

- showers and change rooms.

Section 8 of the report includes a detailed discussion of end of journey facilities.

In order to make the bicycle system work effectively, there are a number of issues that need to be considered. These include the connectivity of the network, the maintenance of bicycle facilities, future road development and traffic devices and the lighting requirements of the bicycle facilities. These are discussed in detail in Section 9 of the report.

The four E's to be considered in the bicycle strategy are Education, Enforcement, Encouragement and Engineering. To avoid any counter productive impacts on cycling, it is considered that education and enforcement programs must be linked with encouragement schemes to promote cycling as a legitimate form of transport and recreational activity. Education, encouragement and enforcement activities are discussed in Section 10 of the report including Council's role in these activities.

Section 11 of the report discusses implementation strategies and possible staging of works. Possible funding sources for bicycle network improvements and promotion programs are also discussed.

The major recommendations of this strategic bicycle plan are:

- The Mildura Rural City Council adopts Bicycle Victoria's "Bicycle Vision for Local Government" as the fundamental principles to address the Shire's cycling requirements.
- Council adopt the Mildura Bicycle Network and approve or seek funding to implement the network facilities as follows:-
- The network should be implemented and staged according to priority of works according to Appendix A, and Section 6 of the report.
- Council should ensure maintenance of existing bicycle facilities, including programs from VicRoads as recommended in Section 6 of the report.
- Council should begin the installation of end-of-journey facilities at a rate of $2,000 per year at strategic locations.
- Council actively seeks funding for major projects such as shoulder sealing programs from VicRoads and recreational paths from Parks Victoria as recommended in Section 6 of the report.
- Council either appoint a bicycle co-ordinator or form a Mildura Bicycle Steering Committee to oversee projects and the implementation of the network, and through this committee encourage:
- Participation of all schools in bicycle education programs including the use of traffic schools.
- The formation of Mildura Bicycle User Groups.
- Liaison with the police to ensure enforcement of bicycle related issues.
- The promotion of safe cycling by raising motorist awareness, as well as providing school holiday programs to help educate cyclists.
- Support for reducing bicycle theft and increasing recovery of stolen bicycles through funding bicycle identification programs.

- Commitment and support to promoting tourism and recreational cycling within the region.

TABLE OF CONTENTS

1 INTRODUCTION

The Mildura Rural City Council appointed Turnbull Fenner to undertake the Mildura Strategic Bike Plan in December 2001. The aim of the bicycle plan is to encourage safe bicycle use by improving on-road and off-road facilities as well as promoting and encouraging cycling in the Rural City of Mildura. The plan covers the entire municipality including the urban area of Mildura and the townships of Irymple, Red Cliffs, Merbein, Ouyen, Walpeup, Underbool, Murrayville, Nangiloc, Colignan and Werrimull.

The Mildura Strategic Bike Plan caters for a diverse range of cycling activities, ranging from the requirements of local school age cyclists, commuter cyclists, recreational cycling, touring and training cyclists, as well as competitive cycling.

The strategic plan would form the co-ordinated approach to the upgrading of existing bicycle facilities and amenities and the construction and establishment of routes and carriageways. The plan would then be used as part of the application process for future grants to implement the recommendations of the report.

This report summarises the findings of the consultant and outlines the bicycle strategy for Mildura Rural City Council.

2 BACKGROUND

2.1 STUDY AREA

The Mildura Rural City Council is located in VicRoads Western Region approximately 500 kilometres north west of Melbourne. Within the municipality is included the rural city of Mildura, satellite towns of Irymple, Red Cliffs, Merbein, and the smaller townships of Ouyen, Walpeup, Underbool, Murrayville, Nangiloc, Colignan and Werrimull.

Mildura Rural City Council includes the former Local Government Areas (LGA) of City of Mildura, Shire of Mildura and Shire of Walpeup.

Mildura Rural City Council adjoins the South Australian border to the west, the New South Wales border to the north, Rural City of Swan Hill to the east and the Shires of West Wimmera, Hindmarsh, Yarriambiack and Buloke to the south.

The functional road hierarchy for the Mildura urban area as determined by VicRoads and Mildura Rural City Council is attached at Appendix B. These hierarchies identify the more important traffic route in the municipality.

The majority of the population within the Mildura Rural City Council LGA lives within the urban area of Mildura or the surrounding satellite townships of Irymple, Red Cliffs or Merbein. The street network in the greater Mildura area is predominantly laid out in a grid network with long, straight, wide road reservations connecting at cross intersections.

The Mildura Rural City Council is relatively flat and thus provides an ideal environment for cyclists. It is envisaged that the Municipal Strategic Bicycle Plan will not only cater for the local residents of the municipality, but that facilities will also be provided to form another valuable tourist asset, and attract bicycle users to the Mildura Rural City Council LGA interested in exploring the municipality by bike.

2.2 THE MILDURA RURAL CITY COUNCIL LGA

Mildura Rural City Council is the largest municipality in Victoria, covering some 22,339 square kilometres. The total population of the municipality is currently 47,000 people with growth predicted in the future.

Mildura is located a significant distance from capital cities, with Adelaide the closest capital located 260 kilometres to the west, followed by Melbourne located 550 kilometres to the south east.

The main industries within this municipality are horticulture and agriculture. Horticulture is the prevalent industry in the north centred around Mildura near the Murray River where a network of irrigation channels and pipelines have been created whilst agriculture is the prevalent industry in the south of the municipality centred around Ouyen.

A large section of the municipality is made up of national parks and state forests where there is very little population. These parks make up much of the area between Mildura and Ouyen. This area is predominantly undisturbed and contains vast quantities of flora and fauna as well as many sites of significance to aboriginals. The parks, the Murray River, the horticultural industry and accommodation and recreation facilities available in the Mildura area provide the main tourist attractions in the municipality.

There are three roads which function as transport routes of state or national significance which are located within the Mildura Rural City Council LGA. These routes include:

- Calder Highway runs in a north-south direction through the entire municipality. This highway passes through the localities of Ouyen, Red Cliffs, Irymple, Mildura and Merbein and provides a crossing of the Murray River between Yelta in Victoria and Curlwaa in New South Wales. This highway provides the main linkage between Melbourne and Broken Hill. This highway is of particular significance within the Mildura Rural City Council LGA as it is the only route providing a north-south link through the municipality with the area to the west and east made up of desert and national parks for a large section between Mildura to the north and Ouyen to the south.

- Sturt Highway runs in an east-west direction through the northern section of the municipality between the South Australian border and the Murray River in Mildura. There are no localities except Mildura which this route passes which are considered in this bicycle strategy. This route provides the only river crossing of the Murray River in Mildura to Buronga in New South Wales. The Sturt Highway provides the main linkage between Adelaide and Canberra.

- Mallee Highway runs in an east-west direction across the southern section of the municipality between the South Australian border and the eastern boundary of the municipality. The route passes through the localities of Murrayville, Underbool, Walpeup and Ouyen where it intersects with the Calder Highway. The route provides a linkage between Adelaide and the Murray River at Piangil where there is a bridge across into New South Wales.

There are also three main rail reservations located within the Mildura Rural City Council LGA. These are:-

- Mildura and Yelta railway provides the main rail link from Mildura to Melbourne. This railway is currently constructed to a broad gauge width, however we understand that works are programmed for 2002/2003 to convert this to standard gauge. This railway passes through the localities of Ouyen, Red Cliffs, Irymple, Mildura and Merbein. This railway currently operates predominantly for the

movement of grain, however the provision of passenger services is proposed to be reintroduced about 2004. Stopping locations have not as yet been determined.

- Ouyen and Pinaroo railway provides a broad gauge east-west link into South Australia where there is a break of gauge connection to the standard gauge line between Pinaroo and Tailem Bend. This route is also programmed to be standardised in the near future and is predominantly operated by grain trains. There are no passenger services operating on this route. The route passes through the localities of Murrayville, Underbool, Walpeup and Ouyen where it connects with the main Mildura Line.

- Red Cliffs and Morkalla former rail reservation is an east-west reservation connecting to the Mildura Railway at Red Cliffs. The rail tracks have been long removed from this route, however the reservation remains intact. A short section of track has been reinstated for tourist operation along the reservation at the Red Cliffs end. This route passes the locality of Werrimull in addition to Red Cliffs.

2.3 PREVIOUS STUDIES

In 1987, the former City of Mildura and Shire of Mildura appointed a consultant to prepare the Sunraysia Bicycle Strategy Plan. This plan considered the current extent and nature of cycling activities, the current and future needs of cyclists and ways to encourage further cycling within the area compromising Mildura, Merbein, Red Cliffs and Irymple.

Many of the recommendations of this plan have been implemented, with short sections of bike routes constructed near schools and some routes also completed through the towns. The main grid system of cross roads running through Mildura were identified as the major bike routes, with Deakin Avenue in particular identified as a popular route for cyclists. Sections of the following roads were recommended for dedicated bicycle facilities in Mildura:

- Etiwanda Avenue (on road)
- San Mateo (on road)
- Orange Avenue (on road)
- Deakin Avenue (on road)
- Langtree Avenue (on road)
- Walnut Avenue (on road)
- Ontario Avenue (on road)
- Fifteenth Street (off road)
- Fourteenth Street (on road)
- Twelfth Street (on road)
- Tenth Street (on road)
- Eighth Street (on road)

Bicycle facilities were also recommended for the following routes in the localities of Irymple, Red Cliffs and Merbein:

- Calder Highway, Irymple
- Sandilong Avenue, Irymple
- Calder Highway, Red Cliffs
- Kiewa Avenue, Red Cliffs
- Fitzroy Avenue, Red Cliffs
- Nursery Ridge Road, Red Cliffs
- Calder Highway, Merbein
- Commercial Street, Merbein
- Park Street, Merbein
- Railway Avenue, Merbein
- Third Street, Merbein

The bike strategy also recommended that an off road trail be constructed adjacent to the Yelta Railway within the railway reserve to provide a recreational link between Red Cliffs, Irymple, Mildura and Merbein.

Following from the recommendations of this bicycle strategy a network of bicycle facilities have been developed and are shown in the plans shown in Appendix A. These facilities include both on road and off road paths.

In 1997 VicRoads Western Region commissioned Turnbull Fenner to prepare guidelines for development of Strategic Bicycle Plans by municipalities. VicRoads Western Region includes the Shire of Central Goldfields, City of Ballarat, Shire of Hepburn, Shire of Hindmarsh, Rural City of Horsham, Rural City of Mildura, Shire of Moorabool, Shire of Northern Grampians, Shire of Pyrenees, Rural City of Ararat, Shire of West Wimmera and Shire of Yarriambiack. This report provides a uniform set of guidelines for use in developing a strategic bicycle plan. Any Shire within this region developing a bicycle strategy plan is recommended to refer to these guidelines.

2.4 EXISTING INFRASTRUCTURE

Overall the existing bicycle infrastructure within the Mildura Rural City Council LGA is largely limited to the provincial city of Mildura, the main streets running through the satellite towns of Irymple, Red Cliffs and Merbein and short sections adjacent to the schools in these areas.

The bicycle network within Mildura is quite extensive with marked bicycle routes provided along many of the north to south and east to west roads which make up the widespread grid network. Most of these routes have been provided in the form of on street bicycle/parking lanes. Some of these route have however been recently removed when these roads have been resurfaced as the lane widths are below the current guidelines for bicycle/parking lanes. Examples of this are along Walnut and San Mateo Avenues.

A recreational trail exists adjacent to the Murray River in Mildura between Apex Park and the Sturt Highway bridge, whilst shared footways exist adjacent to the Calder Highway (Fifteenth Street) between the localities of Mildura and Irymple and adjacent to Deakin Avenue between Fifteenth Street and Tenth Street.

2.5 ADJOINING SHIRE NETWORKS

Mildura Rural City Council adjoins the South Australian border to the west, the New South Wales border to the north, Rural City of Swan Hill to the east and the Shires of West Wimmera, Hindmarsh, Yarriambiack and Buloke to the south.

The main municipal boundary where population centres exist in close proximity either side and there is a significant degree of cyclist activity is the boundary to the north between Mildura and New South Wales. Specifically, two links are provided across this boundary at the Sturt Highway bridge between the towns of Mildura and Buronga, and at the Calder Highway bridge between the towns of Yelta and Wentworth. Only the Sturt Highway bridge allows provision for cyclists with marked cycling lanes.

The Shire of Wentworth was contacted to determine whether any bicycle networks exist, and how these connect to the Rural City of Mildura. The purpose of this is to ensure that cyclists can travel across the municipal boundaries without having to deviate their journey in order to continue on designated bicycle routes.

Whilst Wentworth Shire do not currently have a formal bicycle strategy, they do have a plan of bicycle routes which they are developing in conjunction with the RTA of New South Wales. Bicycle routes have been developed in both Wentworth and Buronga with an eventual plan to link the two townships.

2.6 RELEVANT GUIDELINES

The main guidelines used in the preparation of this Bicycle Plan include:

- Part 14 of the Austroads Guidelines "Guide to Traffic Engineering Practice - Bicycles."
- Australian Standard 1742.9 - 1986 Manual of Uniform Traffic Control Devices Part 9: Bicycle Facilities.
- "It Can Be Done" A bicycle network on arterial roads - produced by Bicycle Victoria 1996.

These guidelines provide information on established and approved facilities which have been proven to be beneficial to cyclists.

3 ACCIDENT INVESTIGATION

It is important to locate all cycling accidents within the Shire so it can be determined if any locations are a safety concern for cyclists. Within the Mildura Rural City Council LGA there have been 118 recorded casualty accidents involving 119 cyclists from January 1991 to April 2001 inclusive, including one fatality. This accounts for approximately 6% of all road users injured or killed in the municipality. Appendix C contains the full accident details with an output from CrashStats, a road accident statistics analysis program.

3.1 ACCIDENT LOCATIONS

Listed below are locations where multiple bicycle accidents have occurred over the recorded time period.

5 Accidents

- Deakin Avenue/Twelfth Street, Mildura

3 Accidents

- Deakin Avenue/Fifteenth Street, Mildura
- Deakin Avenue/Thirteenth Street, Mildura
- Deakin Avenue/Eleventh Street, Mildura
- San Mateo Avenue/Eleventh Street, Mildura
- Walnut Avenue/Eleventh Street, Mildura
- Ontario Avenue/Eleventh Street, Mildura
- Ranfurly Way, btw Gibbs St & Wentworth Rd, Merbein

2 Accidents

- San Mateo Avenue/Fifteenth Street, Mildura
- San Mateo Avenue, btw Fifteenth St & Batey Cr, Mildura
- San Mateo Avenue/Thirteenth Street, Mildura
- San Mateo Avenue/Twelfth Street, Mildura
- San Mateo Avenue/Tenth Street, Mildura
- Karadoc Avenue/Eleventh Street, Mildura

A review of accidents within the shire has revealed the following;

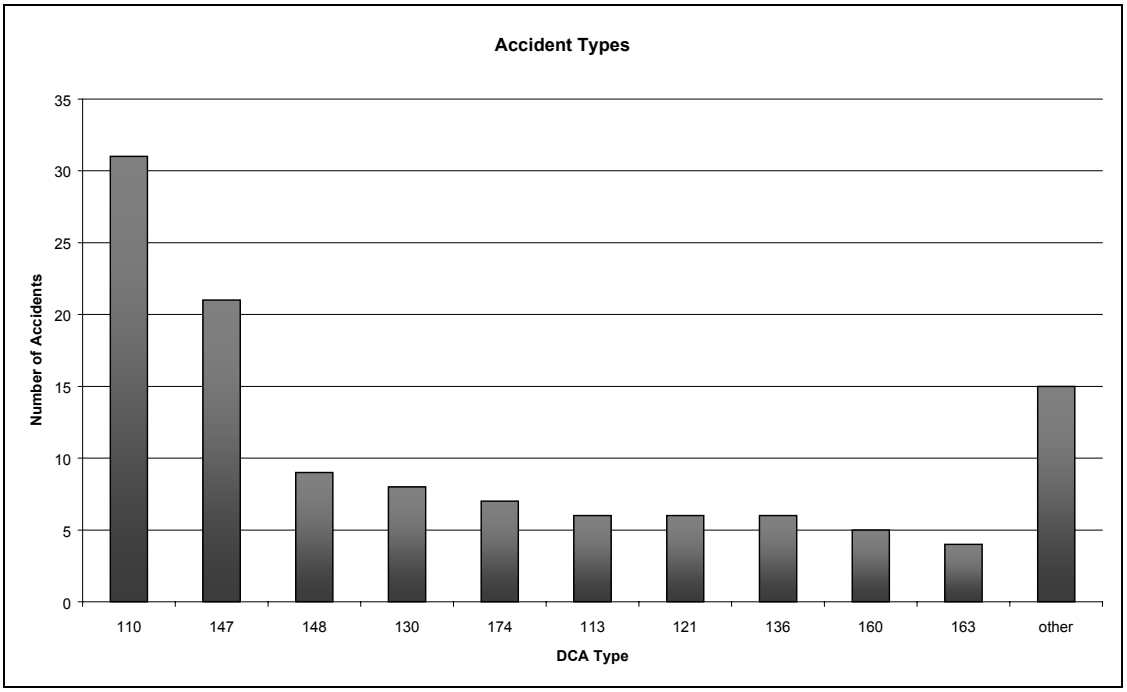
- 94 out of 118 cyclist casualty accidents (80%) occurred in the provincial city of Mildura with a further 20 accidents occurring in the satellite townships of Irymple, Red Cliffs and Merbein, leaving only 4 cyclist casualty accidents occurring throughout the remainder of the municipality. These figures are to be expected considering most of the Mildura Rural City Council's population is located in the Mildura area.

- The number of accidents has remained reasonably constant over the ten year period 1991-2000 with most accidents occurring during the autumn and spring seasons of those years, with the peak number of accidents occurring in February at the beginning of the school year.

- The majority of cyclist accidents occurred during Wednesdays or Thursdays during the week, and in the periods between 8am-9am in the morning and 3pm-7pm in the afternoon. These times are during both the commuter peaks and when school age children are likely to be about.

3.2 ACCIDENT TYPES

Based on the accident data for January 1991 to April 2001 accident data the most common cyclist accident types are shown in Figure 1.



110 – Cross Traffic	113 – Right Near
147 – Veh Emerging from Driveway	121 – Right Through
148 – From Footpath	136 – Right Sideswipe
130 – Rear End	160 – Collides with Parked Vehicle
174 – Out of Control	163 – Vehicle Strikes Stationary Vehicle Door

Figure 1: Most Common Cyclist DCA's

DCA group 110-119 (vehicles from adjacent directions) was the most common type of cyclist casualty accident accounting for 38 accidents. These included 31 accidents at cross intersections where cyclists collided with other vehicles both heading straight ahead on opposing roads (DCA 110). This type of accident is considerably high due to the high number of cross intersections in the Mildura area.

DCA group 140-149 (vehicles manoeuvring) was the next most common type of cyclist casualty accident accounting for 33 accidents This is a common cyclist accident type in all areas and often occurs due to vehicles exiting driveways not observing cyclists either on the footpath or on the road, as well as cyclists manoeuvring from the footpath onto the road, and then colliding with a vehicle on the carriageway.

DCA group 130- 139 (vehicles from same direction) accounted for 19 cyclist casualty accidents. These included 8 rear end collisions (DCA 130), 6 accidents with the cyclist turning to the right (DCA 134) and 3 accidents with vehicles in a parallel lane (DCA 133).

DCA group 160-169 (struck object on same path) accounted for 9 cyclist casualty accidents. These accidents all involved either cyclists hitting stationary vehicles or cyclists hitting open car doors. These types of accidents are common where cyclists and parked cars are forced to share the same road space.

DCA group 170-179 (off-path on straight accidents) accounted for 9 cyclist casualty accidents, which involved only the cyclist in the accident. These accidents are often caused by poor pavement surface and/or poor cycling skills.

DCA group 120-129 (vehicles from opposing direction) accounted for 8 cyclist casualty accidents. These accidents are usually caused by cyclists not being seen by vehicles turning across traffic.

3.3 INTERSECTION TYPES

The type of intersection where the cycling accidents have occurred has been listed in Table 3.1 below expressed as a percentage of the total amount of cycling accidents in the municipality. This has been compared to the relative percentages for all vehicles.

Table 3.1: Bicycle Accidents Versus All Vehicle Intersection Type

Location	% of Total Accidents	
	Bicycles	All Vehicles
Cross intersection	50	37
T intersection	12	10
Not at intersection	38	53
Other	0	0

The table shows that a disproportionately high number of cyclist accidents occur at cross intersections compared to the proportion for all vehicles.

3.4 CONTROL TYPES

The type of control governing the movements of vehicles involved in accidents has been listed in Table 3.2 below as a percentage of the total number of bicycling accidents. Also shown are the percentages of the accidents these controls are involved in for all vehicle types.

Table 3.2: Bicycle Accidents Versus All Vehicle Control Type

Location	% of Total Accidents	
	Bicycles	All Vehicles
No Control	69	71
Stop / Go Signals	6	8
Roundabout	15	5
Stop Sign	2	4
Give Way Sign	5	10
Other / Unknown	5	2

This table identifies that the majority of cyclists (and vehicle accidents) occur where there are no controls. It also shows that the roundabout is less effective at controlling the safety of cyclists at intersections than for other vehicles.

3.5 LIGHT AND WEATHER CONDITIONS

Adverse light and weather have a significant effect on accident occurrences. Wet conditions can increase vehicle stopping distances, decrease the level of control and reduce visibility. For cyclists, who are often poorly visible during a normal dry day, wet or dark conditions can greatly increase the risk of accidents.

Table 3.3 below shows the proportional split of wet versus dry and dark versus daytime accidents as a percentage for both bicycle accidents as well as for all vehicular accidents.

Table 3.3: Bicycle Accidents Versus All Vehicles Light and Weather Conditions

Light and Weather Conditions	% of Total Accidents	
	Bicycle	All Vehicles
Day	85	73
Dark	8	22
Dusk/Dawn	7	5
TOTAL	100	100
Dry	95	90
Wet	3	8
Other	2	2
TOTAL	100	100

This table identifies that the effect of dark or wet conditions have not been a significant factor in causing bicycle accidents in the Mildura Rural City Council LGA.

3.6 CYCLIST DEMOGRAPHICS

Cyclists are particularly vulnerable when involved in a road crash as their vehicle offers no protection in an accident. Therefore improving cyclist safety is important, and this can be achieved partly by improving the behaviour of the cyclists themselves. In order to target groups most often involved in bicycle crashes it is important to determine the type of cyclists who are most commonly injured or killed in accidents. Table 3.4 summarises the age and gender of victims involved in cycling accidents in the Mildura Rural City Council LGA.

Table 3.4: Accident Summary of Cyclist Age and Gender

Age Grouping	MALE	FEMALE	TOTAL
5 – 12	18	6	24
13 – 15	16	2	18
16 – 17	5	1	6
18 – 21	9	4	13
22 – 25	3	3	6
26 – 29	6	1	7
30 – 39	10	2	12
40 – 49	10	1	11
50 – 59	6	1	7
60 – 74	6	1	7
75+	3	-	3
Unknown	-	2	2
TOTAL	92	24	116

In the Mildura Rural City Council LGA male cyclists contribute to more than 79% of those cyclists injured or killed on the roads. This is common throughout other Victorian Shires also, and is generally due to the fact that more males cycle than females.

Children under the age of 12 have difficulty accurately judging speed and distance. This is a physiological deficiency and not simply a lack of experience. This may be the reason for the high representation (21%) of cyclists injured or killed in 5 to 12 year old age group.

Also of concern is the 16% of cyclists who were injured or killed were between the ages of 13 to 15 years old. This age group can easily be targeted for cyclist safety education programs if included in school curriculum.

The results from the accident investigation should be used to help target awareness and safety campaigns that will be effective in reducing the types of accidents occurring within the Mildura Rural City Council LGA.

3.7 LGA COMPARISON

The number of cycling accidents occurring within the Mildura Rural City Council LGA needs to be compared with other municipalities in the general area to determine whether accident levels are a high concern. Table 3.5 below details the number of cycling accidents versus total accidents, and versus population in comparable municipalities.

Table 3.5: Accident Comparison with Other Municipalities

Municipality	10 yr cyclist accidents	10 yr all accidents	1996 Population *	% cyclist accidents	Cyclist acc./1000 pop
Mildura	118	1436	47,000	8.2%	2.5
Swan Hill	49	658	21,112	7.4%	2.3
Buloke	8	222	7,596	3.6%	1.1
Yarriambiack	11	194	9,077	5.7%	1.2
Hindmarsh	4	197	7,088	2.0%	0.6
West Wimmera	3	175	4,926	1.7%	0.6
Horsham	96	585	17,900	16.4%	5.4

While it must be remembered that many cyclist accidents, even those causing injury, go unreported, this is true for all municipalities throughout the state. Mildura Rural City Council has both a high number of cyclist accidents per head of population and a high proportion of accidents involving cyclists compared to other nearby municipalities. These results also show that the municipalities with large regional towns containing a sizeable population base have higher bicycle accident rates, which is the case for Mildura, Horsham and Swan Hill.

4 CONSULTATION

To ensure the network meets the requirements of the local community and visitors to the Shire, various forms of consultation have been undertaken to provide direction towards the study and ensure that relevant issues are covered.

4.1 COMMUNITY REFERENCE GROUP

A Community Reference Group was formed to discuss the main issues facing cyclists within Mildura Rural City Council through direct input from local community members. A meeting was held on February 25th 2002 for people identified as key stakeholders in the bicycle strategy.

Henry Turnbull Addresses the Meeting

Present at the meeting were representatives from Mildura Rural City Council, local schools, traders associations, VicRoads, Roadsafe and local cycling groups. An attendance sheet of this meeting is provided in Appendix D.

A presentation was given to the audience on existing cycle routes and recent cycling accident statistics. The floor was then open to questions and general discussion. The following issues were highlighted.

- Lack of signage on existing bicycle routes was identified as an issue, particularly in the Red Cliffs area.
- The importance of providing appropriate links between communities was noted, particularly between Red Cliffs and Irymple and between Mildura and Merbein.
- VicRoads shoulder sealing program along the Calder Highway was recognised as an appropriate method to achieve these links.
- Off Road cycle paths adjacent to the Red Cliffs-Mildura and Mildura-Merbein railways were identified by several individuals as something which should be investigated.
- Education was considered an important element of the strategy, particularly relating to behaviour at roundabouts and the ability to cycle defensively, assuming the worst from other drivers.
- The point was made that the planning of new subdivisions should incorporate a requirement for the provision of new cycle paths through the development.
- It was identified that linemarking was not being maintained along existing cycle routes which did not meet the minimum standard dimensions for bicycle/parking lanes which cover a large number of routes in Mildura city.
- Maintenance of the surface of bicycle paths was noted as a concern for cyclists. This included broken glass left on on-road bicycle lanes and off-road crusher dust paths which had been roughed up by farm tractors or covered with prickles. A suggestion to overcome this problem was that cyclists were made more aware that

they could contact Council who once aware of the problems could do the necessary maintenance.

- Better bicycle treatments were requested in Red Cliffs along Indi Avenue and at the intersection of Indi Avenue/Cocklin Avenue/Nursery Ridge Road which is used by children from several schools.

- Competitive cyclists continually ride along the same routes when doing their training, usually on highways and back roads away from the urban areas. It was requested that signs warning drivers of cyclists on the road should be erected on these routes.

- It was suggested a brochure should be produced in conjunction with neighbouring Wentworth Shire to highlight the area as cyclist friendly and to mark out all the cycling routes as well as locations where bicycle parking facilities are available.

- The Murray to Moyne event to be conducted over the weekend 23rd and 24th of March was identified as a suitable time to distribute cyclist questionnaire forms to the general community. Questionnaire forms were made available for distribution at the meeting.

- It was suggested that pram ramps needed to be improved along shared bicycle paths to allow a smooth interface for cyclists onto the road surface when crossing streets. It was also suggested that a standard treatment be adopted where traffic on minor local streets is to give way to bicycle traffic on shared paths.

- Eleventh Street was identified as a potential cycling route that required upgrading.

- A previous attempt to provide continuous bicycle linkages along the Murray River north east from the Murray mouth at Goolwa in South Australia was identified. It was suggested that further contact should be made with this group.

- Bicycle access along Benetook Avenue to Sunraysia TAFE was identified as a priority.

- It was suggested that a Bicycle User Group be formed which meets regularly to discuss issues facing cyclists in the Mildura Rural City Council local government area.

4.2 SCHOOL CONSULTATION

A questionnaire was delivered to the 43 schools within the Mildura Rural City Council LGA to determine the following;

- levels of ridership at each school,

- which schools actively participated in bicycle education schemes,

- what are the commonly used cycle routes, and

- are there any dangerous or difficult locations encountered by cyclists.

The letter and survey formats are attached in Appendix E.

Responses to the questionnaire were received from 11 of these schools.

A summary of results is shown in Table 4.1.

Table 4.1: School Consultation Survey Results

Name of School	Number of Students	Number that Cycle	Percentage who Cycle	Bicycle Education Programs?
Primary Schools				
Ouyen Primary	136	15	11%	Yes
Mildura South Primary	463	25	5%	Yes
Irymple South Primary	200	20	10%	Yes
The Lake Primary	145	10	7%	Yes
Sacred Heart Primary	278	4	1%	No
Merbein Primary	190	25	13%	Yes
Nangiloc/Colignan Primary	70	15	21%	Yes
Secondary Schools				
St Joseph's College, Mildura	820	30	4%	Yes
Irymple Secondary College	630	40	6%	No
MAES	10	2	20%	No
Prep to 12 Schools				
Mildura Baptist College	80	0	0%	No

The survey revealed that seven of the twelve schools who responded participate in a bicycle education program including six out of seven primary schools. In most cases the bicycle education program was targeted at year levels 4 to 6.

Previous studies have revealed that bicycle education forms part of the encouragement process for school aged cyclists, and increasing cycling within the community. It is known that on days of bicycle education lessons, a much higher proportion of students cycle to school. (However, it is also possible that only schools with higher numbers of cyclists can justify undertaking bicycle education).

Several of the other schools who did not return the completed survey from were contacted; however they indicated that they had few concerns regarding cycling issues as ridership levels were low.

From the schools which did return their survey forms, an overall ridership level for school children in Mildura Rural City Council was calculated at 6.2%. This can be further broken down to a 7.7% ridership level for primary school students and a 4.9% ridership level for secondary school students.

Table 4.2 below compares the school ridership level within Mildura Rural City Council to other Victorian municipalities.

Table 4.2: School Ridership Levels

Municipality	Percentage of Regular Cyclists	
	Primary Students	Secondary Students
Mildura	7.7%	4.9%
Moorabool	6.1%	4.5%
Hepburn	5.6%	1.9%
Warrnambool	13%	7%
Bayside	8%	16%

The table shows that the school ridership level in Mildura is similar to other municipalities.

The survey also sought to determine common cycling routes to schools as well as locations thought to be dangerous for school cyclists. These routes and locations are described in the table below:

School	Common Routes	Dangerous Locations
St Josephs College, Mildura	Walnut Avenue Twelfth Street	Walnut Avenue/Deakin Avenue Walnut Avenue/Thirteenth Street Deakin Avenue/Twelfth Street Eleventh Street (Deakin Av-Walnut Av)
Mildura South Primary School	Deakin Avenue	Deakin Avenue/Fifteenth Street
Sacred Heart Primary School	Walnut Avenue Deakin Avenue Twelfth Street Eleventh Street Olive Grove	Walnut Avenue/Twelfth Street
Irymple South Primary School	Belar Avenue Fifteenth Street Calder Highway	Ginquam Avenue/Fifteenth Street
Irymple Secondary College	Karadoc Avenue Fifteenth Street Sixteenth Street	Karadoc Avenue/Fifteenth Street Sixteenth Street Karadoc Avenue
The Lake Primary School	Seventeenth Street	Crossing Seventeenth Street Regina Avenue/Seventeenth Street Ontario Avenue/Seventeenth Street Walnut Avenue/Seventeenth Street
Merbein Primary School	Jenner Street Channel Road Commercial Street Game Street	Channel Road Jenner Street
Nangiloc/Colignan Primary School	Kulkyne Way	Kulkyne Way
Ouyen Primary School	Hunt Street Oke Street Rowe Street	Hunt Street/Rowe Street
Mildura Baptist College	None	None
MAES	None	None

A complete summary of responses from all schools is included in Appendix F, and issues raised have been addressed in the relevant sections of this report.

4.3 SCHOOL CYCLIST SURVEY

As an additional part of the school consultation process, questionnaire surveys were distributed to school aged cyclists through the primary and secondary schools in Mildura Rural City Council. A total of 155 responses were received from 10 schools in the municipality.

The aim of the survey was to determine commonly used cycling routes to and from school as well as recreational routes. The survey also aimed to identify common problem areas for school age cyclists and areas for improvement.

Additionally, the questionnaire attempted to determine the profile and type of cyclists responding. The survey was mainly tick-the-box format, and could be returned to the teachers. The survey format and summary of responses is shown in Appendix G.

4.3.1 Profile of School Cyclists

The respondents to the survey included students from both primary and secondary schools who cycle to school, as well as teachers. A profile of these respondents has been determined.

Age and Gender

Of those who responded to the gender question, 72.3% were male. This figure is considerably higher than the gender distribution of the community questionnaire, which identified that 53% of respondents where male. The age distribution was limited to school age children (5 to 17 years) and a few teachers. Figure 2 summarises the age and gender of the survey respondents.

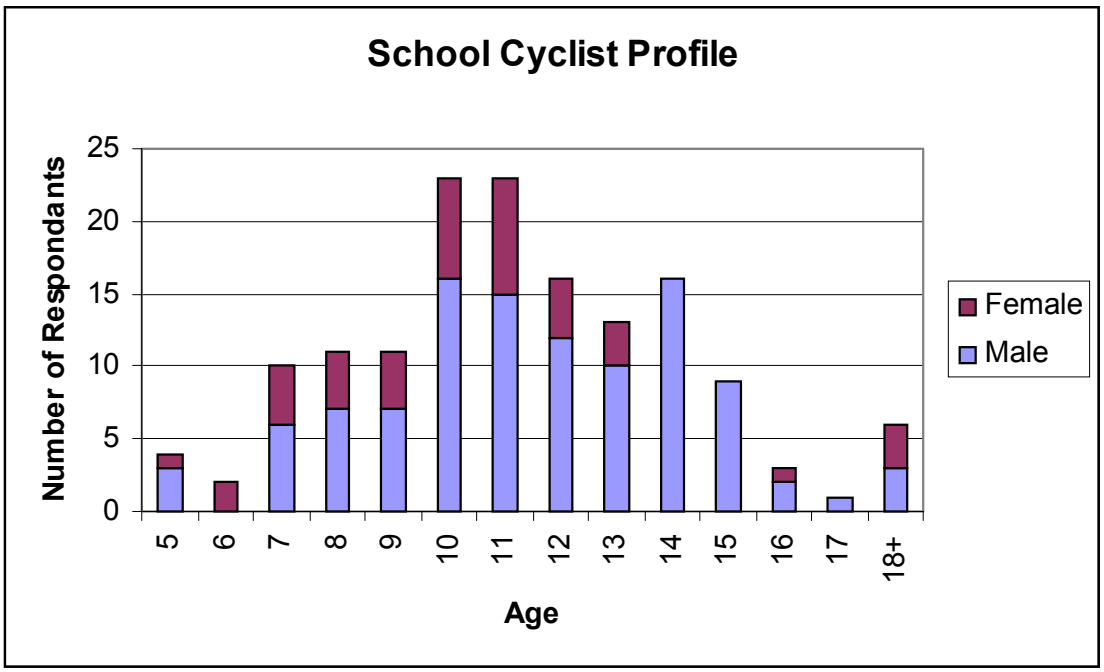


Figure 2: Age and Gender of School Respondents

This figure shows that a large proportion of cyclists are in the 10 to 14 year old age bracket, which are the higher levels of primary school and lower years of secondary school. The number of female cyclists drops off considerably after this age whilst the number of male cyclists declines more gradually.

Frequency of Cycling

The survey revealed that the majority of students and teachers who cycle to school do so on a regular daily basis. Half of the students and teachers who ride to school are affected by weather conditions with 50% choosing to ride only in good weather.

Types of Bicycles

40% of survey respondents rode BMX bicycles, while 57% rode Mountain Bikes and 3% rode racing bicycles.

Common Cycling Paths

The students who responded to the survey were asked the type of facility they chose to travel to school;

- 20% used the road only
- 18% used the footpath only
- 62% used a combination of the road and the footpath

4.3.2 Common Cycling Routes to School

The most commonly identified cycling routes obviously differed from school to school. The following lists show common routes which were identified by students and teachers from each of the schools that responded to the questionnaire.

St Josephs College, Mildura

- Twelfth Street
- Walnut Avenue
- Deakin Avenue

Mildura South Primary School

- Deakin Avenue

Sacred Heart Primary School, Mildura

- Olive Grove
- Twelfth Street
- Deakin Avenue

Mildura West Primary School

- Ninth Street
- Ontario Avenue
- Eighth Street
- Riverside Avenue

Irymple South Primary School

- Fifteenth Street
- Irymple Avenue

- Deakin Avenue

Irymple Secondary College

- Karadoc Avenue
- Fifteenth Street
- Sandilong Avenue
- Track behind School to Sandilong Avenue
- Fourteenth Street
- San Mateo Avenue

The Lake Primary School, Cabarita

- Seventeenth Street

Merbein Primary

- Game Street
- Jenner Street

Nangiloc/Colignan Primary School

- Kulkyne Way

Ouyen Primary School

- Oke Street
- Hunt Street
- Cooper Street
- Rowe Street

4.3.3 Route Improvements

The students and teachers where asked if they could identify any safety concerns they had or could suggest any improvements which could be made to assist cycling to school. The following route improvements where identified:

St Josephs College, Mildura

- Concern with Walnut Avenue roundabouts
- Relocation of stop signs on Deakin Avenue side streets before cycle path
- Cycle route signage

Mildura South Primary School

- Concern with roundabouts

- Need smoother footpaths
- Difficulty crossing Fifteenth Street

Sacred Heart Primary School, Mildura

- Evenness of footpaths

Mildura West Primary School

- Need to slow down cars at Ontario Avenue roundabouts
- Need to stop cars parking on footpaths
- School crossing on Eleventh Street
- Need pram ramps
- School crossings at Ontario Avenue/Ninth Street

Irymple South Primary School

- Improve school crossing of Fifteenth Street near Ginquam Avenue

Irymple Secondary College

- Formal crossing of Fifteenth Street
- Wider roads

The Lake Primary School, Cabarita

- Maintenance to Seventeenth Street bike track surface

Merbein Primary

- School crossing supervisor
- Construct a bike path
- Construct bike jumps

Nangiloc/Colignan Primary School

- Motorbikes using bike path
- Extend bicycle path to Iraak and Colignan
- Firmer surface for bike path
- More wearing of helmets

Ouyen Primary School

- Improve rail crossings
- Improve condition of North West Road

- Need Calder Highway Crossing
- Maintain road edges

4.4 COMMUNITY QUESTIONNAIRE

The major consultation involved in the study included a community questionnaire, which was distributed to the key stakeholders present at the February Community Reference Group meeting for further circulation to the general community. The questionnaire was also made available at libraries throughout the municipality and was advertised via a Council media release. A total of 51 completed survey forms were received from households across the municipality. A high proportion of these households were from the Mildura urban area and included people who cycled with the Mildura-Coomealla Cycling Club. This is likely due to the Community Reference Group Meeting being held in Mildura City and the high level of interest in this subject by cycling club members. The overall response rate is fairly low considering the municipality's total population however many households may not have paid attention to Council's media release or may not be sufficiently interested in cycling.

Attached in Appendix H are the survey form and survey response spreadsheet.

The questionnaire sought to determine the number of cyclists within the municipality, the demographics of the cyclists, the type of facilities required and where cycling occurred most frequently. The results of the survey are detailed below.

4.4.1 Respondent Demographics

There were 51 household responses received in total, and this included responses from 140 people. The age and gender distribution of respondents is shown below in Figure 3.

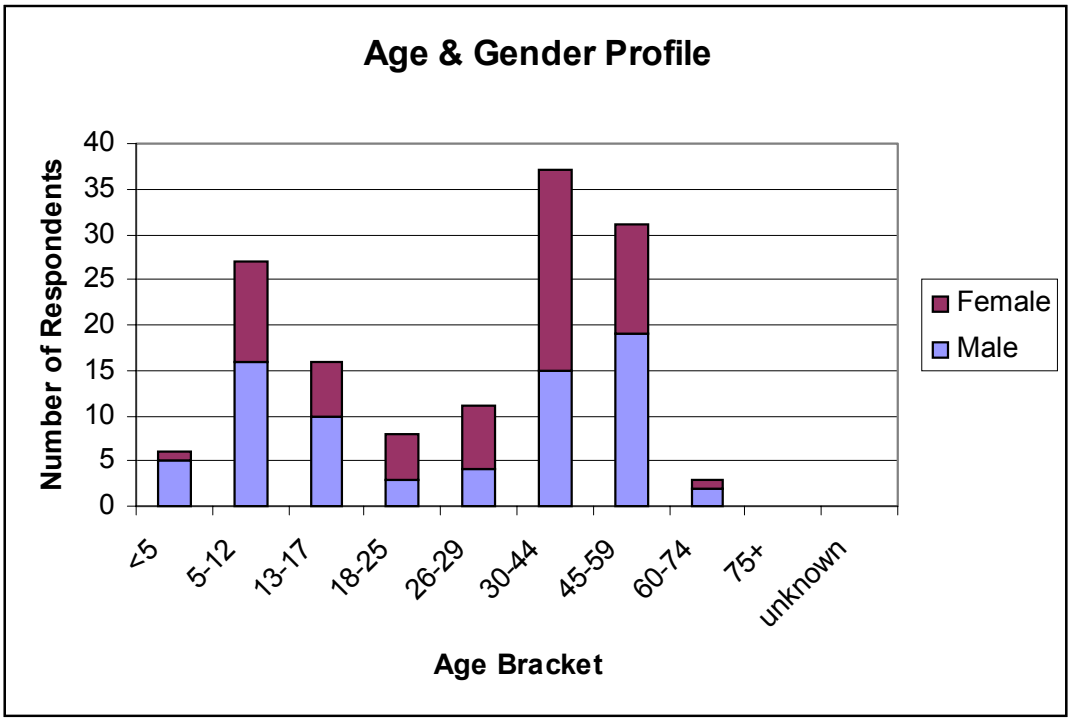


Figure 3: Age and Gender of Community Respondents

A roughly even number of males and females responded to the questionnaire with a total of 74 males and 65 females. Most people who responded were from the 30-44, 45-59 and 5-12 year old age brackets. The average age of respondents was 29 years.

Whilst the survey was aimed at all Mildura Rural City Council residents it is likely that cyclists would be more inclined to answer the survey than non-cyclists. Of those people who responded 82% indicated that they were cyclists.

The responses indicated that males were more likely to cycle than females as:

- 86% of male respondents cycle, and
- 77% of female respondents cycle.

This is a common occurrence determined from questionnaire surveys undertaken in different municipalities, as generally cycling tends to attract more males than females.

Figure 4 below compares the numbers of cyclists and non-cyclists who responded to the questionnaire from each age bracket.

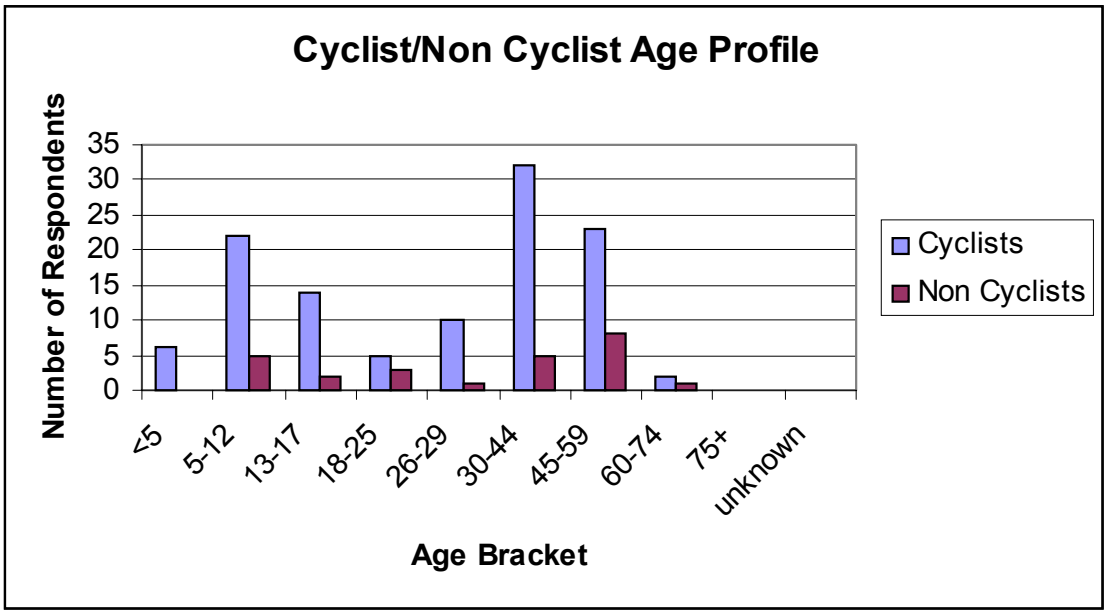


Figure 4: Proportion of Cyclists to Respondents by Age

4.4.2 Non-Cyclist Responses

Those who did not cycle were asked to indicate one or more reason for this. The following responses were indicated as common reasons why people did not cycle:

- Lack of safety in cycling (60%).
- Lack of bicycle facilities such as bicycle lanes and paths (56%)
- Lack of end of journey facilities (36%)
- They did not own a bicycle (19%),
- Cycling is inconvenient due to distance or weather (12%),

- Other reasons (12%)

These results indicate that extending the network of on and off bicycle facilities and improving the safety of existing facilities could lead to more people taking up cycling.

4.4.3 Cyclist Responses

Figure 5 below shows the profile of people who indicated that they do cycle in the questionnaire.

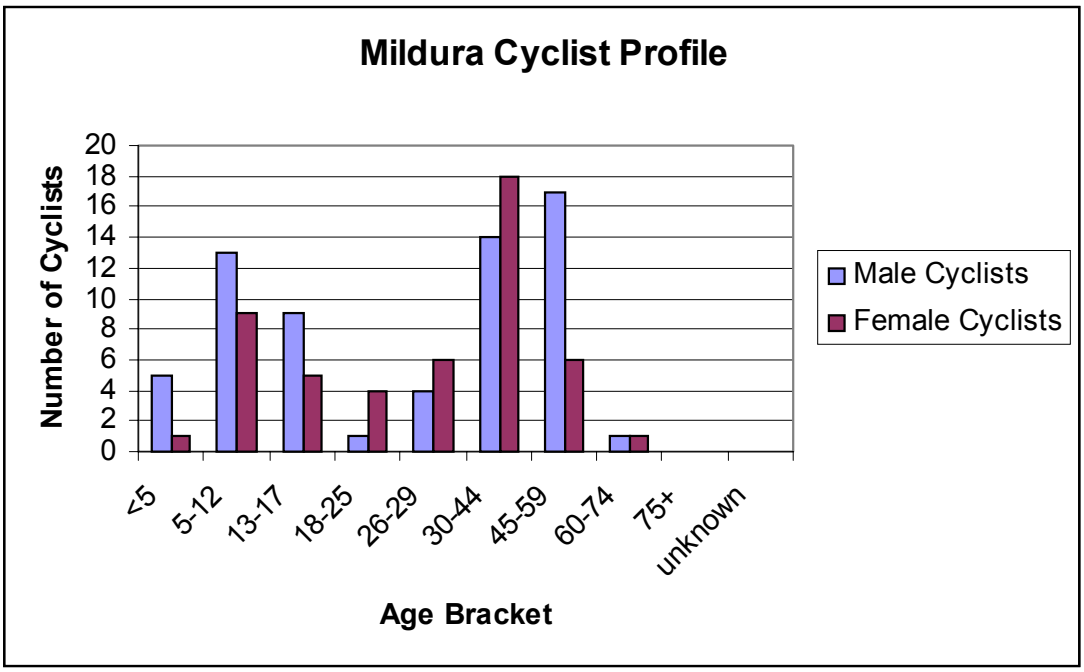


Figure 5: Cyclist Profile

This graph shows that there are a higher proportion of males that cycle in both the younger and older age groups whilst between the ages of 18 and 44 there is a greater proportion of female cyclists.

Those cyclists who responded to the questionnaire were asked to indicate how often they undertook a cycling trip:

- 24% cycled daily,
- 41% cycled a few times a week,
- 19% cycled once a week,
- 10% cycled once a fortnight, and
- 5% cycled less frequently than this.

These results show that the majority of cycling occurs on a regular basis.

The cyclists were asked to indicate the distance that they usually cycle. Table 4.3 below indicates that short cycling distances were more common.

Table 4.3: Cycling Trip Lengths

Length of Trip	Percentage of Cyclists
< 2 kms	14 %
2 - 5 kms	24 %
5 - 10 kms	18 %
10-20 kms	18 %
20 – 40 kms	15 %
> 40 kms	12 %

The table shows that while the highest proportion of cycling trips are of a short to medium length (2-5 km), the proportion of cyclists travelling for longer distances is above that of other municipalities. However this result may be due to the high number of respondents from the competitive cycling club.

The purpose of the cycling trips undertaken by people within the municipality is also of importance so that facilities can be implemented that will facilitate these types of trips. The purpose of the cycling trip, combined with the length of trip, can help determine the desirable length of recreational paths, whether shoulder sealing is desirable for the cyclists of this area, and whether on-road facilities are likely to be a suitable option. Figure 6 indicates the reasons that cyclists undertake their cycling trips:

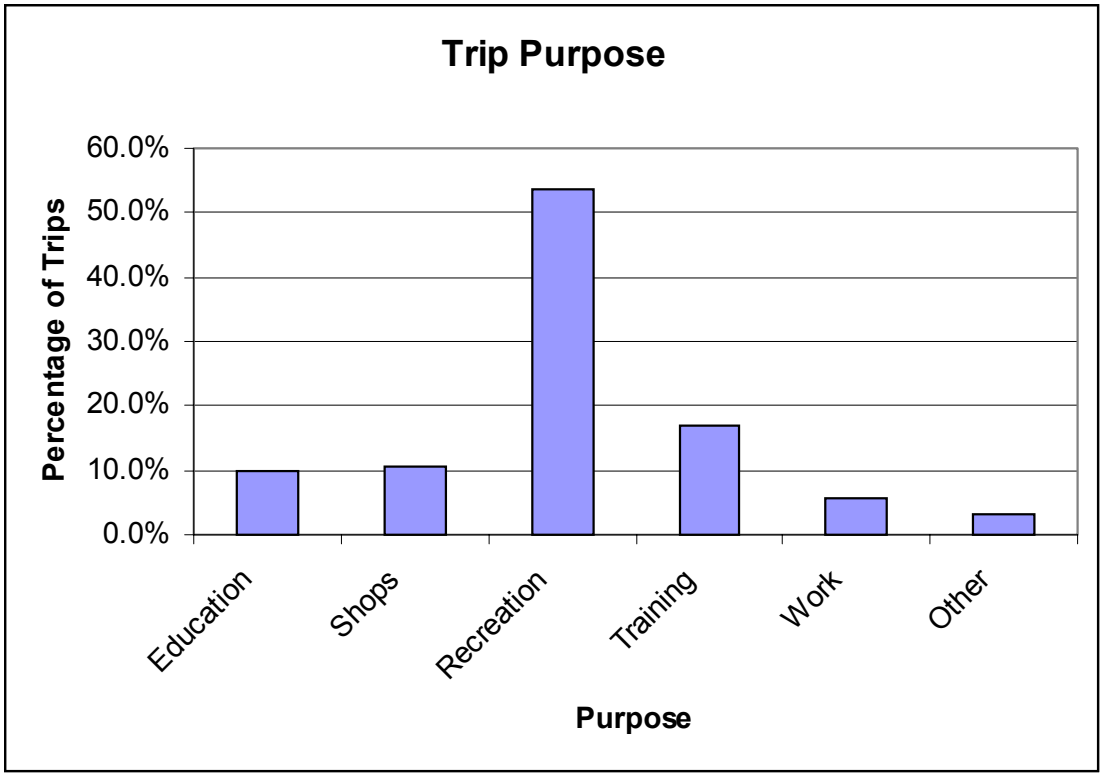


Figure 6: Purpose of Cycling Trip

Recreational cycling was clearly the most popular reason for making bicycle trips stated by the respondents to the questionnaire survey. This would indicate that there is a reasonably high demand for off-road recreational paths, where conflict with traffic is minimised.

