

Shire of Dandaragan

Bike Network Plan 2015 - 2020

Jurien Bay and Cervantes




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Executive Summary

This Bike Network Plan aligns with the Shire's Strategic Community Plan 2011-2021 goals and subsequent objectives and actions to actively build and sustain liveable communities with a high level of amenity by setting out proposed cycle infrastructure improvements for the Townsites of Jurien Bay and Cervantes over the next five years (2015-2020).

The overall intention of the proposed cycle infrastructure enhancements is to specifically improve safety for cyclists, in particular school children and recreational cyclists such as tourists through enhanced route connectivity. Accordingly, the Plan (and associated identified routes and proposed treatments) has been focussed on assisting such cyclists and seeks to connect existing facilities as well as to provide access to identified key destinations in both Townsites. As part of this, strategic cycle networks using the key routes in both locations have been developed with lower hierarchy local routes tying in to the core network as appropriate.

In total, 34 infrastructure projects (including cycle parking and wayfinding signage) have been identified. The total cost of these improvements is estimated as being between \$1.1 million and \$1.4 million (including cycle infrastructure improvements that form part of wider streetscape upgrades such as along Bashford Street and Fauntleroy Park in Jurien Bay). Without these general upgrade project costs included, the total amounts to approximately \$760,000. Given funding constraints, it is acknowledged that not all of the identified infrastructure may be able to be constructed over the life time of this Plan.

A ranking process has been undertaken to help prioritise the cycling infrastructure improvements based on:

- Potential cycle safety;
- Improving the current Levels of Service; and
- Connectivity
 - Linking existing facilities.
 - Connects to schools.
 - Project identified as an existing opportunity in other planning work.
 - Would primarily serve a recreational need/tourists.
 - Forms part of the core strategic cycle network.

This prioritisation process has resulted in one project being ranked as 'urgent', five projects (excluding cycle parking, signing and marking) being ranked as 'high' priority, 14 ranked as 'medium' priority and ten ranked as being 'low' priority.

A five year funding program taking account of the prioritisation considerations as well a nominal annual implementation amount of \$50,000 (excluding grant funding from the Department of Transport which is assumed to double the total available Shire funding amount) has identified cycle infrastructure spending in the order of \$60,000 in 2015/16, increasing to approximately \$100,000 per annum from 2017 onwards in order to construct the majority of the identified cycle projects.

1 Introduction

1.1 Purpose and Scope

This Bike Network Plan specifically set out the strategic direction for improving cycle infrastructure over the next five years between 2015 and 2020 for the Shire of Dandaragan within Jurien Bay and Cervantes. As such, it identifies:

- A linked cycle network in the Townsites of Jurien Bay and Cervantes.
- Treatments to improve existing facilities.
- Proposed new engineering measures to connect the cycle route network.
- An implementation program taking into account potential Council spending on such improvements.

It should be noted that this Bike Network Plan is not intended to specifically cover all elements that would typically make up a broader Bike Plan, for instance with respect to a Vision, Policy Objectives and/or targets. However, it is noted that the overall intention of the proposed enhancements is to specifically improve safety for cyclists, in particular school children and recreational cyclists such as tourists through enhanced route connectivity. Accordingly, the Plan (and associated identified routes and proposed treatments) has been focussed on assisting such cyclists.

1.2 Policy Context

The WA Bicycle Network Plan 2014-2031 has a target to double the number of cycling trips within the next five years. One of the objectives of the Plan (as well as the National Cycling Strategy) is to provide a high-quality, interconnected bicycle network including within regional centres in WA.

The Shire of Dandaragan's Strategic Community Plan 2011-2021 has a goal of actively building and sustaining liveable communities with a high level of amenity (Goal 2). One aspect of this is the objective to develop, deliver and maintain a high quality of community infrastructure that continues to build the amenity and liveability of the communities (Objective 3). A resultant action that has been included in the Strategic Community Plan is to 'review and maintain the Shire's path programme including cycleways, walkways and trails with a review of cycleway and shared path plans to encourage a healthy community/lifestyle' (Code G2-03-A1).

In addition, the Strategic Community Plan seeks to develop recreation facilities and activities to support a healthy community with an action to 'work with developers to support the Turquoise Coast Path from Jurien Bay to Hill River and beyond' (G2-04-A6).

1.3 General Context

Information relating to current cycling data in Jurien Bay and Cervantes, including existing facilities and Levels of Service, is set out in Appendix A.

As indicated in Appendix A, total of 24 people were recorded as cycling to work within the urban centre/locality of Jurien Bay and Cervantes (based on place of work) in the 2011 census. Notwithstanding this, recreational cycling such as by tourists (along with school children) can be expected to provide future opportunities to increase the number of cyclists riding in both locations.

With respect to road safety, only one collision involving a cyclist was reported to the WA Police over the past five years (2009-2013) in the Shire (see Appendix A3).

1.4 Bike Plan Implementation

The development of a bike network supported by appropriate facilities is dependent upon funding being made available. This Bike Network Plan will help prioritise the construction of new measures as well as the upgrade of existing facilities in line with the Department of Transport's requirements that a strategic approach be adopted in order to receive infrastructure grants (for instance through the Regional Bicycle Network Grants program and/or the Connecting Schools Grant). It is noted that the Regional Grants Program favours projects that provide connections to Schools and generate cycle tourism.

1.5 Future Developments and Townsite Improvements

A number of existing studies and projects are being planned for the Shire, including the following for Jurien Bay.

1.5.1 Bashford Street: Streetscape Upgrade

The Shire is currently in the process of considering revisions to the town centre streetscape along Bashford Street in Jurien Bay. As part of this, initial concept plans indicate the intention to provide a shared path (albeit only 2.4m wide) potentially on both sides of Bashford Street within the Town Centre with an extended shared path on one side of the road between the northern and southern town entry.

1.5.2 Hamersley Street Upgrade

As part of a utility service upgrade to Hamersley Street, it is understood that Hamersley Street (which provides access to the Jurien Bay Primary and High Schools) is to be enhanced. Observations during the saddle survey highlighted a large number of bicycles parked at each school. As such, an opportunity exists to improve the current crossing location over Hamersley Street for cyclists and pedestrians given the potential for poor intervisibility between such users travelling to school and oncoming vehicles on Bayliss Street.

1.5.3 Jurien Bay Foreshore Redevelopment

Concept designs for the Jurien Bay foreshore redevelopment between the Jetty and Cook Street includes formalising the existing car park at the northern end of Cook Street as well as providing an asphalt path between Grigson Street and the Turquoise Way path at this location.

1.6 Existing Cycle Network and Future Philosophy

Whilst cyclists may wish to cycle everywhere, there is a need to link particular origins and destinations such as residential areas, schools, tourist accommodation/sites, public facilities and shopping areas. Potential destinations of interest along with the existing cycle network in both Jurien Bay and Cervantes are shown in Appendix A (Figures A1 and A2).

The routes and supporting infrastructure that form a bike network depend upon the cyclists to be catered for with respect to the trip type (neighbourhood, commuter, sports, recreational or touring) and the likely cyclists' skill level (child/novice, basic competence or experienced). As part of this, whilst 'every street is a bicycle street'¹ not all roads may need to have specific cycling facilities. The requirement to provide a cycle facility is dependent upon the needs of the intended 'design cyclist' and/or the prevailing traffic conditions (and road geometry). Appendix B provides high level guidance on the types of cyclists and their general preferences as well as guidance on types of cycle infrastructure. As indicated earlier, it is noted that the main purpose of this Bike Network Plan is to enhance the safety of users, in particularly for neighbourhood cycling such as school children as well as recreational cyclists such as tourists.

