Council

BICYCLE MASTER PLAN FOR MOUNT BARKER - FINAL REPORT

Mount Barker Bicycle Master Plan

Meeting Date: 5 December 2017

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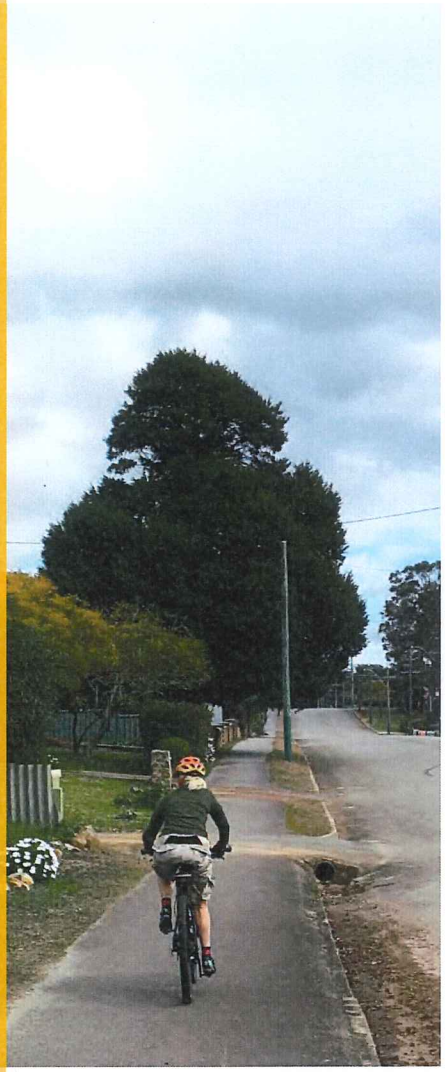
MOUNT BARKER BICYCLE MASTERPLAN



PREPARED FOR SHIRE OF PLANTAGENET

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DOCUMENT CONTROL

ISSUE	DATE	ISSUE DETAILS	AUTHOR	CHECKED	APPROVED
A	05/10/2017	For submission to Shire of Plantagenet for comment	IC	GB	
B	13/11/2017	Reviewed & resubmitted to Shire of Plantagenet	KS	GB	
C	17/11/2017	Reviewed (costings) & resubmitted to Shire of Plantagenet	GB	GB	

Contents

Appendices

1 Executive Summary

Calibre Professional Services Pty Ltd were engaged by the Shire of Plantagenet to prepare a Bike Master Plan for the Mount Barker Townsite.

This Technical Addendum was prepared after a full day site verification carried out by bicycle. The Report:

- Verifies the existing path infrastructure
- Tailors specifications based on the cycling profile as identified in the community questionnaire and observations made on site
- Provides constructive recommendations for improvements to the network
- Details improvement projects (both new and renewal of existing paths)
- Prioritises projects over a five-year period
- Includes preliminary estimates for each of the twenty projects identified.

The townsite has a considerable network of existing pathways. Ongoing cycle/pedestrian infrastructure upgrade works were noted on numerous roads throughout Mount Barker. This provides clear evidence of the Shire's commitment to improve facilities. A Cycling Master Plan will provide a framework within which the network can be managed.

The twenty projects identified will require a capital and preservation outlay of some $940,000 over five years.

It is recommended that the Five-year programme be updated in order to remain current and provide a live management tool for the town's path network.

Besides the identified works it is of paramount importance to regularly patrol and maintain the cycle network. As with any infrastructure its level of service will determine its effectiveness.

Finally it is hoped that through ongoing encouragement and education that cycling numbers will increase as this has an immeasurable benefit to general wellness and the environment.

2 Site Verification

An inspection of Mount Barker's path and road infrastructure was conducted on 30 September 2017. This was undertaken by bicycle in order to obtain an appreciation of on-site conditions and to obtain some appreciation of pedestrian and cyclist usage. Photographs were taken at each intersection and other relevant locations to document standards, alignment and path condition.