Cycling for training purposes was the next most popular reason for cycling. This would indicate that specified on-road training routes of longer distances should be developed away from main traffic routes which can provide a high quality surface for cyclists with minimal interference from other traffic. Sealed shoulders are an appropriate treatment to cater for these cyclists.

People cycling to shopping centres, schools or to work require more direct routes, preferably off-road for school children and on-road for adult trips. End of journey facilities are required at the main destinations.

4.4.4 Common Cycling Routes, Deficiencies and General Comments

The questionnaire also offered the opportunity for respondents to nominate routes which they commonly cycle on, locations where they believe there are deficiencies and any other general comments they may have. The following lists summarise the most common responses to each of these questions.

Common Cycle Routes

- Walnut Avenue
- Eleventh Street
- Deakin Avenue
- Cureton Avenue
- Fifteenth Street
- Ranfurly Way
- Ontario Avenue
- Murray River Track
- Benetook Avenue
- Seventh Street
- Fourteenth Street
- Calder Highway
- Nineteenth Street
- Etiwanda Avenue
- 'Spiders Web' Route

Common Deficiencies Identified

- Murray River Track - too sandy and should be extended further along river
- Walnut Avenue – standard of linemarking
- Fifteenth Street – various reasons
- San Mateo Avenue – various reasons
- Deakin Avenue – path should be extended through CBD
- Ranfurly Way – condition of shoulder

- Benetook Avenue – marked cycle lanes are needed along the road
- Ontario Avenue - marked cycle lanes are needed along the road
- Ouyen-Patchewollock Road – various reasons
- Northwest Road – various reasons
- Seventh Street – various reasons
- Cureton Avenue – lack of signage
- Fifteenth Street/Deakin Avenue intersection – negotiating roundabout and crossing the roads

Most Stated General Comments

- Need for a brochure to promote cycling routes
- Motorists require education to be more aware of cyclists
- Existing bicycle facilities are too rough
- Need more recreational bike paths
- Roundabouts are dangerous for cyclists
- More signage and linemarking is needed to show bike routes
- It is too unsafe to cycle
- Cycle paths should be constructed along rail and drainage reserves
- More cycle facilities are needed on back roads
- There is too much vehicle traffic on the roads
- Helmets are inconvenient
- Main bicycle routes are required through Mildura City
- Bicycle routes should be linked
- Murray River path should be extended
- Bicycle route needed from Mildura to Merbein

4.5 CYCLING GROUPS SUBMISSION

Mildura Rural City Council invited submissions to the bicycle strategy from local community groups representing cyclists. A submission was received from the Mildura-Coomealla Cycling Club. This club consists of approximately 40 members of whom 30 take part in competitive cycling on a weekly basis.

The club has a long history and has members of differing ability from beginners to professional racers. Members participate in a range of cycling events which take place throughout the year within the Mildura Rural City Council LGA. These include:

- Murray to Moyne
- Port to Port
- Tour De Murray
- Tour of Sunraysia

Club members cycle an average distance of 150-600km each week along set training and race routes. These routes are primarily located away from the town centres to avoid other road users. The training and race meets generally occur during weekday evenings and on weekends.

4.6 REVIEW OF COUNCIL FILES

A review of council files was conducted to determine existing issues facing cyclists. The files contain many letters from schools and school parents concerned with specific cycling issues surrounding the schools. There are also some letters from the general public about various problem locations and submissions from the police and a cycling group called Critical Mass which identify existing deficiencies with the cycling network.

4.6.1 Submissions from schools and General Public

The following submissions have been received from schools and the general public in recent years:

- Murrayville Community College has proposed a bicycle path along Murphy Road.
- Underbool Primary requested an extension to an existing bicycle path along Monash Avenue which has subsequently been constructed.
- Merbein South Primary has requested maintenance to the existing bicycle path along Sturt Highway between River Avenue and Paschendale Avenue.
- Mildura Community Road Safety Council has requested a shared cycle path along Main Avenue, Merbein from the township to main channel to Fourth Street.
- Red Cliffs Secondary College has requested maintenance for the bicycle path running along Fitzroy Avenue.
- Parents and staff from Nichols Point Primary have written to the Council about the possibility of extending/improving the bicycle track along Fifth Street/Cureton Avenue to Sandilong Avenue. An extension of the Eleventh Street bicycle route, east of Cowra Avenue, and a bicycle route along Cureton Avenue have also been suggested. Particular reference has been made to the danger of the squeeze point in Fifth Avenue where the road crosses the irrigation channel.
- Parents from the Lake Primary have requested maintenance and a short extension of the bicycle track along Seventeenth Street to McEdwards Street.
- St Pauls Primary has requested that the Council investigate installing bicycle lanes along Etiwanda Street in the vicinity of the school.
- Koorlong Primary have written to the Council about the maintenance of the bicycle track along Benetook Avenue between Twenty Second and Twenty Third Streets and have suggested that the Council investigate either extending the track further

north along Benetook Avenue or construct an additional track along Twenty First Street.

- The Department of Natural Resources and Environment (NRE) have written to Council about the possibility of extending the Eleventh Street bicycle route further to the east to Koorlong Avenue.
- Various members of the public have written to the Council about the condition of the bicycle track running parallel to the Mildura – Yelta rail line between Thirteenth and Fourteenth Streets.
- A request was received for a recreational trail to be constructed around Mansell Reserve.
- A petition was received for a bike track to be constructed along Koorlong Avenue, south of the Irymple town centre.

4.6.2 Submissions from Mildura Police

Included in a 1999 report from the Mildura Police was a brief analysis of the existing bicycle facilities in the Mildura area and their deficiencies.

The main deficiencies included faded lane lines for bicycles, missing bicycle signs, gaps in the bicycle network and poor condition of sections of track.

Examples of missing, faded, obscured or incorrect signage were observed along the following routes:

- Eighth Street
- Ninth Street
- Tenth Street
- Twelfth Street
- Fourteenth Street
- Fifteenth Street
- Ontario Avenue
- Walnut Avenue
- San Mateo Avenue
- Cureton Avenue
- Orange Avenue

Examples of faded or missing linemarking was observed at:

- Tenth Street
- Twelfth Street
- Fourteenth Street

- The Boulevard
- Ontario Avenue
- Walnut Avenue
- San Mateo Avenue
- Orange Avenue

Examples of where bicycle paths were poorly maintained were observed at:

- Fifteenth Street
- Flora Avenue

Locations identified where gaps existed in the network were:

- Riverside Drive north of Eleventh Street
- Etiwanda Avenue near St Pauls Primary
- Benetook Avenue near Sunraysia TAFE
- Ontario Avenue near Ranfurly Primary

The Mildura Police were also contacted as part of the bicycle strategy. The following further issues were identified as part of this consultation:

- Most bicycle theft occurs from residential property rather than public places and most is a result of complacency by cyclists who do not keep their bikes secured.
- A significant percentage of older riders are continuing not to wear helmets
- There is a concern with the cycle path along Deakin Avenue due to the conflict with the traffic on the many side roads which cross it.

4.6.3 Critical Mass Report

A report was also submitted to the Council by the Critical Mass Group in 1999. This group is part of a global movement that look at ways of improving conditions for cyclists. Their report details 19 recommendations to improve on and off road cycling facilities in Mildura. The following is a brief summary of most of these recommendations:

- Extend the bike lane over Mildura Murray River Bridge across Cureton Avenue intersection to Seventh Street roundabout.
- Investigate the installation of arrows and lane line marking at the Seventh Street, San Mateo Avenue roundabout to facilitate cyclists entering Mildura from New South Wales.
- Improved road surface of Seventh Street between San Mateo Avenue and Deakin Avenue with marked lanes for cyclists.
- Alter existing parking lanes in Deakin Avenue to also incorporate bicycle lanes. This is in addition to existing shared bicycle path which exist for part of the length of

Deakin Avenue. Alter intersection linemarking to include a bicycle lane between left and through lanes.

- Remove kerb extensions in Deakin Avenue which follow intersections.
- Mark a line to separate bicycle and parking areas for all bicycle/parking lanes.
- Widen or remove existing bicycle lane markings which do not conform to current Australian Standards. Example provided of Ninth Street outside Mildura West Primary School.
- Continue bicycle lanes with dashed lines across minor intersections.
- Kerb extensions should be removed prior to roundabouts to prevent cyclists from having to enter the traffic stream.
- Reverse priority at minor intersections with Deakin Avenue by relocating stop and give way signs to be in line with Deakin Avenue property boundaries so that the Deakin Avenue shared path has priority over the side streets.
- Painting lines across Deakin Avenue vehicle crossovers to remind motorists to look for bikes when exiting their properties.
- Place give way signs where vehicle crossings with high volumes such as take away food premises and motels cross the shared path on Deakin Avenue to get motorists to give way to cyclists.
- Improve the condition of the concrete ramps where the Deakin Avenue shared path crosses side roads.
- Improve the evenness of the road surface at rail level crossings where train movements have caused the bitumen to lift between the rails. The Seventh Street crossing is highlighted as a particularly bad example.
- Cureton Avenue between Mildura and Nichols Point requires widening and the addition of a bicycle lanes as the current narrow road width is dangerous for bicycles and motor vehicles to share with the existing 80km/h speed limits.
- Provision for cyclists is required on Benetook Avenue as this road is heavily used by cyclists to access the Sunraysia TAFE and Latrobe University campuses located along this road.
- Existing bicycle parking devices secure the front wheel only which does not prevent the bike from being stolen. It is recommended that these bike racks are progressively replaced with n shaped bicycle rails and that these rails are installed in Eight Street near the Coles supermarket and post office which are popular destinations.
- A plan should be developed to control the Caltrop weed which causes bicycle tyres to become punctured.

4.7 EXHIBITION OF DRAFT BICYCLE STRATEGY

Following completion of the draft bicycle strategy, copies of the report were placed in municipal libraries across the municipality. Letters were sent out to all community reference group members and all members of the community who responded to the earlier

questionnaire advising that that the draft strategy was available for viewing in municipal libraries and inviting their comments for consideration as part of the final strategy.

In total 11 comments were received from various members of the community. A summary of each of these comments with a considered response is attached at Appendix I.

5 BICYCLE FOCI AND GENERATORS

Bicycle trips within the Mildura Rural City Council LGA are likely to be higher in areas of attraction to cyclists. These foci and generators of bicycle trips include schools, parks, recreational areas, sporting facilities, shopping centres and transport terminals. In addition, the townships themselves form generators and foci, with many cycle trips within the municipality including inter-township travel. Areas of attraction outside of the Shire also had to be considered, such as Buronga and Wentworth on the north side of the Murray River, so that Mildura cyclists seeking destinations outside of the municipality are also catered for in travelling to these destinations.

The type of foci or generator will help to determine the type of bicycle trips within the precinct. For example, parks, reserves, lakes, rivers, and gorges, in particular the Murray River, are likely to attract recreational and tourist cyclists. Schools will attract young cyclists, while a long uninterrupted route linking to adjoining townships or municipalities is likely to attract touring and training cyclists.

The major bicycle foci and generators identified throughout the Mildura Rural City Council LGA have been used to help identify strategic bicycle links, as well as tourist and recreational cycling routes that will take in some of the major attractions of the municipality.

The following sections list the various bicycle foci in each of the localities within the Mildura Rural City Council LGA

5.1 SCHOOLS / EDUCATIONAL

5.1.1 Mildura

- Mildura West Primary (Ninth Street/Ontario Avenue)
- St Josephs College (Twelfth Street)
- Chaffey College (Deakin Avenue)
- Mildura Senior Secondary College (Deakin Avenue)
- Ranfurly Primary (Ontario Avenue)
- Lutheran School (Fifteenth Street)
- St Pauls Primary (Etiwanda Avenue/Fourteenth Street)
- Sunraysia TAFE (Benetook Avenue)
- Mildura South Primary (Deakin Avenue)
- Mildura Primary Senior Site (San Mateo Avenue)
- Mildura Primary Junior Site (Twelfth Street)

- Sacred Heart Primary (Olive Grove
- MAES (Thirteenth Street)
- Mildura SDS Primary
- Kode Campus
- Issik College-Mda Campus

5.1.2 Irymple

- Irymple Primary (Fifteenth Street)
- Irymple South Primary (Belar Avenue)
- Henderson College (Cowra Avenue)
- Irymple Secondary College (Karadoc Avenue)
- Mildura Baptist College (Karadoc Avenue/Seventeenth Street)

5.1.3 Red Cliffs

- Red Cliffs Secondary College (Fitzroy Avenue)
- Red Cliffs Primary (Murray Avenue/Kauri Street)
- Red Cliffs East Primary (Cassia Street)
- St Josephs (Fitzroy Avenue)

5.1.4 Merbein

- Merbein Secondary College (Commercial Street)
- Merbein Primary (Jenner Street)
- Merbein South Primary (Sturt Highway)
- Merbein West Primary (Paschendale Avenue)
- Our Lady's (Box Street)

5.1.5 Mildura outer suburbs

- Cardross Primary (Dairtnunk Avenue)
- Koorlong Primary (Benetook Avenue)
- Nichols Point Primary (Fifth Street)
- Sunnycliffs Primary (Sunnycliffs Crescent)

- The Lake Primary (Seventeenth Street)

5.1.6 Remote townships

- Nangiloc/Colignan Primary (Kulkyne Way)
- Underbool Primary (Monash Avenue)
- Walpeup Primary (Glen Street)
- Murrayville Community College (Francis Street)
- Werrimull School (King Street/Tower Street)
- Ouyen Primary (Oke Street)
- Ouyen Secondary College (Matheson Street)
- St Josephs, Ouyen (Oke Street)

5.2 PARKS GARDEN & RECREATIONAL

5.2.1 Mildura

- Aerodrome Ovals (Eleventh Street/Fifteenth Street)
- Andamifi Park (Ribarits Court)
- Apex Park (Cureton Avenue)
- Arts Centre Gardens (Cureton Avenue)
- Bingara Park (Bingara Close)
- Biralee Park (Biralee Avenue)
- Buxton/Sobee Park (Ambleside Crescent)
- Brodie Park (Brodie Close/Excelsior Drive)
- Centennial Gardens (Deakin Avenue)
- Cleary Estate Park (Hector Street/Leonard Street)
- Deakin Avenue Median (Deakin Avenue)
- Dennis Park (Dennis Avenue)
- Flamingo Park (Flamingo Drive)
- The Grange (The Grange)
- Green Pines Estate Park (Anthony Street/Primrose Drive)
- Heley Park (Heley Court/Twelfth Street)

- Henderson Park (Deakin Avenue/Thirteenth Street)
- Hornsey Park (Hornsey Park)
- Jaycee Park (Hugh King Drive)
- Kalimna Park (Kalimna Drive/Acacia Drive)
- Kiata Park (Kiata Drive)
- Linton Park (Linton Court)
- Mansell Reserve (Ontario Avenue/Eighth Street)
- Marsden Reserve (Marsden Drive)
- Meadow Grove Park (Meadow Grove/Fush Place)
- Mildura Recreation Reserve (Eleventh Street/San Mateo Avenue)
- Morris Park (Linden Close)
- Ornamental Lakes Park (Hugh King Drive)
- Railway Lawns (Seventh Street)
- Ranfurly Oval Reserve (Ranfurly Way/Gibbs Street)
- Rio Vista Park (Hugh King Drive)
- Rowing Club Lawns (Hugh King Drive)
- S.C. Mills Park (Walnut Avenue)
- Scented gardens (Hugh King Drive)
- Semmens Park (Semmens Grove/Dundas Court)
- Sharland Park (Twelfth Street/Stuart Avenue)
- Tuohy Playground (The Centreway)
- Walnut Park (Upland Drive/Patricia Drive)
- Washington Park (Washington Drive)
- Wilson Park (Wilson Court/Ontario Avenue)
- Windsor Playground (Windsor Street)
- Woodley Gardens (Woodley Drive)

5.2.2 Irymple

- Elouera Drive Reserve (Elouera Drive)

- GJ Lloyd Reserve (Calder Highway/Junction Court)
- Henshilwood Memorial Reserve (Karadoc Avenue/Fifteenth Street)
- Heritage Gardens (Stockman Drive)
- Irymple Green Belt
- Irymple Lions Park (Palm Court)
- Karingal Court Reserve (Karingal Court)
- Lions Park (Hassel Court)
- Orana Court Park (Orana Court)
- Wilkie Drive Recreation Reserve (Wilkie Drive)

5.2.3 Red Cliffs

- Ash Court Reserve (Ash Court)
- Barclay Square (Jacaranda Street/Jamieson Street)
- Guava Street Reserve (Guava Street)
- Lions Park (Jacaranda Street)
- Nicholls Reserve (Grellis Court)
- Quandong Park (Calder Highway/Erskine Avenue)
- Royal Park (Jacaranda Street)
- Simon Court Park (Simon Court)
- South Street Reserve (South Street)
- South West Reserve (Red Cliffs-Meringur Road)
- Woodbine Park (Westcliffs Avenue)

5.2.4 Merbein

- Apex Civic Park (Main Avenue/Commercial Street)
- Box Street Park (Box Street)
- Chaffey Park (River Avenue)
- Delamere Court Reserve
- Kenny Park
- Merbein South Recreation Reserve (River Avenue)

- Merbein West Recreation Reserve
- O'Bryan Park (O'Bryan Street/Commercial Street)
- Pioneer Gardens (Forbes Drive/International Drive)

5.2.5 Mildura outer suburbs

- Cardross Reserve, Cardross (Dairtnunk Avenue/Torney Road)
- Hillview Reserve, Karadoc
- Lake View Park, Cabarita (Regina Avenue)
- Nichols Point Reserve, Nichols Point (Fifth Street/Koorlong Avenue)
- Sandilong Park, Nichols Point (Cowra Avenue/Park Street)
- Ovens Park, Nursery Ridge (Ovans Avenue/Pine Street)
- Psyche Bend Camping and Recreation Reserve, Kings Billabong (Cureton Avenue)

5.2.6 Remote townships

- Blackburn Park, Ouyen (Calder Highway/Hughes Street)
- Fairy Dell Reserve, Ouyen (Scott Street)
- Ferguson Park, Ouyen (Richie Street)
- Jardine Park, Ouyen (Scott Street)
- Pub Park, Ouyen (Rowe Street)
- Glen Park, Walpeup (Richardson Street/Murphys Road)
- Walpeup Dryland Memorial Gardens, Walpeup (Cregan Street/Glen Street)
- Walpeup Lake Park, Walpeup (Walpeup Lake Road)
- Walpeup Golf and Tennis Reserve, Walpeup (Murphys Road)
- Walpeup Recreation Reserve, Walpeup (Meridian Road/Lovers Lane)
- Walpeup Wayside Stop, Walpeup (Cregan Street/Murphy Street)
- Murrayville Recreation Reserve, Murrayville (Recreation Road)
- Pioneer Park, Murrayville (Reed Street)
- Underbool Recreation Reserve, Underbool (Gnarr Road)
- Outen Park, Underbool (Malkin Avenue)
- Wayside Park, Underbool (Cotter Street)

- Nangiloc Recreation Reserve, Nangiloc (Kulkyne Way)

5.3 TOURIST ATTRACTIONS

The majority of tourist destinations within the municipality fall within the urban area of Mildura City and are mostly located close to the Murray River.

Some of these attractions are listed below:

- Mildura Wharf
- Lock 11 and Weir
- Rio Vista Mansion
- Old Mildura Homestead
- Apex Beach
- Golden River Zoo
- Psyche Pumps
- Bruce's Bend
- Big Lizzie
- Red Cliffs Heritage Railway

There are also many wineries scattered around the irrigated land surrounding the main urban area of Mildura.

Other attractions located elsewhere in the municipality are mainly national parks such as Murray Sunset and Hattah Kulkyne. Because these attractions cover such large areas it is not feasible to design bicycle routes to them.

6 THE MUNICIPAL BICYCLE NETWORK

The Bicycle Network for the Mildura Rural City Council LGA has been developed based on many factors. Inputs have included well utilised bicycle routes, input from the community consultation including the questionnaire, school consultation, as well as local knowledge of suitable routes that could be improved to provide adequate cycling facilities. Additionally, the network has been developed to cater for different cycling groups, so that direct routes on main roads and safer on- and off-road routes will also be provided catering for different cyclists' needs. The network has been created based on the five principles of a useable network (Bicycle Victoria, 1996):

- Coherence
- Directness
- Safety
- Comfort, and
- Attractiveness.

Maps of the proposed bicycle networks are attached at Appendix A. Some streets will require only signing, some linemarking, while more extensive works such as construction of paths, parking bans, and alterations to kerbs will be required to complete other sections of the network. The majority of the on-road network will be provided by "Shifting Space" (Bicycle Victoria, 1996), and generally this is an inexpensive facility to implement. Shifting space involves fitting bicycle facilities within the existing carriageway by rearranging the existing road space. "Trading Space" is a more costly alternative, which requires developing extra space on the existing road network by reducing either parking, the number of traffic lanes or nature strip widths. "Alternative Space" involves finding an acceptable alternative route where there is no space to shift or trade.

Generally, the Municipal network will provide links throughout the townships and between townships to cover the most frequently cycled routes. The network has been designed so that facilities are spread equally throughout the municipality and the major townships. Major bicycle foci or areas of interest are catered for with a variety of routes to access these points so that there is an equality of facilities provided for the different cycling groups.

Within small townships (e.g. Walpeup or Werrimull) there is generally no need for special bicycle facilities, except perhaps along the major through route, as traffic volumes are low and often even footpaths are not provided. The investigations undertaken has not identified any special needs in small townships, however Council could undertake additional investigations on a one-off basis as the need is identified.

For the main highways connecting the major towns and providing connections to neighbouring municipalities (ie Calder Highway, Mallee Highway and Sturt Highway), sealed shoulders is the recommended treatment. VicRoads should be approached to provide the funding for these treatments.

6.1 MILDURA

The provincial city of Mildura and surrounding urban areas contains the majority of the municipality's population, accordingly the focus of the Mildura Bicycle Network, will be in this location.

North – South routes

6.1.1 Riverside Avenue

Riverside Avenue is a local street located towards the western boundary of the urban area of Mildura. The Old Aerodrome Sporting Facilities which are a major bicycle trip generator are located at the intersection of this road and Eleventh Street. An existing crusher dust shared path exists on the west side of this road adjacent to the sporting ovals between Eleventh Street and Twelfth Street.

We recommend that advisory edgelines be installed along Riverside Avenue between Eleventh Street and the reserve north of Colonial Court to connect up with existing bicycle routes and provide a connection for residents living in the western part of Mildura to the sporting facilities. The edgelines should be marked 3.3 metres from the kerb with bicycle logos marked on the pavement following intersections. A centreline should also be marked to assist vehicle traffic.

We also recommend that sealed shoulders be installed in the section between Fifteenth Street and Seventeenth Street to provide a connection from Mildura through to Cabarita.

6.1.2 Ontario Avenue

Ontario Avenue is designated as a secondary arterial route between Eighth Street and Sturt Highway. A 60km/h speed limit applies to much of this route to the north of Holyoake Way,

which marks the southern boundary of the residential area, except for short 50km/h sections adjacent to Ranfurly Primary and Mildura West Primary.

The road is identified as a trunk bicycle route through the western part of Mildura, which is also used by students from several Primary schools between Eighth Street and Holyoake Way.

The section of the road between Thirteenth Street and Fourteenth Street was recently constructed as a raised section over a flood basin. This section has been constructed with what appear to be wide unmarked parking lanes as well as a sealed shared path on the east side of the road. We do not consider that the parking lanes serve any purpose in their current form as there is no demand for parking in this road section. We recommend that they instead be marked as exclusive bicycle lanes with bicycle logo markings and regulatory signage.

New Ontario Avenue link with unused parking lanes

To the south of Fourteenth as far south as Sixteenth Street, Ontario Avenue is in various stages of construction and widening works as new housing developments appear on either side of the road. We recommend that a consistent width be adopted along this road with a consistent bicycle facility to provide for future cyclists. We recommend that the most appropriate facility is an edge line treatment at 3.3 metres from the kerb. As an interim treatment where kerbs are not currently provided, sealed shoulders with a marked edgelines could be provided.

A squeeze point for cyclists is located adjacent to Ranfurly Primary where angle parking narrows the road width and kerb outstands are provided at the school crossings. We recommend that the angle parking be shifted further to the west of the carriageway to allow the bicycle lane to continue past and that the kerb outstands be narrowed.

Angle parking and kerb outstands outside Ranfurly Primary

To the north of Thirteenth Street, although designated in the existing Mildura Bicycle route plan, previously existing bicycle/parking lanes have been removed. We recommend that these be reintroduced between Seventh Street and Thirteenth Street but are marked 3.3 metres from the kerb as an edge line treatment.

A traffic island is located over a crest at the Thirteenth Street intersection which narrows the carriageway width available for cyclists. 'No Stopping' signs are provided at this location and it is recommended that exclusive bicycle lanes should be marked

Thirteenth Street/Ontario Avenue intersection

Between Sixth and Seventh Street we recommend that an advisory edgeline treatment be installed with the edgelines marked at 3.3 metres from the kerb and with bicycle logos marked on the pavement following intersections. Bicycle route marker signage should be provided at the Sixth Street/Ontario Avenue intersection, at Sixth St/Washington Drive, at a connection where a crusher dust shared path should be constructed through the park at the western end of Sixth Street to connect with Riverside Avenue and where Washington drive intersects with Cureton Avenue opposite the Murray River Trail.

6.1.3 Walnut Avenue

Walnut Avenue acts as a trunk collector road with a 60km/h speed limit and provides an alternative route to Deakin Avenue through Mildura. A series of median traffic islands are provided in the section of Walnut Avenue to the north of Thirteenth Street. The majority of cross intersections along this route are controlled by minor roundabouts.

While bicycle lane signage still exists at many locations along this road to the north of Woodley Drive, the linemarking of the bicycle lanes are either extremely faded or missing altogether.

It is recommended that this route to the north of Dunning Drive marked at a minimum of 3 metres from the kerb as an edge line treatment. This will leave a width of 3.3 metres for traffic lanes in this section.

Sealed shoulders should be provided in the section of Walnut Avenue between Dunning Drive and Sixteenth prior to the installation of kerb and channel associated with new housing development when the bicycle/parking lanes should be extended.

There is a discontinuity in this road across the railway line between Seventh Street and Cureton Avenue. However a pedestrian crossing exists across the railway which could also be used by cyclists.

Several roundabouts along this route contain kerb outstands which protrude into the space which should be set aside for bicycle lanes. Although we understand Council are not in favour of removing the kerb outstands, we suggest the kerb outstands could be modified as described in section 7.9.1 of this report.

6.1.4 Deakin Avenue

Deakin Avenue forms the main entry road into the town centre of Mildura. The route is used as part of the Sturt Highway. The road is located in a wide reservation with an average median width of 21 metres, north of Fifteenth Street.

There is a two lane carriageway in either direction with an additional lane for parallel or angle parking. In the locations where a parking lane is present for parallel parking, the average width of this lane is 2.6 metres, adjacent to 7.5 metres for the two through traffic lanes. Where angle parking is present, the average lane width is 8 metres for the parking and manoeuvring areas and 7.5 metres for the through traffic lanes.

The speed limit for Deakin Avenue north of Fourteenth Street is 60km/h. Between Fourteenth Street and Fifteenth Street, the speed limit increases to 70km/h. The lane widths all increase slightly in this faster section of the road.

The majority of cross intersections are controlled by traffic signals, with the exception of a two lane roundabout at Fifteenth Street and stop signs facing Twelfth Street.

A sealed off-road shared bicycle path is provided on the west side of Deakin Avenue between Tenth Street and Fifteenth Street and crusher dust path provided from Fifteenth Street to the Mildura South Primary School. It is recommended that the unsealed section to be sealed. Signage is provided along this path at all road crossings.

Given the high usage of Deakin Avenue as an arterial route, it is considered that on-road bicycle lanes should be provided in addition to the off-road path as many cyclists continue to use the road which is faster and avoids the need to give way at all the side road crossings. An advisory edgeline treatment can be easily achieved along Deakin Avenue by narrowing the existing through lanes and widening the existing parking lane to 3.3 metres.

Most of the signalised intersections act as squeeze points for cyclists with additional lanes added to facilitate left and right turns. Where possible, traffic lanes should be narrowed to the minimum width of 2.5 metres and a 1.2 metre exclusive bicycle lane should be added between the left turn lane and the left most through lane as shown below.

Existing intersection linemarking

It is considered that the off-road shared path should not be continued to the north of Tenth Street through the main shopping centre due to the high amount of pedestrian traffic in this area. Instead cycling lanes should be provided on-road in the area which is currently designated as manoeuvring space between the angle parking bays and the through traffic lanes.

We recommend that the signage assembly shown below ('Give Way to Cyclists) as found on page 5-18 of VicRoads Traffic Engineering Manual Volume 1 should be erected at all the entrances and exits to all the major traffic generators along Deakin Avenue including McDonalds and several motels to increase motorists' awareness of the need to give way to cyclists when crossing the cycle path.

Give Way to Cyclists Sign

The shared path continues to the south of the Fifteenth Street roundabout to Sixteenth Street to assist cyclists at the Mildura South Primary School. Sections of this shared path are not currently sealed. We recommend that the whole path should be sealed between Sixteenth Street and Tenth Street. Sealed shoulders are also provided to the south of Fifteenth Street. These provide an alternative to cyclists travelling for longer distances who do not wish to use the shared path.

6.1.5 San Mateo Avenue

San Mateo Avenue acts as a trunk collector road providing an alternative to Deakin Avenue. It contains a 60km/h speed limit north of Fifteenth Street except for the section adjacent to Mildura Primary School between Eleventh and Twelfth Streets where a 50km/h limit applies. The majority of cross intersections along this route are controlled by minor roundabouts.This road was designated as a cycle route in the previous Mildura Bicycle Plan however to the north of Fourteenth Street all signage and linemarking has been removed for this route as the previous bicycle/parking lanes were not provided to the required 3.7 metre width. A bicycle/parking lane remains in the section between Fourteenth Street and Fifteenth street. Between Fifteenth Street and Settlers Dr an exclusive bike lane is marked.

We recommend that an edge line treatment should be remarked along this road between Tenth Street and Fifteenth Street at the standard distance of 3.3 metres from the kerb with bicycle logos marked after intersections. This will still allow traffic lanes wider than 3.3 metres for through traffic. To the north of Tenth Street, the road narrows slightly which will require the width of the proposed edge line treatment to be reduced to 3.1 metres.

There are some squeeze points located along this route caused by kerb extensions for the school crossing outside Mildura Primary School and near the corner of Burrows Street. There is currently insufficient width for bicycles at these locations. We recommend that these squeeze points be modified to allow the bicycle lanes to continue through them.

San Mateo Avenue squeeze point

The San Mateo cycle route should ultimately be continued to the south to Sixteenth Street to provide for future residential development. We suggest as an interim treatment sealed shoulders should be provided.

6.1.6 Etiwanda Avenue

Etiwanda Avenue is designated as a secondary arterial route between Seventh Street and Fifteenth Street. Between Eleventh Street and Fourteenth St the abutting land uses are predominantly residential, south of Fourteenth Street they are predominantly rural and north of Eleventh Street predominantly industrial. For the residential and industrial sections of this road a 60km/h speed limit applies except for a short 50km/h section adjacent to St Pauls Primary School, while an 80km/h speed limit applies in the rural section.

The road is identified as a key bicycle route to serve residents in the eastern part of Mildura and the St Pauls Primary School. As there is insufficient width available for bicycle/parking lanes along this road, we recommend that an advisory edgeline treatment be installed between Cureton Avenue and Fourteenth Street with bicycle logos marked on the pavement following each intersection and that a centreline be installed.

Between Fourteenth Street and Sixteenth Street sealed shoulders should be constructed whilst to provide a connection through to future development areas. To the north a local route connection is recommended between Cureton Avenue and the Murray River Trail to be signposted with local bicycle route marker signs.

6.1.7 Benetook Avenue

Benetook Avenue performs a primary arterial function within the Mildura urban area to the east of Deakin Avenue. It is intended to act as a bypass road of the town centre for vehicles headed between the Calder Highway in Victoria and the Sturt Highway in New South Wales, however most trucks continue to use Deakin Avenue at present, as sections of Benetook Avenue are not currently at an appropriate standard. The section between Eleventh Street and Fourteenth St contains two through lanes in either direction with a central median. This section of the road is considered important for cyclists as it abuts the Sunraysia TAFE which is a major trip generator.

Benetook Avenue adjacent to Sunraysia TAFE

On the west side of the road adjacent to the TAFE College the road carriageway is sufficiently wide to install an exclusive bicycle lane. Parking is already prohibited in this section with existing 'No Stopping' signs. The exclusive bicycle lane should be marked 1.2 metres from the kerb and the existing lane line should be shifted 0.6 metres to the east to create 3.4 wide metre traffic lanes.

On the east side of the road an existing parking lane can be modified to create an edge line treatment with marked bicycle logos. This can be achieved by shifting the existing lane line 0.35 metres to the west and the existing parking lane line 0.9 metres to the west which will create 3.4 metre wide traffic lanes and a 3.3 metre wide edge line treatment. The cycle lanes on both sides of the road should be marked with regulatory signage and bicycle logos on the pavement.

On the western carriageway to the north of the TAFE College a parking lane exists. From this point to Eleventh Street, the parking lane should be shifted 1.2 metres to the east to create a 3.4 metre edge line treatment with 3.5 metre traffic lanes by shifting the lane line as before.

Between Fourteenth Street and Fifteenth Street, Benetook Avenue still forms an important link for cyclists from Irymple to access the TAFE College. Sealed shoulders are recommended for this section.

To the north of Eleventh Street Benetook Avenue narrows to a single carriageway with one traffic lane in each direction. In the section where kerb and channel exists between Ellswood Crescent and Eleventh Street, the advisory edgeline treatment should be installed 3.3 metres from the kerb with painted bicycle logos. Between Seventh Street and Ellswood Crescent, the kerb is replaced with a gravel shoulder on the west side of the road. An exclusive bicycle lane should be marked 1.5 metres from the road edge on this side, with the advisory edgeline treatment continuing on the east side.

The traffic islands and the sharp curve at the Seventh Avenue intersection are considered hazardous for cyclists, instead we recommend that a short section of off-road sealed shared path be installed on the east side of the road connecting to the service road leading to Benetook Avenue to the north of Seventh Street.

Location where shared path should be provided to avoid Seventh Street intersection

Between Cureton Avenue and Seventh Street the advisory edgeline treatment should be continued, marked at 3.3 metres from the kerbs with a centreline marked down the middle of the road.

6.1.8 Orange Avenue

Orange Avenue provides a local street connection between Seventh Street and Eleventh Street and is intended as an alternative to Deakin Avenue through the main commercial area for less experienced cyclists.

The road contains a central median, with a through lane and a bicycle/parking lane on either side. The bicycle/parking lanes are marked at an adequate width of approximately 3.9 metres. The signage is also adequate along this route however the linemarking is faded and should be updated.

A local street connection should also be provided along Cedar Avenue using bicycle route marker signs to connect to the bicycle route along Twelfth Street.

East - West routes

6.1.9 Seventh Street

Seventh Street is not currently designated as a bicycle route. The section between Deakin Avenue and Benetook Avenue functions as a primary arterial road, whilst the rest of the road functions as a local street.

The section between Deakin Avenue and San Mateo Avenue has been identified as a key route for cyclists to allow access from the Mildura town centre across the bridge into New South Wales and to provide access to the Great River Bikeway recreational trail.

A rail crossing is located along this section of road, at this location the condition of the edge of the road seal is quite uneven. This will require maintenance if a bicycle route is to be developed along this road.

The section between Deakin Avenue and the rail crossing does not generate a significant rate of on-street parking. Exclusive bicycle lanes marked at 1.5 metres are therefore considered appropriate for this location. Between the rail crossing and San Mateo Avenue, the road pavement widens and parking lanes are already present. These parking lanes can easily be adjusted to conform to the requirements of the 3.3 metre wide advisory edgeline treatment.

Between Chaffey Avenue and Deakin Avenue, the traffic volume is lower however the demand for parking is greater as this part of the road functions as a local street. Due to the presence of angle parking on other parallel routes it is considered that Seventh Street offers the safest alternative for cyclists to cycle between the east and west of the city centre. This section also provides access to Mildura Railway Station which may become a significant bicycle focus in the future. It is therefore considered that this section between Chaffey Avenue and Deakin Avenue should also be designated as a bicycle route. Whilst there is insufficient width to provide a bicycle/parking lane of 3.7 metre width, sufficient width exists for a 3.5 metre advisory edgeline treatment to be marked 3.5 metres from the kerbs. Bicycle route signs and bicycle logo stencil linemarking should be provided along this part of the route. It is also recommended that a centreline be installed.

Seventh Street between Chaffey and Deakin Avenues

A short section of signed crusher dust shared path currently exists in the section of Seventh Avenue road reserve between Cherry Avenue to the north and Cherry Avenue to the south across the railway line where there is no crossing provided for road vehicles. It is recommended that bicycle route signage be provided on Seventh Street between the shared path and Chaffey Avenue to the east and between the shared path and Mansell Reserve to the west. It is also recommended that a formally signed shared path be constructed through Mansell Reserve to link to the bicycle route along Eighth Street.

6.1.10 Eighth Street

Eighth Street is the second closest cross road to the Murray River and the northern end of the Mildura town centre, running in east-west direction. The Langtree Mall containing the main retail shopping strip abuts this road to the west of Deakin Avenue.

The speed limit on this road varies from 40km/h in the town centre between Pine Avenue and Deakin Avenue, to 50km/h through the residential areas to 60km/h in the less developed section between San Mateo Avenue and Etiwanda Avenue.

There are two sections of this road which are currently designated as bicycle routes; between Riverside Avenue and Olive Avenue to the west of the city centre and between Deakin Avenue and Etiwanda Avenue to the east of the city centre.

There is currently no signage designating either of these bike routes and most of the linemarking is faded, particularly in the section to the west of the city centre.

There are two significantly different cross sections found along Eighth Street. Between Olive Avenue and Lemon Avenue through the city centre angle parking is provided which allows minimal width for cyclists. Whilst there are lines provided 1.2 metres from the rear of the angle parking bays on the section to the east of Deakin Avenue, it is not considered that these lanes offer adequate protection for cyclists. We recommend that these lines be maintained to continue to offer some manoeuvring space for vehicles, but that no bicycle logos be marked on the road surface or bicycle lane signage be installed between Olive Avenue and Lemon Avenue.

Eighth Street angle parking through city centre

On either side of the angle parking section of Eighth Street (west of Olive Avenue and east of Lemon Avenue) treed median traffic islands are provided and an edge line treatment exists for cyclists, however the linemarking is below the recommended width of 3.3 metres. It is recommended that the existing bicycle/parking lanes be removed and that new lines be installed 3.3 metres from the kerb. This will leave sufficient width of greater than 3.5 metres

for through traffic lanes between the bicycle/parking lanes and the median. It is recommended that bicycle logos be marked in these sections..

At the eastern and western extremities of the road where no median islands exist it is recommended that the existing bicycle/parking lane lines be replaced with new edge lines marked 3.3 metres from the kerb and that a centreline also be installed. It is recommended that bicycle logos also be installed on the road pavement in these sections.

This route presents several hazards for cyclists due to a number of roundabouts and rail crossings. The roundabouts at Walnut Avenue and Chaffey Avenue offer the greatest concern due to kerb outstands across the cycle lane forcing cyclists to merge with other vehicle traffic. We recommend that these kerb outstands be modified as suggested in section 7.9.1 of this report. The bicycle lanes also do not continue across the two rail crossings. It is recommended that this continuity be provided and that the roughness of the surface across the tracks be improved.

Eighth Street rail crossing west of city centre

6.1.11 Ninth Street

A small section of Ninth Street is designated as a bike route between the Mildura – Yelta rail line crossing and Ontario Avenue. This link provides little benefit as it does not provide a connection to other routes at the railway line end. Ninth Street abuts the Mildura West Primary School in this section. Ninth Street functions as a collector street with priority or roundabouts at intersections with most cross roads.

A median is located along Ninth Street where the bike route is provided. The bike route is currently designated as a 2.6 metre bicycle/parking lane adjacent to a 3.6 metre through traffic lane, however the route is unsigned. A speed limit of 50km/h applies to this section of the road.

The width of the bicycle/parking lane is not sufficient to meet current standards and there is insufficient road space to accommodate an on road facility without implementing road

widening, removal of the median or banning parking. None of these alternatives are considered environmentally or socially acceptable due to the associated reduction in amenity of the streetscape or disruption to the operation of the school.

Ninth Street bicycle lane near Mildura West Primary School

It is recommended that the on road facility be removed from this route and instead be replaced with a widening of the footpath on the school side of the road to accommodate a shared pathway between Ontario Avenue and the railway reserve.

6.1.12 Tenth Street

Tenth Street is designated as a bicycle route for its entire length between Riverside Avenue and Etiwanda Avenue and forms the main east - west link through the city. This road is predominantly marked with a bicycle/parking lane with an average width of 4 metres. A 50km/h speed limit applies to most of this road, with the majority of intersections controlled by roundabouts or give way or stop signs facing side roads.

The route is mostly well signed except between Lime Avenue and Deakin Avenue however much of the linemarking is missing or faded. It is considered that the existing linemarking should be updated and that bicycle logos be installed to further highlight the route and that missing signs be replaced.

There are also several locations along this route where kerb outstands block the bicycle lane. These occur at the Madden Avenue intersection and at the San Mateo Avenue roundabout. It is recommended that these be removed to provide a more continuous cycle route. The roughness should also be improved at the rail crossing.

6.1.13 Eleventh Street

Eleventh Street is classified as a main road between Flora Avenue and Benetook Avenue, and functions as the main east-west arterial route through the urban area of Mildura for vehicular traffic. A 60km/h speed limit applies to this road which has either priority or

roundabout control at all cross intersections except for the signals at Deakin Avenue. The road is recognised as a significant route for cyclists through Mildura due to its continuation to both the east and west directions from the urban area.

A short section of this road between Benetook Avenue and Cowra Avenue has been designated as an on-road bicycle route however there is currently no linemarking to show this. The road currently contains a 9.4 metre wide traffic lane in either direction up to Rydal Ave and then narrows to a total width of 13m to Cowra Ave. It is recommended that a 5.7m wide bicycle/parking lane be installed up to Rydal Ave and then 1.6m exclusive bike lane on the north side and 4m bicycle/parking lane on the south side and that regulatory bicycle lane signage be installed.

Between Ontario Avenue and Benetook Avenue, the cross section of Eleventh Street varies considerably, with two lanes provided in each direction at some points whilst other locations contain parallel or angle parking bays. At some locations along this part of the road it would be difficult to accommodate on road cycling lanes without removing parking bays or removing the kerbside traffic lane. For this reason and the high volume of traffic which uses this section of Eleventh Street, we recommend that a concrete shared path be constructed along the south side of the road in preference to an on-road treatment.

The path should be constructed to a minimum width of 2.4 metres to ensure that there is sufficient space available for both cyclists and pedestrians. Shared path signage should also be erected along the route at all road crossings to ensure pedestrians and cyclists are aware of the presence of the route and the regulations which apply. Only a relatively low number of vehicle crossovers connect to the south side of Eleventh Street in this section and we therefore consider the presence of a shared path to be acceptable.

Eleventh Street between Deakin Avenue and Ontario Avenue

Between Ontario Avenue and Riverside Avenue, the road width narrows with a single wide lane marked in each direction. There is insufficient width to mark bicycle/parking lanes, however an advisory edgeline treatment should be installed 3.5 metres from the kerb with

bicycle logos on the pavement to provide a continuation of the Eleventh Street route for cyclists.

To the west of Riverside Avenue an off-road sealed shared path exists adjacent to the Aerodrome Ovals which continues into Flora Avenue.

6.1.14 Twelfth Street

Twelfth Street is a local street to which a 50km/h limit applies. The road does not contain a high volume of traffic due to a discontinuity at the Yelta Railway Line and a lack of traffic signals at Deakin Avenue.

There are two sections of Twelfth Street which are currently shown as bicycle routes on the current Mildura Bicycle Plan. These are between Cedar Avenue and San Mateo Avenue to the east of Deakin Avenue and between the Yelta Railway and Wattle Avenue to the west of Deakin Avenue. There is no currently no route across Deakin Avenue as there is no formal crossing provided.

Twelfth Street is the only cross road intersecting with Deakin Avenue between Seventh Street and Fifteenth Street. This may be a very strong factor behind the five cycling accidents which have occurred at this location over the last ten years, the highest number at any location across the municipality. The installation of traffic signals at this location is likely to reduce these crashes.

Between Wattle Avenue and Cedar Avenue, the road narrows quite considerably and there is insufficient width to mark formal bicycle facilities, particularly in the section near the Alfred Deakin Centre where the carpark has encroached into the road carriageway.

Twelfth Street near Alfred Deakin Centre

We do however consider that this section of Twelfth Street forms part of a necessary route for cyclists as it links the other parts of the route and provides access to the main Deakin Avenue cycle path, the Alfred Deakin Centre where many cultural events are held and also

to the Mildura swimming pool. The most appropriate treatment for this section of the road is bicycle route marker signs.

Between Cedar Avenue and San Mateo Avenue near Mildura Primary School Junior Campus the existing bicycle/parking lanes have faded significantly. It is recommended that these lines be repainted as edge lines with bicycle logos added.

Between Walnut Avenue and Wattle Avenue near St Josephs College and Sacred Heart Primary School there is insufficient width for bicycle/parking lanes, however we recommend that advisory edgelines be installed, marked at 3.3 metres from the kerbs with bicycle logos.

Between the Yelta Railway and Walnut Avenue existing linemarking for bicycle/parking lanes has faded. It is recommended that these lines be removed and that new lines are marked 3.3 metres from the kerb to create to new edge lines which accord with the current standard. The edge lines should be supplemented with bicycle logos marked on the pavement.

Where the discontinuity exists in the road carriageway across the Yelta Railway, the cycle route continues under a bridge via a sealed shared path which is signed. We recommend that the short section of road between this point and Ontario Avenue should be signed with bicycle route markers.

Twelfth Street railway underpass

Between Ontario Avenue and Riverside Avenue and also between Etiwanda Avenue and San Mateo Avenue we believe local bicycle route marker signs would be the most appropriate treatment to link to other bicycle routes.

6.1.15 Fourteenth Street

Fourteenth Street performs a secondary arterial function within the urban area of Mildura. A 60km/h speed limit applies to the majority of this road except for short sections adjacent to schools. Roundabouts control all the major cross intersections along this road except for the signals at Deakin Avenue.

A bicycle route is shown on the 1999 bicycle plan for Mildura in the section between Etiwanda Avenue and Cowra Avenue however there is currently little evidence of it. This section is yet to become residential and therefore parking demand is minimal. The sealed width of the road is sufficient for exclusive bicycle lanes to be marked 2.1 metres from the edge of the road. Bicycle logos and regulatory signs should also be installed along this section.

Between Etiwanda Avenue and Ontario Avenue a bicycle/parking lane previously existed which was below the 3.7 metre standard requirement. Sufficient room however exists for this facility to be installed by narrowing the through carriageway except the section between Walnut Ave and Deakin Ave. We recommend that all traces of the previous linemarking be removed and that new linemarking be installed at 3.7 metres from the kerbs with marked bicycle logos and that regulatory signage be reinstated. Between Walnut Avenue and Deakin Avenue we recommend that edge lines should be marked 3.3 metres from the kerb with bicycle logos which will provide sufficient space for 3.5 metre wide traffic lanes.

6.1.16 Fifteenth Street

Fifteenth Street forms part of the Calder Highway to the east of Deakin Avenue and provides the main arterial road link into the urban area of Mildura from Melbourne. It also provides the main connection from Mildura to the nearby towns of Irymple and Red Cliffs.

An off-road concrete shared path is provided between Deakin Avenue, Mildura and Dewry Avenue, Irymple, running through the Irymple town centre. The section between Mildura and Irymple is well constructed and well signed. Pram ramps are provided at the Deakin Avenue roundabout to allow a connection to the Deakin Avenue shared path.

To the west of Deakin Avenue, the road width narrows and its classification is reduced to a secondary arterial route. Between Deakin Avenue and Ontario Avenue the road is still considered to be a key bicycle route, providing access to the Lutheran School and the Walnut Avenue and Ontario Avenue cycle routes to the west.

There is insufficient width to provide an on-road bicycle facility in this section however we consider that a concrete shared path could be constructed on the south side of the road. This is consistent with the existing shared path which extends along Fifteenth Street to the east of the Deakin Avenue roundabout towards Irymple.

The path should be constructed to a minimum width of 2.4 metres to ensure that there is sufficient space available for both cyclists and pedestrians by widening the existing footpath. Shared path signage should also be erected along the route at all road crossings to ensure pedestrians and cyclists are aware of the presence of the route and the regulations which apply.

To the west of Ontario Avenue, sealed shoulders are recommended to connect to Riverside Avenue.

6.1.17 Sixteenth Street

At the time of our inspections roadwork was being conducted along Sixteenth Street near Mildura South and we were not able to ascertain the existing facilities. However due to the future residential developments which we understand are to occur in the vicinity of this street between Riverside Avenue and Etiwanda Avenue, we see this route playing a significant role for cyclists. We recommend that sealed shoulders be installed as an interim treatment and that provision be made for bicycle/parking lanes when the road is ultimately constructed with kerb and channel.

6.1.18 Cureton Avenue

Cureton Avenue between Walnut Avenue and Hugh King Drive is a local street and allows access for cyclists between the urban road network and the Great River Bikeway recreation shared bike path adjacent to the Murray River.

Adjacent to the bowling club on the north side of this road there is minimal demand for parking. We therefore recommend that an exclusive bicycle lane marked 1.5 metres from the kerb be installed on this side of the road with 'No Stopping' signs to prevent any parking from occurring. On the south side of the road, we also recommend an exclusive bicycle lane with 'No Stopping' signs in the narrow section opposite the bowling club, however further to the east there is sufficient width for a 3.7 metre wide bicycle/parking lane to be installed around the bend to Hugh King Road. We recommend that a centre line be installed in addition to assist motorists. Route signage markers should be installed at Walnut Avenue and Hugh King Drive to direct cyclists between the Murray River Trail and the urban cycle network.

To the east of the George Chaffey Bridge on San Mateo Avenue over the Murray River, Cureton Avenue serves a local street function with no access provided to the continuation of Cureton Avenue to the east of Etiwanda Avenue. A tree reserve exists on the north side of this section of Cureton Avenue and remains of the former road seal are evident connecting through to Etiwanda Avenue.

Former section of Cureton Avenue connecting to Etiwanda Avenue

We recommend that a sealed shared path be constructed along the north side of Cureton Avenue between Etiwanda Avenue and George Chaffey bridge. The path should use the former road alignment to connect to Etiwanda Avenue and should connect to the Murray River recreational bicycle path under the George Chaffey Bridge.

Between Etiwanda Avenue and Benetook Avenue it is recommended that the existing gravel shoulders be sealed with edgelines installed to provide a facility for cyclists. This treatment should also continue further east to Nichols Point and Beyond.