A key element to the development of the Bike Network is the need to connect existing facilities as well as to provide access to identified key destinations. Given that many key destinations such as shops, both the primary and secondary schools and the tourist information/civic precinct are in close proximity to each other, an opportunity exists to provide high quality facilities in this area, with subsequent connections further out from the centre as well as to the foreshore/Turquoise Way path.

As indicated previously, in some circumstances due to the prevailing road environment, there is no need to provide additional cycle infrastructure, for instance within the Beachridge suburb given the installation of footpaths on both sides of the road (for children to use) and the general traffic calmed nature of the road network which should result in lower traffic speeds coupled with a lack of through traffic which is conducive to cycling for all types of cyclists.

1.6.1 Overview of Existing Facilities

No on-road cycle lanes have been provided within either townsites. A review of the existing path network as set out in the Shire's Asset Management database indicates approximately 8.2km of shared path in Jurien Bay and 1.0km in Cervantes. As indicated in Appendix B, the Road Traffic Code notes that a 'shared path' sign or pavement marking is required at the beginning of the path to denote its legal standing (with an associated 'end' sign or marking).

Notwithstanding the use of bike and pedestrian symbols on the wooden Turquoise Way and/or Fragile Coast-Use Path boards along the routes around the foreshore in Jurien Bay and Cervantes, a common feature of the existing bike network is the lack of appropriate/legal shared path signs or markings. Current shared path markings (albeit faint and missing in some locations) are restricted to Hasting Street (between Bashford Street and Casuarina Crescent) in Jurien Bay; as well as Catalonia Street (between Tagus Street and Green Street – albeit with markings missing) and Seville Street (from Barcelona Drive to the western end of the road) in Cervantes. In addition, Iberia Street in Cervantes had non-standard



Shared Path Markings on Hasting Street, Jurien Bay



Non-standard shared path sign on Iberia Street, Cervantes

¹ Geelong Bike Plan Study Steering Committee, 1977

shared path signs installed in both directions outside the primary school, but no other supporting signs or markings elsewhere along the path.

It is also noted that the Turquoise Way path around the foreshore in Jurien Bay is typically 2.5m in width, meeting a desirable minimum width for a Local Access Path, but less than the 3.5m recommended for a recreational path. Elsewhere in Jurien Bay and Cervantes, other shared paths denoted in the Shire's Asset Management database were typically 2m in width – which typically matched other existing footpaths throughout the townsites.

Furthermore, a lack of cycle direction signs exist along routes, particular on the Turquoise Way path. Additionally, as indicated in Appendix A, a lack of cycle parking generally exists in both townsites compared to general motor vehicle parking.

2 Jurien Bay – Infrastructure

2.1 Overall Cycle Network

The overall cycle network setting out routes (with supporting infrastructure – see Section 2.2 and 2.3) is shown in Figure 2.1. Given funding constraints, it is acknowledged that not all infrastructure may be able to be constructed over the life time of this Plan. However, the intention is to guide longer term planning and the future direction of upgrades to assist cycling.

The cycle network seeks to link key origins and destinations within the main urban area of Jurien Bay bearing in mind the objective of improving safety of school children and recreational cyclists through improving the cycle network connectivity. As part of this, a strategic cycle network using the key routes has been developed with lower hierarchy local routes tying in to the core network as appropriate.

The required infrastructure improvements along parts of the network are discussed further in Sections 2.2 and 2.3. Whilst cycle facilities are proposed along the majority of the routes/links that make up the overall cycle network, in some instances, no treatments are proposed with recreational cyclists able to mix readily with normal traffic (footpaths however exist to assist child cyclists below the age of 12 years). As such, whilst Roberts Street and Hasting Street have shared paths provided to allow formal connections between the foreshore and Bashford Street, other parallel links such as Cook Street which is denoted as part of the local cycle network have no such treatments proposed at this stage to allow a focused approach to the network development whilst also taking account of likely traffic volumes and speeds.

2.1.1 Future Opportunities

In addition to the above urban network, longer term opportunities exist to expand the network to connect to the existing rural subdivisions to the northeast of the townsite off Jurien East Road. The connection of the current urban area to this residential area is via Indian Ocean Drive and Jurien East Road. As part of this, it is noted that Indian Ocean Drive between the town and Jurien East Road is typically relatively narrow, with no sealed shoulders and with high vehicle speeds. Accordingly, at present, such a route is not considered to be a safe environment to encourage the majority of cyclists to use and any future connection will require an upgrade to the road.

2.2 Improvements to Existing Shared Paths

2.2.1 Levels of Service (LoS)

As indicated in Appendix A4, whilst the Turquoise Way path generally has a reasonable LoS, other existing paths tend to be basic or poor primarily due to the path width, the expected volumes and proportion of pedestrians and/or cyclists as well as the lack of signing or marking.

Actions to address these existing short comings in the Level of Service are set out in Sections 2.2.2 to 2.2.8.



2.2.2 Narrow Path Widths

Issue

Within the existing cycle route network, a number of facilities do not currently meet desirable minimum widths for shared paths. As an absolute minimum, as identified in Appendix B, local access shared paths should be 2.5m, with recreational paths being 3m. Specifically, the following shared paths have been identified as having narrow widths:

- Hasting Street between Bashford Street and Casuarina Crescent (2m).
- Roberts Street (2m).
- Bayliss Street (2m).
- Bashford Street between Roberts Street and White Street (2m).

The Turquoise Way path is 2.5m along its length. Given expected current pedestrian and cycle numbers, this may be acceptable for the majority of its length. However, higher numbers of pedestrians (and cyclists) can be expected to exist in and around the jetty area, and opportunity exists to potentially widen the path between Fauntleroy Park and the jetty as well as to connect the shared path to the north of the jetty and Doust Street.

Actions

Widen the existing 2m shared paths to a minimum of 2.5m in line with the guidance contained in Appendix B. In addition, in the longer term, consider upgrading the full length of the Turquoise Way path to the typical minimum width of 3.0m to meet current standards as cycle and pedestrian volumes increase with a view to widening the path in short/medium term around the Jetty (e.g. north of Cook Street as part of the redevelopment of this area) given the higher number of likely pedestrians (and cyclists) in this area in line with the guidance in Appendix B2 and B3.

2.2.3 Vehicle Access across Turquoise Way Path

Issue

A motor vehicle access to/from the beach via Shingle Avenue cuts across the Turquoise Way path such that cyclists are forced to dismount or cycle through deep sand at this point. Whilst it is acknowledged that advanced 'stop' warning sign as well as actual 'stop' signs for cyclists at the crossing have been provided on both approaches to the sandy accessway along the Turquoise Way path, the current approach results in a poor level of service to cyclists.

In addition, it was noted that the advanced 'stop' and actual 'stop' signs are non-standard with respect to typical traffic signs.