Drawings CK01 and CK02 detail:

- Existing infrastructure (as at 30 September 2017)
- Proposed improvements (5year Bike Plan)

2.1 Topography and Town Layout

The Mount Barker townsite is approximately rectangular in configuration with a predominantly grid-like road network. A north-south transport corridor bisects the townsite, containing the Albany Highway and a railway line. There are several crossings of various standards to enable pedestrians and cyclists to safely negotiate these encumbrances. An aesthetic POS network is also located between the highway and railway line.

Both western and eastern sections of the town have a significant hill feature (more so on the eastern section), the gradients of which make cycling somewhat challenging.

The CBD is located centrally on the western side of the transport corridor. The education precinct is consolidated to the north of the townsite, as are the sports fields, recreation centre and swimming pool. The Overton Seniors facility is located at the western end of Muir Street, some 600m from the CBD. The Mount Barker District Hospital is also located some 600m west of the CBD on Langton Road.

2.2 Existing Path Infrastructure

The townsite has a reasonably well developed pathway network.

Significant recent improvements to paths predominantly in the eastern section of the town were noted (Deane and Hassell Streets as well as Osbourne and Ormond Roads).

The majority of path infrastructure within the town is constructed from asphalt with some older bitumen (chip) seal. The paths within the CBD are predominantly paved. A small amount of concrete and gravel paths were also observed.

Photo 1: New asphalt path on Hassell Street

Photo 2: Older asphalt path on Muir Street

Photo 3: Paved paths in the CBD on Lowood Road (both sides)

Photo 4: Concrete path on Donnelly Peak Place

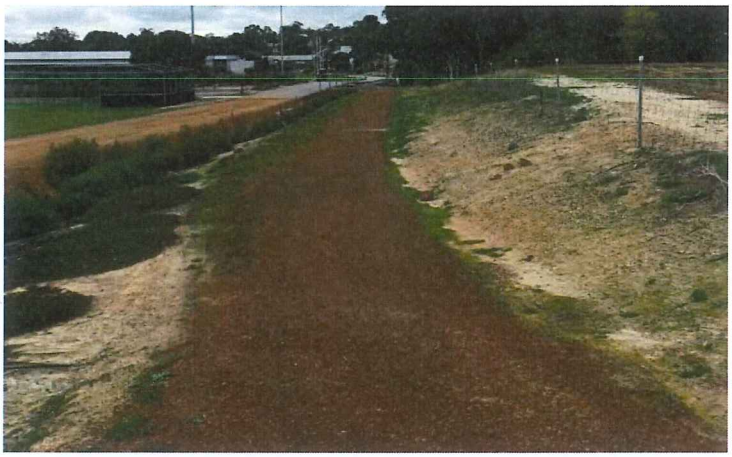

Photo 5: Gravel path at Recreation Ground

2.3 Existing Albany Highway and Railway Line Crossings

There are five pedestrian/cyclist crossing points on the Albany Highway:

1. 460m south of Woogenelup Road
2. McDonald Avenue
3. Memorial Road
4. Ormond Road
5. Booth Street

These crossings have been constructed to various standards, as detailed in the photos below.

Photo 6: 460m south of Woogenelup Road. Bollards, concrete pram ramps with Tactile Ground Surface Indicators (TGSI), edge delineation

Photo 7: McDonald Avenue. Pram ramps

Photo 8: Muir Street. Pram ramps, centre median refuge and left turn pocket refuge

