Ordinary Meeting of Council

25 September 2019

UNDER SEPARATE COVER ATTACHMENTS

ITEM 9.12

Item 9.12 Integrated Transport Strategy

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Attachment 2 *Queanbeyan PAMP & Bike Plan - 20 June 2019 - Final Draft133*
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QUEANBEYAN-PALERANG REGIONAL COUNCIL

Council Meeting Attachment

25 SEPTEMBER 2019

ITEM 9.12 INTEGRATED TRANSPORT STRATEGY

ATTACHMENT 1 QPRC ITS FINAL 21 JUNE 2019 - FINAL DRAFT

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Queanbeyan-Palerang Regional Council
21-Jun-2019

Integrated Transport Strategy

Final Draft Report

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Revision 5 – 21-Jun-2019
Prepared for – Queanbeyan-Palerang Regional Council – ABN: 95 933 070 982

Integrated Transport Strategy

Final Draft Report

Client: Queanbeyan-Palerang Regional Council

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Reviewed by Brendan Hogan

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Executive Summary

This Integrated Transport Strategy (ITS) for Queanbeyan-Palerang Regional Council (QPRC) will guide future investment in the transport network in the region. The Strategy provides direction for transport; including the public transport, cycling and footpath networks and links, heavy vehicle management, future road planning and regional integration with the ACT and the broader NSW. It provides a description of proposed actions and broad priorities for future implementation. The Australian Capital Territory (ACT) is currently preparing the ACT Integrated Transport Strategy (ACT Government 2018).

An integrated approach between all levels of government is necessary to address transport and land use issues. In general terms, Council manage land use development and local roads, bicycle and pedestrian networks; they work with Roads and Marine Services (RMS) in recommending and implementing changes to State and Regional roads; they work with Transport NSW and local bus operators for changes to the public transport system; and they work with ACT Government for changes to cross-border transport links.

There have been three rounds of consultation on this project that have been considered in developing the Action Plan and Implementation Plan for transport infrastructure in QPRC, as follows:

1. Setting context and identifying issues, as part of Stage 1 consultation.
2. Developing a draft action plan, implementation plan and report for comment as part of Stage 2 consultation.
3. Developing a draft action plan, implementation plan and report for public exhibition and comment (Stage 3).

The action plan, implementation plan and report have now been finalised for Council endorsement, taking account of final comments in Stage 3.

Travel Behaviour

Travel to the ACT is integral to economic growth and prosperity for the region, as employment, education, health, the airport and higher order services are often located in Canberra. Integrated planning approaches and reciprocal investment decision making for shared corridors and key connecting infrastructure need to be enabled. Improved connectivity by bus between Queanbeyan and Canberra is a priority.

Private vehicles are the dominant form of travel, even for short trips. The location of Queanbeyan in relation to Canberra provides opportunities to transform the nature of transport in the region in the foreseeable future. A key to this is overcoming barriers to the integration of Queanbeyan and Canberra's public transport system.

Figure 1 shows mode use for the journey to work in the main QPRC towns. It shows that use of public transport is small (3% of trips or less). Local walking trips are reasonably high for Braidwood (15%) and small for Bungendore (3%) and Queanbeyan (3%). Cycling trips represent a very small portion of travel, accounting for 1% of trips or less. In 2016, over 62% of QPRC residents worked outside of the Council area. Of these, the vast majority of workers travel to ACT. The dominance of the ACT as an employment destination indicates Queanbeyan's function as a regional centre within the Canberra urban area and the need to better integrate the Canberra / Queanbeyan and region's transport system.

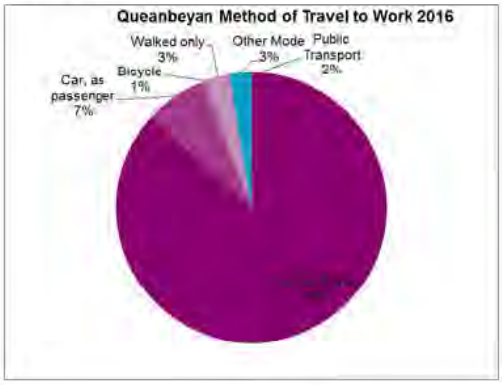
ITS Vision

The agreed vision for the ITS coming from the first round of consultation is:

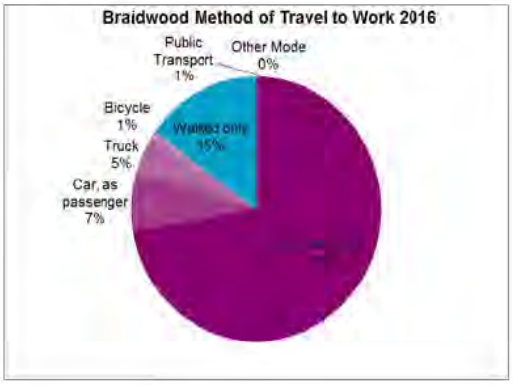
To build and maintain a safe, effective and environmentally sustainable transport system through: integrated transport and land-use planning, effective policy development and investment to support a connected community with affordable and convenient access to services, responding to emerging trends and making best use of new technology, promoting healthy communities through greater active transport choices, encouraging business development and regional prosperity and working together with neighbouring jurisdictions to form complementary plans and improved connectivity in the region.

Figure 1: 2016 Census journey to work mode use in main QPRC towns

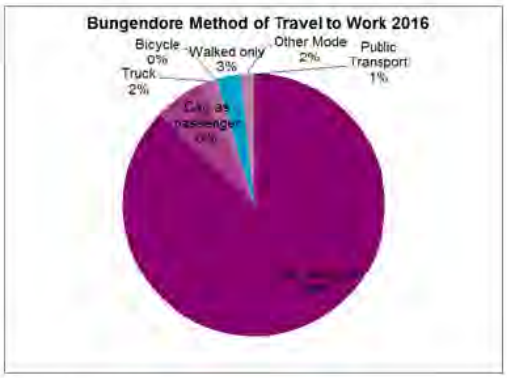
Queanbeyan



Braidwood



Bungendore



NSW Bureau of Transport Statistics (May, 2017)

Public transport, cycling and walking are traditionally understood as the key components of a sustainable transport network. However, modern sustainable transport planning extends well beyond accommodating these three modes and needs to encompass wider policy approaches that will reduce both the need to travel by car, and the desire to travel by car.

ITS Goals

The agreed goals for the ITS coming from the first round of consultation are:

Social and economic inclusion: Align the accessibility of transport to the needs of the community and the economy, developing better connected communities through improved travel links that are fast, convenient, safe and secure, and more travel choice for residents and visitors. Provide a range of options to meet transport needs including the provision of infrastructure and non-infrastructure solutions and improved services. Inform the community using a range of communication media of the various transport options available to them. Reduce obstacles to the accessibility for disadvantaged groups, through a strategy to improve infrastructure (physical access) and innovative methods to address access.

Safety, health and wellbeing: Design, construct and maintain transport infrastructure to meet acceptable standards to maximise the safety and security of all users of the transport system. Provide a range of options to meet community needs for health and wellbeing, focussed on the needs of the elderly and teenagers. Make QPRC a cycling friendly region with infrastructure such as separated lanes and road management improvements.

Economic prosperity: Encourage more efficient and lower impact freight and delivery for suppliers and businesses, through application of land use and planning instruments and close collaboration with government agencies and commercial interests. Promote and support government and private investment in road and rail infrastructure to ensure goods can be moved efficiently around the region while minimising adverse impacts on communities and the environment.

Environmental sustainability: Minimise the impact of transport on the environment by supporting growth in public transport, walking and cycling for trips in the region, as well as protecting habitat, biodiversity and landscape values. Create and promote effective policies and investments to support sustainable transport choices, encourage travel behaviour change, respond to emerging trends and to make best use of new technology, re-designing road space allocation, reducing greenhouse gas emissions from transport and containing the provision of off-street parking.

Integration: Progressively develop the transport system in collaboration with Government agencies and commercial interests, to achieve a seamless and connected network through planning and collaboration between a range of government and private providers. Promote and facilitate the integration of the public transport system through integrated transport and land-use policy development and working together with commercial interests and neighbouring jurisdictions to form a unified plan.

Efficiency, coordination and reliability: Support efficient and reliable door-to-door movement of people and goods in the region by progressively upgrading the mobility and carrying capacity of roads by prioritising access to public transport, walking and cycling. Promote innovative transport solutions will be used to improve travel reliability and connectivity by alternative modes.

Strategic Responses

Strategic responses or broad actions have been developed from issues raised in the first round of consultation for each of the key elements of the transport network in QPRC – roads, freight, parking, public transport, land use and active travel. These are summarised in Table 1 to Table 5.

Table 1: Road network main issues and strategic responses

Main issues of concern	Proposed strategic response
• Amount of traffic on Monaro Street in CBD • Reduced access when Queanbeyan River floods • Cross-border road capacity and traffic congestion in peaks • Limited access to Googong • Traffic congestion, access and safety on the main streets of Braidwood and Bungendore • Safety blackspots on regional roads and State highways • Traffic congestion and safety at intersections generally, but especially at the intersections of Lanyon Drive / Tompsitt Drive and Barracks Flat Drive / Cooma Street • Access to the coast via Nerriga Road (for tourism, freight and recreation) • Council is only doing the transport strategy to push the Ellerton Drive Extension agenda	1. Construct Ellerton Drive Extension across Queanbeyan River to provide all weather access and an alternative route for traffic to the Monaro Street CBD route (happening) (refer Queanbeyan CBD Transformation Masterplan) 2. Conduct a study to investigate options for improving the amenity and pedestrian movement in Queanbeyan CBD 3. Support the ACT in the duplication of Pialligo Avenue (study being conducted) 4. Ensure the alignment adopted by QPRC for the proposed Dunn's Creek Road is preserved, together with a link to Monaro Highway in ACT 5. Duplicate Old Cooma Road from Googong to Ellerton Drive extension (happening) 6. Support a master plan for upgrading the main streets of Braidwood and Bungendore (happening in Braidwood) 7. Lanyon Drive / Tompsitt Drive roundabout be replaced by signals (happening) 8. Continue to review need for intersection improvements 9. A Kings Highway route strategy is being developed by RMS 10. Upgrade Nerriga Road (happening) 11. Continue to review blackspot crash locations and seek blackspot funding 12. In consultation with RMS, continue to update Council traffic studies and recommendations as new data becomes available including any increase in public transport usage (happening)

Main issues of concern	Proposed strategic response
• Maintenance of gravel roads	13. Develop program for maintenance of Council roads 14. Develop plan to assist access for future red rapid service extension along Canberra Avenue to Queanbeyan

Table 2: Freight main issues and strategic responses

Main issues of concern	Proposed strategic response
• Truck access to coast via Nerriga Road • Too many trucks on Monaro Street in Queanbeyan CBD • Trucks through Braidwood and Bungendore • Safety at bridge and blackspot locations • Through traffic (trucks) to/from Canberra	1. Upgrade Nerriga Road (happening) 2. Develop options to reduce trucks using Monaro Street 3. Establish corridors for future bypasses of Braidwood and Bungendore 4. Develop a program to upgrade safety blackspots on regional road network 5. Facilitate upgrade of the standard of the State highway network 6. Develop a strategy to manage truck movements through Queanbeyan 7. Integrate freight movements in ACT and NSW heavy vehicle route plans

Table 3: Active travel main issues and strategic responses

Main issues of concern	Proposed strategic response
• Widths and quality of path surfaces • Missing links or kerb ramps • Accessible paths in Queanbeyan CBD, Braidwood, Bungendore and Captains Flat townships • Few on-road cycle lanes on urban roads and many narrow and poorly maintained shoulders on regional roads • Lack of end of trip facilities, especially at bus interchange and rail stations • Poor integration with public transport • Cross-border integration • Yass Road rail bridge • Lack of family / recreation links • Poor mapping and information on existing paths • Limited cycle network and facilities	1. Identify a connected and accessible path hierarchy and way finding strategy for active travel 2. Support increased provision of end of trip facilities, especially at bus interchange and rail stations 3. Prioritise people and pedestrian movement within Queanbeyan CBD, building on the current CBD masterplan work 4. Introduce lower speed limits in high pedestrian activity areas such as Queanbeyan CBD 5. Implement a program to promote active transport use and facilitate community participation 6. Implement improved cross-border linkages for active travel 7. Improve amenity and pedestrian facilities in Queanbeyan CBD and the townships of Braidwood, Bungendore and Captains Flat (happening) 8. Construct on-road cycling and off road shared path facilities along Ellerton Drive Extension to improve connectivity across Queanbeyan River and local neighbourhoods (happening) 9. Construct on-road cycling and off road shared path facilities along Old Cooma Road to improve connectivity between Googong and Queanbeyan (happening)

Table 4: Public transport main issues and strategic responses

Main issues of concern	Proposed strategic response
• Integration between the ACT and NSW (buses, routes, fares, information) • Integration between rail and bus (buses, services, information) • Lack of services to isolated communities (e.g. for health needs) or new urban areas (e.g. Googong) • Affordability of bus services bus services • Frequency and reliability of services • Lack of real time information on transport options • Future rail connections and services in the region • Integration of various community and point to point transport services with public transport • Rail stations need to be upgraded • Lack of bus shelters • Lack of services to Braidwood and Bungendore	1. Resolve barriers to extend ACTION Red Rapid service to Queanbeyan interchange, including planning for future bus priority (being examined by ACT/NSW Governments) 2. Resolve barriers to integrate ACT and Queanbeyan fare structure and subsidies (being examined by Transport for NSW) 3. Investigate new bus services and park and ride facilities to service Googong and Jerrabomberra directly into the ACT 4. Review public transport connections to regional train stations 5. Inform community of existing public transport services (e.g. many residents don't realise that they can use the many school bus services that run throughout the region) (happening, Transport for NSW) 6. Seek to implement a real time information system for public transport (already in ACT) 7. Integration of community and point to point transport services into the public transport network (happening, Transport for NSW) 8. Develop a strategy for bus and coach passenger shelters for region 9. Develop a strategy for integrated bus routes between ACT and NSW 10. Seek to implement a commuter rail strategy for travel between Bungendore and Kingston (ACT), with consideration of a potential new rail station at the Australian Headquarters Joint Operations Command (HQJOC)

Table 5: Parking main issues and strategic responses

Main issues of concern	Proposed strategic response
• No parking information or plan for Queanbeyan CBD • Parking requirements for new development does not encourage use of non-car modes	1. Review parking supply and demand and restrictions in Queanbeyan CBD and surrounds, as well as other key centres in Queanbeyan, Braidwood and Bungendore in line with the CBD Parking Plan 2. Review potential changes to Council's parking code requirements for new development, so as to encourage the use of alternative modes 3. Identify surface car parks in Queanbeyan CBD for future multi-use development 4. Examine new smart city technology to improve parking access and efficiency in Queanbeyan CBD (currently being investigated as part of CBD Parking Plan and Smart City Project)

Table 6: Land-use main issues and strategic responses

Main issues of concern	Proposed strategic response
• Land-use planning has resulted in dispersed development • Land-use plan does not encourage public transport use	1. Land-use planning to support improved public transport 2. Identify corridors for increased development densities 3. Promote increased densities and mixed-use development in vicinity of Queanbeyan CBD and major existing and future commercial centres, including Googong, Braidwood and Bungendore Centres

Forming the ITS

In forming an ITS there are four broad areas of transport system planning and development that need to be addressed:

- Transport network improvements for all modes of travel
- Creating a vibrant and safe CBD
- Partnership with ACT and NSW governments
- Community and stakeholder engagement

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 commercial areas, key employment areas and the wider region.

This is the focus of the ITS and most of the recommendations included in the implementation plan. The form and priority for infrastructure improvements are summarised in maps in Appendix A.

Creating a Vibrant and Safe CBD

The primary focus of this principle is Queanbeyan CBD, but it could equally apply to Bungendore and Braidwood CBD's, as they evolve in future. Queanbeyan is the current focus as it is the largest commercial centre in QPRC.

The renewal of the CBD 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 is referred to in the CBD Masterplan (Hames Sharley) and requires the following key interventions:

- Pedestrian based environment. Within the CBD, pedestrians should have absolute priority for movement along and across streets.
- Links between CBD attractors. All major land uses within the CBD should be effectively linked by high amenity, high priority pedestrian links. 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.
- Improvements to the bus network so that it provides a higher frequency, legible service for residents to access the CBD throughout the day, evenings and weekends, including the aspects of accessibility and effective integration with land use attractors in the CBD.
- 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.
- End of trip facilities for bicycles (both recreational and commuter) will provide the right conditions to promote cycling as an attractive form of transport.
- Ensure that existing and future ring roads operate to minimise through traffic in the CBD (maximise 'place' function of CBD transport network).

Partnership with ACT and NSW Governments

A large proportion of travel to work and freight travel involves cross-border movement into and out of ACT. The ACT Government holds responsibility for the planning, implementation and operation of the ACT public transport and arterial road networks, whilst the NSW Government is responsible public transport and arterial road networks in QPRC.

The development of a strong partnership with ACT and NSW Governments is fundamental to the development of an integrated transport system that provides real travel choice across the region, especially improving the public transport network can only be achieved through working in close partnership with the ACT and NSW Governments.

A detailed list of non-infrastructure related actions for QPRC to help develop internal policy and to advocate for actions by ACT and NSW Governments is included in Section 6.0.

Community and Stakeholder Engagement

Ongoing and continued engagement with the community and business is critical to the successful implementation of the ITS, and to ensure that the solutions proposed are relevant and targeted to meet the needs of users. Prioritisation of projects and identification of issues should be undertaken in collaboration with the community, transport industry and other affected stakeholders.

Monitoring and Review Plan

Monitoring the success of the overall ITS is critical to achieving ongoing funding support from Council and the NSW Government, and community feedback. The following actions are proposed to help ensure that progress against the objectives of the ITS is tracked:

- *ITS review:* Ongoing review of the ITS is important to ensure that it accurately reflects the latest population and development data for QPRC, and adjustments are made as necessary to ensure it remains relevant.
- *Project delivery and coordination:* Ongoing monitoring of the delivery of ITS 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 travel demand, behaviour and assessment of how and when ITS objectives will be achieved is critical to understand the impact and relevance of the ITS, and make changes or adjustments as necessary. Monitoring changes in cross-border traffic volumes in bus passenger numbers will be an important element of this.
- *Opportunities for funding:* Ongoing partnership with the ACT, NSW and Federal Government is required to identify funding opportunities and maximise the ability to present business cases for investment. At the same time, new developments within QPRC are likely to provide opportunities to deliver projects as negotiated outcomes through the planning process.

In addition to these actions, the following opportunities 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 ACT Government and the Department of Transport to progress the ‘advocacy’ actions contained within the ITS.
- Continue to monitor development approvals and activity, to capitalise on any opportunities that may arise through private sector development.
- Provide additional smart hub facilities for staff/personnel to utilise as a joint trial with the ACT and Federal Government Departments.
- Nominate bypasses for both Braidwood and Bungendore to be included within the structure plans. The location of industrial lands should be considered when investigating a bypass location.

1.0 Introduction

1.1 Purpose

This Integrated Transport Strategy (ITS) for Queanbeyan-Palerang Regional Council (QPRC) will guide future investment in the transport network in the region. It recognises that a range of viable transport options are needed, and focuses on enabling the transport system to provide genuine choice for residents, so that people in QPRC can access a full range of employment, services and recreation without needing to own a private car.

The Strategy provides direction for transport; including the public transport, cycling and footpath networks and links, heavy vehicle management, future road planning and regional integration with the ACT and the broader NSW. The development of the Strategy includes the review and update of the Pedestrian and Mobility Plan (PAMP) and Bicycle Plan to include the whole Queanbeyan-Palerang region.

1.2 Background

QPRC, with Queanbeyan City as its major population centre, sits close to the ACT border with New South Wales (NSW). Two-thirds of employees living in Queanbeyan commute to the ACT for work. As such, its population patterns have more in common with those of the ACT than they do with other areas in regional NSW.

Private vehicles are the dominant form of travel, even for short trips. The location of Queanbeyan in relation to Canberra provides opportunities to transform the nature of transport in the region in the foreseeable future. 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. A key to this is overcoming barriers to the integration of Queanbeyan and Canberra's public transport system.

There have been three rounds of consultation on this project that have been considered in developing the Action Plan and Implementation Plan for bicycle and pedestrian facilities in Queanbeyan, as follows:

1. Setting context and identifying issues, as part of Stage 1 consultation.
2. Developing a draft action plan, implementation plan and report for comment as part of Stage 2 consultation.
3. Developing a draft action plan, implementation plan and report for public exhibition and comment (Stage 3).

1.3 Purpose and Structure of this Report

This report provides a description of proposed actions and broad priorities for the implementation of an ITS for QPRC. It builds on previous work summarised in previous reports on this project, including:

- Context Report (AECOM 2017a) – provides background information relating to existing transport infrastructure, conditions, policies and issues in QPRC and region.
- Bicycle and Pedestrian Facility Plans for Queanbeyan, Bungendore and Braidwood (AECOM 2019 b, c, d) – provides detailed action plans in each of these major QPRC centres.
- Community consultation reports for Stage 1 (issues) and Stage 2 consultation (actions) (AECOM 2017a, 2018a).

In addition, it builds on information from previous technical reports assessing options for transport improvements in QPRC – refer Section 8.0.

The ITS provides recommendations for all transport modes and networks in the municipality, with a particular focus on Queanbeyan, Bungendore and Braidwood. The recommendations have been developed using a four-step approach to providing an inclusive and integrated transport network:

1. Broad vision, goals and general principles for the QPRC transport network are described in Section 3.0.
2. Strategic responses to key issues raised during the initial consultation for this project, described in Section 4.0 of this report.
3. Network gaps and needs and actions to address these, detailed in Section 5.0.
4. Projects priorities for addressing transport network needs, detailed in Section 6.0 of this report, including specific projects or actions.

Finally, a series of performance indicators are presented in Section 7.0 as a basis for tracking the success of the strategy, including mode share targets.

Prior to this an outline of existing conditions is provided in Section 2.0. This is based on extracts from the Context Report for this project (AECOM 2017b) and includes an outline of the project's consultation processes and outcomes.

More details of actions and priorities for the pedestrian and bicycle networks are given in the following associated reports for this project:

- Queanbeyan Bicycle and Pedestrian Facilities Plan (AECOM 2019b)
- Bungendore Bicycle and Pedestrian Facilities Plan (AECOM 2019c)
- Braidwood Bicycle and Pedestrian Facilities Plan (AECOM 2019d).

1.4 Context

In addition to the reports produced as part of this project, this report complements a number of policies and strategies that are either existing or under preparation, including:

- Draft Future Transport Strategy 2056 (NSW Government 2017)
- Queanbeyan Community Strategic Plan 2013-23 (Queanbeyan City Council 2012a)
- Queanbeyan Tomorrow Community Vision 2021 (Queanbeyan City Council 2013a)
- Queanbeyan CBD Transformation Strategy (QPRC 2017c)
- Queanbeyan CBD Master Plan (Place Design Group 2009)
- ACT/QPRC Memorandum of Understanding
- Queanbeyan CBD Parking Plan
- Queanbeyan Residential and Economic Strategy 2031 (NSW Department of Planning 2007)
- South Jerrabomberra Structure Plan (Queanbeyan City Council 2013b)
- QPRC Disability Inclusion Action Plan 2017-2021 (QPRC 2017a)
- QPRC Rural Lands Strategy 2016 – 2036 (QPRC 2016b)
- Bungendore Land Use and Structure Plan (Walsh Consulting 2009)

It 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 region.

1.5 Council's Role

Councils in NSW 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 NSW Department of Transport and NSW Department of Planning and Environment. Roads and Maritime Services (RMS) are also an important organisation within the Department of Transport. Council has to work closely with the NSW Government in the provision of an appropriate level of transport and access to employment and services, particularly in relation to the provision of major infrastructure such as arterial roads and public transport services. An integrated approach between all levels of government is necessary to address transport and land use issues.

Most of the actions for arterial roads and public transport cannot be implemented by QPRC, but by other Government authorities (Transport NSW, RMS); QPRC can work with these authorities to help implement these changes and can only advocate for such changes.

2.0 Existing Conditions

2.1 Population and Employment

2.1.1 QPRC region

QPRC, with Queanbeyan City as its major population centre, sits close to the ACT border with New South Wales (NSW). Two-thirds of employees living in Queanbeyan commute to the ACT for work. As such, its population patterns have more in common with those of the ACT than they do with other areas in regional NSW.

Bungendore supports the local region and is also a dormitory suburb for Canberra and also to some degree, the nearby Headquarters Joint Operations Command (Australia).

Braidwood also supports the local region. There are other smaller villages in the region.

The QPRC population forecast for 2018 is 59,499 and is forecast to grow to 78,756 by 2036 (QPRC website, June 2018).

The National Institute of Economic and Industry Research estimated that QPRC had 32,543 employed residents in 2016, but only 16,840 local jobs. This means that a large proportion of residents seek employment outside of QPRC; in particular, in Canberra.

2.1.2 Queanbeyan

Queanbeyan currently has a population of approximately 41,000 and expects to accommodate at least another 10,000 to 15,000 in Queanbeyan by 2031 with further growth occurring in the centres of Bungendore and Braidwood expected to add an additional 1,000 residents.

The number of households is expected to grow by 8,000 in Queanbeyan over the next 15 years. More than half of this growth will be in Googong.

Much of the jobs growth in Queanbeyan is expected to occur in Googong or in the corridor between Hume and Jerrabomberra.

While 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 Queanbeyan CBD. While the ITS does not seek to provide broad based land use recommendations for future growth, it is clear that infill development closer to the CBD 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 the ITS. All future development should provide viable walking, cycling and public transport options for users from the beginning of the development, rather than being retrofitted at a later date when travel behaviour has already been established.