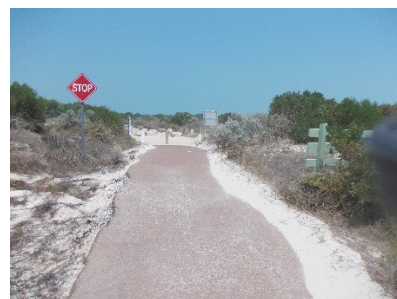


Non-Standard Advanced Stop Sign



Stop sign ahead

Standard Advanced Stop Sign



Non-Standard Stop Sign at crossing point



Standard Stop Sign

Actions

In the short term, consider amending the advanced stop warning signs and actual stop signs to meet current standards and guidelines with a view to investigating ways to ensure the shared path continues across the vehicle access and remains relatively free of sand, for instance by raising (and widening) the height of the path as it traverses the crossing point and ensure regular maintenance/sweeping of the path at this point.

2.2.4 Sand on Turquoise Way Path**Issue**

As indicated in the Level of Service maps in Appendix A, an approximate 230m section of the Turquoise Way path between Shingle Avenue and the parallel path to the north connecting Whitburn Place/Bluewater Drive is highly prone to sand debris collecting along its length due to coastal erosion. As part of this, it is noted that the Shire is already investigating options and seeking quotes to realign this section of the path.

Actions

Realign and reconstruct the section of the Turquoise Way path between Shingle Avenue and the parallel path connecting Whitburn Place/Bluewater Drive.



Sand on path causing an obstruction to users

2.2.5 Safety Hazards**Issue**

During the saddle survey, a section of the Turquoise Way path at Island Point was noted to have been washed away by the sea, resulting in the construction of a new section of the path (approximately 380m in length). Unfortunately, particularly at the northern point where the new path diverges from the old route, a short section of the old path remains without any warning that the path ends with a 1-2m drop off onto the beach.

Southbound cyclists (with their head down and/or cycling in the dark), especially tourists unaware of the altered route run the risk of continuing along the old path and cycling over the edge of the current drop-off.

Actions

Sign, fence and/or break up the path where the old route still remains to make it less likely that cyclists will follow the old path and subsequently potentially injure themselves.



Southbound approach to washed out section of Turquoise Way path



Drop-off from washed out section of Turquoise Way path to beach

2.2.6 Safety Hazards

Issue

Cyclists (and pedestrians) crossing over Hamersley Street at the corner of Bayliss Street and Hamersley Street to reach the Primary/High Schools have restricted visibility back along Bayliss Street towards oncoming eastbound vehicles resulting in reduced road safety at this location.

Actions

As part of the Hamersley Street upgrade, an opportunity exists to extend the path on the western side of Hamersley Street to allow pedestrians and cyclists to cross away from the intersection of Bayliss Street and Hamersley Street. Alternatively if a shared path is provided on the eastern side of Bashford Street as part of its upgrade, the potential exists to provide an informal crossing point to the south of Bayliss Street (similar to the one on the northern side) and provide a shared path on the southern side of Bayliss Street connecting directly to schools, thereby reducing the number of roads to be crossed by children travelling to/from south of the area.

2.2.7 Shared Path Signs and Markings

Issue

With the exception of Hasting Street between Bashford Street and Casuarina Crescent, none of the existing designated shared paths are appropriately signed or marked as having that role.

Actions

Sign and/or mark existing shared paths at the start and end of the route with reminders along their length, in particular along the Turquoise Way path. Examples of standard shared path markings are contained in Appendix B5.

2.2.8 Cycle Wayfinding Signs

Issue

Whilst a number of general direction signs for all road users exist along Bashford Street, minimal wayfinding signs are provided along the Turquoise Way path. Whilst some wooden direction/distance signs are occasionally provided, cycle wayfinding signs at some additional locations would be beneficial for tourists accessing the path from one of the many side paths leading on to the main route. In particular, this would assist at the side path leading to from the intersection of Beachridge Drive and Apium Way as well as the side paths leading to the beach given that it is not always obvious which is the main Turquoise Way path. Alternatively, cycle give way markings could be used on the side paths – see Appendix B5 for typical Main Roads WA shared path markings.

Actions

Install cycle wayfinding signs along the Turquoise Way path to assist tourists using the route.

2.2.9 Summary

A summary list of the proposed improvements to various locations are shown in Table 2.1 and Figure 2.2.

Table 2.1 Recommended ‘Spot’ Improvements to Existing Network (Jurien Bay)

Ref No.	Location	Description
JB1	Turquoise Way path between Cook Street and the jetty	Widen for 375m as part of any Foreshore redevelopment from 2.5m to 3m.
JB2	Hasting Street between Bashford St and Casuarina Cres	Widen for 510m from 2m to 2.5m and install shared path markings.
JB3	Roberts Street	Widen for 300m from 2m to 2.5m and install shared path markings.
JB4	Bayliss Street	Widen for 160m from 2m to 2.5m and install shared path markings.
JB5	Bashford Street between Roberts Street and White Street	Widen for 190m from 2m to 2.5m and install shared path markings.
JB6	Turquoise Way path - between Shingle Avenue and the parallel path to the north	Realign path (approximately 300m).
JB7	Turquoise Way path – vehicle access path crossing	Short term – upgrade signs. Medium term – raise cycle path to ensure route continuation.
JB8	Turquoise Way path – washed out section at Island Point	Sign and/or break up the existing path.
JB9	Hamersley Street/Bayliss Street	Investigate options to improve cycle/pedestrian crossing locations as part of Bashford Street and/or Hamersley Street upgrades.
JB10	Turquoise Way path – entire length	Install shared path markings along route and signs at side path access points with particular attention to the jetty area to minimise pedestrian/cycle conflicts. Install cycle wayfinding signs along length.

2.3 New Routes/Additions to the Cycle Network

2.3.1 Network Gaps/Additions

Issues

Despite the presence of footpaths (which can legally be used by children under the age of 12 years), the following links have been identified as being gaps in the network in terms of the paths being a shared facility for use by all cyclists:

- Turquoise Way between the Jetty and Doust Street.
- Hasting Street between Casuarina Crescent and Dalton Street.
- Hamersley Street, Batt Street and Whitefield Road (to allow access to/from the schools).
- Footpath between Lesueur Drive and Bluewater Drive though Eric Collinson Park (– note, it is acknowledged that the existing shared path between Bluewater Drive and the Turquoise Way path is approximately 2.2m wide).
- Western end of Roberts Street and the foreshore.
- Bashford Street between Nineteenth Avenue and Lesueur Drive.

- Lesueur Drive between Bashford Street and Eric Collinson Park (and ultimately to the Turquoise Way path at Island Point – see below). Heavier traffic volumes can be expected over the northern section of Lesueur Drive with vehicles accessing the Beachridge suburb via this route potentially using Ward Street and Adriana Parade.

The above routes will require the existing footpaths to be widened to meet the minimum standards set out in Appendix B and subsequently designated and signed/marked as shared paths.

In order to provide a direct and shorter route between the town centre/school and the Beachridge suburb, an opportunity exists to construct a new shared path along Bashford Street (Indian Ocean Drive south) between Lesueur Drive and Dryandra Boulevard – approximately 800m (and ultimately to Middleton Boulevard – approximately a further 550m).

In addition, it is noted that Avocet Street between Shearwater Drive and Beronia Turn which essentially provides a direct connection between Beachridge and Lesueur Drive does not have any path provided, potentially restricting connectivity for school children below the age of 12 years.

Similarly, no separate path currently exists on Harbour Drive (to provide a future connection to the Marina) whilst no connection links the northern end of the Turquoise Way path to the road network at Oceanic Way/the Marina.

No direct path exists between Nineteenth Avenue (tennis courts) and the Oval/Community Centre with cyclists having to head north along Bashford Street to access the Oval via the main car park entry/exit.