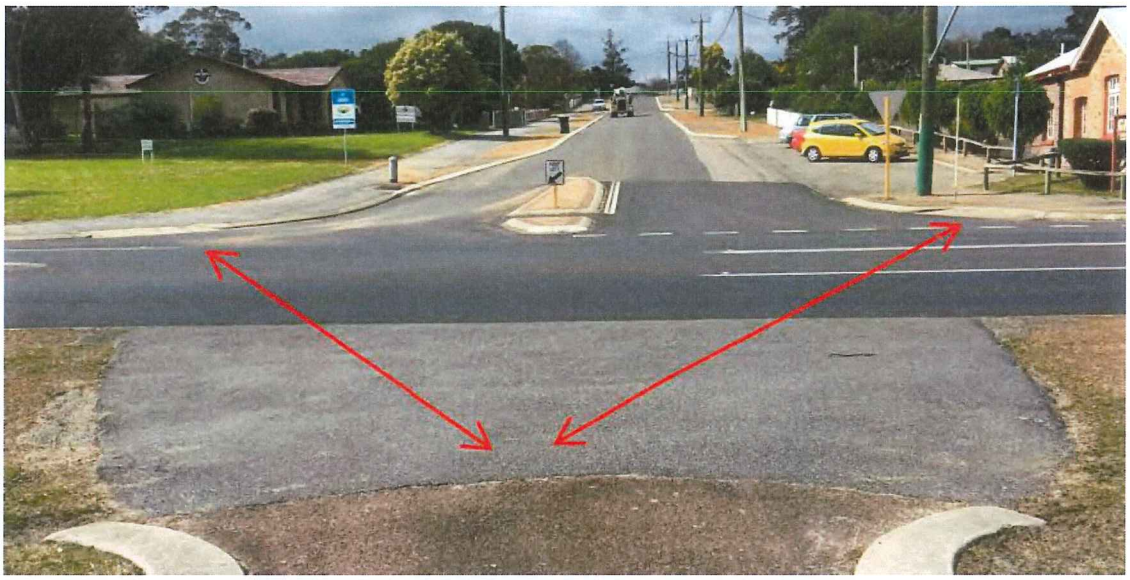

Photo 9: Ormond Road. Pram ramps; very unsafe diagonal access/egress across intersection

Photo 10: Booth Street. Prams ramps; centre median refuge

There are five pedestrian/cyclist crossing points on the railway line:

1. McDonald Avenue
2. Muir Street
3. Old Railway Station (prolongation of Ormond Road path)
4. Prolongation of Booth Street path
5. Lowood Road

These crossings have various standards, as detailed in the photos below.

Photo 11: Maze on McDonald Avenue (eastern verge)

Photo 12: Maze on McDonald Avenue (western verge) no connecting pathways

Photo 13: Memorial Road – no maze

Photo 14: Maze at Old Railway Station (prolongation of Ormond Road path)