2.1.3 Areas outside of Queanbeyan

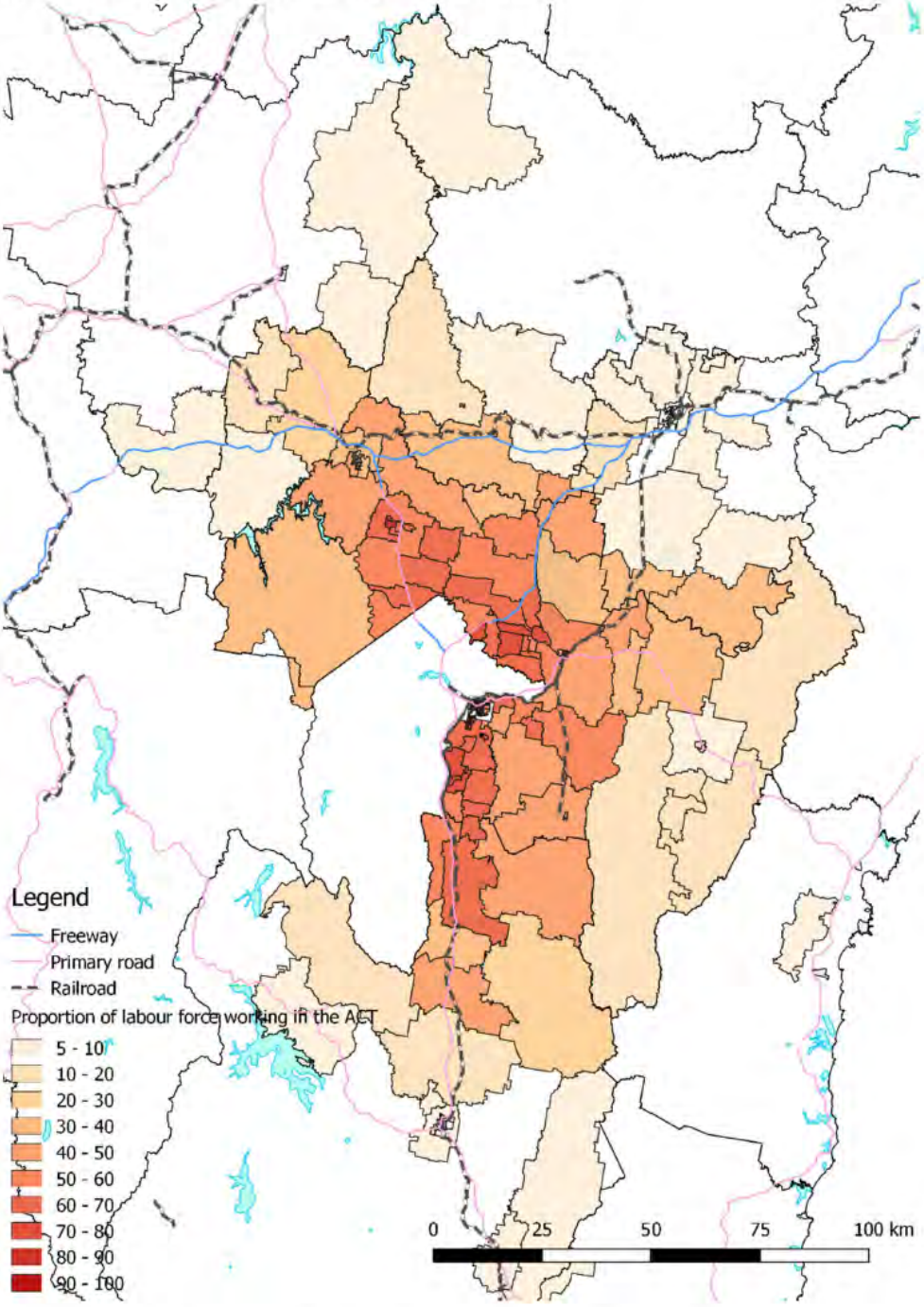
There has also been significant demand for rural residential land outside of Queanbeyan, to the south of Googong and to the east around Bungendore. Growth rates outside of the Queanbeyan urban area are expected to lie between 1.9% and 2.0% per annum for the 10 years to 2021. After 2021 growth rates are expected to fall slightly to about 1.3% per annum.

The projected population numbers show that as the population grows, the percentage of residents of working age (15 to 64 years old) will decline from 68.5%, to around 61.8% by 2031. Local employers will find it increasingly difficult to find workers locally as the available workforce will grow more slowly than the population overall.

2.2 Travel Patterns

There is significant movement west into ACT from surrounding towns in QPRC. In the 2016 Census, 24% (25,029) of the Capital Region's labour force work within the ACT. The largest proportion of these are located within close proximity to the ACT / NSW border, primarily along major road with direct access to Canberra (see Figure 2).

Figure 2: Labour force living in Capital Region and working in the ACT



Australian Bureau of Statistics, 2016, Census journey to work SA1, prepared by Elton Consulting

There is also significant movement of school student transport from NSW into ACT. There is negligible movement to the east (coast) or south (Snowy Mountains) from QPRC and a small amount of movement north to Goulburn.

Travel to the ACT is integral to economic growth and prosperity for the region, as employment, education, health, the airport and higher order services are often located in Canberra. Integrated planning approaches and reciprocal investment decision making for shared corridors and key connecting infrastructure need to be enabled. Improved connectivity by bus between Queanbeyan and Canberra is a priority.

NSW residents also access health and education services in the ACT, accounting for 7% of all school enrolments (ACT Government, September 2015) and 20% of all public hospital admissions (NSW Health, June 2013).

The vast majority of those working in the ACT commute from the QPRC region. This is illustrated in Figure 3.

Figure 3: Commuters to the ACT by age group and region of origin 2016

Australian Bureau of Statistics, 2016, Census journey to work

At least 65.2% of QPRC residents work outside of the QPRC region (see Table 7); most of these working in Canberra. The dominance of the ACT as an employment destination indicates Queanbeyan's function as a regional centre within the Canberra urban area.

Table 7: Destination location of QPRC resident workers in 2016

Work Location of QPRC Resident Workers	QPRC Residents	
	Number	%
QPRC area	9,033	30.8
ACT	18,481	63.0
Not within the QRPC or ACT	644	2.2
No fixed address	1,181	4.0
Total employed residents	**29,339**	**100**

Source: 2016 ABS Census

There are also a substantial number of people that travel to work in QPRC from areas outside of QPRC. An analysis of ABS 2016 Census data indicated that about 32% of QPRC workers live in ACT. In total, about 38.4% of QPRC workers live outside the region (Table 8). Of these, the vast majority of workers live in ACT (about 84.1%).

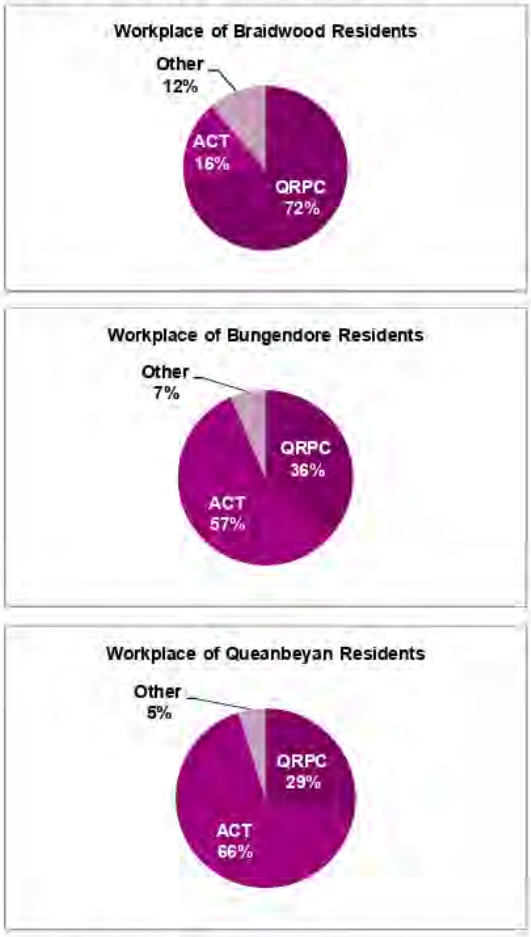
Table 8: Origin location of QPRC jobs in 2016

Status	QPRC Residents	
	Number	%
QRPC jobs for workers from the ACT	4,745	32.3
QRPC jobs for workers not from the ACT or QRPC	895	6.1
QPRC jobs for QPRC workers	9,033	61.6
Total jobs in QRPC	**14,673**	**100**

Source: 2016 ABS Census

A indication of the importance of ACT jobs to residents living in key QPRC towns is illustrated in Figure 4. This shows that both Queanbeyan and Bungendore have over 50% of their workers working within the ACT. Only 16% of Braidwood residents travel to work in ACT.

Figure 4: Workplace of QPRC residents by town 2016



Source: 2016 ABS Census

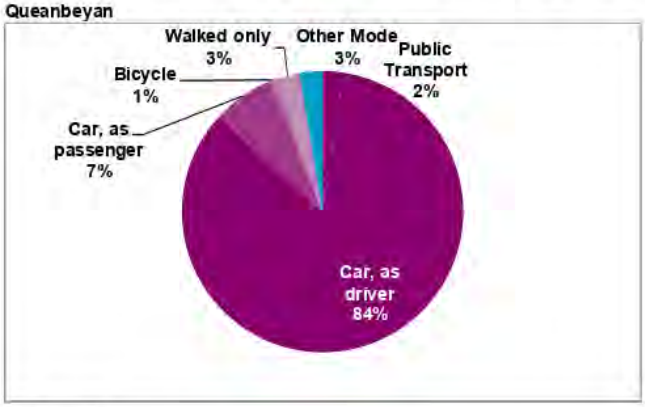
2.3 Mode Use and Car Ownership

2.3.1 Mode use

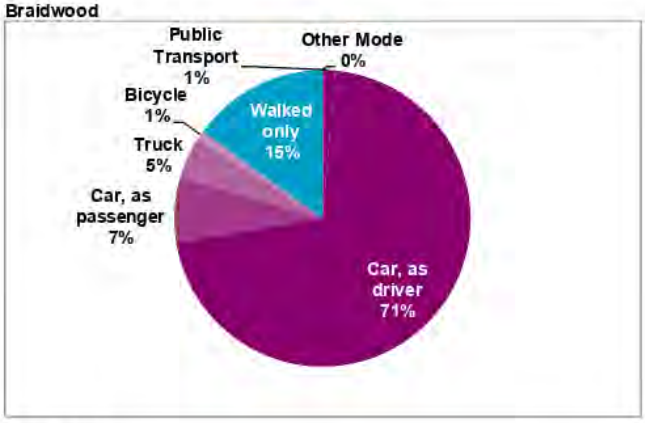
Figure 5 shows mode use for the journey to work in the main QPRC towns. It shows that use of public transport is negligible (1% of trips or less).

Figure 5: 2016 Census journey to work mode use in main QPRC towns

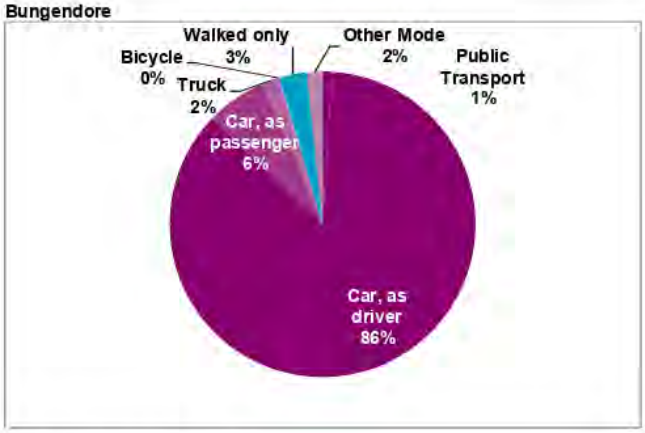
Queanbeyan



Braidwood



Bungendore



ABS 2016 Census (May, 2018)

In 2016, there were 427 people who caught public transport to work (train, bus) in the QPRC area, compared with 17,588 who drove in private vehicles (car – as driver, car – as passenger, motorbike, or truck). Only 135 (0.7%) travelled to work by bicycle and 597 (3.2%) walked to work.

Analysis of the method of travel to work of the residents in the QPRC area in 2016, compared to Regional NSW, shows that 2.2% used public transport, while 93.8% used a private vehicle, compared with 1.8% and 73.4% respectively in Regional NSW.

Local walking trips are reasonably high for Braidwood and moderate for Bungendore. This represents the smaller catchment areas and proximity of living to places of employment. Cycling is included in other mode and represents a very small portion of travel. Localised bus travel is very low within Queanbeyan.

2.3.2 Car ownership

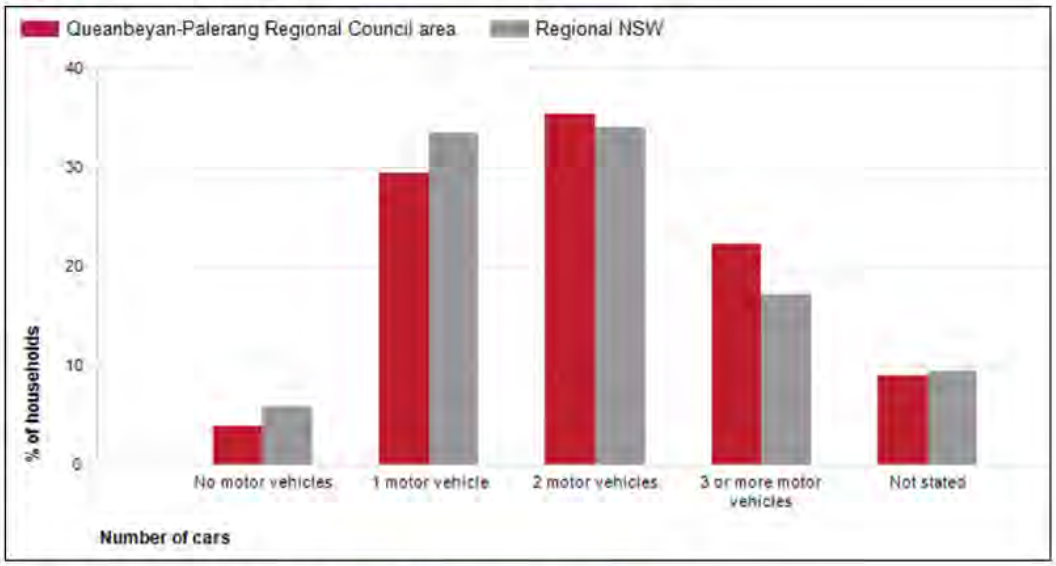
The ability of the population to access services and employment is strongly influenced by access to transport. The number of motor vehicles per household in the QPRC area quantifies access to private transport. Analysis of car ownership in 2016, indicates that at least 58% of households in the QPRC area had access to two or more motor vehicles, compared to 51% in Regional NSW (see Table 9 and Figure 6).

Table 9: Car ownership in QPRC

Number of cars	Number	%	Regional NSW %
No motor vehicles	843	3.9	5.8
1 motor vehicle	6,332	29.4	33.4
2 motor vehicles	7,615	35.4	34.0
3 or more motor vehicles	4,796	22.3	17.2
Not stated	1,947	9.0	9.5
Total households	**21,533**	**100.0**	**100.0**

Source: Australian Bureau of Statistics, Census of Population and Housing 2016

Figure 6: Car ownership in QPRC



Source: Australian Bureau of Statistics, Census of Population and Housing 2016

Analysis of the car ownership of the households in the QPRC area in 2016 compared to Regional NSW shows that at least 87.0% of the households owned at least one car, while 3.9% did not, compared with 84.7% and 5.8% respectively in Regional NSW. Of those that owned at least one vehicle, there was a smaller proportion who owned just one car; a larger proportion who owned two cars; and a larger proportion who owned three cars or more. Overall, 29.4% of the households owned one car; 35.4% owned two cars; and 22.3% owned three cars or more, compared with 33.4%; 34.0% and 17.2% respectively for Regional NSW.

2.4 Roads and Freight

2.4.1 Road network

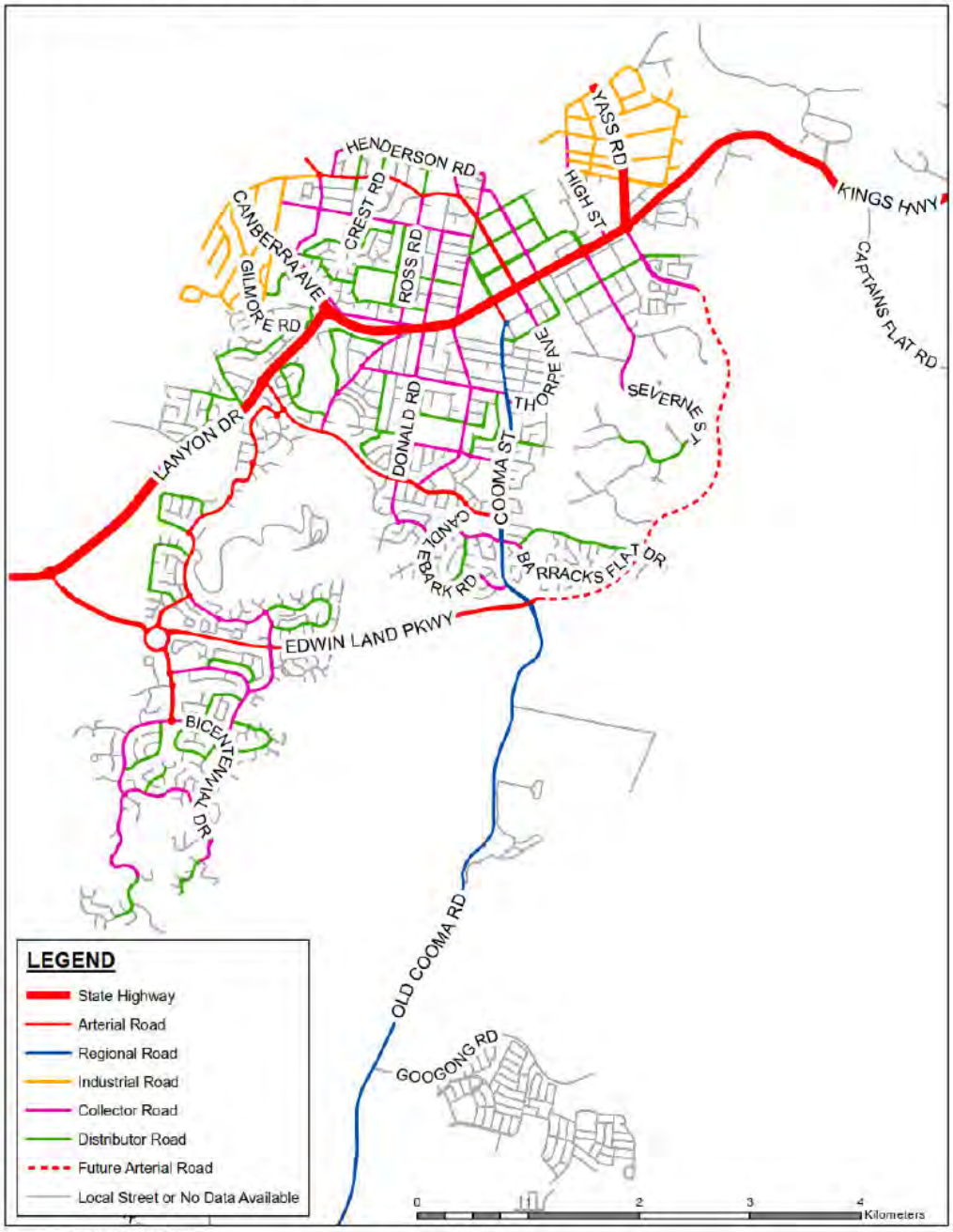
The regional/arterial road system that connects Queanbeyan to Canberra, Goulburn, Batemans Bay and Cooma is shown in Figure 7.

Figure 7: Regional road map

Source: Transport NSW (2014)

The road hierarchy in Queanbeyan is shown in Figure 8. The State Highways provide the major regional connections to the surrounding areas of ACT and NSW – these are managed and funded by RMS, but maintained by Council from funds provided by RMS. Any changes to the roads on State Highways need to be approved by RMS. Other roads are managed and maintained by Council, but Council may obtain grants for improvements to these roads (especially regional roads).

Figure 8: Queanbeyan road hierarchy



Source: AECOM (2017a)

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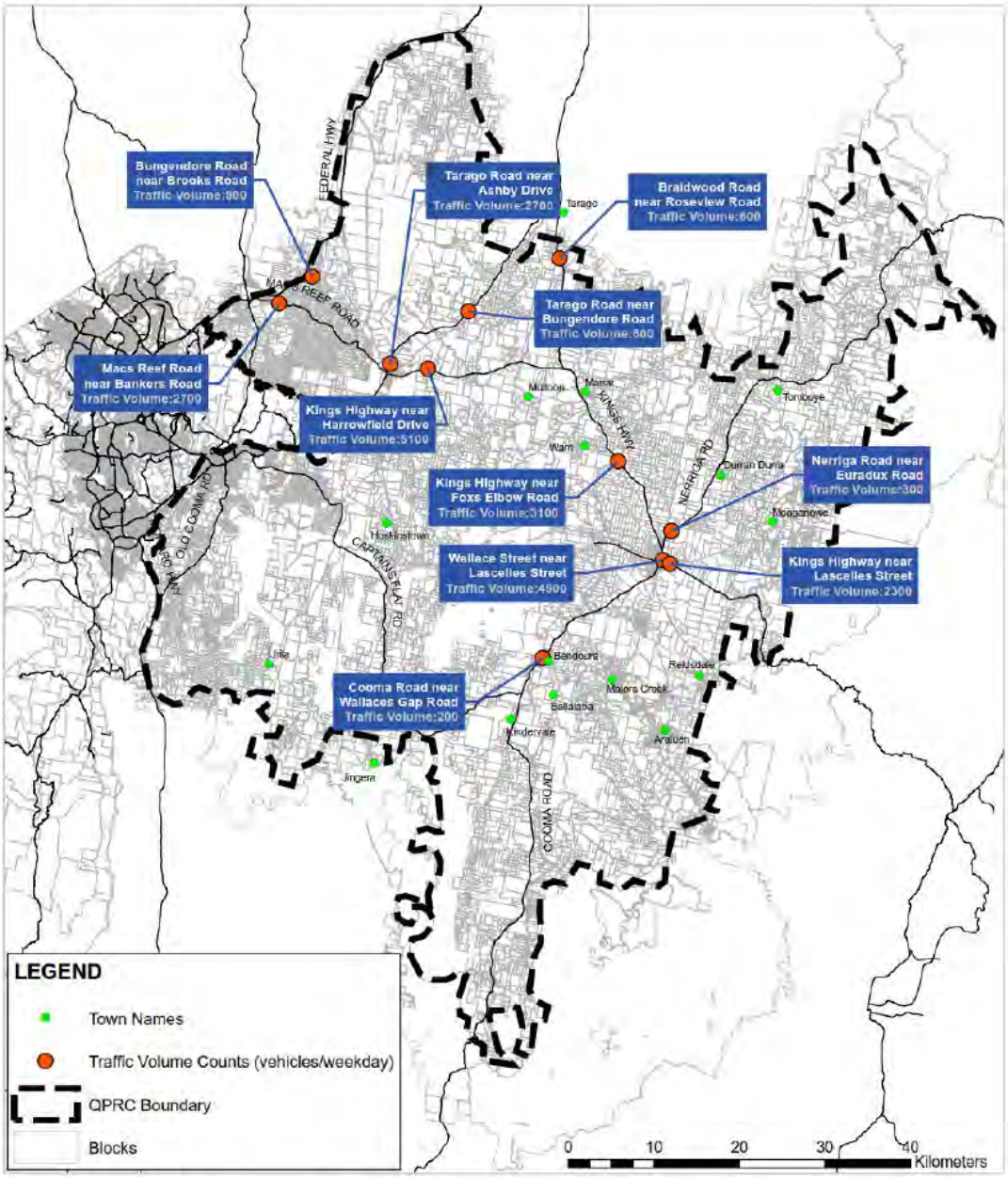
Roads have a variety of roles and functions and have a wide range of users. Often, conflicts arise when trying to ensure that the needs of all road users are met. Road hierarchies can assist in defining the function of the road and in balancing the needs of various road users and allocating priorities.

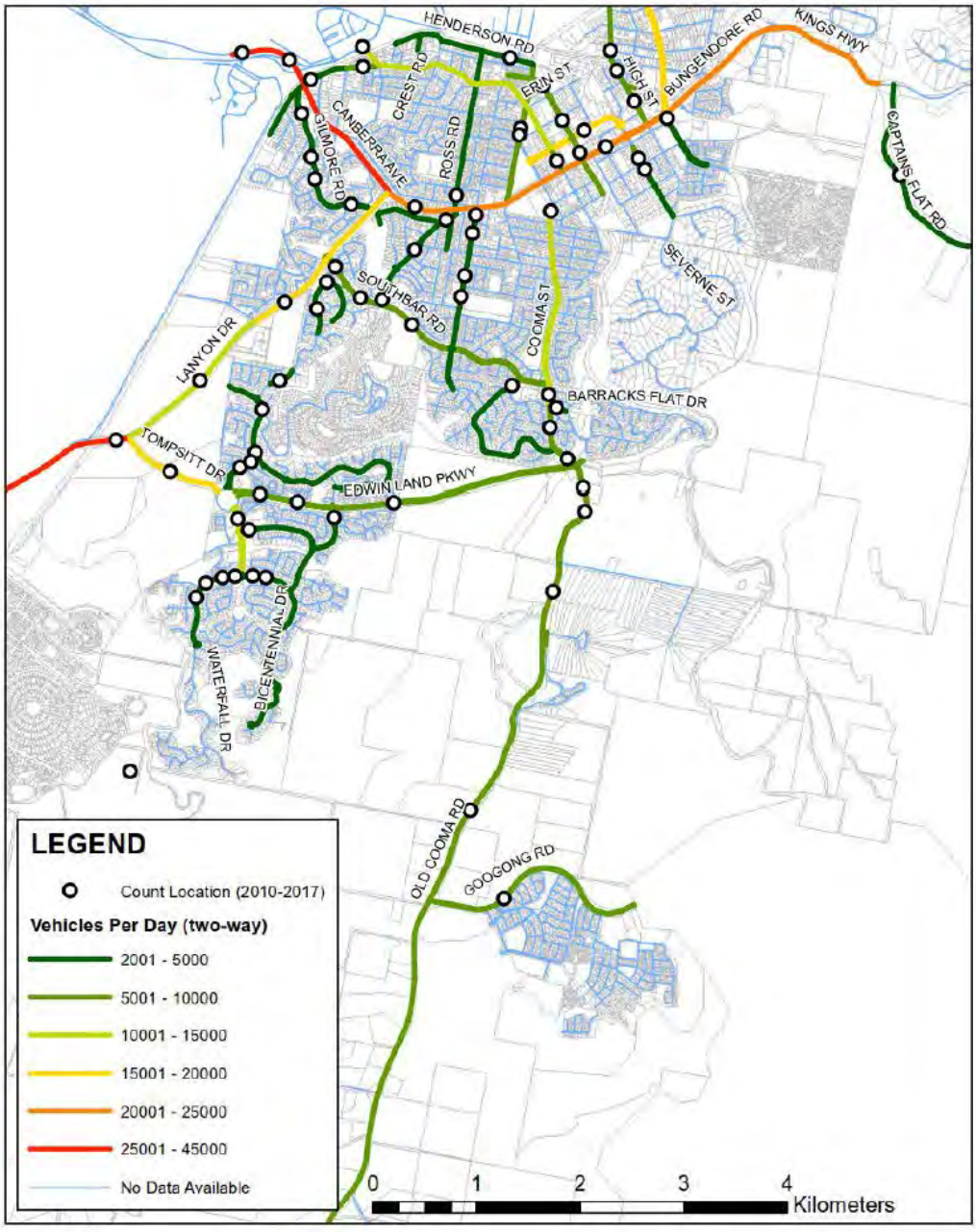
Recent traffic counts in vehicles per day for the QPRC region are shown in Figure 9 and in Queanbeyan in Figure 10. There is increased demand and congestion in the strategic road network during peak seasonal demands and holiday periods (e.g., Kings Highway, Monaro Highway).

