Wodonga Integrated Transport Strategy 2015
Executive Summary

The Wodonga Integrated Transport Strategy (WITS) has been prepared to guide future investment in the transport network in Wodonga, in order to improve the city as a place to live, work and invest. WITS also addresses Council’s obligations as an Interface Body under the Transport Integration Act 2010.

WITS responds to the growth forecasts for Wodonga and the increasing strategic role that the City will play in the Hume region. It proposes a suite of changes to the transport system to ensure that it focuses on ensuring that the transport system provides genuine choice for residents, enabling people to access a full range of employment, services and recreational opportunities without needing to own a car.

In Wodonga, private vehicles are the dominant form of travel, even for short trips. Given that Wodonga is a regional city, it is likely that private vehicles will remain the key form of transport in the foreseeable future. However, a number of characteristics of the car dominated transport network need to be addressed so that the transport network promotes a vibrant, inclusive society, where other modes of transport are attractive, safe and practical.

The rationale for the WITS has been mapped as an ‘Investment Logic Map’ and is shown below.

Scope

WITS provides recommendations for all transport modes and networks in the municipality, with a particular focus on Wodonga itself. WITS takes a two-tiered approach to providing an inclusive and integrated transport network:
Summary of Key Policy Directions

The review of existing relevant policy clearly illustrates a number of themes that should inform the approach to future transport projects. These themes include:

- All investment decisions should be informed by a road user hierarchy. In Victoria, the SmartRoads Network Operating Plan / Road User Hierarchy tool developed by VicRoads is the appropriate planning tool to determine the road user hierarchy across the road network.
- Promoting sustainable transport (walking, cycling and public transport) is important for a wide range of reasons:
  - Socially connected, liveable communities – places where people walk, cycle and use public transport are likely to perform better on a range of social indicators.
  - Healthy, active communities – there is a strong link between active transport and health.
  - Transport efficiency – increased use of sustainable transport has environmental and economic benefits through reduced greenhouse emissions and reduced space required for vehicle movement and storage.
  - Access for all members of the community – a large number of people in the community don’t or can’t drive, and the provision of attractive and viable alternative means of transport is a key factor in whether a community is affected by transport disadvantage.
  - Safety – Increased sustainable and active transport improves safety and perceptions of safety.
- Social determinants of health, including transport, have a clear impact on healthy outcomes for communities and individuals. Giving people a greater transport choice in a quality built environment improves social connections, access to employment and equity.
- Planning for new development must consider providing for and promoting sustainable and active transport modes in accordance with the road user hierarchy.
- A large proportion of the jobs and economic activity in Wodonga are dependent on the local and regional freight networks to efficiently move goods. Future land use and transport planning should take account of significant freight generating activities, while protecting the amenity and safety of other land uses and road users.
- The City of Wodonga has a number of specific policies and strategies to improve walking, cycling and public transport in Wodonga, in order to create a healthy, liveable, vibrant and inclusive city.

Issues and Opportunities

This report examines Wodonga’s population, demographic and employment profile, and provides a detailed analysis of the existing transport networks and travel characteristics of residents and visitors. The following table provides a summary of the key issues and opportunities identified through this analysis.
### Summary of Issues and Opportunities

<table>
<thead>
<tr>
<th>Category</th>
<th>Issue</th>
<th>Opportunity / Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population and land use</td>
<td>Wodonga’s population growth is spreading into various growth areas, generally to the south. These areas tend to be less well connected by sustainable transport modes to employment and services.</td>
<td>Ensure that transport and land use integration is considered in the release of new land for urban development, including consideration of sustainable transport options to access employment and services. Consider urban infill opportunities in preference to expansion on the urban fringes.</td>
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<td></td>
<td>High reliance on private motor vehicles for transport needs, and financial pressure created by multiple car ownership.</td>
<td>Provide improved sustainable transport options to enable households to be less car dependent and be able to access employment and services.</td>
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<tr>
<td>Pedestrian Network</td>
<td>The existing pedestrian network in Wodonga includes comprehensive provision of footpaths, however pedestrian priority is lacking at many intersections and road crossings. This causes safety, amenity and continuity/ directness issues.</td>
<td>Improve the safety and directness of pedestrian priority at intersections and road crossings, particularly in the CBA and on the Principal Pedestrian Network.</td>
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<td></td>
<td></td>
<td>Provide safe pedestrian crossing opportunities at roundabouts through installation of signals, pedestrian crossings and/or other treatments.</td>
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<td></td>
<td></td>
<td>Improve the directness of pedestrian routes and remove deviations caused by traffic treatments such as fencing and roundabouts.</td>
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<td></td>
<td></td>
<td>Improve access to key destinations such as shopping centres, hospitals, schools and key employment nodes.</td>
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<tr>
<td>Bicycle Network and Facilities</td>
<td>The existing recreational bicycle network does not connect to the CBA.</td>
<td>Provide off-road access to the CBA to encourage visitation by families, workers, shoppers and recreational users.</td>
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<tr>
<td></td>
<td>The existing off-road bicycle network does not uniformly meet the relevant standards.</td>
<td>Continue existing audit program and upgrade paths according to network priorities.</td>
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<tr>
<td></td>
<td>The existing on-road bicycle network is discontinuous and limited.</td>
<td>Implement priority connections and routes to provide a connected network of facilities (both on and off road as appropriate), and link to the regional trail networks.</td>
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<tr>
<td></td>
<td>The existing bicycle facilities do not adequately connect to form an overall network of facilities appropriate to the needs of various cyclist user groups.</td>
<td>Implement a network of bicycle facilities within the CBA as part of ongoing development and road network upgrades.</td>
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<td></td>
<td>There are no bicycle facilities within or connecting to the CBA.</td>
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<td></td>
<td>There is a lack of end of trip facilities (parking, showers/lockers) at key destinations and land uses throughout Wodonga.</td>
<td>Provide end of trip facilities at key destinations through direct intervention or statutory measures.</td>
</tr>
<tr>
<td>Public Transport Network</td>
<td>The bus network is not legible to users.</td>
<td>There is an opportunity to comprehensively review the layout and operation of the Wodonga bus network using the following principles:</td>
</tr>
<tr>
<td></td>
<td>The frequency of most services is relatively poor.</td>
<td>• Creation of a legible network of services, potentially through a reduction in the number of routes.</td>
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<td></td>
<td>The span of hours of most services is poor, with very limited services on Saturdays and no services on Sundays.</td>
<td>• Increase frequency and span of hours to evenings and weekends.</td>
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<td></td>
<td>The bus network does not connect to the railway station.</td>
<td>• Ensure that the bus network serves the major land uses and residential areas throughout Wodonga, including growth areas, and the Bandiana Military Area.</td>
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<tr>
<td></td>
<td>The bus network includes a large number of overlapping services.</td>
<td>• Improve public transport connection to and from the station to cater for intermodal transfers including coordination of bus/train timetabling.</td>
</tr>
<tr>
<td>Road Network</td>
<td>The road network prioritises private motor vehicles over other users.</td>
<td>Develop and implement a network operating plan or similar tool to assess road user priority throughout the network.</td>
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<td></td>
<td>Significant land is taken up by roads throughout the CBA, creating barriers to movement by walking and cycling.</td>
<td>Investigate opportunities to appropriately allocate road space according to the road user hierarchy; including potential other uses for surplus land such as urban renewal.</td>
</tr>
</tbody>
</table>
## Category | Issue | Opportunity / Response
--- | --- | ---
**Car parking** | Existing at-grade car parks lack adequate pedestrian facilities and amenity (shade, pedestrian paths, wayfinding). | Provide shade to car parking areas, particularly at at-grade car parks.  
Inner ring road has the potential to better support use of existing car parking through introduction of improved car parking signage. | Implement a signage strategy to support the use of the inner ring road to access at-grade car parks.  
Freight Network | The existing network of arterial roads and freeways caters well for road based freight. | Wodonga can better capitalise on its potential as a major freight hub, by ensuring long term planning for LOGIC  
Wodonga maximises future opportunities, including provision for larger vehicles and inter modal transfers  
The pedestrian network lacks priority at most intersections. In addition, there are numerous significant barriers to pedestrian movement. | Implement a comprehensive range of pedestrian priority improvements throughout the CBA and interfaces to support pedestrian access to and throughout the CBA.  
The cycling network does not link to the CBA. | Implement a coherent and connected bicycle network to and throughout the CBA, including provision of a continuous off-road connection from the regional trail network to the CBA.

### Strategic Response

Five key principles have been developed to guide the implementation of WITS:

- **Transport Network Improvements.** In order to realise a transport system that provides viable and attractive alternatives to private vehicle travel, a number of fundamental changes are required that focus on improvements to transport choice through upgrades to the walking, cycling and public transport networks, while preserving the ability of private vehicles and freight to efficiently access the CBA, key employment areas and the wider LGA.

- **Creating a vibrant and safe public realm in the CBA.** The renewal of the CBA is fundamentally dependent upon the creation of a vibrant, attractive and safe public realm where walking and cycling are attractive modes of transport. This requires the implementation of a pedestrian based environment where pedestrians have absolute priority for movement along and across streets, and should be supported by other measures such as end of trip facilities for bicycles.

- **Better connections to the CBA.** The quality and convenience of the transport network connecting to the CBA is critical to the overall attractiveness of the centre. Critically, this includes overcoming the significant barriers to the walking and cycling networks imposed by major roads and associated infrastructure, including roundabouts. In addition, improvements to the bus network are required to provide a viable and attractive service.

- **Partnership with Victorian Government.** The development of an integrated transport system that provides real travel choice including improving the public transport network within Wodonga can only be achieved through working in close partnership with the Victorian Government, particularly for public transport and arterial road improvements.

- **Community and Stakeholder Engagement.** Ongoing and meaningful engagement with the community and business is critical to the successful revitalisation of Wodonga, and to ensure that the solutions proposed are relevant and targeted to meet the needs of users, as well as being supported and adopted by users.
Network Development

Pedestrian Network

A high quality, connected, safe and convenient pedestrian network is fundamental to the success of WITS. Walking has a wide range of social, environmental, health and economic benefits for individuals and society. Increasing walking will improve people’s sense of community, activate the City, improve health and wellbeing, reduce car usage and associated emissions, and decrease congestion and car parking requirements.

In the CBA, walking is critical to the economic competitiveness of the centre, because in order to retain existing business and attract new business, the CBA needs to provide an active, safe, connected and convenient experience for pedestrians, regardless of how they arrive in the CBA, as walking forms part of all trips.

A Principal Pedestrian Network (PPN) is proposed in WITS to guide investment in a network of high standard pedestrian facilities to improve the safety and attractiveness of walking as a mode of transport. The PPN is shown at Appendix B.

Bicycle Network

With a typical bicycle catchment being 5km (i.e. 20min bike) within an urban environment, the majority of Wodonga falls within the catchments of the major shopping areas. As such, this provides a great opportunity to achieve a significant shift in mode share over these short trips.

A Principal Bicycle Network (PBN) has been identified (shown at Appendix C) which will provide a significant increase in the attractiveness of cycling as a mode of transport in Wodonga, and will complement the existing network of off road paths and trails (predominantly along the House Creek corridor and regional rail trails).

The priority for implementing the PBN will partly be determined by which projects achieve multiple aims, as many bicycle projects will also address other issues. In particular, there is a significant overlap between the PBN and PPN, and it is expected that many of the proposed pedestrian priority routes will also cater for a broad range of bicycle riders. In light of this, the PBN should be developed according to the following priorities:

i  Creation of off-road links to the CBA, including Elgin Boulevard, Junction Place and Beechworth Road, including bicycle priority treatments at major barriers such as the High Street roundabout and other major roads / intersections.

ii  Provide supportive end of trip facilities within the CBA. As detailed further in the CBA section of this report, the creation of a central transport and information hub in Wodonga, plus short term bicycle parking facilities to support retail uses and land use attractors will assist to revitalise the CBA.

iii Completion of the PBN as outlined at Appendix C is the next highest priority, including wayfinding signage across the network and removing / treating roundabouts to improve bicycle safety and priority.

iv It is noted that regional recreation and tourism links such as the regional rail trails play an important role in the overall bicycle network, and should continue to be developed as part of a comprehensive approach to recreational and tourism opportunities for cycling.
Public Transport

The following principles are proposed to improve Wodonga’s public transport network. These principles have informed the recommended projects and actions detailed in Section 6.

i  **Improve the legibility and clarity of the network.** Significantly reducing the number of routes would allow for a greater legibility of the network for new users, and reduce duplication of routes.

ii  **Creating a network effect.** Currently, the routes effectively operate in isolation from each other due to low frequencies and uncoordinated timetables. Increasing frequencies (i.e. reducing average wait times) will allow for greater coordination between routes, ensuring that more complex journeys are possible and increasing the overall attractiveness of the network.

iii  **Provide for intermodal transfers.** Many users of the rail service do not have access to private transport options for a range of reasons (for example elderly and young people). It is therefore critical that bus services are provided to Wodonga Railway Station to cater for intermodal transfers and provide access to the CBA for users (for example to access Travellers’ Aid services).

iv  **Providing services to growth areas and major land use attractors.** Given the majority of Wodonga’s growth areas are to the southeast, the existing loop service can provide a good level of accessibility for residents, as well as major/retail attractors such as the Bandiana Military Area and White Box Rise Shopping Centre (which are not currently serviced by any bus stops). In future, the expansion of employment areas such as LOGIC Wodonga and Enterprise Park may require consideration of public transport access for employees.

Road Network

In order to support the objectives of WITS, future changes to the road network should generally not be aimed at increasing traffic capacity, but rather at facilitating improvements to sustainable and active transport modes and supporting the overall economic and amenity objectives of Wodonga. To this end, the following questions should be asked when planning and considering any changes to the road network:

- Are the changes required to service new development, and if so do they include provision of walking and cycling facilities?
- Are the changes compatible with the SmartRoads Road Use Hierarchy?
- Are the changes necessary to support economic activity (eg freight access and through routes)?
- Do the changes implement the PBN and PPN?
- Are the changes necessary to reduce conflict between different transport modes?
- Do the changes improve amenity for surrounding land uses and/or improve pedestrian amenity?
- Do the changes improve pedestrian priority across main/arterial roads?
- Do the changes support improved access to public transport (DSAPT requirements)?

In addition to the above guidance, Wodonga contains a number of significant freight generating land uses (existing and future), including LOGIC Wodonga and Enterprise Park. These areas are currently
well serviced by the arterial road network, and future planning for expansion to these areas should ensure that a high standard of access is maintained for freight vehicles, including the maintenance of High Productivity Freight Vehicles (HPFV) access to LOGIC Wodonga. The Principal Freight Network (PFN) in Wodonga consists of the arterial road, highway and freeway network. This is shown at Appendix E.

Statutory Changes

A number of statutory changes are proposed to support the overall objectives of WITS:

- **Speed limits** are an important factor in the transport system, as lower speed limits act as ‘hidden infrastructure’ that protects vulnerable road users. It is recommended that Council continue to advocate for lower speed limits throughout Wodonga. This is likely to support pedestrian and cyclist amenity as well as safety, which is an important consideration in people’s choice to walk or ride.

- Initially, it is recommended that a blanket 40km/h limit is sought for the CBA as well as for selected residential precincts (particularly around schools and shopping centres). In future 30km/h should be pursued in these areas, in line with international best practice. This change will also make the CBA more attractive for all users and encourage investment in the centre.

- **Car parking.** Ongoing management of Wodonga’s car parking resources is required to ensure that it supports the overall economic vitality of the centre, noting that (at this stage) it is not proposed to use car parking as a demand management tool.

- **Wodonga Planning Scheme.** Ongoing monitoring of planning tools such as Development Contributions Plans, Integrated Transport Plans and other statutory mechanisms should be undertaken to ensure that new development supports the overall objectives of WITS, and that contributions are captured from new development where appropriate, and then directed to improvements in order of the priorities set out in this report.

Central Business Area

A number of projects are proposed with a focus on revitalising the Central Business Area (CBA) through transport projects. These projects are complementary to the wider suite of urban development and urban design initiatives currently under way in the centre. The proposed response in the CBA can be summarised as follows:

- the co-location of a number of transport and tourism related services in a central transport interchange and information hub

- the provision of comprehensive walking and cycling networks, supported by pedestrian priority areas throughout the centre (shared zones or similar).

Projects

A suite of short, medium and long term projects are recommended throughout Wodonga to implement WITS. These projects are detailed in Section 6 and summarised in Appendix A.
Monitoring and Review

Monitoring the success of the overall WITS is critical to achieving ongoing funding support from Council and the Victorian Government, and buy-in from the community. In this regard, the following measures are proposed to ensure that progress against the objectives of the WITS are tracked:

- **WITS review**: Ongoing review of the ITS is important to ensure that it accurately reflects the latest population and development data for Wodonga, and adjustments are made as necessary to ensure it remains relevant.

- **Project delivery and coordination**: Ongoing monitoring of the delivery of WITS projects is critical to measure progress against the strategy and ensure consistency of purpose across the range of Council planning and policy documents and objectives.

- **Monitoring impact of projects**: Regular measurements of mode share, travel behaviour and assessment of how and when WITS objectives will be achieved is critical to understand the impact and relevance of the WITS, and make changes or adjustments as necessary.

- **Opportunities for funding**: Ongoing partnership with the Victorian Government is required to identify and pursue funding opportunities. At the same time, developments within the project area are likely to provide opportunities to deliver projects as negotiated outcomes through the planning process.

- **Opportunities for funding of freight related infrastructure**: Commonwealth Government funding programs including Heavy Vehicle Safety and Productivity Program (HVSPP), Bridges Renewal Program (BRP) and the National Stronger Regions Fund.
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1. Introduction

1.1 Purpose

The Wodonga Integrated Transport Strategy (WITS) has been prepared to guide future investment in the transport network in Wodonga. WITS responds to the growth forecasts for Wodonga and the increasing strategic role that the City will play in the Hume region.

WITS recognises that a range of viable transport options are needed, and focuses on ensuring that the transport system provides genuine choice for residents, enabling people to access a full range of employment, services and recreation without needing to own a private car.

The WITS also recognises the important contribution the freight and logistics industry makes to the region’s and state’s economy. Wodonga is strategically placed on the Hume national and intrastate road and rail freight corridor. This presents opportunities to leverage investment transport logistics and warehousing, as well as facilitation of movements within the region.

In addition, WITS has a secondary focus on the revitalisation of the Central Business Area (CBA), by proposing changes to the transport network and public realm to support the significant urban renewal that is currently under way.

In Wodonga, private vehicles are the dominant form of travel, even for short trips. Given that Wodonga is a regional city, it is likely that private vehicles will remain a popular form of transport in the foreseeable future. However, a number of characteristics of the car dominated transport network need to be addressed so that the transport network promotes a vibrant, inclusive society, where other modes of transport are attractive, safe and viable.

The rationale for the WITS has been mapped as a ‘Logic Map’ and is shown at Figure 1.1.
1.2 Scope

WITS provides recommendations for all transport modes and networks in the municipality, with a particular focus on Wodonga itself. WITS takes a two-tiered approach to providing an inclusive and integrated transport network:

- **Wider network based interventions and projects**, which are detailed in Section 5 of this report. For example:
  - pedestrian and bicycle networks and methodology for upgrades on key routes
  - principles for providing an improved public transport network that can cater for the needs of all residents
  - planning for future freight needs in the region as well as strategies to maximise Wodonga’s strategic position on the national network
  - statutory interventions, such as a variety of funding mechanisms for projects, speed limit changes and other interventions such as car parking management.

- **Place based interventions**, which are detailed in Section 6 of this report, including:
  - A program of key roundabout upgrades for pedestrian and bicycle priority and safety
  - CBA interventions (also detailed in the separate standalone CBA Directions Report).

Finally, WITS proposes a series of performance indicators and targets to be monitored in order to track the success of the strategy, including mode share targets.
1.3 Context

WITS complements a number of policies and strategies that are either existing or under preparation, including:

- CBA Urban Design Framework
- other CBA work including economic analysis and consultation with traders and residents
- Wodonga Bicycle Strategy
- Traffic and transport analysis and strategies including the draft Network Operating Plan
- other strategies and policies as referenced throughout the report and at Appendix E.

WITS provides a sound rationale for the implementation of these strategies and policies, by linking transport and access initiatives with broader social and economic goals for the municipality.

1.4 Council’s role in transport planning

Councils in Victoria generally have a role to play in the provision of a range of transport infrastructure and services, such as:

- community transport that provides access to the services that Council offers (for example, youth services or aged services)
- roads, footpaths and cycle networks
- Local Area Traffic Management (LATM) measures
- working with transport authorities to improve the overall network.

Council also has an important part to play in its role as Planning Authority, in ensuring that new development is appropriately planned, and that relevant services are accessible by a range of transport modes, such as walking and cycling. Council usually shares this responsibility with state government departments and agencies such as VicRoads, the Department of Transport Planning and Local Infrastructure (DTPLI) and Public Transport Victoria (PTV).

This report acknowledges that the Victorian Government arguably bears a large responsibility for the provision of an appropriate level of transport and access to employment and services. This includes a range of legislative and statutory responsibilities, such as:

- land use planning, which is articulated through the Victoria Planning Provisions
- the provision of major infrastructure such as arterial roads and public transport services
- allocating land for development through the rezoning process (in partnership with Council)
- other areas of responsibility such as planning for disability, the aged and other population groups with particular needs.

An integrated approach between all levels of government is necessary to address transport and land use issues.
2. Summary of Key Policy Directions

2.1 Preamble

The following key policy directions have been identified that have informed WITS. A comprehensive policy review relating to the strategy is included in Appendix F.

2.2 Road space allocation

A systematic and strategic approach is critical to respond to observed issues with the transport network, and to ensure that the fine detail of the transport system responds to the defined strategic intent. In Victoria, the overall road network plan is articulated as a ‘Network Operating Plan’ and ‘Road User Hierarchy’ that provides the planning basis for decision making with respect to the road network. The City of Wodonga is currently preparing a Network Operating Plan for key roads in Wodonga in partnership with VicRoads. It is expected that WITS will inform the draft Network Operating Plan for Wodonga, noting that the Network Operating Plan is intended to be a ‘live’ document that can be updated to reflect changed circumstances.

Generally, the Network Operating Plan and Road User Hierarchy will articulate where the following modes have priority on the road network:

- general traffic and freight access
- pedestrians (through the Principal Pedestrian Network)
- bicycles (through the Principal Bicycle Network and Municipal Bicycle Network)
- road based public transport routes.

Following nomination of the Road User Hierarchy, any proposal for changes to the road network can be subjected to a ‘Network Fit Assessment’, which is a transparent method to determine whether a particular project meets the objectives of the Network Operating Plan. It is expected that the Network Operating Plan will be informed by WITS, and then used as an ongoing planning and assessment tool when considering potential upgrades to the transport network.

2.3 Liveable Streets

In town centres, there is a strong emerging theme of creating streets for people, rather than roads for cars. This does not necessarily mean banishing cars entirely, but rather it involves reorganising space and designing to create a place for people to interact, rather than an efficient space designed for the efficient movement of vehicles and services.

The key influences on this movement are the “Naked Streets” (negotiated space) and “Shared Streets” which were pioneered in the Netherlands by Hans Monderman. The underlying psychology seeks to change behaviour and culture “from priority to equality”, and links with the Crime Prevention Through Environmental Design (CPTED) philosophy.

“If you treat people like idiots, they will behave like idiots. Roads have been designed assuming that people are not intelligent or able to think” (Hans Monderman).
Shared space relies on removing almost all delineation from the road space, and leaving only subtle cues as to the priority of the various modes. A key premise is that increasing uncertainty (creating ambiguity) for motorist’s increases certainty and safety for pedestrians. Traffic will move slowly enough for pedestrians and drivers to make eye contact, whereas the traditional highly delineated street does not allow for any negotiation over priority.

There are many examples of highly successful shared spaces in Victoria, including the Melbourne CBD, Bendigo CBD, and other major centres such as Footscray, Clayton, Dandenong and others. An important feature of these spaces is that they generally have many other positive economic and social benefits apart from the transport benefits created by giving equal priority to pedestrians.

2.4 Healthy cities promote safe walking and cycling

There is a common and growing understanding of the causal link between good urban and transport system design that promotes safe walking and cycling, and a healthy community in terms of both physical and mental health.

The Australian Heart Foundation has encapsulated this emerging body of knowledge in Healthy by Design – a planner’s guide to environments for active living (Heart Foundation 2004). The guide suggests design approaches to encourage active living in the following areas:

- walking and cycling routes
- streets
- local destinations
- open space
- public transport
- seating, signage, lighting, fencing and walls
- fostering community spirit.

The guide includes a number of case studies from Victoria that illustrate the outcomes in these areas. In particular, it is worth noting that the application of these principles can add significantly to the health benefits of any business case, and open up avenues for different funding opportunities.

In November 2008, the first ‘Safe Speed Forum’ was held which brought together the Heart Foundation and a number of Victorian municipality members. At the forum, the issue of implementing a safe speed across Melbourne was discussed and resulted in the release of the interest group’s first report, Safe speed: Promoting walking and cycling by reducing traffic speed (Heart Foundation 2008).

The promotion of safe, active transport is usually achieved through the implementation of multi-component strategies that include speed reduction. High levels of safe walking and cycling for transport are incompatible with high vehicle speed as, for many trips or parts of trips, pedestrians and cyclists are required to share the road space with motor vehicles. International experience suggests that speed reduction is not the only change needed to increase safe active transport, but it is a key component.

The following key findings of the report are presented below:

- Reducing motor vehicle speeds in areas with high pedestrian movement (existing or desired) is critical to creating a safe and attractive transport network. In particular, it is noted that the likelihood of a fatality increases rapidly at speeds over 30km/h.
• Low speed limits in neighbourhoods and town centres are becoming increasingly common around the world. Generally, speeds of 20-30 kph are associated with safer streets and higher rates of walking and cycling.

'Safe speed' is often conceptualised in terms of vehicle speeds that minimise the risk of injury, but in the light of the multiple benefits of active transport, it may be more appropriate to think of 'safe speed' as that which delivers injury prevention outcomes as well as many additional health and social benefits. Active, liveable cities and communities provide all people from children through to older adults with the right to move about in public spaces. Active living and community engagement is constrained when people retreat into their homes and cars through fear of traffic. Road safety improvements should not be dependent on people remaining indoors or in cars. The focus needs to be on removing traffic danger from people, not people from the hazardous environment that has been inadvertently created.

Reducing traffic speed is an effective way of righting this balance and encouraging people to engage in active transport modes with ease, resulting in significant improvements in the health and wellbeing of the population and the environment.

2.5 Social Determinants of Health

VicHealth and more broadly the World Health Organisation (WHO) express the critical relationship between health and wellbeing and the underpinning social determinants that impact them. The WHO outlines transport as a social determinant of health and its relationship to healthy outcomes in the following summary:

*Healthy transport means less driving and more walking and cycling, backed up by better public transport.*

- Roads should give precedence to cycling and walking for short journeys, especially in towns
- Public transport should be improved for longer journeys, with regular and frequent connections to rural areas
• Changes in land use are also needed, such as converting road space into green spaces, removing car parking spaces, dedicating roads to the use of pedestrians and cyclists, increasing bus and cycle lanes, and stopping the growth of low-density suburbs and out-of-town supermarkets, which increase the use of cars.

2.6 Economic significance of freight

Wodonga is strategically located on Australia’s busiest interstate transport route, the Hume Highway. The development of the LOGIC Wodonga are, situated 14 kilometres west of Wodonga at the intersection of the Hume Freeway and Murray Valley Highway and adjacent to the Melbourne to Sydney rail line, has the potential to expand to approximately 9,000 employees at full build out, and will play a key role in the local and regional economy.

There are also a number of other significant freight generating land uses and precincts in Wodonga that require a high standard of arterial road access. These include Moloney Drive and Baranduda Enterprise Park.

As such, a number of key objectives and principles of the Victorian Government’s freight and logistics plan ‘Victoria – The Freight State’ (August 2013) are relevant to protect and enhance the role of the freight industry in Wodonga, in the context of significant growth in Victoria’s overall freight task.

• Objectives:
  • Plan for and deliver capacity at key freight gateways in a timely manner – to be achieved in Wodonga through the ongoing expansion of LOGIC, including inter modal transfers in future
  • Ensure future options are secured for freight network developments – Wodonga’s strategic planning provides protection of key freight precincts and freight corridor by recognising these resources within council’s strategic plans particularly land use and network plans.
  • Protect and enhance access to markets for regional Victoria and adjoining catchments – Wodonga is a key freight gateway to Victoria on the Hume Highway, and will continue to expand on this role through further development of LOGIC

• Principles:
  • Maximise efficiency of freight movements on the transport network – to be achieved in Wodonga by protecting and enhancing access to key freight generating land uses, including HPFV access to LOGIC Wodonga
  • Ensure continuity of international and interstate gateway capacity – to be achieved in Wodonga through continued expansion and investment at LOGIC to cater for increased freight volumes in inter modal transfers
  • Minimise impacts of freight and logistics activity on safety, amenity and the environment – in Wodonga, the existing arterial road, freeway and rail network caters well for existing freight movements. Future land use planning should ensure that these routes are protected and sensitive land uses are appropriately sited to avoid conflicts with freight traffic.