No sealed path currently connects Lesueur Drive to the Turquoise Way path to the south of Eucalypt Way, thereby preventing a circular recreational route along the Foreshore and the town centre.

Actions

Widen the listed existing footpaths and convert them to shared paths with appropriate signs and/or markings including connecting the western end of Roberts Street to the foreshore through the car park and providing appropriate signs/markings to denote the shared pedestrian/cycle area in the vicinity of the jetty. As part of this, construct a shared path along Bashford Street in line with the proposed Bashford Street upgrade.

Construct a shared path to the required width along the western side of Bashford Street (Indian Ocean Drive south) between Lesueur Drive and Dryandra Boulevard.

Construct a footpath/shared path along Avocet Street.

Connect the northern end of the Turquoise Way path to Oceanic Way and construct a new shared path between Oceanic Way and the Marina Car Park as well as along Harbour Drive (primarily to cater for children below the age of 12 years given low expected traffic volumes). No particular facility is proposed along Seaward Drive as part of this Bike Network Plan given expected relatively low traffic volumes at present – although it is acknowledged that volumes may increase with further residential development in the area. As part of this, the current road width of 7.5m is unable to accommodate on-road treatments such as cycle lanes with any improvements requiring road widening or more appropriately, widening and conversion of the existing footpath to a shared path as more development occurs and traffic volumes increase.

Construct a direct shared path between Bashford Street/Nineteenth Avenue at the tennis courts and the Oval/Community Centre.

Construct a shared path to the south of Eucalypt Way from the Turquoise Way path to Lesueur Drive.

2.3.2 Summary

A summary list of the proposed improvements to various locations is shown in Table 2.2 and Figure 2.2.

Table 2.2 Recommended Major Improvements (Jurien Bay)

Ref No.	Location	Description
JB11	Turquoise Way between Jetty and Doust Street	Widen and realign existing path over a 160m length from 2.5m to 3m over the southern section and provide a separate bike path over the 150m northern section.
JB12	Hasting Street between Casuarina Crescent and Dalton Street	Widen existing 250m footpath from 2m to 2.5m and designate/mark as a shared path.
JB13	Hamersley Street, Batt Street and Whitefield Road	Widen existing footpaths from 2m to 2.5m and designate/mark as a shared path (800m).
JB14	Footpath between Lesueur Drive and Bluewater Drive through Eric Collinson Park	Widen existing 190m footpath from 2m to 2.5m and designate/mark as a shared path.
JB15	Roberts Street – western end	Upgrade 60m connection to foreshore through car park and designate/mark as a shared path.
JB16	Bashford Street between Seaward Drive and Lesueur Drive	Provide 3.5m wide shared paths along Bashford Street (1.7km) as part of the streetscape upgrade including widening existing footpaths and designating/mark them as shared paths.
JB17	Lesueur Drive between Bashford Street and Eric Collinson Park	Widen existing 460m footpath from 2m to 2.5m and designate/mark as a shared path.
JB18	Bashford Street between Lesueur Drive and Dryandra Boulevard	Construct a new 3.5m wide 800m shared path on the western side of Bashford Street, potentially as part of the Bashford Street upgrade.
JB19	Avocet Street	Construct a 2.5m wide 90m footpath to connect Shearwater Drive and Beronia Turn in order to allow school children below the age of 12 years to cycle off road in the area.
JB20	Harbour Drive, Marina and Oceanic Drive	Construct a new 800m shared path linking the northern end of the Turquoise Way path with Oceanic Drive, Oceanic Drive to the Marina as well as along Harbour Drive. Exact location and alignment to be determined by the Shire to fit proposed development.
JB21	Tennis Court - Oval	Construct a new 3.5m wide 230m shared path
JB22	Extension of Lesueur Drive to Turquoise Way south of Eucalypt Way	Construct a new 3.5m wide 400m shared path

2.4 Cycle Parking and End of Trip Facilities

Given the limited amount of cycle parking (for instance compared to car parking) particularly along the length of the foreshore, additional cycle parking to supplement the existing cycle racks is proposed at a number of locations as show in in Figure 2.2. As part of this, cycle parking rails should be installed at parks/reserves, picnic areas along the Turquoise Way path, at the Marina as well as at public car parks associated with the foreshore.



Figure 2.2 Proposed Cycle Facilities in Jurien Bay

3 Cervantes – Infrastructure

3.1 Overall Cycle Network

The overall cycle network setting out routes (with supporting infrastructure – see Section 3.2 and 3.3) is shown in Figure 3.1. As with Jurien Bay, given funding constraints, it is acknowledged that not all infrastructure may be able to be constructed over the life time of this Plan. However, the intention is to guide longer term planning and the future direction of upgrades to assist cycling.

The network seeks to link key origins and destinations within the main urban area of Cervantes bearing in mind the objective of improving safety of school children and recreational cyclists through improving the cycle network connectivity. As part of this, a strategic cycle network using the key route through the townsite has been developed with a lower hierarchy local route linking the Primary School to the core network. It is noted that daily/hourly traffic volumes and speeds within Cervantes can be considered to be relatively low, with most roads not requiring any formal cycle facilities to be installed. Where they are proposed, the intention is to simply provide a connected link through the Town on the most heavily used roads as well as to connect to the school.

The identified infrastructure improvements along parts of the network are discussed further in Section 3.2 and 3.3.

3.2 Improvements to Existing Shared Paths

3.2.1 Levels of Service (LoS)

As indicated in Appendix A4, the existing signed/marked shared path network typically has a reasonable LoS, albeit with the path serving the Primary School along Iberia Street having basic cycling conditions primarily due to the path width and the lack of consistent signing or marking.

Actions to address existing short comings in the Level of Service are set out in Sections 3.2.2 to 3.2.4.

3.2.2 Narrow Path Widths

Issue

Within the existing cycle route network, the shared path along Catalonia Street (2m wide) and Iberia Street (1.5m - although not shown as a shared path in the Shire's Asset Management database) do not currently meet the desirable minimum width for a local access shared path or recreational path. As a minimum, as identified in Appendix B, local access shared paths should be 2.5m, with recreational paths being 3m. In addition, whilst shared path markings exist at some locations, they have not been consistently applied at the start/end of each mid-block section.

The shared paths within Catalonia Park are also only 2m in width. However, it is acknowledged that these paths typically only serve the small park rather than being longer recreational or transport associated paths. In addition, whilst the wooden sign denotes the use of the path by cyclists, no formal traffic sign or pavement markings are provided.

Actions

Widen existing shared path on Catalonia Street and Iberia Street to a minimum of 2.5m, but preferably 3m and provide consistent shared path signs/markings along Catalonia Street, Iberia Street and within the park.



Figure 3.1 Cervantes Cycle Network

3.2.3 Unsegregated Shared Path

Issue

The western end of the 2.5m wide shared path along Seville Street changes mid-way along its length from a shared path separated vertically from the road by a kerb to a facility that runs at road level, potentially allowing two-way cycling/walking separated only by a white line.

Actions

Consider providing a physical form of separation between the shared path and the road.

3.2.4 Shared Path Signs and Markings

Issue

Whilst Iberia Street in front of the primary school has two non-standard shared path signs, the start and end of the path are not denoted.

Actions

Sign and/or mark the existing shared path along Iberia Street with appropriate, standard signs and/or markings.

3.2.5 Summary

A summary list of the proposed improvements to various locations are shown in Table 3.1 and Figure 3.2.