Figure 9: QPRC daily traffic volumes



Source: RMS and QPRC data bases (May 2017)

Figure 10: Queanbeyan daily traffic volumes



Source: QPRC data base (May 2017)

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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.

Queanbeyan CBD 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 Crawford Street has provided an attractive, permeable and generally pedestrian friendly environment. The road network provides a number of possible bypass routes around the CBD. This means that there are real opportunities to improve the 'place' function of the CBD and reduce through trips.

2.4.2 Crashes

A summary of crashes by severity for each major locality is shown in Table 10. A large number of fatality and injury crashes occur on rural roads, outside of towns, many on Kings Highway.

Table 10: Crash severity by locality

	Fatal	Injury	Non-casualty (tow away)	Total
Queanbeyan	2	157	145	**304**
Bungendore	1	46	52	**99**
Braidwood	1	27	30	**58**
Other QPRC	11	420	319	**750**
QPRC	**15**	**650**	**546**	**1211**

Source: RMS data base (May 2017)

2.4.2.1 Queanbeyan

Figure 11 shows recorded road crashes between 2012 and 2016 by severity of crash in Queanbeyan. Canberra Avenue and Monaro Street are displaying a high incidence of crashes and this is consistent with their higher traffic volumes. The number of crashes, fatalities and injuries are also summarised for key intersections in Table 11, for sites with five or more crashes between 2012 and 2016.

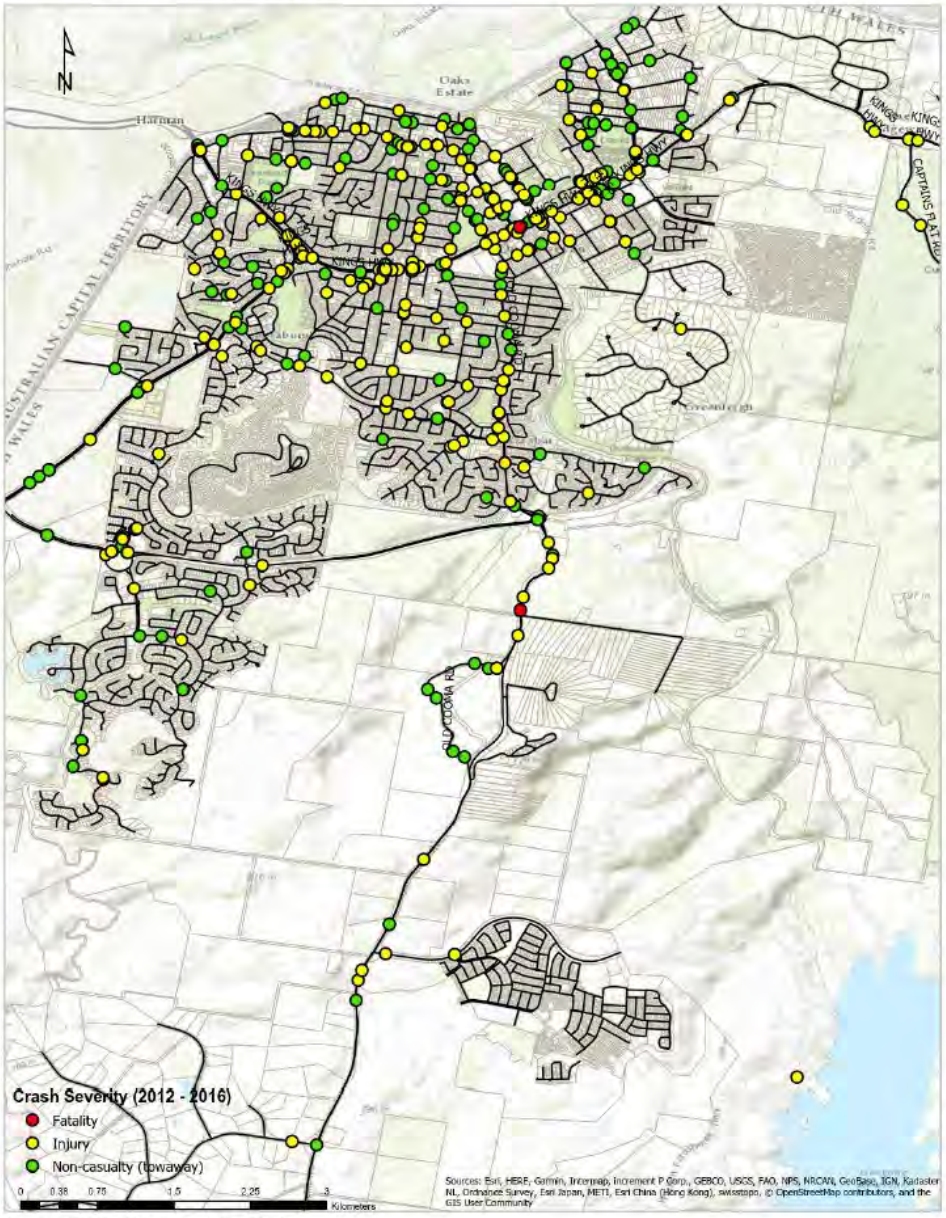
Table 11: Queanbeyan intersection crashes

Intersection	Fatalities	Injuries	Non_causalty	Total
Canberra Ave and Tharwa Rd	0	15	7	**22**
Atkinson St and Macquoid St	0	12	3	**15**
Collett St and Monaro St	0	4	9	**13**
Canberra Ave and Lanyon Dr	0	4	6	**10**
Ross Rd and Uriarra Rd	0	4	5	**9**
Monaro St and Crawford St	1	5	3	**9**
Canberra Ave and Donald Rd	0	7	2	**9**
Canberra Ave and Nth Kendall Ave	0	7	2	**9**
Nth Kendall Ave and Uriarra Rd	0	4	4	**8**
Bungendore St and Yass Rd	0	4	3	**7**
Morisset St and Crawford St	0	4	3	**7**
Lanyon Dr and Tompsitt Dr	0	5	2	**7**
Lowe St and Monaro St	0	5	1	**6**
Yass Rd and Aurora Ave	0	0	6	**6**

Intersection	Fatalities	Injuries	Non_causalty	Total
Atkinson St and Waniassa St	0	5	1	**6**
Captains Flat Rd and Kings Hwy	0	4	2	**6**
Uriarra Rd and Stornaway Rd	0	4	2	**6**
Uriarra Rd and Crest Rd	0	3	2	**5**

Source: RMS data base (May 2018); for sites with 5 or more crashes between 2012 and 2016

Figure 11: Queanbeyan crashes by severity



Source: RMS data base (May 2018)

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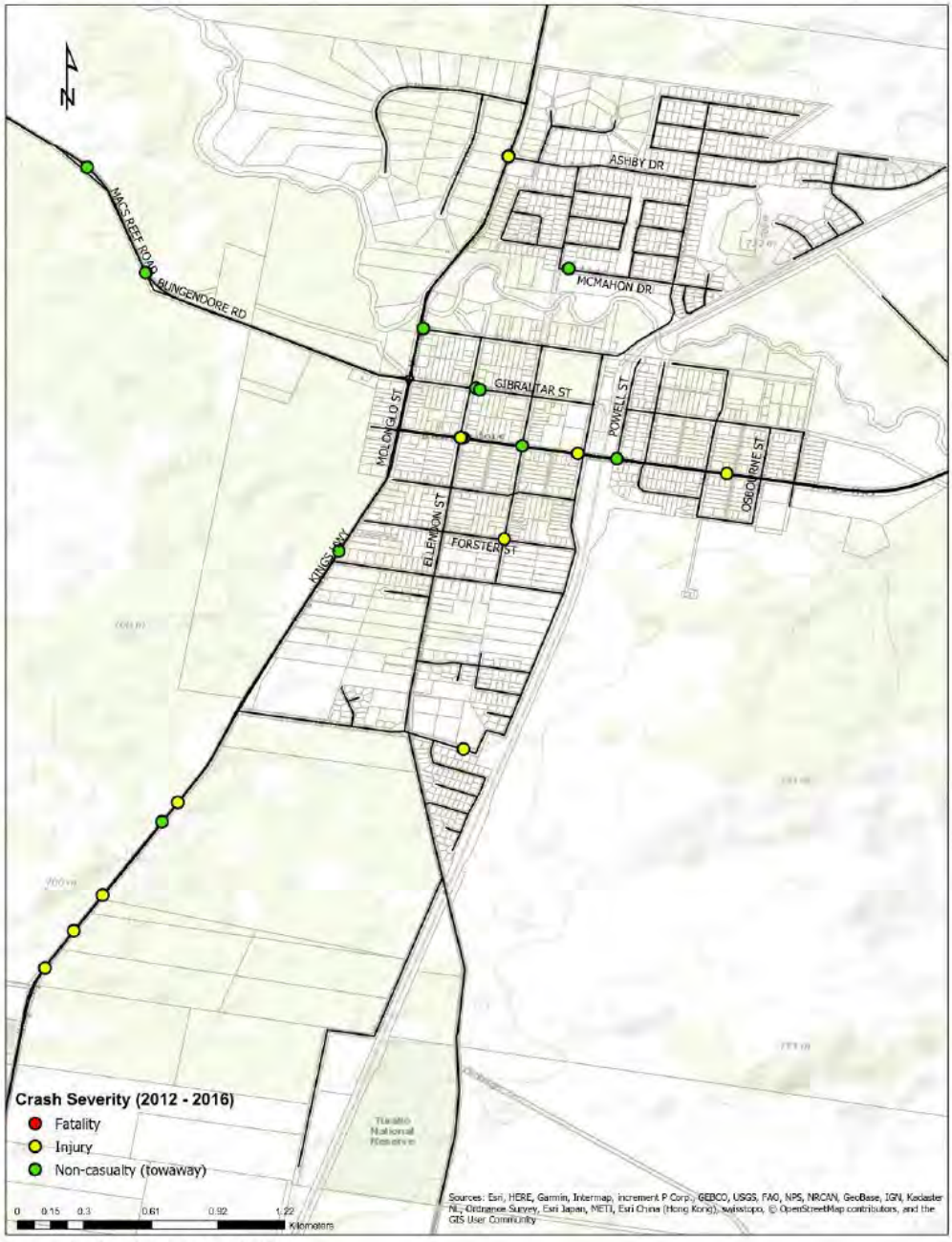
2.4.2.2 Bungendore

The five year crash history for Bungendore is shown in Figure 12. There is no particular pattern apart from the Kings Highway having almost all the injury crashes.

Figure 12: Bungendore crashes by severity

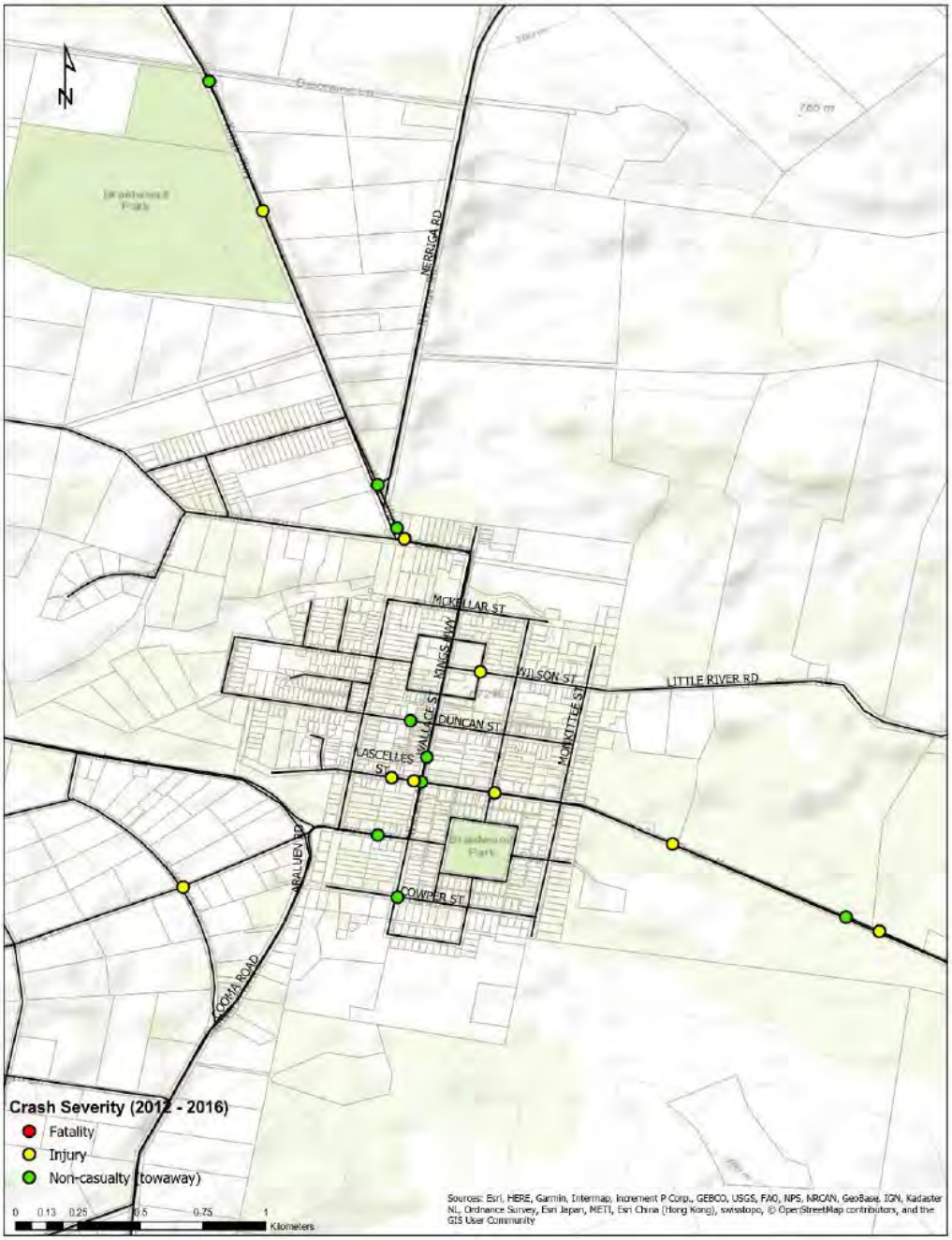


Source: RMS data base (May 2018)

2.4.2.3 Braidwood

The five year crash history for Braidwood is shown in Figure 13. The Kings Highway which travels through the town, has most of the injury crashes in this locality.

Figure 13: Braidwood crashes by severity

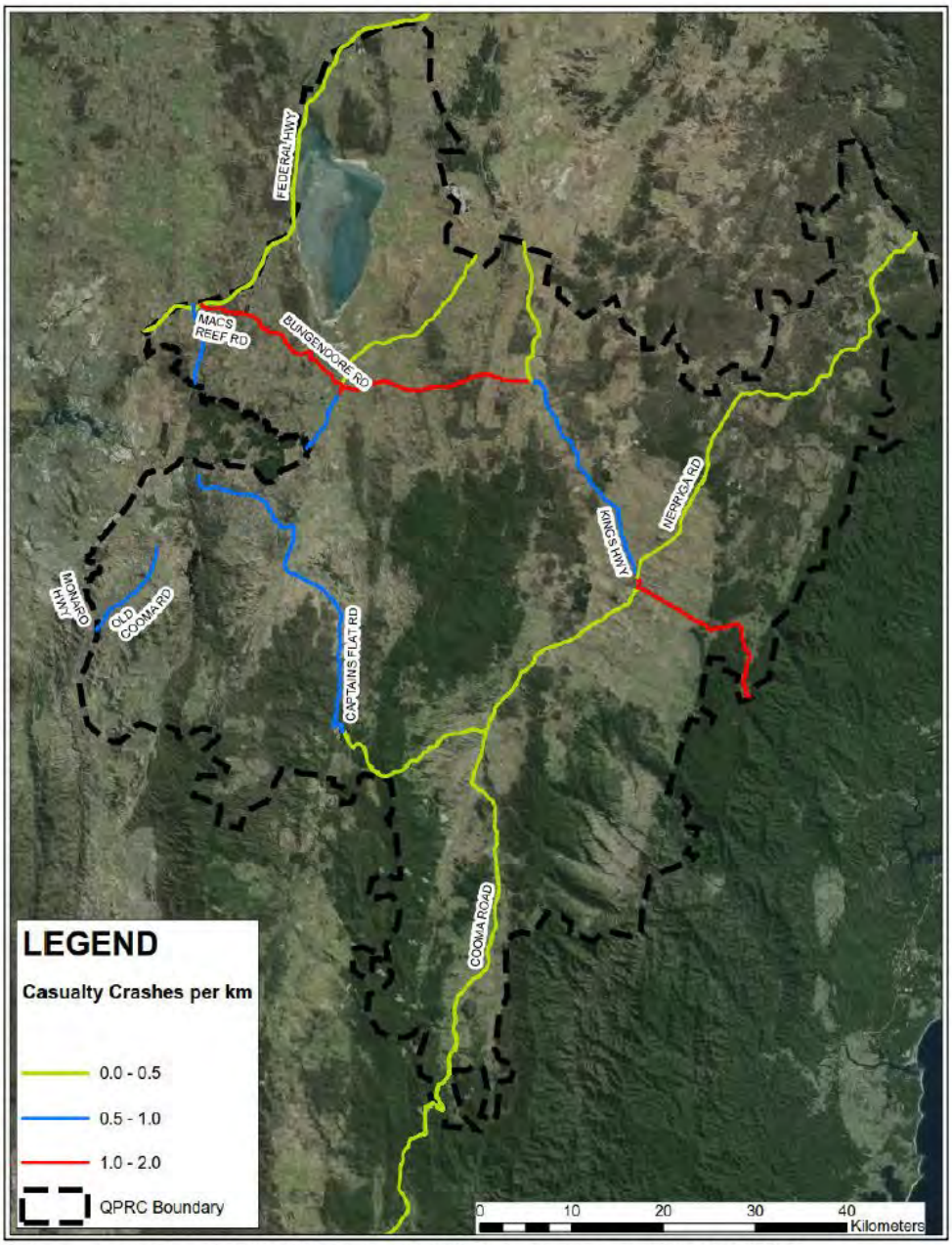


Source: RMS data base (May 2018)

2.4.2.4 Rural roads

Crash rates are an indicator of the need for road safety improvements. Figure 14 shows crash rates on rural roads in QPRC. The number of crashes, fatalities, injuries and crash rates are also summarised for key sections of rural roads in Table 12. This analysis shows that the highest crash rates occur on Kings Highway, Bungendore Road and Macs Reef Road.

Figure 14: Crash rates per kilometre on rural roads in QPRC



Note: Based on data provided by RMS for crashes occurring in the five year period from 2012 to 2016.

Table 12: Number of crashes and crash rates on rural roads in QPRC

Road	Section	Crashes	Crashes per km	Casualty Crashes	Casualty Crashes per km
Bungendore Rd	Bungendore to Macs Reef Rd	44	3.79	19	1.63
	Macs Reef Rd – Federal Hwy	4	0.84	1	0.21
Captains Flat Rd	Captains Flat to Kings Hwy	48	1.05	31(1)	0.68
	Captains Flat (town)	2	0.36	2	0.36
	East of Captains Flat	11	0.41	6	0.22
Cooma Road	QPRC	14	0.09	7	0.05
Federal Hwy	QPRC	113	0.68	56(1)	0.34
Goulburn Rd	QPRC	6	0.30	4(2)	0.20
Kings Hwy	ACT border – Bungendore	11	1.31	7	0.83
	Bungendore (town)	9	2.78	4	1.24
	Bungendore – Goulburn Rd	43	1.76	27(1)	1.10
	Goulburn Rd – Braidwood	38	1.21	15	0.48
	Braidwood (town)	8	3.04		1.52
	Braidwood – Monga	54	2.14	36(4)	1.43
Macs Reef Rd	QPRC	26	1.08	13	0.54
Nerriga Rd	QPRC	64	0.93	30	0.44
Old Cooma Rd	south of Googong Rd	17	1.16	10	0.68
Sutton Rd	QPRC	23	2.02	12 (1)	1.05
Tarago Road	QPRC	18	0.66	10	0.36

Note: Based on data provided by RMS for crashes occurring in the five year period from 2012 to 2016.

RMS determines the road safety performance of the network by monitoring the number of crashes that occur, with a focus on casualty crashes. This monitoring produces an 'average safety performance' for each of RMS's rural Road Network Management Hierarchy classes (RTA, 2008), which are shown in Table 13. The comparative crash rates for major rural roads in the QPRC region are also shown.

Kings Highway is generally a 4R road class, whilst Bungendore Road and Macs Reef Road is 3R, using RMS's road management hierarchy. The casualty crash rates on these roads are much higher than the NSW state average for their road classes.

A number of other roads in the region with lower crash rates, still have rates higher than the NSW state average. This includes Captains Flat Road, Sutton Road, Old Cooma Road, Goulburn Road and Tarago Road.

On Kings Highway crash rates are highest in the towns of Braidwood and Bungendore. This is because of the high number of intersections in the towns and increased traffic and parking activity.

Outside of these towns, the highest crash rates occurred on Kings Highway between Braidwood and Monga (1.43 casualty crashes per km), Bungendore Road between Bungendore and Macs Reef Road (1.63) and Kings Highway between Bungendore and Goulburn Road (1.10). A high proportion of crashes occurring on rural sections of Kings Highway and Bungendore Road are located on or near bends in the road, as illustrated in the Context Report (AECOM, August 2017b).

Table 13: NSW average casualty crash rate by RMS rural road hierarchy class

RMS rural road hierarchy class	NSW Average Casualty crash rate per km	QPRC Crash Rates Casualty crash rate per km
6R	0.333	Federal Hwy 0.34
5R	0.332	n/a
4R	0.195	Kings Hwy 0.83-1.43
3R	0.183	Bungendore Rd south of Macs Reef Rd 1.63 Macs Reef Rd 1.04 Sutton Rd 0.48 Old Cooma Rd 0.68
2R	0.070	Captains Flat Rd 0.22-0.68 Nerriga Rd 0.44 Tarago Rd 0.36 Goulburn Rd 0.20 Cooma Rd 0.05
1R	0.027	Captains Flat Rd east of Captains Flat 0.22

The unsafe section of Bungendore Road has recently been upgraded, including major road realignment and widening work. This is likely to have reduced the incidence of crashes along here.

The section of Kings Highway with a high number of crashes is near the descent to Clyde Mountain. Much of this section of road has double lines with no overtaking. Minor safety improvements have been undertaken in recent years, but these are unlikely to have a significant impact on crash rates and further work is likely to be needed to reduce crash risks and severity.

Crashes are generally spread along Macs Reef Road and are highest at its intersection with Federal Highway. This is due to the high speeds of traffic on the highway and high conflicting volumes.

2.4.3 Freight movement

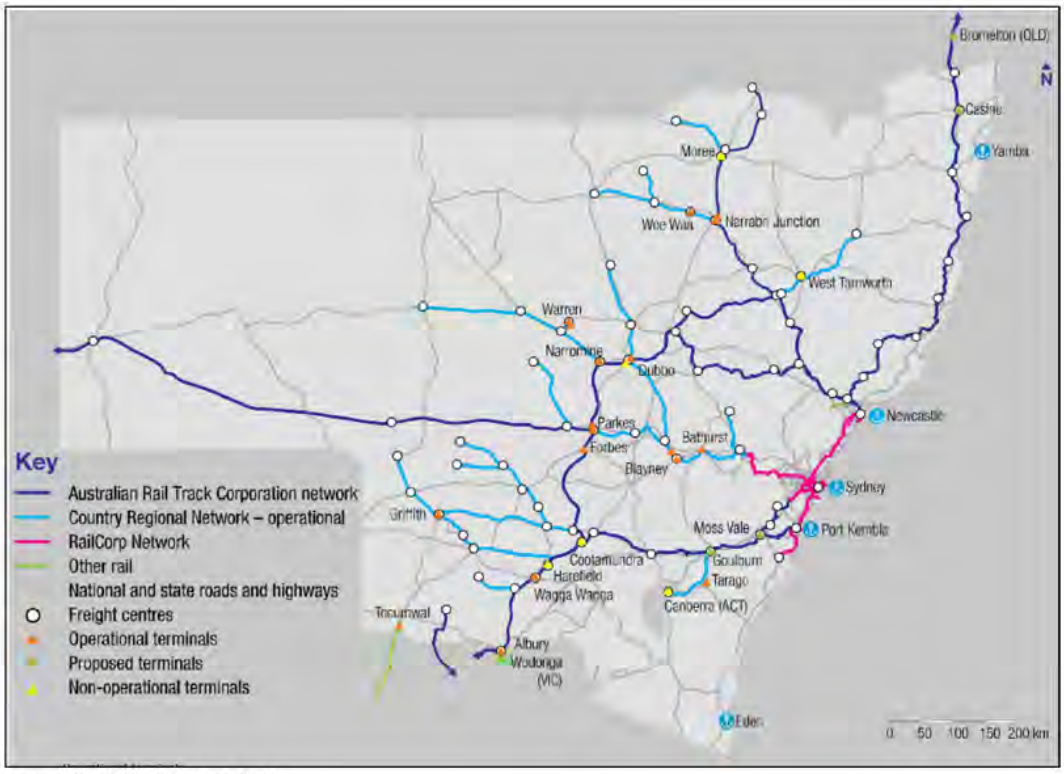
The growth of freight traffic (both road and rail based) is an important economic and planning consideration for future land use and transport planning in QPRC. The primary freight routes and freight terminals in NSW are illustrated in Figure 15. Tarago and Canberra serve QPRC.