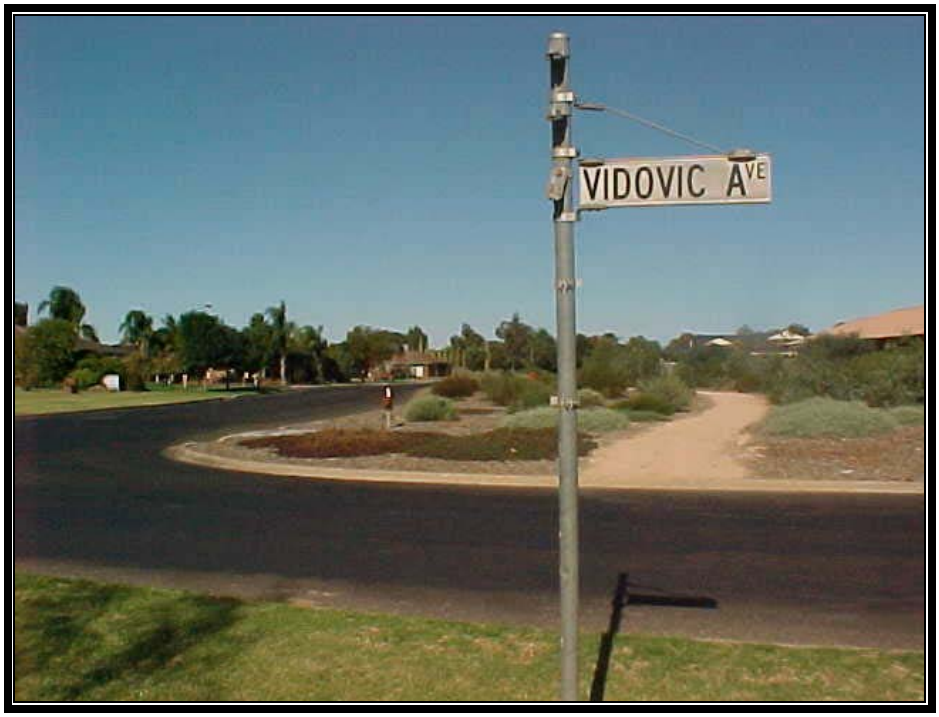
6.1.19 The Boulevard

There appears to have been two attempts of creating a bicycle route along The Boulevard between Deakin Avenue and Sand Mateo Avenue. Both an unsigned crusher dust path on the south side of the road, and unsigned bicycle lanes exist to the east of Vidovic Avenue.

We consider that formally marked bicycle lanes are not required in a residential street such as The Boulevard as the volume and speed of traffic is comparatively low and there is not sufficient width to provide for both bicycles and parking on the road pavement. We therefore recommend that the existing linemarking be removed.

Existing linemarking in The Boulevard

However given the opportunity available by the presence of a large nature reserve on the south side of the road we recommend that the crusher dust path be continued to Deakin Avenue and be signed as a shared path.



Existing crusher dust path adjacent to The Boulevard

We recommend that this shared path adjacent to the Boulevard form part of a local cycle route linking Ontario Avenue to the Irymple Green Belt trail. To the west of The Boulevard, bicycle route marker signage should be installed at Muscat Court, Ford Close, Patricia Drive, Upland Drive, Centenary Drive and Colonial Drive with short sections of shared path constructed through Green Pine Park and Walnut Park.

A small section of crusher dust path exists on the west side of San Mateo Avenue opposite The Boulevard, on the north side of Batey Crescent. However this path stops at the entrance to the carpark to Giggles and Squiggles child care centre.

A reserve following the path of a former irrigation channel alignment exists on the east side of the fence marking the property boundary to the child care centre carpark. This reserve links to Matthew Flinders Drive which follows more of the former channel alignment.

Giggles and Squiggles fence blocking cycle path

It is strongly recommended that negotiations take place with the Giggles and Squiggles management to enable a gap to be left in their carpark fence so that the shared path can be continued through to Matthew Flinders Drive. The shared path should then continue on the east side of this road and provision be made for a link to be established to the Irymple Greenbelt Trail along the former channel alignment as this area gets subdivided.

6.1.20 Hunter Street

We recommend that a local bicycle route should be designated along Hunter Street with route marker signage. Hunter Street is identified as a local east-west route through Mildura due to the large gap between Twelfth Street and Fourteenth Street.

This route should not only include Hunter Street but also Avocado Street and Lisa Court to the east and Argyle Street, Sand Piper Drive, Teal Drive, Wren Close and Swan Place to the west. All these routes should be provided with bicycle route marker signs at intersections where the route changes direction. Sections of shared path should be constructed through Green Pine Park and Walnut Park to provide a continuous route as well on the north side of Sandpiper Drive. A connection should also be established through Flamingo Park connecting to the Yelta Rail Trail.

Recreational Trails

6.1.21 Murray River Trail

A signed shared off-road bike trail exists with a crusher dust surface adjacent to the Murray River between Apex Park and Ornamental Lakes Park. Our consultation reveals that this path is currently very popular for cyclists. This path offers a great recreational opportunity for locals and tourists alike and links provides a link to many of the main tourist attractions in Mildura.

Due to the popularity of this existing path we recommend that it be sealed to provide a better surface for cyclists. We also recommend that the path should be extended in both

the east and west directions to provide a facility for people wishing to go for longer rides and to open up more of the riverfront. Currently rough vehicle and walking tracks exist within the 60 metre strip of public land on the south side of the river extending in either direction from the signed shared bicycle path, however they do not provide for pleasant riding conditions for cyclists. We recommend that these tracks be formalised with a crusher dust surface and signed as a shared path.

Murray River Path – informal vehicle track

We recommend that the path be extended to the east from Chaffey Bridge and Ornamental Lakes Park, past Charcoal Bend to link in with another proposed bicycle route at Cowra Avenue, Riverside. The section of this trail between Chaffey Bridge and Etiwanda Avenue should be incorporated into plans for the proposed Mildura Marina.

To the west of Apex park, we also recommend that the trail be extended through Chaffey Bend and Johnsons Bend to link in with a small section of path which has already been established at Chaffey Landing in Merbein. Whilst the majority of this route can be constructed as a shared path, we understand that there are some locations where there is insufficient area available and cyclists will have to use part of the parallel on-road route proposed along Ranfurly Way or vehicle access tracks adjacent to the Murray River. The Ranfurly Way component of the route is described in further detail in section 6.4.12. Connections to other bicycle routes should be provided at Flora Avenue and to the Lake Hawthorn Trail.

Shared path signs should be erected along parts of the trail which are to be restricted to pedestrians and cyclists, whilst cyclist warning signs should be installed at locations which are also open to vehicle traffic. Bicycle route marker signs should be installed along the route to give direction to cyclists and further direction signs should be installed where the trail intersects with other bicycle routes such as at Flora Avenue and at the access road on the west side of the George Chaffey Bridge connecting to Seventh Street at Magnolia Avenue.

A further section of Murray River Trail could be established through the Kings Billabong area between Keating Avenue Riverside and Woomera Avenue, Red Cliffs with a further connection at Psyche Bend Road.

6.1.22 Yelta Rail Trail

An off-road crusher dust shared bike trail exists adjacent to the Mildura – Yelta railway, within the rail reserve in the short section between Tenth Street and Flamingo Park. A further unmaintained section exists between Flamingo Park and Fourteenth Street. The crusher dust section of this path is well maintained with shared path signage and lean rails provided at road crossings.

Yelta Railway shared path

It is currently proposed to extend this path adjacent to the railway to the west as far as Lake Hawthorn and to the north as far as Seventh Street to provide part of a continuous recreational path loop to the west of Mildura. We endorse this proposal and believe it would offer a significant benefit to tourists as well as forming additional linkages for locals.

We also consider that the extended recreational route highlighted in the previous bicycle strategy to run adjacent to the railway along the entire length between Red Cliffs and Merbein would be of great benefit to cyclists offering a more direct route between the main towns in the urban parts of Mildura that is away from vehicle traffic. However we understand that there may be significant difficulty in achieving the necessary approval from the relevant rail authority to allow construction.

6.1.23 Lake Hawthorn Trail

A signed crusher dust shared path currently exists between Regina Avenue, Cabarita and Ranfurly Way adjacent to the waterway connecting the Murray River to Lake Hawthorn.

Lake Hawthorn Trail

We recommend that bicycle route marker signs be erected on Regina Avenue between the Lake Hawthorn Trail and Seventeenth Street to direct cyclists between the trail and the main highway. We also recommend that the trail be linked to the proposed trail adjacent to the Yelta Railway leading back towards Mildura and that the trail be linked to the proposed Murray River trail extension on the north side of Ranfurly Way.

6.1.24 Irymple Green Belt

The Irymple Green Belt provides the opportunity for a recreational linkage to be constructed along the former irrigation channel reserve between Fifteenth Street and Cowra Avenue. At this stage a crusher dust shared path has been constructed between Fifteenth Street and a point to the west of Koorlong Avenue and another short section on either side of Sandilong Avenue.

Irymple Greenbelt Shared Path

We consider that this recreational path should not only be completed in the proposed section north of the Irymple Township, but also to provide a connection to the Mildura residential area.

We understand that sections of the former channel reserve between Cowra Avenue and Matthew Flinders Drive have been sold to private owners, but that residential development is to occur in this area in the near future. We believe that it should be a requirement that as part of any new subdivisions, land be set aside along the former channel reserve easement to complete this recreational bicycle link between Irymple and Mildura.

6.1.25 Woodland Track

The Woodland Track is proposed to be a short 2.2 km section of path within the Chaffy Bend park area which will create an alternative route to the Murray River Track. By providing this alternative route it allows a loop to be created for cyclists travelling within the park.

It is proposed for this path to be constructed with a crusher dust surface with a short section to have cyclist warning signs installed where the path is shared with road traffic.

Outer Suburban Routes

6.1.26 Fifth Street, Nichols Point

Fifth Street is the main east west route through the Nichols Point Township. The Nichols Point Primary School is located along this route at the Koorlong Avenue intersection. The speed limit is mostly 80km/h along this road except for a short 50km/h section in front of the school.

A crusher dust shared path exists along the entire length of this road switching between the north and south sides on two occasions. The path is mostly correctly signed as a shared

path however some signage is missing at the Koorlong Avenue intersection. The path is located close to gravel shoulders along this road and on many occasions it is difficult to distinguish between the two.

Fifth Street crusher dust path

There are also two locations along the road where it crosses an irrigation channel. At these locations a narrow culvert is provided only for the sealed width of the road to cross the channel. Cyclists and pedestrians using the crusher dust path are required to travel on the road carriageway at these locations.

Fifth Street channel crossing

It is recommended that separate bridges are provided for the channel crossings along Fifth Street for the shared path. It is also recommended that the crusher dust path be upgraded

to a sealed path to provide a higher standard facility through the township and to provide better delineation from the gravel shoulders.

6.1.27 Eleventh Street, Nichols Point

Eleventh Street runs in an east west orientation and functions as a primary arterial route to the south of the Nichols Point Township. An 80km/h speed limit applies to this road to the east of Cowra Avenue and a 100km/h limit applies east of Irymple Avenue. Between Cowra Avenue and Koorlong Avenue the road has a marked centreline, an 8 metre width of seal and 1.9 metre wide gravel shoulders. An existing marked cycle route is located along Eleventh Street between Cowra Avenue and Benetook Avenue.

Eleventh Street west of Koorlong Avenue

The DNRE are currently constructing offices at the Koorlong Avenue intersection. They have expressed interest in funding a bicycle route along Eleventh Street to these offices from Mildura City to provide an environmentally friendly option for their staff to travel to work. We have also proposed that Koorlong Avenue be designated as a bicycle route linking Irymple and Nichols Point.

We consider that Eleventh Street between Koorlong Avenue and Cowra Avenue is an appropriate route for cyclists to link to the DNRE offices, the proposed Koorlong Avenue route and extend the existing Eleventh Street cycle route to the west of Cowra Avenue. We consider that sealed shoulders are the appropriate treatment for this route supported by bicycle logos and regulatory bicycle lane signage at appropriate intervals.

To the east of Koorlong Avenue the sealed shoulders could continue to connect to the extended bicycle route along Belar Avenue with local route marker signage to be provided for the final section linking to the Cureton Avenue route at Kings Billabong.

6.1.28 Cureton Avenue, Nichols Point

Cureton Avenue through Nichols Point forms part of a winding back route near the Murray River and Kings Billabong, that runs between Mildura and Red Cliffs. Most sections of this route are heavily used by training cyclists wishing to avoid competing with vehicle traffic on the main road between the two towns. Cureton Avenue forms the most direct route for cyclists commuting between Nichols Point and Mildura to the west of Fifth Avenue. The route also leads to many tourist destinations along the Murray River and to the small locality of Billabong between the Mildura urban area and Lancaster Avenue. The route links to Cocklin Avenue to the south leading into Red Cliffs.

Cureton Avenue is constructed to a fairly consistent width averaging around 6.65 metres to the east of Benetook Avenue. Gravel shoulders are located to either side of the existing seal. An 80km/k speed limit applies to most of this route.

Cureton Avenue, Nichols Point

Due to the importance of this route to cyclists, it is considered that the width of seal should be extended to 10 metres to allow 2 metre sealed shoulders on either side of the road. We consider that Cureton Avenue should be upgraded to this standard between Etiwanda Avenue in Mildura and Lancaster Avenue where a connection can be made to the proposed cycle path leading to Irymple. To the south of Lancaster Avenue, we consider that as the lower volume of cyclists does not warrant sealed shoulders. Cyclist warning signs are recommended to be installed south of Lancaster Avenue to assist training cyclists continuing to Cocklin Avenue in Red Cliffs.

6.1.29 Cowra Avenue, Nichols Point

Cowra Avenue to the north of Cureton Avenue is a route which is commonly used by the Mildura-Coomealla Cycling Club for training and racing purposes. It is also the most direct route from Mildura to the Riverside Golf Course, Recreation Reserve, Racecourse and the Nichols Point Tennis Club. The road currently has a seal of 6.8 metres and gravel

shoulders. It is recommended that a sealed shoulder treatment be provided along this road to meet the heavy demand of cyclists.

6.1.30 Park Street, Riverside

Park Street provides the continuation of the Cowra Avenue route described above. It also contains the start/finish line of the Riverside training circuit for cyclists. A similar treatment is recommended for this road.

Park Street start/finish line marker

6.1.31 Park Lane, Riverside

Park Lane through Riverside forms part of a route used by training cyclists, however there is little demand by other users. It is therefore recommended that cyclist warning signs be erected along this route.

6.1.32 First Street, Riverside

First Street and Keating Avenue through Riverside forms part of a route used by training cyclists, however there is little demand by other users. It is therefore recommended that cyclist warning signs be erected along this route.

6.1.33 Billabong Road, Riverside

Billabong Road through Riverside forms part of a route used by training cyclists, however there is little demand by other users. It is therefore recommended that cyclist warning signs be erected along this route.

6.1.34 Sunnycliffs Crescent, Sunnycliffs

A crusher dust shared path exists on the south side of this street between Sunnycliffs Primary School and the Calder Highway. This path is adequately signed and appears well

maintained. It is connected to the proposed surrounding bicycle network at the Calder Highway. No further improvements to this route are considered necessary.

6.1.35 Twenty Second Street, Sunnycliffs

It is recommended that local bicycle route marker signs be established along this route to provide access between the main bicycle route along the Calder Highway and the training route along Cocklin and Cureton Avenues at Sunnycliffs.

6.1.36 Dairtnunk Avenue, Cardross

Dairtnunk Avenue runs in a north-south direction through the locality of Cardross. A crusher dust path exists along the west side of this road between Nineteenth Street and Myall Street to serve the local primary school. Dairtnunk Avenue is also a popular route used by training cyclists. The shared path appears in good condition and is signed adequately.

We recommend that this isolated bicycle route should be connected to the Mildura network via sealed shoulders along Dairtnunk Avenue to the north of Nineteenth Street connecting to a proposed sealed shoulder treatment on Karadoc Avenue.

6.1.37 Myall Street, Cardross

We recommend that sealed shoulders be constructed along this route between Dairtnunk Avenue and Coorong Avenue to provide a bicycle route between Cardross and Red Cliffs. The sealed shoulders should be continued south down Coorong Avenue to link with the proposed bicycle facility in Nardoo Street.

The Myall Street section of this route is also used by training cyclists.

6.1.38 Twenty First Street, Koorlong

Twenty First Street, Koorlong runs in an east west direction and forms part of the most direct link between the locality of Koorlong and the highway network leading into Mildura. The road provides a 6.25 metre width of seal in the section between Deakin Avenue and Benetook Avenue. Gravel shoulders exist on either side of the seal. It is recommended that the shoulders be sealed and marked with an edge line treatment in this section between Benetook Avenue and Deakin Avenue to provide part of a cycle route between Koorlong and Mildura.

6.1.39 Benetook Avenue, Koorlong

Benetook Avenue is the main route through the small locality of Koorlong which is found to the south of the Mildura urban area. Koorlong Primary School is located on this road between Twenty First Street and Twenty Third Street. A signed crusher dust shared path is provided adjacent to the road in this section. The path is located on the east side of the road to the south of the school and on the west side to the north of the school.

To provide a better opportunity for more children to cycle to the Koorlong school it is recommended that the cycle path be extended further to the north on the west side of Benetook Avenue to Twentieth Street and also for a distance of 600 metres to the south of Twenty Third Street on the east side of the road.

6.1.40 Deakin Avenue, Koorlong

To the south of Dow Avenue, Deakin Avenue does not form part of a highway. As such the standard of the road in this section is below that of the rest of the road. Between Dow

Avenue and Twentieth Street the width of seal of Deakin Avenue is 6.7 metres, and between Twentieth Street and Twenty First Street the width of seal is further reduced to 3.7 metres. Gravel shoulders exist on either side of the seal in both of these road sections.

Deakin Avenue – narrow section

It is recommended that the sealed width of Deakin Avenue between Dow Avenue and Twenty First Street be increased to 10 metres which will allow for 2 metre sealed shoulders in either direction and a 6 metre through carriageway to provide for two way vehicle traffic. This facility will provide part of a bicycle route between the locality of Koorlong and the city of Mildura.

An existing traffic island treatment located at the Dow Avenue/Deakin Avenue intersection acts as a squeeze point for cyclists wishing to continue along Deakin Avenue. It is suggested that a sealed shared path be constructed to the east of the intersection between Deakin Avenue to the north and Deakin Avenue to the south to allow cyclists to bypass the intersection and avoid having to compete with traffic.

6.1.41 Seventeenth Street, Cabarita

Seventeenth Street through Cabarita forms part of the Calder Highway between Mildura and Merbein. There are existing sealed shoulders along this road which provide an adequate facility for cyclists.

The Lake Primary School abuts this road in the section between Riverside Avenue and McEdward Street. A signed crusher dust shared path exists on the south side of the road in addition to the sealed shoulders in this section near the school.

We consider that the sealed shoulders provide and adequate facility for cyclists commuting to either Mildura or Merbein and that the crusher dust path is appropriate for children attending the school. However more maintenance is required along this path to provide a more even surface of school children.

Seventeenth Street cycle path

There is however currently a concern for students of The Lake Primary School who live in the residential area to the west of the school on the north side of Seventeenth Street. Any of these students who choose to cycle to school are faced with the alternative of either using the existing bicycle path on the south side of Seventeenth Street but not using the Seventeenth Street school crossing located adjacent to the school or using the crossing but not the bicycle path.

The school have requested that the Lake Hawthorn Trail be extended to Dyar Avenue to provide an alterative for students to use a bicycle trail and cross Seventeenth Street at the existing school crossing. The land required for the extension to the Lake Hawthorn Trail is however not owned by Council and unless the school is able to negotiate with the owner of the land it may not be possible to construct this trail extension. Should these negotiations fail we suggest as an alternative treatment that an additional crusher dust shared path be constructed on the north side of Seventeenth Street between Dyar Avenue and McGregor Street.

6.1.42 Meridian Road, Yelta

Meridian Road, Yelta, between Calder Highway and Fifth Street forms part of a route used by training cyclists. This route continues along Fifth Street to Paschendale Avenue, Paschendale Avenue to McCarthys Road, McCarthys Road to River Avenue, River Avenue to Nineteenth Street, Nineteenth Street to Walnut Avenue and Walnut Avenue past Sixteenth Street. It is recommended that bicycle route marker signs and cyclists warning signs be erected at all intersections along this route.

6.2 IRYMPLE

The township of Irymple is a satellite town on the outskirts of the Mildura city, separated by a small amount of farmland. The main shopping strip is located on the Calder Highway which is part of Fifteenth Street through this area. There are several schools and parks in this area as well as linear reserves for an irrigation channel and the Yelta Rail line.

6.2.1 Fourteenth Street

Fourteenth Street runs in an east-west orientation to the north of the Irymple town centre. Cycle lanes are currently designated in the existing Mildura Bicycle Plan along this road from Mildura as far east as Cowra Avenue. It is recommended that this route be extended further to the east to Koorlong Avenue to connect to other proposed cycle routes along Koorlong Avenue and Sandilong Avenue. The recommended treatment for this section of Fourteenth Street is sealed shoulders.

The road crosses the railway to Mildura at Sandilong Avenue. The road surface is quite rough at this crossing and it is recommended that some maintenance is required.

Fourteenth Street rail crossing

6.2.2 Fifteenth Street

Fifteenth Street is the main road through the town of Irymple and forms part of the Calder Highway west of Ginquam Avenue. The highway section contains four traffic lanes with a median provided through the town centre.

A shared path exists adjacent to this road between Deakin Avenue, Mildura and Dewy Avenue, Irymple South. The majority of this path is sealed except for a small section between Sandilong Avenue and Karingal Court and the section to the east of Irymple Avenue.

The path also crosses Fifteenth Street at several locations at the intersection with Sandilong Avenue (signalised crossing), between Karadoc Avenue and Koorlong Avenue, near Ginquam Avenue and near Belar Avenue.

Fifteenth Street crossing between Karadoc & Koorlong Avenues

The Fifteenth Street and side road crossings along the sealed section of the path are constructed to a good standard for cyclists with pram ramps, lean rails and adequate signage. However due to the heavy volume of traffic using the section of Fifteenth Street which is part of the Calder Highway, it is considered that signalised crossing facilities should be provided to assist both cyclists and pedestrians.

For the crossing to the west of Sandilong Avenue this is provided at the intersection signals at Sandilong Avenue where a sealed shared path is provided on both sides of the road. The path on the south side of the road finishes approximately 250 metres to the west of these signals outside the primary school. Students should be directed towards Sandilong Avenue to cross Fifteenth Street at the signals.

We recommend that the existing uncontrolled crossing between Koorlong Avenue and Karadoc Avenue near the Irymple Poll and Library be removed and that instead cyclists be directed to use the newly constructed traffic signals at the Fifteenth Street/Karadoc Avenue intersection. This will significantly improve safety for cyclists at a location where a casualty accident involving a cyclist has recently occurred.

In addition to removing the existing crossing for cyclists, a new section of shared path will need to be constructed on the north side of Fifteenth Street between Karadoc Avenue and the location where the present road crossing is currently located.

The crossing facility on the unsealed section of the Fifteenth Avenue shared path near Ginquam Avenue is of particular concern. This crossing point is located particularly close to the Ginquam Avenue intersection and is on the eastern side of a crest making the sighting of cyclists difficult for motorists approaching from the east. White markings are also placed across the road surface to indicate the preferred crossing point to pedestrians and cyclists, however these markings have no legal significance and may even result in confusion for pedestrians, cyclists and motorists alike as to who must give way to whom.

Fifteenth Street crossing near Ginquam Avenues

It is recommend that a formal crossing point be created for cyclists and pedestrians between the Ginquam Avenue intersection and the Calder Highway. This treatment should consist of holding rails for cyclists and warning signage for motorists to warn of cyclists crossing. It is also recommended that street lighting be installed at this point to alert motorists of the presence of cyclists at night.

It is further recommended that the remaining unsealed sections of the Fifteenth Street cycle path be constructed in concrete or asphalt between Deakin Avenue and Ginquam Avenue to provide a high standard continuous sealed link between Mildura and Red Cliffs.

6.2.3 Cowra Avenue

Cowra runs in a north-south direction to the west of the Irymple town centre. Henderson College is located on the eastern side of this road, to the north of Fifteenth Street. A crusher dust shared path currently exists on the eastern side of this road between the school and Fifteenth Street.

It is recommended that this route be extended to the north to link with the Irymple Greenbelt path and the Fourteenth Street cycle route. The connection to the Greenbelt path is of particular importance as Cowra Avenue is the location where this path is currently proposed to terminate. The proposed crusher dust path along Cowra Avenue will therefore provide cyclists using the Irymple Greenbelt path access to other parts of the cycle network including a route into Mildura via Fourteenth Street and a route back to Irymple via the Fifteenth Street shared path.

6.2.4 Sandilong Avenue

Sandilong Avenue runs in a north-south direction between Irymple and Nichols Point to the north of Fifteenth Street. An existing crusher dust shared path exists on the west side of the street between Fifteenth Street and Fourteenth Street.

Traffic signals presently exist at the Fifteenth Street intersection, which assist pedestrians and cyclists to cross Fifteenth Street near the Irymple Primary School.

It is recommended that sealed shoulders be provided along this road between Fourteenth Street and Fifth Street similar to Belar Avenue to provide a connection between Irymple and Nichols Point.

6.2.5 Karadoc Avenue

Karadoc Avenue runs in a north-south direction through the Irymple township. Irymple Secondary College is located along this road to the south of Fifteenth Street. A crusher dust shared path exists along the west side of the street between the school and Highview Court to the south.

It is recommended that the shared path be continued in a northerly direction between the school and Fifteenth Street to link up with the township and the Fifteenth Street shared path.

It is also recommended that the shared path be continued further to the south to Sixteenth Street which is the other direction where many of the school children are headed.

To the south of Sixteenth Street it is recommended that sealed shoulders become the adopted treatment for this route. This route is not only the most direct route between Irymple and the small township of Cardross but it also runs adjacent to the Mildura Baptist School which presently has no facility provided for cyclists and is a popular cyclist training route.

Karadoc Avenue near Mildura Baptist School

It is recommended that sealed shoulders be constructed between Sixteenth Street and Dairtnunk Avenue to connect with the existing crusher dust path in Cardross.

To the north of Fifteenth Street it is recommended that sealed shoulders be provided to create a link to the bicycle route along Fourteenth Street.

6.2.6 Koorlong Avenue

Koorlong Avenue is not presently designated as a bicycle route, however much residential development exists off this road, particularly to the north of Fifteenth Street.

Between Fifteenth Street and the Irymple Greenbelt, kerbs are provided on both sides of the road with sufficient width for bicycle/parking lanes to be installed. To the north of the greenbelt there are sections of the road where a kerb exists on one side of the road only and other sections where no kerb exists. It is recommended that bicycle parking lanes be installed adjacent to existing kerbs and that the remaining sections where gravel shoulders exist should become sealed. Signage and linemarking should be provided along the entire bicycle route between Fourteenth and Fifteenth Streets.

Koorlong Avenue, Fourteenth to Fifteenth Streets – residential section

It is recommended that the Koorlong Avenue bicycle route should be continued north of Fourteenth Street to Fifth Street in Nichols Point to provide a second link between the two communities in addition to Sandilong Avenue. The cycle route will also provide a link to the new DNRE facility which is being constructed at the intersection with Eleventh Street. Sealed shoulders are the appropriate treatment for this route.

6.2.7 Irymple Avenue

The former Irymple Railway Station was located along this road to the south of Fifteenth Street. At this stage it is not clear whether this station will return to use once passenger services recommence on the Mildura Rail Line. If this station is to be used in the future, it is recommended that the section of Irymple Avenue between the railway and Fifteenth Street be designated as a cycle route and that sealed shoulders be provided.

6.2.8 Ginquam Avenue

Ginquam Avenue is not currently designated is a bicycle route. To the north of Fifteenth Street, this road is classified as a local road, however between Fifteenth Street and the Yelta Railway the road forms part of the Calder Highway.

A significant amount of land has been annexed from the south west corner of the Fifteenth Street/Ginquam Avenue intersection to provide a generous turn radius for Calder Highway traffic. The section of Ginquam Avenue between the Fifteenth Street intersection and where the curve radius begins to Fifteenth Street to the west has been discontinued as a traffic route.

Sealed shoulders are the recommended treatment for Calder Highway to the south of the Fifteenth Street curve radius leading towards Red Cliffs. However the curve radius and Fifteenth Street to the west are not considered to be an appropriate on road route for cyclists due to the narrowing of the shoulders and the presence of turn lanes into Fifteenth Street to the east.

Ginquam Avenue alignment looking south to Calder Highway

It is recommended that the discontinued section of Ginquam Avenue between the Calder Highway and Fifteenth Street should be used as a shared path for cyclists. The former road alignment presently contains sections of road seal which are in disrepair. We recommend that a 2.4 metre wide strip of this seal be repaired and maintained to form the shared path to avoid the dangerous Calder Highway intersection. Shared path signage should be installed at either end of this route.

6.2.9 Belar Avenue

Sealed shoulders exist along the section of Belar Avenue between Fourteenth Street and Fifteenth Street. The shoulders are 1.9 metres wide and are considered to provide a model solution to where sealed shoulders are recommended on other routes. This route is used mainly by school children attending the Irymple South Primary School.

Belar Avenue sealed shoulders

We recommend that this treatment be extended south to connect with the route along Eleventh Street.

6.2.10 Lancaster Avenue/Roberts Street

It is recommended that the crusher dust path, which presently exists along Fifteenth Street, be extended to the east to link with the Cureton Avenue bicycle route via Roberts Street and Lancaster Avenue.

It is recommended that the crusher dust path be installed on the northern side of both of these streets and that bicycle route signage in addition to shared path signage be installed at the Cureton Avenue intersection to provide direction for cyclists to Red Cliffs, Irymple, Kings Billabong, Nichols Point and Mildura.

6.3 RED CLIFFS

The township of Red Cliffs is a satellite town located to the south of the regional city of Mildura. The Calder Highway runs in a north south direction through the township, parallel to the Yelta rail line. Most of the residential areas and the main shopping strips are located to the east of the highway. Several schools and parks are located in this township, again mainly to the east of the highway. There are also several irrigation channels running through the area.

6.3.1 Calder Highway

The Calder Highway provides the main north-south route through the township, linking to Mildura to the north and Ouyen to the south. The road contains a 60km/h speed limit with a single lane in each direction. Bicycle/parking lane currently exists on the road between Fitzroy Street and Whittaker Crescent. This can be extended further south to Calotis Street through installation of signage and linemarking.

Sealed shoulders exist both to the north and to the south of the Red Cliffs township and are considered appropriate for cyclists.

6.3.2 Fitzroy Avenue

Fitzroy Avenue is a local street heading east from Calder Highway. Several schools are located along this road. Bicycle parking lanes exist between Calder Highway and Guava Street, with a crusher dust shared path running east of this point to Pumps Road on the north side of Fitzroy Avenue.

The current linemarking in the section where the bicycle/parking lanes exist currently allows 3.7 metres for the bicycle/parking lanes and only 5.9 metres for the through carriageway to be used by two way traffic. The narrow proportion of roadspace currently available for through traffic results in many vehicles illegally driving partially in the bicycle lanes. It is suggested that a centreline should be marked, and that the shared bicycle/parking lanes should be narrowed to 3.5 metres.

The linemarking for the bicycle lanes needs to be remarked at the Calder Highway intersection as it would appear that a traffic island which appears to have been added since does not allow sufficient room for traffic without driving in the bicycle lane. The bicycle lane should be narrowed to 1.5 metres adjacent to the traffic island where parking is not permitted close to the intersection.

Fitzroy Street/Calder Highway intersection looking west

6.3.3 Indi Avenue

Indi Avenue is the route selected by the Red Cliffs East community as providing the main access for them into the commercial centre of Red Cliffs. The commercial section of this street west of Heath Street is however considered inappropriate for cyclists instead a diversion is recommended via Guava Street and Jamieson Street to access the Calder Highway.

Between Guava Street and Tecoma Street the road pavement width is 14.8 metres. This enables sufficient width for 3.5 metre bicycle/parking lanes and 3.4 metre through traffic lanes. East of Tecoma Street the road pavement narrows, it is proposed to install a crusher dust shared path along this part of Indi Avenue connecting to Cocklin Avenue.

6.3.4 Guava Street

This street has been selected as a bicycle link in the section between Indi Avenue and Jamieson Avenue. This short section of street has no properties which front directly to it, as all abutting properties front other streets. Parking demand is therefore low in this street. It is considered that exclusive bicycle lanes marked at 1.5 metres from the kerb is the most appropriate treatment for this street.

6.3.5 Jamieson Avenue

Jamieson Avenue is a local street which runs in an east-west orientation to the east of the Calder Highway and to the south of the town centre. We consider this route to provide the most appropriate link between the proposed Indi Avenue route to Red Cliffs East and the Calder Highway in order to avoid the town centre.

Jamieson Avenue is of sufficient width to provide bicycle/parking lanes between Guava Street and the Calder Highway. In order for this to occur, two existing linemarked angle parking bays are required to be removed. This is not expected to be of concern as there are many alternative parking opportunities in the immediate vicinity.

Jamieson Avenue angle parking bays

The bicycle parking lanes should be continued to the Kiewa Avenue intersection to link to the existing shared path crossing of the channel.

6.3.6 Kiewa Avenue

An existing shared path channel crossing is located on the south side of this road directly to the east of the Jamieson Avenue intersection. This is currently an isolated section of shared path.

Kiewa Avenue channel crossing

It is recommended that a crusher dust path should be constructed on the north side of the road adjacent to a reserve where no residential properties are located, to the west of the channel crossing, to connect to Cocklin Avenue. This path should be signed as a shared path.

6.3.7 Cocklin Avenue

There are currently no bicycle facilities along Cocklin Avenue. This road however is considered to be an important north-south link through the eastern part of the township. Provision exists for a crusher dust shared path to be added on the eastern side of the road adjacent to the irrigation channel between Nursery Ridge Road and Pumps Road and also on the west side of the road between Indi Avenue and Kiewa Avenue.

To the north of Pumps Road, Cocklin Avenue forms part of a popular training route for cyclists riding from Mildura. It is recommended that bicycle warning signs be erected in this section.

Cocklin Avenue north of Pumps Road

6.3.8 Nursery Ridge Road

Although not shown in the current bicycle route plan, a crusher dust path exists on the northern side of Nursery Ridge Road to assist children attending the Red Cliffs East Primary School.

The path currently crosses to the south side of the road near the Cocklin Avenue intersection to cross the irrigation channel via a narrow pedestrian bridge. This current structure is not appropriate for bicycles.

Existing Nursery Ridge Road channel crossing

It is recommended that a new channel crossing be provided on the north side of Nursery Ridge Road connecting to the proposed crusher dust path on the east side of Cocklin Avenue and the proposed path on the north side of Indi Avenue. Shared path signage should be provided at the new bridge.

6.3.9 Cassia Street

Cassia Street forms part of the route between Red Cliffs and Red Cliffs East. A crusher dust path exists on the north side of the road between Nursery Ridge Road and Neerum Avenue. A shared path sign is currently missing at the Neerum Avenue intersection.

6.3.10 Neerum Avenue

A crusher dust path exists on the west side of this street which leads to the Red Cliffs East Primary School. It is recommended that this path be extended further to the north between the school and Pumps Road. The path should continue on the west side of the street between the school and Cassia Street North, cross the road on the south side of Cassia Street North and continue on the east side of Neerum Avenue to Pumps Road with a new pedestrian/cycle bridge to be constructed across the channel similar to the existing facility on Kiewa Avenue. The extended crusher dust path should be signed as a shared path at all intersections and at the new bridge. Shared path signed should also be installed adjacent to the path outside the school.

Neerum Avenue channel crossing

6.3.11 Pumps Road

Pumps Road runs in an east-west orientation to the east of the Red Cliffs township. A crusher dust path which runs along Fitzroy Street presently terminates at the Pumps Road intersection. It is proposed to continue this path to the east along the north side of Pumps Road connecting to Neerum Road to provide a connection between the northern residential section of Red Cliffs and the Red Cliffs East Primary School.

6.3.12 Nardoo Street

Nardoo Street provides a connection to the west of the Calder Highway, crossing the railway line. It runs through a small amount of industrial area, before linking to a residential area at its western end. A crusher dust shared bicycle path currently exists for a short section between the residential and industrial areas (between the sewerage reserve and Laurel Street). It is proposed to provide a wide kerbside lane through the industrial section and a crusher dust path between Avocat Avenue and Calder Highway, providing a separate crossing of the railway, to the north of the road. The shared path should meet the highway adjacent to the existing school crossing. Shared path signage should be installed for the proposed section across the railway line and bicycle logos adjacent to three dashed markings should be provided through the industrial area.

The residential section to the west of the existing shared path should be signed as a local bicycle route to connect to the proposed sealed shoulders in Coorong Avenue and Myall Street leading out to Cardross. A gravel path should be provided to connect between the existing shared path and the road carriageway.

Nardoo Street at eastern end of residential area

6.4 MERBEIN

The township of Merbein is a satellite town located to the west of the regional city of Mildura. The Calder Highway (Main Avenue) runs in a north south direction through the township, whilst the Yelta rail line runs east west. The main commercial and residential areas to the township are located to the north of the railway line.

6.4.1 Calder Highway (north west)

A sealed shoulder treatment is considered an appropriate facility to provide for cyclist travelling between Merbein and the bridge into New South Wales at Yelta. It is noted that the Yelta bridge is a single lane bridge controlled by traffic signals. It would be appropriate to provide cyclist warning signs at this location as there is insufficient room on the bridge to separate cyclists from other vehicles.

Immediately north west of Merbein, it is considered that the Calder Highway/Chaffey Street/Main Avenue intersection should be avoided due to its complexion and therefore the bicycle route should deviate via Smith Street and Box Street.

6.4.2 Main Avenue

Main Avenue forms part of the Calder Highway through the Merbein township. The route bisects the town running in a north-south direction. There are existing sealed shoulders on this road through the township which are over 4.2 metres wide. It is considered that these sealed shoulders should be formally signed and linemarked as bicycle/parking lanes to provide a north-south route through the town between the Yelta Railway and Box Street.

Main Avenue north of Yelta Railway

To the south of the railway the existing sealed shoulders provide a suitable alternative route for cyclists to travel between Merbein and Mildura along the Calder Highway.

6.4.3 Commercial Street

Commercial Street provides the main east-west road link through the township of Merbein. The main commercial shopping strip is also located along this route. Due to the high amount of angle parking in the main commercial section of this road, west of O'Bryan Street, it is considered that a formal bicycle route is not appropriate. Between O'Bryan Street and Reilly Street the road pavement is wide enough to facilitate bicycle/parking lanes which will allow the eastern section of Commercial Street to function as the main access route into the township of Merbein from Mildura for cyclists. Bicycle route marker signs are recommended at the O'Bryan Street intersection to advise of the continuance of the route.

To the east of Reilly Street we recommend that route marker signs be installed to direct cyclists to the recreational shared path commencing at Chaffey Landing.

6.4.4 Reilly Street

Reilly Street is located at the eastern end of the Merbein township and provides the main connection between Ranfurly Way and Commercial Street. The road pavement is 10.75 metres wide, with residential properties on the north side of the road and channel reserve on the south side. A gravel shoulder exists to the south of the road pavement.

Reilly Street looking east towards Chaffey Park

We recommend that on-road bicycle lanes could be provided on Reilly Street by sealing the shoulder on the south side of the road and installing an edge line treatment along the north side of the road adjacent to the residential properties. The existing centreline will need to be shifted slightly to the south to accommodate this treatment.

6.4.5 Box Street

Box Street runs in an east-west direction, to the north of Commercial Street. It is a wide local street without any current linemarking. A school and large park are located at its western end.

The width of this road is sufficient to install 3.7 metre bicycle/parking lanes between O'Bryan Street and Smith Street which will create an east-west route through the township whilst allowing cyclists to avoid the conflicts associated with parked cars in the main commercial centre.

It is also recommended that a crusher dust path be installed on the north side of the road between Smith Street and Our Lady's school to the west adjacent to Kenny Park. This path should be signed as a shared path.

6.4.6 Game Street

Game Street runs in an east-west direction to the south of Commercial Street and immediately to the north of the Yelta railway. Merbein Primary is located on the southern side of this road, across the railway, towards the western end of the Merbein urban area. The road continues further to the west to Merbein West township

The section of Game Street between the school and Main Avenue is industrial on the south side of the road and residential on the north side. The road contains a wide gravel shoulder on the south side of the road, a 12.2 metre width of sealed pavement and a kerb on the north side.

Game Street looking east towards Main Avenue

It is recommended that an exclusive bicycle lane be marked on the south side of the road 1.5 metres north of the edge of seal which will allow vehicles to continue parking on the gravel shoulder between the school and Main Avenue. It is also recommended that a bicycle/parking lane be marked on the north side of the road 3.7 metres from the kerb in the same section.

It is recommended that bicycle warning signs are provided to the west of the school to provide a cycle route between Merbein and Merbein West linking to Yelta Road at the Quandong Avenue railway crossing. Bicycle route marker signs should be provided at the rail crossing to advise cyclists of the route between the two towns.

6.4.7 O'Bryan Street

O'Bryan Street is a necessary cycling link to provide access between the proposed bicycle facilities in Commercial Street and Box Street. There is sufficient width to install bicycle/parking lanes in this section of road. Bicycle route marker signs are recommended at the Commercial Street and Box Street intersections to advise of the continuance of the bicycle route.

6.4.8 Smith Street

Smith Street is a necessary cycling link to provide access between the proposed bicycle facilities in Calder Highway and Box Street. There is sufficient width to install bicycle/parking lanes in this section of road. Bicycle route marker signs are recommended at the Calder Highway Street and Box Street intersections to advise of the continuance of the bicycle route.

6.4.9 Paschendale Avenue

Paschendale Avenue is a north-south route for cyclists located to the west of the Merbein township. Merbein West Primary is located along this road. A crusher dust shared path

exists on the west side of this road between a point about 400 metres to the south of the railway and a point about 800 metres to the north of Third Street. The path does not appear well maintained, particularly at the northern end.

The northern end of the path is located adjacent to a dried up lake and is remote from residential dwellings. It is suggested that the path could be truncated 500 metres from the northern end to save maintenance costs. The existing shared path signage should be relocated to reflect the new location where the path terminates.

Northern end of Paschendale Avenue shared path

The shared path does not continue across the Yelta railway where it crosses Paschendale Avenue, instead cyclists are forced to ride on the road at this point to cross the rail tracks. A pedestrian maze facility with signs requiring cyclists to dismount is recommended at this point.

6.4.10 Yelta Road

Yelta Road is 6.3 metre sealed road with 1.5 metre gravel shoulders which provides the most direct link between Merbein West and Merbein.

It is proposed that cycle warning signs be erected in the section between Paschendale Avenue and Quandon Street to provide a route into Merbein for cyclists from the Merbein West area.

6.4.11 River Avenue

River Avenue provides the most direct route between the townships of Merbein and Merbein South between the Calder and Sturt Highways. The road contains a 6.9 metre seal with 1.8 metre gravel shoulders.

River Avenue between Sturt and Calder Highways

It is recommended that the existing gravel shoulders along this route should be sealed and formally designated as bicycle lanes with signage and linemarking to provide 2 metre wide cycle lanes leaving 6.5 metres for traffic.

The River Avenue route will link to the existing crusher dust route along Sturt Highway and the sealed shoulders along Calder Highway/Main Avenue.

6.4.12 Ranfurly Way

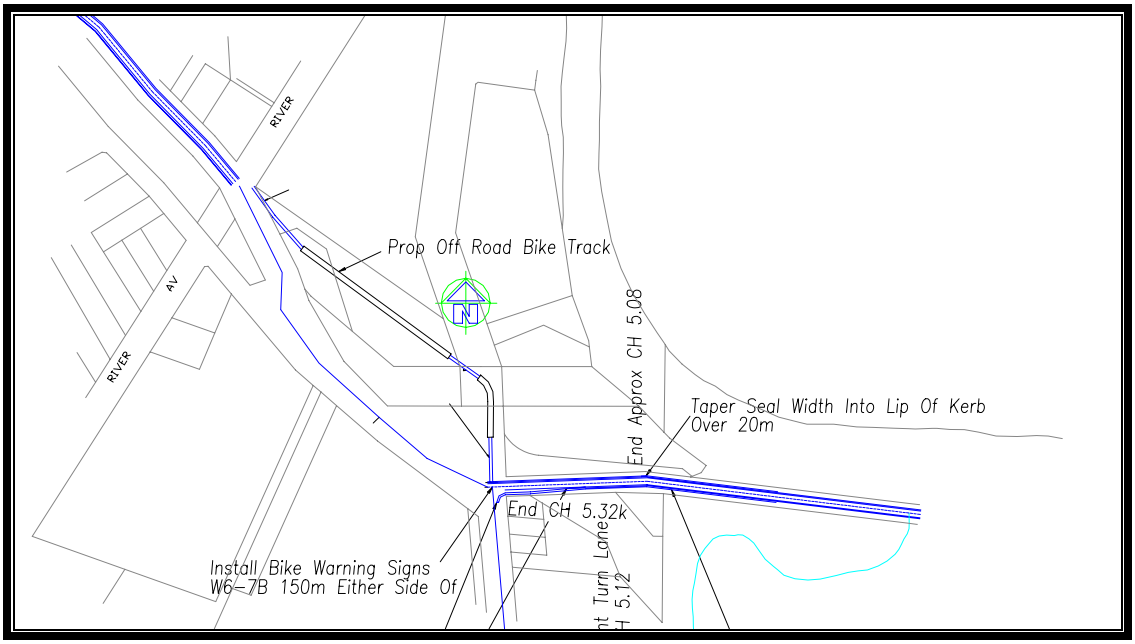
Ranfurly Way is the most direct road link between the towns of Mildura and Merbein and is also the most popular choice of cyclists for travel between these two towns. Presently the sealed shoulders on this road are 1.1 metres wide. The speed limit varies from 70Km/h for the first kilometre south west of Eleventh Street, 80Km/h for the next 3km and then 100Km/h for the next kilometre.

Narrow sealed shoulders on Ranfurly Way

It is recommended that the width of the sealed shoulders be increased along this route to 2m for the 70 and 80 km/h zones and a maximum of 2.5 metres in the 100km/h zone as the existing sealed shoulder widths are inadequate for cyclists. Linemarked bicycle logos should be provided along this route to reflect its heavy usage by cyclists. This treatment is considered to be of particularly high priority due to the number of cycling accidents, which have occurred along this route.

The treatment should extend as far towards Mildura as the roundabout at Eleventh Street where an existing shared path exists on the southern side of the road adjacent to the Old Aerodrome reserve. Signage should be provided to direct cyclists between the shared path and the bicycle lanes.

In the section of Ranfurly Way between River Avenue and McEdward Street, where the road crosses an irrigation channel with a restricted width, it is recommended that the existing bridge across the channel to the north of the road be used as a short section of shared path be constructed to the north of the road to link to the bicycle route along Reilly Street. The path should be constructed in accordance with the following figure and should be sealed to reflect the main cycle route into the township.



Proposed treatment between River Avenue and McEdward Street

6.4.13 Sturt Highway

The Sturt Highway is located to the south of the Merbein township, running in an east-west direction. Merbein South primary school is located along this road in the section between Paschendale Avenue and River Avenue. A crusher dust path exists on the north side of the road in this section, adjacent to the school. The path appears in relatively good condition and is mostly signed adequately except for a missing sign near the school.

Crusher Dust path on north side of Sturt Highway

It is recommended that the missing sign be replaced and that this route is continued to be maintained.

6.4.14 Cowanna Avenue South

The existing crusher dust path along this route is considered sufficient for school children cycling to the nearby Merbein South Primary School.

6.5 OUYEN

The township of Ouyen is located at the junction of the Calder and Mallee Highways to the south of the municipality. It is also the junction of the Yelta and Pinaroo Railways. The Yelta Railway runs parallel to the Calder Highway in a north south direction, splitting the town through the centre. There are several schools and parks located in this town.

6.5.1 Farrell Street

Farrell Street is the main street which forms part of the Calder Highway running in a north-south orientation through the town. The alignment of this street is unchanging in the straight section between Hughes Street and Matheson Street. A kerb is provided on the east side of the road adjacent to a southbound traffic lane of 9.7 metre width. A centre line is provided separating this lane from a 4 metre wide northbound traffic lane. A 4.1 metre wide gravel shoulder is located on the west side of the road adjacent to the northbound traffic lane.

Farrell Street looking north along straight section

We recommend that a bicycle/parking lane be installed on the east side of Farrell Street in this section marked at 4.0 metres from the kerb. We recommend that the centreline should be shifted over by 1.7 metres to the east to allow a 1.7 metre exclusive bicycle lane to be installed on the west side of the road and maintain 4 metre wide through traffic lanes in each direction. Both the exclusive and bicycle/parking lanes should be signed with regulatory signage and have bicycle logos placed on the road surface at maximum 200 metre intervals and after intersections with side streets. The existing gravel shoulder on the west side of the road will remain available for parking adjacent to the exclusive bicycle lane.

Between Matheson Street and Fuller Street two through traffic lanes are provided in each direction around a slight bend in the road. The outside lane is 4.5 metres wide on the west

side of the road whilst an edge line exists 1.35 metres in from the kerb on the east side of the road. It is recommended that a wide kerbside lane is adopted on the west side of the road with advisory bicycle logos marked next to the kerb and that an exclusive bicycle lane is adopted on the east side of the road between the edge line and the kerb.

Farrell Street bend north of Matheson Street

Crusher dust paths exist on the west side of Farrell Street in the vicinity of the two main rail crossings with flashing lights. A path extends some 300 metres to the north of the northern rail crossing whilst a further path exists between Railway Terrace and Hughes Street near the southern rail crossing. Both paths provide access across the railway at the two rail crossing, but there is no separate facility for bicycles and pedestrians away from the road. The paths currently encourage pedestrians and cyclists to cross the road and railway simultaneously on the diagonal to connect to crusher dust paths commencing on the opposite side.

Crusher dust path leading to southern rail crossing

We recommend that each of these crusher dust paths should be signed as shared paths and that pedestrian maze facilities be installed at the rail crossings with signs requiring cyclists to dismount.

A further crusher dust path leads to the west from Farrell Street to Ouyen Station and a footbridge leading over the railway where signs require cyclists to dismount. We recommend that shared path signs also be erected at either end of this path.

A gravel path currently exists on the east side of Farrell Street between Matheson Street and Fuller Street adjacent to the secondary college. It is recommended that this path be widened and upgraded to a shared path and signed to allow school children to connect to the shared path across the railway at William Street without having to ride on the road.

6.5.2 Rowe Street

Rowe Street is a local street which runs in a north-south orientation through the township on the western side of the railway. The road is used by trucks to access the rail freight centre. The road also contains a small number of shops at its southern end between Gregory Street and Pickering Street. Angle parking bays are provided adjacent to the shops. North of Pickering Street the road pavement is 12.25 metres wide.

Southern part of Rowe Street with existing shared path in foreground

It is recommended that the existing shared path which leads from the Mallee Highway rail crossing to the Rowe Street/Gregory Street intersection be extended to the north along the east side of Rowe Street as far as the Pickering Street intersection to avoid cyclists competing with parked cars.

Between Pickering Street and Williams Street the amount of parking is not as significant and it is considered that cycling should be encouraged on the road pavement. As the volume of traffic is not particularly high on this road and the pavement is sufficiently wide, the use of bicycle route marker signs and bicycle logos marked on the road pavement after side road intersections is recommended. An extension of the shared path is not appropriate at this location due to the conflict with access points into the railway freight centre.

6.5.3 Gregory Street

Gregory Street forms part of the Mallee Highway leading to the west from Ouyen. As mentioned previously, sealed shoulders are recommended along this highway to provide for cyclists leading out towards Murrayville. The sealed shoulders should extend as far east into the township as Scott Street where the urban area commences.