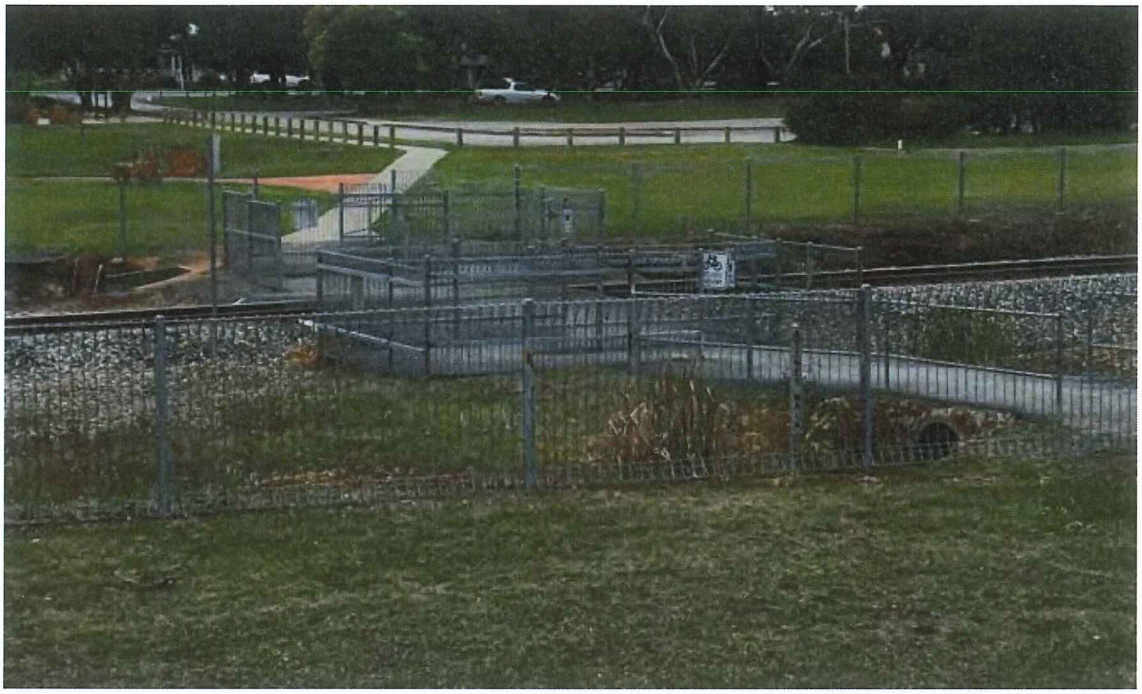

Photo 15: Maze on prolongation of Booth Street path

Photo 16: Lowood Road – no path or maze

2.4 General Path Alignment and Local Road Intersection Treatments

Paths are aligned both at the back of kerbs and adjacent to lot frontages. This is due to a number of factors predominantly road verge crossfall grades; existing services (particularly aerial power); standards at the time of construction; and tree location.

Photo 17: Path on back of kerb

Photo 18: Path adjacent to lot frontage

Retrofitting kerbing and pathways within older townsite areas is challenging as roads were not initially set up to urban standards with a 2% crossfall grade from the back of kerb up to the lot boundary (refer Figure 4, Section 4). This has resulted in some significant crossfall grades and provided challenges to fit in a reasonably graded path whilst maintaining vehicle access to lots. Generally however acceptable outcomes have been achieved in locating paths.

Photos 19 and 20: Significant down and up crossfall grades on verges

The standard of pram ramps within the townsite differs considerably. Again this is dependent upon infrastructure age; availability of materials; workmanship; budget; geometrics and level differences from the gutter to the path; and service locations etc. Although providing a level of service and functionality, some configurations compromise on safety due to short steep ramp grades and sharp vertical edges to kerbs.

Pram ramps are extremely important in providing comfortable and safe access both up to and down from paths whilst allowing cyclists to retain a reasonable velocity to maintain balance. This safety and comfort also extends to all other path user groups.

Photo 21: Older concrete Pram Ramp with vertical kerb cut (Langton Road). Steep due to services in close proximity.

Photo 22: Asphalt Pram Ramp with vertical kerb cut (Hassell Street)

Photo 23: Concrete Pram Ramp constructed reasonably consistent with current standards (Hassell Street)

Photo 24: Concrete and paved Pram Ramp with Tactile Ground Surface Indicators (TGSI) and consistent with current standards (Lowood Road)

The location of pram ramps at intersections is a two-edged sword. On the one hand it is important to square cyclist up to as close to 90degrees to the oncoming traffic so that they can safely assess whether a crossing can be made. However too many deviations and sharp curves affect comfort and stability. The result can be that users can ignore the intersection treatment in favour of a less technical manouvre.

It was noted that a number of pram ramps are located on kerb radii. In some instances cyclists are directed diagonally across intersections (i.e Hassell/Nunnurup Street). Although the intersection is regulated with 'Stop' signage, cyclists should be negotiating one road leg at a time.

Photo 25: Aerial view of the Hassell/Nunnarup Street intersection with path alignment detailed

Photos 26 and 27: Pram Ramps at Hassell/Nunnarup Street intersection unsafely directing cyclist diagonally

2.5 Signage and Line Marking

Dismount signage was noted at railway mazes

Line marking was observed at two crossings.