The *NSW Freight and Ports Strategy* is the 20 year plan to ensure freight is at the forefront of the NSW economy. The strategy is the Governments response to the forecast doubling of freight volumes through NSW in the 20 year period to 2031. The key objectives of the strategy are the delivery of a freight network that efficiently supports the projected growth of the NSW economy, and balancing freight needs with those of the broader community and the environment.

Current approved heavy vehicle routes in Queanbeyan are shown in Figure 16 and in the broader QPRC region in Figure 17. The pattern of industrial land use leads to the freight flows that must be managed on the transport system. Some roads emerge as more or less significant freight routes. In this context, the current pattern of heavy vehicle routes in Queanbeyan is reasonable.

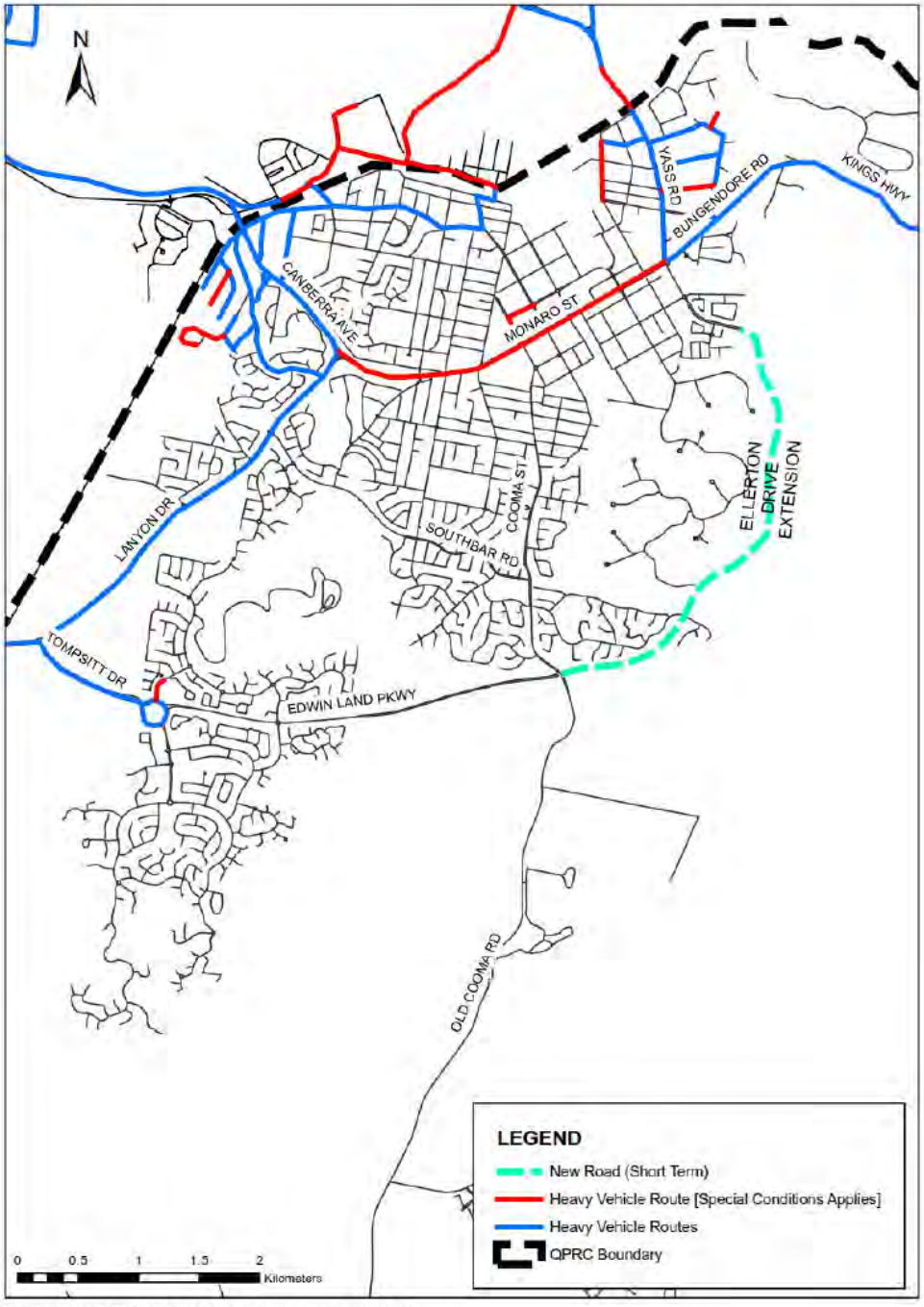
There will be a need to extend this network as Googong develops and Old Cooma Road is upgraded. The Ellerton Drive Extension provides an option for reducing truck volumes on Monaro Street, Queanbeyan CBD.

Figure 15: NSW regional intermodal terminal network



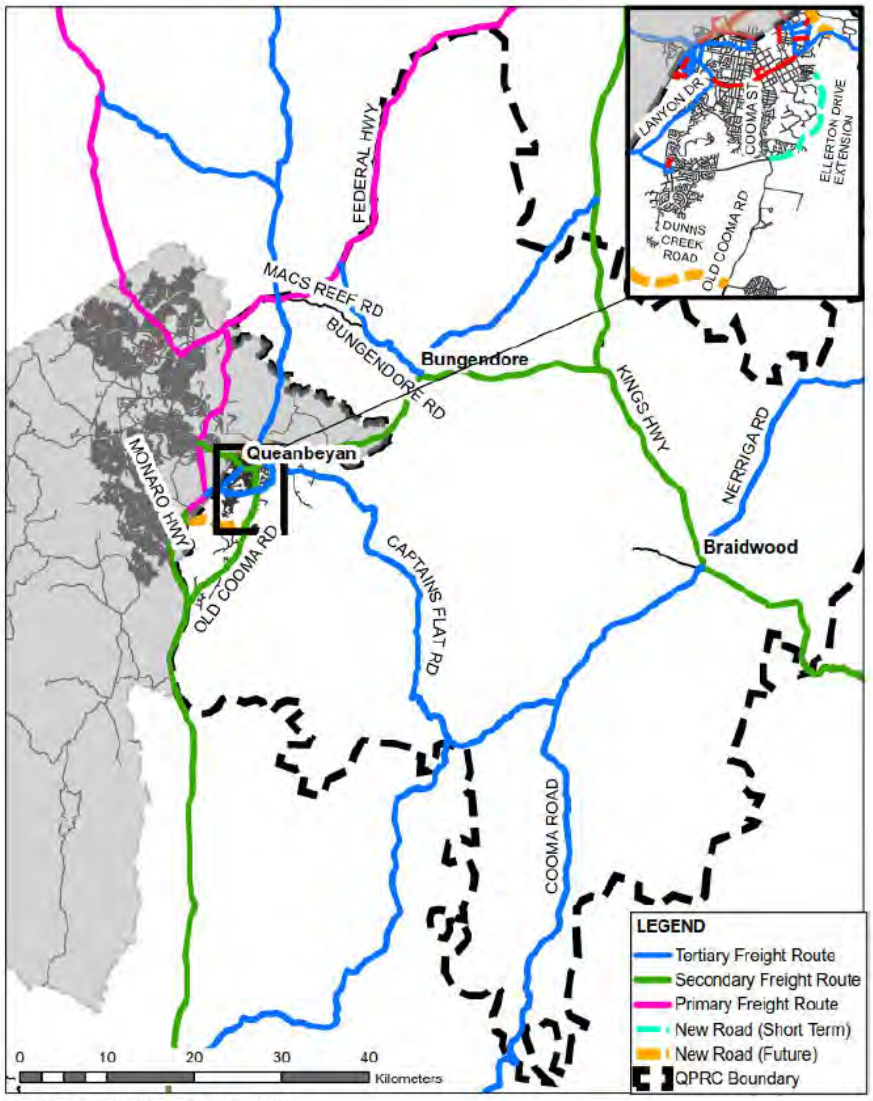
Source: Infrastructure NSW (2012)

Figure 16: Queanbeyan heavy vehicle routes



Source: Extracted from RMS website (October 2017)

Figure 17: Regional heavy vehicle routes



Source: RMS website (October 2017)

2.5 Public Transport

Queanbeyan is serviced by the following public transport:

- QCity urban bus network
- ACTION (from "Canberra Outlet Centre" park n ride at Fyshwick, ACT)
- NSW TrainLink (Bungendore – Queanbeyan – Kingston) and coaches
- Regional Coach Services (some via Canberra and Batemans Bay)
- Valmar community transport
- Taxis
- Uber (often from Canberra)
- Airlines (via Canberra Airport).

2.5.1 QCity

QCity scheduled bus routes are shown in Figure 18 and Figure 19. QCity note on their website that passengers must not travel wholly within the ACT on weekdays. This is interesting given Oaks Estate (ACT) is only serviced by QCity, not ACTION. QCity route maps do not show bus stops.

The Queanbeyan bus interchange incorporates a park and ride facility. The interchange also services a number of school bus routes.

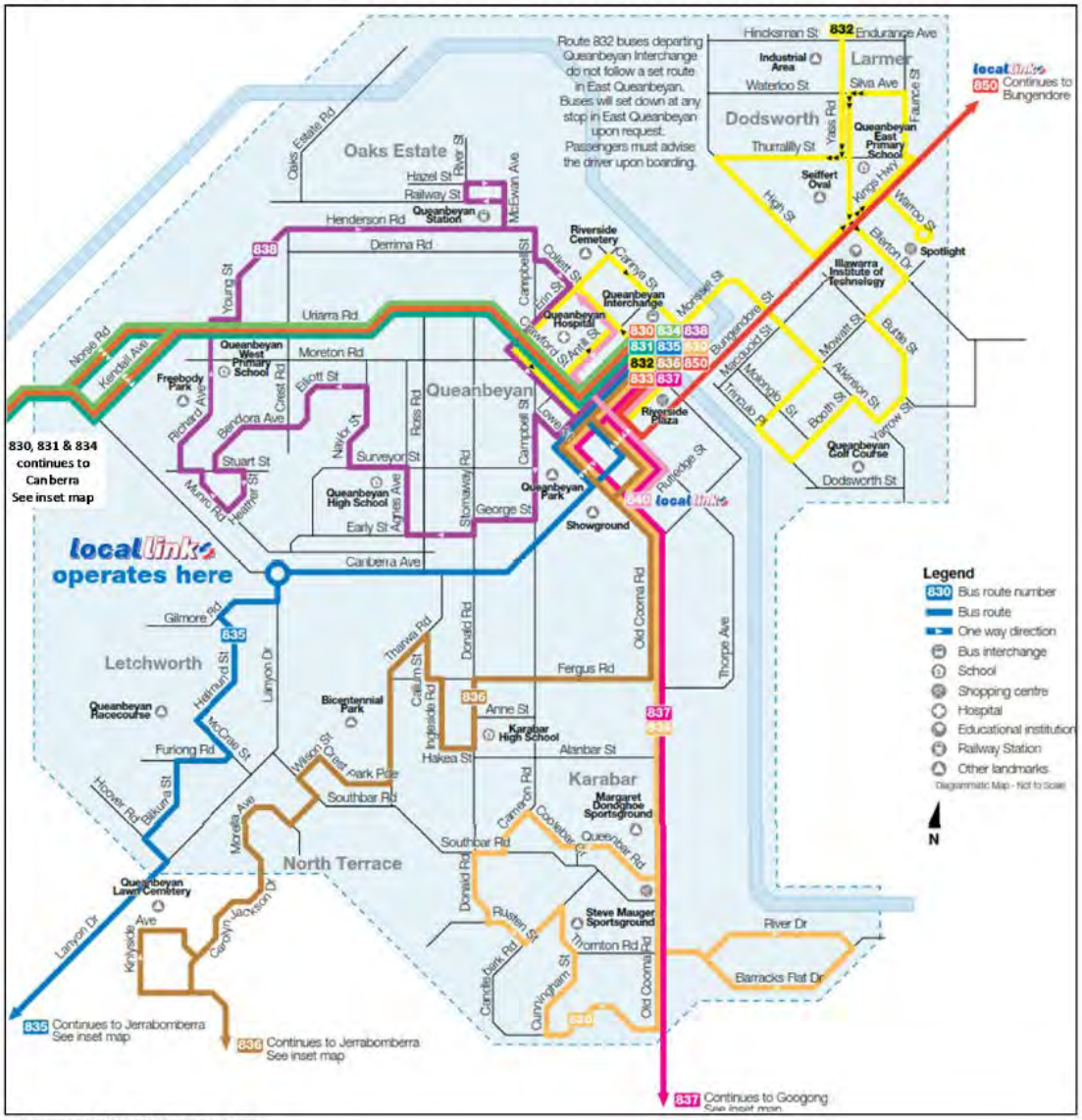
QCity advertise train and coach services between Bungendore and Queanbeyan. Some of these would continue onto Kingston but this information is not provided. It would be possible to commute from Queanbeyan to Bungendore to work and return after work but commuting in the opposite direction for normal work hours appears not to be supported by these train/coach services. QCity route 850 does provide this service and connects to the 8.05am 830 Civic and 831 Woden services.

There is also a large number of school bus runs servicing Queanbeyan and the region, provided by QCity and other local bus operators (see Figure 20). These school bus services are not restricted to school children and can also be used by the general public. The safety of rural bus stops serving school buses in NSW is currently being reviewed.

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 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 QCity bus routes shows that:

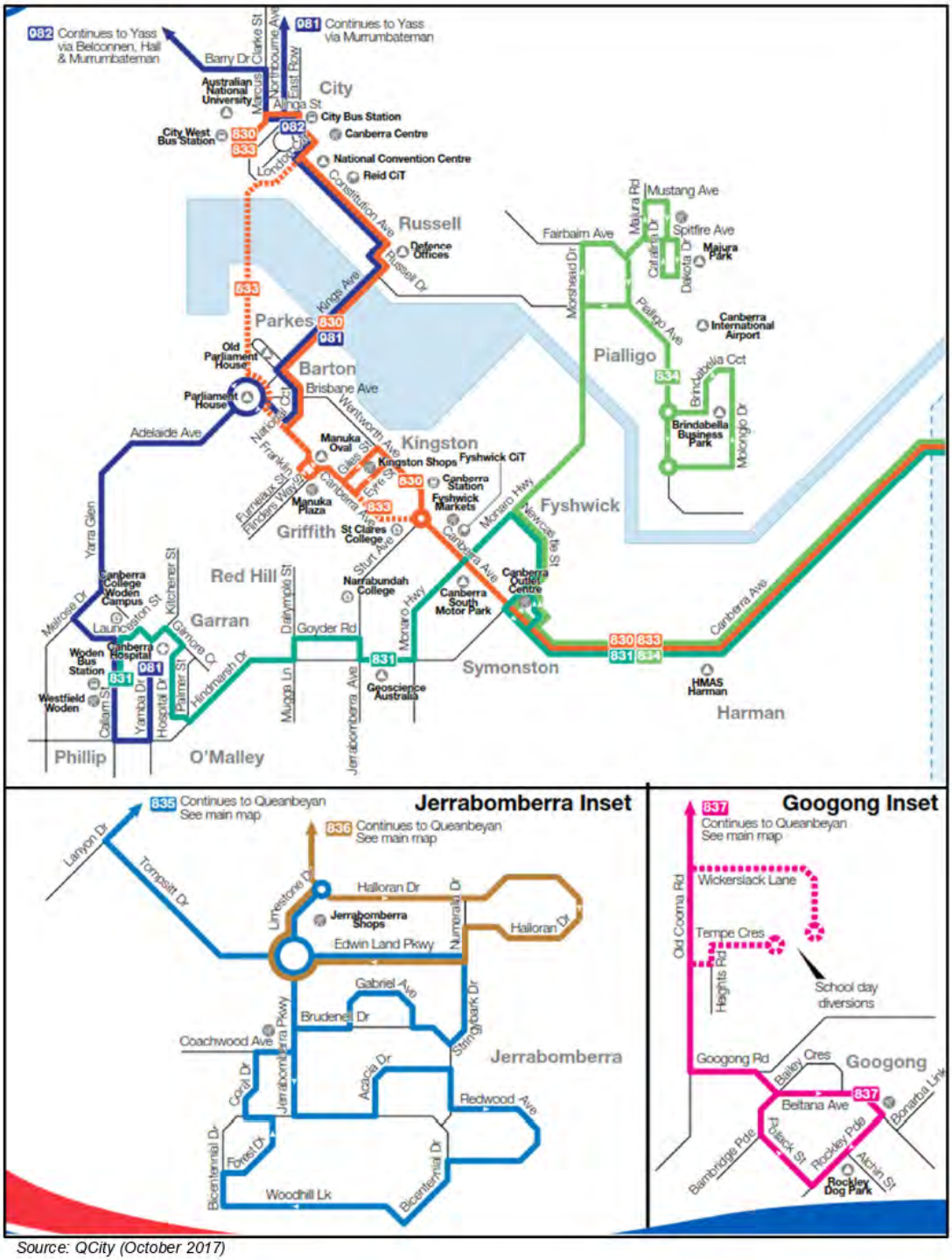
- Frequencies tend to be poor, with only five of the twelve services operating hourly or better services. Co-ordination between routes generally does not occur, incurring long wait times for most transfers and ensuring that the routes generally operate in isolation, rather than as a coherent network.
- Limited services operate on Saturdays, Sundays and public holidays.
- 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.
- There is limited public transport services in rural localities increasing levels of isolation and disadvantage.
- Higher public transport fares in regional NSW can reduce access to jobs and services.
- Need for flexible and innovative transport to serve people in rural localities.
- Need for integrated public transport services cross-border to ACT.

Figure 18: QCity Queanbeyan bus services



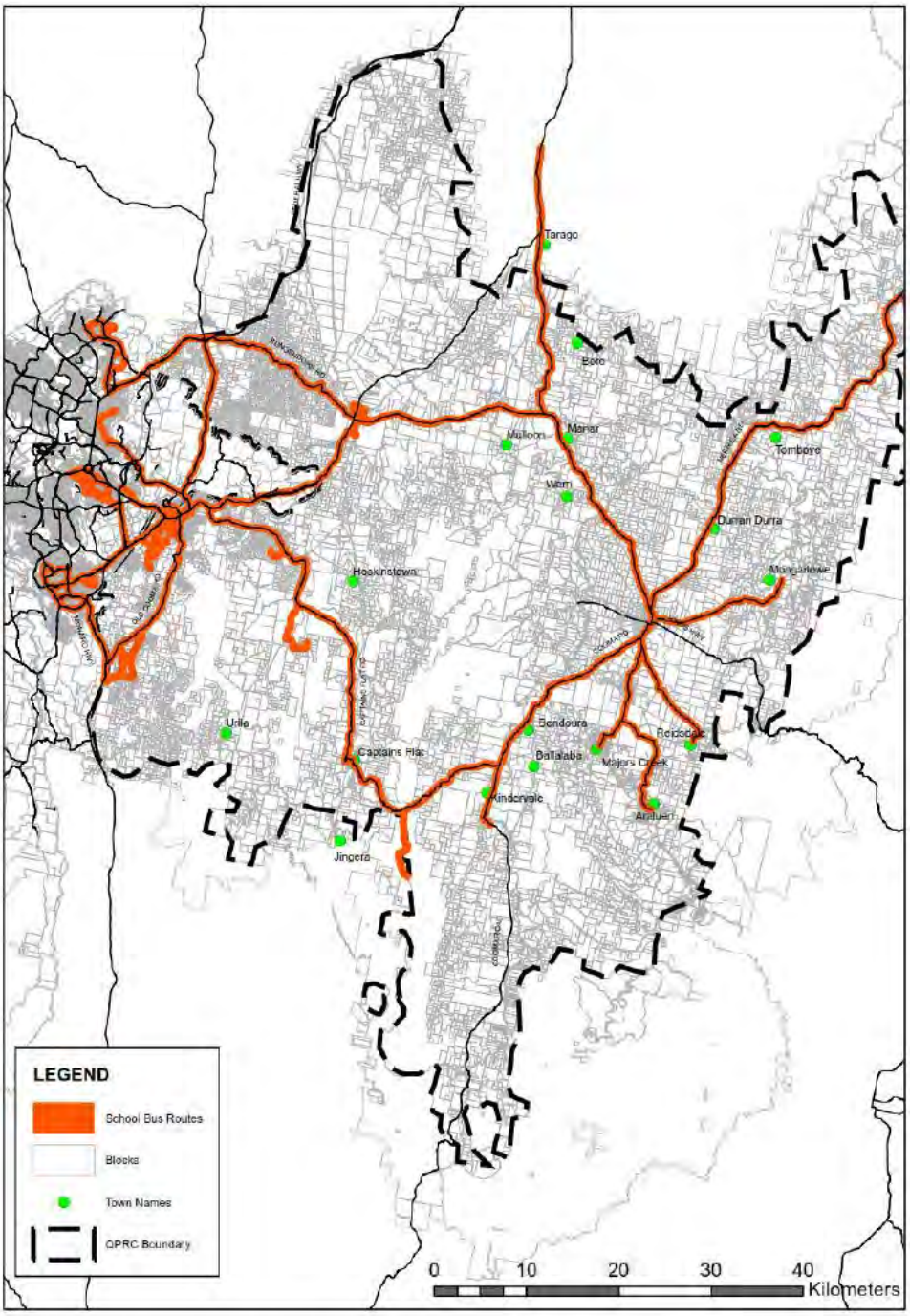
Source: QCity (October 2017)

Figure 19: QCity Canberra, Jerrabomberra and Googong bus services



Source: QCity (October 2017)

Figure 20: School bus routes



Source: Local NSW bus operators, June 2017

The QCity network is quite extensive. Its frequency is commercially matched to patronage. Some areas are poorly serviced but the services are based on usage. Fares are higher than those applicable in the ACT. NSW Government subsidies of fares have recently increased to bring them more in line with ACT fares.

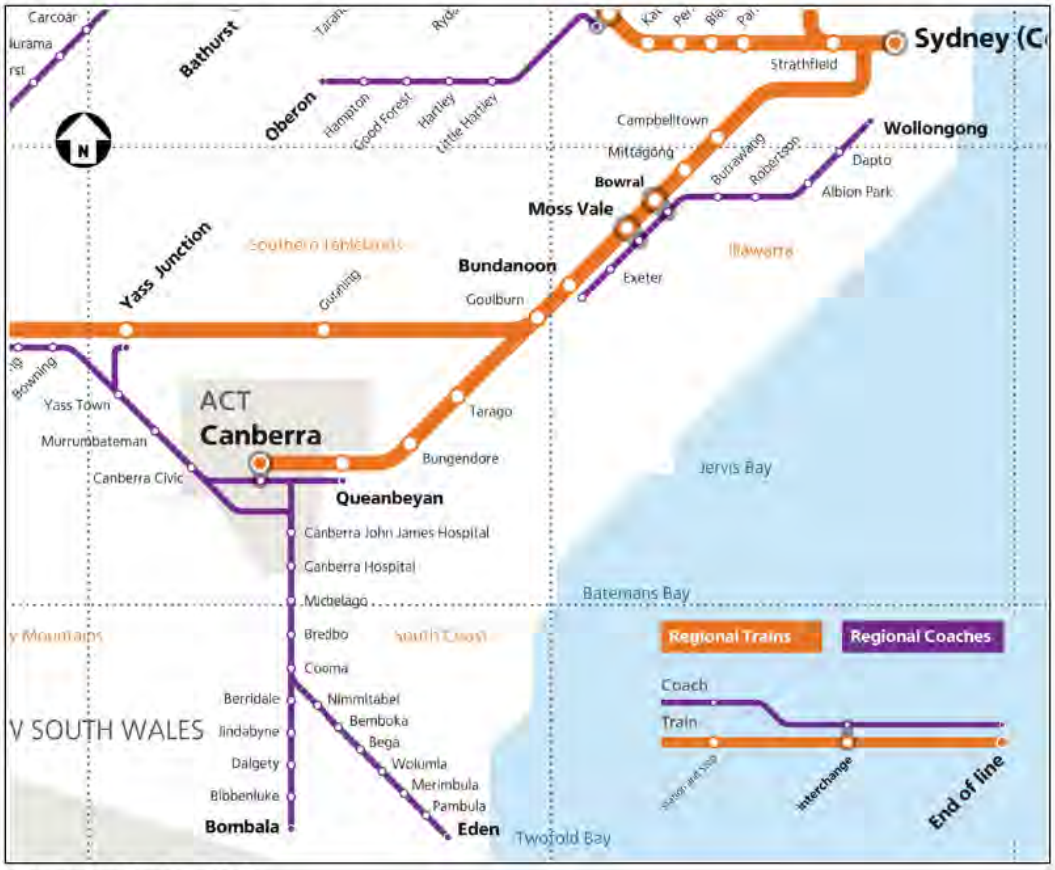
2.5.2 ACTION

ACTION operates the Red Rapid Route 200 – Gungahlin to Canberra Outlet Centre Fyshwick via Civic with Park and Ride near Canberra Outlet Centre. Potentially, this is available to residents of Queanbeyan to avoid parking hassles and charges. The service has a 15 minute frequency between 7 am and 7 pm. Both the frequency and operating time can be a constraint to increasing patronage. The service does not operate on weekends or public holidays.

2.5.3 Regional public transport services

The NSW Trainlink train and coach service network in NSW is shown in Figure 21. TrainLink operates a train or coach from Kingston to Queanbeyan and on to Bungendore seven days a week.