Gregory Street is 12.4 metres wide between Gregory Street and Rowe Street, a service road also exists on the southern side of the main carriageway.

We recommend that a bicycle/parking lane be provided on the northern side of the road marked at 3.7 metres from the kerb, that the centre line is shifted 0.5 metres further to the south, and that an exclusive bicycle lane be marked 1.5 metres from the kerb on the southern side of the road. Parking is unlikely to occur on the south side of the road due to the presence of the service road. The recommended treatments will allow a link to be created between the sealed Mallee Highway shoulders to the west of the town and the existing shared path leading across the railway from Rowe Street.

The Ouyen public swimming pool is located at the eastern end of Gregory Street. Bicycle access to the pool would be available by using the proposed cycle route and entering the service road via one of the breaks in the outer separator.

6.5.4 Oke Street

Oke Street contains the main shopping centre for the Ouyen township between Gregory Street and Cooper Street. This part of the road is not recommended as a cycle route due to the conflicts with parked cars and pedestrians. Two schools are located at the northern end of the street between Hunt Street and Cooper Street. A crusher dust path exists on the east side of the road in this section but is not signed.

We recommend that this existing path be signed as a shared path.

6.5.5 Hunt Street

Hunt Street is located to the north of Ouyen Primary school and runs in an east-west direction between Scott Street and Rowe Street. An existing shared crusher dust path is located on the south side of this road for its entire length. The path is both signed and maintained adequately.

6.5.6 Cooper Street

Cooper Street provides access between Rowe Street and the recreation reserve to the west of the township. The section between Rowe Street and Oke Street is dual carriageway with a treed median and gravel shoulders, whilst the section to the west of Oke Street contains a wide kerbed single carriageway.

Cooper Street with single and dual carriageway sections

An advisory treatment consisting of bicycle route marker signs and bicycle logos marked adjacent to the kerb or sealed road edge after intersections is recommended along this route as the traffic volume along the road is low.

6.5.7 Hughes Street

Hughes Street forms part of the Mallee Highway leading to the east from the town centre. Between Farrell Street and Johnson Street the road is kerbed on both sides with a 6.5 metre wide through traffic lane in the eastbound direction and a 4.2 metre lane adjacent to a parking lane in the westbound direction. Several large sporting facilities are located to the south of the road with a parking area located in a service road whilst residential properties abut the road to the north.

Hughes Street west of Johnson Street

It is recommended that a bicycle parking lane marked at 3.7 metres from the kerb be installed on the northern side of the road where there is medium level parking demand, and that an edge line treatment marked at 3.3 metres from the kerb on the south side of the road replace the existing parking lane, as demand for parking on this side of the road would occur less frequently during large sporting events. These proposed treatments will require the existing centreline to be shifted 0.2 metres to the south.

To the east of Johnson Street the existing centreline and the edge line on the north side of the road should be shifted by 0.6 metres to the south to provide an edge line advisory treatment on the north side of the road. A sealed shoulder is the appropriate treatment for the south side of the road.

6.5.8 Matheson Street

Matheson Street is a local street leading between Ritchie Street and Farrell Street on the east side of the railway. Entrances to Ouyen Secondary College and a community centre are located along this road.

Matheson Street west of school entrance

It is recommended that a crusher dust path be erected along the north side of this road adjacent to the school grounds between the school entrance and Farrell Street to link to the crusher dust path proposed in Farrell Street to the north. The Matheson Street path should be signed as a shared path.

6.5.9 Patchewollock Road

A number of cyclists responding to the questionnaire nominated Patchewollock Road as a route which needed improvement for cyclists. Whilst the route does provide the most direct route between the townships of Ouyen and Patchewollock the road is of a poor standard with a width of seal of only 5.3 metres and gravel shoulders approaching 2 metres wide.

Current condition of Patchewollock Road

Whilst the volume of traffic along this road is unlikely to warrant the sealing of the shoulders, it is recommended that both the seal and the shoulders are maintained sufficiently to provide an even surface for cyclists to ride on. It is also recommended that cyclist warning signs be erected at either end of the route to warn motorists of the presence of cyclists.

6.5.10 North West Road

A similar treatment is recommended along this route as for Patchewollock Road.

6.6 MURRAYVILLE

The township of Murrayville is located along the Mallee Highway which runs adjacent to Pinaroo railway to the south west of the municipality. The main township is located on the southern side of the railway. There is a prep to 12 school and a few small parks located in this township, with a large recreation reserve located to the north of the railway. The township is located 60km west of Underbool.

6.6.1 McKenzie Street

McKenzie Street forms the part of the Mallee Highway which runs through the Murrayville township. The road consists of an 11.8 metre wide angle parking area adjacent to a 2.25 metre wide manoeuvring area on the south side of the road next to the shops, a through carriageway of 6.85 metres and a 3.3 metre shoulder on the north side of the road, with a gravel parking area further to the north. The speed limit reduces to 60km/h through the township.

McKenzie Street looking east through town centre

It is recommended that bicycle logos be added to the manoeuvring area on the south side of the road and on the sealed shoulder on the north side of the road at maximum 200 metre intervals and after intersections with side streets. A line should also be provided between the manoeuvring area and the angle parking on the south side of the road.

Whilst Murrayville is located an extensive distance from other townships within the Mildura Rural City Council LGA, we recommend that sealed shoulders should be provided along the Mallee Highway between Murrayville and Ouyen, linking the intermediate townships to provide for cyclists.

6.6.2 Francis Street

Francis Street is a local street which runs in a north-south orientation between McKenzie Street and the local school. The road is closed off adjacent to the school where a fenced carpark is provided. A crusher dust path which is not signed currently exists on the east side of the street adjacent to the oval between Murphys Lane and Poole Street.

Francis Street path adjacent to oval

We recommend that the path should be signed as a shared path and that it should be extended north along Francis Street, on the east side of the road, between Poole Street and McKenzie Street to provide a connection between the school and the main street.

6.6.3 Murphys Lane

Murphys Lane is a local unsealed road running through the back part of the town. It provides an alternative access to the school than Francis Street to the north. A crusher dust path exists on the north side of the road adjacent to the oval between Francis Street and Reed Street, connecting to the path in Francis Street. The path is not currently signed.

Murphys Lane path adjacent to oval

We recommend that shared path signage be installed at either end of this path.

6.6.4 Reed Street

Reed Street is a local street within the township which runs parallel to Francis Street. Shops are located at the northern end of this street between McKenzie Street and Gray Street. We do not consider it desirable that this section be designated as a cycle route due to the conflict with pedestrians on the footpath and cars reversing from angle parking bays on the road pavement.

Reed Street shops

The public swimming pool is located on Reed Street to the north of the Poole Street intersection. We recommend that a cycle route should be created between the school and the swimming pool. This can be achieved by extending the crusher dust path on Murphys Lane to the south along the west side of Reed Street adjacent to the oval and the caravan park. Shared path signage should be provided along this route.

Cyclists from the school wishing to access the Reed Street shops may either do so by riding the short section on Reed Street between Poole Street and Gray Street after using the crusher dust path to the pool, or by using the crusher dust path on Francis Street and the cycle lanes on McKenzie Street.

6.6.5 Cemetery Road

Cemetery Road between McKenzie Street and Recreation Road is the main route across the railway for cyclists riding between the town and the recreation reserve. The road is also heavily used by heavy vehicles wishing to access the railways grain facility and the sale yards. We recommend that yellow diamond cycle warning signs be erected on this part of the road.

6.6.6 Recreation Road

The section of Recreation Road between Cemetery Road and the entrance road into the recreation reserve is the main route for cyclists to ride between the town and the recreation reserve. The road is also heavily used by heavy vehicles wishing to access the railways grain facility and the sale yards. We recommend that yellow diamond cycle warning signs be erected on this part of the road.

6.7 UNDERBOOL

The township of Underbool is located along the Mallee Highway which runs adjacent to Pinaroo railway to the south of the municipality. The town is located 60km east of Underbool and 20km west of Walpeup. The main township is located on the southern side of the railway. There is a primary school and a few small parks located in this township, with a large recreation reserve located to the north of the railway.

6.7.1 Cotter Street

Cotter Street forms the part of the Mallee Highway which runs through the Underbool township. The road consists of a 4.8 metre wide angle parking area adjacent to a 1.7 metre wide manoeuvring area on the south side of the road next to the shops, a through carriageway of 6.6 metres and a 1.7 metre shoulder on the north side of the road, with a gravel parking area further to the north. The speed limit reduces to 60km/h through the township.

Cotter Street looking east through town centre

It is recommended that bicycle logos be added to the manoeuvring area on the south side of the road and on the sealed shoulder on the north side of the road at maximum 200 metre intervals and after intersections with side streets.

6.7.2 Mossop Street

Mossop Street is a local street which runs in a north-south direction. It provides a link from Cotter Street across the railway towards the recreation reserve. A school crossing is located on this road between Monash Avenue and Cotter Street where a lane leads towards the primary school. A crusher dust shared path exists between this school crossing and Monash Avenue on the west side of the road. There is no signage associated with this path.

Crusher dust path leads south from Mossop St school crossing

It is recommended that the path be extended to run the whole distance between Monash Avenue and Cotter Street to provide a direct link to the shops in Cotter Street and the recreation reserve on the opposite side of the railway. It is also recommended that shared path signage be erected along this route.

6.7.3 Monash Avenue

Monash Avenue is a residential street which runs in an east-west direction through the Underbool township. The primary school is located towards the eastern end of this road, whilst the public pool and a small park are located towards the west at Malkin Avenue. A crusher dust path currently exists on the north side of Monash Avenue between a lane leading to the school and the Malkin Avenue intersection where the park and pool are located.

The section of path to the west of Mossop Street is well maintained, whilst the section to the east of Mossop Street is less well maintained and a short section is missing immediately to the west of the lane to the school. The lane to the school is separated into a path for bicycles leading directly to the bike shelter and lockup area within the school and a right of way for motor vehicles.

Crusher dust path north side of Monash Avenue

It is recommended that maintenance is carried out to the section of the path to the east of Mossop Street and that the path is completed the short distance to the lane leading to the school. It is also recommended that shared path signage should be erected for this route.

6.8 WALPEUP

The township of Walpeup is located along the Mallee Highway which runs adjacent to the Pinaroo railway to the south of the municipality. The town is located 29km west of Ouyen and 20km east of Underbool. The main township is located on the southern side of the railway. There is a primary school and several parks located in the township. A large recreation reserve exists to the east of Murphys Road.

6.8.1 Cregan Street

Cregan Street forms the part of the Mallee Highway which runs through the Walpeup township. A parking lane of 5.3 metre width is provided on the south side of the road adjacent to the shops, with 7.05 metres allocated for through traffic and a further 2.85 metre sealed shoulder on the north side on the north side of the road.

Cregan Street looking east through town centre

We recommend that the Mallee Highway bicycle route be continued through this township by sealing a further two metres of shoulder to the north of the road, shifting the existing northern edge line and centre line 2 metres to the north and introducing a new edge line 2 metres to the north of the existing edge line on the south side of the road. This will create a bicycle lane along the sealed shoulder on the north side of the road and between the through lane and angle parking area on the south side of the road.

The bicycle logos would continue through the township in the bicycle lanes at maximum 200 metre intervals and after intersections with side streets.

6.8.2 Glen Street

Glen Street is the local street which runs between the Walpeup Primary School and the small shopping centre in Cregan Street. The 200 metre section between Cregan Street and Richardson Street is dual carriageway with a treed median, whilst the section to the south of Richardson Street adjacent to the school consists of a two way sealed carriageway to the east of an unsealed two way service road.

Dual carriageway section of Glen Street

It is not considered that a formally marked cycle route is necessary in the street due to low traffic volumes. Provision for cyclists exists along the service road to the south of Richardson Street and in the unsealed shoulders of the dual carriageway section to the north of Richardson Street.

6.8.3 Kenyon Street

Kenyon Street forms part of a route linking the primary school and the recreation reserve. Kenyon Street is an unsealed road located in a wide reservation. The traffic volume and speed is low in this street and the road is sufficiently wide that it provides a sufficient route for cyclists.

6.8.4 Murphys Road

Murphys Road is the main road linking the townships of Walpeup and Patchewollock. A service road to the west of the main carriageway provides a safe alternative for cyclists to ride to the recreation reserve located on this away from through traffic.

6.9 WERRIMULL

The township of Werrimull is located along Red Cliffs-Meringur Road which is adjacent to the reserve for the former Morkalla Railway. The main township is located on the southern side of the railway reserve. There is prep to 12 school located in the south part of the township adjacent to some sporting facilities.

6.9.1 Millewa Road

Millewa Road is the main road which runs through the township in an east-west direction and forms part of the Red Cliffs-Meringur Road. The Werrimull township does not stretch for a great distance along this road with only a few shops and residences. The road itself is

of substantial width with angle parking provided on the south side adjacent to the shops and an informal gravel parking area provided on the north side.

Werrimull shops

Due to the low numbers of cyclists expected on this road (because of the short expanse of the township in an east-west direction), it is not considered that a formal bicycle facility is necessary and that the existing wide traffic lanes are adequate.

6.9.2 Tower Street

Tower Street is a 300 metre local street leading between the Werrimull shops and the school. There is a 5 metre width of seal along this road and 5 metre gravel shoulders which provide plenty of opportunity for cycling. No further provision for cyclists is considered necessary along this route due to the low volume of traffic.

Tower Street

6.9.3 Morkalla Rail Reservation

The Morkalla rail reservation provides the opportunity for an off-road trail to be constructed between the towns of Red Cliffs and Morkalla through the township of Werrimull.

Most of this reservation is currently overgrown by light vegetation except for a 5km section between Thurla and Red Cliffs which has been covered in gravel. The 2km section closest to Red Cliffs is currently utilised by a tourist railway and negations would have to be made with this operation to construct a shared path adjacent to the tourist railway leading into the Red Cliffs township.

Morkalla rail reserve east of Thurla

Due to the 55km distance between Werrimull and Red Cliffs and the lack of differing scenery along this route, the bike track is considered a low priority.

The 25km section between Meringur and Werrimull is a slightly higher property due to the closer distance between the two townships allowing the opportunity for commuting and the lack of services provided in Meringur.

6.10 NANGILOC

The township of Nangiloc is located along Kulkyne Way adjacent to the Murray River. There is a single school located in the township adjacent a public pool on the western side of Kulkyne Way which is the main route through the town. A recreation reserve is located on the opposite side of the road.

6.10.1 Red Cliffs-Colignan Road (Kulkyne Way)

Kulkyne Way is the main route running between Red Cliffs and Colignan. It contains a 5.9 metre width of seal with a centreline and gravel shoulders of average width 2.1 metres. A shared pathway exists on the western side of the road through the township of Nangiloc between Steve Collett Drive to the north and a rural property to the south of the township. The path is signed and appears well maintained.

Shared path near primary school

We recommend that sealed shoulders should be provided along Kulkyne Way between Nangiloc and Red Cliffs and also between Nangiloc and Colignan. The Nangiloc to Colignan route is particularly important for school children attending the Nangiloc/Colignan school who live in Colignan and who need to ride the 7km distance to get to their local school since the closure of the site in Colignan.

The 27km section between Red Cliffs and Nangiloc will provide commuter access for Nangiloc residents to the greater services provided at the larger town centre of Red Cliffs whilst also providing a recreational opportunity for Red Cliffs residents to reach the Murray River at Nangiloc and Colignan

The existing shared path should be retained to provide for school children and other users within the township of Nangiloc.

6.11 COLIGNAN

The township of Colignan is located along Kulkyne Way adjacent to the Murray River approximately 7km south of Nangiloc. A former school site is located in the township at the intersection with Graces Road. The school site is now a recreation reserve with a public pool located adjacent to the site. A general store is located some 300 metres to the south.

6.11.1 Red Cliffs-Colignan Road (Kulkyne Way)

A signed bicycle route is provided in the form of a crusher dust shared path on the eastern side of Kulkyne Way between the former school site and Lewis Road to the south, passing by the general store. Sections of this path are located in the gravel shoulder of Kulkyne Way which contains an 80km/h speed limit through the township. The path does not appear to be well maintained.

Section of poorly maintained shared path

The recommended treatment for the entire length of Kulkyne Way between Red Cliffs and Colignan is sealed shoulders (see 6.10 above). It is therefore considered that the only section of the existing shared path which should be retained through the township of Colignan is between the former school site and swimming pool and the shop to the south. The signage in all other parts of the existing shared path should be removed. The shared path should be signed along the service road in front of the former school site and continue around the corner to the main entrance to the swimming pool in Graces Road.

6.12 HIGHWAY ROUTES

We recommend that VicRoads should provide sealed shoulders along each of the highway sections the between major towns in the Mildura LGA as well as linking into the adjoining municipalities. Specifically sealed shoulders should be provided along each of the following routes:

- Calder Highway
- Mallee Highway
- Sturt Highway
- Sunraysia Highway
- Hattah-Robinvale Road

6.13 TRAINING ROUTES

Four main training routes were identified from the Mildura-Coomealla Cycling Club Submission to the bicycle strategy, these routes have been listed below. Facilities to improve cycling on these routes will include sealing shoulders and installing cyclist warning

signs. On VicRoads' declared road network, sealing shoulders is an option, as sealed shoulders provide benefits to other road users. On the local routes consideration should be given to improving the standard of existing unsealed shoulders. Funding to seal shoulders should be sought from VicRoads.

On the smaller back roads, there are significantly reduced traffic volumes, and cyclists would rarely encounter other vehicles. It is not viable to install sealed shoulders on these roads, particularly when the current width of seal is sometimes as narrow as one traffic lane. On these commonly used back road routes, cyclists warning signs should be provided, and at intersections, training cyclist route signs should be provided indicating the circuit and progress length.

A plan of the training routes used by the Mildura-Coonealla Cycling Club is attached at Appendix K to this report, with a description of the routes also provided below.

1.	***Bridge Ride:***	***Meridian Road / Fifth Street / Paschendale Avenue / McCarthys Road / River Avenue / Nineteenth Street / Walnut Avenue***
2.	***Wednesday Night Ride:***	***Tenth Street / Etiwanda Avenue / The Crescent / Seventh Street / Benetook Avenue / Cureton Avenue / Cowra Avenue / Park Street / Park Lane / Billabong Road / Irymple Avenue / First Street / (alternative straight along Cureton) / Cureton Avenue / Fourteenth Street / Fern Avenue / Cureton Avenue / Cocklin Avenue / Fitzroy Avenue / Calder Highway / Myall Street / Dairtnunk Avenue / Karadoc Avenue / Fifteenth Street***
3.	***Deakin Avenue Ride:***	***Deakin Avenue / Dow Avenue / Benetook Avenue / Nineteenth Street***
4.	***Honour Avenue Ride:***	***Meridian Road / Yelta Road / Honour Avenue / Fifth Street***
5.	***Red Cliffs Cemetery Ride:***	***Red Cliffs-Meringur Road / Tulloch Road / Wilga Road / Lowan Avenue***

6.14 PROPOSED WORKS PROGRAM AND PRIORITIES FOR IMPLEMENTATION

The following facilities have been identified as part of the Mildura bicycle network. Table 6.1 below summarises all the proposed works and sets out the estimated costs based on approximate local rates for works supplied by Council. While in most cases the total cost of each of the projects is listed, there are many cases where significant proportions of the cost would not be borne by Council, these are highlighted in the notes section. The cost of cycle path bridges over irrigation channels has been estimated at $20,000.

The works, which are designated as high priority works, form the priority bicycle network and should be implemented over the first three years. The medium and low priority works complete the "ideal" bicycle network and should be constructed over the remainder of the ten year implementation period. Refer to Section 11 for further comments on the implementation and priority of the bicycle network.

Table 6.1 Proposed Works Program

- Bicycle/Parking Lane (B/PL) **- Exclusive Bicycle Lane (EBL)** **Wide Kerbside Lane (WKL)**

- Edge line Treatment (ELT) **- Cyclist Warning Signs (CWS)** **Local Route Signs (LRS)**

- Shoulder Sealing (SS) **- Crusher dust Shared Footway (CSF)** **Sealed Shared Footway (SSF)**

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
MILDURA BICYCLE NETWORK											
1.1	Ontario Avenue	Seventh Street	Holyoake Drive	4,200	Arterial	ELT, SS	√		Modify kerb outstands	59,500	High
1.2	Walnut Avenue	Cureton Avenue	Nineteenth Street	9,400	Arterial	ELT, CWS	√	√	Modify kerb outstands	41,400	High

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
1.3	Deakin Avenue	Seventh Street	Dow Avenue	7,800	Arterial	ELT, SS	√	√	Edge lines and bicycle logos in addition to shared footway. Cycle markings at traffic signals. Signage for road accesses across shared footway	63,600	High
1.4	San Mateo Avenue	Chaffey Bridge	Sixteenth Street	5,000	Arterial	ELT	√		Modify kerb outstands	43,300	High
1.5	Etiwanda Avenue	Fourteenth Street	Cureton Avenue	2,400	Arterial	ELT	√		Bicycle Logos and Edge Lines	4,200	High
1.6	Benetook Avenue	Fifteenth Street	Eleventh Street	2,000	Arterial	EBL, ELT, SS	√	√	Exclusive Lane west side, Edge Line Treatment east side	40,700	High
1.7	Seventh Street	San Mateo Avenue	Walnut Avenue	1,300	Arterial	ELT, EBL	√	√	Smooth rail crossing	1,700	High
1.8	Eighth Street	Riverside Avenue	Ontario Avenue	1,250	Arterial	ELT	√		Modify kerb outstands. Smooth rail crossing.	4,000	High
1.9	Eighth Street	San Mateo Avenue	Etiwanda Avenue	650	Collector	ELT	√		Modify kerb outstands. Smooth rail crossing	2,000	High
1.10	Ninth Street	Ontario Avenue	Yelta Railway	250	Local	SSF	√	√	Remove existing linemarking. Widen footpath	14,200	High
1.11	Tenth Street	Riverside Avenue	Etiwanda Avenue	3,200	Arterial	B/PL	√		Renew linemarking, add bicycle logos. Modify kerb outstands. Smooth rail crossing	5,000	High
1.12	Eleventh Street	Riverside Avenue	Cowra Avenue	3,900	Arterial	B/PL, SSF, ELT,	√	√	Shared path on south side of road between Benetook Av and	252,000	High

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
						EBL			Ontario Av		
1.13	Twelfth Street	Riverside Avenue	Etiwanda Avenue	3,200	Local	LRS, ELT	√	√	Local route marker signs	2,400	High
1.14	Fourteenth Street	Ontario Avenue	Cowra Avenue	3,900	Arterial	B/PL, EBL	√	√	Replace existing linemarking and add bicycle logos	4,700	High
1.15	Fifteenth Street	Ontario Avenue	Deakin Avenue	1,250	Arterial	SSF		√	Shared path on south side of road	125,000	High
1.16	Cureton Avenue	Chaffey Bridge	Fifth Street	2,650	Arterial/ Collector	SS, SSF	√	√	Sealed shared footway on the north side of the road to the west of Etiwanda Avenue to link with Murray River Trail	85,800	High
1.17	Cureton Avenue	Hugh King Drive	Walnut Avenue	300	Local	EBL, B/PL	√	√	No Stopping signs installed in conjunction with Exclusive lanes	500	High
1.18	The Boulevard	Deakin Avenue	San Mateo Avenue	650	Local	CSF	√	√	Remove linemarking, install signs for shared path. Continue path west of Vidovic Avenue	9,400	High
1.19	Murray River Trail	Chaffey Bridge	Flora Avenue	7,700	Recreational	SSF	√	√	Seal existing path and extend west to Flora Avenue	185,100	High
1.20	Yelta Railway Trail	Ninth Street	Fourteenth Street	500	Recreational	CSF	√	√	Extend existing path	12,500	High
1.21	Riverside Avenue	Sixth Street	Eleventh Street	1,200	Arterial/ Local	ELT	√	√	Bicycle Logos and Edge Lines	700	Medium
1.22	Ontario Avenue	Holyoake Drive	Sixteenth Street	850	Arterial	SS	√			33,000	Medium

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
1.23	Orange Avenue	Seventh Street	Twelfth Street	1,150	Local	B/PL, LRS	√	√	Renew Linemarking for existing section and add bicycle logos. Add local route signs for Cedar Avenue section	800	Medium
1.24	Etiwanda Avenue	Sixteenth Street	Fourteenth Street	1,900	Arterial/ Collector	ELT	√		Bicycle Logos and Edge Lines	3,400	Medium
1.25	Sixteenth Street	Riverside Avenue	Etiwanda Avenue	3,200	Arterial/ Collector	SS	√		Replace with edge line treatment when road is fully constructed with kerb and channel	128,750	Medium
1.26	Riverside Avenue	Fifteenth Street	Seventeenth Street	2,650	Collector	SS	√			107,300	Low
1.27	Ontario Avenue	Seventh Street	Cureton Avenue	1,400	Local	LRS, CSF		√	Local route signs to connect Ontario Avenue path to Murray River Trail at Cureton Avenue. Shared footway through reserve.	4,700	Low
1.28	Etiwanda Avenue	Cureton Avenue	Murray River Trail	1,200	Collector	LRS		√	Local route marker signs	300	Low
1.29	Etiwanda Avenue	Fourteenth Street	Irrigation Channel Reserve	100	Arterial	SS	√		To provide a connection to the Irymple Greenbelt trail once it reaches this point	4,050	Low
1.30	Benetook Avenue	Eleventh Street	Cureton Avenue	1,450	Arterial	ELT, EBL	√	√	Shared path to avoid Seventh Street intersection	3,600	Low
1.31	Fifteenth Street	Riverside Avenue	Ontario Avenue	650	Collector	SS	√			26,500	Low

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
1.32	Seventh Street	Walnut Avenue	Mansell Reserve	700	Local	LRS, CSF		√	Shared path through Mansell Reserve	4,950	Low
1.33	The Boulevard path	Deakin Avenue	Ontario Avenue	1,500	Local	LRS, SSF		√	Shared path through reserves	8,950	Low
1.34	The Boulevard path	San Mateo Avenue	Cowra Avenue	3,300	Local	CSF		√	Negotiation with Giggles and Squiggles for access through carpark	67,800 (4)	Low
1.35	Hunter Street path	Yelta Railway	Irrigation Channel Reserve	2,550	Local	LRS, SSF		√	Shared path through S.C. Mills Reserve	8,700	Low
1.36	Murray River Trail	Chaffey Bridge	Etiwanda Avenue	2,350	Recreational	CSF		√	Subject to Mildura Marina development	47,200	Low
1.37	Murray River Trail	Etiwanda Avenue	Cowra Avenue	1,450	Recreational	CSF		√		29,100	Low
1.38	Woodlands Track	Caravan Park	Flora Avenue	2,200	Recreational	CSF/CWS		√		5,000	Low
MILDURA SATELLITE TOWNSHIPS BICYCLE NETWORK											
2.1	Fifth Street, Nichols Point	Cureton Avenue	Cureton Avenue	2,900	Collector	SSF		√	Seal existing path and construct separate channel crossings	76,700	High
2.2	Benetook Avenue, Koorlong	Twentieth Street	Twenty First Street	1,350	Local	CSF		√		27,300	High
2.3	Seventeenth Street,	McEdward Street	Riverside Avenue	2,150	Arterial	CSF		√	Construct shared path on north side of road. Maintain even surface of	30,750	High

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
	Cabarita								existing path.		
2.4	Wednesday Night Ride Training Route			37,350	Local	CWS		√	Route used by training cyclists consisting of several roads	5,300	High
2.5	Bridge Ride Training Route			23,450	Local	CWS		√	Route used by training cyclists consisting of several roads	4,000	High
2.6	Deakin Avenue Training Route			2,700	Local	CWS		√	Route used by training cyclists consisting of several roads	1,600	High
2.7	Honour Avenue Training Route			5,300	Local	CWS		√	Route used by training cyclists consisting of several roads	800	High
2.8	Eleventh Street, Nichols Point	Cowra Avenue	Koorlong Avenue	1,900	Collector	SS	√			76,500	Medium
2.9	Cureton Avenue, Kings Billabong	Fifth Street	Lancaster Avenue	5,410	Collector	SS		√	Could consider cyclist warning signage as an interim treatment	218,000	Medium
2.10	Dairtnunk Avenue, Cardross	Twenty Second Street	Karadoc Avenue	2,400	Collector	SS	√		Could consider cyclist warning signage as an interim treatment	96,600	Medium
2.11	Regina Avenue, Cabarita	Lake Hawthorn Trail	Seventeenth Street	450	Local	LRS		√	Route marker signage to direct cyclists between the recreational trail and the highway	300	Medium

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
2.12	Twenty Second Avenue, Sunny Cliffs	Calder Highway	Cureton Avenue	1,350	Local	LRS		√	Route marker signage to direct cyclists between the training route and the highway	300	Low
2.13	Cureton Avenue, Nichols Point	Fifth Street	Fifth Street	4,000	Local	SS	√		Could consider cyclist warning signage as an interim treatment	161,000	Low
2.14	Eleventh Street, Nichols Point	Koorlong Avenue	Cureton Avenue	3,450	Local	SS, LRS	√	√		97,200	Low
2.15	Cowra Avenue, Riverside	Cureton Avenue	Park Street	2,150	Local	SS	√		Could consider cyclist warning signage as an interim treatment	86,500	Low
2.16	Park Street, Riverside	Cowra Avenue	Park Lane	1,250	Local	SS	√		Could consider cyclist warning signage as an interim treatment	50,300	Low
2.17	Myall Street, Cardross	Dairtnunk Avenue	Nardoo Street	2,950	Local	SS	√		Could consider cyclist warning signage as an interim treatment	119,000	Low
2.18	Twenty First Street, Koorlong	Benetook Avenue	Deakin Avenue	1,900	Local	SS	√			76,500	Low
2.19	Deakin Avenue, Koorlong	Nineteenth Street	Twenty First Street	4,250	Local	SS	√		Shared path to avoid Sturt Highway Turnoff	182,000	Low
2.20	Kings Billabong Trail	Billabong Road	Neerum Avenue	15,000	Recreational	CSF, CWS, LRS		√	Warning signs along road to Psyche Bend. Route marker signs along road to Bruces Bend and along Cassia	240,000	Low

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
									Street and Woomera Avenue to the southern end of the trail.		
IRYMPLE BICYCLE NETWORK											
3.1	Fifteenth Street	Deakin Avenue	Roberts Street	7,900	Arterial/Collector	SSF, CSF		√	Seal existing crusher dust sections of path west of Ginquam Avenue. Formalise Road crossing at Ginquam Avenue. Relocated crossing between Koorlong Avenue and Karadoc Avenue to traffic signals.	51,000	High
3.2	Cowra Avenue	Henderson College	Fourteenth Street	1,000	Local	CSF		√		20,300	High
3.3	Ginquam Avenue	Calder Highway	Fifteenth Street	250	Arterial	SSF		√	Shared path along former road alignment to south of Fifteenth Street.	7,100	High
3.4	Irymple Greenbelt	Fifteenth Street	Cowra Avenue	3,000	Recreational	CSF		√	Complete unfinished sections	60,500	High
3.5	Fourteenth Street	Cowra Avenue	Koorlong Avenue	1,900	Arterial	SS	√		Smooth rail crossing	76,600	Medium
3.6	Karadoc Avenue	Fifteenth Street	Dartnunk Avenue	2,550	Collector	SS, CSF	√	√	Extensions to existing crusher dust path	88,500	Medium
3.7	Koorlong Avenue	Fourteenth Street	Fifteenth Street	1,350	Arterial	B/PL, SS	√	√		23,600	Medium
3.8	Roberts Street	Fifteenth Street	Cureton Avenue	750	Collector	CSF		√	Link Fifteenth Street path to Cureton Avenue path	15,500	Medium

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
	Lancaster Avenue										
3.9	Sandilong Avenue	Fifth Street	Fifteenth Street	2,700	Collector	SS	√			109,000	Low
3.10	Karadoc Avenue	Fifteenth Street	Fourteenth Street	1,000	Collector	SS	√			40,350	Low
3.11	Koorlong Avenue	Fifth Street	Fourteenth Street	2,700	Collector	SS	√			109,000	Low
3.12	Irymple Avenue	Fifteenth Street	Yelta Rail Line	400	Local	SS	√		If rail station is to be used for public transport	16,100	Low
3.13	Belar Avenue	Eleventh Street	Fourteenth Street	950	Local	SS	√			38,350	Low
3.14	Yelta Railway Trail	Seventh Street	Irymple	5,800	Recreational	CSF		√	Dependant on Approval from VicTrack	124,000	Low
RED CLIFFS BICYCLE NETWORK											
4.1	Calder Highway	Calotis Street	Whitaker Crescent	250	Arterial	B/PL	√	√	Add bicycle logos to existing section. Sealed shoulders to south of town to Ouyen.	700	High
4.2	Fitzroy Avenue	Calder Highway	Guava Street	550	Collector	B/PL	√		Replace linemarking ensuring sufficient width for through traffic lanes	350	High
4.3	Indi Avenue	Guava Street	Cocklin Avenue	1,050	Collector	B/PL, CSF	√	√		12,800	High
4.4	Guava Street	Indi Avenue	Jamieson Avenue	150	Collector	EBL	√	√		400	High

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
4.5	Jamieson Avenue	Guava Street	Calder Highway	400	Collector	B/PL	√	√	Remove marked parking bays	650	High
4.6	Nursery Ridge Road	Cocklin Avenue	Ovens Avenue	100	Collector	CSF		√	New channel crossing on north side of road	20,300	High
4.7	Cassia Street	Nursery Ridge Road	Neerum Avenue	600	Collector	CSF		√	Replace missing signs	150	High
4.8	Red Cliffs Cemetery Training Route			7,600	Local	CWS		√	Route used by training cyclists consisting of several roads	1,600	High
4.9	Neerum Avenue	Cassia Street	Pumps Road	600	Collector	CSF		√	New channel crossing	22,300	Medium
4.10	Pumps Road	Neerum Road	Cocklin Avenue	1,100	Collector	CSF		√		22,300	Medium
4.11	Nardoo Street	Calder Highway	Coorong Avenue	1,300	Collector	CSF, LRS, SS	√	√	New rail crossing of path to the north of road. Bicycle logos on road through industrial section.	4,400	Medium
4.12	Jamieson Avenue	Guava Street	Kiewa Avenue	400	Local	B/PL	√	√		500	Low
4.13	Kiewa Avenue	Jamieson Avenue	Cocklin Avenue	500	Local	CSF		√	Path through reserve on north side of road.	10,500	Low

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
4.14	Cocklin Avenue	Fitzroy Avenue	Kiewa Avenue	1,700	Local	CSF		√		34,300	Low
4.15	Yelta Railway Trail	Irymple	Red Cliffs	9,000	Recreational	CSF		√	Dependant on Approval from VicTrack	182,000	Low
MERBEIN BICYCLE NETWORK											
5.1	Commerical Street	Box Street	Reilly Street	1,050	Arterial	B/PL	√	√		1,000	High
5.2	Calder Highway	Meridian Road	New South Wales	200	Arterial	CWS		√	Cycle warning signs on approaches to bridge due to narrow width of road.	150	High
5.3	Reilly Street	Ranfurly Way	Commercial Street	500	Arterial	SS, ELT		√	Seal shoulder on south side of road	11,000	High
5.4	Ranfuly Way	River Street	Eleventh Street	5,300	Arterial	SS, SSF	√		Widen existing shoulders. Construct shoulders in different colour. Add bicycle logos.	268,000	High
5.5	Murray River Trail	Flora Avenue	Commercial Street	8,200	Recreational	CSF, CWS		√	Connection to Lake Hawthorn Trail with route marker signage.	165,000	High
5.6	Box Street	O'Bryan Street	Main Avenue	650	Arterial	B/PL	√	√		2,000	Medium

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
5.7	Commerical Street	Reilly Street	Chaffeys Landing	650	Local	LRS		√		450	Medium
5.8	Game Street	Main Avenue	Quandong Avenue	1,200	Local	B/PL, EBL, CWS	√	√	Bicycle route markers at Quandong Avenue rail crossing.	1,100	Medium
5.9	Main Avenue	Box Street	Channel Road	550	Arterial	B/PL, SS	√	√	Flashing lights at rail crossing	550 (3)	Medium
5.10	O'Bryan Street	Box Street	Commercial Street	150	Arterial	B/PL	√	√		550	Medium
5.11	Smith Street	Box Street	Calder Highway	200	Arterial	B/PL	√	√		550	Medium
5.12	Yelta Road	Paschendale Avenue	Quandong Avenue	2,600	Local	CWS		√	Bicycle route markers at Quandong Avenue rail crossing.	300	Medium
5.13	Yelta Railway Trail	Lake Hawthorn Trail	Fourteenth Street	4,500	Recreational	CSF		√	Route marker signage at Lake Hawthorn Trail	90,600	Medium
5.14	Box Street	Main Avenue	Our Lady's School	550	Local	CSF		√		10,500	Low
5.15	Paschendale Avenue	Third Street	Yelta Road	1,500	Local			√	Pedestrian maze at rail crossing. Discontinue path at northern end.	550	Low

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
5.16	River Avenue	Calder Highway	Sturt highway	2,500	Collector	SS	√			102,000	Low
5.17	Sturt Highway	Paschendale Avenue	River Avenue	2,450	Arterial	CSF		√	Replace missing signs	150	Low
5.18	Yelta Railway Trail	Lake Hawthorn Trail	Merbein	5,500	Recreational	CSF		√	Dependant on Approval from VicTrack	132,000	Low
OUYEN BICYCLE NETWORK											
6.1	Farell Street	Railway Terrace	North of town	1,500	Arterial	CSF, B/PL, EBL, WKL	√	√	Signage of shared paths. Widening of path adjacent to school. Pedestrian mazes at rail crossings. Sealed shoulders along Calder Highway to municipal border.	7,750	High
6.2	Gregory Street	Dakers Street	Yelta Railway	650	Arterial	B/PL, EBL, CSF, SS	√	√	Replace existing linemarking. Signage for existing shared path. Sealed shoulders to the west of town to Walpeup.	2,550	High
6.3	Oke Street	Hunt Street	Cooper Street	200	Local	CSF		√	Install signs for existing path	300	High
6.4	Rowe Street	William Street	Gregory Street	850	Collector	LRS, CSF	√	√	Mark bicycle logos at 200m intervals adjacent to the kerb in the local route section.	4,800	Medium

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
6.5	Hughes Street	Farrell Street	East of town	800	Arterial	ELT, B/PL, SS	√	√	Shift centreline, sealed shoulders east of town to municipal border.	700	Medium
6.6	Matheson Street	Farrell Street	School Entrance	350	Local	CSF		√		7,300	Medium
6.7	Cooper Street	Rowe Street	Sports Reserve	650	Local	LRS	√	√	Mark bicycle logos at 200m intervals adjacent to the kerb in addition to signs	400	Low
6.8	Patchewollock Road	Mallee Highway	Hopetoun-Walpeup Road	26,000	Local	CWS		√	Install signs following intersections	1,050	Low
6.9	North West Road	Parallel Road	Hunt Street	10,000	Local	CWS		√	Install signs following intersections	450	Low
MURRAYVILLE BICYCLE NETWORK											
7.1	Francis Street	McKenzie Street	Murphys Lane	550	Local			√	Signage for existing path and extension to McKenzie Street	5,750	Medium
7.2	Murphys Lane	Francis Street	Reed Street	250	Local	CSF		√	Signage for existing path	300	Medium
7.3	Reed Street	Murphys Lane	Swimming Pool	150	Local	CSF		√		3,300	Medium

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
7.4	McKenzie Street	Cemetery Road	Murrayville North Road	700	Arterial	ELT, SS	✓		Sealed shoulders to extend west of town to municipal border. Bicycle logos through the town at 200 metre intervals.	200 (1)	Low
7.5	Cemetary Road	McKenzie Street	Recreation Road	150	Local	CWS		✓		150	Low
7.6	Recreation Road	Cemetery Road	Recreation Reserve	150	Local	CWS		✓		150	Low
UNDERBOOL BICYCLE NETWORK											
8.1	Mossop Street	Monash Avenue	Recreation Reserve	550	Local	CSF, LRS		✓	Warning signage to north of railway. Signage for existing shared path. Extension of shared path from school crossing to Cotter Street	1,750	Medium
8.2	Monash Avenue	School Laneway	Malkin Avenue	400	Local	CSF		✓	Shared path signage to be added. Missing sections completed. Maintenance required.	3,200	Medium
8.3	Cotter Street	Underbool South Road	Mossop Street	550	Arterial	ELT, SS	✓		Sealed shoulders to extend west of town to Murrayville. Bicycle logos through the town at 200 metre intervals.	150	Low

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
WALPEUP BICYCLE NETWORK											
9.1	Cregan Street	Murphys Road	Unnamed Road Reservation	600	Arterial	ELT, SS	✓		Sealed shoulders to extend west of town to Underbool. Bicycle logos through the town at 200 metre intervals.	200	Low
9.2	Glen Street	Cregan Street	Kenyon Street	400	Local	LRS		✓		150	Low
9.3	Kenyon Street	Glen Street	Murphys Road	350	Local	LRS		✓		150	Low
9.4	Murphys Road	Kenyon Street	Recreation Reserve	400	Local	LRS		✓		250	Low
WERRIMULL BICYCLE NETWORK											
10.1	Morkalla Rail Trail	Red Cliffs	Meringur	80,000	Recreational	CSF		✓		1,600,000	Low
NANGILOC/COLIGNAN BICYCLE NETWORK											
11.1	Red Cliffs-Colignan Road (Kulkyne Way)	Boonoonar Road	Brownport Road	12,800	Collector	SS, CSF	✓	✓	Bicycle logos at 200 metre intervals. Remove signage from most of crusher dust path through Colignan.	540,000 (5)	High

Item	Road Link	Section From	Section To	Length m	Route Hierarchy	Facility	Proposed Works			Estimated Cost ($)	Priority
							Line Marking	Signs	Other Works and Comments		
11.2	Red Cliffs-Colignan Road (Kulkyne Way)	Calder Highway	Brownport Road	23,800	Collector	SS	√		Bicycle logos at 200 metre intervals.	1,000,000[5]	Medium

Notes:

1. Routes identified as Arterial Routes are consider part of the Priority Bicycle Network and can be funded 100% by VicRoads
2. Routes identified as Recreational Routes may attract 50% funding from Parks Victoria
3. Does not include cost of rail crossing upgrade which would be funded by DOI
4. Does not include cost of agreement with land owner
5. Route provides an intertown link rather than a Priority Bicycle Route. Funding could be obtained from the VicRoads shoulder sealing program

7 DEFINING THE BICYCLE FACILITIES

The sections of the Mildura Bicycle Network that are to contain specialised bicycle facilities will need to be marked according to the correct standards so that they become a legally enforceable part of the road network. Facilities recommended for the network include exclusive bicycle lanes, shared bicycle/parking lanes, part-time bicycle lanes, wide kerbside lanes, sealed shoulders, exclusive off-road paths and shared footways. Many of these facilities are major traffic control items, and consequently may require the approval of VicRoads to implement.

7.1 EXCLUSIVE BICYCLE LANES

Exclusive Bicycle Lanes are required to be signed according to the Australian Standard 1742.9 - Manual of Uniform Traffic Control Devices, Part 9: Bicycle Facilities (the Standard).

Outlined in the Standard at Figure 1: Typical Treatment of Bicycle Lane, is the placement of bicycle lane signs and pavement markings (bicycle stencil logos). The size and shape of the logo should conform to Figure 3: Typical Dimensions of Bicycle Pavement Markings, and the standard sign is R7-1-4. The standard edge line used to define this facility should be an unbroken line 80 mm in width.

Austroads Part 14: Bicycles recommends 1.5 m as the width of an exclusive bicycle lane in a speed environment of 60 km/h. At locations where the speed environment is greater (e.g. 100 km/h) the width should be increased to 3.0 m. When roadway space is severely limited or the speed environment is below 60km/h, the width may be reduced to a minimum of 1.0 m. An example of these lanes is shown in figure 7 below.

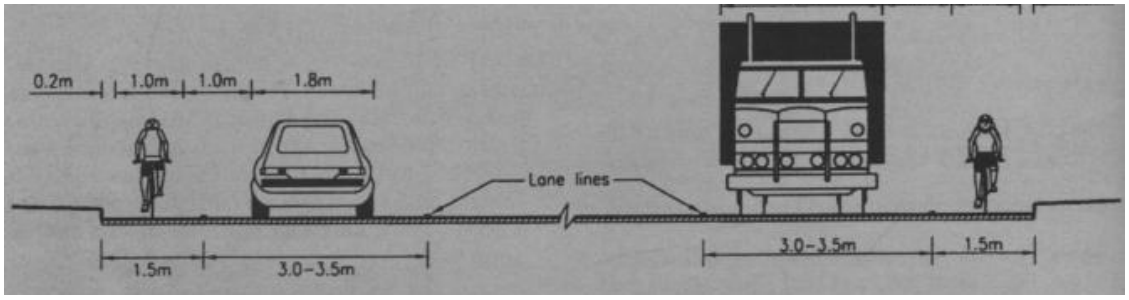


Figure 7: Exclusive Bicycle Lane
Source: Figure 4.4, Guide to Traffic Engineering Practice Austroads Part 14: Bicycles

7.2 SHARED BICYCLE CAR PARKING LANE

A shared bicycle/car parking lane offers space for cyclists to cycle between the adjoining traffic lane and parallel parked cars. These lanes are typically of width between 3.7 and 4.5 m. They can pose a danger for cyclists, as motorists are likely to open their car doors. However, by defining the shared lane and the car parking spaces (or a line to define the width of the parking bays) in areas of high parking turnover, cars will be inclined to park closer to the kerb and therefore create more space for cyclists. Again bicycle stencils should be used to reinforce the facility, placed at 200 to 300 m intervals. Edge lines should be 80 to 100 mm in width, and Bicycle Lane signs should be used in conjunction with the R5 series of parking regulation signs in AS 1742.1 Manual of Uniform Traffic Control devices Part 1: General Introduction and Index of Signs, where parking restrictions are warranted.

An example of a shared bicycle car parking lane is shown in Figure 8.

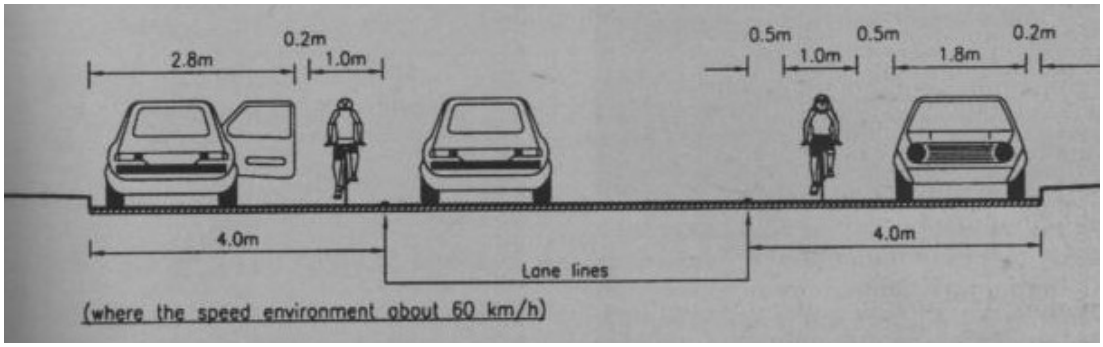


Figure 8: Shared Bicycle/Car Parking Lane
Source: Figure 4.7, Guide to Traffic Engineering Practice Austroads Part 14: Bicycles

It is common to find indented parking or occasional kerb outstands. These parking bays should be marked, and the bicycle lane continued alongside the parked cars and past the kerb outstands.

7.3 PART TIME BICYCLE LANE

Part time bicycle lanes are an excellent facility on roads where carriageway width does not allow for an exclusive bicycle facility. This facility can be used where restrictions during peak traffic periods coincide with peak cyclist numbers. To provide a separate cycling facility for schools parking restrictions should coincide with closing and opening times of the schools.

7.4 SEALED SHOULDERS

Sealed shoulders are an excellent facility to provide for cyclists when a road is unkerbed. They should be defined by an edge line to encourage motor traffic to travel away from the left hand side of the road. Sealing shoulders of the roadway produces many benefits, and these are not limited to improved cyclist safety. It will reduce the edge maintenance of the road, and can also help to improve overall road safety for other vehicles by reducing the severity of run-off road accidents. The width of the sealed shoulder varies from an absolute minimum of 1.2 m to 3.0 m depending on the number of cyclists and speed and composition of the traffic in the adjacent lane. However, even when the desired width of sealed shoulder cannot be provided, any additional space will increase the safety for those cyclists using the road.

7.5 WIDE KERBSIDE LANES

A wide kerbside lane is a normal traffic lane on the outside lane of the carriageway, which is wide enough to accommodate both a travelling cyclist and a motor vehicle side by side. These lanes therefore enable a car to overtake a cyclist without having to change lanes. Typically the lane widths required to produce these facilities are 3.7 m (minimum) to 4.5 m (maximum). It is stressed that these lanes must be adjacent to the edge of the road, not adjacent to a row of parked cars, as this would require extra space so that the cyclist may deviate if a car door opens. These do not require any special treatment such as stencils or edge lines, however as part of the Mildura Bicycle Network it is recommended that they be signed with the Bicycle Route Marker sign (G8-14, AS 1742.9). An example of wide kerbside lanes is shown in figure 9 below.

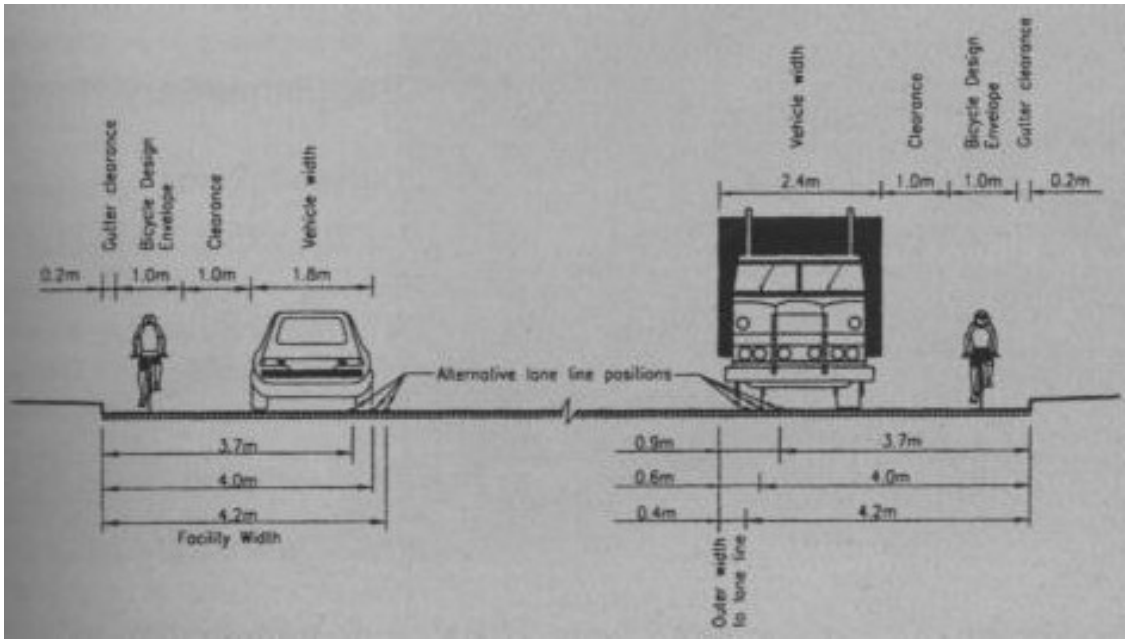


Figure 9: Wide Kerbside Lane
Source: Figure 4.19, Guide to Traffic Engineering Practice Austroads Part 14: Bicycles

7.6 ADVISORY TREATMENTS – USING EDGE LINES

In some circumstances there may be insufficient width to accommodate a bicycle/parking lane, in this case an edge line can be marked between the parking lane and the outside traffic lane. An edge line maximises space for cyclists by encouraging motor vehicles to travel away from the left hand side of the road In addition to an edge line it is recommended that bicycle symbols and Bicycle Route Marker signs (G8-14, AS 1742.9) be installed along the route. Figure 10 shows the layout of a typical edge line.