In summary, Wodonga will continue to expand its role as a major freight gateway to Victoria, and the existing transport network supports this aim. Future expansion of freight generating land uses can
Summary of Key Policy Directions

occur in existing designated areas such as LOGIC Wodonga and Enterprise Park, and future land use planning must seek to avoid conflicts between sensitive land uses and freight traffic.

2.7 Summary

The review of existing relevant policy clearly illustrates a number of themes that should inform the approach to future transport projects. These themes include:

- All investment decisions should be informed by a road user hierarchy. In Victoria, the SmartRoads Network Operating Plan / Road User Hierarchy tool developed by VicRoads is the appropriate planning tool to determine the road user hierarchy across the road network.
- Promoting sustainable transport (walking, cycling and public transport) is important for a wide range of reasons:
  - Socially connected, liveable communities – places where people walk, cycle and use public transport are likely to perform better on a range of social indicators.
  - Healthy, active communities – there is a strong link between active transport and health.
  - Transport efficiency – increased use of sustainable transport has environmental and economic benefits through reduced greenhouse emissions and reduced space required for vehicle movement and storage.
  - Access for all members of the community – a large number of people in the community don’t or can’t drive, and the provision of attractive and viable alternative means of transport is a key factor in whether a community is affected by transport disadvantage.
  - Safety – Increased sustainable and active transport improves safety and perceptions of safety.
- Social determinants of health including transport have a clear impact on healthy outcomes for communities and individuals. Giving people a greater transport choice in a quality built environment improves social connections, access to employment and equity.
- Planning for new development must consider providing for and promoting sustainable and active transport modes in accordance with the road user hierarchy.
- A large proportion of jobs and economic activity in Wodonga is dependent on the local and regional freight networks to efficiently move goods. Future land use and transport planning should take account of significant freight generating activities, while protecting the amenity and safety of other land uses and road users.
- The City of Wodonga has a number of specific policies and strategies to improve walking, cycling and public transport in Wodonga, in order to create a healthy, liveable, vibrant and inclusive city.
3. Existing Conditions

3.1 Population and Employment

Wodonga plays an important role as a regional services hub for North East Victoria, with a wider service catchment of up to 170,000 people. The existing and future population of Wodonga and its catchment includes a large proportion of families with children, older people and people from lower socio-economic groups. In addition, as with any community there are a large number of people with a level of disability. Accordingly, there is a strong rationale to provide a transport system that offers genuine and attractive transport choices, including walking, cycling and public transport. In particular:

- almost 30% of households are couples with children
- a further 13% of households are single parent families
- lone person households account for 25% of City of Wodonga’s household composition.

Wodonga is growing rapidly, with several growth areas generally to the south and south-east of the city. Providing access to a range of jobs, services and recreation opportunities for these new residents will be an ongoing challenge for Council. Without any intervention, it is likely that these new communities will be highly car dependent.

Overall, there is a very high (and growing) reliance on private motor vehicles for transport, a trend that is likely to be exacerbated for new growth areas that are less likely to be well connected by public transport, walking and cycling to a comprehensive range of employment and services.

Wodonga has a diverse economy, with the highest employment sector being manufacturing (16.5%), followed by health care and social assistance (14.1%), public administration and safety (13.6%), and retail trade (11.3%). The total labour force in Wodonga is 19,699, with an unemployment rate of 6.7% (Source: Draft Social Profile 2013).

3.2 Existing Car Ownership and Travel Patterns

3.2.1 Travel Patterns

Wodonga is typical of many regional cities where car travel is the dominant form of transport for most types of trips. This is historically because regional areas are likely to have poorer public transport services, and typically lower densities and longer distances to travel. This is compounded by the relatively free flowing traffic conditions and ease of parking at destinations.

There is relatively little available travel data for Wodonga, since VISTA 09 does not cover the area. In this regard, ABS Journey to Work (JTW) data for the census years 2001, 2006 and 2011 has been compared to give an indication of travel patterns. It is noted that an analysis of all trips is likely to produce a different result, but it is not expected that they would be significantly different (for example, there may be a relatively large number of recreational cycling and walking trips undertaken, but it is likely that car travel is still the dominant mode of transport by a large margin).

Analysis of the JTW figures shows that:

- Car use is the dominant form of transport to work in Wodonga and this has increased over time. Approximately 86% of residents were either a car driver or a passenger in 2011.
• Public transport is seldom used for JTW, noting that Wodonga’s bus network does not cater well for commuters with the exception of the Albury-Wodonga bus service.
• Walking is a relatively popular mode of transport with approximately 5% of work trips undertaken on foot (noting that it has declined over time).
• Walking, cycling and public transport have all experienced a decline over the last five years. Journey to work mode share is presented in Figure 3.1.

**Figure 3.1: Journey to Work by Place of Residence – City of Wodonga**

3.2.2 Car Ownership

Figure 3.2 shows the existing (2011) car ownership for households in Wodonga. Analysis of the data shows that over 40% of households have either no car or one car. This is relatively high for a regional city and implies that there is a high demand for alternative modes of travel, as:

• Households with no cars will rely exclusively on other modes of transport.
• Many single car households will rely on other modes of transport to a large degree, because when one member of the household is using the car, the other members need to use alternate modes of travel.
3.3 Existing Transport Network

The transport network is characterised by a network hierarchy of freeways, major aerial roads and local roads. Wodonga’s transport network is generally characterised by private vehicle priority, with a number of key network features that make private vehicle use the most attractive form of transport for most trips. These include:

- low congestion, and generally free flowing traffic conditions which are supported through a number of traffic treatments such as roundabouts
- ease of parking at destinations.

Aspects of the transport network are discussed in greater detail below.

3.3.1 Pedestrian network

Wodonga is generally well-serviced by a network of footpaths provided on both sides of most streets within the city. In addition, there is an extensive network of off-road paths that provide connectivity between key destinations as well as being useful recreational facilities for the local community.

The pedestrian network is generally continuous, but lacks priority at most intersections. In addition, there are numerous significant barriers to pedestrian movements that create diversions for pedestrian movement. These are often associated with large roundabouts and many of the arterial roads in the municipality.

Recent improvements to the pedestrian network in the CBA have improved pedestrian priority, safety and amenity; however significant barriers to pedestrian movement remain in parts of and connecting the CBA to the surrounding residential catchments.

The example of the recent de-classification of High Street and resultant changes to the traffic network in central Wodonga has greatly improved the pedestrian environment and amenity. It is important that
Existing Conditions

the momentum gained through this project is maintained and further improvements to pedestrian priority and access in central Wodonga are implemented as outlined further in WITS.

Schools have been identified as a key target for improvements to pedestrian networks to support kids walking and cycling to school. The Ride to School City of Wodonga Active Travel Report clearly demonstrates the potential to increase walking mode share for schools through targeted improvements to pedestrian infrastructure in key locations. This opportunity is discussed further in Sections 5 and 6 of WITS.

3.3.2 Cycling network

The cycling network includes a continuous and connected off road trail system to the west of the town, and some significant regional trails. However, the network lacks a number of key links, particularly to the CBA, and the south of town to the new growth areas. As such, it does not provide a viable means of access, notwithstanding its role as a recreational network.

Overall, the relatively low numbers of cyclists observed is consistent with the ABS Journey to Work data, which indicated that 1.2% of people who went to work on Census day in 2011 travelled by bicycle.

The following issues are noted with respect to the Wodonga cycling network:

• The existing recreational bicycle network does not connect to the CBA, and there are no bicycle facilities within the CBA (with the exception of some short term bicycle parking).
• The existing off-road bicycle network does not uniformly meet the relevant standards.
• The existing on-road bicycle network is discontinuous and limited.
• The existing bicycle facilities do not adequately connect to form an overall network of facilities appropriate to the needs of various cyclist user groups.
• Wayfinding signage varies, with limited wayfinding signage and infrastructure outside the CBA.
• There is a lack of end of trip facilities (parking, showers / lockers) at key destinations and land uses throughout Wodonga.
• There are a number of significant barriers to cycling, including high volume and speed arterial roads, major signalised and roundabout intersections, with bicycle facilities that terminate on approach to the intersections to accommodate additional turning lanes and/or pinch points to control approaching vehicle speeds.

These factors all contribute to the low levels of commuter cycling in Wodonga. However, it is noted that recreational cycling (for example road cycling or riding with family members on recreational trails) is popular, and reflects the potential for cycling to become a more significant commuter mode of transport in Wodonga.

3.3.3 Public transport network

The existing public transport network consists of:

• 12 bus routes that service most of the major land use attractors in Wodonga, with a focus on the CBA, Birralee Shopping Centre and Albury
• the V/Line rail service connecting Melbourne to Albury
• regional V/Line coach services.

Public transport in Wodonga is mainly provided via the local network of bus services that connect the city centre with suburban areas and trip generators in and around Wodonga, as well as across the
Existing Conditions

border in Albury. In addition, V/Line provides train services from the new Wodonga Railway Station to Melbourne and Albury, and coach services to Yarrawonga, Cobram, Shepparton and other regional destinations.

The existing bus network does not provide a legible or frequent service, and the span of hours (and days) is not sufficient to provide a viable alternative to private motor vehicles. There are a high number of bus routes with low frequencies and extensive duplication of routes. This strongly implies there is an opportunity to rationalise the number of routes to create a simpler and more attractive bus network with higher frequencies, without significant additional cost burdens. An analysis of shows that:

- Frequencies tend to be poor, with only five of the twelve services operating hourly or better services. Co-ordination between routes generally does not occur, incurring long wait times for most transfers and ensuring that the routes generally operate in isolation, rather than as a coherent network.
- Only two services operate on Saturdays, and no services operate on Sundays.
- Bus services appear to primarily cater for daytime shoppers and act as a “safety net” for people that rely on public transport such as the elderly and school children.

The existing bus network also does not connect to the railway station. This is a major barrier to accessing the rail network, in particular the elderly and students. Typically people without cars need to be dropped off or take a taxi to the railway station. In addition, the bus network does not connect to a number of major trip generators, such as the Bandiana Military Area and White Box Rise shopping centre.

The existing bus network is shown at Figure 3.3.

Figure 3.3: Wodonga Bus Network
The existing bus network reaches approximately 88% of residents within a 500m walk, which represents a good level of coverage for a regional network (source: Booz & Co 2011). However, the lack of services on evenings and weekends, as well as the low frequency of most routes, means that the level of coverage does not translate into an attractive or usable network for the majority of people's travel needs.

3.3.4 Freight network

The freight network is well serviced by the existing arterial road network, including the freeway network, town bypass and ring roads. Access to the CBA by delivery vehicles is currently adequate; and future road space reallocation and changes to the road network have taken into consideration existing and future freight movements and land use implications.

The growth of freight traffic (both road and rail based) is an important economic and planning consideration for future land use and transport planning in Wodonga. In particular, the ongoing development of LOGIC Wodonga as a major transport and logistics hub, and the development of Enterprise Park as an industrial area will require protection and maintenance of freight access to these areas. As both areas are well connected to the arterial road and freeway network, they are well sited to continue to operate efficiently and expand in future as planned.

3.3.5 Road network

The road network within the City of Wodonga is made up of freeways, VicRoads arterial roads, municipal arterial roads, municipal collector roads and local roads, and is shown at Appendix E. Most notably, Wodonga is located on or near the following routes:

- The Hume Freeway, linking Melbourne and Sydney, bypasses Wodonga to the north. It provides access to the City with onramps at Melbourne Road, High Street and Bandiana Link Road.
- The Murray Valley Highway, which runs along the length of the Murray River between Robinvale in the west and Corryong to the east, runs through Wodonga.
- The Lincoln Causeway provides a direct connection between Wodonga and Albury via High Street.

Other arterial roads connect Wodonga to Beechworth, Yackandandah and the Victorian Alps.

The road network is characterised by the provision of a number of viable and attractive bypass routes around the CBA (inner and outer ring roads). This means that there are real opportunities to improve the 'place' function of the CBA and exclude through trips.

In general, the road network and resultant traffic works well for private vehicles, but in many locations this is at the expense of other modes. Private vehicles are afforded priority over other modes of transport across all aspects of the road network. While this may be appropriate in some locations, the lack of priority for other modes affects the attractiveness of using these modes for travel.

The City of Wodonga, Places Victoria and VicRoads have recently completed a number of significant road network improvements, and are currently planning or constructing other significant changes. These projects include:

- Recent completion of significant portions of the 'outer ring road', including the Bandiana Link Road and Yarralumla Drive.
Existing Conditions

- Recent ‘upgrade’ of High Street, reducing the traffic to one lane in either direction, and introducing 45 degree angle parking. This measure supports the ‘place’ function of High Street, which will shortly be declassified and handed over from VicRoads to Council for ongoing management.
- Recent completion of road network upgrades associated with the Junction Place redevelopment (undertaken by Places Victoria and Wodonga City Council), and imminent changes such as the realignment of Elgin Boulevard and construction of internal roads within the Junction Place site.
- Planned improvements to the ‘inner ring road’ through closure of Hovell Street and improvements to the Lawrence Street / Havelock Street intersection to prioritise through traffic movements away from the CBA.

Other changes to the road network are being considered in light of the ongoing work planning the CBA. These will be further considered through the recommended projects in WITS.

3.3.6 Car parking

The Wodonga Interim Central Business Area Car Parking Strategy was prepared in April 2013. The study identified a total of approximately 3,062 publicly available car parking spaces in Wodonga, consisting of 1,272 on-street and 1,790 off-street spaces.

The study identified areas of higher car parking demand, particularly in the core of the CBA along High Street and Elgin Boulevard. However, peak parking demand across the study area was for 1,849 spaces, representing a 60% occupancy rate. In general, the supply of car parking in Wodonga is sufficient to cater for existing demands. It is noted that an occupancy rate of approximately 85% represents equilibrium between supply and demand, and by extension an efficient use of the available parking resource.

The lack of shade provision in car parks throughout the centre is an issue given the existing climate and the need to adapt to increasing extreme temperatures likely to be brought about by climate change. This is particularly relevant for the at-grade car parks during summer periods. Improving shade in these areas will promote better access for more vulnerable members of the community such as the elderly and young children, and ensure that the car parks are best placed to support the overall economic success of Wodonga.

The provision of connections from the car parks at the rear of the High Street shops provide direct and convenient access throughout the CBA, and these laneways should be retained and enhanced wherever possible. The high level of pedestrian permeability is a major asset for the centre and ensures that the existing car parks can effectively service the CBA with minimal negative impacts being caused by car parking conflicting with pedestrian areas. However, the provision and maintenance of safe, activated, amenable links (including shade) throughout the car parks is an area for further action.

3.4 Central Business Area

The CBA has historically been characterised by high levels of through traffic, and a public realm that affords varying standards of accessibility, priority and amenity to non-car modes. However, a recent upgrade to High Street has provided an attractive, permeable and generally pedestrian friendly
environment, supported by the provision of an adequate network of at-grade car parking to the rear of the shops.

The road network interfacing with the CBA is characterised by the provision of a number of viable and attractive bypass routes, including the inner and outer ring roads. This means that there are real opportunities to continue to improve the ‘place’ function of the CBA and exclude through trips.

Notwithstanding the recent improvements to High Street, the attractiveness of private vehicle travel is generally reinforced by the following attributes of the active and sustainable transport network:

• The pedestrian network is generally continuous, but lacks priority at most intersections. In addition, there are numerous significant barriers to pedestrian movement.

• Recent improvements to the pedestrian network in the CBA (High Street) have improved pedestrian priority, safety and amenity; however significant barriers to pedestrian movement remain in parts of the CBA and edges.

• The cycling network lacks a number of key links, particularly to the CBA and the south of the town to new growth areas. As such, it does not provide a viable means of access, notwithstanding its role as a recreational network.

3.5 Growth Areas

There are a number of growth areas around Wodonga, with most generally located to the southeast of the city. This includes the major growth area of Leneva – Baranduda. Overall, there is a large supply of future residential land (in excess of 50 years at current growth rates), although much of the land is yet to be appropriately zoned.

The Leneva Baranduda Growth Area Framework Plan guides the development of a 19km² tract of land in the Leneva Valley. The area will service the medium to long term residential growth in the wider area. The existing built up area of Wodonga and the township of Baranduda form an urban edge that in part defines the future development area. The remaining boundaries are generally defined by the 240m contour line of the surrounding hills and adjoining land south along Beechworth-Wodonga Road.

Three future town centres, that are all secondary to Wodonga, will be phased in as the city expands into the Leneva Valley. At this stage, it is envisaged that the first of the centres will be established by 2016 and the second centre at Middle Creek in a further 30 years’ time. The third long term centre is proposed east of the current Baranduda township.

While these growth areas are planned to include provision of pedestrian, bicycle and public transport facilities, it is considered likely that they will generally exhibit higher levels of car dependency than if they were located in close proximity to the comprehensive range of employment, services and facilities that are available in Wodonga CBA. While WITS does not seek to provide broad based land use recommendations for future growth, it is clear that infill development closer to the CBA is likely to exhibit more sustainable transport characteristics than peripheral development, and as such is more likely to contribute to achieving the overall objectives of WITS. All future development should provide viable walking, cycling and public transport options for users from the beginning of the development, rather than being retro fitted at a later date when travel behaviour has already been established.
3.6 Summary of Issues and Opportunities

Table 3.1 summarises the issues and opportunities identified through the preparation of the WITS.

<table>
<thead>
<tr>
<th>Category</th>
<th>Issue</th>
<th>Opportunity / Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population and land use</strong></td>
<td>Wodonga’s population growth is spreading into various growth areas, generally to the south. These areas tend to be less well connected by sustainable transport modes to employment and services.</td>
<td>Ensure that transport and land use integration is considered in the release of new land for urban development, including consideration of sustainable transport options to access employment and services. Consider urban infill opportunities in preference to expansion on the urban fringes.</td>
</tr>
<tr>
<td></td>
<td>High reliance on private motor vehicles for transport needs, and financial pressure created by multiple car ownership.</td>
<td>Provide improved sustainable transport options to enable households to be less car dependent and be able to access employment and services.</td>
</tr>
<tr>
<td><strong>Pedestrian Network</strong></td>
<td>The existing pedestrian network in Wodonga includes comprehensive provision of footpaths, however pedestrian priority is lacking at many intersections and road crossings. This causes safety, amenity and continuity / directness issues.</td>
<td>Improve the safety and directness of pedestrian priority at intersections and road crossings, particularly in the CBA and on the Principal Pedestrian Network. Provide safe pedestrian crossing opportunities at roundabouts through installation of signals, pedestrian crossings and / or other treatments. Improve the directness of pedestrian routes and remove deviations caused by traffic treatments such as fencing and roundabouts. Improve access to key destinations such as shopping centres, hospitals, schools and key employment nodes.</td>
</tr>
<tr>
<td></td>
<td>The existing recreational bicycle network does not connect to the CBA.</td>
<td>Provide off-road access to the CBA to encourage visitation by families, workers, shoppers and recreational users.</td>
</tr>
<tr>
<td></td>
<td>The existing off-road bicycle network does not uniformly meet the relevant standards.</td>
<td>Continue existing audit program and upgrade paths according to network priorities.</td>
</tr>
<tr>
<td></td>
<td>The existing on-road bicycle network is discontinuous and limited.</td>
<td>Implement priority connections and routes to provide a connected network of facilities (both on and off road as appropriate), and link to the regional trail networks.</td>
</tr>
<tr>
<td></td>
<td>The existing bicycle facilities do not adequately connect to form an overall network of facilities appropriate to the needs of various cyclist user groups.</td>
<td>Implement a network of bicycle facilities within the CBA as part of ongoing development and road network upgrades.</td>
</tr>
<tr>
<td><strong>Bicycle Network and Facilities</strong></td>
<td>There are no bicycle facilities within or connecting to the CBA.</td>
<td>Provide end of trip facilities at key destinations through direct intervention or statutory measures.</td>
</tr>
<tr>
<td></td>
<td>There is a lack of end of trip facilities (parking, showers / lockers) at key destinations and land uses throughout Wodonga.</td>
<td>There is an opportunity to comprehensively review the layout and operation of the Wodonga bus network using the following principles: • Creation of a legible network of services, potentially through a reduction in the number of routes. • Increase frequency and span of hours to evenings and weekends. • Ensure that the bus network serves the major land uses and residential areas throughout Wodonga, including growth areas, and the Bandiana Military Area. • Improve public transport connection to and from the station to cater for intermodal transfers including coordination of bus/train timetabling.</td>
</tr>
<tr>
<td><strong>Public Transport Network</strong></td>
<td>The bus network is not legible to users.</td>
<td>There is an opportunity to comprehensively review the layout and operation of the Wodonga bus network using the following principles:</td>
</tr>
<tr>
<td></td>
<td>The frequency of most services is relatively poor.</td>
<td>• Creation of a legible network of services, potentially through a reduction in the number of routes.</td>
</tr>
<tr>
<td></td>
<td>The span of hours of most services is poor, with very limited services on Saturdays and no services on Sundays.</td>
<td>• Increase frequency and span of hours to evenings and weekends.</td>
</tr>
<tr>
<td></td>
<td>The bus network does not connect to the railway station.</td>
<td>• Ensure that the bus network serves the major land uses and residential areas throughout Wodonga, including growth areas, and the Bandiana Military Area.</td>
</tr>
<tr>
<td></td>
<td>The bus network includes a large number of overlapping services.</td>
<td>• Improve public transport connection to and from the station to cater for intermodal transfers including coordination of bus/train timetabling.</td>
</tr>
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</table>
## Existing Conditions

<table>
<thead>
<tr>
<th>Category</th>
<th>Issue</th>
<th>Opportunity / Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Road Network</strong></td>
<td>The road network prioritises private motor vehicles over other users.</td>
<td>Develop and implement a network operating plan or similar tool to assess road user priority throughout the network.</td>
</tr>
<tr>
<td></td>
<td>Significant land is taken up by roads throughout the CBA, creating barriers to movement by walking and cycling.</td>
<td>Investigate opportunities to appropriately allocate road space according to the road user hierarchy; including potential other uses for surplus land such as urban renewal opportunities.</td>
</tr>
<tr>
<td><strong>Car parking</strong></td>
<td>Existing at-grade car parks lack adequate pedestrian facilities and amenity (shade, pedestrian paths, wayfinding).</td>
<td>Provide shade to car parking areas, particularly at at-grade car parks.</td>
</tr>
<tr>
<td></td>
<td>Inner ring road has the potential to better support use of existing car parking through introduction of improved car parking signage.</td>
<td>Implement a signage strategy to support the use of the inner ring road to access at-grade car parks.</td>
</tr>
<tr>
<td><strong>Freight Network</strong></td>
<td>The existing network of arterial roads and freeways caters well for road based freight. The Principal Freight Network (PFN) and first and last mile connections need to be protected and enhanced to improve the overall efficiencies of the freight network for the Wodonga region</td>
<td>Ensure long term planning for LOGIC Wodonga maximises competitiveness, including provision for HPFV and intermodal transfers. Continue to work with industry and agencies to ensure freight precincts and key freight routes are appropriately located and planned for both now and into the future.</td>
</tr>
<tr>
<td><strong>Central Business Area</strong></td>
<td>The pedestrian network lacks priority at most intersections. In addition, there are numerous significant barriers to pedestrian movement.</td>
<td>Implement a comprehensive range of pedestrian priority improvements throughout the CBA and interfaces to support pedestrian access and throughout the CBA.</td>
</tr>
<tr>
<td></td>
<td>The cycling network does not link to the CBA.</td>
<td>Implement a coherent and connected bicycle network to and throughout the CBA, including provision of a continuous off-road connection from the regional trail network to the CBA.</td>
</tr>
</tbody>
</table>
4. **Strategic Response**

4.1 **Overview**

This section details the high level principles that have been developed to guide the implementation of WITS. These principles support the provision of a transport system that offers genuine choices to users, and support the economic revitalisation of the CBA.

In addition, this section includes the key challenges or risks to the implementation of WITS.

4.2 **Key Principles**

4.2.1 **Transport Network Improvements**

In order to realise a transport system that provides viable and attractive alternatives to private vehicle travel, a number of fundamental changes are required that focus on improvements to the walking, cycling and public transport networks, while preserving the ability of private vehicles and freight to efficiently access the CBA, key employment areas and the wider LGA. Given the historic focus on a car-based transport network, the majority of proposed network improvements relate to the walking, cycling and public transport networks. In particular:

- The adoption of a ‘Principal Pedestrian Network’ and ‘Principal Bicycle Network’ for Wodonga will ensure that these modes are strongly encouraged through a comprehensive network of appropriate standard facilities, including a range of off road and shared paths, and introduction of pedestrian and bicycle priority to overcome the many barriers formed by the arterial road network.
- High level recommendations for improvements to the public transport network, noting that public transport provision is a Victorian Government responsibility and that a comprehensive review of the existing network and detailed recommendations on changes to the network are beyond the scope of this report.
- The continued refinement and enhancement of the inner and outer ring road systems, to ensure that the road network supports the overall ‘place’ function of the CBA, allows for efficient vehicle circulation around Wodonga and to the CBA where required (including provision for freight traffic) and suitable crossing facilities for pedestrians and bicycle riders.

4.2.2 **Creating a vibrant and safe public realm in the CBA**

The renewal of the CBA is fundamentally dependent upon the creation of a vibrant, attractive and safe public realm where walking and cycling are the preferred modes of transport. This requires the following key interventions:

- Pedestrian based environment. Within the CBA, pedestrians should have absolute priority for movement along and across streets.
- Links between CBA attractors. All major land uses within the CBA should be effectively linked by high amenity, high priority pedestrian links.
Strategic Response

• The CBA is characterised by a fine grained built form with numerous linkages to rear car parks and shops. The quality and safety of these links is critical to supporting high levels of pedestrian activity in the centre, as many people will still choose to drive to the centre and should not be discouraged from doing so.

• End of trip facilities for bicycles (both recreational and commuter) will provide the right conditions to promote cycling as an attractive form of transport.

4.2.3 Better connections to the CBA

The quality and convenience of the transport network connecting to the CBA is critical to the overall attractiveness of the centre. This includes the following:

• Ensure that there is a network of principal pedestrian routes accessing the CBA from surrounding areas that have high pedestrian priority and amenity, and seamlessly link into the CBA.

• Provide new on and off road bicycle links to the CBA to cater for a range of cyclist types, from recreational to commuter and sporting cyclists.

• Advocate for improvements to the bus network so that it provides a higher frequency, legible service for residents to access the CBA throughout the day, evenings and weekends, including the aspects of accessibility and effective integration with land use attractors in the CBA.

• Identifying and preserving priority public transport corridors within and through the CBA.

• Continue to provide a high standard of vehicle access to consolidated car parks, which service the central business area, noting that in most cases cars will have less priority than other modes of transport, but should still be afforded access.

• Ensure that the inner and outer ring roads operate to minimise through traffic in the CBA (maximise ‘place’ function of CBA transport network).

4.2.4 Partnership with Victorian Government

The development of an integrated transport system that provides real travel choice including improving the public transport network within Wodonga can only be achieved through working in close partnership with the Victorian Government.

The Victorian Government holds responsibility for the planning, implementation and operation of Victoria’s public transport and arterial road networks and is guided by the Transport Integration Act (2010) which sets out a vision, objectives and decision-making principles for Victoria’s transport system. This over-arching policy framework is applied to all transport and land use agencies. The Act requires all Victorian transport agencies to work together towards the common goal of an integrated and sustainable transport system.

An effective partnership with State Government is one that promotes an open exchange of information, sharing of resources and buy-in from all parties to a shared vision for the transport network and agreement on the most effective means of planning and delivery. A number of Victorian Government Departments and agencies must be consulted when determining the future shape of the Wodonga transport network. However, the Department of Transport Planning and Local Infrastructure, Public Transport Victoria and VicRoads are the key delivery partners for the initiatives contained in this strategy.

4.2.5 Community and Stakeholder Engagement

Ongoing and continued engagement with the community and business is critical to the successful revitalisation of Wodonga, and to ensure that the solutions proposed are relevant and targeted to meet the needs of users.

The local community in Wodonga refers to residents, business owners, students, shoppers and other visitors to the centre. To date, the community has been successfully engaged on all major planning studies undertaken for the centre, including the High Street upgrade and CBA Development Framework.

The design, development and implementation of projects as part of the WITS should embody the following principles of stakeholder engagement:

- The overall WITS objectives should be tested and validated against the broader vision for Wodonga defined in the Wodonga Central Business Area Framework and Municipal Strategic Statement (MSS).
- The community should have a meaningful decision making role about projects that affect them.
- Prioritisation of projects and identification of issues should be undertaken in collaboration with the community, transport industry and other affected stakeholders.