Figure 21: NSW Trainlink train and coach services



Source: TrainLink (May 2017)

2.5.4 Regional coach services

Queanbeyan is serviced by the following regional coach services:

- Yass *from Civic* via Transborder 981. Three inbound and three outbound trips per day, with a fourth trip in each direction operating via Belconnen.
- Yass Junction via NSW Trainlink Coach 781 (Cootamundra); a daily service.

- Cooma *from Kingston* via NSW Trainlink Coach 771/2 (Eden) or 775/6 (Bombala), daily to Eden and weekdays only to Bombala, providing two trips daily weekdays and one trip daily at weekends.
- Batemans Bay via Murrays Coaches 860 and Rixons Buses, daily.
- Goulburn *from Civic* via Greyhound Coach. One AM peak trip and two PM peak trips.

2.5.5 Rail

There are several daily rail services from Queanbeyan/Canberra to Goulburn and Sydney. The train stops at Queanbeyan, Bungendore and Tarago, as shown in Table 14.

Table 14: Rail services

Direction					
Station	*Service*	*Tarago*	*Bungendore*	*Queanbeyan*	*Canberra*
Inbound time	CLK631	10:13	10:37	11:06	11:22
	CLK633	15:14	15:38	16:07	16:29
	CLK635	21:25	21:49	22:18	22:31
Station		*Canberra*	*Queanbeyan*	*Bungendore*	*Tarago*
Outbound time	CLK632	06:50	06:59	07:29	07:53
	CLK634	11:53	12:02	12:32	12:56
	CLK636	17:25	17:34	18:04	18:28

Source: TrainLink (May 2017)

2013/14 counts of passenger boardings at various rail stations in the region show that rail patronage is relatively light on this rail link. Canberra was highest with an average of about 181 boardings per day, Queanbeyan 25, Bungendore 12 and Tarago 3 (TrainLink, 2017). This compares with 24,821 boardings per day at Central Station and 1,697 at Wollongong Station; the latter being the busiest station outside of Sydney.

2.5.6 Valmar community transport

Valmar is a not-for-profit entity supporting the elderly and more than 300 people with disabilities across south-east NSW and ACT. Among other services, Valmar provides aged care services through the Home and Community Care (HACC) program such as meals on wheels, social support, respite services, home maintenance and community transport.

2.5.7 Other public transport services

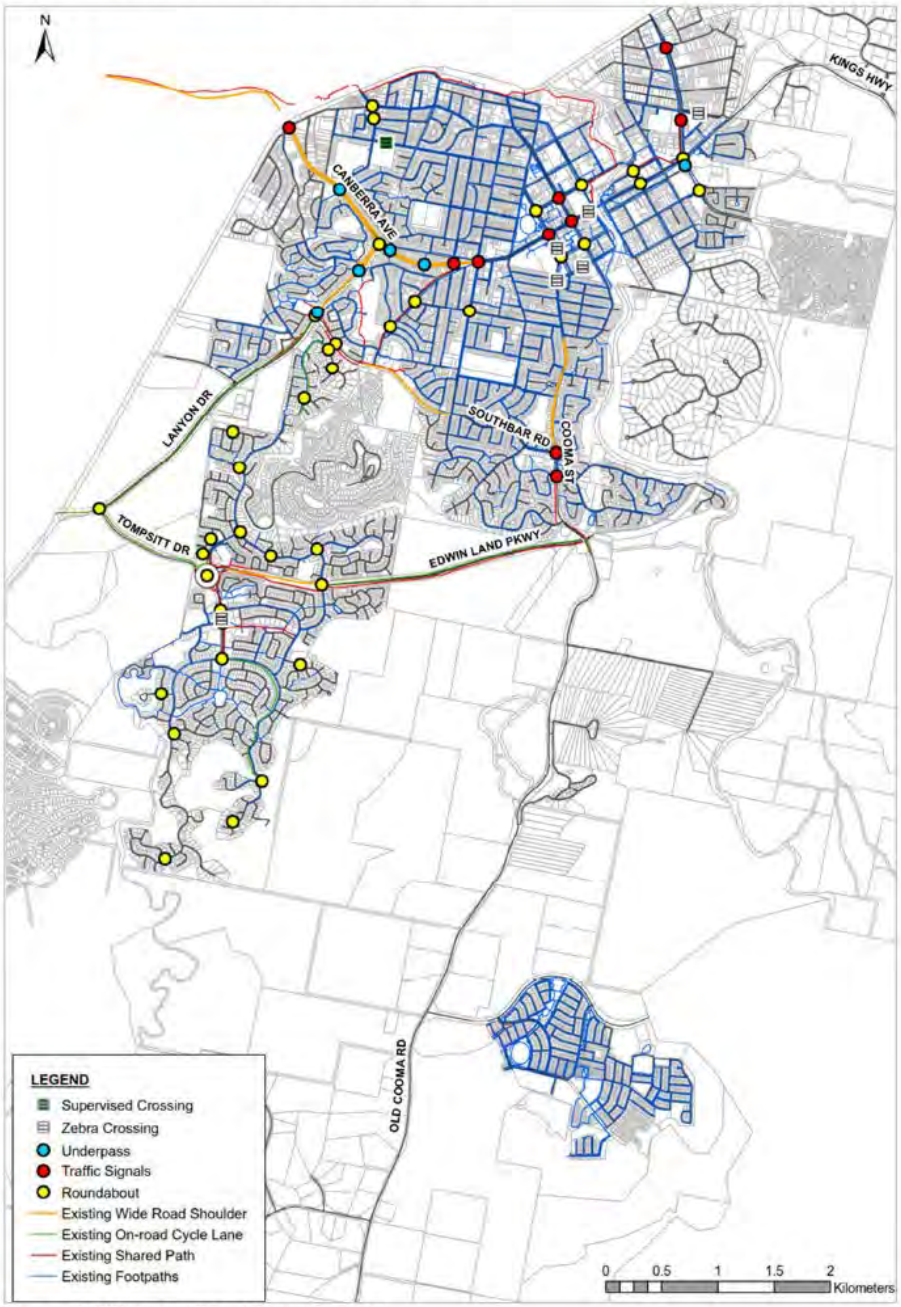
There are other point to point transport services available in Queanbeyan and region, including taxi and ride sharing (e.g. Uber). Currently, these carry a small number of travellers and serve a small market.

2.6 Active Transport

2.6.1 Queanbeyan

Figure 22 shows the current road layout, pathways, pedestrian facilities, bicycle facilities and key land-uses in Queanbeyan.

Figure 22: Queanbeyan existing street map and pathways



Source: AECOM, current as of December 2017

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Revision 5 – 21-Jun-2019
Prepared for – Queanbeyan-Palerang Regional Council – ABN: 95 933 070 982

During the community consultation in this project the following issues were raised regarding walking and cycling in Queanbeyan:

- The importance of building and encouraging healthy communities especially through active transport options. For example, bicycle carriages on buses and trains and bicycle racks outside key points of interest within the city centre.
- The importance of safety and security of people who are crossing the road.
- Improved pedestrian and cyclist crossings especially pram ramps and near schools and child care centres.
- Need for surface upgrades including roadways, footpaths and cycle ways which in many areas are 'poor and uneven'.
- Improved connectivity between different regions especially to and from the city centre including cycling and walking tracks to and from the city centre and along the riverbank.
- Extend the footpath that runs to White Rocks near the river. White Rocks is a popular place for people to swim.
- Widen cycle tracks on Carolyn Jackson Drive, Jerrabomberra.
- Install a pedestrian crossing on Morton Street near Stornaway Road.
- Additional footpaths for children to walk and ride bikes, especially around schools.
- Safety issues regarding the cycle and pedestrian network along Yass, Bungendore and Ellerton Roads.
- In general the mobility of pedestrians and cyclists are not supported by underpasses or overpasses to reduce conflict with vehicles. This is a particular concern for vulnerable user groups such as people with disabilities, the elderly and children.
- East Queanbeyan seems to missing attention in terms of active travel routes.
- Connections between Greenleigh and Queanbeyan are lacking in terms of safe active travel infrastructure. Greenleigh Estate does not have streetlights or footpaths constructed.
- A high priority requirement for an underpass under the Edwin Land Parkway once the EDE is open. It is currently dangerous for the community to cross over the road from the shopping centre to 'the park'. This will continue to get worse once the road is open and Googong continues to grow.
- Shared path link between Edwin Land Parkway and Candlebark Road on western side of Cooma Street.
- Southbar Road near Karabar shops needs to be a Shared Zone.
- Council should support the proposed Monaro Rail Trail which would be a fantastic commuting and recreational trail from Harman to Jerra and the proposed Tralee.
- Traffic lights on Bungendore Road in Queanbeyan East to assist safe pedestrian and cyclist crossings.
- Working with ACT Government to construct a Molonglo River riverside bikeway to Monaro Highway / Majura Parkway.
- Pedestrian refuge to help pedestrians cross Thurralilly Street on the western side of Yass Road.
- Pathway link on Macqoid Street between Buttle Street and Ellerton Drive underpass.
- A number of safe crossing points are needed across Bungendore Road, especially linking to the Yass Road pedestrian traffic signals adjacent to the Queanbeyan East Primary School, either side of the current roundabout intersection with Ellerton Drive.
- A pathway link to Ellerton Drive Extension (EDE) via the open space corridor between Yarrow Street, Bywong Street and EDE.

- Pedestrian safety crossing Campbell Street.
- There needs to safer cycling paths along Yass Road connecting to Pialligo Avenue, particularly the section under the rail bridge and over the narrow Molonglo River bridge.
- Access to the underpass of Ellerton Drive just south of Bungendore Road is poor from the western side.
- No underpass of Edwin Land Parkway for Jerrabomberra community to cross over this road to the shopping centre.
- No pathway in Plan that link to the Poplars Marketplace Development, South Jerrabomberra, the Regional Sports Precinct and the high school and Poplars Business Park.
- The Plan has mapped out actions which appear to be a filling the gaps approach, rather than projecting inspiring, dramatic and accelerated changes to the bike and walkway system.
- There are no changes in the Plan on how anyone can safely cross Kings Highway / Bungendore Road and it needs to be addressed as a priority, in consultation with Roads and Marine Services.
- Safety issues for pedestrians and cyclists on Yass Road, Bungendore Road and Ellerton Drive have not been adequately addressed. There is a need for good connections for bike/shared routes from the future Ellerton Road Extension to East and South Queanbeyan (e.g. connections to Greenleigh, along Bywong Creek down to the Queanbeyan River Suspension bridge).
- Pedestrian and cycle access and safety along Atkinson Street and Morisset Street between Macquoid Street and Waniassa Street, but especially across Bungendore Road.
- There are no changes to pedestrian links in Queanbeyan East in the Plan, even though it is highlighted as an area with poor pedestrian access. Queanbeyan East active travel routes need to be prioritised. The current and planned network of bicycle paths/lanes, footpaths and safe road crossings is inadequate, especially in the vicinity of Queanbeyan East Primary School.
- The streets surrounding Queanbeyan East Primary School have disjointed footpaths with several industrial driveways (e.g. the pedestrian crossings on Thurralilly Street and Mulloon Street do not link well to existing footpaths). The Mulloon Street crossing is poorly marked and the footpath on the southern side of the crossing is sporadic and difficult for parents with prams and scooters to negotiate.
- The walkway from Mulloon Street to Kings Highway along Burra Street is poorly maintained.

2.6.1.1 Pedestrian network

Queanbeyan is generally well-serviced by a network of footpaths with most streets within the CBD having footpaths on both sides and other areas with footpaths on one side of the street. There are limited off-road paths to 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 city.

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

Schools have been identified as a key target for improvements to pedestrian networks to support kids walking and cycling to school.

2.6.1.2 Bicycle network

The cycling network lacks a number of key links, particularly to the CBD, ACT and the south of town to the new growth areas. As such, it does not provide a viable means of access.

Overall, the relatively low numbers of cyclists observed is consistent with the ABS Journey to Work data, which indicated that 1% of people who went to work on Census day in 2016 travelled by bicycle.

The following issues were noted with respect to the QPRC cycling network:

- No bicycle facilities within the CBD (with the exception of some short term bicycle parking).
- Existing off-road bicycle network does not uniformly meet relevant standards.
- Existing on-road bicycle network is discontinuous and limited.
- Existing bicycle facilities do not adequately connect to form an overall network of facilities appropriate to the needs of various cyclist user groups.
- Limited wayfinding signage and infrastructure.
- A lack of end of trip facilities (parking, showers / lockers) at key destinations and land uses throughout QPRC.
- 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 QPRC. 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 QPRC.

2.6.2 Braidwood

Figure 23 shows the current road layout, pathways, pedestrian facilities and key land-uses in Braidwood. Braidwood is generally well-serviced by a network of footpaths provided on both sides of most streets within the town. There are limited off-road paths.

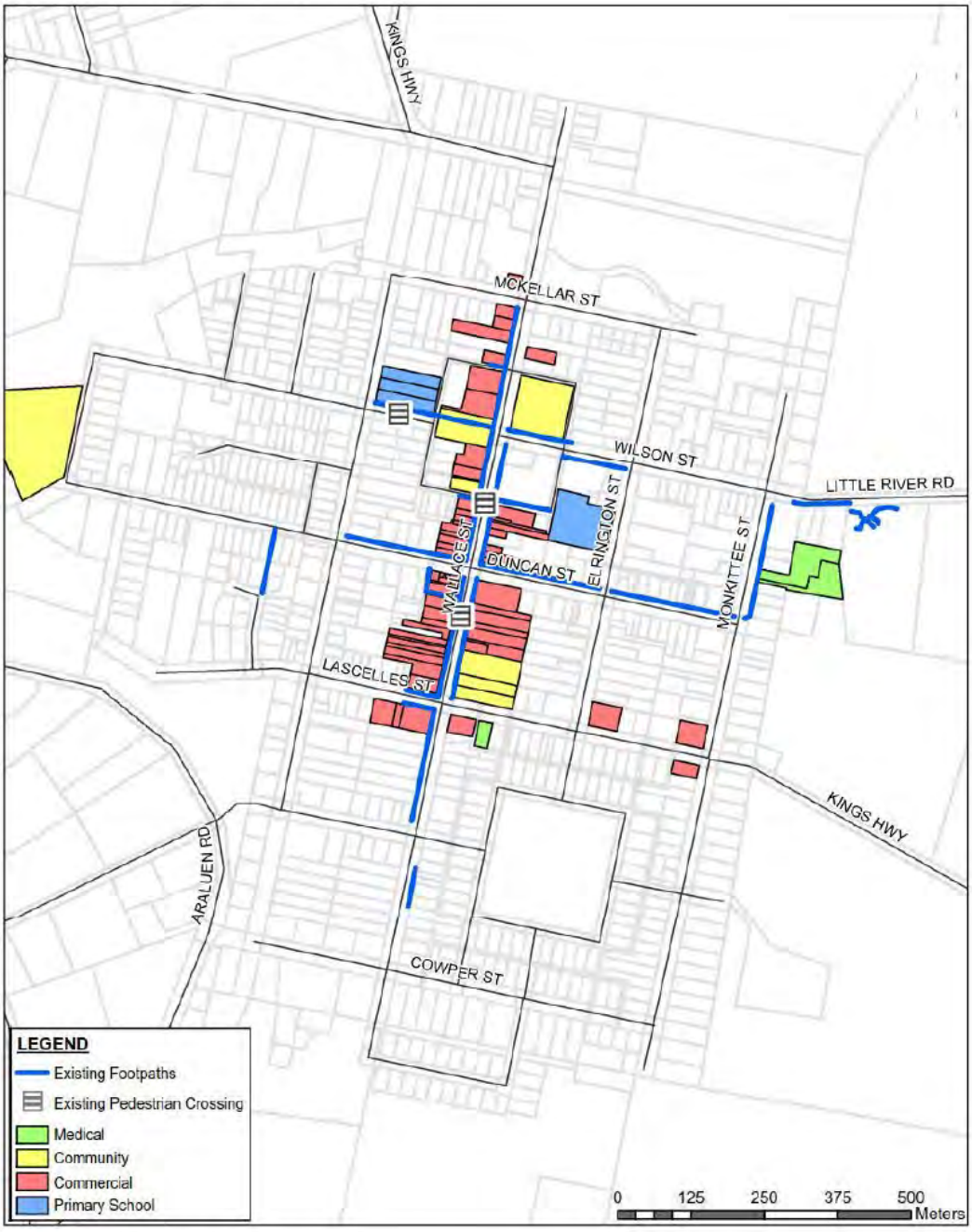
The pedestrian network is generally continuous, but lacks priority at most intersections. In addition, there are numerous significant barriers to pedestrian movements that create diversions for pedestrian movement.

There are no on-road bike lanes in Braidwood and no off-road cycle paths or shared-use paths. However, the verges are generally wide and capable of being ridden on by children. Also the low traffic volumes mean that cycling is reasonably safe on most streets.

With some exceptions, the footpaths are confined to Wallace Street between Monkittee Creek and McKellar Street on the western side and between Lascelles Street and Wilson Street on the eastern side; and to the northern side of Duncan Street between Ryrie Street and Monkittee Street. The exceptions are:

- Small intrusions off Wallace Street on Lascelles Street, Duncan Street, east of Wilson Street and Park Lane
- Monkittee Street (east side) from the hospital to about 40 m north of Duncan Street
- The Wilson Street frontage of Braidwood Central School
- The frontage of the Summerfield aged accommodation units
- Wilson Street (south side) between Ryrie Park and Erlington Street
- A short piece of footpath on the north side of Wilson Street, just east of Park Lane.

Figure 23: Braidwood street map and pathways



Source: AECOM, current as of December 2017

During community consultation in this project the following issues were raised regarding walking and cycling in Braidwood:

- Coronation Avenue: Missing footpath on northern side from Ryrie Street to ex- serviceman club.
- Council needs to consider disabled access compliance particular for heritage buildings to better define “deemed to comply” in the building requirements.
- Post Office in Braidwood has no disabled access.
- Kerb ramps have lips and bad angles that make it difficult for the wheel chair to get up.
- There needs to be more crossings and paths going to schools.
- Monkittee Creek Bridge access and crossing is in a very bad condition. Safety is a concern as children, bikes and prams cross this bridge. This bridge needs to be brought to a better condition as a high priority.
- The 80 km/h speed limit along Kings Highway is working well. However, it might be a good idea to add rumble strips.
- The footpath over Archer bridge on Cowper Street needs gravel. This footpath can get very muddy when it rains.
- There is no pram crossing near the toilets in Ryrie Park South until near the pub.
- There needs to be lighting in the park.
- Include paths on Coronation Street and Wilson Street.
- More paths and tracks to Mount Gillamatong.
- IGA supermarket needs a metal ramp for access and also a pram crossing.
- There is no path on Wilson Street, south side or Coronation Avenue.
- The Council Chambers and Office have doors at the top of the ramp with no flat section. It is difficult to open the doors while staying on the ramp.
- There needs to be a path along Park Lane South to provide a safer route for school children.
- There needs to be a path along Elrington Street adjacent to St Bedes school, especially between Wilson Street and Duncan Street.
- Concern regarding the stability of footbridge and footpath at the southern end of Garvey Street.
- A pedestrian refuge on Lascelles Street just west of Elrington Street.
- Safety of elderly residents and young school children walking along Duncan Street east of Wallace Street.

2.6.3 Bungendore

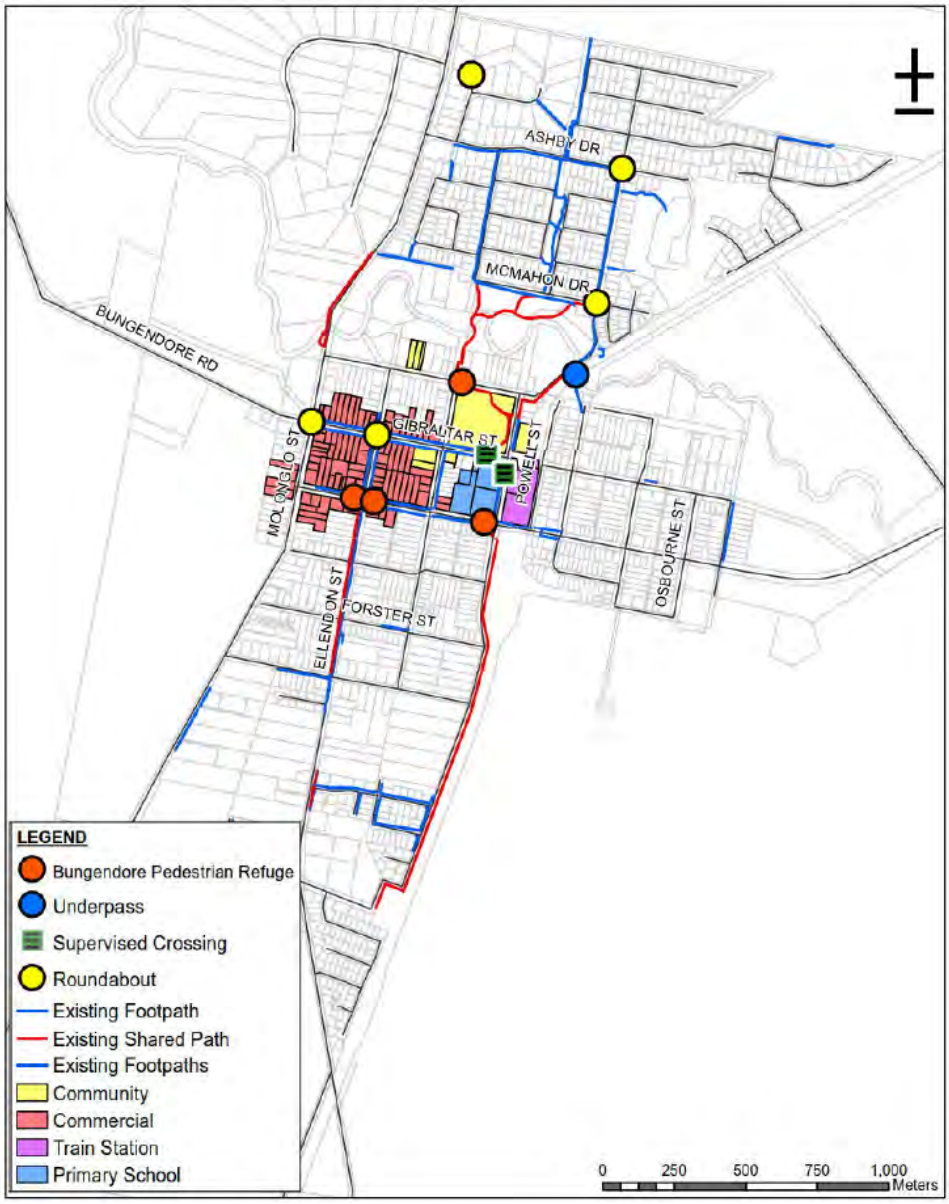
Figure 24 shows the current road layout, pathways, pedestrian facilities and key land-uses in Bungendore. Bungendore is generally well-serviced by a network of footpaths provided on both sides of most streets within the town centre. There are limited off-road paths.

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.

During community consultation in this project the following issues were raised regarding walking and cycling in Bungendore:

- A cycle link (shared path) is needed from Bungendore to Showground.
- Missing footpath links from along Ellendon Street from southern residential areas into the CBD.
- Complete shared path loop within park at front of Council.
- Turallo Creek Bridge has a path on opposite side of where the shared path is along Tarago Road.
- The cycling population is increasing and active travel should be encouraged.
- The provision of cycle racks and other infrastructure in the village should be encouraged.
- Bungendore is an ideal town for cycling because of the flat topography and it is relatively safe.
- It would help if bicycles could be taken on trains.
- Consideration of a footpath link from Elmsea Estate to Gilbraltar Street.
- Integrate a dirt trail along Turallo Creek to the flood mitigation work around Tarago Road. Consider extending dirt trail under the bridge at Tarago Road.
- Include cycle carriage on bus and train routes from Bungendore to Canberra.
- Footpath Forester Street (West) – integrate with Ellendon Street.
- There is uneven path over the railway and along the highway which is dangerous.
- Footpath under Rail Bridge at culvert near Dog Park to access east Bungendore under the rail tracks from integrated pathways.
- Existing footpath that runs from Malbon Street and across the railway crossing should be upgraded. There is a concern for safety for pedestrians with prams who currently have to step onto the road and then back onto the footpath.
- Upgrade the existing footpath along Molongo Street.
- Create a cycling route around the Bungendore town centre.
- Build a path along the creek.
- The shared path on Eleanor Street is too narrow.
- There is no footpath on Hyland Drive.
- Concern for the safety crossing Malbon Street and need for pedestrian crossing.
- Footpath connection to the proposed Molonglo Rail Trail.
- Future walking track along Turallo Creek at the back of Old Elmslea.
- Track suitable for horses to the Showgrounds and link to the Womboin trails.
- Dangerous gravel humps along Forster Street that are a hazard for our young bike riders.

Figure 24: Bungendore street map and pathways



Source: AECOM, current as of December 2017

2.7 Car Parking

There is no data on the current supply and demand for parking in the various commercial centres in Queanbeyan, Bungendore and Braidwood. This needs to be addressed, especially for Queanbeyan CBD where significant future development may occur. Council is currently developing a carparking strategy. However, there is proposed Council projects in response to community concerns for off-street carparks to be constructed in both Braidwood and Bungendore.

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 Queanbeyan.

The provision of connections from the car parks at the rear of the Monaro Street shops provide direct and convenient access throughout the CBD, 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 CBD 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.

The Queanbeyan Development Control Plan (DCP) 2012 Part 2 (Queanbeyan City Council 2012b) outlines requirements for the provision of car parking and service delivery facilities for new development. In some instances the NSW Government's State Environmental Planning Policy (SEPP) takes precedence over the Queanbeyan DCP.

Amongst various requirements, it stipulates that car parking is to be provided on-site to cater for the increased demand brought about by the development of a site. However for sites within the CBD a monetary contribution paid in lieu of providing car parking on site may be acceptable.

In mixed-use developments, where peak demands for each land use component of the development are staggered, and this can be demonstrated to the satisfaction of Council, a reduction in the total number of spaces required may be accepted.

The current parking provisions are specified as minimum requirements. They are suitable for areas with low public transport provisions, but this may need to be reviewed in future.