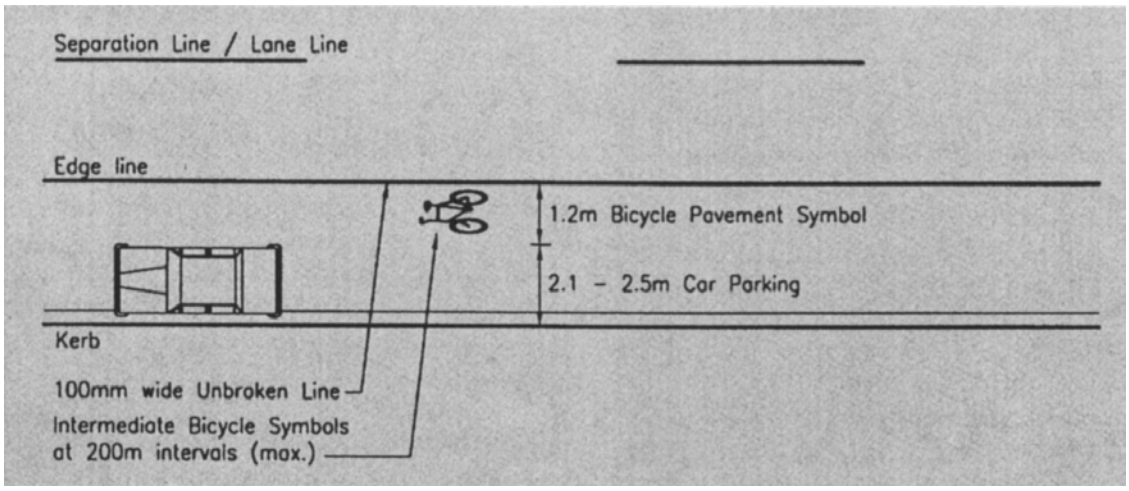


Figure 10: Advisory Treatment Using Edge Lines
Source: Figure 4.15, Guide to Traffic Engineering Practice Austroads Part 14: Bicycles

7.7 EXCLUSIVE OFF-ROAD PATHS AND SHARED FOOTWAYS

Exclusive off-road paths are a good cycling facility to cater for certain bicycle user groups. The condition of the path's surface as well as the width of the path are important factors in determining its standard and therefore its uses. Also, consideration must be given to the

continuity of the path, its directness, and therefore its part in the overall bicycle network. Therefore where off-road paths exist it may also be desirable to provide on-road facilities in order to cater for different user groups. Off-road paths may be provided as alternatives where the possibility of on-road cycling is very difficult, or where the main users of the path are likely to be recreational cyclists or school aged children.

Shared footways provide a less appropriate cycling facility than exclusive paths however, when space is particularly limited off-road or the volumes of cyclists are relatively low, these offer an adequate facility to cater for cyclists travelling at low speeds.

In addition, in order to justify the cost of construction of any new off-road path, a shared footway will provide for more than one user group, and will therefore provide a better benefit-cost ratio. It is recommended however that shared footways be constructed at a suitable width to allow safe use for both user groups. A shared path width should desirably be 3.0 m, a minimum of 2.5 m, or an absolute minimum of 2.0 m in constrained circumstances. It is also required to have 0.5 m clearances to objects such as fences, trees or parked cars that may be adjacent to the path.

The current regulation signs for these off-road facilities should be displayed as set out in the Standard at Figure 2: Typical Treatment of Bicycle Path, using signs R8-1 or permitted variations in Victoria.

7.8 OTHER BICYCLE NETWORK ROADS

Some roads identified on the Mildura Bicycle Network will not need specific bicycle facilities due to the nature of the road, or as insufficient road width exists and traffic and bicycle volumes do not warrant a restriction of on street parking. However, as part of the network (where no other roads offer a better alternative), these routes still require consideration to be given to the cyclists using them. Making motorists aware of the presence of cyclists and slowing vehicle speeds is a satisfactory solution in the local street network. Signing these roads with the standard Bicycle Route Marker Sign (G8-14) will improve motorist awareness and importantly advise cyclists of the direction of the bicycle route. Where appropriate, it may also be warranted to reduce the speed limit of the road to 50 or 40 km/h, reducing the likelihood of accidents.

In addition, bicycle route markers should be provided showing route identification and distance to destination information at major road intersections. All route marker signs should be placed in locations readily visible to cyclists.

On training cyclist routes, where other facilities are not provided for cyclists, the use of "Caution Cyclists" warning signs may be an improvement to the safety of cyclists. These signs are already in common usage in other municipalities, and would therefore be readily identified by motorists who would be aware to take caution on these roads.

7.9 INTERSECTION TREATMENTS

Bicycle facilities, which can be quite easily installed midblock where roadway capacity is not limited, often end at intersections due to the need for a greater number of traffic lanes to cater for through and turning vehicles. In the accident analysis however, it was determined that around 62% of cyclist accidents occur at intersections. Therefore, where possible, intersections should also attempt to cater for cyclists by providing bicycle facilities that will increase safety. As each route is improved, a review of the intersections along that route may be warranted to determine which treatments, if any, are required.

7.9.1 Roundabouts

Roundabouts are a common form of intersection control within the urban areas of Mildura due to the high number of cross intersections. Roundabouts are of considerable concern for cyclists and should be given due consideration when developing a bicycle network. A number of options have been developed for cyclists at roundabouts that include exclusive bicycle lanes adjacent to motor traffic lanes within a roundabout. However, this treatment has not been proven to be safer or beneficial for cyclists in terms of improved awareness of motorists. A review of bicycle casualty accidents at roundabouts revealed that 74% were right angle crashes where a cyclist on a roundabout was struck by an entering motor vehicle. Accordingly, bicycle riders would benefit from an alternative treatment where bicycles can be kept off the road carriageway at a roundabout.

If a roundabout has a single lane with a central island diameter of less than 25 m or where vehicle speeds are less than 50km/h specific provision for cyclists may be unnecessary.

However specific treatment for cyclists at roundabouts should be considered where:

- Cumulative approach traffic volume exceeds 10,000 vehicles per day;
- Central roundabout island diameter exceeds 25 m;
- Multi lane roundabouts occur; or
- Vehicle speeds exceed 50 km/h through the roundabout.

Figure 11 shows a treatment that provides a path of access for cyclists separated from the road carriageway as an alternative to using the road carriageway at the roundabout. Where specific provision is not possible the use of footpaths located adjacent to the roundabout may be appropriate.

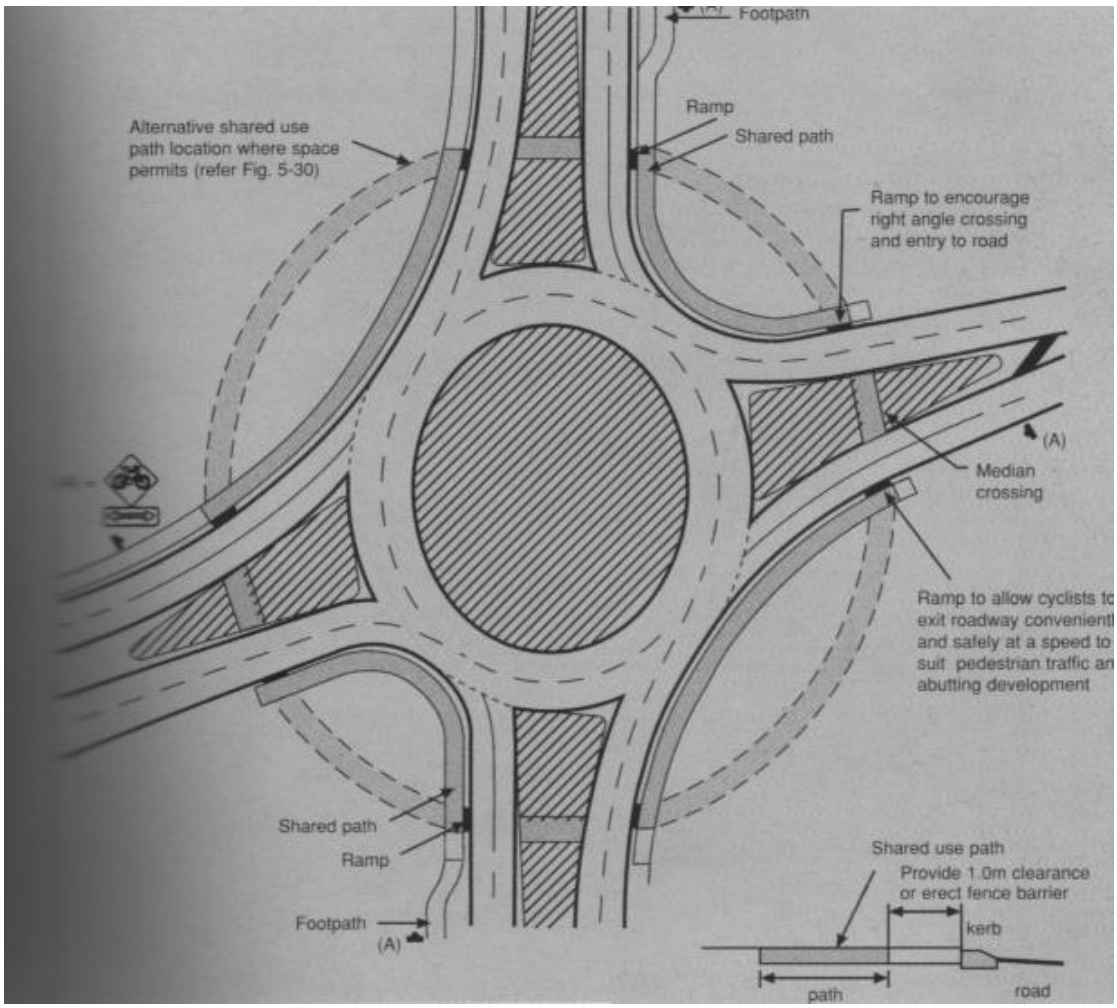


Figure 11: Separate Perimeter Path Details for Roundabouts

Source: Figure 5.29, Guide to Traffic Engineering Practice Austroads Part 14: Bicycles.

There are many locations in Mildura where kerb extensions are provided at the approaches to roundabouts forcing cyclists to merge with motor vehicles prior to entering the roundabout. Whilst considered a hazard for cyclists, these kerb extensions provide improved safety for motorists at the roundabouts by causing speeds to be reduced through increasing the angle of deflection.

In order to provide a safer environment for cyclists, bicycle lanes should be continued right up to the holding line at roundabout approaches. Where kerb outstands exist provision should be allowed for cyclists to continue straight through or over the kerb outstand. This can be achieved by either providing a narrow 1 metre gap in the kerb outstand or by providing ramps and a suitably paved surface over the kerb outstand.

7.10 SAFE CROSSING POINTS

In areas where a bicycle link connects to a road with significant traffic volumes, a safe crossing point for cyclists may be warranted. The Bicycle Network was designed to maximise the use of existing safe crossing points such as, school crossings, medians or pedestrian refuges, and pedestrian signals.

Although the implementation of the bicycle network facilities will generally be satisfactory for the majority of cyclists, consideration should still be given to ensure that safe cyclist crossings exist in areas of high cyclist demand. Furthermore, careful consideration must be given to cyclists when any new traffic control item is planned and implemented. For example, when a traffic island is being installed to aid pedestrian crossings, wherever possible it should be made suitable for cyclists, particularly where the facility is located on the bicycle network. This would mean the island should be at least 1.8 m in width, so that a bicycle can safely shelter within the refuge. Holding rails should also be considered to avoid the need for cyclists to dismount. In addition, if the road itself is a bicycle route, the traffic island or refuge should not create a squeeze point on the road.

8 END OF JOURNEY FACILITIES

While providing bicycle lanes, cycle paths and directional route signs will encourage cycling and improve safety for cyclists, this mode of travel is still not ideal for many people. Cycling is often found to be inconvenient due to the lack of end-of-journey facilities. These facilities are required so that cyclists may change activities or mode of travel at the end of their cycling journey. Lack of sufficient end-of-journey facilities makes cycling an inconvenient travel mode. The questionnaire of Mildura residents revealed that around 17% of people who did not cycle attributed this to insufficient end-of-journey facilities.

Cycling end-of-journey facilities include:

- bicycle stands,
- bicycle lockers,
- drinking fountains and taps to fill water bottles,
- toilets, and
- showers and change rooms.

The type of facilities required will depend upon the location. Consideration needs to be given to the activities likely to be undertaken and the type of cyclist likely to be travelling to this destination. Any new facilities provided should be designed and positioned according to the Australian Standard 1742.9, or Austroads Guide to Traffic Engineering Practice - Part 14, Bicycles.

In addition to the type of facility changing according to location, the security of bicycle parking facilities will depend also upon location. Therefore, a system for different classes of security has been developed, and these are specified in Table 8.1 below.

Table 8.1: Classification of Bicycle Parking Facilities
(Source: Austroads Part 14: Bicycles Table 10.2)

Class	Security Level	Description	Main User Type
1	High	Fully enclosed individual lockers.	Bike and ride commuters at railway and bus stations.
2	Medium	Locked compound with communal access using duplicate keys.	Regular employees, students, regular bike and ride commuters.
3	Low	Facilities to which bicycle frame and wheels can be locked.	Shoppers, visitors to public offices. Places of employment where there is security supervision of the parking facilities.

A range of bicycle parking facilities including class 1, 2 and 3 are shown in Austroads Guide to Traffic Engineering Practice - Part 14, Bicycles, Section 10.

Most bicycle parking within the Mildura Rural City Council is of class 3 providing the minimum level of security. The majority of the class 3 facilities are bicycle stands constructed to a previous standard which allowed the front wheel only of the bicycle to be secured. These types of parking facilities do not provide the same level of security as most modern bikes allow the front wheel to be easily removed. These devices also do not provide the same level of stability for the bike and may result in damage to the frame. It is recommended that all new bicycle stand installations consist of n shaped parking rails.

8.1 SCHOOLS

As previously discussed in section 4.1, schools are major bicycle trip generators. Ideally the type of facilities that should be provided include undercover bicycle racks within an enclosure which can be locked during the school day. Other facilities required, including drink taps and toilets, would already be available at these locations.

Most schools within the municipality provide low security level bicycle racks, many of these are sheltered but are not enclosed or locked.

Bicycle parking provision for at least 10% of primary school students, and 5% of secondary school students should be provided at each school, with a minimum number of 10 undercover spaces at each school.

8.2 RAILWAY STATIONS

Railway stations should cater for touring cyclists wishing to either start or end their cycling at this point and travel by rail. Therefore, for arriving touring cyclists, directional signs will be necessary, and comprehensive touring maps should also be available. Other suitable facilities for railway stations include bicycle lockers, or an undercover locked bicycle storage area. In addition, change rooms and even showers may be warranted.

Consideration should also be given to providing suitable bicycle storage on trains to enable safe and space efficient storage. The luggage compartments need only set aside a small amount of space with wall hooks or other suitable devices on which bicycles may be hung. When there are no bicycles in this location, the space can still be fully utilised by other forms of luggage. Discussions with the passenger rail operator will be required to promote this touring travel mode once regular passenger trains returns to Mildura in 2004.

The train stations where these facilities should be provided include Mildura, Red Cliffs and Ouyen where it is likely that the reintroduced passenger train will stop.

8.3 PARKS, RESERVES, LAKES AND SPORTING FACILITIES

Cyclists attending parks, reserves and other sporting locations will require the following end-of journey facilities:

- bicycle parking rails,
- toilets, and
- drinking fountains and taps.

These destinations are generally used for recreation and/or physical activity, therefore cyclists are unlikely to require changing facilities or other special requirements unless they are already provided, e.g. at club houses, etc. Therefore Council should ensure the facilities listed above are provided at all significant parks, reserves and sporting facilities if not already in place.

Most public swimming pools across the municipality contain low security bicycle racks however some of the large recreation reserve facilities, particularly in the remote parts of the municipality do not currently provide for bicycle storage.

8.4 SHOPPING CENTRES

Shopping centres can attract various cycling groups. Land uses such as cinemas, video stores or an arcade centre may attract a high number of young cyclists. These cyclists generally require a significant amount of bicycle parking, preferably leaning rails, provided in a convenient location. Many of the strip shopping centres located in the main urban areas of Mildura, Irymple and Red Cliffs contain bicycle stands, although most are of the older variety.

Austroads Part 14: Bicycles gives a guideline as to how visitor bicycle parking should be provided in shopping and office areas:

> ***"Parking rails for short term parking should be placed individually every 20 to 30 metres throughout strip shopping centres or in small clusters near the entrances to major shopping complexes or offices."***

The guidelines also state that every endeavour should be made to provide attractive, well designed facilities, without compromising security and ease of use. Fortunately, the common leaning rails, which can be painted to match the colour scheme of the area, are not an eye-sore and, if well maintained, are an invaluable piece of road side furniture, as they reduce the likelihood of bicycles cluttering footpaths or being chained to trees, etc.

It is important, especially in high pedestrian areas such as shopping strips, that these facilities are located strategically to minimise interference with pedestrian access. The facilities should be setback a suitable distance from the kerb to provide sufficient distance from opening car doors, or vehicle overhang etc. The facilities should be visible and positioned in a well lit location to reduce the occurrence of theft and vandalism, and wherever possible, should also be located undercover.

8.5 WORK LOCATIONS

In promoting cycling in the municipality, end-of-journey facilities for cyclists should desirably be provided in the workplace. Some cyclists responding to the questionnaire survey indicated that they use this mode of travel regularly to attend their workplace. New office developments, shopping complexes, and other employee destinations should be encouraged, through negotiations, to supply not only car parking for employees, but also suitable bicycle parking.

Bicycle facilities require relatively little space compared with carparking and are generally not expensive, although the installation of shower and change rooms may be expensive if not already part of the development. Generally bicycle storage space (preferably inside the development), and lockers for clothing and other belongings, as well as changing rooms and showers are appropriate end-of-journey facilities to provide for cyclists at work places. Showers and lockers will also be beneficial to workers who travel to work by jogging or long distance walking, or for those who exercise at lunchtime (Austroads Part 14: Bicycles).

8.6 BICYCLE PARKING PROVISION

Provision of suitable bicycle parking has been adopted as part of the updated Victorian statewide planning scheme requirements for new developments. The scale of development determines the appropriateness of this and may require the adoption of a detailed parking strategy.

Shown below in Table 10.1 of AustRoads Guide to Traffic Engineering Practice, Part 14 - Bicycles is an outline of rates of bicycle parking facilities that should be provided at different

locations. It is recommended that all existing Council buildings install facilities as specified in this table to set an example of encouraging cycling as a transport option to work.

8.7 BICYCLE THEFT

The primary reason for secure bicycle parking is to overcome the occurrence of bicycle theft. However, bicycles can not always be kept in secure locations, and bicycle theft does occur. Secure bicycle parking is a preventative measure to this problem, and this is the best alternative, however some measures need to be considered as part of a bicycle recovery program.

Police have stated that once stolen goods are recovered it is usually impossible to locate the owner unless a specific identification still remains on the item. With the majority of new bicycles sold, the frame has an engraved serial number, which can allow its easy identification. However, this requires the bicycle store owners to keep accurate and up to date records of the purchasers of bicycles. Some owners may feel this is a breech of their privacy, and this method could in fact be a potential danger if these lists of locations of these new bicycles could be obtained. In addition, this does not create a database which the police have access to, that would enable quick identification from any location throughout the state or country.

Fluorescent light identification of goods can be made if valuables have been marked for identification. This is a police and insurance system that allows goods to be marked by a special pen with the drivers licence number of the owner. All police throughout the country would then be able to quickly identify the owner of the recovered item. For bicycles however, marking with a fluorescent pen may not be durable enough. Therefore an engraving system using a laser is the preferred method to establish the licence number onto the bicycle. This is a very costly process, and therefore is not widely used. However, if Council were able to hire the use of the machine for say one week per year and offer this service free to residents, a significant improvement on stolen bicycle recovery may be achieved.

Stolen bicycles would then be readily identifiable, and bicycles that had identification numbers removed by scratching would at least be identified immediately as a stolen bike.

9 MAKING THE SYSTEM WORK

9.1 CONTINUITY OF NETWORK

The installation of on and off road bicycle facilities is not useful unless these facilities are installed as part of a network. The network must be designed to ensure links are provided to all areas of high cyclist demand, and therefore ensure there is connectivity of the facilities provided.

As the network facilities will not be installed instantaneously, the implementation should be staged according to priority of links. However, this staging process needs to consider the importance of continuity of the network. Missing links, and short sections of unconnected paths or other facilities can be very dangerous and frustrating to cyclists, and make the existing sections useless. Therefore, high priority of completion should go towards projects that will complete any missing links, or finishing difficult sections of a route. The implementation program should then attempt entire routes, not merely short easy sections that may leave cyclists stranded.

Continuity of the network can also be improved by adequate cyclist signs advising cyclists of the best alternative routes to take when a particular route is not suitable for cycling, or the most direct route to take to find the next section of recreational path for example. Cyclists may often be more inconvenienced by uncertainty of where the route leads than by the fact that the entire route is not designated by specific facilities.

In planning for other road users continuity of facilities is always assured, and the same assurances should be made towards bicycle facilities.

An example of where planning for the continuity of bicycle paths is important is the area where new subdivisions are proposed between the urban areas of Mildura and Irymple. Provision should be made for the currently proposed Irymple Greenbelt shared path to be extended to the west of Cowra Avenue to link with the existing path to the west of San Mateo Avenue adjacent to the Boulevard. The integrity of this path has already been compromised due to the presence of an existing childcare centre over the alignment immediately to the east of San Mateo Avenue.

9.2 MAINTENANCE OF BICYCLE FACILITIES

On many streets where bicycle facilities exist, it is common to see faded linemarking or even damaged pavement or road debris, which reduces the usefulness of the bicycle facilities. All road users require that roads be well maintained however, it is of particular importance to cyclists as even seemingly insignificant debris on the road can pose a danger. Cyclists who are forced to divert suddenly to avoid a pot-hole or an object on the pavement surface may produce a dangerous situation. Therefore, part of producing a bicycle network must include a regular maintenance program including street sweeping and road maintenance. Also, regular line marking and logo painting will be required. As the network facilities increase so too will the maintenance costs. Due to many of the kilometres of roads on the network being designated as suitable for sealed shoulders, as the best alternative for bicycle facilities, the street sweeping of the sealed shoulders will require a significant maintenance program. Unlike the carriageway of a road, vehicles don't travel in the shoulder, and therefore self-sweeping of the road does not occur. In fact, most debris gets swept onto the shoulder by the passing traffic. This can cause a particularly poor cycling surface if regular sweeping is not undertaken, and therefore reduce the usefulness of the facility for cyclists.

9.3 FUTURE ROAD DEVELOPMENTS AND TRAFFIC DEVICES

As townships expand in the municipality, the road network will also. Therefore planning for future cycling demands should be done prior to the construction of roads. This will allow the road to be built at a width that is able to cater for on-road cycling through the designation of specific cycling lanes. Some of the roads on the bicycle network do not have kerb and channelling. This creates the ability to widen a road without the potential expense of removing and relocating kerb, channel and drainage pits. The ideal width of a road, to provide parking on either side, two traffic lanes, and adequate space for cyclists is between 13.0 and 14.0 m. This should be taken into consideration if the road is to form part of the bicycle network with on-road cycling facilities.

Collector roads running through new subdivisions are typical routes where cycling facilities should be provided. They should either be in form of on road cycling lanes or shared paths adjacent to the road pavement however shared paths should only be provided where only a limited number of property accesses are proposed across the path.

Any type of road works such as traffic calming devices, road closures, speed humps, chicanes, roundabouts or other works must consider the needs of cyclists. Road closures, for example, should be built to ensure continuous cyclist access. Speed humps, which have not been designed for cyclists, will need to be altered. This cost could be avoided if the device was designed initially with cyclists in mind. Raised reflective pavement markers also need to be placed with the cyclist in mind as these can create a hazard for thin tyred bicycles if poorly located.

The Mildura Rural City Council should make a commitment towards ensuring all designs for road works are bicycle friendly and conform to the Australian Standard.

9.4 LIGHTING REQUIREMENTS

Lighting is an important part of bicycle facilities if the network is to cater for after dark cycling. The objective of road lighting is to provide a lighted environment, which is conducive to the safe and comfortable movement of vehicular and pedestrian traffic at night. To accomplish this, the lighting must reveal the road itself, together with the road users including pedestrians, cyclists and vehicles.

It will therefore be necessary to design the lighting of all routes included on the bicycle network to adequately illuminate the roadway to meet the needs of cyclists. On arterial routes generally lighting category V3 will be required if lighting is provided.

Within major pedestrian areas a higher standard of lighting may be required while cycle paths for night time use would generally require lighting category B2. In many locations it will not be feasible to provide lighting for off-road bicycle paths as the main use of the path is for recreation, and the path is unlikely to be used after dark.

Maintaining adequate lighting standards will help to reduce the risk of accidents involving cyclists at night. Although night-time cyclist accidents were not identified as a problem in the accident analysis, there may have been many night-time cyclist accidents that went unreported. Importantly it will also increase the security for night time cyclists by discouraging illegal acts.

10 EDUCATION, ENFORCEMENT AND ENCOURAGEMENT

The four E's to be considered in a bicycle strategy are education, enforcement, encouragement and engineering. The engineering is addressed by improvements made for cyclists to the network such as installing bicycle lanes, off-road paths and intersection treatments. How to produce effective education, enforcement and encouragement programs has been determined through consultation, accident analysis and research of other effective strategies. The purpose of these programs should be aimed towards decreasing cyclist accidents and increasing the number of trips undertaken by bicycle.

From the accident analysis it is apparent that the road behaviour of young cyclists, particularly aged 10 to 15, needs to be addressed. Additionally, as many motorists have a lack of respect for or knowledge of the rights of the on-road cyclist (and yet they pose a significant safety threat to cyclists), motorist behaviour needs to be addressed. Unfortunately, one common method to reduce accidents is to increase the awareness of the risk of cycling through shock campaigns. However, this is likely to reduce not only poor cyclist and motorist behaviour, but also cyclist numbers. Reducing cyclist numbers will then merely reduce motorist awareness of cyclists and hence provide a negative effect. Therefore, education and enforcement programs must be linked with encouragement schemes to promote this form of transport and recreational activity.

10.1 EDUCATION

Education programs should be aimed towards meeting the following objectives:

- Improving the riding ability of all cyclists,
- Increase cyclists knowledge and observance of road rules,
- Increase motorists knowledge of bicycle operating characteristics and cyclists rights,
- Improve cyclists knowledge of bicycle maintenance and equipment requirements, and
- Educate professional planners and engineers to include bicycle requirements in the planning of local area traffic management schemes and in maintenance and construction programs.

The three main target groups at which education programs should be aimed are children cyclists, adult cyclists and motorists.

School Bicycle Education Programs

The surveys sent out to all schools within the municipality revealed that many of the schools, particularly the primary schools, already participate in some form of Bicycle Education. This occurs in various forms including traffic school programs and bike safety programs. Often the programs are aimed at children in grades 4 to 6.

Generally the aim of school bicycle education programs is to establish safe cycling practices, encourage bicycle use by school aged cyclists, and raise cyclist awareness. The Safe Routes to School program is a program which is run by VicRoads in conjunction with Council to increase the safety of students in their various travelling methods to schools. This includes those that walk, cycle, travel by bus, and are driven. Part of this program, which covers local walking and cycling routes, assesses the safety of crossing points, roads

and paths. This can be of great benefit in encouraging safe cycling procedures for cyclists attending schools.

Ideally, the Bicycle Education program should form part of the curriculum from years 3 to 6, and should improve children's riding ability as well as knowledge of correct road behaviour. Bicycle education however, should not stop at this year level and should be encouraged to continue as part of the secondary school physical education. The introduction of these bicycle education programs usually has the effect of increasing the numbers of students cycling to school, and therefore this forms part of the encouragement process also.

In year levels 11 and 12, students may also be educated as potential drivers as well as cyclists, and may be educated to ensure they are aware of motorists' obligations and rights when it comes to cyclists on the road. Unfortunately however, driver education is not a common part of the Victorian education system, and therefore this would be hard to accommodate. If a guest lecturer were to visit schools in order to give a special lecture on these rules to the future drivers of the area it may work towards improved cyclist safety.

Traffic schools are also a good opportunity to educate young cyclists about road rules with practical and safe experience. A school excursion may be arranged to a traffic school within the region, to aid in the development of on-road cycling skills and obedience towards the road rules.

The most significant teaching of young cyclists is likely to come from parents. Therefore it is important to educate parents to educate their children regarding safe behaviour.

We understand that the local police assist with bicycle education of school children by appearing at schools, awarding prizes for safe riding and providing enforcement of road rules. The introduction of a permanent Youth Liaison Officer should provide further assistance to the education of young cyclists.

Other Bicycle Education Schemes

Adult cyclists, parents, as well as motorists, cannot be targeted as specifically as school students, and therefore the following bicycle promotions may help to provide information to all of the target groups:

- Visual displays and posters featuring safe cycling throughout the municipality,
- School holiday programs or work shops, aimed at family cycling,
- Mildura Bicycle Network signs to advise motorists at key locations that they are travelling on the network and to give special consideration to cyclist safety, and
- Encourage adult recreational cycling through the formation of Bicycle User Groups within the municipality, through which adult cycling ability and road awareness can be improved.

10.2 ENFORCEMENT

Enforcement is an unfortunate necessity to support the Bicycle Plan, particularly for on-road cycling. It is essential for personal and public safety that the on-road users (both cyclists and motorists) obey the road rules and behave in an appropriate manner. Law enforcement is therefore a necessary component of a bicycle strategy, and should be aimed at both the cyclist and motorist to achieve the following objectives:

- Re-enforce bicycle riders rights on the roads,

- Increase enforcement of laws on drivers and cyclists,
- Penalise unsafe rider and car driver behaviour,
- Improve the ability to recover stolen bicycles, and
- Re-enforce proper bicycle equipment standards.

The enforcement program can only be successful if it has the full support and commitment of the local police force. Unfortunately, the police have limited resources and therefore discouraging illegal behaviour may not be possible entirely through increased policing.

Some enforcement is taken on by the schools who have the ability to punish students caught disobeying road rules such as failure to wear bicycle helmets, but this is limited by the resources of the schools. A parent group may be encouraged to form at schools taking turns at enforcing correct rider behaviour, with punishments through the school system, such as detentions or yard duty. However this should not be undertaken if it is not also coupled with a rewards system, or else it may have a detrimental effect of diminishing cyclist numbers.

10.3 ENCOURAGEMENT

As previously discussed, encouragement is an essential part of a bicycle strategy when combined with education and enforcement. Encouragement creates awareness of the benefits of cycling and promotes cycling as a travel mode and as a recreational activity.

Encouragement occurs in part by providing visible cycling facilities such as on-road bicycle lanes and off-road paths. This is particularly enhanced when cyclists are seen to have added benefits such as access through a road closure which other road users may not.

The main aim of the encouragement program should be to increase the number of bicycle trips undertaken within the municipality. This may be achieved by some of the following:-

- Inform the public of the bicycle plan programs of education and enforcement through notices in the local paper, notices at Municipal Buildings and through schools.
- Implementing the on- and off-road bicycle facilities.
- Improve availability and awareness of secure bicycle storage facilities. Again these need to be located where maximum benefit of these facilities will be gained. The location of these facilities should be shown on a plan of the Mildura Bicycle Network.
- Increase cyclist comfort and convenience by providing end-of-journey facilities (e.g. showers, changing facilities, etc.). These should be provided at strategic locations as specified previously in the report.
- Provide a coloured pocket sized brochure in conjunction with the neighbouring Wentworth Shire to show the location and type of bicycle routes through the two municipalities and popular destinations. The brochure should be updated each year to reflect the installation of new facilities. The brochure should be made available at key locations within both municipalities such as motels, information centres and bicycle shops.
- Increase recognition of the benefits of cycling including health, fitness and environmental benefits.

- Increase cyclists use of safety equipment and clothing. This may include encouragement programs rewarding school cyclists wearing helmets rather than penalising those who fail to do so.

- Assist cyclists to identify safe, scenic or cultural routes. This will be achieved through production of network maps detailing the hierarchy of the bicycle network.

- Provide information regarding new cycle routes and destinations to the Murray River Trail committee to assist with the marketing of a Murray River Trail between Khancobran and Victor Harbour. The organisation coordinating this initiative can be contacted through Adrian Wells at 02 6021 3655. The marketing of a continuous bicycle track adjacent to the Murray River will increase the number of recreational cyclists visiting the Mildura area.

- Provide permanent information maps at specific locations for those without maps, e.g. at the railway stations, tourist information centres, on the main approaches into the towns and other significant destinations.

- Encourage cycling as a healthy, energy-efficient and environmentally friendly transport mode.

- Developing a track based facility for competitive cyclists in Mildura to act as a home base for cyclists. Presently there is an active competitive cycling club based in Mildura, however their activities are restricted to on-road cycling, with no track based facility located within close proximity. Options for funding the facility could be explored through government sporting grants or through arrangements with the existing cycling club and other local community groups. A cycling track would complement the existing BMX facility located at the Old Aerodrome sporting complex and would act as a meeting point for cyclists.

Encouragement is the responsibility of many different groups, although Council should be an instigator of some of these suggestions. Work places should take an active role in encouraging the use of the bicycle as a transport means by providing facilities. Schools should also encourage students to cycle. In some areas in Victoria even the police have been taking an active role in encouragement rather than just enforcement, by rewarding safe cyclists exiting schools wearing bicycle helmets with vouchers. This is an option that should be encouraged in the municipality also so that the presence of police is not seen as a deterrent to cycling, but as a possible means of reward. Encouragement will also be undertaken by promotion of tourism rides, and this may be in part be undertaken by Tourism Victoria or other organisations that can help promote cycling.

Cycling events such as races also help to encourage the sport within the municipality. Mountain biking and cross-country cycling are popular within this region, and there are currently several races and events that attract cyclists from other areas to cycle within Mildura.

10.4 COUNCIL'S ROLE

Council's role in the implementation of serious education, enforcement and encouragement programs will play a major part of the Mildura Bicycle Strategy Plan. An active step in this process would be to appoint a bicycle co-ordinator whose role would be to devote attention towards implementing recommendations of the bicycle strategy.

This position may not necessarily require a full-time person, rather the bicycle co-ordinator may operate on a part-time basis at a number of adjoining municipalities. Alternatively, an

existing staff member could be nominated to fulfil this role initially along with other duties and a dedicated co-ordinator appointed in the future.

The role of the bicycle co-ordinator should be to encourage the implementation of education, enforcement and encouragement programs, as well as ensure the implementation of the engineering solutions continues as planned. The bicycle co-ordinator would also give cyclists in Mildura the opportunity to voice their concerns and ideas. A Council officer will then be able to act on these requests. The bicycle co-ordinator can act as a liaison officer between community, cycling groups and the Council.

The cost incurred by Council for a bicycle co-ordinator may however be unnecessary if an active community and Council group, a bicycle steering committee, can be formed to implement the strategy. The committee would ideally have active cyclists, police, school representative as well as Council officers who would meet, say four times per year, to monitor the progress and update the strategy recommendations as required. This group would oversee engineering, education, encouragement and enforcement strategies, and ensure that they were being implemented to maximise benefits to cyclists.

Other Council staff should also adopt a positive attitude towards the implementation of the Bicycle Plan, and combine it into future Council projects. Recommended in Bicycle Victoria's "Bicycle Vision for Local Government" is a list of guiding principles that should be embraced by the Council. The principles should be distributed throughout the Council and used whenever possible to guide the future planning and preparation of contract specification. The following principles are recommended:

- Council will provide sufficient bicycle facilities including bike lanes, paths and parking, to ensure cycling is a safe and convenient transport option.

- Council recognises that while some roads and paths are specifically designed for cyclist use, all roads are in fact used for cycling every day. Council will therefore ensure that whenever changes are made to any road, provision for cyclists will be included in the road design.

- Council recognises that provision of bicycle facilities and programs rests with various departments responsible for corporate planning, traffic, parking, maintenance, urban planning, parks and gardens and recreation. Planning and providing for cyclists will be included in each Department's field of responsibility.

- Council will provide a network of recreational cycling trails within the municipality. These shall be linked to on-road cycle facilities and the trails of neighbouring municipalities.

- Council will provide a level of support to agencies and community groups to provide safety education for all cyclists.

- Council will provide leadership for the development of special events and services to encourage a greater level of cycling amongst all members of its community.

11 IMPLEMENTATION AND NETWORK PRIORITIES

11.1 STAGING OF IMPLEMENTATION

Priority of implementation has been assigned to each of the facilities proposed as part of the bicycle network. This has been undertaken so that facilities can be implemented gradually and maximum benefit can be obtained for cyclists for the money spent by Council. The implementation plan covers a 10 year period with high priority works to be completed in years 1 to 3, medium priority works to be completed in years 4 to 6 and all other works to be completed in the final 4 years.

Separate listings are provided in Table 11.1 below for the main funding streams which can be utilised to provide bicycle facilities. These include the Priority Bicycle Routes which are funded by VicRoads providing an arterial route network within major towns, local and collector routes funded by Council and recreational off-road routes jointly funded by Council and Parks Victoria.

Table 11.1: Network Implementation Costs

Stage	Priority	Arterial Routes (Priority Routes) (VicRoads Funding) (1)	Local and Collector Routes (Council Funding)	Recreational paths (Parks Victoria and Council Funding)	Total Cost of Works
2003-2005	High	$1.05M	$810,000	$420,000	$2.28M
2006-2009	Medium	$220,000	$1.63M (2)	$90,000	$1.94M
2010-2013	Low	$10,000	$1.48M	$2.36M (3)	$3.85M
Total	**-**	**$1.28M**	**$3.92M**	**$2.87M**	**$8.07M**

Notes: 1. Excludes sealed shoulder treatments on intertown highway links
2. Includes $1.0M sealed shoulder treatment along Kulkyne Way
3. Includes $1.6M rail trail to Meringur

End-of-journey facilities should be implemented with the relevant sections of the network, however generally it should be aimed to spend approximately $2,000 per year on end-of-journey facilities for cyclists. Strategic end-of-journey facility locations are detailed in Section 8.

Council will need to allocate a budget to spend on the implementation of these bicycle facilities. Generally, to help this implementation the Bicycle Steering Committee (or municipal bicycle co-ordinator) would be actively involved. It is anticipated that Council should aim to spend between $100,000-$150,000 per year on bicycle facilities. Whilst this does not equate to the total expenditure over 10 years listed in Table 11.1, it is anticipated that some of the improvements involving shoulder sealing could be undertaken as part of general road upgrades and would not require specific allocation of bicycle funding.

Many of the works required to improve cycling facilities will fall under normal road maintenance costs, including street sweeping, and road, sign and linemarking maintenance. These works therefore should not deplete from the specific bicycle funding budget, which should, where possible be used to specifically to implement new facilities such as bicycle paths, and signing of bicycle routes.

11.2 FUNDING OPTIONS

Funding is an important aspect in order to make the bicycle network and strategy plan achievable. Obviously Council has a limited budget and is unable to implement facilities on the entire bicycle network. Many funding sources are available, however in order to receive this funding clear and specific projects must be specified to the organisations that may help with these projects.

11.2.1 VicRoads

VicRoads has recently produced new guidelines for funding bicycle projects in rural cities and towns. These guidelines will apply for the financial year 2002/2003. VicRoads will consider providing 100% of the funds to local Councils for constructing Priority Bicycle routes in rural cities and towns, subject to the following guidelines:

- The local Council should be actively implementing a strategic bicycle plan.
- The local Council and VicRoads should have an agreed subset of bicycle routes from the strategic bicycle plan designated as Priority Bicycle Routes.
- The length of Priority Bicycle Routes for any given rural city or town will be nominally 1.0 km per 1000 people in the city or town.
- The Priority Bicycle Routes should provide the main linkages for bicycle travel within the city or town.
- Bicycle facilities intended for recreational purposes would not normally be designated as Priority Bicycle Routes unless they provide a main linkage for bicycle travel within the city or town.

  Generally intertown links that provide access for cyclists between major towns are a high priority for VicRoads funding as these roads are the responsibility of VicRoads. A shoulder sealing program throughout the Shire would be the best means to provide links between townships that would benefit cyclists, as well as providing benefits to other road users.

  On these Main Road routes it is hoped that Council can make funding applications to VicRoads towards the cost of implementing bicycle facilities.

  Within Mildura 99 km of Priority Bicycle Routes have been identified in this strategy including the 37 km intertown link between Red Cliffs and Nangiloc/Colignan. Not considering the Nangiloc/Colignan link, this is roughly in accordance with the nominal rate of 1.0 km per 1000 population. Plans showing these priority routes are attached at Appendix J.

11.2.2 Parks Victoria

Some recreational off-road paths through designated parks and reserves within the State are eligible to receive funding from Parks Victoria. In particular if these paths are likely to be suitable for various recreational uses such as walking, riding, skating, and even horse riding, they are likely to provide a better tourist attraction and also be more likely to receive funding. Specific projects should be submitted to Parks Victoria to await approval and then await funding, and often funding will be jointly undertaken between Parks Victoria and another funding source such as Council.

11.2.3 Tourism Victoria

While this organisation would not be likely to fund any projects such as the installation of facilities, their assistance may be sought in attempting to obtain funding for cycling promotional material to promote Mildura Rural City Council for tourist cycling.

The production of a pamphlet for example showing recreational rides throughout the municipality and linking key tourist destinations by bicycle routes would be a suitable project to be funded by this organisation. Some of the production costs of such a publication may also be funded by local businesses that could be allocated advertising space on the pamphlet.

11.2.4 Community Groups

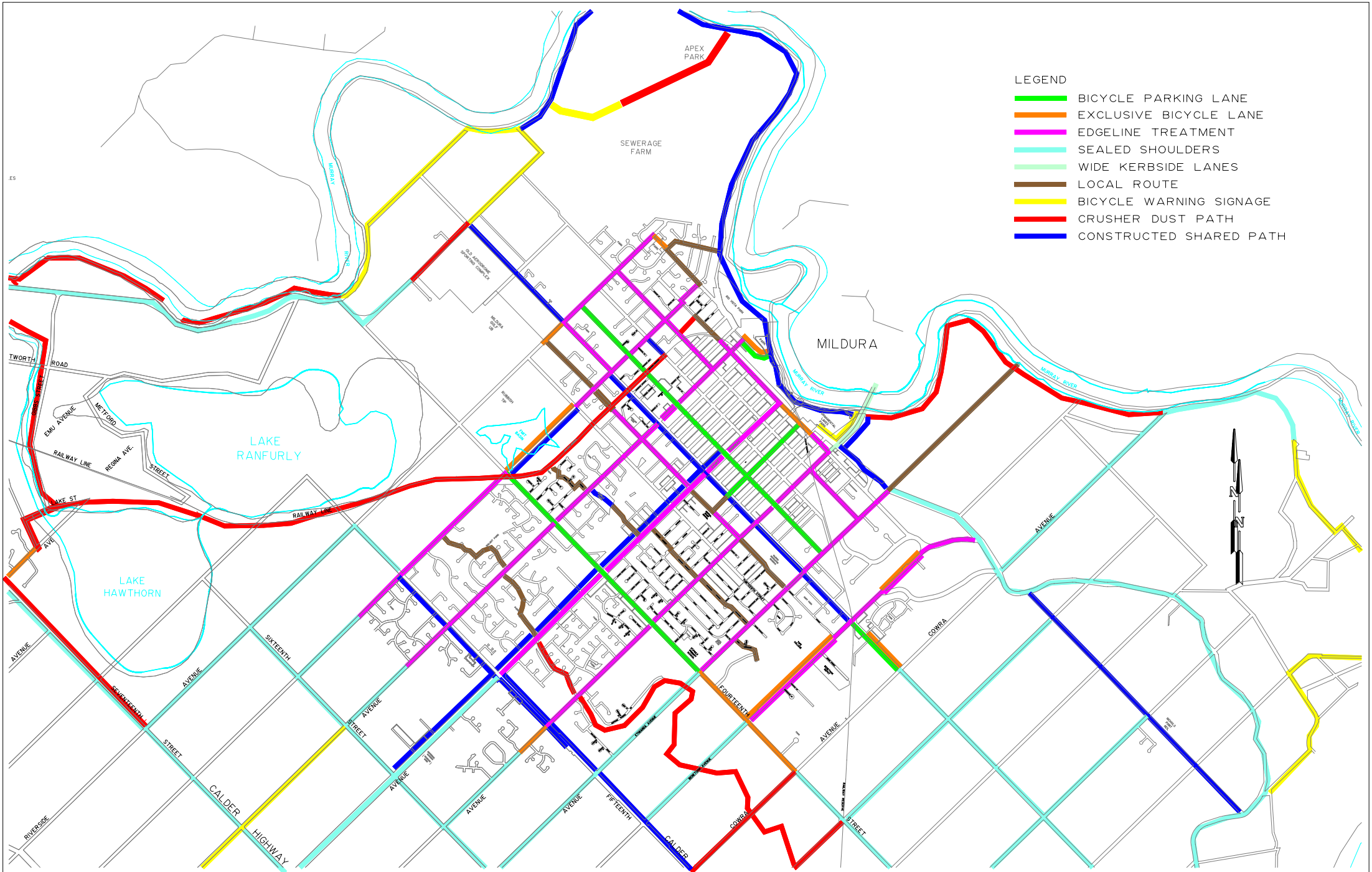
In some cases there is opportunity for sections of off-road trails and end of journey facilities to be partly funded by local businesses or community groups. This method of funding provides an ideal opportunity for local organisations to receive recognition and get involved in benefiting their local communities. Various shared paths in other parts of the State have developed trail committees where local volunteers assist with path maintenance and minor infrastructure improvements.

12 THE MUNICIPAL STRATEGIC BICYCLE PLAN

The major recommendations of this strategic bicycle plan are:

- The Mildura Rural City Council adopts Bicycle Victoria's "Bicycle Vision for Local Government" as the fundamental principles to address the Shire's cycling requirements.
- Council adopt the Mildura Bicycle Network and approve or seek funding to implement the network facilities as follows:-
- The network should be implemented and staged according to priority of works according to Appendix A, and Section 6 of the report.
- Council should ensure maintenance of existing bicycle facilities, including programs from VicRoads as recommended in Section 6 of the report.
- Council should begin the installation of end-of-journey facilities at a rate of $2,000 per year at strategic locations.
- Council actively seeks funding for major projects such as shoulder sealing programs from VicRoads and recreational paths from Parks Victoria as recommended in Section 6 of the report.
- Council either appoint a bicycle co-ordinator or form a Mildura Bicycle Steering Committee to oversee projects and the implementation of the network, and through this committee encourage:
- Participation of all schools in bicycle education programs including the use of traffic schools.
- The formation of Mildura Bicycle User Groups.
- Liaison with the police to ensure enforcement of bicycle related issues.
- The promotion of safe cycling by raising motorist awareness, as well as providing school holiday programs to help educate cyclists.
- Support for reducing bicycle theft and increasing recovery of stolen bicycles through funding bicycle identification programs.
- Commitment and support to promoting tourism and recreational cycling within the region.