Photo 28: Crossing on Woogenelup Road with edge lining (as well as bollards and grab rails)

3 Cycling Profile and Tailoring the Network

There are seven main categories for people cycling outlined in the Austroads Guide to Road Design – Part 6A: Pedestrian and Cyclist Paths, which are outlined in table 1 below.

Type of Cyclist	Characteristics	Requirements
Primary School Children	Cognitive skills not fully developed. Little knowledge of road traffic rules.	Off-road path or quiet residential streets.
Secondary School Students	Skills vary greatly. For older students (14+) mixture of on and off-road cycling.	On-road. Off road paths along busy roads, must be direct.
Recreational	Experience, age and skill vary significantly. May not have specific destination, experience of the cycle is important i.e. want to enjoy the ride	Off-road paths and quiet local streets, generally avoid heavily trafficked routes.
Commuter.	Prefer quick travel times.	Require direct routes and often prefer on-road cycling. Quiet roads with sealed shoulders or designated cycle lanes with a smooth and even surface for speed maintenance. End of trip facilities.
Utility (Specific purpose i.e. shopping or visiting).	Skill level varies greatly, generally short trip lengths, routes often unpredictable.	Require a comprehensive network of 'low stress' routes. End of trip facilities.
Touring.	Long distance journeys or shorter trips around areas of tourist significance Trips can be recreational/ sightseeing in nature or destination based.	Greater significance placed on off-road routes as tourists may be less familiar with local road rules and conditions. Destination based cycling requires direct routes. End of trip facilities.
Sporting.	Travel long distances on arterial road system.	Require space to operate on-road. Off- road facilities not suitable due to high speeds and potential for conflict with pedestrians or other people cycling.

Table 1: Categories of Cyclists

It is considered that the majority of cyclists in Mount Barker would be in the first five categories. This was verified in the recent online survey conducted in November/December 2016.

There would be some touring cyclist traffic and occasional sporting groups (such as fund-raising peletons) passing through the town. These riders however would use the road network. There is some potential for mountain bike trail development. This may include linkages from the townsite to these areas.

The immediate focus needs to be on the townsite bike path network. This will increase the comfort level for cyclists and raise awareness for this form of transport. This has immeasurable community wellness benefits.

Motorised wheelchairs and other mobility devices used by people with physical disabilities are an extremely important transport category within a community. This category of transport is defined as 'motorised wheelchairs' under the WA Road Traffic code 2000. To be recognised as a motorised wheelchair the device must be designed to travel at a speed not exceeding 10 km/h. People who operate a motorised wheelchair at a speed under 10 km/h are legally classed as pedestrians. Motorised wheelchairs are permitted to ride on:

- Footpaths;
- Shared paths;
- The pedestrian section of a separated path;
- In shopping centres;
- In public places; and,
- To cross roads.

Provided the design principles contained in the Austroads design guideline for pedestrians and cyclists are followed, the Shire's cycle network should as far as possible cater for motorised wheelchair traffic.

Key areas for capital and preservation expenditure on the path network are seen as follows:

- Improvement to existing Albany Highway road crossings
- Developing the path infrastructure to complete links between residential areas and significant destination nodes
- Replacement and improvement paths on significant routes that have reached the end of their serviceability.
- Retrofitting sub-standard paths and pram ramps.
- Signage and delineation of paths
- Preparation of a public cycling network map

4 General Principles

Austroads Guide to Road Design - Part 6A: Pedestrian and Cyclist Paths provides invaluable information regarding general cycling standards for paths and roads.

Regardless of a cyclists age, skill or experience there are five basic requirements of both paths (and roadways) needed in order to provide a safe and convenient bicycle network:

- space to ride
- a smooth surface, free of debris
- speed maintenance
- appropriate sight lines to path surface
- connectivity
- information.

Space to Ride

People cycling require a 1.0 metre wide design envelope which allows for the width of the bicycle and for variations in tracking. Additional clearances to fixed objects and to passing vehicles are also required. The bicycle operating space figure shown below indicates the minimum clearances to obstructions and vehicles.