3.0 Vision and Key Policy Directions

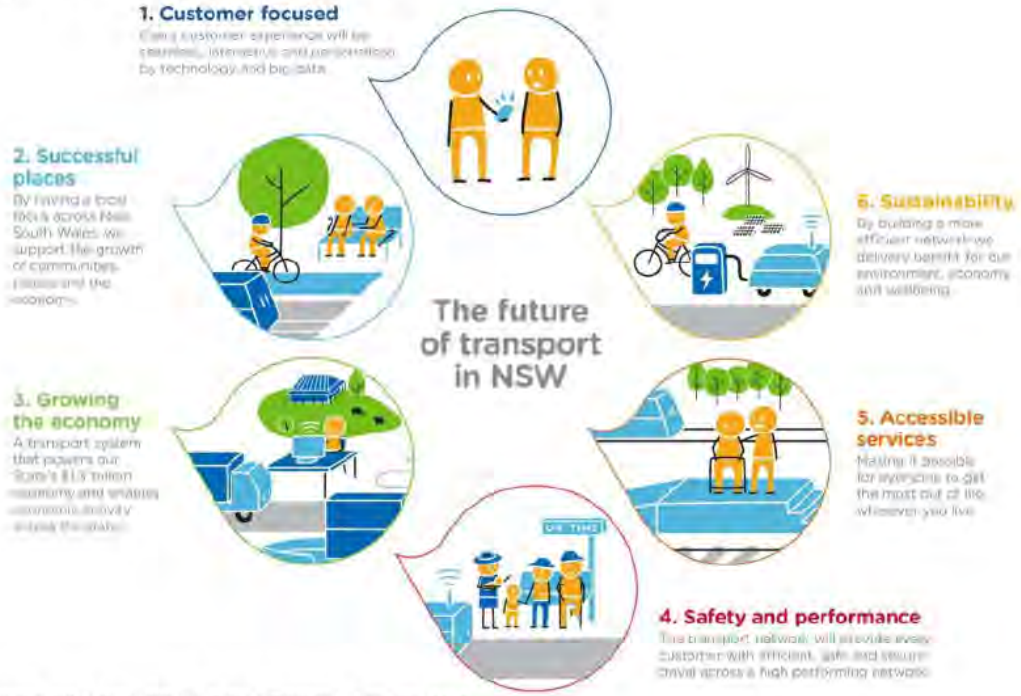
3.1 Current Policies

3.1.1 State Policy

3.1.1.1 Future Transport Strategy 2056

The *Future Transport Strategy 2056* sets out the vision, strategic directions and customer outcomes for the infrastructure and services plans for Greater Sydney and Regional NSW. The strategy is focused on six state-wide outcomes for the future mobility of NSW, shown in Figure 25. The aim is to positively impact the economy, communities and environments of the state, with these six outcomes are set to be the focus on every planning decision. These outcomes also guide the priorities set for regional communities that currently experience lower service levels and slower population growth than Greater Sydney.

Figure 25: Six customer and network outcomes



Source: NSW Government, Future Transport Strategy, 2017

The Strategy highlights that regional NSW has 19 regional cities and 27 regional centres. The 19 regional cities include two Global Gateway Cities (Greater Newcastle and Canberra), which serve extended catchments around Canberra-Queanbeyan and the Hunter areas as shown in Figure 26 below. Greater Sydney is the third Global Gateway City for NSW. Improved transport will broaden the catchment around each of these Global Gateway Cities, improving access to major service precincts, advanced industries and international infrastructure for the purposes of travel and trade.

Significant investment in connecting regional cities is outlined in the Strategy. These connections will be made through smarter procurement and the deployment of technology-enabled and innovative service models.

Figure 26: Importance of Global Gateway Cities

Source: NSW Government, Future Transport Strategy, 2017

The future regional transport network will be planned around a 'hub and spoke' model within a strategic framework of servicing principles allowing for local adaptation and interpretation. Servicing principles include connectivity, flexibility and efficiency, access and equity, legibility and timeliness, provision of accurate information and safety. The network will support local towns and Regional Cities and Centres and help make them better places to live, visit and do business.

The *Future Transport Strategy 2056* was published by the NSW Government in late 2017 and sets a 40 year vision for transport in Regional NSW to support communities and productive economies. An emphasis has also been placed on the importance of providing stronger links between regional cities and centres, rather than focusing on connections to Sydney or the interstate capitals. Along with this shift in focus, the draft Plan identifies Canberra as one of three Global Gateway Cities. These cities are to provide the state-level services and facilities required to support the growing population in NSW.

The draft Plan highlights the following objectives for transport in Regional NSW:

- A safe, secure and resilient transport system that efficiently connects communities
- A transport system that improves productivity and supports regional economies and communities
- An equitable transport system that helps to vitalise our communities
- Accessible transport options for all customers

- A regional transport system that is reliable, flexible, personalised and responsive to customer needs
- A transport system that is affordable and makes best use of resources and assets.

Broad initiatives for implementation over the next 40 years include improving inter-region and regional city connectivity, and expanding the regional public transport network. The initiatives apply generally in aspects such as the road network, public transport, active travel, freight, and town centre infrastructure initiatives. These initiatives include a regional interchange program, walking and cycling programs, town access improvement programs and a regional airport program.

For the South-East and Tablelands region where Canberra is situated, the NSW Government has proposed several policy, service and infrastructure initiatives for investigation (listed below). These initiatives are intended for potential commitment or implementation over the next 20 years.

3.1.1.2 State Infrastructure Strategy 2014

The *State Infrastructure Strategy* (SIS) is a 20-year infrastructure investment plan for the NSW Government that places strategic fit and economic merit at the centre of investment decisions. The SIS assesses infrastructure problems and solutions, and provides recommendations to best grow the State's economy, enhance productivity and improve living standards for the NSW community. It is updated every five years.

The infrastructure considered in developing the SIS includes:

- roads
- rail
- airports and ports.

A target area of the SIS is productive regional industries and connected regional communities. For regional transport, the strategic objective is to improve regional producers' access to markets through investments supporting freight productivity. The key challenges are:

- Manage a growing regional freight task efficiently.
- Improve road freight productivity, particularly on major road freight corridors.
- Tackle constraints and 'pinch points' on the local road network.
- Improve the regional freight rail network and move more freight by rail where economically viable.
- Make passenger transport investments that match the needs of a growing regional population.

The SIS highlights that:

- Regional freight supports production worth more than $80 billion each year to the NSW economy. Agriculture, forestry and fishing, manufacturing and mining account for most of the freight from regional centres.
- The regional freight network in NSW plays a critical role in supporting the national freight task, with 75 per cent of interstate truck freight in Australia using the NSW road network for some part of its journey.
- Around 260 million tonnes of the NSW freight task originates in regional NSW. Together, the Hunter and Illawarra generate two thirds of all regional freight volumes in NSW.
- The primary mode of transport for regional communities is private vehicle, with 90 per cent of the 7.5 million daily passenger trips in regional NSW occurring by car and only 1 per cent and 2 per cent respectively involving bus or train travel.

While road freight productivity has more than doubled over the past 40 years, it has now slowed. Infrastructure improvements along major road freight corridors are needed to allow larger vehicles to move between regional centres, communities and gateways safely and efficiently. These improvements include bridge upgrades, overtaking lanes and driver rest areas.

Local road infrastructure can constrain freight network connections, imposing higher costs on business and communities. Addressing these network 'pinch points' can enable more direct routes to market and allow the use of more efficient freight vehicle configurations. Without investment, these pinch points will continue to require diversions of freight traffic and more freight vehicles will be needed to carry the same volume of freight, imposing higher costs on business and the community. It is estimated that diverted freight travel will cost NSW businesses almost $1 billion over the next 20 years and require an additional 900,000 driver hours.

With strong population growth predicted for a number of regional centres over the next two decades, transport investment should focus on serving this growth and ensuring that regional connections support the new economic and employment opportunities generated by an increasing population.

3.3.1 Southern Regional Transport Plan

The 2014 *Southern Regional Transport Plan* provides a blueprint for the future and a strategic direction for the delivery of major projects in the south-east of NSW over the next 20 years. The Plan draws from a number of other NSW strategic plans and policies. It outlines specific actions and priorities for transport improvements at a local level.

The Plan identifies the following issues with the transport system serving the region:

- Limited public transport services in rural localities increases levels of isolation and disadvantage.
- Need for flexible and innovative transport to serve people in rural localities.
- Need for integrated public transport services cross-border to ACT.
- Increased demand and congestion of strategic road network during peak seasonal demands and holiday periods (e.g. Kings Highway, Monaro Highway).

NSW Government initiatives for the region outlined in the Plan include:

- Improving community transport services including funding for:
  - NSW Community Transport Program
  - Regional transport Coordination Program
  - Country Passenger Transport Infrastructure Grants Scheme
  - Home and Community Care Program (jointly funded with Australian Government).
- Investigating ways to improve the transport interchange at Queanbeyan
- Assistance with road restoration
- Implementation of safety improvements along Kings Highway
- Improving online public transport customer information for the region (including integration with ACT systems)
- Supporting community proposals for investigations into the feasibility of converting non-operational rail lines into tourist or active transport corridors (e.g. rail line from Queanbeyan to Michelago)
- Roll out the Walking Communities Program, Connecting Centres Cycling Program and Cycling Towns Program.

3.1.1.3 NSW South East and Tablelands 2036 Regional Plan (2017)

The NSW South East and Tablelands 2036 Regional Plan outlines a vision of a borderless Canberra region with a connected and prosperous economy, healthy and connected communities, environmentally sustainable housing choices and its diverse environment interconnected by biodiversity corridors.

According to the Plan, the region's prosperity relies on an efficient transport network, a healthy rural and natural environment, and a collaborative relationship with the ACT. Access to global gateways at the Port of Eden and Canberra Airport are providing greater exposure to national and international tourism and export markets. Improved connections to Port Kembla, Port Botany, the Port of Melbourne and Western Sydney Airport will give the region a competitive advantage.

Canberra Airport will drive economic growth in the region. It is expected to generate over 21,000 jobs by 2030 and contribute $2.42 billion per year to the regional economy. As there is no aircraft noise curfew, its international services are unconstrained. Its passenger terminal has capacity to offer more services, and the master planned freight precinct offers a realistic alternative to Sydney Airport.

The Plan highlights that some freight routes across the ACT border are inefficient, and this will intensify as the South East and Tablelands grows. Improving the ability to move freight across the ACT border will better enable agricultural producers to access export markets through the airport. Consistent information on freight movements across jurisdictions will improve the planning for and efficiency of the freight network.

The Plan notes that increasing the productivity of the freight network by improving travel times and freight capacity will bring considerable economic benefits. The road networks, particularly strategic transport links, need to support higher productivity vehicles. This can be achieved by removing height and weight restrictions on major routes, improving rest area options and addressing the constraint of narrow bridges. Major opportunities for the freight network include:

- Improving east-west B-double access along major highways and key regional and local roads connecting the South Coast to Sydney, Canberra and Melbourne
- Managing amenity impacts where key routes run through town centres, particularly in the Hilltops and Queanbeyan-Palerang local government areas
- Improving rail transport and investigating intermodal facilities and the potential to re-open non-operational lines to support connectivity to markets for passengers and freight
- Building on existing facilities to support intermodal connectivity where sustainable freight demand exists, non-operational lines could be brought back into operation.

3.1.2 Local Policy

QPRC has a 'three tier' hierarchy of plans consisting of a Community Strategic Plan, a Delivery Program and Operational Plan.

Planning for QPRC is framed around the Community Strategic Plan. It is a 10 year document (2013 – 2023), which identifies the community's key priorities, and outlines strategies of how Council and other stakeholders will achieve those priorities. It is informed by a number of key strategic documents, including:

- The Delivery Program details activities the Council will undertake to achieve the objectives of the Community Strategic Plan and is updated every four years.
- The Operational Plan directly addresses the actions outlined in the Delivery Program and identifies activities (projects and programs) Council will be undertaking within the financial year. The Operational Plan, which is supported by a detailed budget, allocates responsibilities for each action or set of actions, and identifies suitable measures to determine the effectiveness of the activities undertaken.

The Community Vision portrays the desired destination for the Queanbeyan community by 2021. The Vision provides key principles that form the basis of developing specific strategies. It is an overarching guide to the way future strategies and Council plans are developed and implemented. This includes planning for infrastructure to support the growth and servicing of the community needs.

Key themes raised in consultation as important to the community include:

- **The CBD:** traffic, parking, image, activities, the river and social issues
- **Transport:** public transport, bikes/walkways, major roadways, CBD traffic flow
- **Infrastructure:** planning and location of new infrastructure, planning for and managing future growth

The 2021 vision for infrastructure, access and transport for Queanbeyan is:

> *"As Queanbeyan has grown, an emphasis on the long term planning for infrastructure, and its development and maintenance, has meant that the services and facilities have kept pace with the development and there is capacity for continuing growth. Innovative solutions to funding the necessary infrastructure will involve private sector, federal and state government and the ACT. Safe and accessible road and rail transport has ensured that heavy traffic has by-passed the CBD, and built up areas, as well as products being transported efficiently. People can easily move between suburbs, into the city, and to and from the ACT. There is a choice of affordable public services at times that meet peak and off-peak demand. In designing and delivering both transport and other infrastructure, the desire to live and act sustainably as well as catering for adequate mobility access has been taken into consideration."*
>
> *Source: City of Queanbeyan (November 2013)*

There are a number of key directions and strategies in relation to transport in the Vision document, including:

- Planning for future growth
  - Continue to work collaboratively with the government sectors; NSW, ACT and Federal and, where appropriate, with the private sector, to provide infrastructure and services for new greenfield areas
  - Promote and support private and public sector investment in the development and maintenance of key asset infrastructure in the Queanbeyan area
- Integrated land use and transport
  - Implement the Googong and Tralee Traffic Study including construction of Ellerton Drive through partnership agreements with three levels of government
- Sustainable transport options
  - Continue open dialogue with the public transport agencies for an investigation into current public transport service provision and opportunities for further route scheduling and better linkage with the ACT
  - Further develop an integrated transport strategy prioritising works and service development, and investigating the feasibility of other innovative solutions to access and transport
  - Actively promote walking and cycling as transport options to move in and around the Queanbeyan area
  - Investigate opportunities for a LGA wide car sharing program to facilitate management of traffic congestion in peak periods for those that travel daily to the ACT
  - Develop a Memorandum of Understanding(MoU) with the ACT including integration of public transport, reduction of commuter traffic and Smart Hubs.

- Transport infrastructure
  - Ensure scheduled maintenance and capital works for roads are founded on reliable and justifiable data
  - Continue development of major intersection upgrades following recommendations of the Googong and Tralee Traffic study
  - Continue investigating impacts of heavy vehicles on LGA road network and possible solutions for identified impacts.

3.2 ITS Vision and Goals

The vision and objectives for the ITS define the broad framework for ensuing actions. This was formulated as part of the Stage 1 consultation and is described below.

3.2.1 ITS vision

To build and maintain a safe, effective and environmentally sustainable transport system through: integrated transport and land-use planning, effective policy development and investment to support a connected community with affordable and convenient access to services, responding to emerging trends and making best use of new technology, promoting healthy communities through greater active transport choices, encouraging business development and regional prosperity and working together with neighbouring jurisdictions to form complementary plans and improved connectivity in the region.

3.2.2 ITS goals

Social and economic inclusion: Align the accessibility of transport to the needs of the community and the economy, developing better connected communities through improved travel links that are fast, convenient, safe and secure, and more travel choice for residents and visitors. Provide a range of options to meet transport needs including the provision of infrastructure and non-infrastructure solutions and improved services. Inform the community using a range of communication media of the various transport options available to them. Reduce obstacles to the accessibility for disadvantaged groups, through a strategy to improve infrastructure (physical access) and innovative methods to address access.

Safety, health and wellbeing: Design, construct and maintain transport infrastructure to meet acceptable standards to maximise the safety and security of all users of the transport system. Provide a range of options to meet community needs for health and wellbeing, focussed on the needs of the elderly and teenagers. Make QPRC a cycling friendly region with infrastructure such as separated lanes and road management improvements.

Economic prosperity: Encourage more efficient and lower impact freight and delivery for suppliers and businesses, through application of land use and planning instruments and close collaboration with government agencies and commercial interests. Promote and support government and private investment in road and rail infrastructure to ensure goods can be moved efficiently around the region while minimising adverse impacts on communities and the environment.

Environmental sustainability: Minimise the impact of transport on the environment by supporting growth in public transport, walking and cycling for trips in the region, as well as protecting habitat, biodiversity and landscape values. Create and promote effective policies and investments to support sustainable transport choices, encourage travel behaviour change, respond to emerging trends and to make best use of new technology, re-designing road space allocation, reducing greenhouse gas emissions from transport and containing the provision of off-street parking.

Integration: Progressively develop the transport system in collaboration with Government agencies and commercial interests, to achieve a seamless and connected network through planning and collaboration between a range of government and private providers. Promote and facilitate the integration of the public transport system through integrated transport and land-use policy development and working together with commercial interests and neighbouring jurisdictions to form a unified plan.

Efficiency, coordination and reliability: Support efficient and reliable door-to-door movement of people and goods in the region by progressively upgrading the mobility and carrying capacity of roads by prioritising access to public transport, walking and cycling. Promote innovative transport solutions will be used to improve travel reliability and connectivity by alternative modes.

3.3 Sustainable Transport System

Public transport, cycling and walking are traditionally understood as the key components of a sustainable transport network. However, modern sustainable transport planning extends well beyond accommodating these three modes and needs to encompass wider policy approaches that will reduce both the need to travel by car, and the desire to travel by car.

The following elements need to be considered and incorporated into the planning for QPRC to develop a successful sustainable transport system:

- Influencing land uses to reduce the need to travel and the distance travelled, encouraging the use of active transport modes. Mixed use development increases the opportunity for local access to goods and services within the neighbourhood. Higher density development increases this probability of finding friends, goods and services within a walkable area. Land use planning for high quality schools, childcare, shops, playgrounds and sporting facilities within the neighbourhood will reduce the total need for travel. Less unnecessary travel increases sustainability, social capital, and useful time.
- Influencing urban form and road network structure to optimise public transport effectiveness. It is critical to ensure that public transport services are able to follow direct and efficient paths between key internal destinations and external linkages. Public transport vehicles need to be able to travel along paths that are no longer than those that would be travelled by private cars. Roads intended for public transport services need to form the spine around which all other roads and streets must connect.
- Ensuring that road formations for public transport routes provide adequate capacity and priority for public transport vehicles to ensure efficient movement and separation from traffic congestion. This may include provision for the possible future upgrade of bus routes to ACT to light rail. Planning bus stop locations as an integrated part of the development of pedestrian and cycle networks, and ensuring that the access paths to the stops are logical, legible and appealing. Stop locations also need to be planned so that pedestrians are able to safely cross roads when accessing stops on the far side.
- Providing quality public transport facilities at town and local centres that are located so that they can be efficiently accessed without circuitous movement patterns. This can include locating these facilities on key frontages or within active spaces that also provide high visibility, creating a sense of presence.
- Developing appropriately located Park and Ride facilities. Park and Ride is undoubtedly an attractive option for many users of public transport services although their role is sometimes misunderstood by public transport purists. Park and Ride allows people to use public transport for a significant part of their journey, but still have the convenience of their own motor vehicle to move between home and a public transport stop. The placement of park and ride facilities is crucial, as the sites need to be positioned towards the interface between the community and the surrounding road network, so that motorists naturally travel towards it. It must also be located adjacent to a bus route offering frequent services, and on a road capable of handling the traffic it would generate in the morning and afternoon periods.
- Ensuring that stop and station infrastructure is provided at a high standard, allowing the public transport system to have an identifiable presence within the local community and to create an image of a professional, safe and appealing service being provided.
- Integrating a range of bicycle facilities into public transport stops and stations, and recognising the different needs of different cyclists. This can result in a range of bicycle facilities being provided from secure cages at major stations through to casual bike racks at local stops.

- Providing public transport services that meet the needs of the community as it develops. Servicing a growing community is challenging, particularly in the early years. By most standard planning principles, low population and low density communities do not generate high public transport ridership, making it difficult to justify the provision of service levels that will be useful and thus attractive. This is a common conundrum - the desire to provide quality service has to be weighed against the cost of its provision. The key to success is to provide as much service as can be justified, preferably above minimum standards, and incrementally and regularly enhance that service as the community grows.
- Planning for the operational needs of public transport services as an integrated part of precinct planning. Facilities such as bus layovers and turnarounds are critical elements in a successful public transport system. Failure to adequately plan for them can significantly impact the efficiency and effectiveness of public transport services. However, these facilities can be fundamentally unappealing in an urban environment, but if planned from the outset so that the local urban form can better accommodate their needs, many potential issues can be negated or reduced.
- Connecting parking facilities and bus/transport stops at rail stations.
- Designing path networks that accommodate the needs of different users. Much of the planning of bicycle paths in the past has failed to consider the different needs of different user groups. For example, regular cyclists who commute long distances often express a desire to travel in bike lanes provided on normal roads rather than use off road bicycle paths due to their desire to move swiftly and their increased confidence in negotiating traffic. However, casual cyclists including families with children generally prefer facilities fully separated from vehicular traffic. Path networks also need to accommodate the mobility needs of the different types of pedestrians including mothers with prams, people in wheelchairs and mobility scooters.
- Providing for alternative fuel technologies. Hybrid and electric motor vehicles are becoming commonplace and accommodating them is not particularly difficult. New houses can be pre-equipped with necessary charging points in the garages, and car parks at commercial and retail sites can also be equipped with these facilities. The Victorian Government's Guidance on Land-Use Planning for Electric Vehicle Parking and Charging, 2012 provides a good example of how appropriate provision and design can be addressed at the policy level. It provides guidance on numbers of car parking spaces, design and location. The preference is to prioritise these spaces and locate them close to entry points of shopping centres or other buildings.
- Providing for car share schemes. Car share schemes position cars in a variety of locations throughout the community, allowing their use on-demand by members of that scheme. In many cases, the availability of a car share vehicle can dissuade a business from buying a vehicle, or households from buying a second vehicle if their need is only sporadic. Car share vehicles can be deployed in residential areas, business precincts and at public transport stations and can allow a reduction of parking space provision by up to 20 spaces per car share vehicle available. There is emerging evidence that some users of car share schemes later progress to using public transport as they become aware of the incremental cost of car usage.
- Allowing the use of lower car parking rates. One of the easiest ways to encourage private car usage is to provide ample and free parking at destinations, and to build homes with large multi-car garages. In recent years there has been a trend towards reducing parking rates, in acknowledgement of the negative aspects of providing excess parking. Parking rates should not be determined in isolation of a sustainable transport strategy. It is imperative that people are provided with viable and attractive transport alternatives to the private vehicle before applying reduced parking rates to assist to achieve the desired outcome of reduced car usage levels.
- Developing Green Travel Plans for local residents and communities to help change community attitudes and behaviours towards more sustainable transport. The provision of quality services and infrastructure are an important step, but an active effort needs to be made to inform and promote them so that residents and visitors are aware of them and use them. Green Travel Plans (GTPs) are commonplace in the UK but have yet to be commonly adopted in Australia. Workplace Travel Plans are also an important tool for employers and workers to improve their wellbeing and commercial performance. Companies in NSW such as Optus have reported improved staff recruitment and retention.

3.4 Active Transport

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.

Linking people to open space, public transport, education, shops and jobs via a quality network of walking and cycling routes has a number of positive benefits for communities. These include but are not limited to:

- Economic Benefits
  - Transport Efficiency – active transport can reduce the demand on the road system thereby reducing the need for road infrastructure reducing development and maintenance costs (an integrated multi-modal transport network in a greenfield development can reduce car dependence)
  - Parking Demand – active transport use can reduce the demand for very expensive parking
  - Land Use Efficiency – space requirements for active transport infrastructure to accommodate trips is less than that for private vehicles (pedestrian requires approximately 3 m^2, a cyclist 10 m^2 and a car travelling at 30 km/h requires 30 m^2 per km travelled) reducing land take and increasing the yield from land
  - Consumer Expenditure – active transport is low cost form of transport and can reduce the need for multiple car ownership in households reducing household transport expenditure and increasing disposable incomes
- Environmental Benefits
  - Emission Free Transport – active transport is free from greenhouse gas emissions and pollution
  - Noise Free Transport – active transport trips tend to replace private vehicle trips, reducing noise disturbances and discomfort
- Social Benefits
  - Increased Mobility – members of a community without full-time access to a motor vehicle are provided with a transport option to access services and facilities. When linked with public transport results in residents have greater access to retail and employment outside the centre resulting in higher levels of economic inclusion for all residents.
  - Health Benefits – active transport increases the level of physical activity in communities, also supporting mental health and ageing populations
  - Increased sense of community - the provision of a well- considered active transport network will encourage social interaction, community cohesion and increase liveability of areas. These factors can often have a positive influence over property values, business activity and can also help to reduce crime and other social problems in areas (Litman 2003).

Therefore, delivering a high quality walking and cycling environment in any community should be of a high importance.

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 2012). 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 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.

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:

- 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 km/h 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.

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

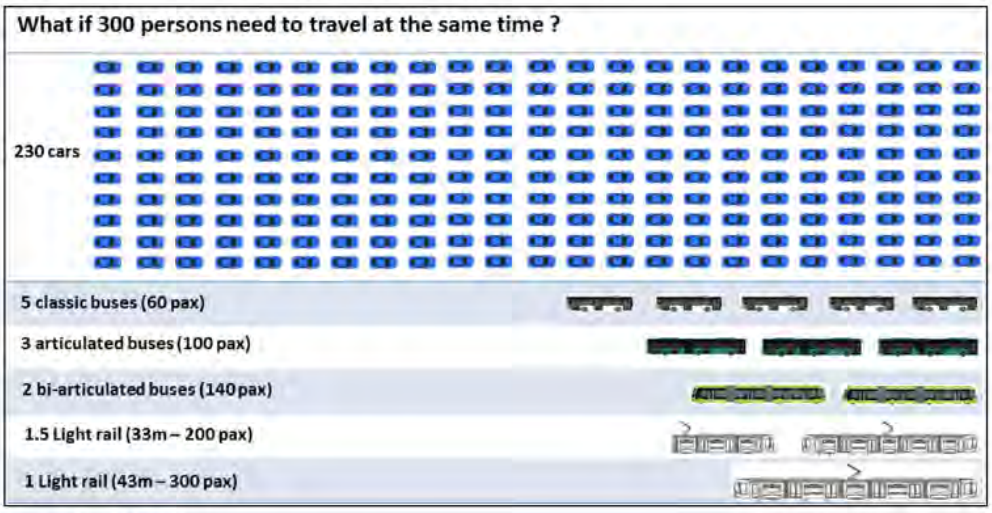
> *Healthy transport means less driving and more walking and cycling, backed up by better public transport.*
>
> - *Roads should give precedence to cycling and walking for short journeys, especially in towns*
> - *Public transport should be improved for longer journeys, with regular and frequent connections to rural areas.*

3.5 Public Transport

Without significant and focussed intervention, strategic model forecasts indicate the mode split will remain relatively consistent resulting in a large increase in the effective number of cars on the city's streets, intensifying local and broader road congestion.