4.3 Proposed CBA Modal Hierarchy

The modal hierarchy is generally consistent with the SmartRoads networking operating plan currently being developed for Wodonga. It is noted that at certain locations on the network, cars and public transport may share equal priority with pedestrians and cyclists. These locations include the preferred traffic bypass routes around the CBA, and the bus circulation routes through the CBA. The proposed modal hierarchy is shown at Figure 4.1 below.
4.4 Challenges

There are a number of key challenges to the implementation of WITS. These are identified as ‘changes’ or ‘what we need to do differently’ at Figure 1.1. These challenges to implementation and potential mitigation measures are outlined in Table 4.1 below.
Table 4.1: Challenges to Implementation

<table>
<thead>
<tr>
<th>Change Required</th>
<th>Potential Mitigation Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alignment of transport and land use objectives (transport network supports CBA growth)</td>
<td>Ensure the integration of objectives of transport and land use are reflected in policy and plans</td>
</tr>
<tr>
<td>All investment decisions informed by modal hierarchy</td>
<td>Ensure project development and design in Wodonga is centrally coordinated at a high level</td>
</tr>
<tr>
<td>Commitment from Council, State Government and private sector for funding stream</td>
<td>Ensure WITS is integrated into Transport and Public Realm key deliverables over forward estimates period and funding allocated</td>
</tr>
<tr>
<td>Buy in from Council, community and State Government</td>
<td>Undertake ongoing engagement across Council, State Government and community to gain buy in</td>
</tr>
<tr>
<td>Investment in major urban renewal (Places Vic and private sector)</td>
<td>Continue to engage with private sector and Places Vic to best influence business case development and funding priorities</td>
</tr>
</tbody>
</table>
5. Network Development

5.1 Approach

Successful implementation of WITS requires both network level improvements as well as place based interventions (focused on the CBA). This section details the network extent, objectives and methodology required for more detailed project development, and builds on the strategic principles outlined in Section 4.

It should be noted that improvements to one network may result in improvements to another network (for example, implementation of the ring road will improve pedestrian safety and priority in the CBA). In this regard, Section 6 outlines projects by location rather than mode, since many projects have benefits for a number of user groups.

5.2 Pedestrian Network

5.2.1 Preamble

A high quality, connected, safe and convenient pedestrian network is fundamental to the success of WITS. Walking has a wide range of social, environmental, health and economic benefits for individuals and society. Increasing walking will improve people’s sense of community, activate the City, improve health and wellbeing, reduce car usage and associated emissions, and decrease congestion and car parking requirements.

In the CBA, walking is critical to the economic competitiveness of the centre, because in order to retain existing business and attract new business, the CBA needs to provide an active, safe, connected and convenient experience for pedestrians, regardless of how they arrive in the CBA, as walking forms part of all trips.

The development of a high quality pedestrian environment within the CBA will also create better access and enjoyment for pedestrians using footpath-bound vehicles such as wheelchairs, prams and scooters. Pedestrian priority treatments need to have a strong urban design focus, as traditional ‘transport engineering’ approaches to pedestrian networks may have some shortcomings, such as the segregation of pedestrians as users from other modes of transport. While this may be appropriate in some locations, the concept of pedestrian priority means that pedestrians should be able to cross streets freely and move around without undue barriers being imposed by other transport modes. This is particularly the case in the CBA, where pedestrians should have the highest priority.

Wodonga’s road network includes a large number of roundabouts. This traffic treatment provides an intermediate solution between a priority intersection and a fully signalised intersection, and typically provides a relatively high level of service for vehicles (excluding bicycles), but a very low level of service for pedestrians. This is because there is typically no safe phase created for pedestrians to cross, and roundabouts encourage vehicles to maintain relatively high speeds. In this regard, the removal or modification of roundabouts throughout Wodonga is a key focus for WITS and is detailed at more length in Section 6.
Network Development

In order to achieve an increase in walking in Wodonga, WITS proposes a Principal Pedestrian Network (PPN) consisting of high quality paths linking to the CBA and other attractors. The PPN is defined at Appendix B, and guidelines for its development are provided below.

The PPN is supported by areas of pedestrian priority within the CBA. These areas are based on the 'naked streets' or 'shared space' philosophy identified in Section 2. Within the CBA, creating equality between all road users will improve safety and amenity for all modes, and support the economic revitalisation of the CBA.

5.2.2 PPN Development

The following principles should be applied to the design and implementation of the PPN.

i  **Pedestrian Level of Service.** The level of service relates to the physical aspects of pedestrian facilities, such as the width, directness, smoothness, as well as the type of crossing facilities. Typical footpath widths of 1.2m to 2.0m do not support high pedestrian volumes. At best they can accommodate two-way single file flow. Any groups or stationary people would result in low levels of service on such path widths. As such, where high pedestrian volumes are desired, 2.5 - 3.0m wide and greater pedestrian paths should be used with suitable clearances to moving and parked cars, bus stops, active frontages, etc. In addition, for less mobile or elderly users, narrower footpaths have been identified as an impediment to using walking as a mode of travel.

ii  **At intersections**, the main impact of a pedestrian’s level of service is the length of time they have to wait. With the current types of crossing facilities available to pedestrians, the marked zebra crossing tends to provide the highest level of service with essentially no waiting time, where signalised or pedestrian refuge supported crossing facilities are dependent on the intersecting traffic volumes and platooning. In Wodonga, many key intersections and roads do not provide any priority for pedestrians wishing to cross. While fit and healthy adults may be able to overcome this barrier, the lack of crossings in many key locations presents a major barrier to movement for less mobile or independent members of the community and pedestrian priority should be improved at these locations. Projects to address this issue are detailed in Section 6.

iii  **Pedestrian safety.** As discussed above, safety at crossing points is a key issue in the attractiveness of the pedestrian network, particularly for elderly, young or less mobile users. As detailed in the existing conditions section of this report, addressing pedestrian safety at road crossings and intersections by providing pedestrian priority crossing points is a high priority. Many major intersections and key pedestrian routes in Wodonga do not provide any priority crossing points for pedestrians, effectively meaning that they cannot be used safely by a large proportion of the population.

iv  **Pedestrian amenity.** In order for walking to be an attractive means of transport, it is important that the PPN has a high standard of amenity. Apart from the provision of a generous path width of at least 2.5m (preferably 3.0m or more) and pedestrian priority road crossings, amenity refers to the provision of supporting infrastructure such as shade, seating, public toilets, and drinking fountains. In addition, urban design considerations such as active frontages, level of separation from major traffic flows and a fine-grained urban form contribute to a positive experience of walking.
v Pedestrian connectivity. High pedestrian connectivity refers to the provision of continuous facilities along the most direct route between two attractors. The PPN provides a network of direct connections between Wodonga’s residential areas, the CBA and suburban shopping centres.

vi Access to public transport. The PPN forms an integral part of the public transport network, since most public transport journeys begin and end with a walking trip. High quality pedestrian access to bus stops and the railway station is important to improve access to public transport.

vii Fine grained detail matters. In order to create attractive pedestrian routes and environments, attention to detail is critical. Many aspects of road design unintentionally prioritise vehicles over pedestrians, yet they are so commonplace that few question them. Examples of this include deviation in a pedestrian path at an intersection, to allow vehicles to clear the intersection before the pedestrian crossing, or large radius corners designed to allow for higher vehicle speeds, which in turn makes the pedestrian crossing distance further, and reduces safety due to higher vehicle speeds. There are numerous other examples of poorly placed street furniture, incomplete paths, lack of pram crossings and other issues of detail that greatly impact on the overall attractiveness of the network, particularly for less mobile users or users with special needs.

5.2.3 Application in Wodonga

As discussed above, the implementation of the PPN identified at Appendix B will provide a significant increase in the attractiveness of walking as a mode of transport in Wodonga, and will complement the existing network of off road paths and trails (predominantly along the House Creek corridor and regional rail trails).

The priority for implementing the PPN will partly be determined by which projects achieve multiple aims, as many pedestrian projects will also address other issues. In particular, in the CBA the creation of a vibrant public realm where pedestrians have priority is critical to the overall economic success of the centre. In this regard, the following priorities are nominated to inform the development of the PPN:

i Creation of a high quality, pedestrian focused public realm in the CBA is the highest priority for ongoing implementation.

ii Addressing the barriers to accessing the CBA is the next highest priority. This includes projects such as improving pedestrian priority at the southern gateway to the CBA and other roundabout upgrades.

iii Building the networks and addressing barriers within a 2km catchment of the CBA, 1km of other shopping centres and within 400m of schools is the next highest priority.

iv Completing the network including ‘cross corridor’ links and links outside the primary catchment are the next priority, noting that new developments in growth areas should provide for a high standard of pedestrian facilities as they are built.

These projects are detailed in Section 6.

5.3 Bicycle Network

5.3.1 Preamble

Bicycle use is increasing throughout Australia, and it provides a low impact fitness option, which in urban areas achieves a relatively similar travel time when compared to private motor vehicles, and has
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a low upfront and on-going cost. Encouraging more people to ride more often in Wodonga will have wide ranging benefits to health and the environment, as well as less tangible benefits such as increased interaction and social capital, and activation of the public realm.

In Wodonga the majority of bicycle facilities that exist are those that have been able to be easily accommodated within existing road carriageways, or through parks and other passive land reserves, mainly shared with pedestrians. This has resulted in a lack of continuity for users and a number of missing links, especially to key trip generators/destinations. Also, the mixing of on-road and off-road bicycle facilities along a given route does not provide sufficient continuity for the different types of cyclists. As such, the following section outlines the types of users, required types of facilities and their application in Wodonga.

An expanded bicycle network development ‘tool kit’ is provided at Appendix F. This provides additional examples and figures to assist Council in choosing appropriate facilities and designing them in such a way to create an attractive network. It is also noted that the Public Transport Guidelines for Land Use and Development (Department of Transport, 2008) addresses design requirements for bicycles and transport planning more generally, and is a reference document to the Wodonga Planning Scheme.

5.3.2 Types of Users

There is a natural variation in an individual's comprehension of whether cycling is a viable form of transport. In this regard, Roger Geller of the Portland Bureau of Transportation (2010) has identified four main groupings of individuals within the general community, based on how they comprehend the viability of cycling, which is illustrated in Figure 5.1.

Further explanation of each of these groupings is provided as follows:

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2 Refer to [http://www.portlandoregon.gov/transportation/44497/a=23707](http://www.portlandoregon.gov/transportation/44497/a=23707)

3 Portland Bureau of Transportation Website, visited 25/01/11
• **Strong and the Fearless** - ride regardless of road conditions: riding is a strong part of their identity and they are undeterred by cycling conditions.

• **Enthused and Confident** - are, and could be, attracted to regular riding by continuing to address the barriers to cycling: shorter trip distances, better bicycle facilities, better end-of-trip facilities.

• **Interested but Concerned** - hear messages about how easy it is to cycle, but they are afraid to ride. They don't like the cars speeding down their streets. They get nervous thinking about what will happen to them on a bicycle when a driver runs a red light, or guns their cars around them, or passes too closely and too fast.

• **No Way, No How** - not interested in cycling at all, for reasons of topography, inability, or utter lack of interest.

A key outcome of these groupings is that a large proportion of the population (nearly two-thirds) have the potential to consider cycling as a viable transport mode. This would not be for all trips, but cycling could become a regular mode of transport if the barriers associated with their mode choice decisions are overcome.

5.3.3 **Types of Midblock Facilities**

The type of cycling facility that can be implemented may be based on a range of factors such as the available corridor width, intersection operations, traffic volumes and speeds, continuity of an overall route, transport network hierarchy (i.e. SmartRoads) and bicycle user-ability characteristics.

While these factors may be relevant, they can lead to facilities being designed through the ‘path of least resistance’, and may result in sub-standard facilities that do not encourage any new cyclists, or at best redirect existing users to them.

Safety is consistently identified as the key requirement to encourage new cyclists, and one of the major ways that cyclists perceive safety is through the level of separation provided to motorised traffic. The required level of separation varies between each of the four user categories outlined in Figure 5.1, but has been simply expressed in the Cycling Aspects of Austroads Design (2011), and is presented in Figure 5.2.
Figure 5.2 recommends a minimum level of separation between cyclists and motor vehicles on urban roads based on the volume and speed of traffic. At low traffic speeds and volumes, a shared road environment is considered appropriate, and at higher traffic speeds and volumes, separated bicycle paths are considered appropriate.

These minimum separation guidelines are considered appropriate for the development of a bicycle network within an urban environment to support the ‘borderline “fair weather” cyclist’ and ‘active adult’ cyclists, which makes up the majority of current and the potential users (approx. two-thirds of a community). It is further noted that DTPLI and Bicycle Network recommend that the ‘Bicycle lane or shoulders’ area should be shifted to align with 45km/h and 70km/h to further support the ‘borderline “fair weather” cyclist’.

Further to Figure 5.2, which shows the relationship between the minimum level of separation required given the prevailing traffic speeds and volumes, the three methods of separation are described as follows and illustrated in Figure 5.3:

i Physical separation. Paths, shared or exclusive-use, separated from the roadway.
ii Visual separation. Line marked space on roads, bicycle lanes or shoulders.
iii Mixed traffic. Riders share lane space on the road with motor vehicles and off-road with pedestrians. There are two categories of shared space:

- Spacious profile shared space is where there is a consistently wide kerb lane to allow riders and drivers to comfortably share space according to the prevailing road speed (i.e. minimum kerbside traffic lane width of 3.7m within a 60km/h speed zone – refer to Table 4.2 of the Cycling Aspects of Austroads Guides, 2011 for further guidance).
- Tight profile shared space can be used for bicycle routes in low-speed, low motorised traffic volume environments such as residential streets and laneways. In very low speed environments such as residential areas and on very narrow inner-city streets, where the aim is to keep all vehicle speeds low, it is preferable to restrict the lane width so that vehicles cannot pass riders and must follow each in turn (i.e. maximum traffic lane width of 3.2m).

Figure 5.3: Methods of Separation

![Methods of Separation Diagram](source: RTA 2003, p.14)

5.3.4 Types of Intersection Treatments

With the capacity of a traffic network in urban areas typically dictated by their intersections, bicycle facilities often terminate on approach to intersections, as additional traffic lanes or turning widths are provided to maximise their capacity and provide the major mode use (private motor vehicle) the highest level of service. However, this clearly does not meet the objective of ensuring that cycling is a safe and attractive alternative to private car use, and must be avoided in all circumstances.

In this regard, there are a number of intersection designs that are commonly used to accommodate bicycle facilities and still maintain a reasonable level of traffic capacity. The most relevant treatments for Wodonga are discussed below and are grouped under three intersection control types:

- Signalised Intersections
- Roundabout
- Priority Intersection.
Signalised Intersection

Signalised intersections are most appropriate where intersecting volumes are such that safety and/or delays are not able to be managed through other intersection types. With the use of bicycle only and turn-restriction phases, signalised intersections can provide cyclists with a reasonably high level of service, especially if the overall intersection cycle times can be keep relatively low (i.e. 60 seconds or less), and there are bicycle lanes or paths leading to the front of queued vehicles to head-start storage boxes.

Potential treatments for signalised intersections are shown in Appendix F.

Roundabouts

While roundabouts provide traffic engineers with an intermediate treatment between signalised and priority controlled intersections, they are notoriously bad for safely accommodating cyclists, with 26% of all cyclists injuries occurring at roundabouts compared with 6% at signalised intersections\(^4\).

There are a number of reasons for roundabouts being a barrier to cyclists, but the main one is that cyclists are not clearly advised where they should position themselves as they travel through a roundabout\(^5\).

Currently, most on-road bicycle facilities stop short of roundabouts and cyclists try to travel on the outside of the circulating lane with vehicles travelling on their inside, which places them in a low visibility area, especially when motorists tend to be looking right when entering the roundabout, which is reflected in 50% of cyclist injuries at roundabouts occurring when they are in the circulating lane\(^6\).

Also, vehicle speeds through some roundabouts can be quite high, creating a large differential in speed between cyclists and vehicles when they pass them in a confined area while undertaking a turning movement.

As such, if feasible, roundabouts should not be used along bicycle routes. Failing this, modifications to design elements should be considered to improve the level of safety for cyclists. However, it should be noted that even with the incorporation of these design elements, roundabouts can still pose a higher safety risk to cyclists than the other types of intersection.

A range of potential treatments for roundabouts are shown in Appendix F. In summary, the following decision guidelines should be applied to all roundabouts on bicycle routes, whether existing or proposed. Removal and/or modification of roundabouts should be undertaken based on the priorities identified in WITS.

i  Consider whether the use of a roundabout achieves the desired modal priority (including pedestrian and bicycle priority and safety) – in most cases, the use of a roundabout will not be appropriate.

ii  For existing roundabouts or those deemed absolutely necessary, consider the following:
   •  For high speed arterial roads and multi-lane roundabouts, a fully separated bicycle facility and associated controlled crossing points are likely to be required, due to the inherent difficulty in providing safe bicycle access within the road width.


\(^5\) It is also noted that roundabouts perform very poorly for pedestrian priority, and as such should be avoided where possible, except in very limited circumstances where pedestrian priority is not required.
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- For larger roundabouts, it may be possible to introduce a bicycle lane (noting that approach and circulating vehicle speed should be minimised.
- For smaller roundabouts, low vehicle speeds and shared road space between cars and bicycles may be appropriate.
- In all cases, vehicle speed should be reduced through a range of measures such as raised pedestrian crossing points and straightening of entry / exit lanes.

Priority Controlled Intersections

Priority controlled intersections can vary dramatically in the volumes of vehicles that they are accommodating, such as between two local roads to between a local road and an arterial road. Give-way controlled intersections operate on the assumption that there is ability for vehicles on the intersecting road to choose an appropriate gap in the priority movement traffic stream(s). However, this assumption is generally made without bicycle lanes and paths generating additional traffic streams and potential points of conflict.

In response to this, there are different measures that can be taken to incorporate bicycle (and pedestrian) movements at a priority intersection and not significantly impact the operation of the intersection for motorised vehicles. These are further detailed in Appendix F.

5.3.5 End-of-Trip Facilities

End of trip facilities include:

- Bicycle parking
- Showers and change rooms
- Lockers (for clothes and equipment)
- Bicycle sales, renting and repair shops.

Bicycle parking at key trip attractors and transport nodes is an essential requirement of an integrated transport system. It helps to indicate that cycling is a legitimate and desired form of transport and recreation. Without parking facilities at locations people travel to and from, they either don’t cycle or secure their bikes informally along footpaths and in back-rooms where they leave them open to theft, vandalism and in the way of others. Key aspects of high quality bicycle parking include:

- Security: to minimise the risk of theft. Best practice involves either attended bicycle parking or a lockable shelter with internal bicycle racks for secondary locking.
- Visibility: located in an area with a high volume of passing foot traffic, to deter theft.
- Shelter: to protect against rain.
- Convenient: positioned as close as possible to the trip attractor or transport node, or within a prominent area.
- Signage: to clearly identify the direction of bicycle parking facilities from areas where the parking facility is not visible.

Bicycle parking needs to cater for both the regular and infrequent users. While there may be a small degree of cross over, regular users will generally prefer high security bicycle enclosures and infrequent users will generally have their needs met by casual bicycle parking located in highly visible, accessible and proximate to their destination. Short term users (parking for less than 4 hours) will usually be satisfied by casual parking as well.
In terms of the other end of trip bicycle facilities, these can have just as significant an impact on encouraging and helping to support and grow bicycle use, as well as other desired modes of transport and exercise, such as walking and running. They should be at least considered at every location that bicycle parking is provided, but will be dependent on the types of users, with long-term commuters requiring showers, change rooms and lockers, when short term users may only need lockers. Moreover, with both types of users, they can be further attracted through bicycle stores, be it sales, renting or repair of bikes, and bicycle friendly cafes and other commercial stores that target clientele that arrive in an informal manner. While end-of-trip commercial opportunities are likely to be realised as bicycle volumes increase, they can be fast-tracked through supportive initiatives by Council.

There are a number of end-of-trip checklists that have been developed and should be used to assess existing and proposed facilities. Links to a selection of these are provided as follows:


With regards to the level of provision of bicycle parking spaces, the Planning Scheme sets statutory rates for bicycle parking at new developments. For land uses that generate suitable user types, these levels of provision should be considered to be the minimum, and where possible, additional levels of provision should be provided, especially where a reduction in the statutory level of car parking is supported by Council, and/or in proximate locations, with good access to bicycle facilities.

5.3.6 Application within Wodonga

With a typical bicycle catchment being 5km (i.e. 20min bike) within an urban environment, the majority of Wodonga would fall within the catchments of the major shopping areas. As such, this provides a great opportunity to achieve a significant shift in mode share over these short trips.

The implementation of the PBN identified at Appendix C will provide a significant increase in the attractiveness of cycling as a mode of transport in Wodonga, and will complement the existing network of off road paths and trails (predominantly along the House Creek corridor and regional rail trails).

The priority for implementing the PBN will partly be determined by which projects achieve multiple aims, as many bicycle projects will also address other issues. In particular, there is a significant overlap between the PBN and PPN, and it is expected that many of the proposed pedestrian priority routes will also cater for more vulnerable bicycle users. In light of this, the PBN should be developed according to the following priorities:

i  Creation of off-road links to the CBA, including Elgin Boulevard, Junction Place and Beechworth Road, including bicycle priority treatments at major barriers such as the High Street roundabout and other major roads / intersections.

ii Provide supportive end of trip facilities within the CBA. As detailed above and further in the CBA section of this report, the creation of a central transport and information hub in Wodonga, plus short term bicycle parking facilities to support retail uses and land use attractors will assist to revitalise the CBA.
iii Completion of the PBN as outlined at Appendix C is the next highest priority, including wayfinding signage across the network and removing / treating roundabouts to improve bicycle safety and priority.

iv It is noted that regional recreation and tourism links such as the regional rail trails play an important role in the overall bicycle network, and should continue to be developed as part of a comprehensive approach to recreational and tourism opportunities for cycling, as they have been found to help deliver substantial returns to the local economy.

These projects are detailed in Section 6.

5.4 Public Transport

5.4.1 Preamble

It is noted that the public transport network is the responsibility of the Victorian Government, through Public Transport Victoria (PTV). As such, the role of WITS is to identify the issues with the existing network in order to ensure that Council’s advocacy position is well informed, and to influence future planning for the public transport network.

Wodonga’s public transport system primarily consists of the local bus network, with regional travel accommodated via rail and VLine coaches. As such, the analysis and recommendations below relate mainly to improving the operation of the local bus network, including connections to regional services.

A comprehensive review and analysis of all bus routes operating in Wodonga is beyond the scope of WITS, and as such the recommendations below relate to the overall design of the network. Further detailed work is required to support any changes to routes, including consideration of route-specific issues such as local attractors, schools, operational requirements such as the overall number of buses required and vehicle kilometres (and cost) implications of any proposals.

5.4.2 Existing Network

As noted in Section 3.3.3, the existing network is characterised by predominantly low frequency routes, poor span of hours, lack of services on weekends and extensive duplication of routes. Due to these issues, the network operates as a collection of isolated routes rather than an overall network that is likely to attract new users.

Given the relatively compact size of Wodonga, it is expected that the existing levels of coverage could be maintained or enhanced with a lower number of routes, assuming less duplication between services. This could potentially free up vehicles and reduce the overall vehicle kilometres travelled, enabling increased frequency and span of hours with a relatively low cost.

5.4.3 Network Development

Based on the above, the following principles should be applied to improve Wodonga’s public transport network. These principles have informed the recommended projects and actions detailed in Section 6.
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i  **Improve the legibility and clarity of the network.** Significantly reducing the number of routes would allow for a greater legibility of the network for new users, and reduce duplication of routes.

ii  **Creating a network effect.** Currently, the routes effectively operate in isolation from each other due to low frequencies and uncoordinated timetables. Increasing frequencies will allow for greater coordination between routes, ensuring that more complex journeys are possible and increasing the overall efficiency of the network.

iii  **Provide for intermodal transfers.** Many users of the rail service do so because they don’t have access to private transport options, for a range of reasons (for example elderly and young people). It is therefore critical that bus services are provided to Wodonga Railway Station to cater for intermodal transfers and provide access to the CBA for users (for example to access Travellers’ Aid services). In addition, bus – coach transfers are an important consideration, due to Wodonga’s role as a regional service centre for smaller communities not connected to the rail network.

iv  **Providing services to growth areas and major land use attractors.** Given the majority of Wodonga’s growth areas are to the southeast, the existing loop service can provide a good level of accessibility for residents, as well as major/retail attractors such as the Bandiana Military Area and White Box Rise shopping centre (which are not currently serviced by any bus stops). It is critical that new services are planned to commence at the opening of new development areas, rather than being added later on once travel patterns have become established.

It should be noted that existing routes in Wodonga have evolved over time to service specific needs of the community. Therefore changes should involve consultation with the bus operators and affected community members and organisations. However, it is also clear that the network has not been upgraded in response to new development, including the White Box Rise shopping centre. It is important that mechanisms are in place to ensure that the network is responsive to new demands and keeps pace with developments in Wodonga.

Recommended projects to improve the operation, attractiveness and legibility of the public transport network are detailed in Section 6. It is noted that PTV’s preferred approach is to undertake a comprehensive review, rather than individual changes to the network over time. In this regard, the projects identified in Section 6 may be best undertaken as part of a comprehensive review, due to the difficulties in making incremental changes to existing routes.

The existing network coverage and identification of service gaps and potential improvements is shown in Appendix D.

5.5  Road & Freight Network

5.5.1  Existing network

Wodonga’s road network is characterised by a high quality arterial road network that provides efficient linkages between major land uses and activity centres. The arterial road network includes both an inner and outer ring road system that enables access around Wodonga and to the CBA.

Based on the strategic principles of WITS, further development of the road network to benefit cars is discouraged, since it already provides a high level of service and available resources should primarily be
Network Development

Allocated towards improving transport choice to create viable and attractive walking, cycling and public transport networks.

5.5.2 Network Development

Notwithstanding this, some improvements to the road network will be required to support the overall operation of the transport network in Wodonga. In order to support the objectives of WITS, future changes to the road network should generally not be aimed at increasing traffic capacity, but rather at facilitating improvements to sustainable and active transport modes and supporting the overall economic and amenity objectives of Wodonga. To this end, the following questions should be asked when planning for any changes to the road network:

- Are the changes required to service new development, and if so do they include provision of walking and cycling facilities?
- Are the changes compatible with the SmartRoads Road Use Hierarchy?
- Are the changes necessary to support economic activity (e.g. freight routes)?
- Do the changes implement the PBN and PPN?
- Are the changes necessary to reduce conflict between different transport modes?
- Are the changes complimentary to surrounding land uses and/or pedestrian amenity?
- Do the changes improve pedestrian priority across arterial roads?
- Do the changes support improved access to public transport (DSAPT requirements)?

In the longer term given the growth forecasts for Wodonga, particularly in Leneva-Baranduda, consideration should be given to identifying a potential new Murray River crossing to ensure future improved connections to the Albury Airport and its eastern industrial and employment areas.

5.5.3 Freight Network Development

In addition to the above guidance, Wodonga contains a number of significant freight generating land uses (existing and future), including LOGIC Wodonga and Enterprise Park. These areas are currently well serviced by the arterial road network, and future planning for expansion to these areas should ensure that a high standard of access is maintained for freight vehicles, including the maintenance of High Productivity Freight Vehicles (HPFV) access to LOGIC Wodonga. The strategic approach to freight network issues should be informed by the recently released Victoria – The Freight State (August 2013), which is discussed in Section 2. The Principal Freight Network (PFN) consists of the freeway, highway and arterial road network which is shown at Appendix E.

The commonwealth is committed to funding national infrastructure project. In the 2014-2015 Federal budget the Commonwealth committed 450 billion to infrastructure projects across Australia, to reduce bottle necks on the nation’s and local network.

There has been significant investment to Commonwealth Programs with a direct benefit to local governments. These include:

- Heavy Vehicle Safety Productivity Program – continuation of existing Federal program
- Roads to Recovery – continuation of existing program (appropriately $350 million per annum)
- Bridges Renewal Program - $300 million (4 years, local roads, matching funding from state and local governments)
Network Development

- National Stronger Regions Fund - $200 million per annum from 2015 for local capital works (matching local government funding).

5.6 Statutory Changes

5.6.1 Speed Limits

Speed limits are an important factor in the transport system, as lower speed limits act as ‘hidden infrastructure’ that protects vulnerable road users.

Figure 5.4 shows the probability of a fatality resulting from a collision between a motor vehicle and a pedestrian or cyclist. Having regard to the ‘safety benefit’ shown in this figure, it is recommended that Council continue to advocate for lower speed limits throughout Wodonga. This is likely to support pedestrian and cyclist amenity as well as safety, which is an important consideration in people's choice to walk or ride.