Table 3.1 Recommended 'Spot' Improvements to Existing Network (Cervantes)

Ref No.	Location	Description
C1	Catalonia Street (between Green Street and Tagus Street)	Widen from 2m to 2.5m over a 400m length and install shared path markings.
C2	Seville Street	Provide physical segregation at the western end of the path (350m) and ensure path is sufficiently wide (2.5m) as a shared path.
C3	Iberia Street (between Cadiz Street and Weston Street)	Install correct shared path signs/markings and widen path (630m) – see Section 3.3 (Ref C8) given its lack of status in the Shire's Asset Management database as a shared path.

3.3 New Routes/Additions to the Cycle Network

3.3.1 Network Gaps

Issues

Despite the presence of footpaths (which can legally cater for children under the age of 12 years), the following links have been identified as being gaps in the network in terms of the paths being a shared facility for use by all cyclists:

- Aragon Street between Catalonia Street and Seville Street.
- Seville Street between Aragon Street and west of Barcelona Drive.
- Alva Way.
- Cadiz Street between Aragon Street and Alva Way.

- Iberia Street.
- Weston Street between Seville Street and Iberia Street.
- Catalonia Street between Tagus Street and Aragon Street.

The above routes will require the existing footpaths to be widened to meet the minimum standards set out in Appendix B and subsequently designated and signed/marked as shared paths.

Actions

Widen the listed existing footpaths and convert them to shared paths with appropriate signs and/or markings.

3.3.2 Cycle Wayfinding Signs

Issue

Whilst a number of general direction signs for all road users exist, minimal wayfinding signs for tourists on bikes are provided. Cycle wayfinding signs at some locations would be beneficial for tourists.

Actions

Install cycle way finding signs as appropriate to assist tourists using the route.

3.3.3 Summary

A summary list of the proposed improvements to various locations is shown in Table 3.2 and Figure 3.2.

Table 3.2 Recommended Major Improvements (Cervantes)

Ref No.	Location	Description
C4	Aragon Street between Catalonia St and Seville St	Widen existing 760m footpath from 2m to 2.5m and designate/mark as a shared path.
C5	Seville Street between Aragon Street and west of Barcelona Drive	Widen existing 950m footpath from 2m to 2.5m and designate/mark as a shared path.
C6	Alva Way	Widen existing 175m footpath from 2m to 2.5m and designate/mark as a shared path.
C7	Cadiz Street between Aragon Street and Alva Way	Widen existing 250m footpath from 2m to 2.5m and designate/mark as a shared path.
C8	Iberia Street	Widen existing 630m footpath from 2m to 2.5m
C9	Weston Street between Seville Street and Iberia Street	Widen existing 310m footpath from 2m to 2.5m and designate/mark as a shared path.
C10	Catalonia Street between Tagus Street and Aragon St	Widen existing 150m footpath from 2m to 2.5m and designate/mark as a shared path.
-	Cycle Wayfinding signs	Identify appropriate cycle wayfinding direction sign locations and destinations to be shown.

3.4 Cycle Parking and End of Trip Facilities

Given the limited amount of cycle parking (for instance compared to car parking) particularly along the length of the foreshore, additional cycle parking to supplement the existing cycle racks is proposed at a number of locations as show in in Figure 3.2.



Figure 3.2 Proposed Cycle Facilities in Cervantes

4 Implementation Program and Costs

4.1 Prioritisation

In line with the noted objective of the Bike Network Plan, prioritisation of the proposed measures in both townsites has been based primarily with respect to cycle safety and connectivity as well as existing levels of service.

In particular, given the unknown amount of cycling currently undertaken (and associated low crash numbers), prioritisation of future capital works has been primarily based upon the following equally weighted criteria, with different scores given to each in order to determine an overall general ranking:

- Potential cycle safety.
- Improving the current Levels of Service.
- Connectivity
 - Linking existing facilities.
 - Connects to schools.
 - Project identified as an existing opportunity in other planning work.
 - Would primarily serve a recreational need/tourists.
 - Forms part of the core strategic cycle network.

In addition to the above, cycle parking (given that without such end of trip facilities, cycle trips won't be carried out), shared path markings/signs along the Turquoise Way path (given the legal liability in case a pedestrian/cycle collision occurs and some of the wooden signs) and cycle wayfinding signage (to assist tourists with directions) are all considered to be high priority activities.

As indicated in Section 4.3, overall this has resulted in one project ranked as 'urgent', five projects (excluding cycle parking, signing and marking) being ranked as 'high' priority, 14 ranked as 'medium' priority and ten ranked as being 'low' priority when excluding factors such as ease of implementation and costs.

It is noted that a number of projects ranked as being a high priority also form part of existing projects. Of those ranked as medium, improvements to the Turquoise Way path where the sand runs across the path as well as at the vehicle points and the construction of a new shared path along Bashford Street between Dryandra Boulevard and Lesueur Drive were evenly rated as the next most important projects.

4.2 Indicative Costs

In order to provide a robust approach to establishing indicative infrastructure costs, a lower and upper cost range has been provided (see overleaf). The total cost of the identified improvements are approximately \$1.2 million to \$1.5 million.

For completeness, those cycle infrastructure improvements that form part of wider streetscape upgrades such as along Bashford Street and Fauntleroy Park in Jurien Bay have been included in the

costs even though these may actually be part of the overall upgrades. Without these general upgrade project costs included, the total amounts to approximately \$865,000.

Ref No.	Location	Cost \$	
		Lower	Upper
JURIEN BAY			
JB1	Turquoise Way path between Cook Street and the jetty	11,000	13,000
JB2	Hasting Street between Bashford St and Casuarina Cres	20,000	26,000
JB3	Roberts Street	12,000	15,000
JB4	Bayliss Street	6,000	8,000
JB5	Bashford Street between Roberts Street and White Street	8,000	10,000
JB6	Turquoise Way path - Shingle Avenue to parallel path to the north	46,000	54,000
JB7	Turquoise Way path – vehicle access path crossing	3,000	3,000
JB8	Turquoise Way path – washed out section at Island Point	4,000	4,000
JB9	Hamersley Street/Bayliss Street investigation	-	-
JB10	Turquoise Way path – entire length	8,000	8,000
JB11	Turquoise Way between Jetty and Doust Street	28,000	32,000
JB12	Hasting Street between Casuarina Crescent and Dalton Street	10,000	12,000
JB13	Hamersley Street, Batt Street and Whitefield Road	31,000	40,000
JB14	Footpath between Lesueur Drive and Bluewater Drive	8,000	10,000
JB15	Roberts Street – western end	3,000	3,000
JB16	Bashford Street between Seaward Drive and Lesueur Drive	337,000	436,000
JB17	Lesueur Drive between Bashford Street and Eric Collinson Park	18,000	23,000
JB18	Bashford Street between Lesueur Drive and Dryandra Boulevard	159,000	205,000
JB19	Avocet Street	18,000	22,000
JB20	Harbour Drive, Marina and Oceanic Drive	154,000	196,000
JB21	Tennis Court – Oval link	46,000	59,000
JB22	Extension of Lesueur Drive to Turquoise Way south of Eucalypt Way	79,000	103,000
-	28 cycle parking rails at 14 locations	9,000	11,000
Jurien Bay Total		1,018,000	1,293,000
CERVANTES			
C1	Catalonia Street	16,000	20,000
C2	Seville Street	30,000	38,000
C3	Iberia Street	1,000	1,000
C4	Aragon Street between Tagus Street and Seville Street	30,000	38,000
C5	Seville Street between Aragon Street and west of Barcelona Drive	37,000	47,000
C6	Alva Way	7,000	9,000
C7	Cadiz Street between Aragon Street and Alva Way	10,000	12,000
C8	Iberia Street	24,000	31,000
C9	Weston Street between Seville Street and Iberia Street	12,000	15,000
C10	Catalonia Street between Tagus Street and Aragon Street	6,000	8,000
-	Cycle Wayfinding signs	3,000	3,000
-	10 cycle parking rails at 5 locations	4,000	4,000
Cervantes Total		180,000	226,000
TOTAL		1,198,000	1,519,000

4.3 Program

The program shown below takes account of the prioritisation considerations as well a nominal annual implementation amount of \$50,000 (excluding grant funding from elsewhere such as from the Department of Transport which is assumed to double the total available Shire funding amount).