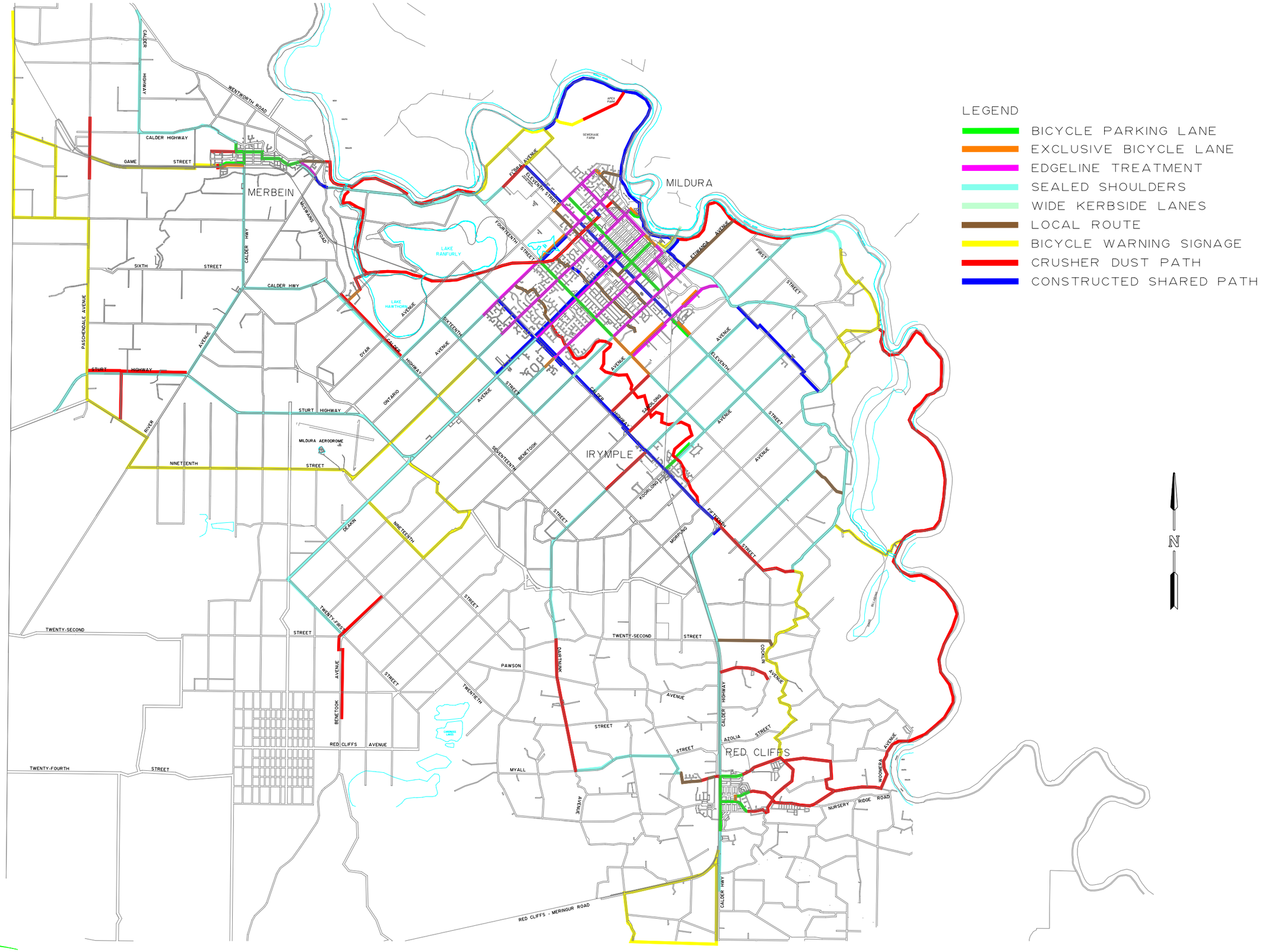
Appendix A
Bicycle Plans



TraffixGroup

Traffic Engineers and Transport Planners

MILDURA STRATEGIC BICYCLE PLAN
PROPOSED NETWORK - MILDURA



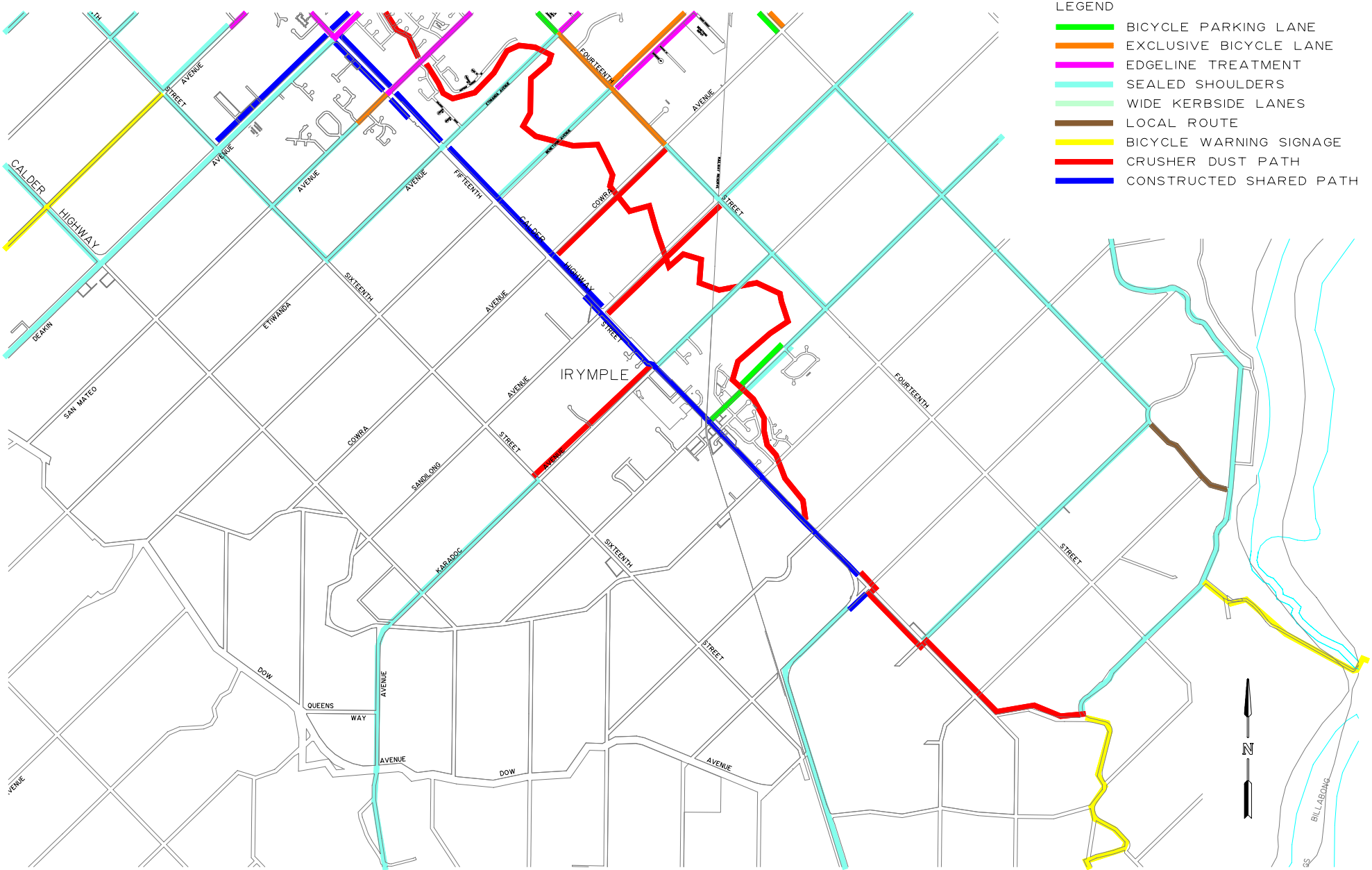
LEGEND

- BICYCLE PARKING LANE
- EXCLUSIVE BICYCLE LANE
- EDGELINE TREATMENT
- SEALED SHOULDERS
- WIDE KERBSIDE LANES
- LOCAL ROUTE
- BICYCLE WARNING SIGNAGE
- CRUSHER DUST PATH
- CONSTRUCTED SHARED PATH

TraffixGroup

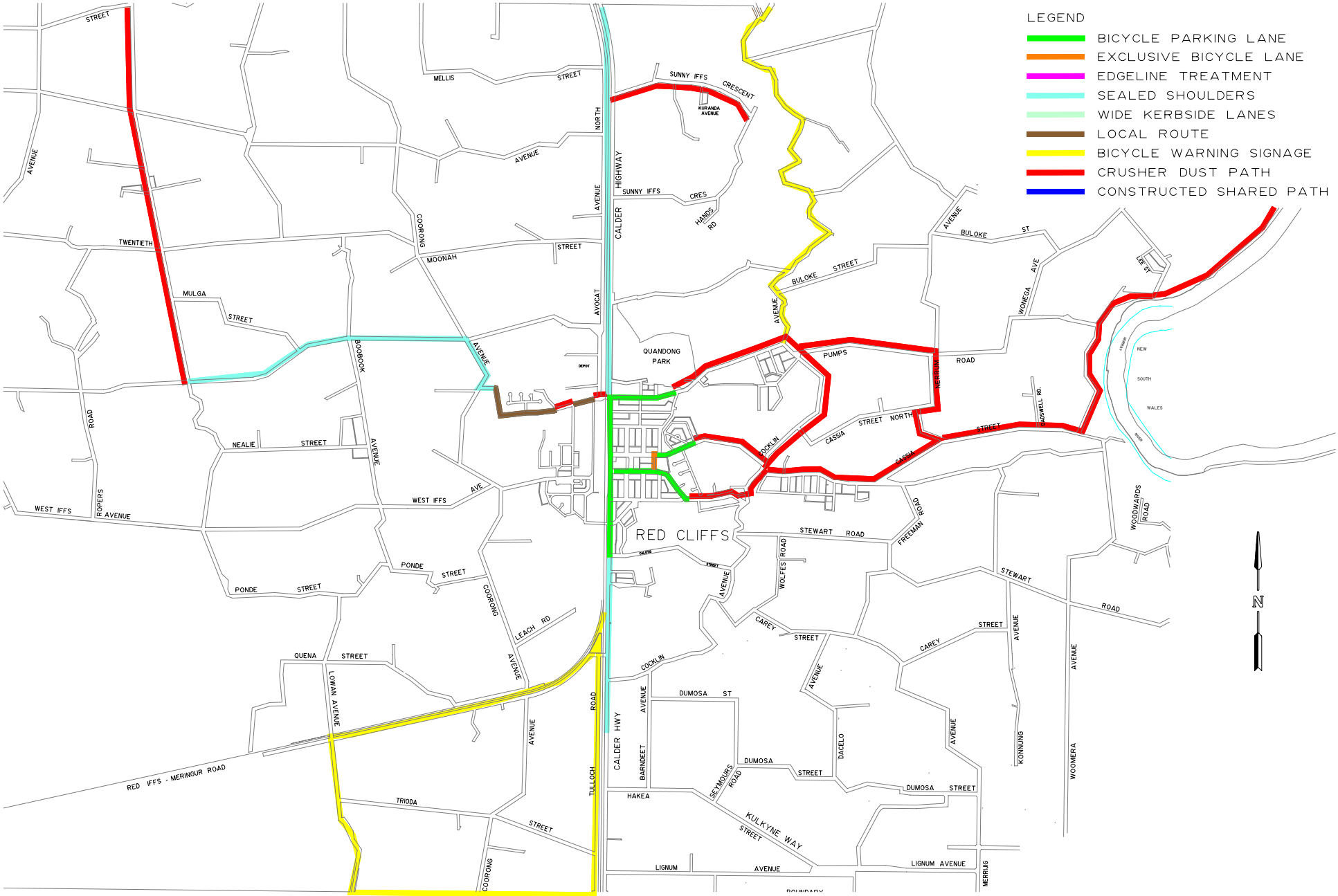
Traffic Engineers and Transport Planners

MILDURA STRATEGIC BICYCLE PLAN
PROPOSED NETWORK



TraffixGroup
Traffic Engineers and Transport Planners

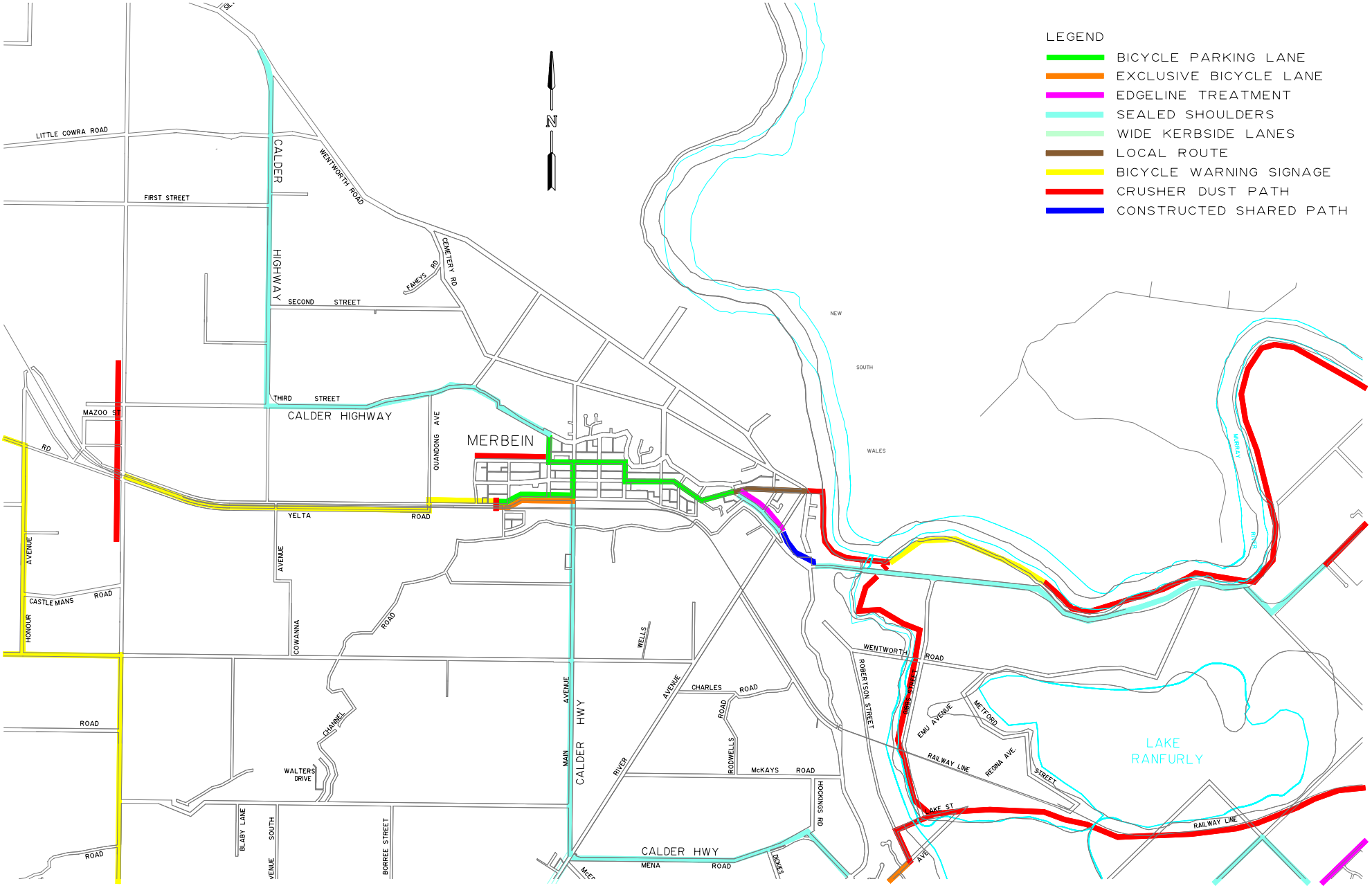
MILDURA STRATEGIC BICYCLE PLAN
PROPOSED NETWORK - IRYMPLE



TraffixGroup

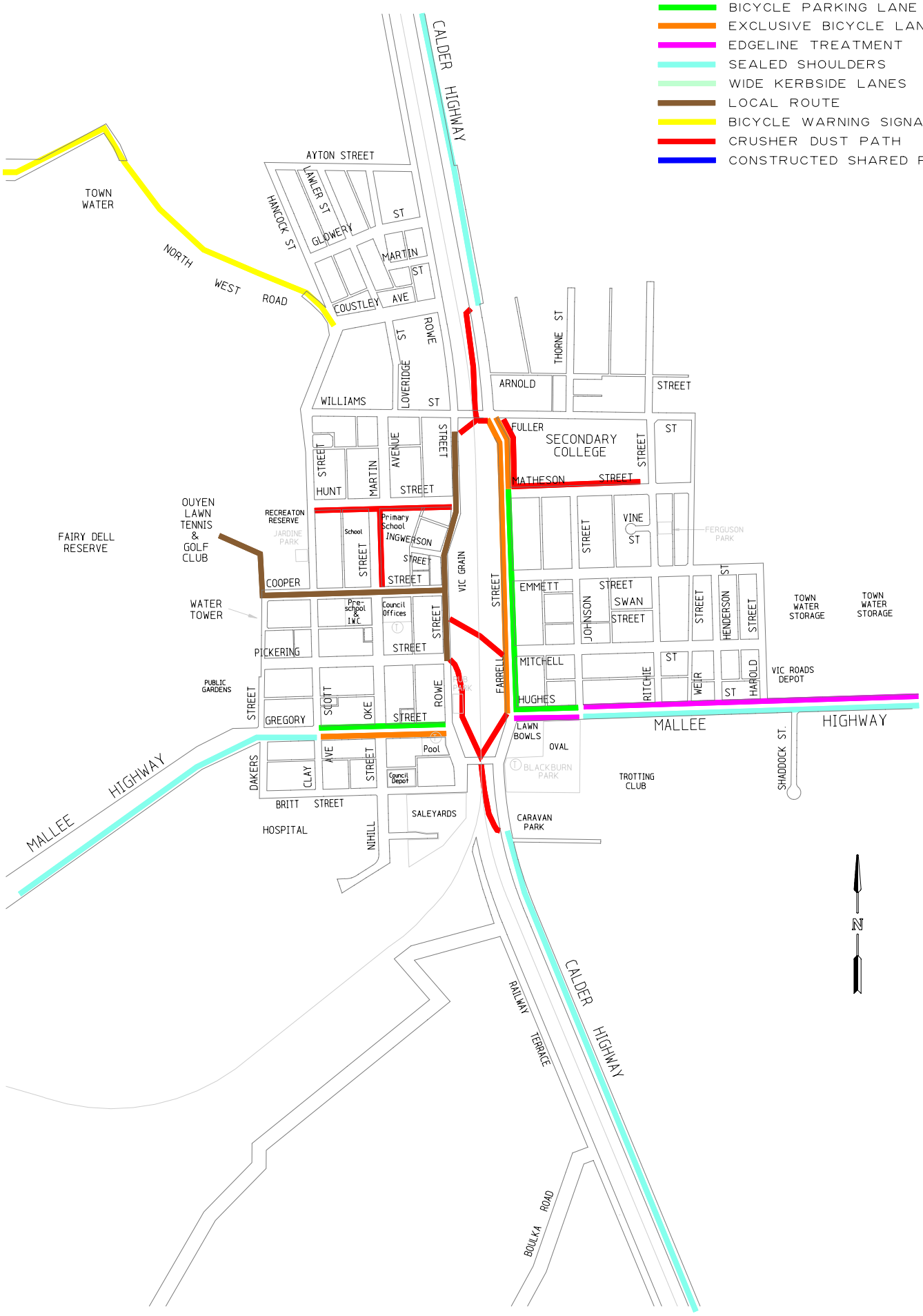
Traffic Engineers and Transport Planners

MILDURA STRATEGIC BICYCLE PLAN
PROPOSED NETWORK - RED CLIFFS



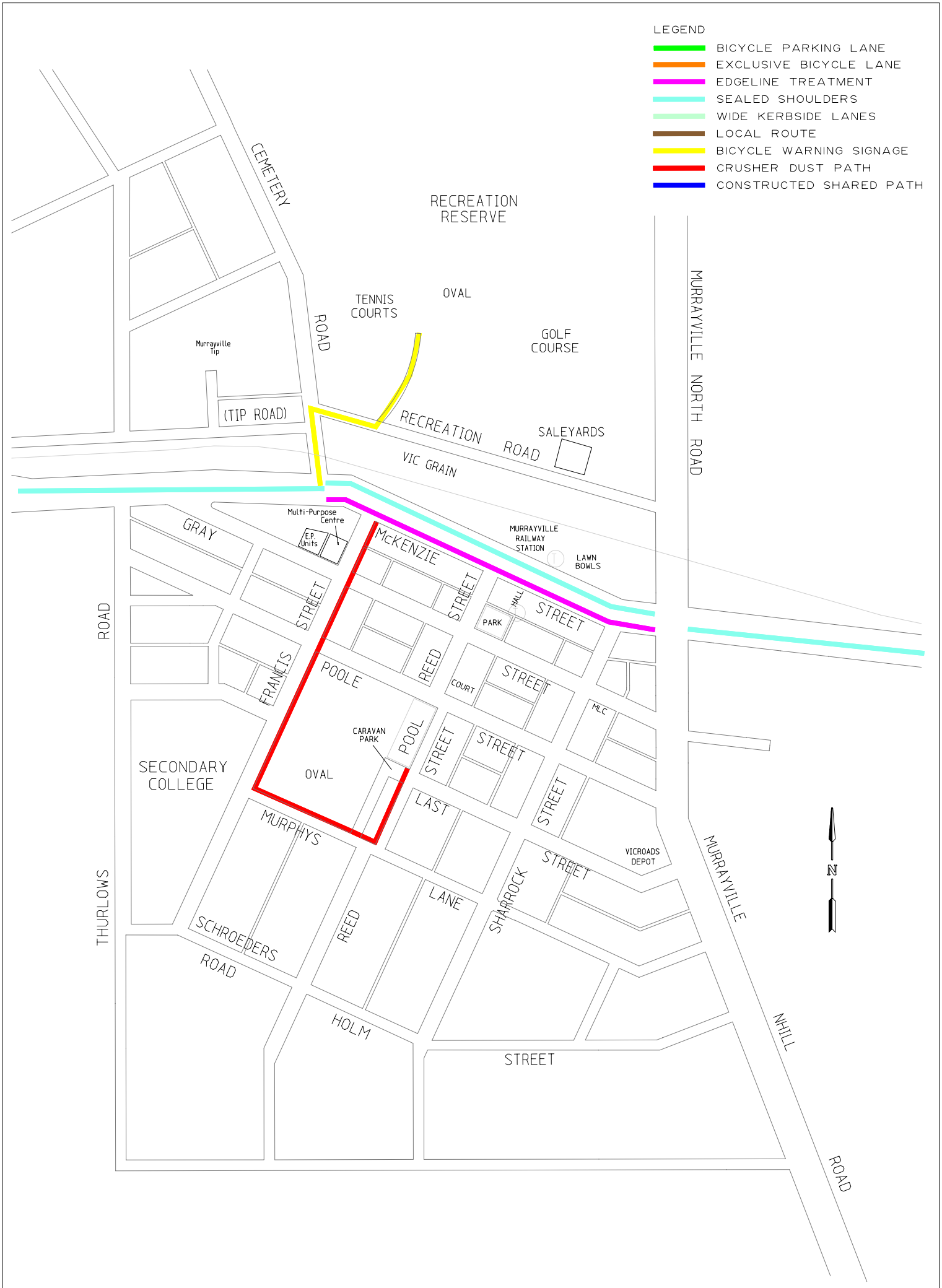
TraffixGroup
Traffic Engineers and Transport Planners

MILDURA STRATEGIC BICYCLE PLAN
PROPOSED NETWORK - MERBEIN



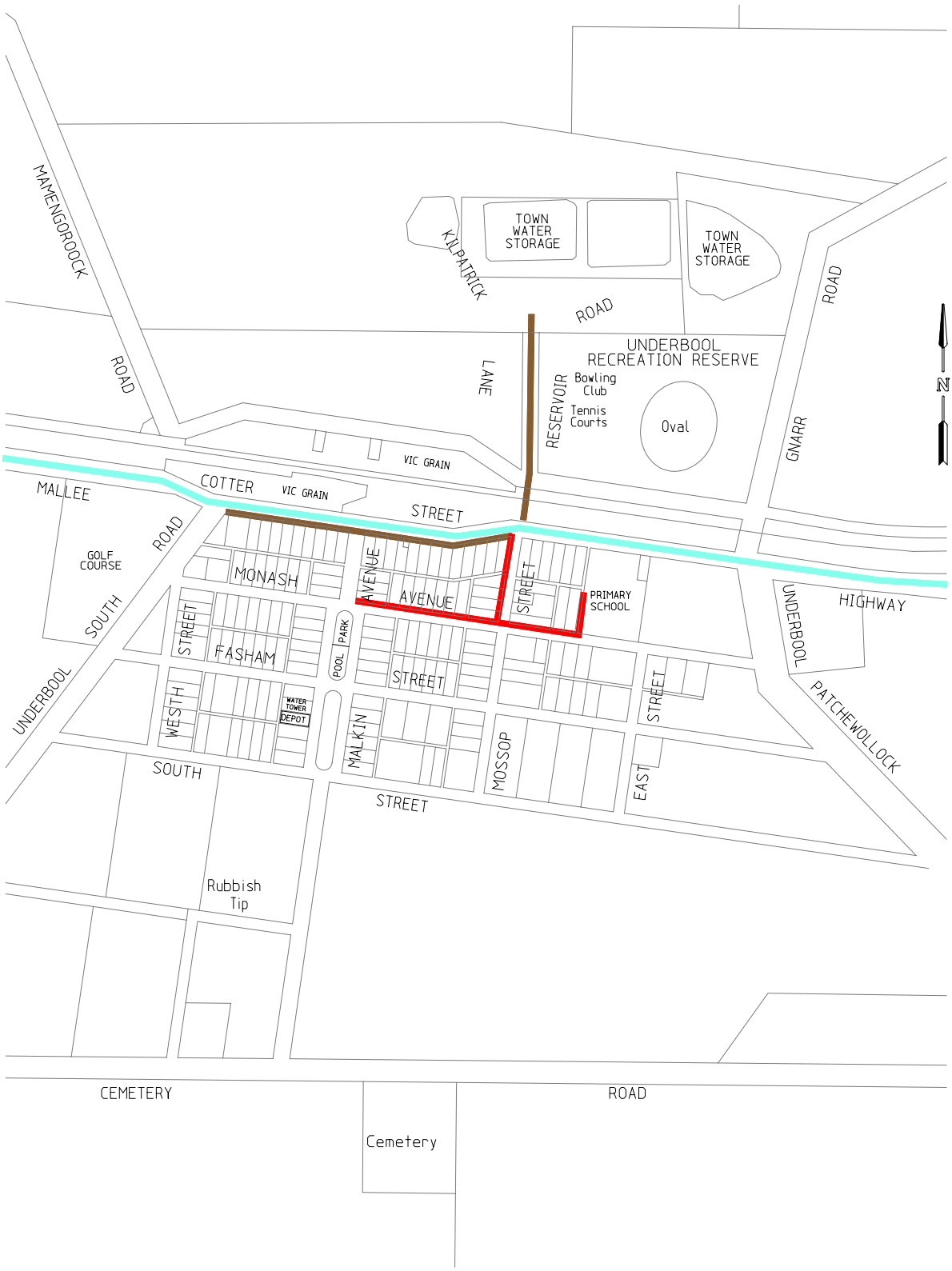
TraffixGroup
Traffic Engineers and Transport Planners

MILDURA STRATEGIC BICYCLE PLAN
PROPOSED NETWORK - OUYEN



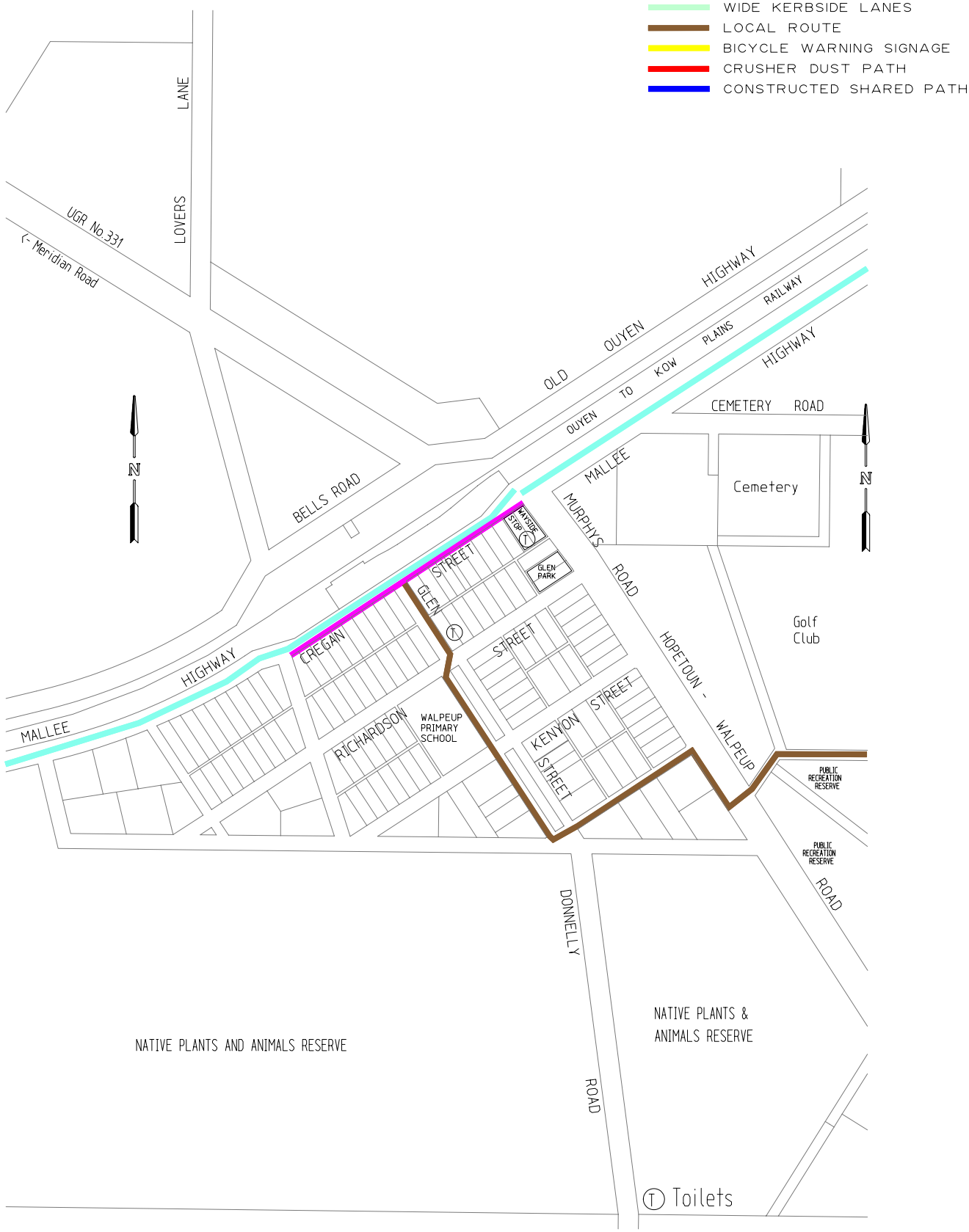
TraffixGroup
Traffic Engineers and Transport Planners

MILDURA STRATEGIC BICYCLE PLAN
PROPOSED NETWORK - MURRAYVILLE



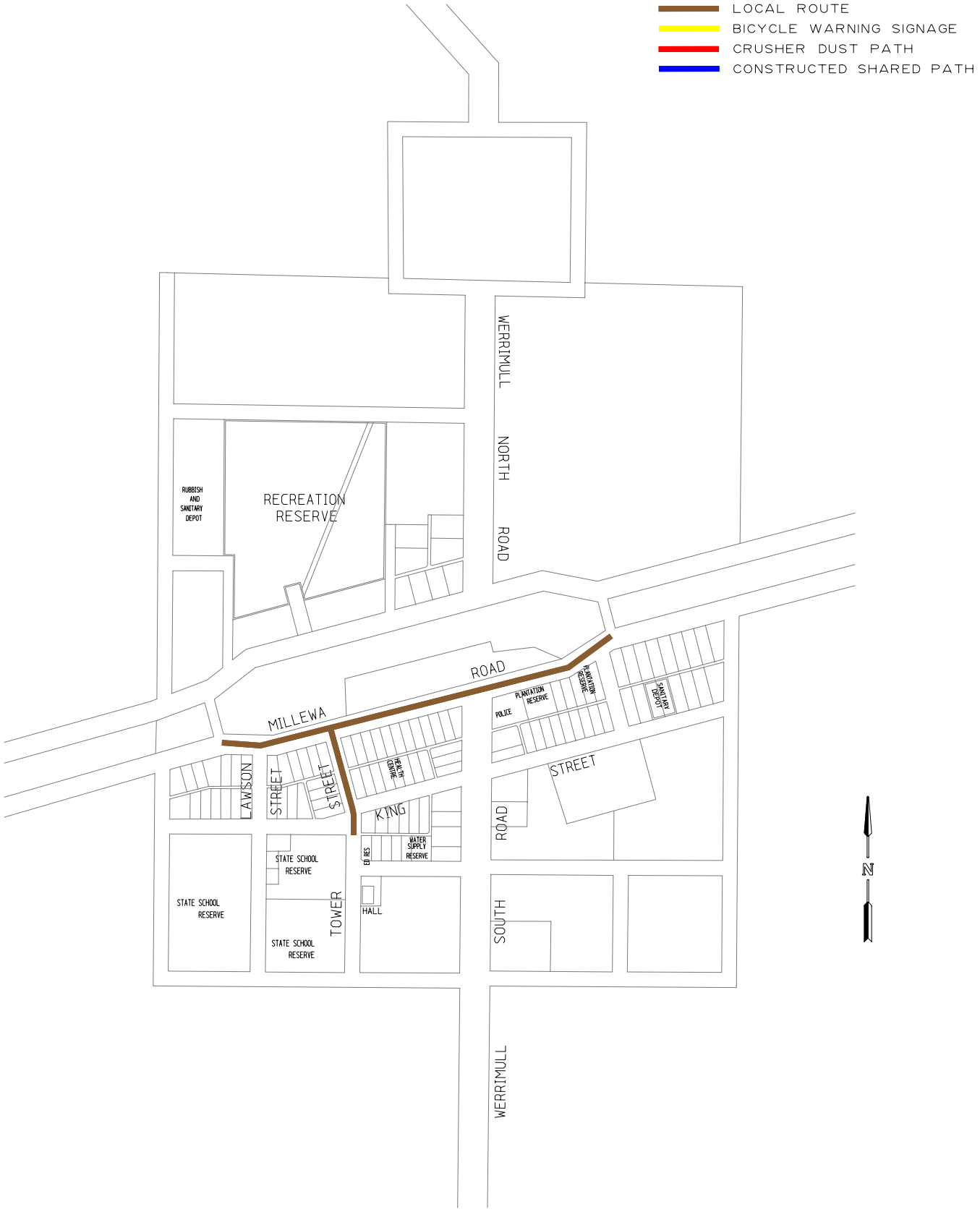
TraffixGroup
Traffic Engineers and Transport Planners

MILDURA STRATEGIC BICYCLE PLAN
PROPOSED NETWORK - UNDERBOOL



TraffixGroup
Traffic Engineers and Transport Planners

MILDURA STRATEGIC BICYCLE PLAN
PROPOSED NETWORK - WAIPEUP



TraffixGroup

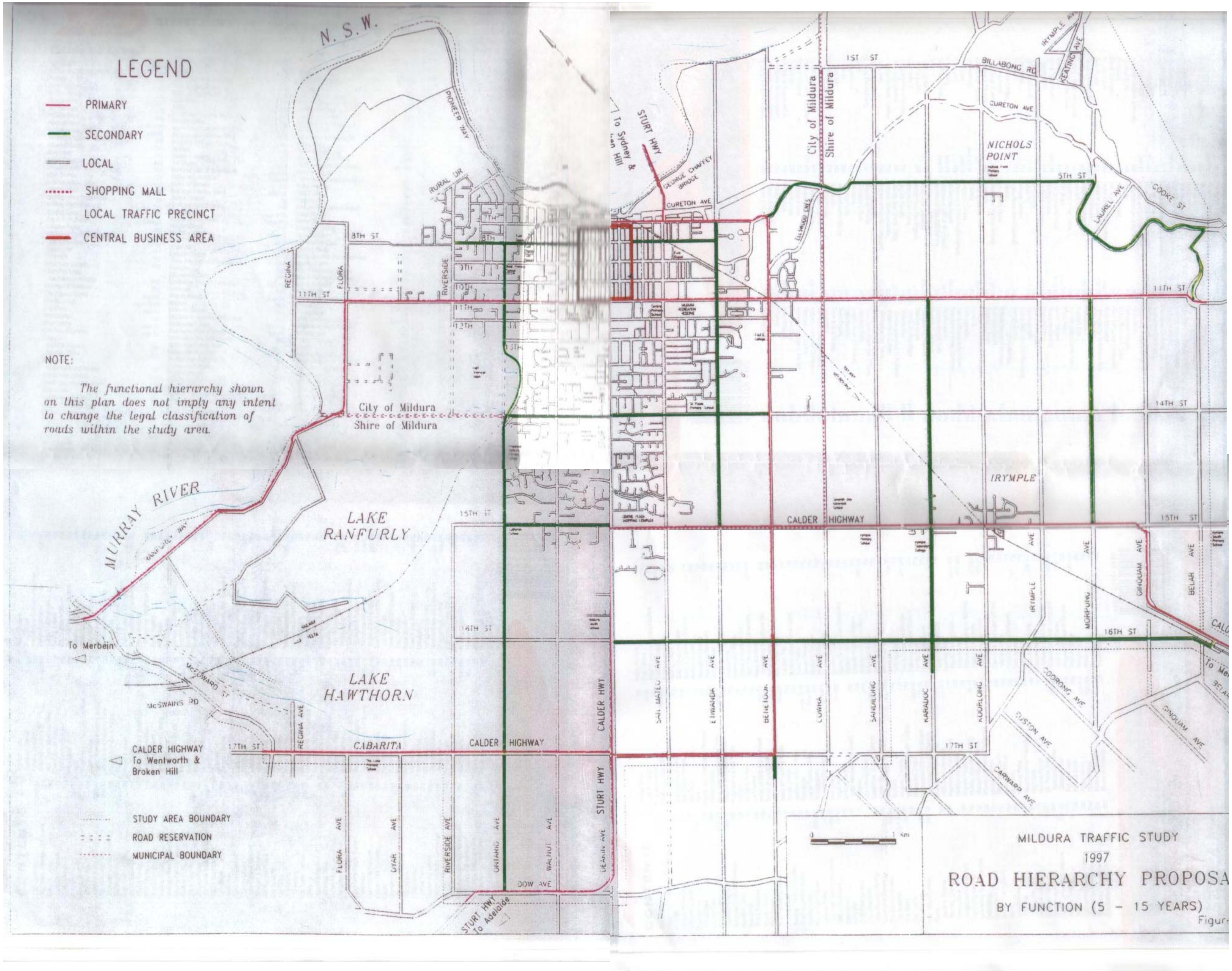
Traffic Engineers and Transport Planners

MILDURA STRATEGIC BICYCLE PLAN
PROPOSED NETWORK - WERRIMULL

TraffixGroup
Traffic Engineers and Transport Planners

MILDURA STRATEGIC BICYCLE PLAN
PROPOSED NETWORK - NANGILOC/COLIGNAN

Appendix B
Road Hierarchy


LEGEND
PRIMARY
SECONDARY
LOCAL
SHOPPING MALL
LOCAL TRAFFIC PRECINCT
CENTRAL BUSINESS AREA
NOTE:
The functional hierarchy shown on this plan does not imply any intent to change the legal classification of roads within the study area.
N. S. W.
MURRAY RIVER
LAKE RANFURLY
LAKE HAWTHORN
City of Mildura
Shire of Mildura
NICHOLS POINT
IRYMPLE
STURT HWY
To Sydney &
GEORGE CHAFFEY BRIDGE
CURETON AVE
1ST ST
BILLABONG RD
5TH ST
COOKE ST
LAUREL AVE
8TH ST
11TH ST
14TH ST
15TH ST
16TH ST
17TH ST
CALDER HIGHWAY
CABARITA
CALDER HWY
STURT HWY
DOW AVE
REGINA
FLORA
RIVERSIDE
PIONEER WAY
RURAL DR
To Merbein
McSWAINS RD
REGINA AVE
FLORA AVE
DYAR AVE
RIVERSIDE AVE
ONTARIO AVE
WALNUT AVE
DEAKIN AVE
SAN MATEO AVE
ETIWANDA AVE
BENETOOK AVE
COWRA AVE
SANDILONG AVE
KARADOC AVE
KOORLONG AVE
IRYMPLE AVE
MORPUNG AVE
GINQUAM AVE
BELAR AVE
COORONG AVE
EUSTON AVE
CARWARP AVE
CALDER HIGHWAY
To Wentworth &
Broken Hill
STURT HWY
To Adelaide
STUDY AREA BOUNDARY
ROAD RESERVATION
MUNICIPAL BOUNDARY
MILDURA TRAFFIC STUDY
1997
ROAD HIERARCHY PROPOSA
BY FUNCTION (5 - 15 YEARS)

Appendix C
Crash Information

Road Crash Statistics: Victoria Accident Details

Location is LGA(s): MILDURA; Query: Bicyclist casualty accidents - all ages; Date range is 01/01/1991 to 31/12/2999; Sorted by location.

Map Refs / Route Number / Km from Start	Location	Severity / Traffic Control / Date/Time	Injury Summary	DCA/Accident Classification / Sub Types	Light / Road / Atmosphere	Vehicles/ (+ DCA arrow) / Total Vehicles	Initial Directions	Road User	Age	Sex	Injury Level	Accident No. / Police form / image no.
VCD ED3 2 B9 243556 8.537 Km	On Werrimull South Road btw Unnamed and Werrimull South Road (560 m S of Unnamed)	Other Injury No control 31/10/1995 Tue 18:25	0 killed 0 serious inj. 1 other inj. 1 not inj.	147 Vehicle strikes another ve Vehicle foward departing Commercial(includes shops,sc On footpath	Day Dry Clear	Bicycle (2) Bus/coach (1) Total=2	S N	Bicyclist Driver	9 54	M M	Injured, medical treat Not injured	N1995036036 1201/1997
VCD ED3 3 C4 5265 4.600 Km	On Ranfurly Way btw Ranfurly Way and Ranfurly Way (1406 m SW of Unnamed)	Other Injury No control 1/5/1991 Wed 17:45	0 killed 0 serious inj. 1 other inj. 1 not inj.	130 Rear end (vehicles in sam Mid block	Day Dry Clear	Bicycle (2) Car (1) Total=2	W W	Bicyclist Driver	16 75	M F	Injured, medical treat Not injured	N1991015881 1116/74
VCD ED3 3 C4 5265 4.600 Km	On Ranfurly Way btw Ranfurly Way and Ranfurly Way (1406 m SW of Unnamed)	Other Injury No control 16/6/1992 Tue 08:05	0 killed 0 serious inj. 1 other inj. 3 not inj.	133 Lane side swipe (vehicles	Day Dry Fog	Car (2) Bicycle (1) Total=2	E E	Passenger Passenger Driver Bicyclist	? ? 71 22	F F M F	Not injured Not injured Not injured Injured, medical treat	N1992021078 1138/333
VCD ED3 3 C4 5265 6.595 Km	On Ranfurly Way btw Ranfurly Way and Ranfurly Way (998 m E of Unnamed)	Serious injury No control 21/6/1994 Tue 18:00	0 killed 1 serious inj. 0 other inj. 1 not inj.	133 Lane side swipe (vehicles	Dark, no street Dry Clear	Car (1) Bicycle (2) Total=2	SW SW	Driver Bicyclist	? 58	U M	Not injured Sent to hospital	N1994023031 1174/1437
VCD ED3 3 C5 2530 543.967 Km	On Calder Highway btw Calder Highway and Calder Highway (805 m SW of Unnamed)	Serious injury No control 2/9/1998 Wed 18:30	0 killed 1 serious inj. 1 other inj. 2 not inj.	130 Rear end (vehicles in sam Mid block	Dusk/dawn Dry Clear	Bicycle (2) Utility (1) Total=2	W W	Passenger Passenger Bicyclist Driver	13 7 62 68	M F M M	Not injured Injured, medical treat Sent to hospital Not injured	N1998031218 1264/1104
VCD ED3 3 C5 (C6) 107420 12.057 Km	On Benetook Avenue btw Benetook Avenue and Benetook Avenue (700 m SW of Dow)	Other Injury No control 15/7/1998 Wed 07:50	0 killed 0 serious inj. 1 other inj. 1 not inj.	130 Rear end (vehicles in sam Mid block	Day Dry Clear	Utility (1) Bicycle (2) Total=2	NE NE	Driver Bicyclist	30 47	M M	Not injured Injured, medical treat	N1998025025 1259/1905
VCD ED3 3 C5 161806 6.253 Km	On Nineteenth Street btw San Mateo Avenue and Etiwanda Avenue (12 m SE of San Mateo)	Other Injury No control 23/10/1999 Sat 17:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	130 Rear end (vehicles in sam Mid block	Day Dry Clear	Motor cycle (1) Bicycle (2) Total=2	SE SE	Motor cyclist Bicyclist	24 16	M M	Not injured Injured, medical treat	N1999037458 1288/266
VCD ED3 3 D5 126227 4.164 Km	At Eleventh Street and Karadoc Avenue	Other Injury Giveway sign 16/9/1997 Tue 17:55	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Car (2) Bicycle (1) Total=2	NE SE	Driver Bicyclist	66 34	F F	Not injured Injured, medical treat	N1997033094 1242/913
VCD ED3 3 D5 126227 4.164 Km	At Eleventh Street and Karadoc Avenue	Other Injury No control 16/10/1998 Fri 18:05	0 killed 0 serious inj. 1 other inj. 2 not inj.	110 Cross traffic(intersections	Day Dry Clear	Bicycle (1) Car (2) Total=2	W S	Bicyclist Passenger Driver	54 17 37	M F F	Injured, medical treat Not injured Not injured	N1998035118 1264/1070
VCD ED3 3 D6 124075 4.138 Km	On Dow Avenue btw Unnamed and Dow Avenue (31 m N of Boomerang)	Serious injury No control 5/2/1998 Thu 19:40	0 killed 1 serious inj. 0 other inj. 3 not inj.	147 Vehicle strikes another ve Vehicle foward departing Private driveway/laneway Collision on first half of carriag	Dusk/dawn Dry Clear	Bicycle (1) Car (2) Total=2	S S	Passenger Passenger Bicyclist Driver	56 11 8 34	F M M M	Not injured Not injured Sent to hospital Not injured	N1998006165 1250/1726
VCD ED3 3 E5 120730 8.467 Km	At Cureton Avenue and Karadoc Avenue	Serious injury Giveway sign 3/7/1999 Sat 12:00	0 killed 1 serious inj. 0 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Bicycle (1) Utility (2) Total=2	NE NW	Bicyclist Driver	12 24	M M	Sent to hospital Not injured	N1999022317 1279/1948
VCD ED3 3 E5 126227 3.056 Km	On Eleventh Street btw Koorlong Avenue and Irymple Avenue (150 m NW of Irymple)	Other Injury No control 5/4/1992 Sun 14:45	0 killed 0 serious inj. 1 other inj. 1 not inj.	130 Rear end (vehicles in sam Mid block	Day Dry Clear	Not known (2) Bicycle (1) Total=2	SE SE	Not known Bicyclist	? 44	U F	Not injured Injured, medical treat	N1992012457 1133/45

Location is LGA(s): MILDURA; Query: Bicyclist casualty accidents - all ages; Date range is 01/01/1991 to 31/12/2999; Sorted by location.

Map Refs / Route Number / Km from Start	Location	Severity / Traffic Control / Date/Time	Injury Summary	DCA/Accident Classification / Sub Types	Light / Road / Atmosphere	Vehicles/ (+ DCA arrow) / Total Vehicles	Initial Directions	Road User	Age	Sex	Injury Level	Accident No. / Police form / image no.
VCD ED3 6 F6 2530 470.385 Km	At Calder Hwy and Hattah-Robinvale Road	Serious injury No control 31/5/2000 Wed 18:35	0 killed 1 serious inj. 0 other inj. 1 not inj.	133 Lane side swipe (vehicles Not Required	Dark, no street Dry Clear	Utility (2) Bicycle (1) Total=2	S S	Driver Bicyclist	? 48	U M	Not injured Sent to hospital	32000019219
VCD ED3 6 G2 5178 1.538 Km	On Red Cliffs-Colignan Road btw Red Cliffs-Colignan Road and Red Cliffs-Colignan Road (99 m N of Watts)	Serious injury No control 24/7/1998 Fri 19:10	0 killed 1 serious inj. 0 other inj. 2 not inj.	130 Rear end (vehicles in sam Mid block	Dark, street lig Dry Clear	Bicycle (2) Station wagon Total=2	S S	Passenger Bicyclist Driver	44 37 47	F M M	Not injured Sent to hospital Not injured	N1998027119 1261/9
VCD ED3 11 G2 2530 442.596 Km	On Calder Highway btw Calder Highway Parallel Road and Calder Highway (1534 m S of Dingo Tank)	Serious injury No control 23/12/1999 Thu 14:25	0 killed 1 serious inj. 0 other inj. 3 not inj.	154 Pulling out rear end Not Required	Day Dry Strong winds	Car (1) Bicycle (2) Total=2	S S	Passenger Passenger Driver Bicyclist	0 10 23 37	M F F M	Not injured Not injured Not injured Sent to hospital	32000001973
VCD ED3 202 J12 2610 5.961 Km	On Sturt Highway btw Sturt Highway and Sturt Highway (200 m NE of Sixteenth)	Other Injury No control 9/12/1999 Thu 13:00	0 killed 0 serious inj. 1 other inj. 1 not inj.	148 Vehicle off footpath strikes Not Required	Day Dry Clear	Bicycle (1) Car (2) Total=2	W SW	Bicyclist Driver	9 23	M F	Injured, medical treat Not injured	31999040736
VCD ED3 202 K2 5265 3.162 Km	On Ranfurly Way btw Ranfurly Way and Ranfurly Way (31 m SE of Unnamed)	Other Injury No control 5/9/1997 Fri 09:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	160 Vehicle collides with vehicl Kerb parking angle	Day Dry Clear	Bicycle (1) Utility (2) Total=2	E E	Bicyclist Driver	35 64	M M	Injured, medical treat Not injured	N1997029701 1241/1133
VCD ED3 202 K9 241780 6.179 Km	On Walnut Avenue btw Walnut Avenue and Walnut Avenue (20 m SW of Walnut)	Other Injury No control 19/10/1992 Mon 15:50	0 killed 0 serious inj. 1 other inj. 3 not inj.	147 Vehicle strikes another ve INVALID_ID:H01 Private driveway/laneway Collision on first half of carriag	Day Dry Clear	Car (1) Bicycle (2) Total=2	W S	Passenger Passenger Driver Bicyclist	6 4 30 9	M F F M	Not injured Not injured Not injured Injured, medical treat	N1992037035 1149/72
VCD ED3 203 L9 241780 6.619 Km	On Walnut Avenue btw Walnut Avenue and Walnut Avenue (106 m SW of Ford)	Other Injury No control 22/9/1997 Mon 12:30	0 killed 0 serious inj. 1 other inj. 0 not inj.	160 Vehicle collides with vehicl Kerb parking parallel	Day Dry Clear	Bicycle (1) Car (2) Total=2	S S	Bicyclist	24	M	Injured, medical treat	N1997033491 1242/917
VCD ED3 203 L10 2530 535.517 Km	At Calder Hwy and Sturt Hwy	Other Injury Giveway sign 4/2/1999 Thu 17:10	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Utility (1) Bicycle (2) Total=2	SW SE	Driver Bicyclist	41 29	M F	Not injured Injured, medical treat	N1999005642 1272/1101
VCD ED3 203 L10 2530 535.517 Km	At Calder Hwy and Sturt Hwy	Other Injury No control 21/4/1993 Wed 16:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	122 Left through	Day Dry Clear	Utility (1) Bicycle (2) Total=2	W E	Driver Bicyclist	34 16	M M	Not injured Injured, medical treat	N1993014164 1154/800
VCD ED3 203 L10 2530 535.517 Km	At Calder Hwy and Sturt Hwy	Other Injury Roundabout 3/3/1993 Wed 08:50	0 killed 0 serious inj. 1 other inj. 1 not inj.	136 Right turn sideswipe Roundabout mounted/struck	Day Dry Clear	Bicycle (1) Car (2) Total=2	E E	Bicyclist Driver	10 50	M F	Injured, medical treat Not injured	N1993009187 1152/969
VCD ED3 203 M8 130334 9.610 Km	At Fourteenth Street and Walnut Avenue	Other Injury Roundabout 17/3/1999 Wed 13:10	0 killed 0 serious inj. 1 other inj. 1 not inj.	113 Right near (intersections o	Day Dry Clear	Station wagon Bicycle (2) Total=2	NW SW	Driver Bicyclist	34 44	M M	Not injured Injured, medical treat	N1999009939 1272/1229
VCD ED3 203 M8 241780 7.368 Km	On Walnut Avenue btw Walnut Avenue and Walnut Avenue (51 m SW of Fourteenth)	Other Injury No control 15/8/1999 Sun 15:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	147 Vehicle strikes another ve Vehicle reverse departing Private driveway/laneway On footpath	Day Dry Clear	Bicycle (2) Car (1) Total=2	NE E	Bicyclist Driver	6 23	F F	Injured, medical treat Not injured	N1999027443 1282/800

Location is LGA(s): MILDURA; Query: Bicyclist casualty accidents - all ages; Date range is 01/01/1991 to 31/12/2999; Sorted by location.