Initially, it is recommended that a blanket 40km/h limit is sought for the CBA as well as for selected residential precincts. In future 30km/h should be pursued in these areas, in line with international best practice. Research in Europe has indicated that widespread implementation of 30km/h in residential precincts has delivered substantial safety and liveability improvements, without affecting travel times. Initial results from NSW show similar improvements (albeit on a smaller scale).

Figure 5.4: Probability of a Fatal Injury for a Pedestrian or Cyclist Struck by a Motor Vehicle

![Figure 5.4: Probability of a Fatal Injury for a Pedestrian or Cyclist Struck by a Motor Vehicle](WHO 2008)

5.6.2 Car Parking

Overall, Wodonga has more than sufficient car parking supply available to accommodate the land use demands of the centre. Future development plans (and subsequent increases in car parking) will...

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7 Based on the 2012 Car Parking Study prepared for Council
largely be expected to be accommodated on-site. As such, minimal changes are expected to overall car parking occupancy in the future.

Car parking policy can play a role in influencing travel behaviour, whether through restricting supply (which may cause a shift to other modes), or implementing shorter duration or paid parking (which is likely to increase turnover). In Wodonga, car parking policy needs to support the economic success of the centre, and not act as a deterrent to visiting. As such, any attempt to unduly restrict the supply of car parking may simply result in increased escape expenditure away from the CBA to other shopping areas and activity centres.

In light of this, Council’s interim car parking policy (dated April 2013) is supported, noting that:

• The policy does not seek to restrict car parking (i.e. use it as a demand management tool), which is considered appropriate at this time. In future, once the walking, cycling and public transport networks are improved, it may be appropriate to consider a more restrictive policy towards car parking (as part of an overall demand management strategy).
• Ongoing monitoring of demands for short stay parking needs to occur, to ensure that any increase in visitation and spending in the CBA is supported by appropriate short term visitor car parking.
• Long term staff car parking should also be monitored, noting that despite growth of employment in the centre, demand for staff parking may not increase at the same rate if the walking, cycling and public transport networks are improved.
• Implementation of ‘Column B’ rates from the Victoria Planning Provisions Clause 52.06 via a car parking overlay for the CBA is supported, noting that Column B rates are reflective of the sharing of uses that typically occurs within an activity centre.

It is further noted that Council has resolved to progress a new car parking strategy and parking precinct plan, with the intention of revising the existing cash-in-lieu arrangements for car parking. While cash-in-lieu schemes can assist to provide a supply of parking that can be shared between uses, it may also involve significant additional costs to be borne by Council. The need for Council to contribute additional funds for car parking should be balanced against the overall objectives of WITS, including the need to improve the walking, cycling and public transport networks, and thereby contribute to a lower overall demand for car parking in the centre.

5.6.3 Development Contributions

Development contributions are payments or in-kind works, facilities or services provided by developers towards the supply of infrastructure required to meet the future needs of a particular community, of which the development forms part.

Levies can be applied through Development Contributions Plans (DCPs) for a range of infrastructure including transport infrastructure projects. DCPs should complement the transport infrastructure proposed in the CBA Directions Report, as well as potentially other Council priorities.

In order to develop DCPs and successfully introduce them into the Wodonga Planning Scheme, further project design and costing will need to be undertaken, as well as apportioning the costs fairly between Council and developers.
5.6.4 Integrated Transport Plans

An integrated transport plan (ITP) is a document which sets out how the various forms of transport will be integrated with land use, so that urban sustainability is optimised. Land use decisions are made having regard to the current and future development and operation of the transport system. ITPs are required for major investment proposals/developments, and are an opportunity for Council to negotiate improvements to the public realm and surrounding infrastructure, in the absence of a DCP. In this regard ITPs are an important tool for Council in the implementation of the CBA Report. ITPs should be prepared in accordance with the Department of Transport’s ITP Advisory Note.

5.7 Central Business Area

5.7.1 Preamble

Successful implementation of WITS requires both network level improvements (detailed above) and place based projects to improve the public realm around key trip generating land uses (focussed on the CBA). This section details the objectives and methodology for project development within the CBA.

The proposed response in the CBA can be summarised as follows:

- the co-location of a number of transport and tourism related services in a central transport and information hub
- the provision of comprehensive walking and cycling networks, supported by pedestrian priority areas throughout the centre (shared zones or similar).

5.7.2 Central transport and information hub

The provision of a central transport and information hub is required to provide a focus for the centre of Wodonga, for visitors, residents and workers. It is noted that many transport and information facilities are already located at The Cube / Woodland Grove, including:

- Bus stops / bus interchange facility
- Public facilities including public toilets, disability toilets, baby change room and drinking fountains
- Council customer information and service point
- Travellers Aid Australia lounge
- Short term bicycle parking facilities
- Taxi rank.

These services represent a ‘critical mass’, and as such they should be marketed and publicised through more extensive signage and branding and publicity, to ensure that they fulfil their role as an anchor at the southern end of High Street. Additional services such as the long-term bicycle facilities should be investigated and added over time, potentially as part of a commercially operated café / bike repair shop.

The Wodonga transport and information hub responds to a number of identified needs and is a key part of the transport response in the CBA. In addition, it has great potential in activating the southern end of High Street and contributing to the overall vitality of the area.
5.7.3 Bicycle Network

The lack of bicycle connections to and through the CBA has been identified as a key issue that limits the attractiveness of cycling as a mode of transport in Wodonga. The proposed PPN seeks to provide a comprehensive network of bicycle facilities that enable access to and throughout the CBA.

The PBN should be supported in the CBA by a range of end of trip facilities, including:

- Short term bicycle parking throughout the CBA.
- A long term bicycle storage / end of trip facility designed for use by both commuters as well as recreational cyclists, as part of the consolidated transport and information hub co-located with the bus interchange, Travellers Aid Australia lounge and Council information / service point. This is envisaged as primarily a visitor facility (to support ‘rail trail’ bicycle tourism and increased visitation to the CBA by locals).
- New end of trip facilities provided with new CBA development, as per the Wodonga Planning Scheme requirements.

The Wodonga PBN is shown at Appendix C.

5.7.4 Public Transport Network

Within the CBA, the following requirements have been identified for the efficient and attractive operation of the bus network:

- A centralised integrated transport hub for town bus services, long distance services and taxis, for which the following functional requirements have been identified:
  - provision of approximately four bus bays (likely to be arranged as two double bays, one on either side of the road, and subject to consultation with PTV and bus operators)
  - provision of a sheltered waiting area with bus timetable and service information
  - provision of public toilet facilities (as part of the transport and information hub)
  - taxi rank.
- A ‘ring road’ or system whereby buses can circulate through the CBA in an efficient way to minimise dead running time, and where possible avoid pedestrian priority areas.

The proposed bus stop arrangements and circulation routes through the CBA are shown in Figure 5.5. The proposed arrangement will be dependent upon any review of bus routes / operation, but consideration should be given to avoiding the High Street pedestrian priority areas. This does not necessarily reflect a desire to exclude buses from the town centre, but rather is a reflection of the difficulties associated with large vehicles mixing with pedestrians in shared spaces.
5.7.5 Traffic Network

The recent changes to traffic and parking on of High Street and resultant changes to the traffic network in central Wodonga have greatly improved the pedestrian environment and amenity on High Street. It is important that the momentum gained through this project is maintained and that the remainder of the ‘inner ring road’ is implemented in such a way that supports the overall revitalisation of central Wodonga. In light of this objective, and the modal hierarchy identified in Figure 4.1, the role of the local traffic network in Central Wodonga is to:

- Support the efficient operation of the local bus network and pedestrian access to it.
- Enable efficient access for local freight and delivery vehicles to support economic activity in the centre.
- Support efficient access to the existing car parking areas to the rear of High Street (generally from Hume Street, Hovell Street and Havelock Street).
- Cater for any through traffic that wishes to bypass the centre (noting that other bypass opportunities exist further away from the centre, and as such the inner ring road should play a secondary bypass role).
Network Development

- Safely accommodate pedestrian, bicycle and bus priority as required.

5.7.6 Car Parking

This section provides guidance on physical interventions in the CBA car parking network to support the statutory changes discussed at Section 5.6.2.

The existing car parks in the CBA are generally well located to support the overall activity of the centre, as they are accessed from the rear of High Street shopping strip and provide convenient pedestrian access through to High Street via the many small laneways and arcades.

The following actions are recommended to ensure that the car parking network operates efficiently to support the overall economic success of the centre, without overly detracting from the public realm and pedestrian amenity and accessibility:

- Develop a signage and wayfinding strategy to improve legibility of access to car parks via ring road / local access roads. This strategy should support the operation of the ring roads / CBA bypass routes and provide clear directions to parking locations via the ring road system.
- Where possible, link car parks to maximise internal circulation without using the external street network (for example by creating internal links between car parks in the ‘CBA West’ area).
- Provide safe, attractive and direct links from the car parks to major attractors such as High Street and the civic precinct, including the provision of shade, activation and foot paths.

It is acknowledged that significant additional car parking is likely to be provided on site as part of the Junction Place and Mann Site redevelopments. The preferred location and access for these car parks is via the rear of the developments, away from high pedestrian activity areas.
6. Projects

6.1 Preamble

The following projects represent the high priority actions for Council to undertake in the short to medium term. In the longer term, consideration should be given to completing the pedestrian and bicycle networks as outlined in Appendix B and C, and reviewing WITS to develop the next generation of projects.

Ongoing monitoring and evaluation of the effect of projects is critical to ensure that best value for money continues to be achieved. Monitoring, targets and evaluation is discussed further in Section 7.

6.2 Road and Freight Network Improvements

Council’s Network Operating Plan is an important tool in determining the basis for road upgrades. As stated the Network Operating Plan is intended to be a live document that can be updated to reflect changed circumstances.

Consistent with the intent of the Network Operating Plan a number of road improvements have been identified that if implemented will improve traffic management and efficiency particularly for freight suppliers and operators within Wodonga and the surrounding area. Many of the roads identified as requiring upgrade have been identified in the Hume Region Planning for Freight Pilot and those reported to Council as issues by heavy vehicle user.

Some of the road locations listed are Vic Roads arterial roads (Kiewa Valley Highway, Murray Valley Highway, Hume Freeway, Beechworth-Wodonga Road, Melrose Drive and Murray Valley Highway) hence the role for Wodonga Council is one of advocacy only.

All upgrades proposed must be consistent with Council’s Network Operating Plan.
Table 6.1 Priority Road & Freight Network Upgrades

<table>
<thead>
<tr>
<th>Location</th>
<th>Priority</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOGIC</td>
<td>Short term</td>
<td>Vic Roads - HPV access to industrial estate</td>
</tr>
<tr>
<td>Murray Valley Highway to</td>
<td>To be determined</td>
<td>Vic Roads PBS - performance based standard upgrade</td>
</tr>
<tr>
<td>Whytes Road</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Murray Valley Highway</td>
<td>Short term</td>
<td>Vic Roads - road widening</td>
</tr>
<tr>
<td>Mahers Road</td>
<td>Short term</td>
<td>Current - Vic Roads PBS - performance based standard upgrade</td>
</tr>
<tr>
<td>Wodong-Yackandandah Road</td>
<td>TBD</td>
<td>Vic Roads - Shoulder widening</td>
</tr>
<tr>
<td>Kiewa Valley Highway</td>
<td>TBD</td>
<td>Vic Roads - road widening</td>
</tr>
<tr>
<td>Old Bamawartha Rd / Murray</td>
<td>Short Term</td>
<td>Vic Roads - intersection improvement, shoulder work underway</td>
</tr>
<tr>
<td>Valley Highway</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melrose Drive</td>
<td>Short Term</td>
<td>Vic Roads - roundabout upgrade design work commenced, to investigate potential for Hume Freeway access (both entry and exit) Melbourne bound</td>
</tr>
<tr>
<td>Maloney Drive</td>
<td>TBD</td>
<td>Vic Roads</td>
</tr>
<tr>
<td>Bandiana Link roundabout</td>
<td>TBD</td>
<td>Vic Roads</td>
</tr>
<tr>
<td>Beechworth-Wodonga Road</td>
<td>TBD</td>
<td>Vic Roads - passing lane access and shoulder widening</td>
</tr>
<tr>
<td>McCoy - Hume Street</td>
<td>TBD</td>
<td>Vic Roads - investigate future intersection upgrade</td>
</tr>
</tbody>
</table>

6.3 Priority Roundabout Upgrades

As identified throughout the report, the prevalence of roundabouts throughout the municipality presents a significant barrier and safety issue for pedestrians and cyclists. Ideally, these roundabouts should be removed and replaced as appropriate by either signalised or priority intersection treatments. It is acknowledged that this is a long term aspiration, and in the interim it may be appropriate to upgrade roundabouts for pedestrian and bicycle priority as outlined in Appendix F.

The roundabouts identified for priority attention in this report generally correspond to the CBA and along the PPN and PBN routes, and are shown at Appendix B. The sequence of upgrades will depend in part upon other projects being undertaken (for example the realignment of Elgin Boulevard). An overall priority for each identified roundabout is presented in Table 6. below. Roundabouts are listed as either ‘short term’, for completion in the next 1-5 years, or ‘medium term’, for completion within ten years. It is noted that roundabouts on VicRoads arterial roads (Melrose Drive and Murray Valley Highway) are not within the control of Wodonga City Council, and therefore their role is one of advocacy only.
### Table 6.2: Priority Roundabout Upgrades

<table>
<thead>
<tr>
<th>Location</th>
<th>Priority</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>High St / Lawrence St</td>
<td>Short</td>
<td>Presents a major barrier to pedestrian and cyclist access and safety at the southern gateway to the CBA</td>
</tr>
<tr>
<td>Elgin Bvd / Hume St</td>
<td>Short</td>
<td>To be removed as part of Elgin Boulevard upgrade</td>
</tr>
<tr>
<td>Elgin Bvd / Hovell St</td>
<td>Short</td>
<td>To be upgraded in conjunction with Mann St redevelopment</td>
</tr>
<tr>
<td>Elgin Bvd / Watson St</td>
<td>Short</td>
<td>Presents a barrier to pedestrian and bicycle access between the CBA, Wodonga Plaza and the House Creek trail.</td>
</tr>
<tr>
<td>Murray Valley Hwy / Bandiana Link Rd/Victoria Cross Parade</td>
<td>Short Term</td>
<td>Priority upgrade required to support pedestrian and bicycle access to White Box Rise Shopping Centre Council to advocate for upgrade to support completion of PBN / PPN.</td>
</tr>
<tr>
<td>Victoria Cross Parade / Pearce St</td>
<td>Short</td>
<td>Priority upgrade required to support pedestrian and bicycle access to White Box Rise Shopping Centre</td>
</tr>
<tr>
<td>Beechworth Road roundabouts</td>
<td>Short / Medium term</td>
<td>Upgrades required to support PPN and PBN access to CBA. Short term improvements to side road crossings should be pursued in advance of major upgrades / removal of roundabouts.</td>
</tr>
<tr>
<td>Melrose Dr / Brockley St, Lawrence St / Melrose Dr, Felltimber Ck Rd / Melrose Dr</td>
<td>Medium</td>
<td>To be upgraded as part of wider improvements to PPN and PBN within Birralee Shopping Centre catchment</td>
</tr>
<tr>
<td>Anzac Pde / Chapple St, Anzac Pde / Brockley St</td>
<td>Medium</td>
<td>Upgrade required to provide PBN and PBN access to CBA</td>
</tr>
<tr>
<td>Stanley St / Hume St</td>
<td>Medium</td>
<td>Upgrade required to support pedestrian and bicycle priority in the CBA</td>
</tr>
</tbody>
</table>

### 6.4 Pedestrian and Bicycle Network Improvements

Pedestrian and bicycle network improvements are generally directly under Council’s control. In addition, there is considerable overlap between the PPN and PBN for Wodonga. As such, they are considered together below.

In future, once cyclist numbers increase significantly, there may be a need to provide more separation between pedestrian and bicycle facilities, in order to reduce conflicts. However, in the short to medium term the provision of a network of shared paths is seen as the most effective way to improve the level of service and attractiveness of both walking and cycling.

#### 6.4.1 Short-Term Projects

In the short-term, it is recommended that the pedestrian and bicycle facilities that overcome existing barriers and connect the existing residential catchments to the major trip generators / destinations be implemented. In this regard, the following projects are recommended for short term design development and implementation:

1. **Elgin Street between High Street and the House Creek Trail**
   
The implementation of a shared path on the southern side of Elgin Street, between High Street to the east and the existing House Creek Trail to the west, is considered to provide a critical link to the west of the CBA, as well as connecting with the existing off-road shared path network that extends both to the north and south.
   
   This will require widening of the existing footpath on the southern side of Elgin Street to 3.0m wide with off-sets to obstructions of at least 0.5m, which may impact existing services and vegetation. There will also need to be priority crossing facilities of the intersecting
property access points, and specific crossing treatments of the intersecting roads, namely the two roundabouts at the intersections with Smythe Street and Watson Street.

ii **Rail Corridor extending southeast between Reid Street and Victoria Cross Parade**
There is an ability to accommodate a transport link within the existing disused rail corridor that extends to the southeast of the CBA between Reid Street and Victoria Cross Parade. This connection would provide pedestrian and bicycle access to the CBA from the southeast along a facility that provides a high level of service to users, given that it has a limited number of intersections and property access points that it has to cross. Furthermore, given that the potential facility would be within a pre-graded, sufficiently wide, existing transport corridor, it is considered feasible for short term implementation.

iii **Bandiana Link Roundabout and Murray Valley Highway**
There is an ability to improve the safety of the cycle pathway along the Murray Valley Highway in the vicinity of the Homemaker Centre and the Bandiana Link roundabout by providing a safe separated pathway along the original railway link (Bandiana branch line).

iv **Beechworth Road between Lawrence Street and Victoria Cross Parade**
Beechworth Road is a major transport corridor that accesses the CBA from the south. It currently provides a high level of service to vehicular traffic, with two traffic lanes in each direction separated by a raised median, roundabouts at the major intersections and other local intersecting roads restricted to left-in / left-out. As such, and based on the currently observed traffic conditions, there is a significant amount of capacity within the road corridor that could be reallocated to pedestrian and bicycle facilities.

In this regard, it is proposed to provide a shared path along at least one side of the corridor and on-road bicycle lanes between Lawrence Street to the north and Victoria Cross Parade to the south.

This will require widening and off-setting of the existing footpath on at least one-side of Beechworth Road to 3.0m wide away from the property boundary with further off-sets to other obstructions of at least 0.5m, which may impact existing services and vegetation. At the roundabout intersections, Bend-Out facilities should be provided, with Straight Through facilities provided across other local roads. Additional mid-block crossing facilities to connect to trip generators / destinations should also be provided.

The on-road bicycle lanes are likely to require the loss of parking or a traffic lane, and the approaches to the roundabouts should be modified to achieve more equitable vehicle speeds between bicycles and cars.

v **Victoria Cross Parade between Murray Valley Highway and Mactier Street**
With the retail shopping area development on Victoria Cross Parade proximate to Mactier Street, and there being a shared path to the southwest along Victoria Cross Parade to Beechworth Road, there is an ability to continue the shared path to Murray Valley Highway to the northeast. This will connect with the proposed recreational trail along the disused railway corridor to the CBA in the northwest and the existing shared path along Murray Valley Highway to the southeast.

Furthermore, there is currently limited development along this section of Murray Valley Highway, which makes it feasible to provide such a facility in the short term.

vi **Birallee Central Shopping Centre**
The Birallee Central Shopping Centre is a major trip generator / destination in its own right.
However, it is currently designed to only be highly accessible by car. As such, it is recommended that a pedestrian and bicycle audit of existing facilities and identification of a local fine grain network, within and for at least the initial 400m of the centre, and connecting to the existing off-road shared path network, should be completed. Consideration of the proposed PPN and PBN should be taken into account, along with local trip generators / destinations and general access routes.

vii **White Box Rise Shopping Centre**
The White Box Rise Shopping Centre is a major trip generator / destination in its own right. However, it is currently designed to only be highly accessible by car. As such, it is recommended that a pedestrian and bicycle audit of existing facilities and identification of a local fine grain network, within and for at least the initial 400m of the centre, and connecting to the existing off-road shared path network, should be completed. Consideration of the proposed PPN and PBN should be taken into account, along with local trip generators / destinations and general access routes.

viii **Schools**
The Ride 2 School City of Wodonga Active Travel Report (Bicycle Network, 2013) identifies a range of initiatives to overcome barriers to kids walking and cycling to school, including:

- Improved crossing points for kids to comfortably access school grounds
- Programs to encourage kids and parents to partake in active travel
- Adding bike education courses at schools
- Better signed bike routes.

The report contains recommendations for potential projects at the thirteen schools that participated in the program to improve access and safety. These recommendations should be further investigated, prioritised, costed and implemented by Council in consultation with schools and the Victorian Government (noting that funding may come from a variety of sources).

ix **Wayfinding**
Wayfinding is a critical part of any transport network, regardless of mode. Pedestrians and cyclists have different needs from cars and follow different routes to the typical road network of local, connector to arterial roads. As such, a review and identification of wayfinding signage and infrastructure (i.e. colour code routes, types of facilities, etc) for the off-road shared path facilities and on-road bicycle facilities. At a minimum, they should indicate both distance and travel time for pedestrians and cyclists to major trip generators / destinations, landmarks and other significant locations that help orientate users.

x **End-of-trip facilities**
There is currently a low level of end-of-trip facilities supporting the use of walking and cycling. There should be consideration given to the provision of end-of-trip facilities that support the types of users, be it short-term highly accessible and visible bicycle parking at cafes, public transport hubs, parks and recreational facilities, or lockers, showers and secure bicycle parking at offices and medium to high density residential developments. While such facilities are a statutory requirement of any new development, the location of publicly accessible facilities is typically the responsibility of Council.

xi **Local Area Traffic Management**
Within local roads the continued reduction of vehicle speeds and through traffic should be...
Projects

undertaken to provide a more supportive environment for pedestrian and cyclists. With reference to Figure 5.2, it should be noted that if the volume and speed of traffic can be suitably lowered the environment can be considered viable by the majority of potential users. As such, speed reduction and through traffic volumes within the local road network should be investigated and achieved through Local Area Traffic Management measures.

xii Policy and Behavioural Change Programs

In order to support the implementation of ‘hard’ infrastructure, Council should continue to undertake ongoing policy and behavioural change programs. These will ensure that the value gained from the improvements to infrastructure have the most benefit to the community, in terms of increased access, health and other benefits.

6.4.2 Medium-Term

In the medium-term, Council should focus on the confirmation and implementation of both the PPN and PBN. To do this a clear blue-print of both the PPN and PBN needs to be identified, costed and implemented against Council’s forward budget commitments. In order for this the preparation of Pedestrian and Bicycle Network Implementation Strategies are required. They should outline the latest facility philosophies and application specific to Wodonga.

6.4.3 Long-Term

In the long-term, Council should look at developing the more fine grain facilities to support the strategic pedestrian and bicycle networks (i.e. PPN and PBN). This needs to go beyond the use of Local Area Traffic Management measures and to urban design standards and approaches that support the use of pedestrian and bicycle use over private motorcar use.

6.5 Public Transport

In light of the analysis in Section 5.4, it is recommended that Council advocate for the following improvements to the Wodonga public transport network (noting PTV’s preference for a comprehensive review rather than incremental changes to the network):

i Short term: Advocate for improved coverage of the existing network to include bus stops in new growth areas, Wodonga Railway Station and the Bandiana Military Area. Network coverage and gaps are shown indicatively at Appendix D (noting that ‘potential future activity centre’ locations may not require bus stops in the short term).

ii Short term: Advocate for improved service frequency, span of hours and days. This should aim to provide all services to a set minimum standard (currently being developed for regional areas by PTV), for example a minimum of 30 minute frequency from 6am – 9pm on weekdays, 8am – 9pm on Saturdays, and 9am – 9pm on Sundays.

iii Medium term: Advocate for a comprehensive review of the operation of existing routes with particular attention to reducing duplication between routes, aiming to reduce the number of routes. The review should take account of the following:

• maintain maximum walking distance of up to 400m from homes (meeting or exceeding existing coverage levels)
• improve legibility of services through simpler structure and less routes
• improve ‘network effect’ or ability to transfer between services
• provide access to land use attractors such as schools, shopping centres, community facilities, major employers and the CBA
• provide access to the railway station and coach transfers
• maintain the existing high standard service to Albury, and extend it to weekends.

6.6 CBA Projects

6.6.1 Preamble

Council is playing a leading role in the revitalisation of the CBA through a number of public realm improvements, many of which include a transport component. This work supports the major land use change and urban renewal that is expected through the development of Junction Place, the Mann Site and other land throughout the CBA such as parts of the CBA West precinct.

The transport projects in the CBA are designed to complement the urban design and public realm projects that are currently being undertaken, while addressing the key issues for transport and access to and throughout the CBA. The overall transport network for the CBA is shown at Figure 6.1 below.
Figure 6.1: CBA Integrated Transport Network
6.6.2 High Street Roundabout

The High Street roundabout at the southern approach to the CBA has been identified as a key issue for pedestrian and bicycle access and safety in the southern part of the CBA. In summary:

- The roundabout presents a significant barrier to pedestrian and cyclist movement in the southern part of the CBA.
- Where ‘pedestrian facilities’ are provided on some of the approaches to the roundabout, they generally prioritise cars over pedestrians (pedestrians must give way to cars). In this regard, they do not form usable crossing points for a large portion of the community, such as the elderly or less mobile people.
- Large areas of road space are allocated to motor vehicles, which is a legacy from when this roundabout was a key traffic entry point into Wodonga (prior to the outer ring road being implemented and the recent ‘upgrade’ of High Street).

A number of proposals have been considered over the years to improve the overall function of the road network at the roundabout. It is clear that any proposal needs to be consistent with the strategic principles outlined in Section 4 of this Report.

In light of these principles, the key transport requirements for the roundabout and approaches are:

- prioritising pedestrian movement to the CBA, minimising any barrier presented by the road network
- safely accommodating cyclist routes into the CBA in accordance with the overall bicycle network (including High Street, Hovell Street, Thomas Mitchell Drive, Beechworth-Wodonga Road and Lawrence Street)
- providing priority for bus movements into and through the CBA
- accommodating local access freight movements
- accommodating traffic via the ‘inner ring road’, comprising Lawrence Street (east and west) and Havelock Street.

Two potential options to upgrade the roundabout are shown in Figure 6.2 and Figure 6.3 below. These options, plus a more radical shared space treatment⁸ are summarised in Table 6. below.

Table 6.3: High Street Roundabout Upgrade Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Advantages</th>
<th>Risks</th>
</tr>
</thead>
</table>
| Upgrade existing roundabout to improve pedestrian and cycle priority and safety as shown in Figure 6.2 | Potential for short term improvements to pedestrian and bicycle safety at lower cost. | • Does not fundamentally address car dominated entry to CBA.  
• May require signalisation of roundabout (high cost). |
| Upgrade existing roundabout to shared zone treatment | • Allows all road users to negotiate priority from a position of equality.  
• Reduces waiting time for pedestrians and bicycles. | Limited local precedent may make stakeholder buy in and approval difficult. |
| Comprehensively remodel existing intersection as shown in Figure 6.3 | • Improves pedestrian and bicycle safety and priority.  
• Realises additional developable land / public open space. | • Significant capital cost.  
• Existing access arrangements for adjacent landowners may be affected. |

⁸ For an example of a shared space treatment at a similarly busy intersection, see [http://www.theatlanticcities.com/commute/2013/04/lots-cars-and-trucks-no-traffic-signs-or-lights-chaos-or-calm/25522](http://www.theatlanticcities.com/commute/2013/04/lots-cars-and-trucks-no-traffic-signs-or-lights-chaos-or-calm/25522) (village of Poynton, UK)
Figure 6.2 below shows a potential ‘minimalist’ upgrade to the roundabout, noting that this may require full signalisation of the roundabout to achieve pedestrian priority.

It is noted that the proposal could potentially be implemented in stages, for example the removal of the slip lane at the south eastern corner of the roundabout may be compatible with all potential future configurations, and could create a new north facing public open space in the short term.

Figure 6.3 shows a more comprehensive upgrade of the intersection to achieve the desired modal priorities and significant public realm / development opportunities. The removal of the roundabout would have significant benefits for pedestrians, cyclists and the public realm, while still accommodating the required traffic movements.