Ref No.	Location	Priority	Upper Cost (\$)				
			2015/16	2016/17	2017/18	2018/19	2019/20
JURIEN BAY							
JB1	Turquoise Way path between Cook St and Jetty	High	To be undertaken as part of a wider upgrade				
JB3	Roberts Street	Medium			15,000		
JB4	Bayliss Street	Low				8,000	
JB5	Bashford St: Roberts St and White St	High		10,000			
JB6	Turquoise Way path - Shingle Av to parallel path	Medium	54,000				
JB7	Turquoise Way path – vehicle access crossing	Med	1,000	2,000			
JB8	Turquoise Way path – washed out section	Urgent	4,000				
JB9	Hamersley St/Bayliss St	Medium	To be undertaken as part of a wider upgrade				
JB10	Turquoise Way path – entire length	High		8,000			
JB11	Turquoise Way: Jetty and Doust St	High		32,000			
JB12	Hasting St: Casuarina Cr and Dalton St	Meium			12,000		
JB15	Roberts St – western end	High		3,000			
JB16	Bashford St: Seaward Dr and Lesueur Dr	High	To be undertaken as part of a wider upgrade				
JB18	Bashford St: Lesueur Dr and Dryandra Bvd	Medium	To be undertaken as part of a wider upgrade				
JB19	Avocet St	Low				22,000	
JB22	Lesueur Dr extension	Medium					103,000
-	Cycle Parking at 14 sites	High		11,000			
Jurien Bay Total			59,000	66,000	27,000	30,000	103,000
CERVANTES							
C2	Seville Street	Medium			38,000		
C3	Iberia Street	Medium			1,000		
C4	Aragon Street: Tagus Street and Seville Street	Medium			38,000		
C5	Seville Street: Aragon St and west of Barcelona Dr	Medium				47,000	
C6	Alva Way	Medium				9,000	
C7	Cadiz Street: Aragon Street and Alva Way	Medium				12,000	
C10	Catalonia Street: Tagus Street and Aragon Street	Medium				8,000	
-	Cycle Wayfinding signs	High		3,000			
-	Cycle parking at 5 sites	High		4,000			
Cervantes Total			0	7,000	77,000	76,000	0
OVERALL TOTAL			59,000	73,000	104,000	106,000	103,000

To allow a robust approach to the funding of projects, the upper cost amounts within the provided range have been used. It is assumed that the realignment of the Turquoise Way path to the north of Shingle Avenue (Ref. JB6) as well as other important elements along the Turquoise Way path will be undertaken and funded in 2015/16. Those improvements that form part of wider upgrades such as Bashford Street and Fauntleroy Park are assumed to be separately funded exercises and do not need to be included in the Bike Network Plan.

Due to the total cost exceeding the likely available funding over the next five years, a number of projects are not included in the this five year program. These include: JB2, JB13, JB14, JB17, JB20, JB21, C1, C8 and C9.

4.4 Upgrades to Existing Footpaths and Shared Paths

The identified improvements to existing footpaths and shared paths such as widening current facilities to meet desirable minimum widths assumes and is costed on the basis of simple widening of concrete paths occurring. It is noted that such widening, resulting in a joint running along the length of the path, is not ideal from a cycling perspective in that the joint can trap a cycle wheel and/or cause an uneven surface for cycling on. Regardless of this, this approach has been adopted given the potential costs of removing the existing footpath or shared path and subsequently constructing a new path of sufficient width, for instance out of asphalt (a preferred surface for cycling) or simply accepting a substandard shared path width.

5 Maintenance Program

A number of general and specific issues related to maintenance need to be considered as part of the network management with respect to cycling. Regular maintenance is required to deliver an optimum level of service to riders with scheduled activities designed to ensure routes are kept free from hazards and debris.

5.1 Risk Assessment

At present, the Shire has no information relating to the use of cycle facilities in terms of volumes of cyclists. As such, maintenance activities cannot be currently prioritised according to level of usage. It is recommended that a small counting program be considered for different sections of Turquoise Way path to establish current demand and usage.

Shared facilities and other cycle measures such as cycle parking rails should be inspected as part of the Shire's footpath inspections. Furthermore, cycle parking rails should be included within the Shire's Transport Asset Management Plan.

It is also noted that the Shire's website allows path/facility defects to be reported in addition to the any formal audits and inspections of the network through the following link:

<http://www.dandaragan.wa.gov.au/report-it.aspx>

5.2 Activities

Some of the hazards and maintenance activities that need to be considered as part of maintenance are:

- Sweeping to prevent the accumulation of debris such as broken glass, stones, vegetation and sand.
- Trimming of overhanging/overgrown vegetation, weeds and grass that may encroach into the cyclist's path reducing available cycle path width and/or reduce sight distances.
- Cleaning of rubbish and graffiti.
- Repairing potholes and broken surface seals that may cause cyclists to swerve unexpectedly to avoid the hazard.
- Out of order street lighting.
- Repainting of faded pavement markings, especially shared path markings on concrete surfaces.
- Sign cleaning.

5.3 Maintenance Schedule

A proposed maintenance schedule to minimise hazards associated with cycle facilities is shown below.

Activity	Frequency
Facility inspections	Annually
Shared path sweeping	Monthly (and/or as required subject to specific location requirements)
Vegetation trimming	Quarterly and/or as required
Cleaning of rubbish/graffiti	Quarterly
Pothole repairs	As required/reported
Street lighting repairs	As required/reported
Remarking of shared path symbols	As required following annual inspection
Sign cleaning	Annually

Appendix A Base Cycling Data

A1 Cycle Use

No cycle count data currently exists within the Shire.

Relevant 2011 census data for the Jurien Bay and Cervantes urban centres and localities is contained in Table A1.1 below to give an indication of levels of use and other transport elements.

Table A1.1 2011 Census Data

		Jurien Bay		Cervantes	
		No.	%	No.	%
Mode of Transport to Work	Bicycle	19	3.7	5	3.0
	Walked only	32	6.3	25	14.8
Dwellings with a motor vehicle	None	16	3.3	10	5.2

A2 Traffic Counts

Very limited traffic data for roads within either townsite currently exists with volumes typically restricted to Bashford Street and Lesueur Drive (both in the order of 1,600 vehicles per day) in Jurien Bay and Aragon Street (1,300 vehicles per day during the summer) in Cervantes.

A3 Road Safety

A review of the Main Roads WA Crash Reporting System for Dandaragan indicates that during the most recent five year period available (2009-2013), only one crash involving a cyclist was recorded. This non-injury collision occurred in 2009 on Heaton Street in Jurien Bay (some 20m to the north of the intersection with Roberts Street) and involved a cyclists colliding with a parked vehicle on a path.