Strategies need to be implemented to drive a shift toward more sustainable and efficient transport modes, through a combination of improving quality and attractiveness of these modes and discouraging private vehicle utilisation: bringing mode choice trends of Queanbeyan more in line with Canberra. The spatial efficiency of public transport modes in moving people, versus the private vehicle, is illustrated in Figure 27.

Figure 27: Spatial efficiency of moving people in cars versus public transport



Source: AECOM, 2016a

Note: assumes full public transport vehicles

Urban density is the greatest indicator of the potential for public transport to be successful. In inner-city areas, urban planning aims to increase the density of development around public transport stations or along public transport routes.

Achieving a high utilisation of public transport in a greenfield community located on the urban fringe such as Googong is a significant challenge. Typically, the market for residential property in an area like this will be focused on low density housing and although small pockets of medium density development might be achievable, other factors will affect the take-up of public transport.

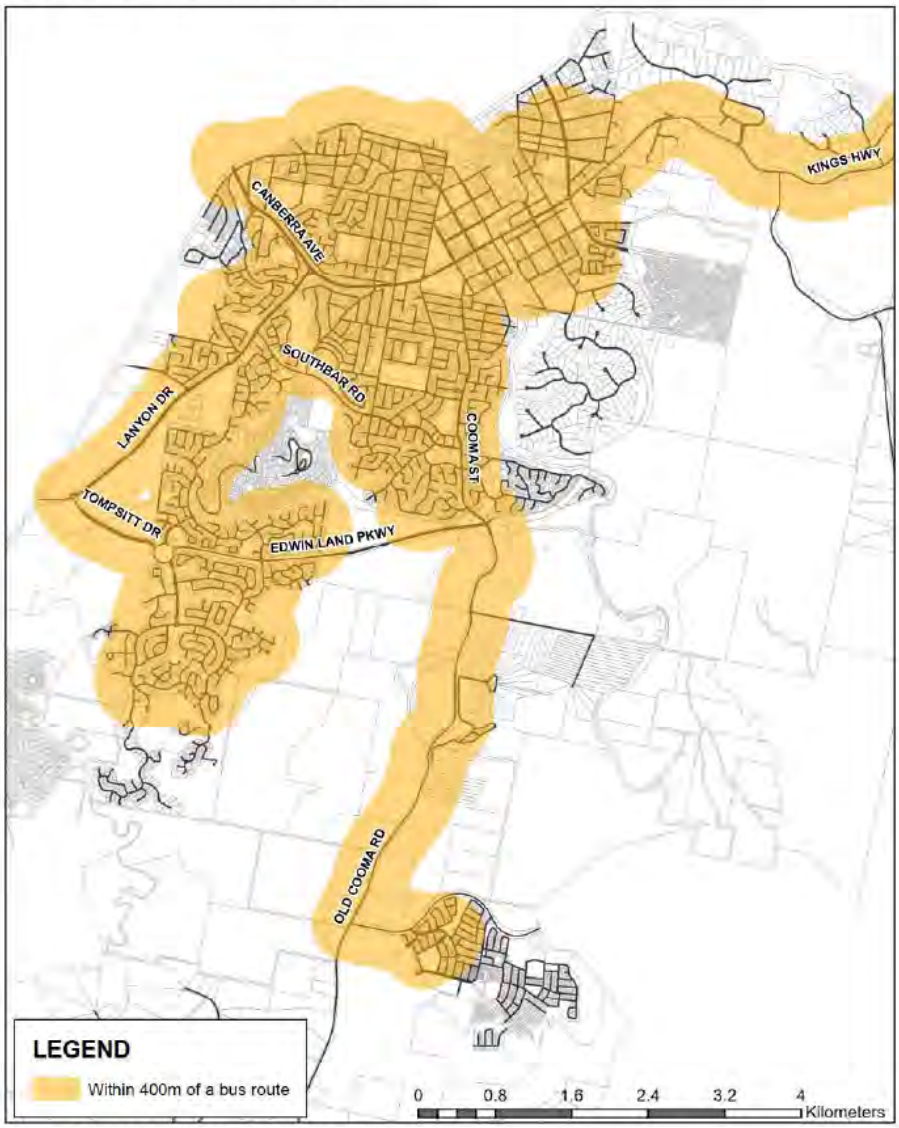
Density is not the only factor which creates successful public transport outcomes but also the mix of land uses. It is essential to create the right mix of residential density, retail opportunities, education and jobs in close proximity to frequent and useful public transport services. Opportunities exist to influence urban planning to maximise the number of people residing and working in close proximity to the public transport services, and in particular, the locations of every stop. If each stop is treated as a potential location for localised transit oriented development, with an intent to maximise local density close to the stop, higher density outcomes can be achieved in the locations where they matter the most.

Proximity alone will not be enough to ensure good outcomes, and needs to be supported by direct, legible and efficient pedestrian and bicycle access to the public transport service. This can be achieved by influencing the urban form of the community in terms of the location of the roads that public transport will use, stops, street network and path network. The overt provision of visible secure bike parking structures at generous rates and end of trip facilities such as change rooms and showers will enhance the legitimacy of cycling as a mode choice.

At a service level, one of the primary determinants of the success of a route is its frequency. High-frequency services that come often enough that people do not need to consult a timetable allow greater freedom and begin to offer convenience of travel closer to what owning a car does. However, high frequency services in urban fringe communities are uncommon and this is typically because the community has not been designed to be supportive of such service. Also, public transport services are heavily subsidised by State Governments and there is a limit to how much service the public purse can fund.

More than 90% of residents in urban areas should desirably have access to public transport within 400 m or a train station within 800 m (weekdays and Saturdays) and public transport within 800 m nights and Sundays. A high proportion of the urban area of Queanbeyan is within 400 metres of a QCity bus service as shown in Figure 28.

Figure 28: 400 m walk distance to QCity bus routes



Source: QCity (May 2017) and QPRC data base

Roads should encourage and accommodate:

- Safer and more convenient pedestrian access to public transport
- Better integration of cycling and public transport trips
- Enhanced bus operations through appropriate allocation of street space
- Bus stop and shelter designs integrated with streets
- Integration of built form with bus stops and stations
- Flexibility to have some parts of the network for exclusive use by public transport
- Changes to the ACT bus system.

3.6 Roads

3.6.1 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 by a 'road use hierarchy' that provides the planning basis for decision making with respect to the road network (Vicroads 2011).

The Road Use Hierarchy articulates where the following modes have priority on the road network:

- General traffic and freight access
- Pedestrians (through a Principal Pedestrian Network)
- Bicycles (through a Principal Bicycle Network)
- Road based public transport routes.

In a road use hierarchy, streets are classified according to the places they serve. Those places determine the role and function of the street.

- Main streets
  - Activity is central to surrounding community;
  - Accommodates retail, employment, leisure, education etc.;
  - Active throughout the day and into the night
  - Not isolated to cities;
  - Residential amenity not normally an issue.
- Mixed-use streets
  - Mix of residential, commercial and retail;
  - Occasional services and community uses;
  - Wide variety of uses;
  - Must retain some residential amenity.
- Streets for living
  - Predominantly for living
  - Also contain incidental shops, school, home office;
  - Places to walk, meet, cycle, play etc
  - Also can convey vehicle traffic
  - Amenity for living a priority
- Industrial streets

- Streets used as roads

3.6.2 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 (refer movement corridors in 2056 Strategic Plan).

The practical application of a naked street involves the removal of all hard safety measures, including safety barriers, traffic lights, warning signs, speed humps, pedestrian crossings and road markings. These are all replaced with road surfaces that do not clearly distinguish between vehicle and pedestrian space, ambiguity in defining traffic rules, and a street environment that fosters eye contact and human interaction. The woonerf, a Dutch street network “focussed on the quality of life on the street” further define the naked street as a “street primarily meant as a social space, where people can meet, pedestrians and cyclists can move around freely, and children can play safely.” The woonerf was introduced to the Netherlands in the late 1960s and requires that drivers drive at or near walking pace, or under 20km/h. This is similar to a shared space introduced in a number of commercial centres in NSW and elsewhere in Australia.

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 NSW, including Port Macquarie, Sydney and Bankstown CBD. 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.

3.7 Freight

In NSW, the freight movement task is predominantly undertaken on a shared transport network where the movement of freight and the movement of people compete for space. With the exception of some dedicated freight networks, such as railways in more regional NSW used to transport coal and grain, the interaction of the movement of freight with the movement of people generally happens across the transport network. This includes roadways, railways, airports and waterways.

The *NSW Freight and Ports Plan* (2018-2023) is a supporting plan for *Future Transport 2056* with the goal of “moving goods in an efficient, safe and environmentally sustainable manner, providing successful outcomes for communities and industry”. Freight volumes are forecast to double in Greater Sydney over the next 40 years with a corresponding 25% increase in regional freight volumes.

Six priority areas are outlined in the draft Plan:

1. Strengthen freight industry and government partnerships.
2. Increase access for freight across the road and rail network.
3. Protect existing freight precincts and ensure sufficient future land use.
4. Facilitate introduction of technologies that reduce freight costs and impacts.
5. Reduce the regulatory burden on industry.
6. Ensure safe, efficient and sustainable freight access to places.

Development of the *NSW Freight and Ports Plan* has been guided by the 2013 *NSW Freight and Ports Strategy* which aims to ensure freight is at the forefront of the NSW economy over the next 20 years, and is intended to be reviewed at five year intervals.

A three stage action program is defined in the Strategy:

- Network efficiency – aimed at identifying and utilising latent capacity in the existing network and assets.
- Network capacity – aimed at setting out to establish and maintain a whole-of-network approach to identify actions that increase network capacity, and achieve the desirable balance of capacity and performance.
- Network sustainability – aimed at achieving a sustainable freight network that balances efficient freight movements with community expectations of safety, good neighbourhood amenity and positive environmental outcomes through the integration of land use and freight logistics planning.

The key objectives and principles of the strategy that relate to QPRC are:

- Objectives:
  - Plan for and deliver capacity at key freight gateways in a timely manner – to be achieved in QPRC through improved access to Canberra Airport. Canberra Airport plays a significant role in the region, particularly in the export market. A diverse range of products travel by air, including medical supplies, high-end electronic equipment, seafood, fresh fruit and vegetables.
  - Ensure future options are secured for freight network developments – QPRC'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 NSW.
- Principles:
  - Maximise efficiency of freight movements on the transport network – to be achieved in QPRC by protecting and enhancing access to key freight generating land uses.
  - Ensure continuity of international and interstate gateway capacity.
  - Minimise impacts of freight and logistics activity on safety, amenity and the environment – in QPRC, the existing arterial road 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.
  - Accessing light rail and intermodal hubs.

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

3.8 Themes

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

- All investment decisions to make the most of the existing transport system and informed by a road user hierarchy.
- Promoting sustainable transport (walking, cycling and public transport) is important for a wide range of reasons. Increased use of sustainable transport has environmental and economic benefits through reduced greenhouse emissions and reduced space required for vehicle movement and storage.
- 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 – keep the whole transport network working well providing efficient movements for freight and business travel.
- 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, especially remote communities.
- Safety – making the transport network safer for all users.
- 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.
- 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.

These themes are reflected in the ITS goals described in Section 3.2.2.

4.0 Principles and Strategic Responses

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

4.1 Key Principles

In forming an ITS there are four broad areas of the transport system that need to be addressed:

- Transport network improvements for all modes of travel
- Creating a vibrant and safe CBD
- Partnership with ACT and NSW governments
- Community and stakeholder engagement.

The following provides an outline of some key transport planning principles that should apply to these areas.

4.1.1 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 commercial areas, key employment areas and the wider region. 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 primary pedestrian and bicycle network for QPRC 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 NSW Government responsibility in QPRC and that a comprehensive review of the existing network and detailed recommendations on changes to the network are dependent on agreements to be reached between the ACT and NSW Governments.
- The continued refinement and enhancement of ring roads in Queanbeyan, to ensure that the road network supports the overall 'place' function of the CBD, allows for efficient vehicle circulation around Queanbeyan and to the CBD where required (including provision for freight traffic) and suitable crossing facilities for pedestrians and bicycle riders.
- Planning for future highway bypasses of Bungendore and Braidwood, as part of ongoing planning processes in Council and RMS.

4.1.2 Creating a vibrant and safe CBD

The primary focus of this principle is Queanbeyan CBD, but it could equally apply to Bungendore and Braidwood CBD's, as they evolve in future. Queanbeyan is the current focus as it is the largest commercial centre in QPRC.

A master plan has recently been developed for Queanbeyan CBD and is gradually being implemented. Council is also developing a parking strategy.

The renewal of the CBD 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 CBD, pedestrians should have priority for movement along and across streets.

- Links between CBD attractors – e.g. laneways connecting carparks, pedestrian corridors and parks. All major land uses within the CBD should be effectively linked by high amenity, high priority pedestrian links.
- The CBD is characterised by many shopfronts with narrow frontages and numerous linkages to rear car parks. 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.

The quality and convenience of the transport network connecting to the CBD 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 CBD from surrounding areas that have high pedestrian priority and amenity, and seamlessly link into the CBD.
- Provide new on and off road bicycle links to the CBD 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 CBD throughout the day, evenings and weekends, including the aspects of accessibility and effective integration with land use attractors in the CBD.
- Identify and preserve priority public transport corridors within and through the CBD.
- 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 existing and future ring roads operate to minimise through traffic in the CBD (maximise 'place' function of CBD transport network).

4.1.3 Partnership with ACT and NSW Governments

A large proportion of travel to work and freight travel involves cross-border movement into and out of ACT. The ACT Government holds responsibility for the planning, implementation and operation of the ACT public transport and arterial road networks, whilst the NSW Government is responsible public transport and arterial road networks in QPRC.

The development of a strong partnership with ACT and NSW Governments is crucial to creating better transport connections between ACT and QPRC and could be fostered via the creation of a workplan to develop and document in a Memorandum of Understanding. It is fundamental to the development of an integrated transport system that provides real travel choice across the region, especially improving the public transport network can only be achieved through working in close partnership with the ACT and NSW Governments.

An effective partnership with ACT and NSW Governments 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 ACT and NSW Government Departments and agencies must be consulted when determining the future shape of the QPRC transport network.

4.1.4 Community and stakeholder engagement

Ongoing and continued engagement with the community and business is critical to the successful implementation of the ITS, and to ensure that the solutions proposed are relevant and targeted to meet the needs of users. The local community in QPRC refers to residents, business owners, students, shoppers and other visitors to the region. To date, the community has been successfully engaged in this current project through a number of activities.

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

- The overall ITS objectives should be tested and validated against the broader vision for QPRC defined in Council's overarching community strategy documents.
- 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.
- A working group should be established by Council to monitor the implementation of the ITS.

4.2 Strategic Responses

The strategic responses have been developed from issues raised in the initial round of consultation for each of the key elements of the transport network in QPRC:

- Road network
- Active travel (walk and bike)
- Public transport
- Freight
- Parking
- Integrated land-use.

Only the main issues identified from earlier consultation are listed. A more detailed list of issues is included in the consultation reports (AECOM 2017a, 2018a).

4.2.1 Active travel

The main issues and responses in relation to active travel are shown in Table 15.

Table 15: Active travel main issues and strategic responses

Main issues of concern	Proposed strategic response
• Widths and quality of path surfaces • Missing links or kerb ramps • Accessible paths in Queanbeyan CBD, Braidwood, Bungendore and Captains Flat townships • Few on-road cycle lanes on urban roads and many narrow and poorly maintained shoulders on regional roads • Lack of end of trip facilities, especially at bus interchange and rail stations • Poor integration with public transport • Cross-border integration • Yass Road rail bridge • Lack of family / recreation links • Poor mapping and information on existing paths • Limited cycle network and facilities	1. Identify a connected and accessible path hierarchy and way finding strategy for active travel 2. Support increased provision of end of trip facilities, especially at bus interchange and rail stations 3. Prioritise people and pedestrian movement within Queanbeyan CBD, building on the current CBD masterplan work 4. Introduce lower speed limits in high pedestrian activity areas such as Queanbeyan CBD 5. Implement a program to promote active transport use and facilitate community participation 6. Implement improved cross-border linkages for active travel 7. Improve amenity and pedestrian facilities in Queanbeyan CBD and the townships of Braidwood, Bungendore and Captains Flat (happening) 8. Construct on-road cycling and off road shared path facilities along Ellerton Drive Extension to improve connectivity across Queanbeyan River and local neighbourhoods (happening) 9. Construct on-road cycling and off road shared path facilities along Old Cooma Road to improve connectivity between Googong and Queanbeyan (happening)

A number of responses are already in hand or part of ongoing programs. Specific projects to support the responses are developed in Sections 5.0 and 6.0. More details are included in the associated Pedestrian and Bicycle Study reports.

4.2.2 Public transport

The main issues and responses in relation to active travel are shown in Table 16. A number of responses are already in hand or part of ongoing programs. Specific projects to support the responses are developed in Sections 5.0 and 6.0.

Table 16: Public transport main issues and strategic responses

Main issues of concern	Proposed strategic response
• Integration between the ACT and NSW (buses, routes, fares, information) • Integration between rail and bus (buses, services, information) • Lack of services to isolated communities (e.g. for health needs) or new urban areas (e.g. Googong) • Affordability of bus services bus services • Frequency and reliability of services • Lack of real time information on transport options • Future rail connections and services in the region • Integration of various community and point to point transport services with public transport • Rail stations need to be upgraded • Lack of bus shelters • Lack of services to Braidwood and Bungendore	1. Resolve barriers to extend ACTION Red Rapid service to Queanbeyan interchange, including planning for future bus priority (being examined by ACT/NSW Governments) 2. Resolve barriers to integrate ACT and Queanbeyan fare structure and subsidies (being examined by Transport for NSW) 3. Investigate new bus services and park and ride facilities to service Googong and Jerrabomberra directly into the ACT 4. Review public transport connections to regional train stations 5. Inform community of existing public transport services (e.g. many residents don't realise that they can use the many school bus services that run throughout the region) (happening, Transport for NSW) 6. Seek to implement a real time information system for public transport (already in ACT) 7. Integration of community and point to point transport services into the public transport network (happening, Transport for NSW) 8. Develop a strategy for bus and coach passenger shelters for region 9. Develop a strategy for integrated bus routes between ACT and NSW 10. Seek to implement a commuter rail strategy for travel between Bungendore and Kingston (ACT), with consideration of a potential new rail station at Australian Headquarters Joint Operations Command (HQJOC)

4.2.3 Integrated land-use

The main issues and responses in relation to active travel are shown in Table 17. A number of responses are already in hand or part of ongoing programs. Specific projects to support the responses are developed in Sections 5.0 and 6.0.

Table 17: Land-use main issues and strategic responses

Main issues of concern	Proposed strategic response
• Land-use planning has resulted in dispersed development • Land-use plan does not encourage public transport use	1. Land-use planning to support improved public transport 2. Identify corridors for increased development densities 3. Promote increased densities and mixed-use development in vicinity of Queanbeyan CBD and major existing and future commercial centres, including Googong, Braidwood and Bungendore Centres

4.2.4 Road network

The main issues and responses in relation to the road network are shown in Table 18. A number of responses are already in hand or part of ongoing programs. Specific projects to support the responses are developed in Sections 5.0 and 6.0.

Table 18: Road network main issues and strategic responses

Main issues of concern	Proposed strategic response
• Amount of traffic on Monaro Street in CBD • Reduced access when Queanbeyan River floods • Cross-border road capacity and traffic congestion in peaks • Limited access to Googong • Traffic congestion, access and safety on the main streets of Braidwood and Bungendore • Safety blackspots on regional roads and State highways • Traffic congestion and safety at intersections generally, but especially at the intersections of Lanyon Drive / Tompsitt Drive and Barracks Flat Drive / Cooma Street • Access to the coast via Nerriga Road (for tourism, freight and recreation) • Council is only doing the transport strategy to push the Ellerton Drive Extension agenda • Maintenance of gravel roads	1. Construct Ellerton Drive Extension across Queanbeyan River to provide all weather access and an alternative route for traffic to the Monaro Street CBD route (happening) 2. Conduct a study to investigate options for improving the amenity and pedestrian movement in Queanbeyan CBD 3. Support the ACT in the duplication of Pialligo Avenue (study being conducted) 4. Ensure the alignment adopted by QPRC for the proposed Dunn's Creek Road is preserved, together with a link to Monaro Highway in ACT 5. Duplicate Old Cooma Road from Googong to Ellerton Drive extension (happening) 6. Support a master plan for upgrading the main streets of Braidwood and Bungendore (happening in Braidwood) 7. Lanyon Drive / Tompsitt Drive roundabout be replaced by signals (happening) 8. Continue to review need for intersection improvements 9. A Kings Highway route strategy is being developed by RMS 10. Upgrade Nerriga Road (happening) 11. Continue to review blackspot crash locations and seek blackspot funding 12. In consultation with RMS, continue to update Council traffic studies and recommendations as new data becomes available including any increase in public transport usage (happening) 13. Develop program for maintenance of Council roads 14. Develop plan to assist access for future red rapid service extension along Canberra Avenue to Queanbeyan

4.2.5 Car parking

The main issues and responses in relation to active travel are shown in Table 19. A number of responses are already in hand or part of ongoing programs. Specific projects to support the responses are developed in Sections 4.0 and 5.0.

Table 19: Parking main issues and strategic responses

Main issues of concern	Proposed strategic response
• No parking information or plan for Queanbeyan CBD • Parking requirements for new development does not encourage use of non-car modes	1. Review parking supply and demand and restrictions in Queanbeyan CBD and surrounds, as well as other key centres in Queanbeyan, Braidwood and Bungendore (happening in Queanbeyan) 2. Review potential changes to Council's parking code requirements for new development, so as to encourage the use of alternative modes 3. Identify surface car parks in Queanbeyan CBD for future multi-use development 4. Examine options to introduce new information technology to improve parking access and efficiency in Queanbeyan CBD (currently being investigated as part of CBD Parking Plan)

4.2.6 Freight

The main issues and responses in relation to active travel are shown in Table 20. A number of responses are already in hand or part of ongoing programs. Specific projects to support the responses are developed in Sections 5.0 and 6.0.

Table 20: Freight main issues and strategic responses

Main issues of concern	Proposed strategic response
• Truck access to coast via Nerriga Road • Too many trucks on Monaro Street in Queanbeyan CBD • Trucks through Braidwood and Bungendore • Safety at bridge and blackspot locations • Through traffic (trucks) to/from Canberra	1. Upgrade Nerriga Road (happening) 2. Develop options to reduce trucks using Monaro Street 3. Establish corridors for future bypasses of Braidwood and Bungendore 4. Develop a program to upgrade safety blackspots on regional road network 5. Facilitate upgrade of the standard of the State highway network 6. Develop a strategy to manage truck movements through Queanbeyan 7. Integrate freight movements in ACT and NSW heavy vehicle route plans

5.0 Network Development

This chapter describes the key actions in relation to network development. It is based on an analysis of available traffic and transport data, reports and community feedback. The actions generally link with the ITS objectives, goals and principles described in Section 4.0.

The implementation plan indicating the schedule of works and priorities for network development is provided in Section 6.0.

5.1 Roads and Freight Network

5.1.1 Context

In terms of the current situation, the main good and bad features of QPRC's road system are:

- Good features
  - Relatively low levels of traffic congestion on existing roads
  - Relatively small amount of truck movements in the region
  - Free and generally ample car parking at centres.
- Bad features
  - Kings Highway bisects Queanbeyan, Bungendore and Braidwood causing relatively high traffic conflicts in peak periods
  - Significant traffic congestion on roads to /f rom ACT
  - Limited opportunities to service future traffic growth from Googong
  - Relatively high number of crashes on Kings Highway east of Braidwood
  - Traffic disruption when Queanbeyan River floods
  - Lack of on-road bicycle facilities.

The needs for road improvements flow from the bad features of the road system. These have been identified in more detail during consultation, an analysis of traffic data and a review of previous technical studies.

5.1.2 Future traffic demand

The most recent traffic modelling for the area that provides an indication of likely traffic growth in the area was undertaken by Traffic Design Group (TDG) in 2014. This predicts an average increase in traffic on Queanbeyan's roads of about 1.7% per annum to 2031. The traffic model constructed for QPRC is a behavioural model that uses proposed residential developments and strategic development demographics to model future use of the transport network.

TDG examined a number of options for road improvements to cater for this growth in traffic and their recommendations form the basis of much of the road network improvements described below. The capacity/patronage of the current transport network and a desire to deliver a minimum Level of Service (LOS) D was used throughout the modelling to determine the need for different road improvement options.

Much of the growth is expected to occur as a result of development of Googong and to a lesser extent South Jerrabomberra. This will place greatest pressure on Old Cooma Road (OCR), Cooma Street and Queens Bridge. The construction of the Ellerton Drive Extension (EDE) will take pressure off Cooma Street and Queens Bridge, whilst the duplication of OCR will provide increased capacity south of EDE.

5.1.3 Actions

Actions to address the identified needs are generally expressed in terms of infrastructure projects, but can also relate to changes in policy. The road infrastructure actions to address the issues identified in this study are summarised in map form in Appendix A. The bases for these actions are described under separate headings relating to the different types of actions.

5.1.3.1 New roads

There are three major new road proposals that have been considered in the past or being implemented:

- Ellerton Drive Extension (EDE)
- Dunns Creek Road
- Northern Bypass.

The approximate locations of these new roads are shown in Figure 29.