It is recommended that further works be undertaken to scope and cost options for this important project, including quantifying the benefits realised for the public realm, active transport and potential development opportunities.
### Table 6.4: High Street Roundabout Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Pedestrian</th>
<th>Cycling</th>
<th>Public Realm</th>
<th>Public Transport</th>
<th>Traffic Network</th>
<th>Lead Responsibility</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigate potential options for removal / reconfiguration of roundabout to improve pedestrian and bicycle priority and safety, and reinforce the operation of the ring road as per Figure 6.2 and Figure 6.3</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Implement pedestrian priority threshold treatment on High Street</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Implement pedestrian priority area or closure of Hovell Street adjacent to Woodland Grove Park</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Investigate creation of new public open space on south-east corner of roundabout by removing slip lane</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Council</td>
<td>Medium term</td>
</tr>
<tr>
<td>Provide vehicle directional signage to inner ring road and peripheral car parks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Investigate potential location of bus interchange, Transport and Information Hub adjacent to Woodland Grove Park</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Council</td>
<td>Medium term</td>
</tr>
</tbody>
</table>

![Figure 6.3: High Street Roundabout Potential Option](image)

### 6.6.3 CBA Core Shared Spaces

The recent declassification and upgrade of High Street has improved its function as a pedestrian priority area. In particular, the ability of pedestrians to cross safely at most locations along High Street has created. This report recognises that these works to High Street are an important first step in prioritising walking in central Wodonga.
However, in order to provide a street space that links all access points and destinations, the designation of formal crossing points and delineating features such as kerbs should be removed throughout the ‘core’ of the CBA (High Street and Elgin Boulevard). The example of Hargreaves Street in Bendigo is an important local example that provides a benchmark for pedestrian priority treatments in Victoria. The Bendigo shared zone is shown in Figure 6.4, and was implemented in 2009 in response to a number of issues that are also present in Wodonga’s CBA. In particular, Bendigo responded to the following relevant issues:

- the presence of significant through traffic
- street space allocation that prioritised motor vehicles
- formalised street and pedestrian crossing designs
- high traffic speeds
- negative impacts of drive-through shopping
- cluttered streetscape design (source: Department of Transport 2012).

Figure 6.4: Bendigo Town Centre Shared Zone

The Bendigo example has been highly successful in addressing these issues. In particular:

- Average vehicle speeds (85th percentile) have reduced from 40.5 km/h to 27.5 km/h, which while not at the target speed of 20 km/h or less, has significantly reduced the likelihood of serious injury or fatality (refer to Figure 5.4).
- 90 degree parking has been used to slow vehicle speeds and reduce road width.
- Threshold treatments designate the entry to the area with bluestone rumble pavement.
- A clear, visible space has been provided at the intersection which allows users time to identify each other and negotiate right of way.
- The treatment has provided central Bendigo with a strong sense of identity, contributing to the overall economic revitalisation of the centre.
Given the recent improvement works undertaken in High Street, it is not considered to be the highest priority to implement a shared space throughout the length of the street in the short term. However, there is clearly an opportunity to provide shared spaces at key locations along the street with a view to moderating driver behaviour and improving pedestrian priority throughout the street. In this regard, shared spaces are proposed at three locations on High Street:

- at the southern entrance adjacent to the roundabout
- at the intersection with Elgin Boulevard and Junction Place (longer term project)
- at the northern entry point (South Street intersection).

The extent and design of these areas will be further refined through consultation with Council and affected stakeholders. It is noted that the short term proposal for the High Street intersection with Elgin Boulevard is likely to be a signalised intersection with pedestrian priority achieved through signal timing and the use of a different surface material to moderate motorist behaviour. This is considered acceptable in the short term, however the long term aspiration to convert this space to a shared space should be pursued in consultation with the people of Wodonga.

The reconstruction of Elgin Boulevard provides an opportunity to implement pedestrian priority measures in the short term. The following design considerations should be applied to Elgin Boulevard to maximise pedestrian priority and amenity:

- Where practical, removal of median treatments to minimise crossing distance and maximise footpath widths
- Where practical, removal of kerbs and other delineating features such as signage to reduce vehicle speeds
- Use of contrasting pavement material at key locations to improve pedestrian priority and reduce vehicle speeds
- Narrow lane widths and angle parking to reduce vehicle speeds.

The final design for Elgin Boulevard will need to take into consideration a range of priorities, such as the provision of a dedicated bicycle facility linking to the disused rail corridor further east, and future land use changes such as the Mann Site redevelopment.

6.6.4 Junction Place

The proposed redevelopment of Junction Place represents a historic opportunity for major urban renewal in the heart of Wodonga. It is critical that the transport network and public realm connects Junction Place seamlessly with the rest of the CBA, so that the new development is effectively integrated with the existing uses in the centre. In order to achieve this, it is important that the materials and finishes used as well as the traffic / transport treatments integrate with High Street and Elgin Boulevard in particular.

External Road Interfaces

It is proposed that the following pedestrian priority treatments are implemented as part of the Elgin Boulevard reconstruction and other projects, to support the integration of Junction Place into the CBA and broader fabric of Wodonga:

- Intersections of Smythe Street and Hume Street with Elgin Boulevard have pedestrian priority crossings on all legs of the intersections, with minimal deviation from the pedestrian
Projects

desire line. These crossings should ideally include raised pavement and / or textured paving material to ensure vehicle compliance with the intent.

- Provision of a shared path on the southern side of Elgin Boulevard, linking the House Creek trail to High Street.
- Provision of on-road bicycle lanes on Elgin Boulevard, catering for more confident cyclists accessing the CBA.
- Provision of a pedestrian crossing of Elgin Boulevard between Hume Street and Smythe Street to respond to the pedestrian desire line into the Junction Place development.
- Integration of the Urban Square with the proposed pedestrian priority space on High Street.
- Pedestrian and bicycle priority crossing of South Street at Bank Street to support the proposed link to Belvoir Park.
- Extension of the existing CBA wayfinding strategy to improve the overall legibility of Junction Place, by installation of place markers at entry points to Junction Place area.

Internal Streets

It is proposed that all internal streets in Junction Place will be shared zones. Cars and delivery vehicles will not be discouraged from accessing these areas; however they will share equal priority with other users. This will ensure that vehicle speeds are kept low and the area is safe and amenable for pedestrian and bicycle access.

It is noted that the design and layout of the internal street network may vary depending upon the response to the development process for the site. However, the overall intent of creating a permeable and legible network of shared spaces will be achieved regardless of the final layout.

Table 6.5 details the recommended projects for Junction Place.

Table 6.5: Junction Place Transport Network

<table>
<thead>
<tr>
<th>Project</th>
<th>Pedestrian</th>
<th>Cycling</th>
<th>Public Realm</th>
<th>Public Transport</th>
<th>Traffic Network</th>
<th>Lead Responsibility</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement shared zones throughout Junction Place</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Places Victoria</td>
<td>Short term</td>
</tr>
<tr>
<td>Implement pedestrian priority crossings on Elgin Boulevard and South Street as shown in Figure 6.1</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Provide end of trip facilities as part of any new development in Junction Place</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Council / Developer</td>
<td>Upon development</td>
</tr>
<tr>
<td>Investigate potential location of bus interchange and transport / information hub on Elgin Boulevard as shown in Figure 6.1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Places Victoria / Council / PTV</td>
<td>Medium term</td>
</tr>
<tr>
<td>Provide shared path links as shown in Figure 6.1</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Council / Places Victoria</td>
<td>Short term</td>
</tr>
<tr>
<td>Provide on-road bicycle facilities as part of new road construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.6.5 Mann Site
In the absence of detailed development plans or a site Masterplan, the following high level principles and projects have been identified to guide the integration of the development into the CBA:

i. Ensure that the development provides active frontages and pedestrian linkages to High Street and Junction Place, and integrates with the High Street / Elgin Boulevard intersection and shared space.

ii. Construct the ‘rail trail’ shared path adjacent to the site, east of High Street, in consultation with Council.

iii. Facilitate loading and car park entry via Hovell Street and / or South Street.

iv. Provide for legible and direct access to public transport services as applicable.

v. Ensure that the development increases the permeability of the site for pedestrian access.

vi. Provide appropriate end of trip facilities for both staff and visitors in accordance with the Wodonga Planning Scheme.

Figure 6.1 shows the recommended transport response for the development of the site.

**6.6.6 CBA West**

**Preamble**

The ‘CBA West’ investment area comprises the area generally bounded by High Street, Wodonga Plaza, Stanley Street and Elgin Boulevard. The area contains a number of key redevelopment sites, civic and commercial attractors, car parks and shopping areas.

The area is considered important as a key peripheral precinct to High Street, as it plays a strong supporting role through its car parking and secondary shopping and commercial activities. The ongoing development of the area will be primarily private sector led, and a transport and access framework is required to guide the future development of this area to ensure it supports the overall transport and land use objectives of the CBA.

The future development of the area will depend upon commercial imperatives, such as the requirement for retail or commercial floorspace, existing land holdings and consolidation opportunities, infrastructure constraints and the overall planning objectives for the area. In this regard, the WITS does not seek to provide a prescriptive template for the development of the area, but rather a set of principles and high level transport and access objectives that future development should seek to implement. These principles are outlined below.

**Principles**

i. Ensure that pedestrian safety and priority is enhanced throughout any new development or changes to car parking.

ii. Provide a high standard of pedestrian access to High Street, including shade and activation of linkages where feasible.

iii. Provide for safe, direct and amenable pedestrian access between High Street, Junction Place and Wodonga Plaza.

iv. Provide for safe bicycle connections through the area to other parts of the CBA.

v. Support consolidation of existing car parking to maximise sharing between uses and minimising access points.
vi Maintain vehicle access (both goods vehicles and private vehicles) to car parks and commercial premises throughout the area, while ensuring pedestrians and cyclists have priority.

Projects

Given that the majority of change in CBA West will be driven by private sector in conjunction with Council, every opportunity should be taken to undertake opportunistic projects as they arise. However, there are a number of key projects that should be advanced by Council, with or without additional intervention. These are outlined in Table 6.1.

Table 6.1: CBA West Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Pedestrian</th>
<th>Cycling</th>
<th>Public Realm</th>
<th>Public Transport</th>
<th>Traffic Network</th>
<th>Lead Responsibility</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consolidate car park entry points and improve internal connections between car parks</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td>Council / developer</td>
<td>Medium term</td>
</tr>
<tr>
<td>Introduce car parking signage strategy to minimise vehicle circulation</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Improve / upgrade / provide pedestrian links as shown in Figure 6.1</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td>Council / Developer</td>
<td>Upon development</td>
</tr>
<tr>
<td>Upgrade Stanley Street roundabout for pedestrian and bicycle priority</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Medium term</td>
</tr>
</tbody>
</table>
7. Monitoring and Review

Monitoring the success of the overall WITS is critical to achieving ongoing funding support from Council and the Victorian Government, and buy-in from the community. In this regard, the following measures are proposed to ensure that progress against the objectives of the WITS is tracked:

- **WITS review:** Ongoing review of the ITS is important to ensure that it accurately reflects the latest population and development data for Wodonga, and adjustments are made as necessary to ensure it remains relevant.

- **Project delivery and coordination:** Ongoing monitoring of the delivery of WITS projects is critical to measure progress against the strategy and ensure consistency of purpose across the range of Council planning and policy documents and objectives.

- **Monitoring impact of projects:** Regular measurements of mode share, travel behaviour and assessment of how and when WITS objectives will be achieved is critical to understand the impact and relevance of the WITS, and make changes or adjustments as necessary.

- **Opportunities for funding:** Ongoing partnership with the Victorian Government is required to identify funding opportunities and maximise the ability to present business cases for investment. At the same time, developments within the project area are likely to provide opportunities to deliver projects as negotiated outcomes through the planning process.

In addition to these measures, the following monitoring and review measures should be considered by Council:

- Establish a community based reference group to provide ongoing feedback on the progress of the strategy, and provide input to project prioritisation and delivery.

- Continue to engage with VicRoads and the Department of Transport to progress the ‘advocacy’ actions contained within the Strategy.

- Continue to monitor development approvals and activity through the CBA, to capitalise on any opportunities that may arise through private sector development.
Appendix A

Consolidated Projects Matrix
## Appendix A

### Consolidated Projects Matrix

<table>
<thead>
<tr>
<th>Project</th>
<th>Pedestrian</th>
<th>Cycling</th>
<th>Public Realm</th>
<th>Traffic Network</th>
<th>Public Transport</th>
<th>Responsibility</th>
<th>Approval</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Priority Roundabout Upgrades (refer Section 6.2)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High St / Lawrence St</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Council / VicRoads</td>
<td>Short term</td>
</tr>
<tr>
<td>Bgin Blvd / Hume St</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Bgin Blvd / Hovell St</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council / Centre Owners</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Bgin Blvd / Watson St</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Victoria Cross Parade / Pearce St</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Beechworth Road roundabouts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Short / medium term</td>
</tr>
<tr>
<td><strong>Pedestrian and Bicycle Network Improvement Projects (refer Section 6.3)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melrose Dr / Brockley St, Lawrence St / Melrose Dr, Felltimber Ck Rd / Melrose Dr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>VicRoads</td>
<td>VicRoads</td>
<td>Medium term</td>
</tr>
<tr>
<td>Anzac Pde / Chapple St, Anzac Pde / Brockley St</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Medium term</td>
</tr>
<tr>
<td>Murray Valley Hwy / Bandiana Link Rd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>VicRoads</td>
<td>VicRoads</td>
<td>Medium term</td>
</tr>
<tr>
<td>Stanley St / Hume St</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Medium term</td>
</tr>
<tr>
<td>Rail Corridor extending southeast between Reid Street and Victoria Cross Parade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council / VicTrack</td>
<td>VicTrack</td>
<td>Short term</td>
</tr>
<tr>
<td>Beechworth Road between Lawrence Street and Victoria Cross Parade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Victoria Cross Parade between Murray Valley Highway and Mactier Street</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Project</td>
<td>Pedestrian</td>
<td>Cycling</td>
<td>Public Realm</td>
<td>Traffic Network</td>
<td>Public Transport</td>
<td>Responsibility</td>
<td>Approval</td>
<td>Timeframe</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------------</td>
<td>---------</td>
<td>--------------</td>
<td>-----------------</td>
<td>------------------</td>
<td>---------------------</td>
<td>---------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Birallee Central Shopping Centre ped / cycle catchment improvements</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Council / Centre Owners</td>
<td>Council / Centre Owners</td>
<td>Short term</td>
</tr>
<tr>
<td>White Box Rise Shopping Centre ped / cycle catchment improvements</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Council / Centre Owners</td>
<td>Council / Centre Owners</td>
<td>Short term</td>
</tr>
<tr>
<td>Wayfinding improvements</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>End-of-trip facilities</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Council / Developers</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Local Area Traffic Management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Policy and Behaviour Change Programs</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Council</td>
<td>Vic Govt</td>
<td>NA</td>
</tr>
<tr>
<td>Pedestrian and Bicycle Strategies to confirm and implement PPN and PBN</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>Council / Vic Govt</td>
<td>NA</td>
<td>Short term</td>
</tr>
<tr>
<td>Urban design standards and infrastructure implementation in Growth Areas</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Medium term</td>
</tr>
<tr>
<td>Public Transport Projects (refer Section 6.4)</td>
<td></td>
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<td>Council</td>
<td>PTV / DOT</td>
<td>Short term</td>
</tr>
<tr>
<td>Advocate for improved network coverage as per Appendix D</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>PTV / DOT</td>
<td>Short term</td>
</tr>
<tr>
<td>Advocate for improved bus frequency to minimum service standards</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<td>Council</td>
<td>PTV</td>
<td>Short term</td>
</tr>
<tr>
<td>Advocate for review of the operation of existing routes to reduce duplication and improve legibility</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>PTV</td>
<td>Medium term</td>
</tr>
<tr>
<td>CBA Projects - High Street Roundabout (refer Section 6.5)</td>
<td></td>
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<td>Council</td>
<td>Council / Vic Roads</td>
<td>Short term</td>
</tr>
<tr>
<td>Investigate potential options for removal / reconfiguration of roundabout to improve pedestrian and bicycle priority and safety, and reinforce the operation of the ring road.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Council</td>
<td>Council / Vic Roads</td>
<td>Short term</td>
</tr>
<tr>
<td>Implement pedestrian priority threshold treatment on High Street.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Council</td>
<td>Council / Vic Roads</td>
<td>Short term</td>
</tr>
<tr>
<td>Implement pedestrian priority area or closure of Hovell Street adjacent to Woodland Grove Park.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Investigate creation of new public open space on south-east corner of roundabout by removing slip lane.</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Medium term</td>
</tr>
<tr>
<td>Provide vehicle directional signage to inner ring road and peripheral car parks.</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Investigate potential location of bus interchange, Transport and Information Hub adjacent to Woodland Grove Park.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council / PTV</td>
<td>Council / PTV</td>
<td>Medium term</td>
</tr>
<tr>
<td>Project</td>
<td>Pedestrian</td>
<td>Cycling</td>
<td>Public Realm</td>
<td>Traffic Network</td>
<td>Public transport</td>
<td>Responsibility</td>
<td>Approval</td>
<td>Timeframe</td>
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<tr>
<td><strong>CBA Projects - High Street Shared Spaces (refer Section 6.5)</strong></td>
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<tr>
<td>Implement shared space threshold treatments in High Street at gateway points</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Upgrade High Street / Elgin Boulevard intersection for pedestrian priority</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Implement shared space treatment at intersection of High Street and Elgin Boulevard</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Council</td>
<td>Council</td>
<td>Medium term</td>
</tr>
<tr>
<td><strong>CBA Projects - Junction Place Transport Network (refer Section 6.5)</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Implement shared zones throughout Junction Place</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>Places Victoria</td>
<td>Places Victoria</td>
<td>Short term</td>
</tr>
<tr>
<td>Implement pedestrian priority crossings on Elgin Boulevard and South Street</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Provide end of trip facilities as part of any new development in Junction Place</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Council / Developer</td>
<td>Council</td>
<td>Upon development</td>
</tr>
<tr>
<td>Investigate potential location of bus interchange and transport / information hub on Elgin Boulevard as shown in <em>Error! Reference source not found.</em></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Places Victoria / Council / PTV</td>
<td>Council / PTV</td>
<td>Medium term</td>
</tr>
<tr>
<td>Provide shared path links.</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Council / Places Victoria</td>
<td>Places Victoria / Council / VicTrack</td>
<td>Short term</td>
</tr>
<tr>
<td>Provide on-road bicycle facilities as part of new road construction.</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Places Victoria / Council</td>
<td>Council</td>
<td>Short term</td>
</tr>
<tr>
<td>Project</td>
<td>Pedestrian</td>
<td>Cycling</td>
<td>Public Realm</td>
<td>Traffic Network</td>
<td>Public Transport</td>
<td>Responsibility</td>
<td>Approval</td>
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<td>CBA Projects - Mann Site</td>
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<td>Council / Developer</td>
<td>Council</td>
<td>Upon Development</td>
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<tr>
<td>Ensure that the development provides active</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<td>Council / Developer</td>
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<td>Upon Development</td>
</tr>
<tr>
<td>frontages and pedestrian linkages to High</td>
<td></td>
<td></td>
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<td>Council / Developer</td>
<td>Council</td>
<td>Upon Development</td>
</tr>
<tr>
<td>Street and Junction Place, and integrates</td>
<td></td>
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<td>Council / Developer</td>
<td>Council</td>
<td>Upon Development</td>
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<td>with the High Street / Elgin Boulevard</td>
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<td>Council / Developer</td>
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<td>Upon Development</td>
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<td>intersection and shared space.</td>
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<td>Council / Developer</td>
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<td>Upon Development</td>
</tr>
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<td>Construct the ‘rail trail’ shared path</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>Council / Developer</td>
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<td>Upon Development</td>
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<td>adjacent to the site, east of High Street,</td>
<td></td>
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<td>Council / Developer</td>
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<td>in consultation with Council.</td>
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<td>Council / Developer</td>
<td>Council</td>
<td>Upon Development</td>
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<tr>
<td>Facilitate loading and car park entry via</td>
<td>✓</td>
<td></td>
<td>✓</td>
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<td>Developer</td>
<td>Council</td>
<td>Upon Development</td>
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<tr>
<td>Hovell Street and / or South Street.</td>
<td></td>
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<td>Upon Development</td>
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<tr>
<td>Provide for legible and direct access to</td>
<td>✓</td>
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<td>Council / Developer</td>
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<td>public transport services as applicable.</td>
<td></td>
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<td>Council / Developer</td>
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<td>Upon Development</td>
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<td>Ensure that the development increases the</td>
<td>✓</td>
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<td>Council</td>
<td>Upon Development</td>
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<td>permeability of the site for pedestrian</td>
<td></td>
<td></td>
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<td>Developer</td>
<td>Council</td>
<td>Upon Development</td>
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<td>access.</td>
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<td>Developer</td>
<td>Council</td>
<td>Upon Development</td>
</tr>
<tr>
<td>Provide appropriate end of trip facilities</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<td>Developer</td>
<td>Council</td>
<td>Upon Development</td>
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<tr>
<td>for both staff and visitors in accordance</td>
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<td>Developer</td>
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<td>Upon Development</td>
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<td>with the Wodonga Planning Scheme.</td>
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<td>CBA West Projects</td>
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<td></td>
<td>Council / Developer</td>
<td>Council</td>
<td>Medium term</td>
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<tr>
<td>Consolidate car park entry points and</td>
<td>✓</td>
<td></td>
<td>✓</td>
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<td>Council / Developer</td>
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<tr>
<td>improve internal connections between car</td>
<td></td>
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<td></td>
<td></td>
<td>Council / Developer</td>
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<td>Medium term</td>
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<td>parks</td>
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<td></td>
<td>Council / Developer</td>
<td>Council</td>
<td>Medium term</td>
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<tr>
<td>Implement car parking signage strategy to</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
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<td>Council</td>
<td>Council</td>
<td>Short term</td>
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<tr>
<td>minimise vehicle circulation</td>
<td></td>
<td></td>
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<td></td>
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<td>Council</td>
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<td>Short term</td>
</tr>
<tr>
<td>Improve / upgrade / provide pedestrian links.</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Council / Land Owners</td>
<td>Council / Land Owners</td>
<td>Upon development</td>
</tr>
<tr>
<td>Upgrade Stanley Street roundabout for</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
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<td>Council</td>
<td>Council</td>
<td>Medium term</td>
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<tr>
<td>pedestrian and bicycle priority</td>
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<td>Council</td>
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<td>Medium term</td>
</tr>
</tbody>
</table>
Appendix B

Wodonga Principal Pedestrian Network
Appendix C

Wodonga Principal Bicycle Network
Appendix D

Wodonga Bus Network
Appendix E

Wodonga LGA Road and Freight Transport Network
Appendix F

Policy Summary
Policy Summary

E.1 Preamble

There are a wide range of local, national and international policies that relate to the provision of a sustainable and equitable transport system to service the access needs of residents in Wodonga. These include a number of "mode specific" policies and plans, which deal with aspects of mobility such as cycling and walking. In addition, there are a number of broader policies and plans which address what kind of community we envisage for particular groups such as elderly or youth. Transport and access are a key part of many of these policies.

A fundamental requirement of the WITS is to consolidate the existing policies and plans relevant to the provision of a sustainable transport system in Wodonga LGA, into a legible, logical and comprehensive story, to inform project development and investment decision making. As such, the following policy review is broad based and seeks to provide the necessary context and justification for the overall WITS approach.

E.2 Summary of Key Policy Directions

E.2.1 Overview

The review of existing relevant policy clearly illustrates a number of themes that should inform the approach to future transport projects. These themes include:

- **Social determinants of health including transport** have a clear impact on healthy outcomes for communities and individuals. By giving people a greater transport choice in a quality built environment improves social connections, access to employment and equity.

- **All investment decisions should be informed by a road user hierarchy.** In Victoria, the SmartRoads Network Operating Plan / Road User Hierarchy tool developed by VicRoads is the appropriate planning tool to determine the road user hierarchy across the road network.

- **Promoting sustainable transport (walking, cycling and public transport)** is important for a wide range of reasons:
  - **Healthy, active communities** – there is a strong link between active transport and health.
  - **Socially connected, liveable communities** – places where people walk, cycle and use public transport are likely to perform better on a range of social indicators.
  - **Transport efficiency** – increased use of sustainable transport has environmental and economic benefits through reduced greenhouse emissions and reduced space required for vehicle movement and storage.
  - **Access for all members of the community** – a large number of people in the community don’t or can’t drive, and the provision of attractive and viable alternative means of transport is a key factor in whether a community is affected by transport disadvantage.
  - **Safety** – Increased sustainable and active transport improves safety and perceptions of safety.

- **Planning for new development** must consider providing for and promoting sustainable and active transport modes in accordance with the road user hierarchy.
• The City of Wodonga already has a number of specific policies and strategies to improve walking, cycling and public transport in Wodonga, in order to create a healthy, liveable, vibrant and inclusive city.

E.2.3 Social Determinants of Health

VicHealth and more broadly the World Health Organisation (WHO) express the critical relationship between health and wellbeing and the underpinning social determinants that impact them. A social model of health is a framework for thinking about health. Health is both the responsibility of an individual to avoid risks to their wellbeing, and that of communities and governments to ensure people live and work in environments that are supportive to their health. To reach a state of complete physical, mental and social wellbeing, an individual or a group of people must be able to identify and realise aspirations, satisfy needs, and change or cope with the environment they live in. This includes the consideration of risk factors such as social networks, access to employment, transport options and the built environment that can influence people’s quality of life outcomes.

The WHO outlines transport as a social determinant of health and its relationship to healthy outcomes in the following summary:

Healthy transport means less driving and more walking and cycling, backed up by better public transport.

- Roads should give precedence to cycling and walking for short journeys, especially in towns
- Public transport should be improved for longer journeys, with regular and frequent connections to rural areas
- Changes in land use are also needed, such as converting road space into green spaces, removing car parking spaces, dedicating roads to the use of pedestrians and cyclists, increasing bus and cycle lanes, and stopping the growth of low-density suburbs and out-of-town supermarkets, which increase the use of cars.

E.2.4 Liveable Streets

In town centres, there is a strong emerging theme of creating streets for people, rather than roads for cars. This does not necessarily mean banishing cars entirely, but rather it involves reorganising space and designing to create a place for people to interact, rather than an efficient space designed for the efficient movement of vehicles and services.

The key influences on this movement are the “Naked Streets” (negotiated space) and “Shared Streets” which were pioneered in the Netherlands by Hans Monderman. The underlying psychology seeks to change behaviour and culture “from priority to equality”, and inks with the Crime Prevention through Environmental Design (CPTED) design philosophy.

Shared space relies on removing almost all delineation from the road space, and leaving only subtle cues as to the priority of the various modes. A key premise is that increasing uncertainty (creating ambiguity) for motorists increases certainty and safety for pedestrians. Traffic will move slowly enough

“If you treat people like idiots, they will behave like idiots. Roads have been designed assuming that people are not intelligent or able to think” (Hans Monderman).
for pedestrians and drivers to make eye contact, whereas the traditional highly delineated street does not allow for any negotiation over priority.

There are many examples of highly successful shared zones in Victoria, including the Melbourne CBD, Bendigo CBD, and other major centres such as Footscray, Clayton, Dandenong and others. An important feature of these spaces is that they generally have many other positive economic and social benefits apart from the obvious transport benefits created by giving equal priority to pedestrians.

E.2.5 Healthy Cities Promote Safe Walking and Cycling

There is a common and growing understanding of the causal link between good urban and transport system design that promotes safe walking and cycling, and a healthy community in terms of both physical and mental health.

The Australian Heart Foundation has encapsulated this emerging body of knowledge within the following key documents (among others):

- Healthy by Design – a planner’s guide to environments for active living (Heart Foundation 2004). The guide suggests design approaches to encourage active living in the following areas:
  - walking and cycling routes
  - streets
  - local destinations
  - open space
  - public transport
  - seating, signage, lighting, fencing and walls
  - fostering community spirit.

The guide includes a number of case studies from Victoria that illustrate the outcomes in these areas. In particular, it is worth noting that the application of these principles can add significantly to the health benefits of any business case, and open up avenues for different funding opportunities.

In November 2008, the first ‘Safe Speed Forum’ was held which brought together the Heart Foundation and a number of Victorian municipality members. At the forum, the issue of implementing a safe speed across Melbourne was discussed and resulted in the release of the interest group’s first report, Safe speed: Promoting walking and cycling by reducing traffic speed (Heart Foundation 2008).

The promotion of safe, active transport is usually achieved through the implementation of multi-component strategies that include speed reduction. High levels of safe walking and cycling for transport are incompatible with high vehicle speed as, for many trips or parts of trips, pedestrians and cyclists are required to share the road space with motor vehicles. International experience suggests that speed reduction is not the only change needed to increase safe active transport, but it is a key component.

The following key findings of the report are presented below:

- Reducing motor vehicle speeds in areas with high pedestrian movement (existing or desired) is critical to creating a safe and attractive transport network. In particular, it is noted that people are unlikely to survive collisions with vehicles at over 30 kph.
• Low speed limits in neighbourhoods and town centres are becoming increasingly common around the world. Generally, speeds of 20-30 kph are associated with safer streets and higher rates of walking and cycling.