A4 Existing Facilities and Level of Service

At present, the only cycling facilities (except cycle parking/end of trip facilities) that both Jurien Bay and Cervantes townsites have are off-road shared paths. No specific on-road cycle lanes exist. Plans showing the extent of the existing shared path network (along with the footpath network) based on the Shire's Asset Management database, existing cycling parking and potential destinations around both townsites are provided in Figures A1 and A2.

Main Roads WA² have prepared a set of guidelines to help measure the level of service that paths and roads in Western Australia provide for cycling. The Guidelines notes that in the context of cycling, Level of Service (LoS) means:

An overall measure of cycling conditions on a road or path. This is linked directly to factors that affect rider comfort and safety including traffic volumes, mix of passing vehicles, operating space and pavement condition. Another way to look at cycling level of service is 'bicycle friendliness'.

² Main Roads WA. Guidelines for Assessing Cycling Level of Service. May 2006

The assessment procedure considers a number of traffic-related, design, intersection and pavement factors in order to help determine the LoS. Using these factors, the guideline utilises a LoS scale with different grades describing riding conditions:

- LoS A - Ideal cycling conditions
- LoS B - Reasonable cycling conditions
- LoS C - Basic cycling conditions
- LoS D - Poor cycling conditions
- LoS E - Unsuitable for cycling

Figures A3 and A4 shows the calculated LoS for those routes identified as having specific cycle facilities provided in Jurien Bay and Cervantes. As part of the process, due to the lack of data concerning shared path usage, an estimate of average daily pedestrian and cycle volumes for different sections of the existing shared path network – for instance, it is assumed that the section of the Turquoise Way path adjacent to the jetty is relatively well used with a high proportion of pedestrians compared to cyclists. Beyond the central section, smaller numbers of pedestrians and cyclists have been assumed with roughly equal proportions of users.



Figure A1 Existing Cycle Network and Facilities in Jurien Bay



Figure A2 Existing Cycle Network and Facilities in Cervantes



Figure A3 Cycle LoS in Jurien Bay



Figure A4 Cycle LoS in Cervantes

Appendix B Design Requirements

B1 Types of Cyclists and their Requirements

Satisfying the needs of cyclists' and providing quality routes has to take account of cyclists' skills and trip purpose. Accordingly, the Bike Plan has considered a range of cyclist trip types³ with respect to the cycle route network and the associated infrastructure that seeks to meet their specific requirements:

Neighbourhood Cycling (including trips to local schools, shops, riding near home)

The provision of facilities for neighbourhood cycling is primarily based around the needs of novices on local streets around their homes, shops and schools. However, given the existing layout of Jurien Bay, destinations such as the schools may require Bashford Street to be crossed. Neighbourhood cyclists typically prefer:

- The highest degree of safety.
- Comfort and personal security.
- Low traffic speeds and volumes.
- Good separation from traffic when busy roads (such as Bashford Street) are to be cycled along.
- Minimum gradients.
- Facilities for crossing busy roads (such as Bashford Street).
- Secure cycle parking at destinations.
- Good lighting for evening trips.

Commuter Cycling (including trips to work, tertiary education, high schools and any longer distance utility trip)

Many commuter cyclists choose a fast, direct route at the expense of higher perceived safety, comfort or attractive routes. As far as practical however, it is necessary to provide cycle facilities for cyclists with a basic competence, rather than simply cater for experienced cyclists, given the need to try and attract newer users with less confidence.

Commuter cyclists typically prefer:

- High quality road surfaces.
- Direct and coherent routes.
- Minimal delays.
- Facilities that give them their own space.
- Intersections that minimise conflicts with other traffic
- Good lighting for evening trips.

³ LTSA. Cycle Network and Route Planning Guide. New Zealand. 2004.

- Secure parking at or very close to their destination.
- Trip end facilities for changing clothes, lockers and showers at work.

Recreational Cycling (including leisure trips and exercise)

Recreational cyclists ride mainly for leisure and seek to enjoy the experience, being usually less constrained by time. Their skills can vary widely. The Turquoise Way shared path is an attractive recreational cycling route. Recreational cyclists typically prefer:

- Comfort
- Good surfaces.
- Minimal gradients
- High degree of safety and personal security.
- Attractive, pleasant and interesting routes that are well signed.
- Parking facilities if they dismount to use facilities or visit attractions along the route.

Sports Adults

Adult sports cyclists tend to travel at higher speeds, being confident and willing to claim their own road space. They typically travel over longer distances using major roads and may travel in groups of two or more and may seek to ride two abreast. Such cyclists typically prefer:

- High quality road surfaces.
- Minimal delays.
- Physically challenging routes and demanding terrain.
- Generous road widths.

B2 Cycle Facilities

Relevant on-road cycling facilities typically include:

- Exclusive bicycle lanes – signed and marked (and delineated) as such; cyclists must use if provided.
- Bicycle/car parking lanes – signed and marked as such. ‘Car door open’ type crashes are a risk if a gap between the parking bay and cycle lane doesn’t exist.
- Sealed shoulders/edge lines – if intended as a cycle facility, widths should be the same as for exclusive bicycle lanes. Considered to be an ‘advisory’ treatment, cycle symbols can be used to highlight cycle routes (without the signs required to denote exclusive bicycle lanes).
- Wide kerbside lanes – as with sealed shoulders, cycle logos can be used to highlight cycle routes (without the signs required to denote exclusive bicycle lanes).

Main Roads WA guidelines note that local roads without sealed shoulders and edge lines are permitted to have cycle pavement symbols installed where car parking is minimal and the minimum width of the traffic lane is 3.7m (i.e. a 7.4m wide two lane single carriageway road). Where sealed

shoulders and edge lines exist with shoulder and traffic lanes meeting Austroads standards, cycle pavement symbols may be installed where car parking demand is minimal.

Off-road paths can include:

- Exclusive bicycle paths – signed and marked as such. Cyclists will prefer using such paths to on-road facilities and/or shared paths where the level of service is similar. Commuting cyclists will choose on-road facilities only where the commuting time and distance is reduced.
- Shared use paths – provided where cycle and pedestrian demand is not sufficiently high to provide separate facilities and where pedestrian-cycle conflicts are less likely to occur. Where these are provided alongside roads, they are usually only appropriate for low speed cycling given the potential for driveways and intersections to cross the path. Shared use paths are likely to be used by a wide range of users with respect to speed, space requirements, user expectation and predictability. Shared paths must be denoted as such through the use of a “shared path” sign or road marking (with a suitable sign or marking denoting the end of the shared path). Austroads notes the following desirable and acceptable path widths, although widths should reflect expected demand and use by both pedestrians and cyclists: Local access paths – Acceptable: 2.5-3.0m and Desirable: 2.5m; Commuter paths – Acceptable: 2.5-4.0m and Desirable: 3.0m and Recreational paths – Acceptable: 3.0-4.0m and Desirable: 3.5m. It should be noted that good practice⁴ would suggest paths less than 2.5m in width are only suitable on routes less than 500m in length with cycle volumes less than 20 cyclists per hour. Further guidance on shared path and pedestrian/cycle interaction is given in Appendix B3.
- Separated paths – provided where significant numbers of pedestrians and cyclists exist. Austroads Guide to Road Design Part 6A notes that public understanding of the use of such paths is not considered to be good given the scarcity of such facilities and consequently, careful design and prominent signing/regular marking is required along with differing pavement surfaces/colours

It should be noted that further guidance on the width/type of path relative to capacity is provided in Appendix B.