Map Refs / Route Number / Km from Start	Location	Severity / Traffic Control / Date/Time	Injury Summary	DCA/Accident Classification / Sub Types	Light / Road / Atmosphere	Vehicles/ (+ DCA arrow) / Total Vehicles	Initial Directions	Road User	Age	Sex	Injury Level	Accident No. / Police form / image no.
VCD ED3 203 M11 2530 534.872 Km	At Calder Hwy and San Mateo Avenue	Other Injury Stop go lights 31/3/2000 Fri 17:15	0 killed 0 serious inj. 1 other inj. 1 not inj.	148 Vehicle off footpath strikes Not Required	Day Dry Clear	Not known (1) Bicycle (1) Total=2	SW W	Not known Passenger	? 15	U M	Not injured Injured, medical treat	32000013707
VCD ED3 203 M11 2530 534.872 Km	At Calder Hwy and San Mateo Avenue	Other Injury No control 2/2/1995 Thu 17:00	0 killed 0 serious inj. 1 other inj. 1 not inj.	163 Vehicle strikes door of par	Day Dry Clear	Car (2) Bicycle (1) Total=2	NE NE	Driver Bicyclist	44 35	M M	Not injured Injured, medical treat	N1995024913 1194/675
VCD ED3 203 M11 174713 4.403 Km	On San Mateo Avenue btw Calder Highway and San Mateo Avenue (100 m NE of Calder)	Other Injury No control 27/1/1998 Tue 17:55	0 killed 0 serious inj. 1 other inj. 1 not inj.	147 Vehicle strikes another ve Vehicle foward departing Private driveway/laneway Collision on second half of carr	Day Dry Clear	Bicycle (1) Car (2) Total=2	E S	Bicyclist Driver	90 24	M F	Injured, medical treat Not injured	N1998004675 1249/216
VCD ED3 203 M11 174713 4.592 Km	On San Mateo Avenue btw Calder Highway and San Mateo Avenue (69 m SW of Batey)	Other Injury No control 21/9/1999 Tue 18:15	0 killed 0 serious inj. 1 other inj. 1 not inj.	147 Vehicle strikes another ve Vehicle reverse departing Driveway/laneway not known On footpath	Dusk/dawn Dry Clear	Car (1) Bicycle (2) Total=2	SE NE	Driver Bicyclist	30 15	M M	Not injured Injured, medical treat	N1999032437 1284/1352
VCD ED3 203 N3 172003 1.098 Km	At Riverside Avenue and Washington Drive	Other Injury No control 3/4/1997 Thu 21:15	0 killed 0 serious inj. 1 other inj. 1 not inj.	121 Right through	Dark, street lig Dry Clear	Utility (1) Bicycle (2) Total=2	N S	Driver Bicyclist	48 46	M M	Not injured Injured, medical treat	N1997014213 1233/1804
VCD ED3 203 N5 5265 1.285 Km	At Ranfurly Way and Ontario Avenue	Serious injury Roundabout 2/9/1998 Wed 17:10	0 killed 1 serious inj. 0 other inj. 2 not inj.	110 Cross traffic(intersections	Day Dry Clear	Station wagon Bicycle (2) Total=2	W S	Passenger Driver Bicyclist	16 43 12	M F F	Not injured Not injured Sent to hospital	N1998029761 1261/1498
VCD ED3 203 N5 5265 1.285 Km	At Ranfurly Way and Ontario Avenue	Other Injury Unknown 20/10/1993 Wed 08:35	0 killed 0 serious inj. 1 other inj. 3 not inj.	111 Right far (intersections onl	Day Dry Clear	Bicycle (1) Car (2) Total=2	NE E	Passenger Passenger Driver Bicyclist	13 13 54 12	F F F M	Not injured Not injured Not injured Injured, medical treat	N1993035147 1163/1778
VCD ED3 203 N5 5265 1.285 Km	At Ranfurly Way and Ontario Avenue	Other Injury Roundabout 1/10/1996 Tue 17:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Car (1) Bicycle (2) Total=2	NW SW	Driver Bicyclist	59 15	M M	Not injured Injured, medical treat	N1996032715 1224/1288
VCD ED3 203 N5 120363 0.000 Km	At Crosbie Court and Stuart Avenue	Other Injury No control 2/3/2000 Thu 15:45	0 killed 0 serious inj. 1 other inj. 1 not inj.	120 Head on (not overtaking) Road straight at intersection	Day Dry Clear	Car (1) Bicycle (2) Total=2	NE SW	Driver Bicyclist	? 11	U M	Not injured Injured, medical treat	32000008770
VCD ED3 203 N6 109933 0.340 Km	At Bowen Crescent and Walnut Avenue	Other Injury Stop sign 16/2/1995 Thu 08:45	0 killed 0 serious inj. 1 other inj. 1 not inj.	113 Right near (intersections o	Day Dry Clear	Mini bus (1) Bicycle (2) Total=2	W S	Driver Bicyclist	? 12	U F	Not injured Injured, medical treat	N1995005749 1189/228
VCD ED3 203 N6 183784 1.946 Km	At Thirteenth Street and Walnut Avenue	Serious injury Roundabout 8/9/1995 Fri 21:10	0 killed 1 serious inj. 0 other inj. 1 not inj.	110 Cross traffic(intersections	Dark, street lig Dry Clear	Not known (1) Bicycle (2) Total=2	W S	Not known Bicyclist	? 20	U M	Not injured Sent to hospital	N1995029622 1200/575
VCD ED3 203 N6 183784 2.046 Km	On Thirteenth Street btw Thirteenth Street and Walnut Avenue (58 m SE of Kiata)	Other Injury No control 19/6/1996 Wed 16:00	0 killed 0 serious inj. 1 other inj. 3 not inj.	147 Vehicle strikes another ve Vehicle foward departing Private driveway/laneway Collision on first half of carriag	Day Dry Clear	Bicycle (1) Car (2) Total=2	S E	Bicyclist Driver Passenger Passenger	12 65 5 3	M F M M	Injured, medical treat Not injured Not injured Not injured	N1996027932 1217/1301

Location is LGA(s): MILDURA; Query: Bicyclist casualty accidents - all ages; Date range is 01/01/1991 to 31/12/2999; Sorted by location.

Map Refs / Route Number / Km from Start	Location	Severity / Traffic Control / Date/Time	Injury Summary	DCA/Accident Classification / Sub Types	Light / Road / Atmosphere	Vehicles/ (+ DCA arrow) / Total Vehicles	Initial Directions	Road User	Age	Sex	Injury Level	Accident No. / Police form / image no.
VCD ED3 203 N6 241780 8.278 Km	On Walnut Avenue btw Walnut Avenue and Walnut Avenue (47 m SW of Thirteenth)	Other Injury No control 29/12/1992 Tue 16:45	0 killed 0 serious inj. 1 other inj. 1 not inj.	136 Right turn sideswipe Private driveway/laneway Mid block	Day Dry Clear	Bicycle (1) Car (2) Total=2	S S	Bicyclist Driver	14 ?	M U	Injured, medical treat Not injured	N1993003762 1149/25
VCD ED3 203 N8 2610 2.813 Km	At Sturt Hwy and Hunter Street	Other Injury Giveway sign 10/12/1998 Thu 13:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	121 Right through Vehicle turning through media	Day Dry Clear	Car (1) Bicycle (2) Total=2	E W	Driver Bicyclist	17 27	M M	Not injured Injured, medical treat	N1999001207 1269/359
VCD ED3 203 N8 2610 3.188 Km	At Sturt Hwy and Burrows Street	Other Injury No control 11/4/1991 Thu 15:50	0 killed 0 serious inj. 1 other inj. 2 not inj.	147 Vehicle strikes another ve Vehicle foward departing Commercial(includes shops,sc Collision on first half of carriag	Day Wet Clear	Bicycle (1) Car (2) Total=2	E S	Passenger Bicyclist Driver	9 14 44	M M F	Not injured Injured, medical treat Not injured	N1991013188 1114/1441
VCD ED3 203 N8 2610 3.401 Km	On Sturt Highway btw Sturt Highway and Sturt Highway (20 m NE of Fourteenth)	Serious injury No control 10/2/1996 Sat 18:45	0 killed 1 serious inj. 0 other inj. 2 not inj.	147 Vehicle strikes another ve Vehicle foward departing Commercial(includes shops,sc Collision on first half of carriag	Day Dry Clear	Panel van (1) Bicycle (2) Total=2	E S	Passenger Driver Bicyclist	? 41 36	U M M	Not injured Not injured Sent to hospital	N1996005635 1210/791
VCD ED3 203 N8 2610 3.421 Km	At Sturt Hwy and Fourteenth Street	Other Injury Stop go lights 28/10/1994 Fri 08:22	0 killed 0 serious inj. 1 other inj. 1 not inj.	137 Left turn sideswipe	Day Dry Clear	Car (1) Bicycle (2) Total=2	N N	Driver Bicyclist	29 14	F M	Not injured Injured, medical treat	N1994035216 1181/1761
VCD ED3 203 O4 126036 2.589 Km	At Eighth Street and Ontario Avenue	Other Injury Giveway sign 30/9/1995 Sat 16:00	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Car (1) Bicycle (2) Total=2	W S	Driver Bicyclist	70 ?	F F	Not injured Injured, medical treat	N1995032191 1200/591
VCD ED3 203 O5 161825 1.976 Km	At Ninth Street and Walnut Avenue	Serious injury Roundabout 2/4/1992 Thu 21:30	0 killed 1 serious inj. 0 other inj. 0 not inj.	174 Out of control on carriage No vehicle mounted/struck	Dark, street lig Dry Clear	Bicycle (1) Total=1	W	Bicyclist	23	M	Sent to hospital	N1992011483 1132/1914
VCD ED3 203 O5 182970 1.943 Km	At Tenth Street and Unnamed	Other Injury Roundabout 4/5/1995 Thu 08:45	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Car (1) Bicycle (2) Total=2	W S	Driver Bicyclist	37 14	F M	Not injured Injured, medical treat	N1995014073 1193/690
VCD ED3 203 O6 5265 0.179 Km	At Ranfurly Way and Langtree Parade	Serious injury No control 4/8/1995 Fri 09:15	0 killed 1 serious inj. 0 other inj. 2 not inj.	121 Right through	Day Dry Clear	Bicycle (1) Station wagon Total=2	E W	Passenger Bicyclist Driver	28 29 36	M M M	Not injured Sent to hospital Not injured	N1995025293 1199/508
VCD ED3 203 O6 5265 0.260 Km	On Ranfurly Way btw Ranfurly Way and Ranfurly Way (15 m SE of Lime)	Other Injury No control 18/11/1992 Wed 13:10	0 killed 0 serious inj. 1 other inj. 1 not inj.	147 Vehicle strikes another ve Vehicle foward departing Laneway On footpath	Day Dry Clear	Bicycle (2) Car (1) Total=2	W S	Bicyclist Driver	16 42	M F	Injured, medical treat Not injured	N1992039840 1149/217
VCD ED3 203 O6 5265 0.276 Km	At Ranfurly Way and Lime Avenue	Other Injury Giveway sign 7/2/1996 Wed 15:40	0 killed 0 serious inj. 1 other inj. 1 not inj.	114 Two right turning (intersec	Day Dry Clear	Car (2) Bicycle (1) Total=2	S W	Driver Bicyclist	? 18	U M	Not injured Injured, medical treat	N1996005310 1210/795
VCD ED3 203 O6 5265 0.651 Km	At Ranfurly Way and Walnut Avenue	Other Injury No control 20/6/1992 Sat 11:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	163 Vehicle strikes door of par	Day Dry Clear	Car (2) Bicycle (1) Total=2	S S	Driver Bicyclist	71 13	M M	Not injured Injured, medical treat	N1992021071 1138/200

Location is LGA(s): MILDURA; Query: Bicyclist casualty accidents - all ages; Date range is 01/01/1991 to 31/12/2999; Sorted by location.

Map Refs / Route Number / Km from Start	Location	Severity / Traffic Control / Date/Time	Injury Summary	DCA/Accident Classification / Sub Types	Light / Road / Atmosphere	Vehicles/ (+ DCA arrow) / Total Vehicles	Initial Directions	Road User	Age	Sex	Injury Level	Accident No. / Police form / image no.
VCD ED3 203 O6 5265 0.651 Km	At Ranfurly Way and Walnut Avenue	Other Injury Roundabout 9/10/1999 Sat 11:00	0 killed 0 serious inj. 1 other inj. 2 not inj.	110 Cross traffic(intersections	Day Dry Clear	Car (1) Bicycle (2) Total=2	SW SE	Passenger Driver Bicyclist	14 75 50	F M M	Not injured Not injured Injured, medical treat	N1999035703 1286/1003
VCD ED3 203 O6 5265 0.651 Km	At Ranfurly Way and Walnut Avenue	Other Injury Roundabout 15/11/2000 Wed 20:25	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections Not Required	Dusk/dawn Dry Clear	Utility (1) Bicycle (2) Total=2	NW SW	Driver Bicyclist	21 32	F M	Not injured Injured, medical treat	32000037967
VCD ED3 203 O6 149630 0.049 Km	On Lime Avenue btw Ranfurly Way and Lime Avenue (50 m NE of Ranfurly)	Serious injury No control 2/12/1995 Sat 15:15	0 killed 1 serious inj. 0 other inj. 1 not inj.	147 Vehicle strikes another ve Vehicle foward departing Commercial(includes shops,sc Collision on first half of carriag	Day Dry Clear	Bicycle (1) Car (2) Total=2	E S	Bicyclist Driver	20 25	M F	Sent to hospital Not injured	N1995039119 1205/1843
VCD ED3 203 O6 149630 0.227 Km	At Lime Avenue and Tenth Street	Other Injury No control 26/3/1996 Tue 15:05	0 killed 0 serious inj. 1 other inj. 2 not inj.	148 Vehicle off footpath strikes	Day Dry Clear	Bicycle (1) Car (2) Total=2	NE NW	Passenger Bicyclist Driver	18 23 21	M F M	Not injured Injured, medical treat Not injured	N1996009979 1218/1205
VCD ED3 203 O7 2610 2.290 Km	At Sturt Hwy and Twelfth Street	Other Injury No control 8/1/1992 Wed 08:55	0 killed 0 serious inj. 1 other inj. 1 not inj.	136 Right turn sideswipe Intersection	Day Dry Clear	Bicycle (1) Car (2) Total=2	N N	Bicyclist Driver	18 18	F F	Injured, medical treat Not injured	N1992001770 1130/1840
VCD ED3 203 O7 2610 2.290 Km	At Sturt Hwy and Twelfth Street	Other Injury Giveway sign 18/2/1991 Mon 18:20	0 killed 0 serious inj. 1 other inj. 2 not inj.	110 Cross traffic(intersections	Day Dry Clear	Station wagon Utility (1) Bicycle (8) Total=3	W N E	Bicyclist Driver Driver	16 38 30	M M M	Injured, medical treat Not injured Not injured	N1991007164 1112/115
VCD ED3 203 O7 2610 2.290 Km	At Sturt Hwy and Twelfth Street	Other Injury No control 31/8/1998 Mon 15:05	0 killed 0 serious inj. 1 other inj. 1 not inj.	148 Vehicle off footpath strikes	Day Dry Clear	Bicycle (1) Car (2) Total=2	W S	Bicyclist Driver	50 51	M F	Injured, medical treat Not injured	N1998029822 1261/1502
VCD ED3 203 O7 2610 2.290 Km	At Sturt Hwy and Twelfth Street	Other Injury No control 19/2/1997 Wed 17:00	0 killed 0 serious inj. 2 other inj. 0 not inj.	147 Vehicle strikes another ve INVALID_ID:H01 Private driveway/laneway On footpath	Day Dry Clear	Taxi (1) Bicycle (2) Total=2	E S	Driver Bicyclist	43 81	M M	Injured, medical treat Injured, medical treat	N1997006862 1231/1224
VCD ED3 203 O7 2610 2.290 Km	At Sturt Hwy and Twelfth Street	Other Injury No control 31/12/1996 Tue 12:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	173 Right off carriageway into Hit Traffic island Traffic island mounted/struck	Day Dry Clear	Bicycle (1) Motor cycle (8) Total=2	N N	Bicyclist Motor cyclist	16 47	M M	Not injured Injured, medical treat	N1997015736 1233/1770
VCD ED3 203 O7 2610 2.520 Km	At Sturt Hwy and Thirteenth Street	Other Injury Stop go lights 1/11/1999 Mon 08:00	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Bicycle (2) Utility (1) Total=2	W N	Bicyclist Driver	50 51	M M	Injured, medical treat Not injured	N1999036697 1288/79
VCD ED3 203 O7 2610 2.520 Km	At Sturt Hwy and Thirteenth Street	Other Injury Stop go lights 20/8/1998 Thu 08:45	0 killed 0 serious inj. 1 other inj. 1 not inj.	121 Right through	Day Dry Clear	Car (1) Bicycle (2) Total=2	E W	Driver Bicyclist	62 13	M M	Not injured Injured, medical treat	N1998029302 1261/1496
VCD ED3 203 O7 2610 2.520 Km	At Sturt Hwy and Thirteenth Street	Serious injury Stop go lights 17/4/1998 Fri 18:00	0 killed 1 serious inj. 1 other inj. 0 not inj.	110 Cross traffic(intersections	Day Dry Clear	Car (2) Bicycle (1) Total=2	N E	Bicyclist Driver	13 19	F M	Sent to hospital Injured, medical treat	N1998014791 1254/875

Location is LGA(s): MILDURA; Query: Bicyclist casualty accidents - all ages; Date range is 01/01/1991 to 31/12/2999; Sorted by location.

Map Refs / Route Number / Km from Start	Location	Severity / Traffic Control / Date/Time	Injury Summary	DCA/Accident Classification / Sub Types	Light / Road / Atmosphere	Vehicles/ (+ DCA arrow) / Total Vehicles	Initial Directions	Road User	Age	Sex	Injury Level	Accident No. / Police form / image no.
VCD ED3 203 O7 2610 2.559 Km	On Sturt Highway btw Sturt Highway and Sturt Highway (39 m SW of Thirteenth)	Other Injury No control 16/6/1992 Tue 14:50	0 killed 0 serious inj. 1 other inj. 0 not inj.	160 Vehicle collides with vehicl Intersection	Day Dry Clear	Bicycle (1) Car (2) Total=2	N N	Bicyclist	30	M	Injured, medical treat	N1992021121 1138/187
VCD ED3 203 O7 183784 1.240 Km	On Thirteenth Street btw Sturt Highway and Unnamed (40 m NW of Unnamed)	Other Injury No control 19/11/1998 Thu 09:00	0 killed 0 serious inj. 1 other inj. 2 not inj.	136 Right turn sideswipe Laneway Mid block	Day Dry Clear	Station wagon Bicycle (1) Total=2	W W	Passenger Bicyclist Driver	24 42 32	F M M	Not injured Injured, medical treat Not injured	N1998040951 1267/343
VCD ED3 203 O7 183784 1.527 Km	On Thirteenth Street btw Wattle Avenue and Langtree Parade (40 m SE of Wattle)	Other Injury No control 20/5/1996 Mon 19:40	0 killed 0 serious inj. 1 other inj. 1 not inj.	140 U turn Hit by veh frm dir opposite to i	Dark, street lig Dry Clear	Car (1) Bicycle (2) Total=2	E W	Driver Bicyclist	54 40	M M	Not injured Injured, medical treat	N1996016675 1215/962
VCD ED3 203 O9 112505 0.000 Km	At Burrows Street and San Mateo Avenue	Other Injury No control 30/9/1998 Wed 15:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	174 Out of control on carriage	Day Dry Clear	Not known (8) Bicycle (1) Total=2	E S	Not known Bicyclist	? 41	U M	Not injured Injured, medical treat	N1998035641 1264/1112
VCD ED3 203 O9 (O10) 130334 8.106 Km	On Fourteenth Street btw San Mateo Avenue and Dennis Avenue (67 m NW of Dennis)	Serious injury No control 20/6/1995 Tue 13:15	0 killed 1 serious inj. 0 other inj. 1 not inj.	147 Vehicle strikes another ve INVALID_ID:H01 Commercial(includes shops,sc Collision on first half of carriag	Day Dry Clear	Car (1) Bicycle (2) Total=2	N W	Driver Bicyclist	45 36	M F	Not injured Sent to hospital	N1995020625 1196/495
VCD ED3 203 O9 130334 8.307 Km	At Fourteenth Street and San Mateo Avenue	Other Injury Roundabout 6/6/1998 Sat 21:00	0 killed 0 serious inj. 1 other inj. 2 not inj.	110 Cross traffic(intersections	Dark, street lig Wet Clear	Car (1) Bicycle (2) Total=2	E N	Passenger Driver Bicyclist	16 40 34	F F M	Not injured Not injured Injured, medical treat	N1998020693 1259/114
VCD ED3 203 O10 127566 7.150 Km	At Etiwanda Avenue and Fourteenth Street	Other Injury Roundabout 16/9/1996 Mon 08:50	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Car (1) Bicycle (2) Total=2	S E	Driver Bicyclist	25 36	M M	Not injured Injured, medical treat	N1996031515 1220/673
VCD ED3 203 P4 176224 0.758 Km	On Seventh Street btw Chaffey Avenue and Seventh Street (20 m SE of Chaffey)	Other Injury No control 23/7/1996 Tue 08:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	163 Vehicle strikes door of par	Day Dry Clear	Utility (2) Bicycle (1) Total=2	W W	Driver Bicyclist	40 68	M M	Not injured Injured, medical treat	N1996026184 1218/841
VCD ED3 203 P4 177613 0.048 Km	On Sixth Street btw Sixth Street and Cureton Avenue Sixth Street (49 m NW of Cureton)	Serious injury No control 14/2/1991 Thu 01:55	0 killed 1 serious inj. 0 other inj. 0 not inj.	160 Vehicle collides with vehicl Kerb parking parallel	Dark, street lig Dry Clear	Bicycle (1) Utility (2) Total=2	W W	Bicyclist	27	M	Sent to hospital	N1991006168 1111/611
VCD ED3 203 P5 126036 1.691 Km	At Eighth Street and Pine Avenue	Serious injury No control 2/5/2000 Tue 15:50	0 killed 1 serious inj. 0 other inj. 3 not inj.	147 Vehicle strikes another ve Vehicle foward departing Commercial(includes shops,sc On footpath	Day Dry Clear	Car (1) Bicycle (2) Total=2	W N	Passenger Passenger Driver Bicyclist	62 55 59 12	F F F M	Not injured Not injured Not injured Sent to hospital	32000015490
VCD ED3 203 P6 2610 1.365 Km	At Sturt Hwy and Eighth Street	Other Injury No control 13/2/1992 Thu 12:37	0 killed 0 serious inj. 1 other inj. 2 not inj.	143 Entering parking Kerb parking parallel	Day Dry Clear	Bicycle (2) Car (1) Total=2	W W	Passenger Bicyclist Driver	63 27 62	F M M	Not injured Injured, medical treat Not injured	N1992005294 1130/299
VCD ED3 203 P6 2610 1.605 Km	At Sturt Hwy and Ninth Street	Other Injury No control 4/9/1992 Fri 14:20	0 killed 0 serious inj. 1 other inj. 0 not inj.	174 Out of control on carriage Kerb (roadside)	Day Dry Clear	Bicycle (1) Total=1	E	Bicyclist	31	M	Injured, medical treat	N1992031868 1140/1158

Location is LGA(s): MILDURA; Query: Bicyclist casualty accidents - all ages; Date range is 01/01/1991 to 31/12/2999; Sorted by location.

Map Refs / Route Number / Km from Start	Location	Severity / Traffic Control / Date/Time	Injury Summary	DCA/Accident Classification / Sub Types	Light / Road / Atmosphere	Vehicles/ (+ DCA arrow) / Total Vehicles	Initial Directions	Road User	Age	Sex	Injury Level	Accident No. / Police form / image no.
VCD ED3 203 P6 2610 1.791 Km	On Sturt Highway btw Sturt Highway and Sturt Highway (41 m NE of Tenth)	Other Injury No control 25/2/1993 Thu 16:00	0 killed 0 serious inj. 1 other inj. 1 not inj.	147 Vehicle strikes another ve Vehicle foward departing Private driveway/laneway	Day Dry Clear	Not known (1) Bicycle (2) Total=2	W N	Not known Bicyclist	? 13	U M	Not injured Injured, medical treat	N1993015402 1154/1280
VCD ED3 203 P6 147869 0.227 Km	At Langtree Avenue and Tenth Street	Serious injury Unknown 24/2/1999 Wed 17:10	0 killed 1 serious inj. 0 other inj. 0 not inj.	174 Out of control on carriage No vehicle mounted/struck	Day Unknown Clear	Bicycle (1) Total=1	NW	Bicyclist	15	M	Sent to hospital	N1999012796 1272/1760
VCD ED3 203 P6 149630 0.449 Km	At Lime Avenue and Ninth Street	Other Injury Roundabout 17/2/2000 Thu 13:10	0 killed 0 serious inj. 1 other inj. 1 not inj.	121 Right through Not Required	Day Dry Clear	Car (2) Bicycle (1) Total=2	S N	Driver Bicyclist	77 24	F F	Not injured Injured, medical treat	32000007305
VCD ED3 203 P6 152064 0.449 Km	At Madden Avenue and Ninth Street	Other Injury No control 18/9/2000 Mon 09:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	148 Vehicle off footpath strikes Not Required	Day Dry Clear	Bicycle (1) Not known (2) Total=2	SW NE	Bicyclist Not known	50 40	F M	Injured, medical treat Not injured	32000031750
VCD ED3 203 P7 2610 2.060 Km	At Sturt Hwy and Eleventh Street East	Serious injury Other 12/10/1997 Sun 13:30	0 killed 1 serious inj. 0 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Bicycle (2) Car (1) Total=2	N E	Bicyclist Driver	11 70	M F	Sent to hospital Not injured	N1997035771 1244/452
VCD ED3 203 P7 2610 2.060 Km	At Sturt Hwy and Eleventh Street East	Other Injury Stop go lights 24/11/1997 Mon 15:50	0 killed 0 serious inj. 1 other inj. 3 not inj.	110 Cross traffic(intersections	Day Dry Clear	Bicycle (1) Car (2) Total=2	E N	Passenger Passenger Bicyclist Driver	19 16 12 18	F M F F	Not injured Not injured Injured, medical treat Not injured	N1997041691 1247/1701
VCD ED3 203 P7 2610 2.060 Km	At Sturt Hwy and Eleventh Street East	Other Injury Stop go lights 14/5/1999 Fri 14:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	121 Right through	Day Dry Clear	Utility (1) Bicycle (2) Total=2	NW SE	Driver Bicyclist	18 19	M M	Not injured Injured, medical treat	N1999018283 1277/92
VCD ED3 203 P7 5179 0.647 Km	At Eleventh Street East and San Mateo Avenue	Serious injury Giveway sign 12/9/1994 Mon 10:05	0 killed 1 serious inj. 0 other inj. 2 not inj.	110 Cross traffic(intersections	Day Dry Clear	Car (1) Bicycle (2) Total=2	N W	Passenger Driver Bicyclist	29 40 20	F F M	Not injured Not injured Sent to hospital	N1994029582 1180/617
VCD ED3 203 P7 5179 0.647 Km	At Eleventh Street East and San Mateo Avenue	Serious injury Roundabout 11/4/1991 Thu 07:45	0 killed 1 serious inj. 0 other inj. 2 not inj.	110 Cross traffic(intersections	Day Dry Clear	Station wagon Bicycle (2) Total=2	E N	Passenger Driver Bicyclist	19 22 26	M M M	Not injured Not injured Sent to hospital	N1991013732 1114/1439
VCD ED3 203 P7 5179 0.647 Km	At Eleventh Street East and San Mateo Avenue	Other Injury Roundabout 9/11/2000 Thu 15:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections Not Required	Day Dry Clear	Car (1) Bicycle (2) Total=2	E N	Driver Bicyclist	57 63	M M	Not injured Injured, medical treat	32000037395
VCD ED3 203 P7 174714 0.372 Km	On San Mateo Avenue btw Eleventh Street East and San Mateo Avenue (20 m NE of Eleventh)	Other Injury No control 24/5/1993 Mon 16:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	147 Vehicle strikes another ve Vehicle foward departing Private driveway/laneway	Day Dry Clear	Bicycle (1) Car (2) Total=2	W N	Bicyclist Driver	15 44	M M	Injured, medical treat Not injured	N1993018133 1156/855
VCD ED3 203 P8 174714 0.123 Km	At San Mateo Avenue and Twelfth Street	Serious injury Roundabout 29/4/1994 Fri 15:50	0 killed 1 serious inj. 0 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Station wagon Bicycle (2) Total=2	S E	Driver Bicyclist	48 15	M F	Not injured Sent to hospital	N1994014513 1172/1345

Location is LGA(s): MILDURA; Query: Bicyclist casualty accidents - all ages; Date range is 01/01/1991 to 31/12/2999; Sorted by location.

Map Refs / Route Number / Km from Start	Location	Severity / Traffic Control / Date/Time	Injury Summary	DCA/Accident Classification / Sub Types	Light / Road / Atmosphere	Vehicles/ (+ DCA arrow) / Total Vehicles	Initial Directions	Road User	Age	Sex	Injury Level	Accident No. / Police form / image no.
VCD ED3 203 P8 174714 0.123 Km	At San Mateo Avenue and Twelfth Street	Other Injury Unknown 2/3/1993 Tue 22:10	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Dark, street lig Dry Clear	Station wagon Bicycle (2) Total=2	E N	Driver Bicyclist	62 17	F F	Not injured Injured, medical treat	N1993008195 1152/959
VCD ED3 203 P8 183784 0.642 Km	At Thirteenth Street and Unnamed	Serious injury Roundabout 1/3/1995 Wed 19:00	0 killed 1 serious inj. 0 other inj. 1 not inj.	110 Cross traffic(intersections	Dusk/dawn Wet Snowing	Car (1) Bicycle (2) Total=2	W S	Driver Bicyclist	65 14	M M	Not injured Sent to hospital	N1995038131 1200/338
VCD ED3 203 P8 183784 0.642 Km	At Thirteenth Street and Unnamed	Other Injury Roundabout 29/5/1996 Wed 17:45	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Bicycle (2) Car (1) Total=2	S W	Bicyclist Driver	21 38	F M	Injured, medical treat Not injured	N1996019198 1215/944
VCD ED3 203 Q5 176224 0.084 Km	On Seventh Street btw Seventh Street and Sturt Highway (53 m SE of Langtree)	Other Injury No control 16/8/1995 Wed 09:15	0 killed 0 serious inj. 1 other inj. 1 not inj.	163 Vehicle strikes door of par	Day Dry Clear	Bicycle (1) Car (2) Total=2	S S	Bicyclist Driver	19 28	F M	Injured, medical treat Not injured	N1995026531 1199/519
VCD ED3 203 Q6 126036 0.935 Km	On Eighth Street btw Orange Avenue and Lemon Avenue (50 m NW of Lemon)	Other Injury No control 3/3/1994 Thu 15:15	0 killed 0 serious inj. 1 other inj. 1 not inj.	148 Vehicle off footpath strikes	Day Dry Clear	Bicycle (1) Utility (2) Total=2	N S	Bicyclist Driver	27 51	M F	Injured, medical treat Not injured	N1994010232 1171/315
VCD ED3 203 Q6 126036 1.176 Km	On Eighth Street btw Sturt Highway and Madden Avenue (30 m NW of Madden)	Other Injury No control 19/5/1991 Sun 16:00	0 killed 0 serious inj. 1 other inj. 0 not inj.	174 Out of control on carriage No vehicle mounted/struck	Day Dry Clear	Bicycle (1) Total=1	W	Bicyclist	48	M	Injured, medical treat	N1991028224 1121/901
VCD ED3 203 Q7 161825 0.606 Km	At Ninth Street and Victor Avenue	Serious injury No control 13/3/1992 Fri 16:00	0 killed 1 serious inj. 0 other inj. 1 not inj.	113 Right near (intersections o	Day Dry Clear	Bicycle (1) Car (2) Total=2	E N	Bicyclist Driver	13 25	M M	Sent to hospital Not injured	N1992008534 1134/874
VCD ED3 203 Q7 174714 0.577 Km	At San Mateo Avenue and Tenth Street	Other Injury No control 6/4/1995 Thu 19:55	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Bicycle (2) Station wagon Total=2	E S	Bicyclist Driver	14 50	M M	Injured, medical treat Not injured	N1995011418 1192/272
VCD ED3 203 Q7 174714 0.577 Km	At San Mateo Avenue and Tenth Street	Serious injury Roundabout 6/2/1991 Wed 13:08	0 killed 1 serious inj. 0 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Car (1) Bicycle (2) Total=2	N W	Driver Bicyclist	51 23	F M	Not injured Sent to hospital	N1991006184 1111/621
VCD ED3 203 Q8 5179 1.025 Km	On Eleventh Street East btw Eleventh Street East and Eleventh Street East (115 m SE of Almond)	Other Injury No control 8/3/2001 Thu 08:57	0 killed 0 serious inj. 1 other inj. 3 not inj.	147 Vehicle strikes another ve Vehicle foward departing Laneway On footpath	Day Dry Clear	Bicycle (2) Car (1) Total=2	W S	Passenger Passenger Bicyclist Driver	? ? 20 36	F F M F	Not injured Not injured Injured, medical treat Not injured	32001008496
VCD ED3 203 Q9 127566 8.069 Km	On Etiwanda Avenue btw Etiwanda Avenue and Etiwanda Avenue (15 m SW of Unnamed)	Serious injury No control 11/1/1993 Mon 18:35	0 killed 1 serious inj. 0 other inj. 1 not inj.	134 Lane change right (not ov Mid block	Day Dry Clear	Bicycle (1) Car (2) Total=2	N N	Bicyclist Driver	5 21	M M	Sent to hospital Not injured	N1993003760 1150/1055
VCD ED3 203 Q9 127566 8.285 Km	At Etiwanda Avenue and Hector Street	Other Injury No control 22/6/1993 Tue 08:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Car (1) Bicycle (2) Total=2	N W	Driver Bicyclist	35 ?	M F	Not injured Injured, medical treat	N1993021078 1158/1289

Location is LGA(s): MILDURA; Query: Bicyclist casualty accidents - all ages; Date range is 01/01/1991 to 31/12/2999; Sorted by location.

Map Refs / Route Number / Km from Start	Location	Severity / Traffic Control / Date/Time	Injury Summary	DCA/Accident Classification / Sub Types	Light / Road / Atmosphere	Vehicles/ (+ DCA arrow) / Total Vehicles	Initial Directions	Road User	Age	Sex	Injury Level	Accident No. / Police form / image no.
VCD ED3 203 Q11 (P11) 5180 3.488 Km	On Buronga-Mildura South Roa btw Buronga-Mildura South Roa and Buronga-Mildura South Roa (99 m NE of Fourteenth)	Other Injury No control 16/12/1992 Wed 08:35	0 killed 0 serious inj. 1 other inj. 1 not inj.	148 Vehicle off footpath strikes	Day Dry Clear	Car (2) Bicycle (1) Total=2	N W	Driver Bicyclist	? 9	U F	Not injured Injured, medical treat	N1992042287 1149/45
VCD ED3 203 R7 126036 0.476 Km	At Eighth Street and Unnamed	Other Injury No control 10/8/1991 Sat 07:55	0 killed 0 serious inj. 1 other inj. 2 not inj.	113 Right near (intersections o	Day Dry Fog	Taxi (2) Bicycle (1) Total=2	E S	Passenger Driver Bicyclist	? 29 62	M M M	Not injured Not injured Injured, medical treat	N1991028217 1121/905
VCD ED3 203 R8 127566 8.841 Km	At Etiwanda Avenue and Ninth Street	Other Injury Giveway sign 15/6/1995 Thu 07:00	0 killed 0 serious inj. 1 other inj. 1 not inj.	113 Right near (intersections o	Dusk/dawn Dry Clear	Car (1) Bicycle (2) Total=2	E N	Driver Bicyclist	69 18	M M	Not injured Injured, medical treat	N1995019639 1196/505
VCD ED3 203 R9 5179 1.635 Km	At Eleventh Street East and Cleary Avenue	Other Injury No control 3/7/1997 Thu 13:55	0 killed 0 serious inj. 1 other inj. 1 not inj.	136 Right turn sideswipe Vehicle within intersection Intersection	Day Dry Clear	Bicycle (1) Utility (2) Total=2	E E	Bicyclist Driver	82 49	M M	Injured, medical treat Not injured	N1997023047 1239/907
VCD ED3 203 R9 5179 1.936 Km	At Eleventh Street East and Buronga-Mildura South Roa	Other Injury No control 22/1/1993 Fri 15:45	0 killed 0 serious inj. 1 other inj. 0 not inj.	174 Out of control on carriage No vehicle mounted/struck	Day Wet Raining	Bicycle (1) Total=1	E	Bicyclist	20	M	Injured, medical treat	N1993003761 1150/1044
VCD ED3 203 R9 126227 6.043 Km	On Eleventh Street btw Buronga-Mildura South Roa Eleventh Street East and Rydal Avenue (30 m SE of Eleventh)	Other Injury No control 2/5/1991 Thu 17:00	0 killed 0 serious inj. 1 other inj. 1 not inj.	147 Vehicle strikes another ve Vehicle reverse departing Private driveway/laneway Collision on first half of carriag	Day Dry Clear	Car (1) Bicycle (2) Total=2	S E	Driver Bicyclist	22 19	M F	Not injured Injured, medical treat	N1991015879 1116/68
VCD ED3 203 S7 5180 0.638 Km	At Buronga-Mildura South Roa and Etiwanda Avenue	Serious injury Giveway sign 11/4/1993 Sun 07:25	0 killed 1 serious inj. 0 other inj. 3 not inj.	110 Cross traffic(intersections	Day Dry Clear	Bicycle (1) Car (2) Total=2	N W	Passenger Passenger Bicyclist Driver	33 30 42 27	M M M M	Not injured Not injured Sent to hospital Not injured	N1993015401 1154/1287
VCD ED3 204 D12 146767 1.210 Km	At Koorlong Avenue and Sixteenth Street	Other Injury Stop sign 13/11/1991 Wed 15:30	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Car (2) Bicycle (1) Total=2	N E	Driver Bicyclist	74 41	F M	Not injured Injured, medical treat	N1991039049 1126/1084
VCD ED3 204 F8 144290 3.450 Km	On Karadoc Avenue btw Karadoc Avenue and Karadoc Avenue (7 m NE of Belleview)	Serious injury No control 7/2/1992 Fri 16:25	0 killed 1 serious inj. 0 other inj. 1 not inj.	140 U turn Hit by veh from same dir as init	Day Dry Clear	Car (2) Bicycle (1) Total=2	S S	Driver Bicyclist	22 8	M M	Not injured Sent to hospital	N1992005019 1130/350
VCD ED3 204 F9 2530 531.296 Km	On Calder Highway Inbound Se btw Calder Highway Inbound Se and Calder Highway Inbound Se (60 m NW of John)	Other Injury No control 15/2/2000 Tue 17:20	0 killed 0 serious inj. 1 other inj. 3 not inj.	148 Vehicle off footpath strikes Median	Day Dry Clear	Bicycle (1) Car (2) Total=2	S NW	Passenger Passenger Bicyclist Driver	? ? 10 44	F M M M	Not injured Not injured Injured, medical treat Not injured	32000008759
VCD ED3 204 G11 2530 530.488 Km	On Calder Highway btw Calder Highway and Calder Highway (57 m SE of Myrtle)	Other Injury No control 4/9/1993 Sat 08:15	0 killed 0 serious inj. 1 other inj. 0 not inj.	160 Vehicle collides with vehicl Kerb parking parallel	Day Dry Clear	Bicycle (1) Car (2) Total=2	E E	Bicyclist	18	M	Injured, medical treat	N1993030626 1162/796
VCD ED3 204 H12 2530 529.794 Km	At Calder Hwy and Morpung Avenue	Other Injury No control 18/3/1991 Mon 17:15	0 killed 0 serious inj. 1 other inj. 1 not inj.	110 Cross traffic(intersections	Day Dry Clear	Bicycle (1) Car (2) Total=2	S E	Bicyclist Driver	50 40	M M	Injured, medical treat Not injured	N1991010115 1113/689

Location is LGA(s): MILDURA; Query: Bicyclist casualty accidents - all ages; Date range is 01/01/1991 to 31/12/2999; Sorted by location.

Map Refs / Route Number / Km from Start	Location	Severity / Traffic Control / Date/Time	Injury Summary	DCA/Accident Classification / Sub Types	Light / Road / Atmosphere	Vehicles/ (+ DCA arrow) / Total Vehicles	Initial Directions	Road User	Age	Sex	Injury Level	Accident No. / Police form / image no.
VCD ED3 204 K6 126227 3.428 Km	At Eleventh Street and Koorlong Avenue	Fatal No control 2/8/1995 Wed 17:02	1 killed 0 serious inj. 0 other inj. 1 not inj.	136 Right turn sideswipe Intersection	Day Dry Clear	Bicycle (1) Station wagon Total=2	SE SE	Bicyclist Driver	70 50	M F	Killed or died within 3 Not injured	N1995025018 1194/840
VCD ED3 206 B3 118447 0.475 Km	On Commercial Street btw Commercial Street and Commercial Street (18 m W of Chiselett)	Other Injury No control 20/3/2000 Mon 08:35	0 killed 0 serious inj. 1 other inj. 2 not inj.	147 Vehicle strikes another ve Vehicle foward departing Private driveway/laneway On footpath	Day Dry Clear	Car (1) Bicycle (2) Bicycle (8) Total=3	N E E	Driver Bicyclist Bicyclist	18 14 13	F M M	Not injured Injured, medical treat Not injured	32000010708
VCD ED3 206 B3 131386 0.787 Km	On Game Street btw Game Street and Game Street (50 m NE of Surgey)	Serious injury No control 2/3/1991 Sat 19:35	0 killed 1 serious inj. 0 other inj. 1 not inj.	130 Rear end (vehicles in sam Mid block	Dusk/dawn Dry Clear	Car (1) Bicycle (2) Total=2	W W	Driver Bicyclist	22 65	F M	Not injured Sent to hospital	N1991008198 1112/1028
VCD ED3 206 C3 2530 547.695 Km	On Calder Highway btw Calder Highway and Calder Highway (100 m S of Game)	Other Injury No control 6/3/1998 Fri 06:50	0 killed 0 serious inj. 1 other inj. 1 not inj.	148 Vehicle off footpath strikes	Dusk/dawn Dry Clear	Bicycle (2) Utility (1) Total=2	S E	Bicyclist Driver	64 58	F M	Injured, medical treat Not injured	N1998008426 1251/501
VCD ED3 207 L2 160698 1.481 Km	On Nardoo Street btw Coorong Avenue and Nardoo Street (100 m W of Bromfield)	Other Injury No control 18/6/1998 Thu 08:30	0 killed 0 serious inj. 1 other inj. 2 not inj.	147 Vehicle strikes another ve Footpath unknown	Day Dry Clear	Car (1) Bicycle (2) Total=2	S E	Passenger Driver Bicyclist	? 35 12	U M F	Not injured Not injured Injured, medical treat	N1998022877 1259/140
VCD ED3 207 N2 129490 0.219 Km	On Fitzroy Avenue btw Calder Highway Fitzroy Avenue and Fitzroy Avenue (36 m W of Heath)	Serious injury No control 30/7/1997 Wed 16:00	0 killed 1 serious inj. 0 other inj. 1 not inj.	147 Vehicle strikes another ve Vehicle foward departing Commercial(includes shops,sc Collision on first half of carriag	Day Dry Clear	Car (1) Bicycle (2) Total=2	S E	Driver Bicyclist	36 14	M M	Not injured Sent to hospital	N1997027886 1241/912
VCD ED3 207 O2 135469 0.233 Km	At Guava Street and Heytsbury Avenue	Serious injury No control 2/11/2000 Thu 08:45	0 killed 1 serious inj. 0 other inj. 0 not inj.	174 Out of control on carriage Not Required	Day Dry Clear	Bicycle (1) Total=1	NE	Bicyclist	12	M	Sent to hospital	32000036568
VCD ED3 207 P3 117883 1.398 Km	At Cocklin Avenue and Melia Avenue	Serious injury No control 26/2/1992 Wed 08:35	0 killed 1 serious inj. 0 other inj. 1 not inj.	113 Right near (intersections o	Day Dry Clear	Utility (2) Bicycle (1) Total=2	N E	Bicyclist Driver	9 37	M M	Sent to hospital Not injured	N1992006783 1130/268
VCD ED3 207 Q7 152580 0.439 Km	On Malkin Avenue btw Mallee Highway and Malkin Avenue (30 m S of Mallee)	Other Injury No control 18/10/1991 Fri 19:00	0 killed 0 serious inj. 1 other inj. 1 not inj.	120 Head on (not overtaking) Road straight at mid block	Day Dry Clear	Utility (2) Bicycle (1) Total=2	S N	Driver Bicyclist	19 5	M M	Not injured Injured, medical treat	N1991036940 1125/815
VCD ED3 207 R3 162667 0.706 Km	On Nursery Ridge Road btw Nursery Ridge Road and Nursery Ridge Road (50 m E of Pine)	Other Injury No control 13/10/1994 Thu 08:45	0 killed 0 serious inj. 1 other inj. 1 not inj.	130 Rear end (vehicles in sam Mid block	Day Unknown Not known	Car (1) Bicycle (2) Total=2	E E	Driver Bicyclist	? 10	U M	Not injured Injured, medical treat	N1994033950 1182/1053

The crashes on roads that make up local government area (lga) borders are allocated to both (or more) lgas. Double counting only occurs when two or more lgas are queried separately (not together).

Appendix D
Community Reference Group

Community Reference Group Meeting - Attendance List

Name	Organisation
Gary Schurr	Critical Mass Mildura
Stephen Bibby	Irymple South Primary
Anne Cunningham	Merbein Development Association
Peter Winton	Mildura-Coomealla Cycling Club
Kevin Bottams	MRCC - Engineering
Murali KG	MRCC - Engineering
Nathan Ganeshanathan	MRCC - Engineering
Bob Jones	MRCC - Recreation
Jodie Prior	MRCC - Recreation
Chris Davis	MRCC/Roadsafe
Betty Krake	Red Cliffs Chamber of Commerce
Gordon Wake	Red Cliffs Chamber of Commerce
Jim Kirkpatrick	Southcorp Wines
Jack Lokan	St Josephs College
Henry Turnbull	Turnbull Fenner
Ross Thomson	Turnbull Fenner
Dennis Jewell	VicRoads

Appendix E
School Survey

Mildura Rural City Council

MILDURA BICYCLE PLAN
SCHOOL CONSULTATION SURVEY

TurnbullFenner
Traffic Engineers and Transport Planners

Turnbull Fenner has been engaged by Mildura Rural City Council to prepare the Mildura Bicycle Plan. The information provided by you will assist in developing a bicycle plan that meets the needs of school cyclists in Mildura. Please complete this questionnaire, fold twice and staple, then return by reply paid mail (no stamp required) by Friday, March 22, 2002.

1. Name of School: _____

2. Address of School: _____

3. Contact name and phone number: _____

4. How many students attend this school campus? _____

5. What year levels does this school cover? _____

6. How many students usually ride bicycles to school? (Estimate the number of bicycles in the bicycle parking area on a no-rainy day.)

_____

7. Does this school participate in a Bicycle Education program and to which year levels is it taught?

_____

8. Please specify any commonly used cycle routes used by students attending this school.

_____

_____

_____

_____

_____

9. Please specify any dangerous or difficult locations encountered by cyclists attending this school (and if any known accidents please specify details if possible).

_____

_____

_____

_____

_____

_____

continued over page…

10. Are there any other issues concerning school cycling that you would like to discuss.

_____

_____

_____

_____

_____

_____

You may wish to attach an extra sheet of paper if insufficient space is provided.

Thank you for your time.

Mildura Rural City Council

TurnbullFenner
Traffic Engineers and Transport Planners

SCHOOL BIKE RIDER SURVEY

To be filled in by all teachers and students who ride to school

Mildura Rural City Council is preparing a Bike Plan that will be used in the development of facilities and a road network for cyclists in the municipality. It is extremely important for the safety of cyclists to collect accurate information from all student and teacher bike riders.

Please assist by filling out the survey and returning it immediately to your teacher.

1. **School** .....

2. **What Street do you live in** .....

3. **Student/Teacher Who Rides** Age..... Male/Female

4. **What days do you ride to school?** (Please tick appropriate box/boxes)

Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Only Occasionally ☐

5. **Do you ride?** All year round ☐ Only in good weather ☐

6. **What type of bike do you ride?** BMX ☐ Mountain Bike ☐ Racer ☐

7. **Do you use the?** Road ☐ Footpath ☐ Both ☐

8. **Are there any safety problems with the way you take to school?** (Please list problems)

.....
.....
.....
.....

9. **Do you ride to any other place after school or on weekends? eg. pool, street, friends**

List where you go.....What day?.....
List where you go.....What day?.....
List where you go.....What day?.....
List where you go.....What day?.....

10. **List any improvements that could be made to improve the safety of your rides**

.....
.....
.....
.....

11. **Please draw the route you take to school on the map on the other side.**

Thank you for taking the time to complete this important survey.