'Safe speed' is often conceptualised in terms of vehicle speeds that minimise the risk of injury, but in the light of the multiple benefits of active transport, it may be more appropriate to think of 'safe speed' as that which delivers injury prevention outcomes as well as many additional health and social benefits. Active, liveable cities and communities provide all people from children through to older adults with the right to move about in public spaces. Active living and community engagement is constrained when people retreat into their homes and cars through fear of traffic. Road safety improvements should not be dependent on people remaining indoors or in cars. The focus needs to be on removing traffic danger from people, not people from the hazardous environment that has been inadvertently created. Reducing traffic speed is an effective way of righting this balance and encouraging people to engage in active transport modes with ease, resulting in significant improvements in the health and wellbeing of the population and the environment.

Figure 2.1: Proposed Relationships between Vehicle Speed and Active Travel Behaviour

E.2.6 Economic Significance of Freight

Wodonga is strategically located on Australia’s busiest interstate transport route, the Hume Highway. The development of the LOGIC Wodonga area has the potential to expand to approximately 9,000 employees at full build out, and will play a key role in the local and regional economy. There are also a number of other significant freight generating land uses and precincts in Wodonga that require a high standard of arterial road access.

As such, a number of key objectives and principles of the Victorian Government’s freight and logistics plan ‘Victoria – The Freight State’ (August 2013) are relevant to protect and enhance the role of the freight industry in Wodonga, in the context of significant growth in Victoria’s overall freight task.
• **Objectives:**
  - *Plan for and deliver capacity at key freight gateways in a timely manner* – to be achieved in Wodonga through the ongoing expansion of LOGIC, including inter modal transfers in future
  - *Protect and enhance access to markets for regional Victoria and adjoining catchments* – Wodonga is a key freight gateway to Victoria on the Hume Highway, and will continue to expand on this role through further development of LOGIC

• **Principles:**
  - *Maximise efficiency of freight movements on the transport network* – to be achieved in Wodonga by protecting and enhancing access to key freight generating land uses, including HPFV access to LOGIC Wodonga
  - *Ensure continuity of international and interstate gateway capacity* – to be achieved in Wodonga through continued expansion and investment at LOGIC to cater for increased freight volumes in inter modal transfers
  - *Minimise impacts of freight and logistics activity on safety, amenity and the environment* – in Wodonga, the existing arterial road, freeway and rail network caters well for existing freight movements. Future land use planning should ensure that these routes are protected and sensitive land uses are appropriately sited to avoid conflicts with freight traffic.

In summary, Wodonga will continue to expand its role as a major freight gateway to Victoria, and the existing transport network supports this aim. Future expansion of freight generating land uses can occur in existing designated areas such as LOGIC Wodonga and Enterprise Park, and future land use planning must seek to avoid conflicts between sensitive land uses and freight traffic.

E.3 National Policy

E.3.1 National Urban Policy

The National Urban Policy *Our Cities, Our Future* (2011) articulates the Australian Government’s vision and objective for cities. Albury-Wodonga is among the top 18 cities in Australia, which are addressed by the policy. The policy includes an objective to improve transport options and reduce dependence on private motor vehicles. A further objective is to improve public health outcomes through better built environments.

E.3.2 Walking, Riding and Access to Public Transport Draft Report for Discussion - October 2012

The draft *Walking, Riding and Access to Public Transport Report* published by the Department of Infrastructure and Transport assesses options for improving the capacity of urban transport systems by encouraging and supporting walking and riding. This includes objectives relating to increasing the mode share of walking and riding for short trips, and improving access for people walking or riding to public transport stops. This is particularly important for cities that are highly car-dependent and regional cities that have traditionally relied upon the private vehicle as the main mode of transportation.
E.3.3 Barriers and Opportunities to Walking, Riding and Public Transport

Having access to well-connected, continuous and convenient routes is an important factor of any transportation system. There are many underlying factors as to why people are more likely to walk or ride that are not directly related to transport infrastructure. These are considered to be ‘soft’ infrastructure features that benefit and promote walking, riding and public transport use. These include features such as having continuous and convenient routes of travel, sense of personal safety and lighting, shading, seating and signage. Figure 3.1 below illustrates the potential barriers and opportunities to increase the mode share of walking and cycling.
E.3.4 Influence on the Urban Form and Urban Design

People are more likely to walk and ride in neighbourhoods and cities that contain certain characteristic features that are deemed ‘friendly’ to these modes of travel. A report by the Heart Foundation, *Increasing density in Australia*, assessed whether housing and employment can affect public health. The ‘Five Ds’ summarised the influence of land use mix over walking, riding and public transport use. It
demonstrated that elements such as density of housing and employment underpin other factors that influence walking and riding (refer to Figure 3.2).

E.3.5 Health

Evaluations of active travel projects have shown that health factors are the most significant benefits of walking and riding. The public health benefits of high quality walking and riding infrastructure also encourages many more people to use these modes of travel. The burden on the Australian healthcare system due to overweight and obesity related illnesses has steadily been increasing over the last 30 years. This increase is significantly correlated with an increase in sedentary lifestyles. In 2008, obesity was estimated to cost $58.2 billion to the economy as a result of illnesses such as cardiovascular disease, diabetes, and various cancers. Mental health and community cohesion is also impacted by access to walking and riding. Pedestrian and cycle-friendly neighbourhoods can facilitate incidental social interaction between community members and foster social capital, sense of safety and passive surveillance. Figure 3.2 provides an overview of the potential health impacts that transport systems and urban infrastructure have on active travel. It illustrates that there are complex links between public health, urban planning and transportation systems.
Figure 3.2: Linking Transport Systems and Urban Infrastructure with Potential Health Impacts

E.3.6 National Road Safety Strategy 2011-2020

The National Road Safety Strategy is premised upon a long-term ‘vision zero’ – that no person be killed or seriously injured on Australia’s roads. It has set an interim target to reduce road deaths and serious injuries by at least 30 per cent by 2020. This includes an approach adopting four main elements: safe roads, safe speeds, safe vehicles and safe people. This approach is based on the idea that serious injury and road death can be prevented, and takes a holistic view of the road transportation system and its interactive elements. Within the last decade new measures have been introduced to reduce death and serious injury on the roads. Victoria’s introduction of the 40km speed limit around schools and pedestrian-friendly routes has contributed to a 24 per cent reduction in pedestrian and cyclist accidents in urban areas. Furthermore, there is continuing support to roll out these measures on to other pedestrian and cycling routes, including those within regional areas that have a higher risk of accidents.

E.3.7 National Cycling Strategy 2011-2016

The National Cycling Strategy 2011-2016 sets a target of doubling the number of people who regularly ride bicycles over the strategy’s five year term. The strategy agrees to a number of objectives relating to roads and transport, including:

- promote cycling as a viable and safe mode of transport and an enjoyable recreational activity
- create a comprehensive and continuous network of safe and attractive routes to cycle and end-of-trip facilities
- consider and address cycling needs in all relevant transport and land use planning activities
- enable people to cycle safely
- improve monitoring and evaluation of cycling programs and develop a national decision-making process for investment in cycling
- support the development of nationally consistent guidance for stakeholders to use and share best practice across jurisdictions.

E.3.8 National Partnership Agreement on Preventative Health

The national preventative health agenda is aimed at three major lifestyle risk factors for chronic disease: obesity, alcohol and tobacco. The National Partnership Agreement commits to the rising prevalence of lifestyle related chronic diseases by implementing programs and activities that promote healthy behaviours. The agreement establishes targets relating to obesity, including a 15 per cent increase in the proportion of children and adults meeting national guidelines for physical activity by 2018; and for the proportion of children and adults at the healthy weight to return to baseline level by this year. Under the agreement, the Healthy Communities Initiative has been set up to support local governments to deliver community-based physical activity and healthy eating programs, and to develop local policies that support healthy lifestyle behaviours.

E.3.9 National Disability Strategy 2010-2020

The National Disability Strategy 2010-2020 includes an outcome for inclusive and accessible communities: to ensure that people with disability live in accessible and well-designed communities with opportunity for full inclusion in social, economic, sporting and cultural life. It includes a policy direction for public, private and community transport systems that are accessible for the whole community. This is
articulated by encouraging the continuous accessible path of travel for people with disability needs to connect to public transport nodes with local services.

The Disability Standards for Accessibly Public Transport (Transport Standards) (DSAPT), which came into effect in 2002, set out minimum accessibility requirements for providers and operations of public transport. This includes a compliance timetable, to ensure that old infrastructure is gradually replaced with accessible services and facilities. The goal is to ensure that, over time, people with disability can enjoy the same public transport services as other members of the community.

In Victoria, compliance with regulations is poor in rural and regional areas, where there are very few accessible bus stops or accessible vehicles. This uneven distribution of accessible transport is particularly problematic, as rural Victoria has a higher proportion of older citizens who are more likely to require accessibility features on public transport. A number of recommendations have been made in Victoria to enhance accessible public transport, including:

- that the standards increase the number of reserved seats to be identified on vehicles to reflect the increased numbers of people with disabilities using public transport
- that the Standards include provisions to monitor use of infrastructure and vehicle improvements, not only capacity for accessibility
- that the permanent exemption for school buses be removed.

E.3.10 Clean Energy Future

Australia has agreed to reduce its carbon emissions to 5 per cent below year 2000 levels by 2020 and to 80 per cent below year 2000 levels by 2050. In relation to the transport sector, the carbon price applies only to fuels used in domestic aviation, marine and rail transport. Regarding the private motor vehicle, support for reducing carbon emissions is acknowledged, although vehicle fuels are not covered by the carbon tax.

E.4 State Policy

E.4.1 Transport Integration Act 2010

The Transport Integration Act is the primary transport statute for Victoria, and has caused significant change to the way transport and land use authorities make decisions and work together. The Act enshrines a triple bottom line approach to decision making about transport and land use.

The Act requires that all transport agencies work together to achieve an integrated and sustainable transport system, and that land use agencies such as municipal councils and the Department of Planning and Community Development (only in relation to the development of the metro strategy or acting as a planning authority) take account of transport issues in land use decisions. The Act has been effective to date in changing the focus of organisations that traditionally only considered a single transport mode.

The Act:

- unifies all elements of the transport portfolio to ensure that transport agencies work together towards the common goal of an integrated transport system
- provides a framework for integrated and sustainable transport policy and operations
recognises that the transport system should be conceived and planned as a single system performing multiple tasks rather than separate transport modes
• integrates land use and transport planning and decision-making by extending the framework to land use agencies whose decisions can significantly impact on transport ("interface bodies")
• re-constitutes transport agencies and aligns their charters to make them consistent with the framework.

The Transport Integration Act forms an overarching legislative framework for transport related state planning policies and has been integrated within the Victorian Planning Provisions (VPP).

E.4.2 Victoria Planning Provisions (VPP)

As per the legislative framework of the Transport Integration Act, various statutory planning requirements are incorporated within the VPP. The relevant clauses are outlined as follows:

• Clause 18.01 – Integrated Transport:
  This clause requires the preparation of an Integrated Transport Plan (ITP) for all new "major" developments. It is typical that this ITP be lodged to the Responsible Authority concurrently with the planning permit application.
• Clause 18.02 – Movement Networks includes the following objectives:
  - Encourage the use of walking and cycling through creation of safe and attractive environments
  - Integrate planning for cycling with land use and development planning
  - Upgrade and develop public transport networks in metropolitan and regional areas
  - Manage the road network to achieve integration, choice and balance by developing an efficient and safe network, and making the most of existing infrastructure
  - To ensure an adequate supply of car parking that is appropriately designed and located
• Clause 18.05 – Freight: To further develop the key transport gateways and freight links and maintain Victoria’s position as the nation’s premier logistics centre (noting the recent release of *Victoria – The Freight State*, yet to be incorporated into the VPP)
• Clause 52.34 – Bicycle Facilities:
  This clause aims to encourage cycling as a mode of transport through provision of convenient parking and end of trip facilities.
• Clause 52.36 – Integrated Public Transport Planning:
  This clause seeks to ensure that development supports public transport usage. Under this Clause, Public Transport Victoria (PTV) acts as a referral authority for all major developments. PTV considers that such proposals should be consistent with the Department of Transport’s "Public Transport Guidelines for Land Use and Development" and the objectives and standards in Clause 56.03-1 of the VPP.

The Transport Integration Act policy framework has also been incorporated in the assessment of planning scheme amendments.

E.4.3 Public Health and Wellbeing Act 2008

The Public Health and Wellbeing Act 2008 replaces the previous 1958 Health Act. It covers a wide range of matters and has implications for many including:
• authorised officers within local councils and the Department of Human Services
• pest control operators
• cooling tower operators
• the governance and management of a range of consultative councils established under the Act
• the management of infectious diseases, micro-organisms and medical conditions by medical and health practitioners, the Victorian Chief Health Officer and affected individuals
• the development of public health policy through providing for municipal public health and wellbeing plans, a State public health and wellbeing plan and in some circumstances, health impact assessments.

E.4.4 Hume Regional Plan

The Hume Regional Plan is the Victorian Government’s 10 year strategic plan for the Hume Region. The integrated plan aims to strengthen the region’s competitive advantages and to manage regional growth and change.

The Hume Regional Plan supports and informs sub-regional plans relating to each region within Hume. As such, specific strategies and actions for the Wodonga Shire are included in the Upper Hume Sub Regional Plan.

Figure 4.1: Hume Regional Plan

The Upper Hume sub region has a strong industry and service base in Wodonga which supports and is supported by settlements within the sub region. The sub region is bordered by the Murray River in the north, and the Hume Freeway and Melbourne-Sydney rail link through Wodonga provides the basis for freight transport and logistics industries, in addition to passenger transport services. Wodonga also has a strong manufacturing base and defence force presence. Most employment growth in the last decade has been in manufacturing and construction.

Upper Hume also has a number of townships and other locations such as Rutherglen and Beechworth with food and wine, heritage, recreational and environmental values that are important for tourism.

Transport is an important component of the five themes and key directions informing the framework of the Hume Regional Plan. Transport is envisioned through a network of efficient and high functioning transportation systems. Within the Upper Hume region, it is a challenging task to provide public transport to all communities. This is particularly difficult within growing urban populations, connecting smaller settlements and supporting ageing and less mobile residents. Accessibility to local services and
amenities is also a challenge with an increased reliance on private vehicle use for outlying settlements in the region.

Strategic transport objectives are provided for under the following key directions:

**Key Direction 13. Enhancing integrated planning for mobility.**
- 13.1 Plan and advocate for a high quality regional transport system
- 13.2 Building an integrated transport system
  - Upper Hume Regional Actions (significant to Wodonga):
    - 13.1.UH1: Establish and administer working parties as required to support the implementation of key sub regional actions in the Hume Corridor Regional Transport Strategy relevant to Upper Hume sub region.
    - 13.1.UH2: Advocate for the Murray Valley Highway between Corryong, Tallangatta and Wodonga and the Kiewa Valley Highway between Mt Beauty and Baranduda to be incorporated into the State Government’s Principal (Regional) Freight Network.
    - 13.1.UH3: Develop the rail to road intermodal facility at Logic Wodonga.

**Key Direction 14. Developing a proficient land transportation system.**
- 14.1 Accelerating the completion of high standard road links
- 14.2 Delivering important rail infrastructure
- 14.3 Future-proofing existing transport routes by maintaining a high level of service
  - Upper Hume Regional Actions (significant to Wodonga):
    - 14.1.UH1: Identify and advocate for improvements to the Murray Valley Highway east of Wodonga and into Towong Shire.
    - 14.1.UH2: Increase the rate of road improvements to facilitate higher mass transport movements across east and west transport routes for major industries such as Uncle Toby’s, Murray Goulburn and the Logic Centre.
    - 14.2.UH1: Continue improvements to the rail system to facilitate future high speed rail links between Wodonga and Melbourne.
    - 14.2.UH2: Advocate for the proposed Melbourne to Brisbane inland rail alignment to be constructed in the Hume transport corridor.

**Key Direction 15. Linking communities through improved public transport and transport linkages.**
- 15.1 Enhance key transport linkages between settlements
- 15.2 Provide safety upgrades of the region’s land transportation system
  - Upper Hume Regional Actions (significant to Wodonga):
    - 15.1.UH1: Advocate for increased seven-day services in both directions for rail and bus services from Wodonga, Wangaratta and Benalla to Bendigo.
    - 15.1.UH2: Increase the service level frequency for the Corryong–Tallangatta–Wodonga and the Yackandandah to Beechworth services.
    - 15.2.UH1: Further investigate and develop action plans to mitigate the impact of freight traffic on settlements in the sub region, particularly the movements due to traffic from the Logic Centre.
    - 15.2.UH2: Upgrade local roads such as the Wodonga to Beechworth Road, the Up River Road (after the Corowa/ Wahgunyah Bypass) and Federation Bridge crossing of the Murray River to cater for regional and cross border heavy vehicle traffic.
Key Direction 16. Strengthening the sustainability of the transport system.

- 16.1 Develop travel options to increase public transport patronage
- 16.3 Partnerships for delivering the Hume Region transportation system
- Upper Hume Regional Actions (significant to Wodonga):
  - 16.1.UH1: Review the funding and delivery of the North East Transport Connections Program in order to maximise the benefits from allocated funding.

E.4.5 VicRoads SmartRoads Policy

SmartRoads is a VicRoads policy which sets ‘modal’ priorities on the road network and underpins many of the strategies for public and transport prioritisation. The policy is described as follows:

“SmartRoads is an approach that manages competing interests for limited road space by giving priority use of the road to different transport modes at particular times of the day. All road users will continue to have access to all roads. However, certain routes will be managed to work better for cars while others will be managed for public transport, cyclists and pedestrians.”

While a Network Operating Plan has not specifically been prepared for Wodonga CBA, the SmartRoads approach is used by VicRoads as a decision making tool in relation to any projects that impact on the centre. In particular, the recent upgrade of High Street to reduce through traffic and improve the pedestrian environment has been informed by SmartRoads principles.

E.4.6 Victoria – The Freight State

Wodonga is strategically located on Australia’s busiest interstate transport route, the Hume Highway. The development of the LOGIC Wodonga area has the potential to expand to approximately 9,000 employees at full build out, and will play a key role in the local and regional economy. There are also a number of other significant freight generating land uses and precincts in Wodonga that require a high standard of arterial road access.

As such, a number of key objectives and principles of the Victorian Government’s freight and logistics plan ‘Victoria – The Freight State’ (August 2013) are relevant to protect and enhance the role of the freight industry in Wodonga, in the context of significant growth in Victoria’s overall freight task.

**Objectives:**

- **Plan for and deliver capacity at key freight gateways in a timely manner** – to be achieved in Wodonga through the ongoing expansion of LOGIC, including inter modal transfers in future
- **Protect and enhance access to markets for regional Victoria and adjoining catchments** – Wodonga is a key freight gateway to Victoria on the Hume Highway, and will continue to expand on this role through further development of LOGIC

**Principles:**

- **Maximise efficiency of freight movements on the transport network** – to be achieved in Wodonga by protecting and enhancing access to key freight generating land uses, including HPFV access to LOGIC Wodonga

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1 Source: www.vicroads.gov.au.
• Ensure continuity of international and interstate gateway capacity – to be achieved in Wodonga through continued expansion and investment at LOGiC to cater for increased freight volumes in inter modal transfers
• Minimise impacts of freight and logistics activity on safety, amenity and the environment – in Wodonga, the existing arterial road, freeway and rail network caters well for existing freight movements. Future land use planning should ensure that these routes are protected and sensitive land uses are appropriately sited to avoid conflicts with freight traffic.

In summary, Wodonga will continue to expand its role as a major freight gateway to Victoria, and the existing transport network supports this aim. Future expansion of freight generating land uses can occur in existing designated areas such as LOGiC Wodonga and Enterprise Park, and future land use planning must seek to avoid conflicts between sensitive land uses and freight traffic.

E.4.7 Victorian Cycling Strategy and Action Plan

The Victorian cycling strategy, Cycling into the Future 2013-2023 and associated Victorian Cycling Action Plan 2013 & 2014, aims to grow and support cycling within Victoria by encouraging more people to ride and to increase the safety for those that already ride. This strategy takes a holistic view to cycling; through a coordinated and strategic approach that considers the needs of all bike riders, and develops policies, programs and actions to address these needs. Barriers to cycling are more than just infrastructure-related; they include knowledge, attitude and processes that may inhibit growth and supportive measures in the uptake of cycling as a transport mode. The strategy identifies six directions to create a bike-friendly Victoria. These include:

• Build evidence
• Enhance governance and streamline processes
• Reduce safety risks
• Encourage cycling
• Grow the cycling economy
• Plan networks and prioritise investment

The strategy identifies a significant opportunity to increase cycling for short trips in regional areas. Cycling in regional areas has not grown as quickly as metropolitan areas; however there are opportunities to support bicycle growth in these areas. This includes the opportunity for children to ride to school and for cyclists to regularly use regional trails. It is also noted that regional areas often have a more diverse range of cycling infrastructure that can be networked. Planning for cycling networks in regional urban centres is crucial for growing and supporting cycling across Victoria.

Cycling will play an increasingly important role in meeting transport needs and supporting vibrant, healthy urban communities in regional Victoria. This is reflected in the development of Regional Growth Plans such as the Hume Regional Plan. These growth plans will provide broad direction for land use, development and transport infrastructure, and will support the role of cycling in Victoria. Actions associated with the strategy provide opportunities for cycling networks in regional centres and towns to flow from precinct-based to beyond local government boundaries, providing for a continuous cycling infrastructure network across regional Victoria.
E.4.8 Principal Pedestrian Network

The Principal Pedestrian Network (PPN) was developed to improve the planning for pedestrian access across Victorian activity centres. Developed by Department of Transport, the tool is designed to help local councils improve pedestrian planning as a part of the VicRoads SmartRoads initiative. It aims to aid councils in mapping areas of expected high demand, and provides guidance on conducting audit or gap analysis to build the necessary infrastructure to deliver a PPN. A Principal Pedestrian Network has not been developed for the City of Wodonga.

E.4.9 Pedestrian Access Strategy 2010

The Pedestrian Access Strategy sets out the Victorian Government’s vision for a more pedestrian-friendly transport system for Victorians. The aim of the strategy is to encourage more Victorians to walk, especially for short trips. The strategy establishes broad policy principles and the first steps to guide the Victorian Government’s investment in walking over the next 10 years – including infrastructure, planning and design, safety and behaviour change programs.

By getting more people walking has the potential to help ease congestion caused by vehicles, reduce greenhouse emissions, improve the health of the community and promote social connections. Despite the many benefits of walking, both physical and attitudinal barriers stop people walking more. The Pedestrian Access Strategy explores the major barriers to walking to help understand how best to overcome them. The strategy also takes account of trends and patterns in how, where and why Victorians walk. This picture of walking in Victoria puts the focus on support for walking where it is most needed.

Five strategic directions and related actions for walking are:

i  Encourage people to walk by changing attitudes and behaviour.
   • Integrated provision for walking in Victorian Government transport projects, including principle development for incorporating walking in major transport projects.
   • Targeted behaviour change programs to encourage walking and develop travel planning guidance for workplaces, schools, communities, tertiary institutions and community precincts.

ii Collaborate to improve provision for walking.
   • Improving Victorian Government coordination and consultation mechanisms for planning walking infrastructure with local government, including at the regional level.

iii Create pedestrian-friendly built environments, streets and public spaces.
   • Greater alignment of local planning policies with the Victorian planning framework to enhance focus on walking, and a requirement to provide appropriate and well-designed walking infrastructure.
   • Develop active transport guidelines for land use planning.

iv Increase the safety of walking.
   • Continue review of pedestrian crash data and identify counter measures to improve infrastructure safety and road user behaviour.
   • Provide for regular and sufficient pedestrian crossings on arterial and collector roads.

v Continue integrated walking with public transport.
   • Provide safe and convenient walking access to public transport stops and interchanges.
E.4.10  Walking in Regional Towns and Centres

People in Melbourne’s inner suburbs have more walk only trips than those in the outer suburbs and regional centres. The main factor is most likely the difference in community design, with outer suburbs and regional centres being lower density developments with greater distances between home and other destinations.

As shown in Figure 4.2, 75 per cent of all trips less than 400m in Melbourne are walked. In Victoria’s regional centres, walking accounts for 64 per cent of these trips. But as trip lengths increase the proportion of people walking decreases – and vehicle travel becomes the dominant transport choice even among trips as short as 400m-2km. There is an opportunity to increase the proportion of short trips undertaken by walking in Wodonga.

Figure 4.2: Proportion of People Walking for All Trips less than 2km – Metro Melbourne

E.4.11  Junction Place Framework Plan, Places Victoria 2012

The Junction Place Framework Plan outlines the guiding principles and design guidelines for the redevelopment of the 10Ha former Wodonga Railway Station in central Wodonga. It sets out general design guidelines and principles that are to be applied to the precincts, streets, roads and public open spaces that will form the site. Junction Place will create a new ‘heart’ in central Wodonga that will deliver quality urban spaces along with mixed use retail, entertainment, commercial and residential development. Pedestrian activity will be paramount through the site and around the immediate area, encouraged by greater permeability across the old railway tracks. Specific design objectives, built form objectives relating to transport and access include:

- To improve the overall street structure to assist with calming traffic movement and permeability
To encourage the development of active built form frontages that create a vibrant pedestrian environment, particularly along Elgin Boulevard, High Street, The Promenade and surrounding public squares.

To ensure pedestrian friendly streets that are not dominated by vehicles and car parking.

Figure 4.3 depicts the five proposed precincts of Junction Place and the land uses envisioned for each area.

The land uses within each of the five precincts and their respective characteristics with regards to transport are summarised below:
Table 4.1: Junction Place Development Precincts

<table>
<thead>
<tr>
<th>Precinct</th>
<th>Land Use</th>
<th>Floor Area</th>
<th>Transport Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precinct 1</td>
<td>Urban Square</td>
<td>3,452 sqm</td>
<td>Realignment of Elgin Boulevard with a new cycling path to run alongside</td>
</tr>
<tr>
<td></td>
<td>Public and Mixed Use Space</td>
<td>6,441 sqm</td>
<td></td>
</tr>
<tr>
<td>Precinct 2</td>
<td>Office and Retail Uses</td>
<td>5,487 sqm</td>
<td>Abuts the east-west bicycle path along Elgin Boulevard</td>
</tr>
<tr>
<td>Precinct 3</td>
<td>Retail, Office, Hotel Accommodation and Conference Centre, Public Use Space</td>
<td>29,957 sqm</td>
<td>Development of a pedestrian-oriented promenade through the precinct</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A north-south pedestrian arterial between South Street and Elgin Boulevard</td>
</tr>
<tr>
<td>Precinct 4</td>
<td>Residential with some Mixed Use</td>
<td>14,647 sqm</td>
<td>The green square allows for shared passive recreation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Slow Streets provide opportunity for traffic calming and pedestrian amenity</td>
</tr>
<tr>
<td>Precinct 5</td>
<td>Health, Education and Retail</td>
<td>24,676 sqm</td>
<td>Dual bicycle lanes abutting Elgin Boulevard, Smythe Street and South Street</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Good permeability to other precincts is provided</td>
</tr>
</tbody>
</table>

Junction Place proposes new pedestrian and road connections required to address the situation of poor permeability of the current site. This restructure aims to increase and improve pedestrian amenity, prioritise pedestrian movement over vehicular access, calm vehicular movements, and disallow the prominence of open lot car parks at street, roads or public open space interfaces. The designated bicycle and pedestrian pathways distributed throughout the site in a manner that gives priority to pedestrian and bicycle movements over vehicular movements.

E.5 Local Policy

E.5.1 Wodonga Council Plan 2009 – 2013

The Wodonga Council Plan 2009-2013 is a high level strategic planning document that envisions Council-wide objectives over the next two decades. It envisions a city for its people and its future, that is an inclusive city built around social, cultural, and economic sustainability. This is reflected across a number of principles and objectives, including those relating to transport and access.

The Wodonga Council Plan includes transport and access as one of the central components to creating a vision for 2033. This includes:

- In 2033, the community of Wodonga is able to access health, recreation and service systems that are built on decades of successful partnerships and initiatives. Our infrastructure has been built or upgraded during the past two decades to enable and encourage access to these services and resources for people of all ages – the result is a healthy and connected community, regardless of gender, age, income and culture.
- Our flexible and responsive public transport system has developed in partnership with the city structure to ensure that people of all abilities can move easily around the city and its surrounding areas. The Wodonga train station has continued to serve as an access point to other major cities, and improvements in national transport options – including the development of an ultrafast interstate train service – have meant that it is now possible to live in Wodonga and easily work in and visit larger cities.
- Our city has always been well known for its provision of open spaces and pathways. This strength has continued to be considered a priority and all new developments have embraced our high standards. The result has meant that Wodonga has one of the highest passive...
recreation rates in the state and that our children, young people and older residents feel safe to independently move throughout our city and their own neighbourhoods.