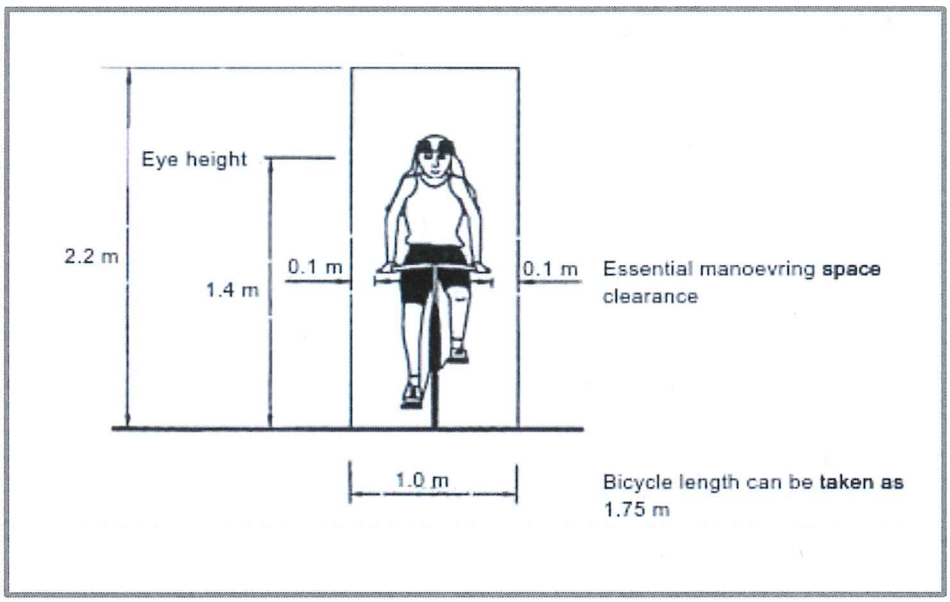

Figure 1: Bicycle Clearances (Figure 4.6, Bicycle Operating Space of Austroads Guide to Road Design - Part 6A: Pedestrian and Cyclist Paths).

A Smooth Riding Surface

In many cases bicycles have narrow tyres inflated to high pressures and have no suspension system. For bicycles to be used safely and comfortably a smooth skid resistant surface is required. The condition of on road cycle lanes should be at least as good as the vehicle carriageway so as to ensure bicycles remain within their designated lane. Surfaces for cycling need to be smoother than those acceptable for motor vehicles. As such the use of smooth asphalt surfaced shared paths and cycle ways is preferred over the use of concrete where often the joints become raised over time or displacement of section of path present a hazard to riders.

Speed Maintenance

For bicycles to be effective as a means of transport, cyclists must be able to maintain speed without having to slow or stop often. Routes (where possible) should avoid steep gradients, rough surfaces, sharp corners, obscured sight lines and frequent intersections. There also needs to be an awareness of safety concerns for pedestrians where there is interaction between pedestrians and less experienced people cycling when considering "speed maintenance".

On-road routes should provide adequate width and a smooth surface.

Connectivity

Cyclists need to be able to undertake and complete meaningful trips by bicycle. Recreational cycling typically requires connectivity from residential areas to beaches, foreshore or sporting areas, specific purpose trips require connectivity between residential areas to work, community and health facilities or to shops. Bicycle routes comprising roads and paths should combine to form an effective, convenient and safe network.

Connectivity is an important aspect of the construction of effective bicycle routes and as such forms a basis for the recommendations contained in this report.

Information

Apart from necessary regulatory and warning signs, it is considered important that cyclists and motorists are provided with adequate signage for direction and reassurance. This is especially pertinent in a rural townsite environment with a major freight and tourism route bisecting it.

It is recommended, that maps are made available along higher order routes showing routes, facilities and points of interest and relationship to the surrounding road system and relevant community facilities. Maps and signposting should be consistent in terms of destination names and other information.