Off road paths need to be well maintained (as a separate exercise from that for the road network) and should be connected by smooth ramps.

It should be noted that only children under the age of 12 years can ride on a footpath.

The December 2007 Review of the Perth Bicycle Network – Stage 3: Community and Stakeholder Consultation report for the DPI sets out the results of community consultation on cycle facilities in general and user preferences. The results indicated that almost 70% preferred to ride on cycle paths rather than on-road due to safety concerns. Notwithstanding this, workshop participants as part of the DPI review indicated a preference for cycle lanes on moderately busy roads and quiet local roads compared to shared paths or divided/separated paths or nothing at all. On busy roads, the majority of the participants preferred a divided/separate path or a bike lane.

Indicative guidance on the type of mid-block cycle facility to be provided based on traffic speeds and volumes is contained in B4.

⁴ Vic Roads Cycle Notes 21. August 2013

B3 Pedestrian-Cyclist Conflicts

The potential for conflicts between pedestrians and cyclists, or indeed between different types of cyclists is related to the number of users, cycling speeds as well as the design and width of the provided facility. With increasing levels of usage and user interaction, the level of service to both pedestrians and cyclists decreases. Research⁵ shows that whilst pedestrians and cyclists can readily interact at low speeds, the risk of collisions increases as higher density flows occur. Conflicts can be minimised through engineering and design, education of users, the encouragement of desired behaviours (such as slower speeds and keeping left etc.) and in extreme cases, enforcement.

Little guidance exists with respect to levels of service for shared paths. What little there is however indicates that an acceptable cycle volume for a particular defined level of service (in terms of the number of events per hour where an event is a bicycle meeting or passing a pedestrian or cyclist) doubles when simply increasing the width of a path from 2.4m to 3.0m – i.e. relative small increases in width can result in a shared path accommodating larger increases in cyclists whilst still maintaining the same level of service.

It is also noted that design guidance suggests that whilst shared paths are suitable for most situations, in high usage areas, separate pedestrian and cyclist facilities may be required. Separated paths however are ineffective if pedestrian movements along or across the cycle path are not minimised, and their design/installation need to be of a comparable standard for each type of users requirements.

An example of suggested path widths taken from Vic Roads Cycle Notes 21 is shown to the right taking account of different numbers of pedestrians and cyclists.

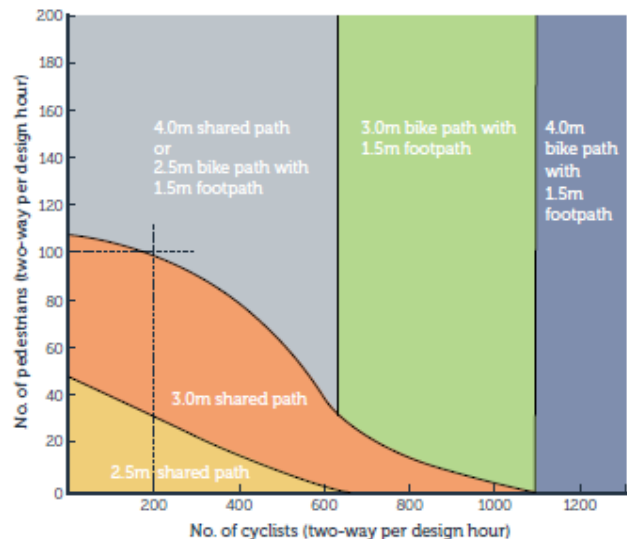
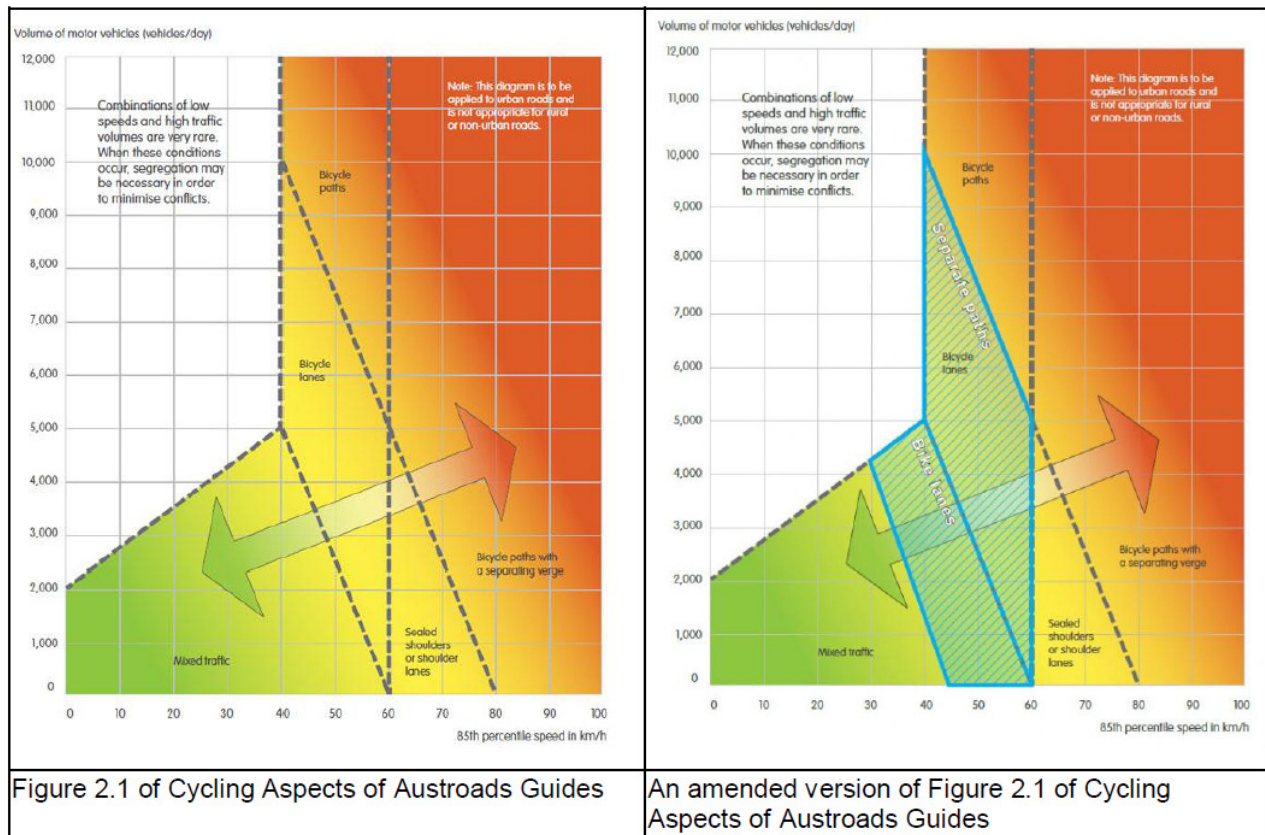


Chart B: Path with 50/50 directional split.

⁵ Trevelyan and Morgan. Cycling in Pedestrian Areas. Transport Research Laboratory. UK. 1993.

B4 Mid-Block Cycle Facility Guidance



(Source: DoT WA. Guidelines for Developing a Bicycle Plan. Rev C 26/9/14)



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