E.5.2 Municipal Strategic Statement

The Municipal Strategic Statement establishes the strategic framework for Council with reference to the State Planning Policy Framework and Council Plan. It is also considers objectives held within the longer-term Wodonga Growth Strategy Plan, given the area’s focus as a major regional centre in Victoria.

With reference to access and transport, themes and outcomes of the Wodonga Growth Strategy Plan are summarised below:

- Comprehensively planned residential areas including community facilities, open space, bicycle and pedestrian links will aim at achieving a healthy city.
- The development and implementation of several key infrastructure projects including:
  - The Hume Freeway;
  - The Wodonga Rail By-pass project;
  - Logic Distribution Centre;
  - The Wodonga Road Strategy Plan (incorporated under Clause 21.12-01); and,
  - Wodonga Central Business Area (CBA) upgrade.

A number of issues relating to transport and access are discussed throughout the Municipal Strategic Statement, including:

**Clause 21.05-6 Issue – Wodonga Central Business Area (CBA)**

- An emphasis needs to be placed on the design of new development to ensure it contributes to the streetscape and adds to a character that distinguishes Wodonga from other retail centres. Streets in the CBA are to be lined with glazed shopfronts rather than car parking areas or blank walls.
- Traffic management works are required to improve the amenity of the CBA for pedestrians and shoppers.
- Provision of adequate and well located car parking.
- The funding of additional road and parking infrastructure required to support the redevelopment of the Central Business Area.

Transport and access objectives are incorporated within a number of key strategic principles including;

**Clause 21.06-1 Development and Growth**

- Encourage higher residential densities within the walkable catchment (400 metre radius) of the CBA and other activity centres identified in this strategy.

**Clause 21.06-4 Urban Design**

- Future streets and roads are to be interconnected and actively fronted;
- An emphasis will be placed on achieving walkable neighbourhood catchments providing for a convenience centre or focus for community activity at 400 metre radius and concentrations of higher residential densities around each neighbourhood activity centre.
Clause 21.10 – Future Urban and Residential Use

Clause 21.10-1 Sustainable Neighbourhoods

- New development and the formation of neighbourhoods will need to promote the principle of providing for a walkable catchment, providing the opportunity for a neighbourhood centre with a radius of 400 to 500 metres. The neighbourhood centre should be located at major intersections and facilitate the provision of a local convenience shop and community facilities with provision for public transport;
- Provision of a clear urban structure with interconnected streets and open spaces, where cul de sacs are only used where specific site constraints warrant the treatment;

Clause 21.10-3 Central Wodonga

- Improve pedestrian linkages with the CBA.

Clause 21.10-06 East Wodonga

- Ensure future residential areas are linked with the provision of planned bicycle paths

Clause 21.10-07 White Box Rise Estate (Former Department of Defence Land)

- The layout of streets, paths and roads will be interconnected, with cul de sacs only used where site constraints warrant such a design solution;
- Higher residential densities including development of two or more storeys will be encouraged in locations fronting parkland and within 400 metres of the proposed neighbourhood activity centre;
- Facilitate the relocation of the Wodonga South Primary School adjacent the proposed neighbourhood activity centre, encouraging the development to be built to the street edge where the site adjoins the neighbourhood activity centre;
- Ensure future residential areas are linked with the provision of planned bicycle paths.

Clause 21.10-08 Leneva (Middle Creek Valley) and Baranduda Growth Corridor

Three future town centres, that are all secondary to Wodonga, will be phased in as the city expands into the Leneva Valley. At this stage, it is envisaged that the first of the centres will be established by 2016 and the second centre at Middle Creek in a further 30 years’ time. The third long term centre is proposed east of the current Baranduda township.

- Precinct parks located within walking distance of all residential areas.
- Identification of future public transport routes.
- Identification of major arterial and collector roads.
- A major central boulevard that was constructed in 2000 with an upgrade capacity for a four lane divided arterial road.

Clause 21.10-09 North Leneva

- The road pattern for new development is to maximise connectivity and accessibility avoiding the use of cul de sacs in preference to through connecting streets.

Clause 21.11 - Economic Development

Clause 21.11-02 Redevelopment of the Wodonga CBA
• Dispersion of through traffic away from High St and establishment of a permeable interconnected road and pedestrian network across the former railway land and throughout the CBA.
• All streets in the CBA will provide a continuous active edge at the street frontage, with buildings built to the property line and car parking sleeved behind development.
• Good public transport linkages between the Wodonga CBA and the new railway station on Melrose Drive, Wodonga.
• Through traffic will be dispersed away from High St and the street redeveloped to provide additional car parking, improved safety, accessibility and amenity for pedestrian.
• Car parking areas will be consolidated into large parking areas within each retail precinct, in preference to small site specific car parks.
• Pedestrian linkages between car parks and activity nodes will be improved and actively fronted where practical.
• Implement design and streetscape improvement plans to provide an effective pedestrian linkage and actively fronted linear park connection from Elgin Boulevard to South St through to the Sumision Gardens.

Clause 21.12 - Infrastructure
Clause 21.12-01 Wodonga Road Strategy Plan
• An inter-connected network of streets in the Wodonga CBA will aid in the distribution of traffic and spread traffic loads across a number of road routes rather than a particular designated route. The provision of a permeable central road network in accordance with the Wodonga Central Area Master Plan 2006 will allow for the dispersion of through traffic away from High St and the conversion of the street into a car parking, shopping and pedestrian precinct;
• Feature roundabouts will be used throughout the city as the preferred intersection treatment;
• Elgin St will continue to be developed into a tree lined boulevard and realigned at High St to link with the eastern leg of Elgin Boulevard;
• The Murray Valley Highway will be redirected to the Hume Freeway via the Bandiana Link Rd to Anzac Parade;
• The Hume Freeway extension through Albury provides strategic advantages for Wodonga providing a second river crossing and improved access to and from Albury and Lavington;
• As part of the Albury Wodonga Hume Highway Bypass, a link to the Murray Valley Highway has been provided through the Bandiana Link Rd. The extension of Osburn St (including William Page Drive) is proposed to provide an east-west link from the Bandiana Link Rd, improving access to the Kendall Industrial Estate and facilitating residential development east of the Bandiana Link Rd and Light Industrial development to the west of Bandiana Link Road. Funding for this road will be provided by these benefiting properties;
• Pearce St will be extended to link with the Bandiana Link Rd via Victoria Cross Parade, serving as the eastern leg of the outer ring road and providing for traffic travelling to and from Beechworth Rd to Albury. This will provide further relief to the CBA and address the traffic requirements resulting from growth in the Leneva (Middle Creek) growth corridor. Improved access to the Bandiana Link Rd and Hume Freeway will provide opportunities for further light industrial development at the eastern end of Victoria Cross Parade;
• Felltimber Creek Rd, Parkers Rd and Moorefield Park Rd will continue to provide main road linkages to the outer ring roads, Hume Freeway and CBD;
• Linkage from the Hume Freeway to West Wodonga will be improved by the realignment and extension of Drages Rd to the McKoy St/Hume Freeway intersection. This new western link road will be provided in conjunction with the establishment of Enterprise Park in West Wodonga;
• Access to Baranduda has been upgraded through the construction of the Baranduda Boulevard that reinforces Leneva as the principle growth corridor for Wodonga. This road will be duplicated to provide four traffic lanes when future traffic loads warrant a major upgrade to the road;
• Yarralumla Drive will be extended to Beechworth Rd to link West Wodonga to the Leneva growth corridor;
• A major initiative of the Road Strategy plan is to beautify all major entry roads into Wodonga and major intersections;
• Main road classifications are to be consistent with the Road Strategy Plan and VicRoads Access Management Strategies;
• Further planning work is required in consultation with VicRoads to make provision for the future duplication of the Kiewa Valley Highway from the Murray Valley Highway to Baranduda Drive;
• Commensurate with the development of Logic Wodonga and growth in traffic volumes, the Murray Valley Highway will eventually require duplication (in approximately 20 to 30 years time) south of Logic Boulevard to the Hume Freeway Interchange; and,
• As identified on the Leneva Structure Plan, Beechworth Rd is proposed to be duplicated from Huon Creek Rd to Yarralumla Drive/Streets Rd roundabout to cater for future increases in traffic generated by growth in the Leneva Valley and Indigo Shire.

Clause 21.13 – Social
Clause 21.03-02 - Recreation
• Wodonga cycle path network – The continued expansion and improvement of the network commensurate with the growth of the city.

Clause 21.13-04 Healthy City
• Provide an urban structure of walkable neighbourhoods that are clustered to form locations for local activity centres that provide the opportunity for the mixture of uses and reduced car dependency, enabling ready access to employment retail, community and recreational facilities;
• Ensure that walkable neighbourhoods and access to services and facilities are designed for all users including users with disabilities;
• Promote and facilitate higher residential densities in the walkable catchment of the CBA and neighbourhood activity centres;
• Provide access by way of an interconnected street and path network that facilitates safe efficient and pleasant walking and cycling.

Clause 21.13-06 Public Transport
• The planning of public transport routes and stops concurrently with any urban structure plan;
• The provision of an interconnected street and path network;
• The provision of bus stops in locations that have good pedestrian access and passive surveillance;
• Enhanced linkages between the proposed Wodonga Railway Station at Melrose Drive and a bus interchange connection with the Wodonga CBA; and,
• The upgrading of path network and public lighting along Melrose Drive north of Melbourne Rd to improve the safety and convenient of access to the new railway station site.

Clause 21.13-10 Equity of Access
Both the planning scheme and strategy recognise that the Disability Discrimination Act (1992) (DDA) makes it unlawful to discriminate against a person on the grounds of a disability. In a planning context, the DDA applies to the provision of access to premises, including places of employment, accommodation, educational and shopping centres, and public buildings. The city of Wodonga will be planned as an “accessible city” with new developments being required to comply with the requirements of the DDA. Through the application of a local policy, new developmental refurbishments and extensions to buildings will promote equity of access.

E.5.3 Sustainable Transport Strategy 2010
The Sustainable Transport Strategy 2010 contributes to the sustainable development of a well-connected community, with facilities to encourage safe walking and cycling, innovative traffic management measures, the provision of good public transport and easy access to local services. Key objectives that relate to transport access are:

• To reduce private car travel; and
• To increase walking, cycling, carpooling and the use of public transport.

Secondary to this, the strategy aims to improve safety for all transport users; increase social connectedness, health and wellbeing; and reduce pollution to the local environment.

Traffic restraint measures such as re-allocating road capacity, parking control and traffic calming are considered likely to be more effective than singularly promoting a sustainable transport system. This is to encourage change in travel behaviour and attitudes to public transport, which also complements the rollout of an intensive sustainable transport program.

E.5.4 Bicycle Strategy 2008
The Wodonga Bicycle Strategy 2008 is a document addressing the promotion of safe cycling through a multi-faceted approach. The plan envisions cycling within Wodonga to improve accessibility, efficiency of the transport system, health and urban liveability. Specifically, this will be achieved through the following objectives:

• To ensure that cyclists have facilities of an appropriate standard;
• To create a safer on and off road cycling environment;
• To provide a cohesive framework for the development of the cycling network;
• To improve the quality, safety and accessibility of the bicycle routes for all users;
• To ensure that cycling is recognised as a legitimate road use;
• To educate and inform all road users about appropriate behaviour towards each other;
• To encourage a more healthy community;
• **To efficiently apply resources to cycling needs;**
• **To encourage cycling as a desirable means of community transport to and from work, school, shopping and activity centres.**

Furthermore, the strategy considers cycling across a number of key areas, including:

• **Safety:** To create a safer on and off road cycling environment.
  - Promote increased positive attitude to cyclists from other on-road users with regards to respect and greater care; and cyclist behaviour regarding safe riding equipment.
  - Improve cycling infrastructure such as surfaces and lighting; and enforcement of road rules that apply to cyclists.

• **Education:** To increase bicycle riding skills and community awareness about cycle safety.
  - Support and encourage the continuation of road safety education including cycling within the education system; increase the understanding and place of cycling as a legitimate transport mode within the Wodonga transport system.
  - Make cyclists and pedestrians aware of the range of uses permitted on off-road paths and how to share them appropriately.

• **Infrastructure:** To ensure that cyclists have the facilities necessary for, and to encourage, safe cycling.
  - Ensure that standards and infrastructure are within compliance and maintained safely for all cycling facilities in Wodonga.
  - Improve direction, information and interpretive signage on paths for residents and visitors; and improve connectivity of cycling infrastructure that encourages civic participation throughout the Wodonga area.

• **Environment:** To promote cycling through increased knowledge of its positive environmental effects.
  - Improved individual health and fitness, and environmental benefits of cycling
  - Promote the benefits of reducing peak traffic congestion and the increased benefits of providing for a pleasant and safe cycling environment.

• **Enforcement:** To encourage responsible cyclist and motorist behaviour.
  - Ensure all road users are safe and lawful, including wearing of helmets and showing due care to cyclists; and maintain regular contact and communication with the police and other authorities to uphold enforcements.

• **Programs and Promotions:** To increase the number of programs to promote cycling and to increase participation in cycling as a whole.
  - Increased commuter cycling by regular adult recreation cyclists; short trips to local community facilities; cycling by schools students to and from school; family groups; and new bicycle users.
  - Increased appreciation of public art through links with arts and cultural programs; and, ensure programs provide opportunities for learning.
E.5.5 Wodonga – Living Longer, Loving Life

Wodonga – Living Longer, Loving Life is a report produced by Council on the Ageing Well in Wodonga project. The report includes a summary of community consultation with residents aged over 50. This report explored the liveability of Wodonga, including aspects of transport and access, from the perspective and voices of local residents.

By gaining perspective from ageing residents, Wodonga identified a number of areas that impacted on people’s ability to move around the area. This included:

**CBD – Shopping Precincts**
- **Access:** In general, survey respondents asked that all levels of business and community services gave more consideration to the needs of those with vision and mobility issues.
- **Amenity:** The majority of respondents encouraged the development of more community-cultural events, activities and environments. This included requests for bicycle racks.
- **Car Parks:** Shade, increased parking and the design of traffic flow were all areas of need for residents.
- **Pedestrian Access:** There was a good deal of interest in seeing Wodonga become more pedestrian friendly, with Malls, pedestrian crossings and reduced traffic flow through High Street all being suggested.

**Roads**
- **Bicycles:** Safe access for cyclists, particularly at roundabouts.
- **Traffic:** Reducing or removing traffic from High Street to create a more pedestrian friendly area.
- **Seating:** Increased seating around the CBD, seating with backs and arms and preferably shaded.
- **Cycling:** Cyclists were generally very happy with the overall availability of cycle paths, however a number of comments related to the lack of linkages to West and East Wodonga. Safety was another key area of interest both from a cyclists and pedestrian perspective. The lack of designated cycle lanes poses substantial risks for those who travel on major roads. Cyclists highlighted the need for bike racks to be available within the CBD, and in particular, near toilets.
- **Walking:** Residents were highly supportive of Council’s role in creating and expanding the network of shared pathways around the city. Greater promotion by Council of the shared pathway system was seen as an important element of encouraging residents to become more active.

**Paths**
- **Pedestrian Crossings:** The lack of safe pedestrian crossing were raised by a number of residents, many of whom felt that their safety and enjoyment of walking was being compromised by not having crossings that were designed to give pedestrians right of way or sufficient time to cross.
- **Roads:** This subject received one of the highest responses within the survey, with people expressing concerns about speed limits, traffic calming, street width, signage and planning.
Transport

- **Buses:** Frequency of buses came up as an insufficient as well as the limited routes. People clearly wanted buses to be made available closer to where they lived and to have bus timetables that extended across the weekend and into the evenings. People were concerned to see many large buses travelling the streets with only one or two passengers. Calls for smaller buses were numerous.

E.5.6 Child Friendly City Framework 2012 to 2016

The Child Friendly City Framework is a commitment by Council to meaningfully consider and engage children’s participation in community life. The framework aims to achieve a healthier environment, a better governance model and a sustainable model of development. Commitments made by Wodonga to ensure a child friendly environment is expressed across five pillars, including aspects relating to transport and access for children. These include:

i. **Child friendly people and neighbourhoods.**
   - We will provide accessible, well maintained and exciting spaces for children and their families to promote active and healthy lifestyles and engage them in the community health prevention program.

ii. **A city built to explore and enjoy.**
   - We will provide infrastructure to support a range of experiences and adventures for children of all ages throughout our city, including playgrounds, footpaths and amenities, and take opportunities to apply for relevant grants and funding.
   - We will plan for connectivity within our neighbourhoods, supporting children’s independent mobility.

E.5.7 Disability Action Plan 2011-2014

The Disability Action Plan is a committed plan by Council to promote an accessible and inclusive community within Wodonga. The plan is framed by and informed by the five pillars of wellbeing of the Council Plan:

- A healthy, safe and inclusive community
- A strong and resilient economy
- A well-built, well-maintained and well-protected community
- An inclusive and culturally rich city
- A democratic and engaged community

Objectives relating to access and transport include:

- Provide information to businesses in Wodonga through existing associations and network that businesses may provide more accessible environments
  
  **Actions:** Promote and strengthen adherence to the Streets & Roadside Trading Policy to maintain accessibility for people of all abilities.

- Promote the safe use of mobility scooters
  
  **Actions:** Promote and distribute information on the safe use of mobility scooters to a range of stakeholders, including scooter users and transport operators.
• Maintain accessible streets, roadsides, footpaths and open space
  Actions: Continue placement of tactile crossing plates in new developments

Objectives within the plan relate to a number of areas impacting on mobility-impaired people’s access to the city and transport.

E.5.8 Access For All Strategy 2011-2014

The Access for All Wodonga strategy documents council’s strategic direction for enhancing accessibility and inclusiveness for residents, including those with a disability, across the municipality through leadership, advocacy, services and programs.

Strategies are set out to improve access and social inclusion over the next three years to 2014. The plan articulates council’s commitment to enhancing the accessibility of its community and is closely aligned with the Council Plan, Community Health and Wellbeing Plan and the Disability Action Plan.

Five strategic objectives inform the strategy, with reference to transport and access:

- Healthy, safe and inclusive community
- Dynamic, resilient local economies
- Sustainable built and natural environment
- Culturally rich and vibrant communities
- Democratic and engaged communities

Objectives relating to transport and access include:

- To increase community awareness and understanding about inclusion issues and the needs of people with a disability in order to achieve a more inclusive and safe community for all people
- Promote and support accessible businesses throughout the city.
- Ensure that council incorporates the physical mobility and access needs of people with disabilities in the design, construction and maintenance programs for roads, footpaths, drains, and other infrastructure.
- To include people with disabilities in all opportunities provided for the community to access and participate in arts and cultural activities, including accessible events and activities.

E.5.9 Wodonga Community Health and Wellbeing Plan 2011-2013

The Wodonga Community Health and Wellbeing Plan 2011-2013 outlines Council’s commitment to improving the health and wellbeing of all community members. The plan aims to tackle the health and wellbeing challenges in Wodonga by addressing issues that impact on the whole community as well as issues related to social and economic disadvantage that result in poor health outcomes for particular groups in the community.

The plan takes a health evidence-based approach to transport. Pillar three (A well-built, well maintained and well protected community) defines the objectives of both the Council Plan and the Health and Wellbeing Plan for the Wodonga area with relevant Council strategies regarding the relationship between health and transport. These include: Wodonga Transport Strategy, TravelSmart Project, and Bicycle Path Strategy. Transport is explicitly listed as a key determinant of health. However, direct actions relating to transport and access are unclear regarding how these health determinants will be improved for the Wodonga community.
The Leneva Baranduda Growth Area Framework Plan guides the development of a 19km² tract of land in the Leneva Valley. The Leneva Baranduda area has been identified as a new growth area for Wodonga, and will service the medium to long term residential growth in the wider area. The existing built up area of Wodonga and the township of Baranduda form an urban edge that in part defines the future development area. The remaining boundaries are generally defined by the 240m contour line of the surrounding hills and adjoining land south along Beechworth-Wodonga Road. The overall framework plan is shown at Figure 5.1.

Figure 5.1: Leneva-Baranduda Growth Area Framework Plan 2012

The Leneva Baranduda Growth Framework includes a number of sustainable principles for future development. Principle 5 – a low impact transport system is summarised below:

‘The adapted grid pattern of streets is to support the natural landscape elements and promote legibility and movement. Urban areas are to be connected by a low-impact bus transport system that provides easy accessibility and mobility between precincts, activity centres and popular destinations. The collector streets will provide bicycle lanes and linear open space links to promote walking and cycling connections within a safe and pleasant environment’.

Leneva Baranduda is proposed to encompass a number of activity centres that promote modes of sustainable transport like walking or cycling. This also includes a network of paths and roads that will include pedestrian and bicycle facilities.

- Pedestrian footpaths are integrated to the normal street network.
- The cycle network is a combination of shared street, dedicated street lanes, shared paths (parks and streets) and dedicated paths (parks) that link the main points of attraction, particularly the schools and town centre with the open space network.
• Footpaths or shared paths are designed and constructed wherever possible and practical to be of appropriate width, longitudinal gradient, and sight distance and kerb details to cater for the likely population and user types, including people of all abilities.
• Future urban development will be planned in a manner that promotes the use and viability of public transport.
• Bus stops should be located in activity centres, near schools and within a reasonable walking distance of a bus service from residential areas.
• Local transit services should be provided from day one of development so that residents have a viable alternative to the private car.
• Providing well located bus stops to ensure that at least 90 per cent of homes and businesses within the growth area are within 400m – a comfortable seven to eight minute walk – of a transit route.

The Framework Plan provides an outline road network and nominates generic road cross sections, including the provision of appropriate bicycle facilities.

E.5.11  Wodonga Arterial Road Network Study 2010

The Wodonga Arterial Road Network Study documents the strategic transport outputs in support of the declassification of High Street from a VicRoads arterial road to a local road under City of Wodonga’s control. As a result of the study, High Street was declassified to encourage a lower volume of traffic movement, and the introduction of an inner and outer ring road around the CBA was also implemented to support the movement of traffic away from High Street.

The study’s core tasks were to:
- Undertake an extensive Origin Destination survey in Wodonga;
- Develop a Strategic Transport Model for Wodonga;
- Analyse the relevant results; and
- Make clearly reasoned recommendations for changes to the VicRoads Arterial network in Wodonga.

The study successfully identified the effects of an inner and outer ring road would have on the Wodonga CBA, including High Street. This was conducted through a strategic transport model, which provides the means to effectively plan, evaluate and test road network strategies based on population, employment and land use data in Wodonga. The model is an essential strategic mechanism that can be used to identify and determine future road networks for the present and future. The model can be updated to include changes in the area, such as the Leneva Baranduda growth area in the future.

• High Street (Existing Network)
  - Without the declassification of High Street and modifications to the road network, traffic was expected to increase by 25% between 2010 and 2030.

• High Street (Future Network)
  - The introduction of committed road schemes including; Victoria Cross Parade, Yarralumla Drive to Beechworth Road extension, Bandiana Link to High Street/Hume Freeway westbound connection, and the CBA local road changes, will have a significant effect on reducing traffic volumes on High Street. This is specified in a 2030 scenario,
where High Street will see 11,100 vehicles per day compared to 15,900 vehicles prior to the declassification.

- **Outer Ring Road**
  - The Yarralumla Drive to Beechworth Road connection increases traffic through this corridor.

- **Inner Ring Road**
  - The introduction of a CBA inner ring road gives significant benefits to creating a more pedestrian friendly environment for local streets. The downgrading or closure of High Street north of the water tower and a possible one-way flow or closure of Hovell Street is expected to increase traffic through the inner ring road, creating the desired outcome.

- **Wodonga CBA Interim Arrangement**
  - The study supports an interim arrangement within the CBA of a bypass route of Havelock Street, Elgin Boulevard to Hovell Street and Hovell Street to Osburn Street. This would result in an increased need for turning traffic to support the inner ring road link.

- **Wodonga CBA Ultimate Arrangement**
  - The study supports the proposed ultimate arrangement to incorporate the future arterial and local road links which will eventually contribute to a fully developed outer and inner ring road.

Appendix D depicts the future links to the road networks. Figure 5.2 and Figure 5.3 also show the interim and ultimate road networks proposed for CBA access and bypass.

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**Figure 5.2: Interim Road Network, CBA**

**Figure 5.3: Ultimate Road Network, CBA**

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**E.5.12 Wodonga CBA Car Parking Strategy**

The Wodonga CBA Car Parking Strategy establishes an inventory of existing on-street and off-street parking within the Wodonga CBA, and establishes the needs for short and long term parking. This is envisioned through the reconfiguration of some parking spaces to accommodate more, and to increase
the efficiency in use of space for these areas. Secondly, to take into account where car parking may be further required regarding new developments.

A number of short, medium and long term measures for improved utilisation of car parking recommended, including:

- **Short Term Measures**
  - Ensure line marking and signage is maintained to appropriate standards, and where there are inconsistencies, that these be rectified.
  - All existing on-street parking on Hume Street, between Elgin Boulevard and Lawrence Street be subject to 2P restrictions. This is with the exception of disabled car spaces.

- **Medium Term Measures**
  - Customer car parking should take priority in the heart of the CBA, with shorter term restrictions to encourage turnover.
  - Investigate locations for future car parking stations. Stations should be located closer to the outer fringe of the CBA and should contain an appropriate mix of short and longer term parking opportunities.

- **Long Term Measures**
  - Additional car parking facilities will be required as the development in the CBA progresses. This includes a large public car park at Junction Place.
  - Parking management practices should also include regular review of the restrictions within the CBA as it evolves.

The strategy notes that the land adjoining the Junction Place site is currently utilised as an informal public car park. During peak times, the average number of vehicles using this informal all-day car parking was approximately 200.

However, the strategy also notes that across the CBA, overall peak parking demand is 38%, with higher utilisation for 1P (62%) and 2P (64%). This suggests that there is no overall car parking issue in Wodonga, with peak utilisation well below the level at which parking becomes effectively ‘full’ (over 85%). In this regard, while there may be some minor localised shortfalls of car parking in particular areas of the CBA, there does not appear to be an overall car parking problem that would require the construction of extensive additional car parking stations above what may be provided to support new development.

### E.5.13 Wodonga High Street Precinct Functional Design Brief

The document details the proposed concept style of a revitalised High Street Precinct. High Street in this context bounded by Lawrence Street, Hovell Street, Osburn Street, Church Street and Hume Street.

A number of key considerations regarding the High Street Precinct are outlined, including design elements that are sympathetic to a community need of increased pedestrian friendliness and access:

- **Safe, Friendly, People, Place**
- **Easy to access and easy to find**
- **A mix of business operators**
Quality, style and design, that reflects Wodonga
Sustainable, green and innovative development
Cooperative partnerships
Respecting our heritage and cultural diversity

The design philosophy outlines a number of key objectives and principles explicitly relating to access in High Street, including disabled access:

- Access must be provided to all parts of the High Street Precinct, in accordance with Australian Standards.
- Design elements need to be inclusive of the needs of all the community, by providing for an accessible pedestrian system that caters for all mobilities (including those with wheelchairs). Safety, equitable and dignified access to all adjacent buildings and facilities is also intended.

There are six functional elements to the precinct, including:

- Traffic – including parking;
- Accessibility;
- Flexible Space;
- Commercial/Retail mix;
- Sustainability; and
- Day/Night Economy

The following elements relate directly to transport and access in the High Street Precinct:

- Traffic: Pedestrians/Walkability: The High Street Precinct desires a shared space between vehicles and pedestrians, with the latter having greater access and priority through the area. The short and long term needs of people with disabilities should be considered when making decisions regarding the location of trees, shrubs and other potential obstacles.
- Traffic: Public Transport: Public Transport access to High Street is a priority; however buses should be excluded from traversing High Street. Drop off points from buses should be at intersecting streets that are adjacent to High Street.
- Accessibility
  - High Street must be accessible to all modes of transport, namely pedestrians, bicycles, motorbikes, scooters, public transport and motor vehicles.
  - There should be a consistent approach to access zones for seating, traders and pedestrian.
  - Designated accessible parking bays for people with disabilities are an important component in maintaining mobility and access. These bays should be close to the main facilities and directly connect with a Continuous Accessible Pathway of Travel to assist in the easy movement throughout the precinct; this includes curbs, ramps and surfacing.