Appendix F
School Survey Response

School	Address	Contact	Attendance	Grades	No. who ride to school	Bike Ed levels	Common routes	Dangerous locations	Comments
Mildura Baptist College	Karadoc Av/17th St, Irymple	Dorothy Jones 5024 5310	80	prep-12	0	n			
Ouyen Primary	Hunt St, Ouyen	Tim Kerridge 5092 1161	136	Prep-6	15	4-6	Hunt St Oke St Rowe St	Row St/Hunt St	
St Joseph's College Mildura	154 12th St, Mildura	Jack Lokan 50237255	820	7-12	30	8	Walnut Av 12th St	Walnut Av/11th St Walnut Av/13th St Deakin Av/12th St 11th St (Deakin-Walnut)	attended reference group
Mildura South Primary	1587 Deakin Av, Mildura	Tahnee Waterson 50233148	463	Prep-6	25	4	Deakin Av	Deakin Av/15th St	access to bikes for students who don't own any
Irymple South Primary	PO Box 716 Irymple 3498	Stephen Bibby 50245345	200	Prep-6	20	3-6	Belar Av 15th St Calder Hwy	15th St/Ginquam St	path maintenance paths on channel reserves education/simulation areas linemarking on roads
The Lake Primary	17th St, Cabarita	Tony Probert	145	Prep-6	10	4-6	17th St	Crossing 17th St 17th St/Regina Av 17th St/Ontario Av 17th St/Walnut Av	
MAES	52-54 13th St, Mildura	Chris Johnson	10	5-10	2	n			no permanent students
Irymple Secondary College	Karadoc Av, Irymple	5024 5403	630	7-10	40	n	Karadoc Av 15th St 16th St	15th St/Karadoc Av 16th St Karadoc Av	
Sacred Heart Primary	Olive Gr, Mildura		278	Prep-6	4	n	Walnut Av Deakin Av 12th St 11th St Olive Gr	12th St/Walnut Av	School crossing has been placed on Wlanut Av near this intersection to assist
Merbein Primary	Jenner St, Merbein	Jenene Worthington 5025 2295	190	Prep-6	25	5	Jenner St Channel Rd Commercial St Game St	Channel Rd Jenner St	trains shunt across Jenner Street blocking road roads very narrow with school traffic
Nangiloc/Colignan Primary	Kulkyne Way, Nangiloc	Eric Wright 5029 1483	70	Prep-6	15	3-6	Kulkyne Way	Kulkyne Way	Track should extend beside road for greater distance to carvan park as riding on road is dangerous for kids

Nangiloc/Colignan Primary School

Number of responses: 15

No.	ADDRESS	AGE	SEX		HOW OFTEN						WHEN		Q6			Q7			Q8 Safety Probelemts				Q9								Q10 - Improvements				Q11 - Cycle Route					
			M	F	M	T	W	T	F	OO	All Yr	GW	BMX	MB	R	Road	FP	Both	prob 1	prob 2	prob 3	prob 4	dest 1	dest 2	dest 3	dest 4	time 1	time 2	time 3	time 4	improvement 1	improvement 2	improveme	imrpoveme	route 1	route 2	route 3	route 4	route 5	route 6
1	Kulkyne Way																																	Kulkyne Way					
2	Brown Port Road	11		1								1		1			1						street				Friday				inform adult of ride				Kulkyne Way	Brownport Rd				
3	Kulkyne Way	12	1							1		1	1					1	path does not go to house	motorbikes on track			pool	Nangiloc	River		Saturday	weekend	any		new track	new signs								
4	Sculthorpe Road	12	1						1			1	1					1	bike track dirt too soft				road	track			Monday	Friday							Kulkyne Way	Sculthorpe Rd				
5	George Irwin Road	12		1						1		1		1				1					bush	river			mon, tue	wed, thu							Kulkyne Way	George Irwin Rd				
6	Boonoonar Road	10		1								1		1		1							friends	pool	Nangiloc	River	Saturday	Sunday	weekend	mon, tue	wear helmet				Kulkyne Way	Boonoonar Rd				
7		11	1						1		1		1					1	unsafe in the bush				shop	bike track	bush track	River	Friday	Saturday	Sunday	Sunday					Kulkyne Way					
8	Boonoonar Road	10	1									1		1		1							bike track	neighbour	friends	old house	Saturday	Sunday	Saturday	Saturday	wear helmet	wear safety clothes								
9	Iraak Rd	11	1									1		1		1							bush				weekend				offroad path to Iraak				Kulkyne Way	Iraak Rd				
10	Wanga Avenue	11		1								1		1					no bike track	too many trucks											need path to Colignan				Kulkyne Way					
11	Motorbike Street	11	1							1		1		1			1		path too soft				school	shop	grandparents	river	thu, fri	weekend	Sunday	Saturday	good bike				Kulkyne Way	Motorbike Street				
12	Kulkyne Way	11	1							1	1		1					1					bush				weekend								Kulkyne Way					
13	Kulkyne Way	10	1		1	1	1	1	1		1		1										friends	river			weekend	sunday			fix front brakes	new back tyre			Kulkyne Way					
14	George Irwin Road	11		1						1		1		1				1	watch out for motorbikes	no bike track to Colignan			street				weekend				fix wheel				Kulkyne Way	George Irwin Rd				
15	Iraak Rd	10	1							1		1		1				1					friends				Monday				need path to Iraak				Kulkyne Way					
	TOTAL		9	5	1	1	1	1	3	6	3	11	5	9	0	3	2	7																						

Age	M	F	Total
5			0
6			0
7			0
8			0
9			0
10	3	1	4
11	4	3	7
12	2	1	3
13			0
14			0
15			0
16			0
17			0
18+			0
Total	9	5	14

Unknown 1

Ouyen Primary School

Number of responses: 6

No.	ADDRESS	AGE	SEX		HOW OFTEN						WHEN		Q6			Q7			Q8 Safety Probelemts				Q9								Q10 - Improvements				Q11 - Cycle Route					
			M	F	M	T	W	T	F	OO	All Yr	GW	BMX	MB	R	Road	FP	Both	prob 1	prob 2	prob 3	prob 4	dest 1	dest 2	dest 3	dest 4	time 1	time 2	time 3	time 4	improvement 1	imrpovement 2	improveme	imrpoveme	route 1	route 2	route 3	route 4	route 5	route 6
1	Coustley Avenue	11	1		1	1	1	1	1		1			1				1	No footpaths in Loveridge St	Edge of Martin Av	Footpaths not solid	Cars park on bike track	cricket	pool	bike track	Blackburn Park	Saturday	every	any	any	fix potholes	fix road edges			Oke St	Hunt St	Martin Av	William St	Loveridge St	Coustley Av
2	Rowe Street	7		1		1	1	1	1			1		1				1					street	grandparents			Saturday	weekend							Oke St	Hunt St	Rowe St			
3	Cooper Street	7	1							1	1			1				1					Ticklebelly Hill	Town	Community Central	North West Rd	weekends	weekdays	Tuesday/Thursday		Rail crossings: Gregory St, Calder Hwy	North West Road narrow and winding			Oke St	Cooper St				
4	Cooper Street	10	1							1	1			1				1					Ticklebelly Hill	Town	Community Central	North West Rd	weekends	weekdays	Tuesday/Thursday		Rail crossings: Gregory St, Calder Hwy	North West Road narrow and winding			Oke St	Cooper St				
5	Cooper Street	40		1						1	1			1		1							Ticklebelly Hill	Town	Community Central	North West Rd	weekends	weekdays	Tuesday/Thursday		Rail crossings: Gregory St, Calder Hwy	North West Road narrow and winding			Oke St	Cooper St				
6	Fuller Street	9		1	1	1	1	1	1		1			1				1	Calder Hwy crossing	train tracks	school buses	cars driving to school	pool	friends	shops		every	every	weekends		encourage more to ride	highway crossing	shoulders		Hunt St	Rowe St	Fuller St			
	TOTAL		3	3	2	3	3	3	3	3	5	1	0	6	0	1	0	5																						

Age	M	F	Total
5			0
6			0
7	1	1	2
8			0
9		1	1
10	1		1
11	1		1
12			0
13			0
14			0
15			0
16			0
17			0
18+		1	1
Total	3	3	6

Unknown 0

The Lake Primary

Number of responses: 12

No.	ADDRESS	AGE	SEX		HOW OFTEN						WHEN		Q6			Q7			Q8 Safety Probelemts				Q9							Q10 - Improvements				Q11 - Cycle Route						
			M	F	M	T	W	T	F	OO	All Yr	GW	BMX	MB	R	Road	FP	Both	prob 1	prob 2	prob 3	prob 4	dest 1	dest 2	dest 3	dest 4	time 1	time 2	time 3	time 4	improvement 1	improvement 2	improveme	imrpoveme	route 1	route 2	route 3	route 4	route 5	route 6	route 7
1	Dickies Road	8	1		1	1	1	1	1		1		1					1	falling off track into overgrown plants				friends				any				need rail	more maintenance									
2	Dickies Road	10		1	1	1	1	1	1			1		1				1																						
3	17th Street	6			1	1	1	1	1		1		1				1		cars not aware of bikes at Flora/17th												bike signs on side roads										
4	12th Street	37								1		1		1		1			magpies	stones			bike paths				weeekends				more bike paths				17th St	Ontario Av	13th St	Walnut Av	12th St		
5	Regina Avenue	10	1		1	1	1	1	1		1			1				1																						
6	Regina Avenue	8		1	1	1	1	1	1		1			1				1																						
7	Regina Avenue	6		1	1	1	1	1	1		1			1				1																						
8	McEdwards Street	5	1		1		1	1	1				1					1	uneven surface												better surface										
9	17th Street/McEdward Street	5	1							1		1	1				1		track too cose to road												signs for drivers										
10	Dyar Avenue	5	1					1	1			1	1					1	Dyar Av traffic	track condition											wider road edges	more maintenance									
11	Lakeside Drive	9	1							1		1			1	1			crossing 17th St				friends				weekends								17th St	Regina Av	Lakeside Dr				
12	McKays Road	11		1						1				1			1																		17th St	McKays Rd					
	TOTAL		6	4	7	6	7	8	8	4	5	5	5	6	1	2	3	7																							

Age	M	F	Total
5	3		3
6		1	1
7			0
8	1	1	2
9	1		1
10	1	1	2
11		1	1
12			0
13			0
14			0
15			0
16			0
17			0
18+			0
Total	6	4	12

Unknown 2

Merbein Primary School

Number of responses: 8

No.	ADDRESS	AGE	SEX		HOW OFTEN						WHEN		Q6			Q7			Q8 Safety Probelemts				Q9							Q10 - Improvements				Q11 - Cycle Route					
			M	F	M	T	W	T	F	OO	All Yr	GW	BMX	MB	R	Road	FP	Both	prob 1	prob 2	prob 3	prob 4	dest 1	dest 2	dest 3	dest 4	time 1	time 2	time 3	time 4	improvement 1	improvement 2	improveme	imrpovem	route 1	route 2	route 3	route 4	route 5	route 6
1	Merbein Court	11	1		1	1	1	1	1		1		1					1	crossing roads				pool	shops	street		Monday, Wednesday	after school	weekend		make bike path	make bike jumps								
2	Game Street	10		1	1	1	1	1	1		1		1					1	bike brakes	waiting for trains			pool	friends							new brakes				Game St					
3	McEdwards Street	11	1		1	1	1	1	1			1	1					1					friends	shops	jumps behind school		Saturday	Saturday	any						Jenner St	Game St	Commerical St	Reilly St	McEdwards St	
4	Commercial Street	11	1		1	1	1	1	1		1		1					1					jumps behind school	river	street	high school	Saturday	Sunday			make a bike park & jumps				Channel Rd	Park St				
5	Game Street	11	1		1	1	1	1	1		1		1					1	school crossing				Mildura BMX track	jumps behind school	friends		Sunday	any	any		install a school crossing supervisor				Jenner St	Game St				
6	Honour Avenue	11		1						1				1				1					pool	grandparents	shops		holidays	weekends	holidays		more footpaths	more zebra crossings			Jenner St	Game St	Quandong Av	Yelta Rd	Honour Av	
7	Delamere Court	11		1							1			1				1													better balance									
8	Foster Street	10	1							1			1					1					friends				Saturday								Game St	Foster St				
	TOTAL		5	3	5	5	5	5	5	2	5	1	6	2	0	0	0	8																						

Age	M	F	Total
5			0
6			0
7			0
8			0
9			0
10	1	1	2
11	4	2	6
12			0
13			0
14			0
15			0
16			0
17			0
18+			0
Total	5	3	8

Unknown 0

Irymple Secondary College

Number of responses: 34

No.	ADDRESS	AGE	SEX		HOW OFTEN						WHEN		Q6			Q7			Q8 Safety Probelemts				Q9							Q10 - Improvements				Q11 - Cycle Route							
			M	F	M	T	W	T	F	OO	All Yr	GW	BMX	MB	R	Road	FP	Both	prob 1	prob 2	prob 3	prob 4	dest 1	dest 2	dest 3	dest 4	time 1	time 2	time 3	time 4	improvement 1	imrpovemet	improveme	imrpoveme	route 1	route 2	route 3	route 4	route 5	route 6	route 7	route 8
1	15th Street	13	1		1	1	1	1	1		1			1				1					friends				Saturday								Karadoc Av	15th St						
2	Koorlong Avenue	13	1		1	1	1	1	1		1			1				1					street	friends	shop										Karadoc Av	15th St	Koorlong Av					
3	Elouera Drive	14	1		1	1	1	1	1		1		1					1					pool	friends			any	any							Karadoc Av	15th St	Koorlong Av	Elouera Dr				
4	Belar Avenue	15	1		1	1	1	1	1		1			1				1	prickles												ride slower				Karadoc Av	15th St	Irymple Av	14th St	Belar Av			
5	Ontario Avenue	14	1							1				1			1		house at Etiwanda/15th St Mateo cureve between 15th & 16th				work				Monday, Wednesday				Mirror at Etiwanda				Karadoc Av	15th St	Ontario Av					
6	The Grange	15	1		1	1	1	1	1		1			1			1		footpaths too narrow	crossing 15th St	too much traffic		Kindergarten Jumps				Mon, Wed, Thur, Fri				wider footpaths	crossing at 15th			Karadoc Av	15th St	San Mateo Av	The Grange				
7	Hassell Court	15	1				1				1		1					1																	Karadoc Av	Armargh Cr	Lochead Av	15th St	Hassell St	Hassell Ct		
8	Langtree Parade	15	1							1	1		1										Apex Park	BMX track			weekends	weekends							Karadoc Av	15th St	Sandilong Av	14th St	Deakin Av	12th St	Langtree Pde	
9	15th Street	14	1							1		1		1				1	15th St												crossing 15th St				Karadoc Av	15th St						
10	15th Street	13	1		1	1	1	1	1		1		1																						Karadoc Av	15th St						
11	Caffrey Court	14	1		1	1	1	1	1			1		1				1													footpath				Karadoc Av	15th St	Koorlong Av					
12	Sandilong Avenue	15	1		1	1	1	1	1			1			1	1																			track	Sandilong Av						
13	5th St	14	1		1	1	1	1	1		1			1				1	crossing 15th	Karadoc St narrow			Grandparents								lights at 15th/Karadoc				Karadoc Av	5th St						
14	14th St	14	1		1	1	1	1	1		1			1		1							pool								lights at 15th/Karadoc	Karadoc too narrow			Karadoc Av	14th St						
15	Eunevu Drive	13	1		1	1	1	1	1		1		1					1					Harvey Norman				any								Karadoc Av	15th St	Etiwanda Av	14th St	Dennis Av	Eunevu Dr		
16	Dennis Avenue	15	1		1	1	1	1	1		1			1				1					friends	Tuesday/Thursday								more driver			Karadoc Av	15th St	San Mateo Av	14th St				
17	Etiwanda Avenue	52	1							1		1			1	1			traffic too close	traffic don't give way											widening	education			Karadoc Av	16th St	Etiwanda Av					
18	Waltham Avenue	13	1							1		1	1				1						bmx track	friends			Saturday	Saturday							Karadoc Av	15th St	San Mateo Av	Pasadena Gr	Waltham Av			
19	Sandilong Avenue	12	1		1	1	1	1	1			1		1				1	pot holes, bumpy				shops basketball	friends			any Mon, Wed,	any Tuesday/T			remove pot holes Widen Sandilong Av		more bike lanes		Karadoc Av	15th St	Sandilong Av					
20	Keam Street	13	1							1	1			1		1							stadium	footy oval	Target		Fri	hursday	Saturday						Karadoc Av	15th St	Sandilong Av	14th St	Etiwanda Av	Avocardo St	Keam Cr	Keam St
21	Weir Crescent	12	1							1				1															Tuesday/Thursday				Karadoc Av	15th St	San Mateo Av	Weir St				
22	Cowra Avenue	13	1							1		1	1					1					friends	basketball	football		any	Friday							Karadoc Av	16th St	Cowra Av					
23		12	1		1		1		1			1		1				1					friends				Friday								Karadoc Av	15th St						
24	Ginquam Avenue	12	1		1	1	1	1	1		1			1		1							shops				Saturday								Karadoc Av	15th St	Ginquam Av					
25	Elouera Drive	12	1		1	1	1	1	1		1			1				1					friends	street	pool	shool	weekend	weekend	weekend	weekday					Karadoc Av	15th St	Koorlong Av	Elouera Dr				
26	Karadoc Avenue	15	1							1		1		1				1	cars don't give way				friends				weekend				bikepath next to road				Karadoc Av							
27	Sandilong Avenue	15	1							1		1	1			1															widen road				track	Sandilong Av						
28	Ambleside Crescent	14	1		1	1	1	1	1		1			1				1																	Karadoc Av	15th St	Cowra Av	11th Street	Royal Av	Ambleside Cr		
29	Cowra Avenue	14	1		1	1	1	1	1		1			1				1																	Karadoc Av	15th St	Cowra Av					
30	Dartinunk Avenue	14	1							1	1		1						too many cars				friends								make bike track				Karadoc Av							
31	Sandilong Avenue	14	1							1		1		1				1	no footpaths				pool	friends			any	any							track	Sandilong Av						
32	Sandilong Avenue	14	1		1	1	1	1						1				1																	track	Sandilong Av						
33	11th St	43	1			1	1	1			1				1			1	traffic too close				mall	social			weekend	weekend							Karadoc Av	11th St						
34	Sandilong Avenue	12	1		1	1	1	1	1		1			1				1																	track	Sandilong Av						
	TOTAL		34	0	20	20	22	20	19	12	20	11	9	22	3	10	3	16																								

Age	M	F	Total
5			0
6			0
7			0
8			0
9			0
10			0
11			0
12	6		6
13	7		7
14	11		11
15	8		8
16			0
17			0
18+	2		2
Total	34	0	34

Unknown 0

Irymple South Primary School

Number of responses 10

No.	ADDRESS	AGE	SEX		HOW OFTEN						WHEN		Q6			Q7			Q8 Safety Probelemts				Q9								Q10 - Improvements				Q11 - Cycle Route						
			M	F	M	T	W	T	F	OO	All Yr	GW	BMX	MB	R	Road	FP	Both	prob 1	prob 2	prob 3	prob 4	dest 1	dest 2	dest 3	dest 4	time 1	time 2	time 3	time 4	improvement 1	improvement 2	improvemer	imrpovemetn 4	route 1	route 2	route 3	route 4	route 5	route 6	route 7
1	Sunny Cliffs Crescent	44		1	1	1	1	1				1		1				1	tractors ruining path				Cocklin Av				Sunday				make drivers more aware	widen Cocklin Av								
																															keep the bike track on the north side of 15th all the way to school to avoid									
2	Irymple Avenue	10	1								1			1				1	crossing 15th at Ginquam				cricket				wed,sat,sun				crossing at Ginquam				15th St	Irymple Av				
																							Irymple Secondary																	
3		10	1		1	1	1	1	1		1			1				1					School				Monday								15th St	Ginquam Av				
4	Koorlong Avenue	9	1						1			1	1				1		crossing 15th at Ginquam				friends	shop			weekend	afternoon												
5	Ginquam Avenue/Walnut Avenue	9	1		1	1	1	1				1	1				1						aero ovals	13th St			weekend	weekend												
6	Fern Avenue	9		1					1			1					1		crossing 15th at Ginquam												more training									
7	22nd Street	9	1						1			1	1					1																						
8	Coorong Avenue	10	1		1	1	1	1	1			1	1					1	crossing 15th at Irymple				Cardross store				weekend								15th St	Irymple Av				
9	Goulburn Avenue	10	1						1			1		1				1	too much gravel				aunts house	grandmas			any	any			more bike tracks	wider bike tracks	less gravel	more bike signs	15th St	Newton Av	22nd St	Calder Hwy	Goulburn Av		
10	Millewa Av	11	1		1	1	1	1	1		1			1				1					Irymple shops	grandmas	friends		any	any	any		crossing at Morpung Av	sealed path			15th St	Irymple Av	16th St	Millewa Av			
	TOTAL		8	2	5	5	5	5	4	4	3	7	4	5	0	0	3	7																						

Age	M	F	Total
5			0
6			0
7			0
8			0
9	3	1	4
10	4		4
11	1		1
12			0
13			0
14			0
15			0
16			0
17			0
18+		1	1
Total	8	2	10

Unknown 0

St Pauls Primary School

Number of responses: 9

No.	ADDRESS	AGE	SEX		HOW OFTEN					WHEN		Q6			Q7			Q8 Safety Probelems				Q9							Q10 - Improvements				Q11 - Cycle Route						
			M	F	M	T	W	T	F	OO	All Yr	GW	BMX	MB	R	Road	FP	Both	prob 1	prob 2	prob 3	prob 4	dest 1	dest 2	dest 3	dest 4	time 1	time 2	time 3	time 4	improvement 1	imrpovement 2	improveme	improveme	route 1	route 2	route 3	route 4	route 5	route 6	route 7
1	Noyce Court	6	1		1	1	1					1		1			1		14th/StMateo roundabout																14th St	San Mateo Av	Noyce Ct				
2	Etiwanda Avenue	11	1		1	1	1	1	1		1			1		1			No School crossing on Etiwanda Av				friends				Saturday			better kerbs				Etiwanda Av						
3	Mary Avenue	11		1	1	1	1	1	1								1																	14th St	Mary Av					
4	Allen Court	10	1				1					1	1				1						street	river	grandparents	friends	Weekend	Weekend	Weekend	Weekend	bike tracks on main roads				14th St	San Mateo Av	13th St	Dawn Av			
5	Eaglesham Street	10	1		1	1	1				1		1					1	No bike lanes in Etiwanda Av				bmx track	river	town		Weekend	School hols	School hols		School crossing on Etiwanda										
6	Twelfth Street	10		1						1		1		1				1					Ten Pin Bowl	Tae Kwan Do	shop		wed, thur	mon, wed, thur	any						Etiwanda Av	12th St					
7	Twelfth Street	8		1						1		1		1				1					Ten Pin Bowl	Tae Kwan Do	shop		wed, thur	mon, wed, thur	any						Etiwanda Av	12th St					
8	Thirteenth Street	11		1	1	1	1	1				1		1				1	cars go too fast	people don't move when ring bell															14th St	San Mateo Av	13th St				
9	Cowra Avenue	10		1	1		1					1		1		1																			Etiwanda Av	14th St	Cowra Av				
	TOTAL		4	5	6	5	7	3	3	2	2	6	2	6	0	2	3	4																						

Age	M	F	Total
5			0
6	1		1
7			0
8		1	1
9			0
10	2	2	4
11	1	2	3
12			0
13			0
14			0
15			0
16			0
17			0
18+			0
Total	4	5	9

Unknown

Sacred Heart Primary School

Number of responses: 1

No.	ADDRESS	AGE	SEX		HOW OFTEN					WHEN		Q6			Q7			Q8 Safety Probelemts				Q9								Q10 - Improvements				Q11 - Cycle Route						
			M	F	M	T	W	T	F	OO	All Yr	GW	BMX	MB	R	Road	FP	Both	prob 1	prob 2	prob 3	prob 4	dest 1	dest 2	dest 3	dest 4	time 1	time 2	time 3	time 4	improvement 1	imrpoveme	improveme	imrpoveme	route 1	route 2	route 3	route 4	route 5	route 6	route 7
1	Boyden Street	11	1		1	1	1	1			1		1				1		gaps in footpath												improve footpaths				Olive Gr	12th St	Deakin Av	13th St	Deakin Av	Boyden St	
	TOTAL		1	0	1	1	1	1	0	0	1	0	1	0	0	0	1	0																						

Age	M	F	Total
5			0
6			0
7			0
8			0
9			0
10			0
11	1		1
12			0
13			0
14			0
15			0
16			0
17			0
18+			0
Total	1	0	1

Unknown 0

Mildura West Primary School

Number of responses: 38

No.	ADDRESS	AGE	SEX		HOW OFTEN						WHEN		Q6			Q7			Q8 Safety Probelemts				Q9							Q10 - Improvements				Q11 - Cycle Route						
			M	F	M	T	W	T	F	OO	All Yr	GW	BMX	MB	R	Road	FP	Both	prob 1	prob 2	prob 3	prob 4	dest 1	dest 2	dest 3	dest 4	time 1	time 2	time 3	time 4	improvement 1	imrpovement	improveme	imrpovem	route 1	route 2	route 3	route 4	route 5	route 6	route 7
1	Murray Avenue	10		1	1	1	1	1	1			1	1					1																						
2	7th Street	10	1		1	1	1	1			1		1					1					BMX track	Friends	Street					Signs at Ontario Av as cars go straight through roundabouts				9th St	Ontario Av	7th St				
3	Rodney Court	10		1	1	1	1	1	1		1			1				1	not smooth between footpath and road				Excelsior	Riverside			weekend	weekend							9th St	Ontario Av	8th St	Riverside Av	Excelsior Av	Rodney Ct	
4	Pevensey Grove	10		1	1	1	1	1	1			1		1				1					street	Cureton Av			weekend	Thursday			remove steps	update footpaths			9th St	Ontario Av	8th St	Riverside Av	Pevensey Gr		
5	Murray Avenue	8	1		1	1	1	1	1			1	1					1																						
6	Pevensey Grove	12		1	1	1	1	1	1			1		1				1	round corners	8th/Riverside	step at 8th extension		street basketball	Cureton Av			any	Thursday			pram ramps	roundabout at 8th/Riverside	update footpaths		9th St	Ontario Av	8th St	Riverside Av	Pevensey Gr		
7	Keam Street	11	1		1	1	1	1	1		1			1				1					stadium							remove high fences				9th St	Ontario Av	13th St	San Mateo Av	Keam St		
8	Pevensey Grove	8		1	1	1	1	1	1			1		1				1	cars get too close on roads	overhanging branches on 8th & Ontario footpaths			street	Cureton Av			weekend	Thursday			remove overhanging branches				9th St	Ontario Av	8th St	Riverside Av	Pevensey Gr		
9	Crosbie Court	10	1		1	1	1	1	1		1		1					1	punctures				paper round	grandparents			Sunday	Monday/Friday			school crossing on 11th btw Walnut & Ontario				Cyprus Av	10th St	Cameron St	11th St	Stuart Av	Crosbie Ct	
10	Wilga Avenue	7	1							1		1	1					1	cars not slowing at Ontario roundabouts				shop	Uncle	Friends	street	afternoons	weekend	weekend	every	should be footpath or bike/lane	crossings at 9th St & Ontario Av			9th St	Wilga Av					
11	Wilga Avenue	9	1							1		1		1				1																						
12	Etherington Drive	8	1								1		1				1						BMX track				weekend				Crossing at Riverside										
13	Merle Court	8	1							1		1	1				1		cars parked on footpath				friends	recreation			weekend	weekend			Crossing at 11th St										
14	Zhoe Cout	8	1			1	1		1			1	1						motorbikes on footpath				friends																	
15	Raymond Court	9	1							1			1				1						friends				weekend														
16	Andamifi Court	9		1	1	1						1		1			1						street				weekend				crossing at 11th St										
17	9th Street	8		1	1	1	1	1	1			1	1					1					supermarket	shop			Thursday	Wednesday			crossing at 11th St										
18	12th Street	8	1						1		1		1				1						street	weekend																	
19	Thomson Crescent			1						1		1	1					1	cars parked on footpath				street	every																	
20	Ontario Avenue	10	1							1	1			1				1					friends	shop			any	Wednesday			bike lanes				Ontario Av						
21	Ontario Avenue	10		1						1		1		1			1						friends	ovals			any	any			bike track	crossings			Cyprus Av	10th St	Ontario Av				
22	9th Street	10	1		1	1	1	1	1			1	1					1	9th/Ontario very busy				friends				weekend				crossing at 9th/Ontario										
23	9th Street	8		1	1	1	1	1	1			1	1					1	9th/Ontario very busy				friends				weekend				crossing at 9th/Ontario										
24	7th Street	11		1	1	1	1	1	1					1				1	7th roundabout	8th roundabout	speeding cars		tennis				Friday				make cars slow down				9th St	Ontario Av	7th St				
25	7th Street	7	1		1	1	1	1	1			1	1					1	cars not slowing at 8th/Ontario roundabout				friends	shop			any	every			motorists need to be more aware of cyclists and road rules										
26	11th Street	9		1	1	1	1	1	1			1	1					1																	Gardenia St	Ontario Av	11th St Mansell				
27	Lockside Avenue	6		1						1		1	1					1	concrete path across Mansell				Apex Park				weekend				choose bikepaths ahead of roads				9th St	Jenkins Pl	Reserve	Lockside Av			
28	Marion Court	7		1	1	1	1	1	1		1			1		1			Jenkins Pl grate	10th St too narrow & rough btw Ontario & Riverside	dogs		errands	street	holiday											9th St	Jenkins Pl	8th St	Riverside Av	Wahington Dr	Marion Ct	
29	Marion Court	5		1	1	1	1	1	1		1			1		1			Jenkins Pl grate	10th St too narrow & rough btw Ontario & Riverside	dogs		errands	street	holiday											9th St	Riverside Av	Washington Dr	Marion Ct			
30	Walnut Avenue	11	1		1	1	1	1				1	1					1																	10th St	Walnut Av					
31	Rodney Court	7		1	1	1	1	1	1		1			1				1					street				weekend								9th St	Ontario Av	8th St	Riverside Av	Excelsior Dr	Rodney Ct	
32	Lockside Avenue	7	1							1		1	1				1																							
33	8th Street	7	1							1	1		1					1	no safe crossing of Ontario Av near school				Langtree mall	River			weekend	weekend							9th St	Jude Av	8th St				
34	Riverside Avenue	11	1		1	1	1	1	1			1		1				1					friends				every				need roundabout to slow cars at 11th/Riverside				9th St	Ontario Av	8th St	Riverside Av			
35	Hillcrest Close	7		1	1	1	1	1	1		1			1		1			crossing 11th St at Riverside Av																	Cyprus Av	10th St	Riverside Av	11th St	Hillcrest Cl		
36	11th Street	10	1		1	1	1	1				1	1				1																		Cyprus Av	10th St	Toorak Av	11th St			
37	11th Street	7	1		1	1	1	1				1	1				1																		Cyprus Av	10th St	Toorak Av	11th St			
38	Jude Avenue	11		1						1		1		1				1					friends	shop			any	any							9th St	Jude Av					
	TOTAL		20	18	24	25	24	23	22	11	12	24	22	16	0	3	9	24																						

Age	M	F	Total
5		1	1
6		1	1
7	5	3	8
8	5	3	8
9	2	2	4
10	5	4	9
11	3	2	5
12		1	1
13			0
14			0
15			0
16			0
17			0
18+			0
Total	20	17	37

Unknown 1

Mildura South Primary School

Number of responses: 7

No.	ADDRESS	AGE	SEX		HOW OFTEN						WHEN		Q6			Q7			Q8 Safety Probelems				Q9							Q10 - Improvements				Q11 - Cycle Route						
			M	F	M	T	W	T	F	OO	All Yr	GW	BMX	MB	R	Road	FP	Both	prob 1	prob 2	prob 3	prob 4	dest 1	dest 2	dest 3	dest 4	time 1	time 2	time 3	time 4	improvement 1	imrpoveme	improveme	imrpoveme	route 1	route 2	route 3	route 4	route 5	route 6	route 7
1	Regency Parade	40		1						1		1		1				1	roundabouts				local area				occasionally			uneven footpaths				Deakin Av	15th St	Walnut Av	Regency Pd			
2	Deakin Avenue	8	1				1	1				1	1				1						street	friends			often	weekends													
3	Deakin Avenue	10	1		1	1	1	1	1		1		1				1																	Deakin Av						
4	Johns Street	11			1	1	1	1	1		1			1		1																		Deakin Av	Harmony Dr	Settlers Dr	San Mateo Av	14th St	Etiwanda Av	John St
5	Lever Court	12	1		1	1	1	1			1			1				1					plaza	pool	river	skatepark	Sunday	weekends	Saturday	Wednesday	crossing 15th St				Deakin Av	Eileen St	Vidovic Av	The Boulevard	Miller Av	De Caris Dr	Lever Ct
6	Banks Court	11	1		1	1	1	1	1		1			1				1					friends				Wednesday			path on both sides of Deakin Av				Deakin Av	Hoyts Dr	Holywood Blvd	Explorer Dr	James Cook Dr	Banks Ct	
7	Sunset Court	9	1				1					1		1				1	snakes				credale ct	shops			any	any			cut grass in paddock				Deakin Av	paddock	Tullane Dr	Sunset Ct			
	TOTAL		5	1	4	4	6	5	3	1	4	3	2	5	0	1	2	4																						

Age	M	F	Total
5			0
6			0
7			0
8	1		1
9	1		1
10	1		1
11	1		1
12	1		1
13			0
14			0
15			0
16			0
17			0
18+		1	1
Total	5	1	6

Unknown 1

St Josephs College Mildura

Number of responses: 24

No.	ADDRESS	AGE	SEX		HOW OFTEN					WHEN		Q6			Q7			Q8 Safety Probelemts				Q9								Q10 - Improvements				Q11 - Cycle Route					
			M	F	M	T	W	T	F	OO	All Yr	GW	BMX	MB	R	Road	FP	Both	prob 1	prob 2	prob 3	prob 4	dest 1	dest 2	dest 3	dest 4	time 1	time 2	time 3	time 4	improvement 1	imrpovement 2	improvement 3	imrpovemetn 4	route 1	route 2	route 3	route 4	route 5	route 6
1	Cureton Avenue	16		1						1		1		1				1					friends	billabong			weekend	weekend			helmets	road signs	road rules							
2	Jabilla Avenue	14	1									1	1										friends				any													
3	Broadie Close	13	1									1	1			1																								
4	11th Street	12	1							1		1	1				1						friends	pool	street	plaza	any	any	any	any										
5	Rouse Court	13		1										1				1					friends	shop	around	river	any	any	any	any										
6	Cureton Avenue	13		1										1				1					friends	river	around		any	weekend	any											
7	Riverside Avenue	13		1							1			1				1					street	Apex Park	lock 11	park	any	any	any	any										
8	Cureton Avenue/Fern Avenue	12		1										1		1																								
9	Curran Close	16	1							1				1				1					frends				occassionally													
10	Etiwanda Avenue	12		1										1		1																								
11	San Mateo Avenue/14th Street	13	1							1		1		1				1													flat roads				12th St	Deakin Av	Burrows St	San Mateo Av		
																			Walnut Av roundabouts	Cars Dropping off at Chaffy College	Cars coming out side streets at Deakin Av		Coomealla, Curlwaa, South Merbein	Cureton, Kings Billabong, Red Cliffs	Cureton, Cemetary, Riverside		weekend	weekdays occassionally	weekdays		route signs for cyclists wider bike lanes	stop signs on Deakin Avenue side streets			12th St	Deakin Av	Rambling Way	Primrose Dr	Banksia Ct	
12	Banksia Court	40	1				1	1	1			1		1	1	1																								
13	Olive Avenue	14	1		1	1	1	1	1		1		1			1							BMX track	friends			weekend	occassionally												
14	6th Street	16	1		1	1	1	1	1		1			1		1			crossing 11th St	12th St traffic			river	shops	work		any	any	any											
15	Muscat Court/Milwillandua Court				1	1	1	1	1		1		1	1				1	other students																				
16	Vincent Court	15	1		1				1		1		1				1																	12th St	Deakin Av	Eileen St	Vincent Ct		
17	Teal Drive	17			1	1	1	1	1		1			1		1																		12th St	Walnut Av	Wren Cl	Teal Dr		
18	Wingillie St	14	1		1	1	1	1			1		1					1					BMX track	friends	skate park		any	any	any						12th St	Walnut Av	11th St	Wingillie St		
19	8th Street	14	1		1	1	1	1	1		1		1					1					BMX track	skate park	friends		any	any	any						12th St	Walnut Av	9th St	Ontario Av	8th St	
20	10th St	12	1		1	1	1	1	1		1			1				1																12th St	Walnut Av	10th St			
21		14	1							1		1	1			1							friends				any													
22	17th St	12	1									1		1				1																12th St	Walnut Av	17th St			
23	Hunter St	17	1		1	1	1	1	1		1			1		1			Crossing Deakin Av traffic/crossing				river	mall	burger king		any	any	work						12th St	San Mateo Av	Hunter St			
24	Rayman Ct	13	1		1	1	1	1	1		1			1			1		road				any				any													
	TOTAL		16	6	10	9	10	10	10	5	11	8	9	16	1	9	3	11																						

Age	M	F	Total
5			0
6			0
7			0
8			0
9			0
10			0
11			0
12	3	2	5
13	3	3	6
14	5		5
15	1		1
16	2	1	3
17	1		1
18+	1		1
Total	16	6	22

Unknown 2

Appendix G
Community Survey

MILDURA STRATEGIC BIKE PLAN
QUESTIONNAIRE SURVEY

Mildura Rural City Council

TurnbullFenner
Traffic Engineers and Transport Planners

Turnbull Fenner has been engaged by Mildura Rural City Council to prepare the Municipal Strategic Bicycle Plan. Even if you are not a cyclist we would appreciate it if you completed the relevant sections of this questionnaire. The information provided by you will assist in developing a bicycle plan that meets the needs of cyclists in Mildura. Please complete this questionnaire, fold twice and staple, then return by reply paid mail (no stamp required) by **Friday, March 22, 2002.**

1. For each person in the household:

	Person 1	Person 2	Person 3	Person 4	Person 5
Age					
Gender (M/F)					
Do you cycle (Y/N)?					

2. If you do not cycle, please indicate with a tick the reason(s) for this:

	Person 1	Person 2	Person 3	Person 4	Person 5
Insufficient facilities eg. Bicycle lanes, bicycle paths					
Insufficient end of journey facilities eg. Bicycle racks, lockers					
Lack of safety in cycling					
Do not own bike					
Inconvenient eg. distance, weather					

Other please specify……...……...

……...……..……

3. If you do cycle: How often do you cycle?

	Person 1	Person 2	Person 3	Person 4	Person 5
Every day					
A few times a week					
Once a week					
Once a fortnight					
Once a month					
Other, please state					

4. What is the average length of your cycling trip?

	Person 1	Person 2	Person 3	Person 4	Person 5
< 2 kms					
2-5 kms					
5-10 kms					
10-20 kms					
20-40 kms					
> 40 kms					

5. What is the main purpose of your cycling trip?

	Person 1	Person 2	Person 3	Person 4	Person 5
Travel to school					
Travel to shops					
Recreational					
Training					
Other					

6. Please list the major routes, roads or designated paths, within the municipality of Mildura, which you commonly use when cycling.

……...……
……...……
……...……
……...……
……...……

7. Please list any cycling routes, roads or paths within the municipality of Mildura you would like to see improved and specify the existing problems.

Route	*Problem/Deficiency*
……..…	....……..……
……..…	……..……
……..…	……..……
……..…	……..……
……..…	....……..……

Please turn over for further comments

Delivery Address:
Suite 8
431 Burke Road
GLEN IRIS VIC 3146

No stamp required
if posted in Australia

Turnbull Fenner Pty Ltd
Reply Paid 66526
GLEN IRIS VIC 3146

----------fold along this line----------

MILDURA BICYCLE STRATEGY

(2962)

********** staple here - once only **********

----------fold along this line----------

8. Do you have any comments regarding cycling in the municipality of Mildura.

……
……
……
……
……

9. If you wish to be informed of future developments of the bicycle strategy, please list your name and address details below. Alternatively contact Ross Thomson at Turnbull Fenner on 9822 2888.

……
……
……

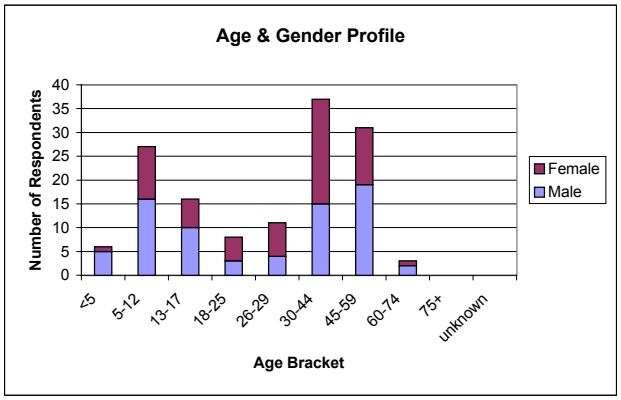
You may wish to attach an extra sheet of paper if insufficient space is provided.

Thank you for your time.

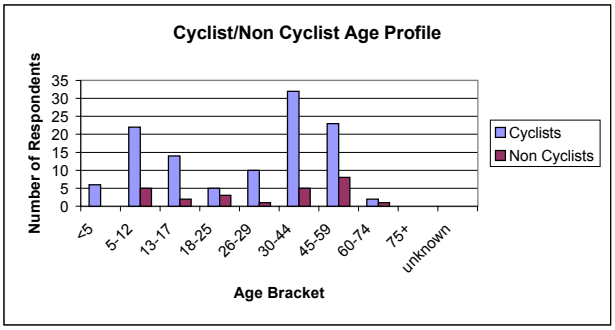
Appendix H

Community Survey Response

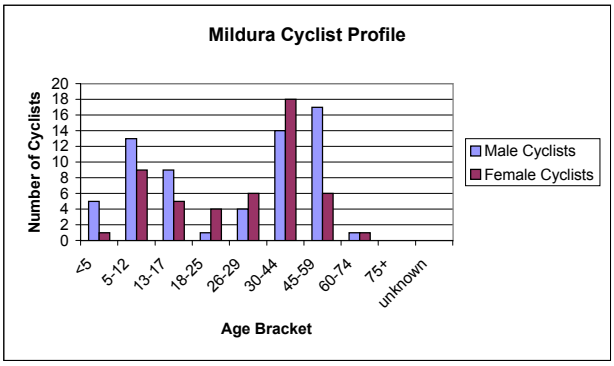
Age	Male	Female
<5	5	1
5-12	16	11
13-17	10	6
18-25	3	5
26-29	4	7
30-44	15	22
45-59	19	12
60-74	2	1
75+	0	0
unknown	0	0
Total	74	65



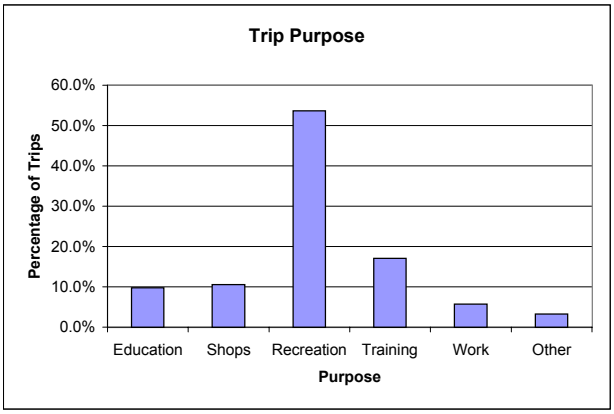
Age	Cyclists	Non Cyclist	% cycle
<5	6	0	100.0%
5-12	22	5	81.5%
13-17	14	2	87.5%
18-25	5	3	62.5%
26-29	10	1	90.9%
30-44	32	5	86.5%
45-59	23	8	74.2%
60-74	2	1	66.7%
75+	0	0	#DIV/0!
unknown	0	0	#DIV/0!
Total	114	25	82.0%



Age	Male Cyclis	Female Cyclists
<5	5	1
5-12	13	9
13-17	9	5
18-25	1	4
26-29	4	6
30-44	14	18
45-59	17	6
60-74	1	1
75+	0	0
unknown	0	0
Total	64	50



Purpose	%
Education	9.8%
Shops	10.6%
Recreation	53.7%
Training	17.1%
Work	5.7%
Other	3.3%
Total	100.0%



Appendix I
Draft Strategy Feedback

Community Feedback to Bicycle Strategy Draft

Person/Organisation	Comment	Action
Tony Barton-VicRoads	Requires Identification of Priority Routes for 100% VicRoads funding	Plan prepared showing priority routes
Betty Krake-Red Cliffs Chamber of Commerce	Supports Recommendations of Bicycle Strategy	Noted
Ian McMahon/John Bosco-The Lake Primary	Requests that shared path be constructed between Lake Hawthorn Trail and existing school crossing through FMIT as existing path requires school students to cross the highway at an uncontrolled location	We consider this to be a worthwhile suggestion. However if a deal cannot be negotiated with FMIT then an alternative treatment is to constrict an additional shared path on the north side of Seventeenth Street between Dyar Avenue and McGregor Street
Ian Brade	Consider the following:- 1. cycle lanes on 15th Street between Deakin Avenue and Walnut Avenue, 2. shared path rather than cycle lanes across Chaffy Bridge, 3. section of Murray River Trail to be sealed 4. Improved Street lighting on Ontario Avenue 5. Two traffic lanes on west approach to Deakin Av/15th St roundabout	Points 1,3 and 4 are addressed as part of the strategy. It was considered that the existing bicycle lanes are preferable to a shared path across the Chaffy Bridge as cyclists would be required to cross the road to continue along the bike route when travelling in one direction under the shared path scenario. The construction of an additional lane at the west approach to the Deakin Av/15th St roundabout would not assist cyclists
Peter Byrne-Red Cliffs East Primary	Would like acknowledgement of the March 1996 Bicycle Plan for Red Cliffs. Would like the Neerum Rd channel crossing to be recognised as a high priority	1996 Bicycle Plan acknowledged. Neerum Road crossing not considered a high priority as an alterative route exists to Red Cliffs town centre via Nursery Ridge Road
Melanie Bell-MRCC Natural Resources Officer	Requested proposal for Murray River Trail to be modified to allow provision for a proposed marina development	Altered Murray River Trail proposal to include provision for the Marina Development
Murali KG/Nathan Ganeshanathan-MRCC Engineering	Various suggestions regarding proposed engineering improvements	Most suggestions incorporated into final strategy

G.A. Pearse	1. Suggests that sections of Deakin Avenue bike route is in fact a segregated footway and suggests it should be altered to a shared footway due to minimal compliance by pedestrians 2. Twelfth Street/Riverside Avenue shared footway should be reinstated to link between the railway line and Eleventh Street	Recommend that entire Deakin Avenue off-road bike path be designated as a shared footway and that Twelfth Street/Riverside Avenue path be reinstated
K.A. Norman-Victoria Police	Police assist with bicycle education programs at schools. Agreement with finding that there are safety concerns with 10-15 year olds	Noted. Acknowledged police involvement in final strategy
Arthur Anderson	1. Identified danger of being struck by motor vehicles as one of the main reasons preventing increased cycling 2. Identified problems when sealed shoulders and kerbside bike lanes are not maintained 3. Suggests training areas for young children 4. Suggests Give Way to Cyclists signs 5. Advocates temporary signs during club racing events	1. Implementation of bicycle strategy should reduce danger element 2. bike strategy advocates ongoing maintenance of bicycle facilities 3. shared path network is considered to be appropriate for young children to learn to ride with bike ed to be taught at schools 4. Give Way To Cyclists signs recommended for Deakin Avenue shared path in strategy 5. VicRoads have a standard set of conditions for the provision of temporary signage for cycling events which the cycling club should adhere to
Keith Leamon-NRE	Supports the installation of a bicycle route along Eleventh Street west from Mildura to Koorlong Avenue	Eleventh Street bicycle route is recommend in strategy

Appendix J
Bicycle Training Routes

LEGEND

- WEDNESDAY NIGHT ROUTE
- BRIDGE RIDE
- HONOUR AVENUE RIDE
- DEAKIN AVENUE RIDE
- RED CLIFFS CEMETRY RIDE

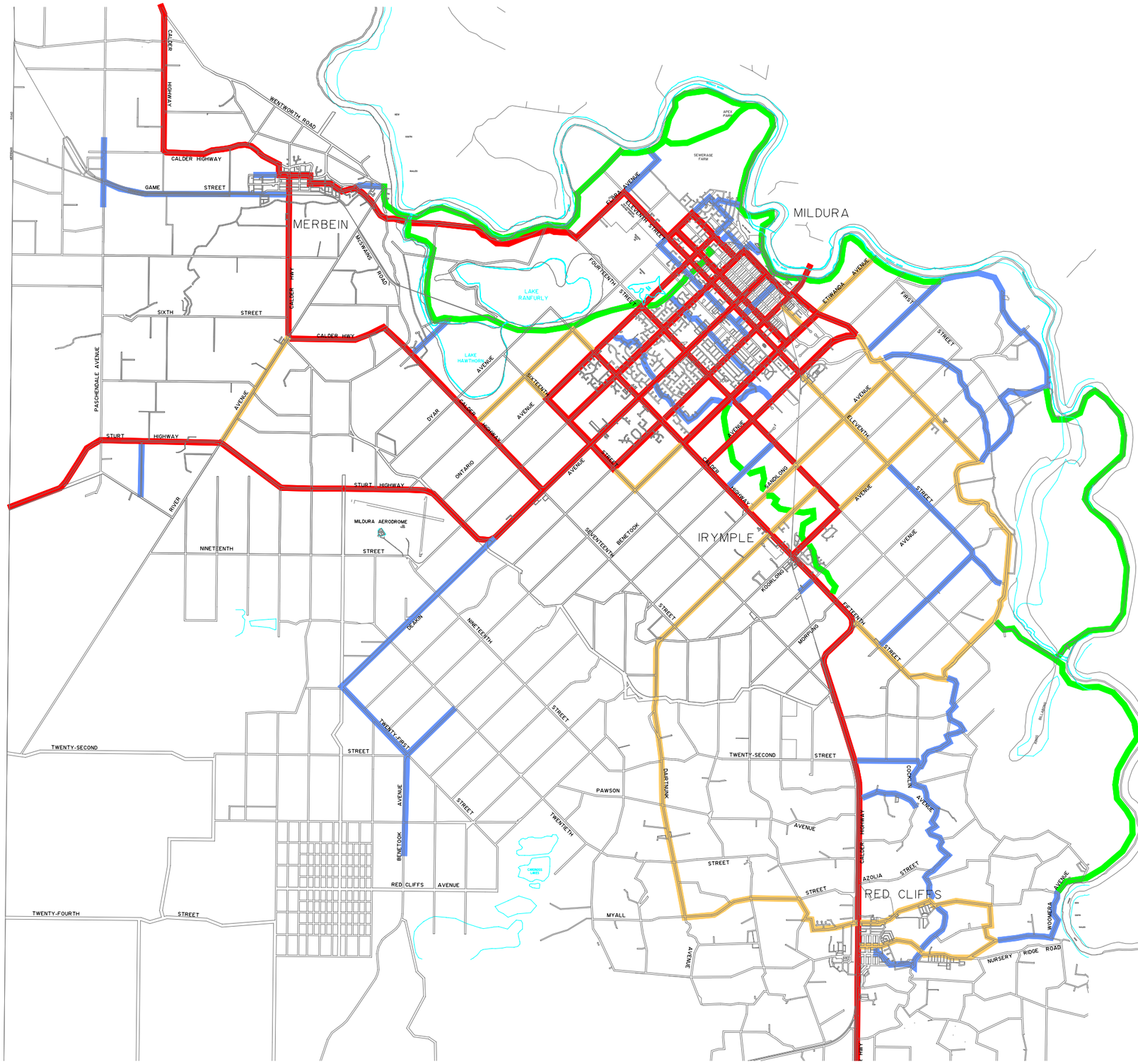
N

TraffixGroup

Traffic Engineers and Transport Planners

MILDURA STRATEGIC BICYCLE PLAN
TRAINING ROUTES

Appendix K
Priority Bicycle Routes



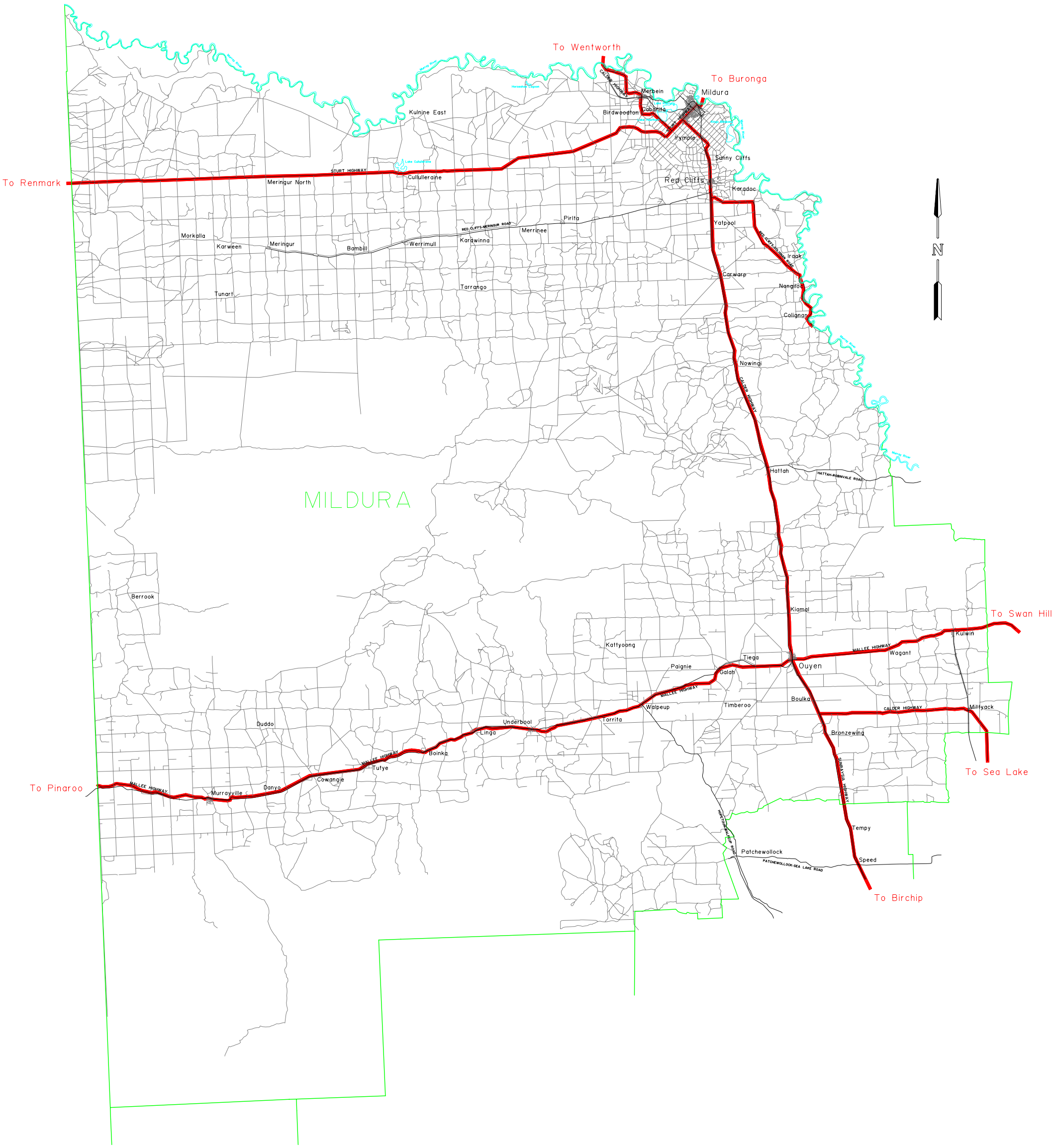
TraffixGroup

Traffic Engineers and Transport Planners

MILDURA STRATEGIC BICYCLE PLAN
PRIORITY ROUTES

LEGEND

INTER TOWN LINK
SHOULDER SEALING PROGRAM



MILDURA STRATEGIC BICYCLE PLAN
BICYCLE NETWORK

TraffixGroup
Traffic Engineers and Transport Planners