E.6 Freight

E.6.1 Victorian Freight and Logistics Plan Stakeholder Feedback Draft Report

The Victorian Freight and Logistics Plan (VFLP) is a plan prepared by the Department of Transport to examine the long term freight forecasts for the State to 2050 that will aim to inform decision making
for future projects and initiatives. The roundtable was held during October 2012 involving a number of key stakeholders discussion regarding issues and opportunities for freight and logistics. Discussions relating to access to markets and ports, transport links and vehicles, and trends and changes were held that drew issues relating to Wodonga and its role within the freight system. These include:

Discussion 1: Access to Markets and Ports – Issues and Opportunities

- Meat and Livestock – new stockfeed manufacturer in Wodonga – possibility for rail link?
- Barriers include efficiency issues around interface connections with Melbourne – Hume Highway and the need to get commuters on to passenger rail; congestion.
- Road network to Port of Melbourne is sufficient via the Hume Freeway; rail network capacity and efficiency could be greatly improved.

Discussion 2: Transport Links and Vehicles – Issues and Opportunities

- Issues associated with accessing key markets along the Hume Highway and Goulburn Valley Highway.
- Opportunities for coupling and de-coupling (trucks) at the border (Wodonga).
- There is an overwhelming need for the rail network to be upgraded for increased freight demand through the Hume region.

Discussion 3: Trends and Changes – Issues and Opportunities

- Manufacturing and value-add – Wodonga currently has 16% of manufacturing (twice the national average).
- Population growth in major regional cities like Wodonga will see increases in freight movement.
- Protection of industrial zoned land for long term investment and certainty.

E.6.2 Draft Regional Development Australia – Hume Region Strategic Freight Directions Report

GHD was engaged by DPCD on behalf of Regional Development Australia – Hume region committee to provide a concise, high level strategy document which will enable the committee to confidently engage with all levels of government. The key aim of the project is to develop strategic directions for freight that can be used to attract investment in the Hume region.

A number of key directions have been identified to meet the goal of maintaining and improving the efficiency of freight transportation modes across the Hume region:

- **Strategic Direction One – Building capacity on the Hume Freight Network**
  - 1.1 Facilitate industry support for rail gauge standardisation in the Hume Region
  - 1.2 Promote opportunities to develop the region’s national road corridors

Potential benefits for pursuing this strategy include the increased opportunity for competition on rail within the Hume region, benefiting Wodonga’s freight economic growth. Other benefits include, improved freight efficiency on higher quality roads; reducing the number of trucks on roads due to improved road capacity; and increased safety levels.

- **Strategy Direction Two – Improving freight efficiency within the Hume Freight Network**
2.1 In collaboration with partners explore the development of a consistent heavy vehicle road network for the Hume region linked to NSW.

2.2 Promote development of the secondary road corridors and network connections

Potential benefits include the consolidation of heavy vehicle usage in agreed areas of municipalities and major roads; reduce overall carbon emissions; amenity improvements for residents on defined heavy vehicle routes; and relevant connections for the enhanced LOGIC facility and improved access on the Murray Valley Highway.

Strategy Direction Three – Supporting the development of regional freight facilities

3.1 Support further development of the Region’s intermodal terminal networks

3.2 Advocate for a clear policy for opening and closing lightly used rail lines

Potential benefits of this strategy includes the reduction of road traffic and use by heavy vehicles; improved environmental outcomes by use of rail; certainty for industry in the provision of transport mode share opportunities and potential cost reductions; increased mode share of rail; and opportunities for additional rail usage.

Strategic Direction Four – Supporting a policy and planning framework that takes account of the Hume region

4.1 Facilitate the development of integrated land use and freight planning i.e. advocate for freight and logistics precincts in the region

4.2 Seek further assessment of the Melbourne/Brisbane rail link – clarifying regional growth opportunities and connections

Potential benefits include a developed plan for future Freight and Logistics Precincts within the Hume region; positive land use planning outcomes and improved amenity for residents in regional towns and cities; and improved connections for the Hume region on the interstate rail connections.

E.6.3 Freight summary

The freight network is well serviced by the existing arterial road network, including the freeway network, town bypass and ring roads. Access to the CBA by freight vehicles is currently adequate; however future road space reallocation and changes to the road network need to consider existing and future freight movements.

The growth of freight traffic (both road and rail based) is an important economic and planning consideration for future land use and transport planning in Wodonga.

E.7 Programs and Initiatives

E.7.1 DPCD Transport Connections Program

The Department of Planning and Community Development (DPCD) are funding the Transport Connections program, which includes $22.5 million dollars aimed at improving transport and access services for transport disadvantaged communities. The program will end in June 2013, however many of the initiatives that have been funded or commenced under the program will continue in some form or other.

The North East Transport Connections Project is a three-year project that takes a holistic approach to understanding the needs of communities and individuals who have limited access to transport. The
program aims to develop options for improved transport and accessibility at a local and regional level. The project is informed by the partnership of five local government areas; Alpine, Indigo, Towong, Wangaratta and Wodonga. Objectives include:

- Develop innovative transport and non-transport solutions to enhance access and participation by people with limited access to transport, excluding public transport as a response
- Generate more effective and efficient use of existing transport resources
- Establish sustainable local and regional partnerships for delivering transport and accessible outcomes.

The corresponding Action Plan has identified four key areas which have been developed to support an integrated transport model. Local community projects and advocacy are also a key role of the North East Transport Connections Project.

- Community Transport Access:
  - community transport services
  - support for community volunteers
  - regional travellers aid services
  - access to TAFE and further education
  - access to specialist and medical services.

- Transport Information:
  - integrated transport information system.

- Community Linkages and Connections:
  - remove community linkages
  - tracks and trails.

- Transport Behavioural Change:
  - health promotion program that promote changes in transport behaviour.

The Travellers Aid Australia (TAA) program aims to address transport disadvantage in the community by providing targeted solutions to assist clients (mainly people with a form of disability) to access services. The overall TAA service model is shown at Figure 7.1. As Wodonga forms a major services hub for surrounding regional areas, there is a relatively high demand for TAA services.

The Regional Travellers Aid program is investigating the possibility of creating an access centre in central Wodonga using the TAA model. Future planning for the CBA, including potential new bus facilities, should consider opportunities to incorporate this service.
E.7.2 Streets Ahead Wodonga

The Streets Ahead Wodonga project was a combined initiative between VicHealth and the City of Wodonga implementing demonstration projects designed to increase children’s active transport and independent mobility. The program ran from late 2008 to late 2011. This place-based work targeted Melrose Primary School, Belvoir Special Development School and Wodonga West Primary School to support children using active transport methods, such as cycling, walking and scooting to and from school. A range of activities and programs were implemented to encourage active forms of travel for children and to promote a greater awareness of healthy outcomes for the wider community. Objectives included:

- Identify barriers and enablers to children’s independent mobility and develop strategies to overcome barriers
- Increase the level of active transport to/from school for prep to year four students
- Increase the level of children’s independent mobility for year five and six students
- Increase the level of children’s independent mobility in all aspects of their lives within the local community
- Develop sustainable, flexible and replicable model to increase children’s independent mobility that engages the wider community and is responsive to and builds on local conditions and strengths.

The project identified a number of barriers, successes and continuing opportunities, including:

- The nature of any behavioural change program presents specific issues in terms of understanding what strategies are most effective in enacting change. This includes maintaining overall participation levels within the program.
• Evaluation also proved to be difficult, particularly when changes are ongoing and impacts are not readily seen. Providing for evidence-based quantitative and qualitative data is also difficult to demonstrate project success in this instance.

• Street audits provided some barriers and potential enablers to active transport, including a general lack of seating along the most popular routes to and from each school. As a result of consultation, eight new park benches were installed along the most common walking and cycling routes to and from school.

• School staff, parents and children identified the need for Wodonga to produce a Pathways Map that detailed walking and cycling routes throughout the City. This was beyond the routes specified in the Streets Ahead project. In early 2011, after consultation with Council, the Recreation Officer, the Streets Ahead team and feedback from the wider community, a reprint of the Pathways Map was produced with new route information.

E.7.3 Victoria Walks

Victoria Walks is a walking-for-transport health promotion charity funded through VicHealth, which encourages people to walk more every day and to promote walkable neighbourhoods that are vibrant and supportive of this mode choice. Victoria Walks envisions this environment by achieving the following goals:

i  Get more Victorians to identify themselves as ‘walkers’.

iii  Position ourselves as the leader and ‘go-to’ authority for walkers, walking and walkability.

iv  Collaborate with organisations so they champion walking and integrate it into their programs.

Victoria Walks has been invited onto a number of key Government advisory committees and reference groups relevant to creating walkable communities and increasing the health of Victorians. These include:

• Victorian Pedestrian Advisory Council

• Principal Pedestrians Networks Demonstration Project

• Station User Panel

• Pedestrian Access Strategy.

Victoria Walks promotes the public to take regular audits of their local walking routes to help identify what may be working and what needs improving. The audit is carried out in a systematic way using photos, checklists and maps that can help assess neighbourhood walkability. Beyond these audits, Victoria Walks has also been instrumental in the growth of Walking Action Groups (WAG), which is simply a group of people who act as the voice for promoting safe walking within their neighbourhood and promote walking-for-transport to authorities like local government.
Appendix G

Bicycle Network Development Methodology
Detailed Bicycle Network Development Methodology

F.1.1 Preamble

Bicycle use is increasing throughout Australia, and it provides a low impact fitness option, which in urban areas achieves a relatively similar travel time when compared to private motor vehicles, and has a low upfront and on-going cost. Encouraging more people to ride more often in Wodonga will have wide ranging benefits to health and the environment, as well as less tangible benefits such as increased interaction and social capital, and activation of the public realm.

In Wodonga the majority of bicycle facilities that exist are those that have been able to be easily accommodated within existing road carriageways, or through parks and other passive land reserves, mainly shared with pedestrians. This has resulted in a lack of continuity for users and a number of missing links, especially to key trip generators/destinations. Also, the mixing of on-road and off-road bicycle facilities along a given route does not provide sufficient continuity for the different types of cyclists. As such, the following section outlines the types of users, required types of facilities and their application in Wodonga.

F.1.2 Types of Users

Cycling user types are understood along two continuums, the first being associated with the major trip types. This is presented within Table 2.3 of Cycling Aspects of Austroads Design (2011), which has been reproduced below within Table 1.

Table 1: Categories of Cyclists and their Characteristics

<table>
<thead>
<tr>
<th>Category</th>
<th>Rider Characteristics</th>
<th>Riding Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary school children</td>
<td>Cognitive skills not developed, little knowledge of road rules, require supervision.</td>
<td>Off-road path, footpath (where permitted) or very low volume residential street.</td>
</tr>
<tr>
<td>Secondary school children</td>
<td>Skill varies, developing confidence.</td>
<td>Generally use on-road facilities or off-road paths where available.</td>
</tr>
<tr>
<td>Recreational</td>
<td>Experience, age, skills vary greatly.</td>
<td>Desire off-road paths and quiet local streets, avoid heavily trafficked routes, more experienced will prefer to use road system for long journeys.</td>
</tr>
<tr>
<td>Commuter</td>
<td>Vary in age, skill and fitness, some highly skilled and able to handle a variety of traffic conditions.</td>
<td>Some prefer paths or low-stress roads, willing to take longer to get to destinations, others want quick trips regardless of traffic conditions, primarily require space to ride smooth riding surface, speed maintenance.</td>
</tr>
<tr>
<td>Utility</td>
<td>Ride for specific purposes (shopping), short length trips, routes unpredictable.</td>
<td>Not on highly trafficked roads, needs to include comprehensive, low-stress routes, appropriate end of trip facilities.</td>
</tr>
<tr>
<td>Touring</td>
<td>Long distance journeys, may be heavily equipped, some travelling in groups.</td>
<td>Often route is similar to that of other tourists.</td>
</tr>
<tr>
<td>Sporting</td>
<td>Often in groups, two abreast occupying left lane, needs similar to commuters.</td>
<td>Travel long distances in training on arterials, may include challenging terrain in outer urban or rural areas, generally do not use off-road routes because of high speed and conflict with other users.</td>
</tr>
</tbody>
</table>

Table 1 indicates that there are seven major rider types, along with their general riding characteristics and preferred riding environment. This gives a basic understanding of what facility types are required to support each of these user groups.

However, even within each of these user groups, there is a wide range of skills and confidence levels that have a major influence on whether individuals choose to cycle or use alternative forms of transport, even if they would prefer to cycle.
This natural variation in an individual’s comprehension of whether cycling is a viable form of transport is the second continuum. In this regard, Roger Geller of the Portland Bureau of Transportation (2010\(^1\)) has identified four main groupings of individuals within the general community, based on how they comprehend the viability of cycling, which is illustrated in Figure 1.

Figure 1: Four Types of Cyclists\(^2\)

Further explanation of each of these groupings is provided as follows:

- **Strong and the Fearless** - ride regardless of road conditions: riding is a strong part of their identity and they are undeterred by cycling conditions.

- **Enthused and Confident** - are, and could be, attracted to regular riding by continuing to address the barriers to cycling: shorter trip distances, better bicycle facilities, better end-of-trip facilities.

- **Interested but Concerned** - hear messages about how easy it is to cycle, but they are afraid to ride. They don’t like the cars speeding down their streets. They get nervous thinking about what will happen to them on a bicycle when a driver runs a red light, or guns their cars around them, or passes too closely and too fast.

- **No Way, No How** - not interested in cycling at all, for reasons of topography, inability, or utter lack of interest.

A key outcome of these groupings is that a large proportion of the population (nearly two-thirds) have the potential to consider cycling as a viable transport mode. This would not be for all trips, but cycling could become a regular mode of transport if the barriers associated with their mode choice decisions are overcome.

Given the above, it is considered more appropriate to consider cyclists based on a more user-ability categorisation. Such an approach is used with great success in countries with high levels of cycling such as the Netherlands and Germany (TU-DELFT, 2000) as a method for encouraging the broadest range of

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\(^1\) Refer to [http://www.portlandoregon.gov/transportation/44597?a=37507](http://www.portlandoregon.gov/transportation/44597?a=37507)

\(^2\) Portland Bureau of Transportation Website, visited 25/01/11
users. This user-ability categorisation is presented in Table 2, and encompasses the categories outlined in Table 2.3 of Cycling Aspects of Austroads Guides while having consideration of individual’s comprehension of the viability of cycling.

### Table 2: Bicycle User Group Categories and Characteristics

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Vulnerable to traffic</td>
<td>Children between the ages of 10 and 16, the elderly, the hard of hearing, very short trips, slow speeds (less than 15 km/h), traffic shy, slower reaction times.</td>
</tr>
<tr>
<td>B</td>
<td>Borderline &quot;fair weather&quot; cyclists</td>
<td>Infrequent adult cyclists, alert but lacking confidence, low to average riding skill, short to medium trips.</td>
</tr>
<tr>
<td>C</td>
<td>Active adults</td>
<td>Speeds between 15 and 30 km/h, alert and ‘road aware’, average to high level of riding skill and proficiency, all trip purposes.</td>
</tr>
<tr>
<td>D</td>
<td>Sports and fitness</td>
<td>Speeds higher than 30 km/h, prefers ‘main road’ environments.</td>
</tr>
</tbody>
</table>

### F.1.3 Types of Midblock Facilities

The type of cycling facility that can be implemented may be based on a range of factors such as the available corridor width, intersection operations, traffic volumes and speeds, continuity of an overall route, transport network hierarchy (i.e. SmartRoads) and bicycle user-ability characteristics.

While these factors may be relevant, they can lead to facilities being designed through the ‘path of least resistance’, and may result in sub-standard facilities that do not encourage any new cyclists, or at best redirect existing users to them.

Safety is consistently identified as the key requirement to encourage new cyclists, and one of the major ways that cyclists perceive safety is through the level of separation provided to motorised traffic. The required level of separation varies between each of the four user categories outlined in Figure 1, but has been simply expressed in the Cycling Aspects of Austroads Design (2011), and is presented in Figure 2.
Figure 2 recommends a minimum level of separation between cyclists and motor vehicles on urban roads based on the volume and speed of traffic. At low traffic speeds and volumes, a shared road environment is considered appropriate, and at higher traffic speeds and volumes, separated bicycle paths are considered appropriate.

These minimum separation guidelines are considered appropriate for the development of a bicycle network within an urban environment to support the 'borderline “fair weather” cyclist' and 'active adult' cyclists, which makes up the majority of current and the potential users (approx. two-thirds of a community). It is further noted that DoT and Bicycle Network recommend that the 'Bicycle lane or shoulders' area should be shifted to align with 45km/h and 70km/h to further support the 'borderline “fair weather” cyclist'.

‘Vulnerable to traffic’ cyclists require almost complete separation of bicycle facilities to motorised traffic throughout their associated trips.

‘Sports and fitness’ cyclists do not require or desire the same level of separation as other groups, as they are more concerned with maintaining speeds and travelling long distances. Furthermore, they generally do not choose to ride within urban environments for exactly these reasons. Rather, they opt
for rural roads with a limited number of intersections and low volumes of traffic, especially heavy vehicle volumes. However, this can result in cyclists being located in high speed environments with narrow road widths, which can either see motorists passing cyclists at close distances or motorists crossing the centre line to pass them, all at high speeds. Reducing speeds and/or widening carriageways to at least accommodate marked bicycle lanes improves safety for sports and fitness cyclists, but is not expected to significantly increase their numbers. However, improved facilities are likely to re-route existing users to such supportive routes.

Further to Figure 2, which shows the relationship between the minimum level of separation required given the prevailing traffic speeds and volumes, the three methods of separation are described as follows and illustrated in Figure 3:

i. Physical separation. Paths, shared or exclusive-use, separated from the roadway.

ii. Visual separation. Line marked space on roads, bicycle lanes or shoulders.

iii. Mixed traffic. Riders share lane space on the road with motor vehicles and off-road with pedestrians. There are two categories of shared space:
   - Spacious profile shared space is where there is a consistently wide kerb lane to allow riders and drivers to comfortably share space according to the prevailing road speed (i.e. minimum kerbside traffic lane width of 3.7m within a 60km/h speed zone – refer to Table 4.2 of the Cycling Aspects of Austroads Guides, 2011 for further guidance).
   - Tight profile shared space can be used for bicycle routes in low-speed, low motorised traffic volume environments such as residential streets and laneways. In very low speed environments such as residential areas and on very narrow inner-city streets, where the aim is to keep all vehicle speeds low, it is preferable to restrict the lane width so that vehicles cannot pass riders and must follow each in turn (i.e. maximum traffic lane width of 3.2m).

Figure 3: Methods of Separation

Source: RTA 2003, p14
F.1.4 Types of Intersection Treatments

With the capacity of a traffic network in urban areas typically dictated by their intersections, bicycle facilities often terminate on approach to them, as additional traffic lanes or turning widths are provided to maximise their capacity and provide the major mode use (private motor vehicle) the highest level of service. However, as part of WITS and consistent with other socially inclusive strategies, it is proposed to integrate and promote more sustainable transport modes along specific corridors to provide the community with viable and attractive transport options.

In this regard, there are a number of intersection designs that are being to be used to accommodate bicycle facilities and still maintain a reasonable level of traffic capacity. Some of these intersection treatments most relevant to Wodonga are discussed as follows and are grouped under the below three intersection control types:

- Signalised Intersections
- Roundabout
- Priority Intersection.

F.1.5 Signalised Intersection

Signalised intersections are most appropriate where intersecting volumes are such that safety and/or delays are not able to be managed through other intersection types. With the use of bicycle only and turn-restriction phases, signalised intersections can provide cyclists with a reasonably high level of service, especially if the overall intersection cycle times can be keep relatively low (i.e. 60 seconds), and there are bicycle lanes or paths leading to the front of queued vehicles to head-start storage boxes.

In this regard, Figure.4 illustrates the different ways that on-road bicycle lanes and head-start boxes can be provided at signalised intersections.
Figure 4: Design Options for Signalised Intersections

Source: Figure 5.3 of Cycling Aspects of Austroads Guides (2011)
Roundabouts

While roundabouts provide traffic engineers with an intermediate treatment between signalised and priority controlled intersections, they are notoriously bad for safely accommodating cyclists, with 26% of all cyclists injuries occurring at roundabouts compared with 6% at signalised intersections.

There are a number of reasons for roundabouts being a barrier to cyclists, but the main one is that cyclists are not clearly advised where they should position themselves as they travel through a roundabout.

Currently, most on-road bicycle facilities stop short of roundabouts and cyclists try to travel on the outside of the circulating lane with vehicles travelling on their inside, which places them in a low visibility area, especially when motorists tend to be looking right when entering the roundabout, which is reflected in 50% of cyclist injuries at roundabouts occurring when they are in the circulating lane.

Also, vehicle speeds through some roundabouts can be quite high, creating a large differential in speed between cyclists and vehicles when they pass them in a confined area while undertaking a turning movement.

As such, if feasible, roundabouts should not be used along bicycle routes. Failing this, the following modifications to design elements should be considered to improve the level of safety for cyclists. However, it should be noted that even with the incorporation of the following design elements, roundabouts can still pose a high safety risk to cyclists than the other types of intersection.

On this basis, it is recommended that for circulating lanes within a roundabout that can accommodate (or through minor widening) a bicycle lane on the outside, this should be provided with green pavement markings, bicycle logos and raised delineation techniques (such as of vibra line, rumble strips, RRPM’s and/or riley kerbs). For reference refer to Figure.5.

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When there is insufficient width to accommodate a bicycle lane on the outside of the circulating lane, cyclists on approach to the roundabout should be directed to travel in the centre of the lane through a narrowed approach lane. For references on such a treatment refer to Figure 5.6, which notes the following in regard to the approach lane width:

“The width of the entry $W_E$ should cater for the design vehicle (e.g. service vehicle or fire truck). However, it is preferable that $W_E$ is less than 3.0m so that drivers do not attempt to enter the roundabout alongside cyclists and ‘squeeze’ them into the kerb.”
Furthermore, upgrades to roundabouts should give consideration to the European design for the approach lanes to roundabouts, which essentially makes them more perpendicular to the circulating lane. This approach helps to reduce vehicle speeds in and on approach to the roundabouts, which helps provide a more equitable speed environments for cyclists. For reference on such a treatment refer to Figure 7.
These above approaches to accommodating cyclists at roundabouts can be achieved for the existing roundabouts in Wodonga, at least on the lower volume / one-lane approaches, through the use kerb extensions, signage and sharrow markings, or similar, as done at the Canning Street / Pigdon Street roundabout in North Carlton shown in Figure 8.

To further lower vehicle speeds in and on approach to roundabouts, as well as accommodating pedestrian facilities, the use of raised threshold treatments with marked zebra crossings can be used, such as at the York Street / Cecil Street roundabout of in South Melbourne shown in Figure 9.
Priority controlled intersections can vary dramatically in the volumes of vehicles that they are accommodating, such as between two local roads to between a local road and an arterial road. Essentially, a give-way controlled intersection indicates that there is ability for vehicles on the intersecting road that has to give way can chose an appropriate gap in the priority movement traffic stream(s). However, this assumption has historically been made without bicycle lanes and paths generating additional traffic streams and potential points of conflict.

In response to this, there are different measures that can be taken to incorporate bicycle (and pedestrian) movements at a give way controlled intersection and not significantly impact the operation of the intersection.

Where there are on-road bicycle lanes on the intersecting roads, Figure 9 indicates the typical treatment in these situations. Where possible, the use of painted separation zones, as shown in Figure 10 on Clarendon Street in East Melbourne, should be used on either side of the bicycle lane to create an additional buffer to parked vehicles on the left and moving vehicles on the right. If the painted separation zone can only be provided on one-side of the on-road bicycle facility, then it should be on the parked vehicle side of the bicycle lane where there is high turnover of parking (i.e. along a retail shopping street), and on the moving vehicle side of the bicycle lane if parking turnover is low (i.e. along residential street).
When there are segregated bicycle (and pedestrian) facilities, crossing a road that is under Give Way control, there are the following two options:

- Straight Through facility
- Bend-In facility
- Shared Environment facility
- Bend-Out facility.

These options are discussed further below.

**Straight Through & Bend-In Facilities**

The ‘Straight Through’ facility is where the segregated facility crosses the intersecting road under give way control at or near the priority road kerbline. If there is kerbside car parking, then the crossing facility can ‘Bend-In’. Examples of the ‘Straight Through’ and ‘Bend-In’ facilities are provided in Figure.12 and Figure.13 respectively.

Generally crossing facilities are on a raised table across the intersecting road with standard speed table ramps on each approach to slow vehicles crossing the facilities. Where pedestrian movements are separated from bicycle movements, the raised table can have marked zebra crossings to support them.
The main limitation of the ‘Straight Through’ and ‘Bend-In’ facilities is ensuring that vehicles turning from the priority road into the intersecting road, across the bicycle (and pedestrian) facility, give way to users. This is not always clear to motorists that they should, even if it is required by the road rules (i.e. refer to Australian Road Rules 68, 71, 72 and 73) and reinforced through ‘Give Way’ signage on each approach to the ‘Straight Through’ and ‘Bend-In’ facilities. This is namely due to the current car orientated culture with have in Australia and inability to advise motorists before they turn across the facilities from the priority road.

**Shared Environment Facility**

An alternative approach to the Straight Through’ and ‘Bend-In’ facilities is the introduction of a shared environment that requires motorised vehicles to give way to all pedestrians and cyclists in this area, and creates an environment that is sufficiently contrasting to the typical road carriageways (i.e. use alternative pavement).
This approach is currently being trialled with the segregated two-way bicycle facilities along Bourke Street in Surrey Hills, NSW. Early results indicate the facility is successful and it is expected that it will be available for use in other locations in the near future. An illustration of the shared environment intersection treatment is provided in Figure.14.

**Figure.14: Shared Environment Crossing Facility**

![Image of shared environment crossing facility]

**Bend-Out Facility**

The ‘Bend Out’ facility across an intersecting road that is under give way control should be used where the traffic volumes accessing the intersecting road are still low, but can be higher than those where the ‘Shared Environment’, ‘Straight Through’ and ‘Bend-In’ facilities are used, and there is an ability to set-back the bicycle facility from the priority carriageway.

The setting back of the crossing location provides vehicles with an opportunity to access the priority roadway in two stages, as there is sufficient space (at least 6.0m) provided between the crossing and the priority road.

Give Way signage is usually sufficient in these instances to clearly indicate that vehicles on the road are required to give way to cyclists on the segregated bicycle facility as long as the raised speed table ramps are steep enough that they require vehicles to sufficiently slow down and the Give Way signage is repeated on the approach to the raised speed table and priority roadway.

Example of a ‘Bend Out’ facility is illustrated in Figure.15.
F.1.8 End-of-Trip Facilities

End of trip facilities include:

- Bicycle parking
- Showers and change rooms
- Lockers (for clothes and equipment)
- Bicycle sales, renting and repair shops.

Bicycle parking at key trip attractors and transport nodes is an essential requirement of an integrated transport system. It helps to indicate that cycling is a legitimate and desired form of transport and recreation. Without parking facilities at locations people travel to and from, they either don’t cycle or secure their bikes informally along footpaths and in back-rooms where they leave them open to theft, vandalism and in the way of others. Key aspects of high quality bicycle parking include:

- Security: to minimise the risk of theft. Best practice involves either attended bicycle parking or a lockable shelter with internal bicycle racks for secondary locking.
- Visibility: located in an area with a high volume of passing foot traffic, to deter theft.
- Shelter: to protect against rain.
• Convenient: positioned as close as possible to the trip attractor or transport node, or within a prominent area.
• Signage: to clearly identify the direction of bicycle parking facilities from areas where the parking facility is not visible.

Bicycle parking needs to cater for both the regular and infrequent users. Whilst there may be a small degree of cross over, regular users will generally prefer high security bicycle enclosures and infrequent users will generally have their needs met by casual bicycle parking located in highly visible, accessible and proximate to their destination. Short term users (parking for less than 4 hours) will usually be satisfied by casual parking as well.

In terms of the other end of trip bicycle facilities, these can have just as significant an impact on encouraging and helping to support and grow bicycle use, as well as other desired modes of transport and exercise, such as walking and running. They should be at least considered at every location that bicycle parking is provided, but will be dependent on the types of users, with long-term commuters requiring showers, change rooms and lockers, when short term users may only need lockers. Moreover, with both types of users, they can be further attracted through bicycle stores, be it sales, renting or repair of bikes, and bicycle friendly cafes and other commercial stores that target clientele that arrive in an informal manner. While end-of-trip commercial opportunities are likely to be realised as bicycle volumes increase, they can be fast-tracked through the supportive initiatives by Council.

There are a number of end-of-trip checklists that have been developed and should be used to assess existing and proposed facilities. Links to a selection of these are provided as follows:


With regards to the level of provision of bicycle parking spaces, the Planning Scheme does set current statutory levels of bicycle parking for new developments. For land uses that generate suitable user types, these levels of provision should be considered to be the minimum, and where possible, additional levels of provision should be provided, especially where a reduction in the statutory level of car parking is supported by Council, and/or in proximate locations, with good access to bicycle facilities. Furthermore, a review of the likely mode split the statutory bicycle parking rates support (typically 10% to 15%) and whether they align with the aspirational targets in the area.