Figure 29: Potential future new roads in Queanbeyan

Source: (Gabites-Porter 2010)

Note: Alignment of Dunns Creek Road has changed since this modelling was done – see Figure 30

Previous modelling studies by TDG have shown that the EDE is required in the short term due to expected road capacity issues, whilst the other two roads are long-term options. In 2015 Council undertook a reasonable amount of engineering and environmental work to inform the preferred alignment for Dunns Creek Road and the required construction funds.

Ellerton Drive Extension

The 4.6 km Ellerton Drive extension (EDE) provides an alternative route around the Central Business District and connects east and west Queanbeyan to the new southern population growth areas. EDE runs from the current end point of Ellerton Drive, near Yass Road / Bungendore Road, in Queanbeyan East to the Old Cooma Road / Edwin Land Parkway intersection in Karabar (see Figure 29).

EDE provides an eastern, alternative route around the Queanbeyan CBD and is designed to accommodate B-Double movements. The objective of EDE is to retain a minimum Level of Service (LOS) D on Cooma Street, Queens Bridge and Monaro Street, and reduce heavy vehicle movements and traffic congestion in the Queanbeyan city centre. Monaro Street would become a more pedestrian friendly environment enabling further civic and inner city improvements.

EDE is expected to carry about 7,600 vehicles per day by 2031 (TDG 2014). The road design provides for a two lane road (one travel lane in each direction) with climbing lanes in areas with steep grades.

The key features of the extension include:

- One lane in each direction with climbing lanes
- Bridge crossing over Queanbeyan River and Barracks Flat Drive
- Shared off-road cyclist and pedestrian pathway
- Provision of space for on-road cyclists
- Additional access points for Fairlane Estate
- Emergency egress for Greenleigh Estate at Lonergan Drive and the East Queanbeyan reservoir
- Stormwater drainage system, including pavement surface drainage
- Three fauna under-passes and three rope crossings
- Potential for a pedestrian undercrossing at Jumping Creek Estate
- Noise mitigation measures
- Edwin Land Parkway Intersection upgrade.

The Australian and NSW Governments have provided $25M each in funding for the extension. The extension is estimated to cost $86M with the remaining funding to be sourced via a low-interest loan from Council and will be fully repaid, including interest, by developer contributions.

Some preliminary works were undertaken during January 2017. These works included the removal of selected trees and termite mounds along the route and were approved by State and Federal Environment departments.

Roads and Maritime undertook a tendering process in early 2017 and have appointed a contractor in September 2017 to construct the project. Construction of the extension is expected to be completed by mid-2020.

Dunns Creek Road

Dunns Creek Road has been considered in the past as an alternative east-west connection from Googong to Monaro Highway and would take pressure off Old Cooma Road and Edwin Land Parkway. GHD (2015a) undertook an engineering and environmental investigation of alternative routes for Dunns Creek Road for the connection between Old Cooma Road and Monaro Highway, as shown in Figure 30. The primary intention of this this work was to determine the potential cost of the project and needs for land acquisition to reserve a future route for the road.

Figure 30: Dunns Creek Road alignment

Source: (QPRC, 2019))

Traffic modelling by TDG (2014) showed that Dunns Creek Road is not required unless 1710 additional households in Googong are approved, which is not expected until after 2031. A report for Council by GHD (2015a) found that Dunns Creek Road would cost in excess of $200M to construct, will have a bridge in excess of 500 m long, will reduce the connectivity of regional and local bio-links, will remove large quantities of Box-Gum Woodland and several threatened fauna species, will have potential impacts on sites of Aboriginal heritage and will require additional work in the ACT to provide a feasible connection with the ACT road network. It cannot be justified without additional future development west of Old Cooma Road.

GHD did not consider the details of a connection to Monaro Highway and no road reserve exists for such a connection in ACT. Additional investigation is required to determine an appropriate route, design and cost to connect to the Monaro Highway. This work is subject to reaching an agreement with the ACT Government on a suitable connection point.

Council needs to ensure that the alignment adopted for the proposed Dunns Creek Road is preserved, together with a link to Monaro Highway in ACT and that Council lobbies the ACT for this link.

Northern Bypass

The Northern Bypass has been considered in the past as a connection between Kings Highway, Pialligo Avenue and Canberra Avenue. This would take additional traffic off Monaro Street, especially heavy vehicles. A 1995 study by Ove-Arup examined a range of possible by-pass options and the outcome was that the northern bypass was not feasible. More recently, traffic modelling by Gabites-Porter (2010) found that the Northern Bypass cannot be justified.

There has been no investigation of route feasibility for the Northern Bypass and with development that has occurred in ACT and NSW in recent years it is difficult to envisage it being a feasible option. A Northern Bypass of Queanbeyan may need to rely on potential connections via Kowen, previously shown in ACT structure plans but not being considered in current planning for ACT.

The demand for the proposed portion of the Northern Bypass between Pialligo Avenue and Canberra Avenue would be reduced if a new connection is made to Fyshwick via Pialligo Avenue, as indicated in Figure 31. This is likely to have a noticeable impact on truck volumes on Monaro Street and can be more easily achieved and with less impacts than the link between Pialligo Avenue and Canberra Avenue adjacent to Oaks Estate.

Figure 31: Potential future road links to Fyshwick and Symonston industrial areas

Source: URS 2010

5.1.3.2 Road duplication and widening

Major road duplication or widening projects being considered that could benefit QPRC travellers include:

- Duplication of Old Cooma Road
- Duplication of Pialligo Avenue
- Widening of Monaro Highway.

Old Cooma Road

A decision has recently been made by the NSW Government to help fund duplication of Old Cooma Road between Googong and EDE. This work is likely to occur in 2018 and 2019 and will connect to traffic signals being built by the developers of Googong at Googong Road.

Consideration is also likely to be given to extending the work further south to include construction of a new access to Googong. A roundabout is proposed at this location (see Figure 32). The section of road between this new access and Googong Road is likely to need to be duplicated in the longer-term, when Googong nears full development.

Figure 32: Future arterial access from Googong to Old Cooma Road

Source: AECOM (2016b)

There are also plans to duplicate Old Cooma Road (Cooma Street) north of EDE, between EDE and Southbar Road. A design has been completed for this section of road, but it may not need to be constructed for at least 10 years (TDG 2014).

Pialligo Avenue

Pialligo Avenue is in ACT and connects to Yass Road and EDE in Queanbeyan. It provides a direct connection to Canberra airport and to Federal Highway via Sutton Road.

Funding is available for the ACT Government to undertake an investigation of duplication of Pialligo Avenue, and potentially consideration of a new connection between Pialligo Avenue and Kings Highway (part of the Queanbeyan Northern Bypass). This work is in progress.

Council should support ACT in the work to justify the future duplication of Pialligo Avenue, as well as potential future links to Fyshwick from Pialligo Avenue. A new link to Fyshwick would mean that the southern portion of the Northern Bypass would not be needed. These aspects could be considered as part of the Pialligo Avenue project.

Monaro Highway

There is a need to consider potential future widening of Monaro Highway between Isabella Drive and Morshead Drive (to be funded by ACT/Federal Government), to cater for increased traffic from Tralee and Googong, as well as planned future development in ACT. This should include consideration of the future connection of Dunns Creek Road to Monaro Highway at Isabella Drive and future industrial land development around Symonston and Fyshwick. Currently, there is no funding for such a study.

5.1.3.3 Road and bridge upgrades

All major roads in QPRC are continually monitored in relation to road maintenance and safety needs. Funding has recently been announced for upgrading Nerriga Road. This includes sealing the road between Charleyong and Braidwood and replacing the Charleyong bridge.

Other road upgrade projects that have recently been funded in the region include:

- Nerriga Road – funding has been approved for the realignment and re-construction of the existing unsealed sections
- Captains Flat Road - funding approved for rehabilitation works between Molonglo River Drive to Kearns Parade.
- Cooma Road – funding approved for bridge replacement on Cooma Road at Shoalhaven River crossing, Bendoura.
- Molonglo Street / Malbon Street (Kings Highway) – funding approved to construct roundabout.
- Lascelles Street, Braidwood - funding approved for upgrade of kerb and guttering, road pavement, underground drainage and footpaths.
- Bungendore commercial area - funding approved for upgrade of kerb and guttering, road pavement, underground drainage and footpaths.
- Captains Flat township - funding approved for landscaping, tree planting and park/playground works within Captains Flat village and immediate approaches.

Other road works or studies that are currently being undertaken include:

- Braidwood
  - Construct kerb and extend paved area on western side of bridge over Monkittee Creek and consider the need and options for future widening of the bridge.
  - A local area traffic management study of smaller roads which act as shortcuts around the town to the highway (Elrington Street, Monkittee Street and Wilson Street), impacting the amenity of schools, hospital, homes and residential care facilities, and consider a pedestrian path crossing Monkittee Bridge.
  - Channelisation of the Wallace Street / Duncan Street intersection to shift the side-street hold lines to improve vehicle sight distance and to assist pedestrian crossability at this location. It would also provide an opportunity for improved streetscaping.
- Rural roads
  - The upgrade of Monaro Highway. The Federal Government has recently allocated $100M for road widening, including additional lanes and intersection improvements in ACT. This is being matched by $100M in funds from ACT Government. The NSW Government has also allocated $20M for additional overtaking lanes south of the ACT border.
  - Road safety audits and the development of road safety improvement strategies for roads with the highest casualty crash rates in the QPRC region (other than Kings Highway): Macs Reef Road, Bungendore Road, Sutton Road, Old Cooma Road (south of Googong Road) and Captains Flat Road. These roads were identified as concerns in a detailed analysis of crash data on rural roads.
  - RMS is currently undertaking a route strategy study of Kings Highway to determine the needs for future road improvements and priorities.
  - Consider paving Captains Flat Road east of Captains Flat, subject to traffic volume on road
  - Consider undertaking investigation of new bridge at Majors Creek and road safety improvements

5.1.3.4 Intersection upgrades

The recent consultation and previous traffic studies have highlighted the need for the need for intersection improvements in QPRC. Most of these are in Queanbeyan and are summarised by issue and proposed action in Table 21. The action column often refers to the basis for the recommended improvement (prior study), or the fact that the improvement is funded and ready for short-term implementation, or identifying the need for investigation of options where no previous study or recommendation exists.

Table 21: Proposed intersection improvements

Intersection	Issue	Action
Barrack Flat Dr / Cooma St	Long queues at newly installed traffic lights	Review potential retiming of signals and changed layout to increase intersection capacity after EDE opening, in conjunction with study at Southbar Rd.
Canberra Ave / Cameron Road	Congestion, access and safety concerns	Design for new signals completed. Construction funds are to be split between RMS and QPRC.
Candlebark Rd / Cooma St	Access and safety	Review need for improvements to this intersection after EDE opening and as part of the design of the future Cooma Street duplication.
Crawford St / Antill St	Access and safety	Application submitted for 2018/2019 Blackspot Program for new traffic signals, including pedestrian facilities.
Crawford St / Campbell St / Erin St	Access and safety	Application submitted for 2018/2019 Blackspot Program for banning right turn from Campbell St West and new pedestrian refuge on Crawford St.
Jerrabomberra Circle	Access and safety	Council has developed a preliminary design for replacing the current roundabout with a set of traffic signals which would include pedestrian lights. The design was placed on public exhibition in November 2015 but there was concern about the installation of signals. It is recommended that further investigation and design work be undertaken to provide pedestrian signals on the eastern leg of John Dedman Parkway.
Kings Hwy / Molonglo Street	Access and safety	NSW Govt funding to construct roundabout here in 2017/18.
Kings Hwy (Bungendore Rd) / Yass Rd	Capacity and safety	Recent modelling by RMS suggests the roundabout operation will improve post-opening of EDE. RMS will continue to monitor the operation of the roundabout prior to making improvements to the intersection. Nevertheless, mid-block signals should be considered here to assist safe movement of pedestrians across Kings Highway, as well as improving the operation of the roundabout during peak periods.
Lanyon Dve / Canberra Ave	Capacity and safety	Possible part-time signals by 2018 according to a study by TDG (2014). Recent modelling by RMS suggests monitoring the operation of the roundabout prior to considering the implementation of signals.
Lanyon Dve / Gilmore Rd	Safety	Government funding to ban right turn out of Gilmore Road will be implemented when required.
Old Cooma Rd / Googong Rd	Access and safety	Developer installing new signals in 2018/19
Old Cooma Rd / NH2 Access	New access to NH2 (Neighbourhood 2)	Roundabout to be built by developer to provide access to next stage of Googong development

Intersection	Issue	Action
Southbar Rd / Cooma St	Delays and capacity	Review potential retiming of signals and changed layout to increase intersection capacity after EDE opening, in conjunction with study at Barracks Flat Dr
Surveyor St / Ross Rd	Safety	Undertake study to review options to improve safety here
Tompsitt Dve / Lanyon Dve	Congestion and safety concerns	Government funding available for reconstructing this intersection as signals (currently roundabout) in 2018/19.
Uriarra Rd / Ross Rd	Safety and access	Application for new signals in 2018/19 Blackspot Program submitted - design complete.
Uriarra Rd / Frederick St / McKeahnie St	Safety and access	RMS design complete for new signals. Awaiting funding.
Uriarra Rd / Crawford St	Safety	GTA (2011) study recommended right turn ban here. Awaiting funding.
Uriarra Rd / Stornaway Rd	Safety	Application for right turn ban in 2018/19 Blackspot Program submitted.
Wallace St / Lascelles St, Braidwood	Safety	Undertake study to review options to improve safety here, including changed priority or roundabout. The latter is likely to be more effective.
Yass Rd / Hincksman St / Endurance Ave	Access and safety	Design completed for new signals. Recommended to be implemented by 2024 (TDG 2014).
Yass Rd / Shropshire Ave	Safety	Right turns from Shropshire Ave to be banned when signals installed at Hincksman St (TDG 2014)
Yass Rd / Silva Av / Waterloo St	Safety	Right turns from Silva Av and Waterloo St to be banned when signals installed at Hincksman St (TDG 2014)

As noted in Section 4.2.4, Council will need to continue to review need for intersection improvements, including blackspot crash locations and continue to seek blackspot funding.

5.1.3.5 Queanbeyan CBD roads

Successful CBD transformations have placed a strong emphasis on pedestrian-focused environments and orientation. Connections into and around the CBD to enable easy access for people, vehicles, bikes and public transport enable more activity and enhance the city's appeal. This should include slowing CBD traffic to 40 km/h and providing an alternative route around the CBD for some heavy traffic once the Ellerton Drive Extension opens. A 40 km/h speed zone has been successfully implemented in many of Canberra's commercial centres, to encourage safe pedestrian movements and reduce traffic noise.

Hames Sharley has been engaged to develop the Queanbeyan CBD masterplan and recommends a number of changes to the CBD's road system in order to transform the CBD. The work is expected to incorporate and build on the previous masterplans for Queanbeyan City that included:

- New gateway treatments on road approaches to the CBD, to establish a welcoming environment and unambiguous sense or arrival, with the primary treatments at:
  - Monaro Street (Queens Bridge)
  - Monaro Street at its intersection with Lowe Street
  - Crawford Street at its intersection with Antill Street
- Maintaining the through traffic function and carrying capacity of Monaro Street but improving streetscape amenity for pedestrians

- Improve the attractiveness of Antill Street – Collett Street as an alternative traffic route to Morisset Street - Crawford Street, including new traffic signals at the intersection of Antill Street with Crawford Street

One of the recommendations coming out of the master plan and the review of issues in Section 4.0 was the need to conduct a study to investigate options for improving the amenity and pedestrian movement in Queanbeyan CBD.

5.1.3.6 Parking

Car parking infrastructure is an important adjunct to the road system, particularly for commercial centres in Queanbeyan, Bungendore and Braidwood. No data exists on the performance of the car parking serving these centres, in relation to the supply and demand for parking by location and type of parking. This needs to be addressed in the Queanbeyan Car Parking Strategy 2018 – 2028.

Queanbeyan CBD is the focus of the public transport system in the QPRC region. The supply and management of parking in the CBD is a key consideration for enabling a change in public transport usage to the CBD. Parking must support the precincts and encourage more people to spend more time in the CBD.

The Strategy identifies car spaces that can be recycled into the public domain with interconnected corridors and to upgrade car spaces that benefit from smart parking approaches.

The current low public transport frequencies and high costs do not favour consideration of pay parking in the foreseeable future. However, the parking strategies look to leverage the parking spaces and new roads to provide park and ride facilities. Pay parking is one management tool that could be considered when the ACT public transport system is integrated with the QPRC system and public transport is more accessible. Some of the actions worth pursuing as part of this Plan are summarised in Table 22.

Table 22: Queanbeyan CBD car parking management actions

Strategy	Action
Prioritise local businesses through shifting emphasis to shorter term parking within the CBD	Review parking supply and demand and restrictions in Queanbeyan CBD and surrounds.
	Reduce maximum duration for on street parking to short-stay within the CBD.
	Prioritise on-street parking for short term parking, parking for people with disabilities, loading zones, and visitor pick-up and set-down (private, community and coach) in the CBD.
Shift long-term public parking to outer core	Seek opportunities to develop additional off-street parking beyond outer core of CBD.
	Seek opportunities to provide long term 'Park & Walk' or 'Park & Pedal' locations connected to CBD by walking and cycling facilities.
Seek to maintain sufficient supply of publicly available short term parking spaces in close proximity to CBD	Review provision and design of disabled parking bays.
	Review options for the potential redevelopment of Council-owned public car parks and changed parking needs (being considered as part of the CBD Parking Plan).
	Encourage strategies to minimise temporary loss of publicly available parking, loading and set down areas during construction of significant inner city developments.
Review and update Council's parking code	Review potential changes to Council's parking code requirements for new development, so as to encourage the use of alternative modes.
Use communications, such as Smart Parking, to make CBD parking experience understandable, convenient and pleasant for users	Examine options to introduce new information technology to improve parking access and efficiency in Queanbeyan CBD.
	Link public parking messaging to Council's vision and priorities, adopted plans, and public transport and walking and cycling strategies.
	Implement wayfinding linked to real time information on the current availability of parking spaces and or navigational links.

Strategy	Action
Be future-ready, smart and flexible to adapt to changes and disruption caused by technology	Negotiate parking management contracts which allow for policy and technological changes to meet the goals and objectives of the strategy.
	Consider automated car parking technologies to improve capacity and operations in design for existing and future public car parks.
	Prepare for autonomous vehicles and other disruptive technology through periodic review of the strategy.

5.1.3.7 Freight

Future freight demand

A previous study by Sd+D Consult for RTA (2010) provides forecasts of growth in truck movements in the region. It used data from 2009 as a basis for future predictions. A comparison of 2009 and 2031 forecasts is illustrated in Figure 33.

It shows that the primary freight corridor in the vicinity of the QPRC region is Hume Highway and Federal Highway into Canberra. Although not shown, it is likely that Sutton Road is also an important link to Queanbeyan from Federal Highway. To the north, there is also a secondary route from Hume Highway through Tarago, via the Goulburn – Braidwood Road and Tarago Road. Monaro Highway is the key freight link to the south, with similar truck movements to Tarago Road.

Old Cooma Road is likely to become an important tertiary freight route into Queanbeyan in the longer-term. There will also be greater freight movement on Nerriga Road once it is sealed and a new bridge built across Mongarlowe River at Charleyong (current project).

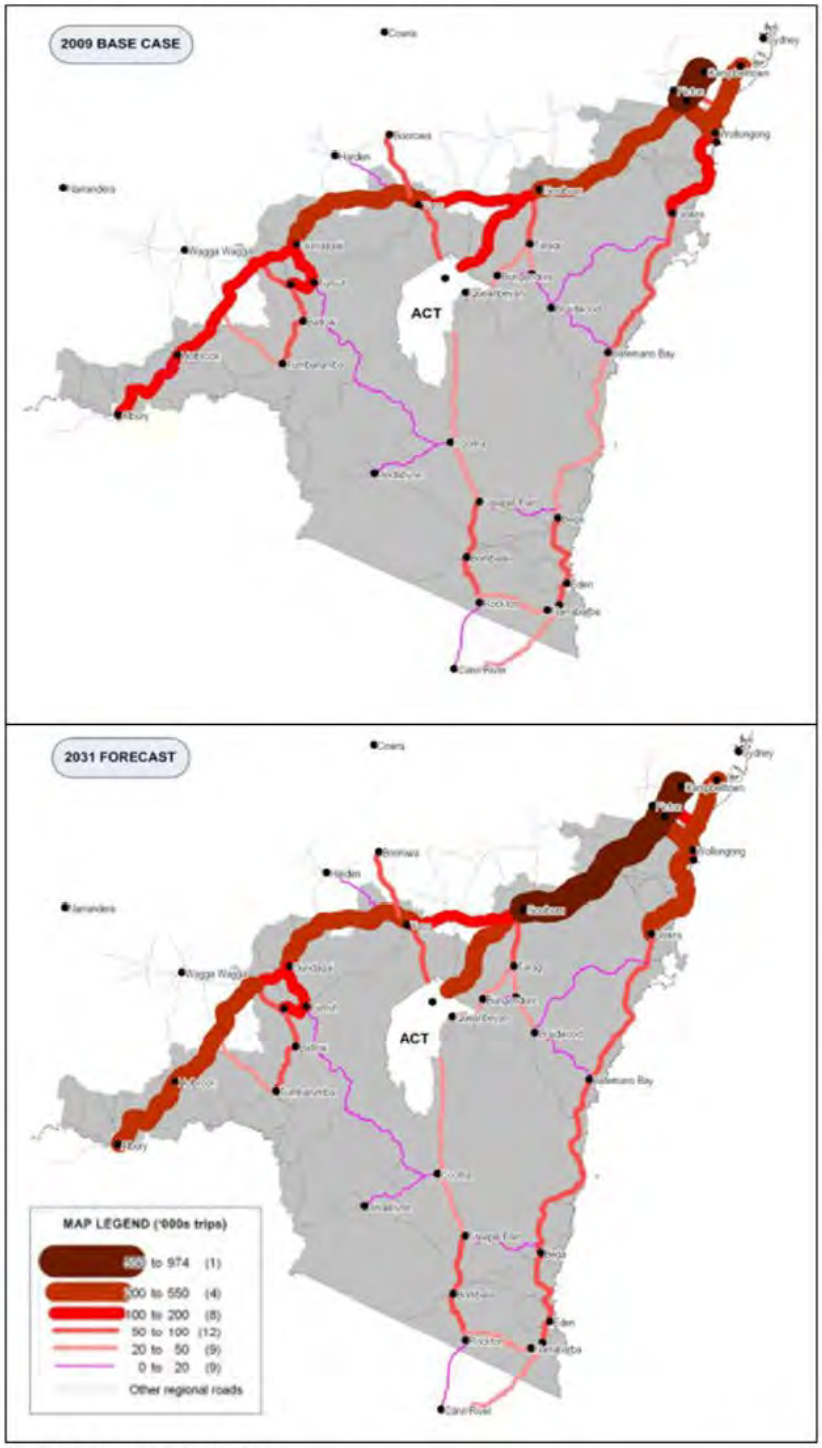
Canberra Airport is positioned to become a central freight hub for the region with the expected commencement of an overnight express service to meet the increasing demand for time-sensitive, door-to-door freight. With an excellent road connection to Sydney and 24-hour curfew-free status, Canberra Airport, unlike the other major curfew-free airports on the east coast (Melbourne and Brisbane), can provide night time freight services to Sydney because it is only three hours away by road. Freight arriving at night in Canberra arrives in Sydney at the beginning of the business day.

At the time this report was produced it was estimated that the initial phase of the freight hub will commence with one to three jets or large turboprop freighter aircraft per night growing to five aircraft within two to three years of commencement. The growth of the overnight airfreight hub beyond the initial stages may occur in any or all of the following ways over the next 20 years:

- More direct services to domestic destinations, such as the de-linking of Tasmanian services from Melbourne services, and services to Alice Springs/Darwin and north Queensland.
- Addition of direct overnight trans-Tasman flights to Auckland, with possible future connections to other parts of New Zealand.
- Turboprop and piston-engine freighter services to regional NSW/Victorian destinations replacing services that currently operate directly into Sydney and/or Bankstown Airport. This could involve up to three additional flights per night.
- Commencement of a parallel freight hub by a second major national overnight freight operator.
- Commencement of direct international freight services to Canberra to link in with overnight express freight services.

This would add between seven and ten new additional flights each night, generating at least 40 extra truck trips per day to/from the airport and the region (ACIL Tasman 2011).

Figure 33: Forecast growth in truck movements in region



Source: Sd+D Consult (July 2010)

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Revision 5 – 21-Jun-2019
Prepared for – Queanbeyan-Palerang Regional Council – ABN: 95 933 070 982

Freight network hierarchy

Overall, it is desirable to achieve a safe, sustainable and efficient road transport system. On different roads, the balance of efficiency will vary. The State Road system is the system of major roads that permit general access for all legal classes of vehicles, and allows movement and access to all facilities across the region. However, on some State Roads the primary function may be the movement of people while on others it may be the movement of goods.

The transport system needs to maximise benefits for the community and economy. To achieve this, there is a need to recognise competing needs for road space, and deliver a balanced response. In some places in the road system, the needs of buses are crucial, and some priority for buses may be considered. In other places, the needs of freight that are dominant, and special consideration is required to ensure that our economy remains efficient. In many places, the needs are more general and the traffic stream may be left to find its own balance.

Transport NSW (2011) has defined three types of freight routes to assist with planning for the management heavy vehicle movements:

- Primary freight routes
  - Connects regions, and services strategically important ports, airports, industrial areas, freight terminals, intermodal terminals and hubs
  - Typically carry high volumes of heavy freight vehicles (>4000 heavy vehicle AADT) and concentrations of road freight including high concentrations of long distance, high capacity trucks.
- Secondary freight routes
  - Connects within regions, and services significant clusters of major business and freight origins and destinations within a region.
  - Carry medium volumes of heavy vehicles (1000-5000 heavy vehicle AADT) and concentrations of road freight.
- Tertiary freight routes
  - Connects within major subregion, and services groupings of business and freight origins and destinations within a subregion.
  - Carry lower volumes of heavy vehicles (< 2000 heavy vehicle AADT) and road freight volumes.

This hierarchy can assist in decision making about the development, operation, maintenance and standards on each road. By defining a freight road hierarchy on the State Road system specifically to serve the needs of freight and the freight industry, guidance to practitioners can be given about the relative importance of giving freight movements specific priority, benefits or advantages while balancing the needs for facilities for other classes of road users.

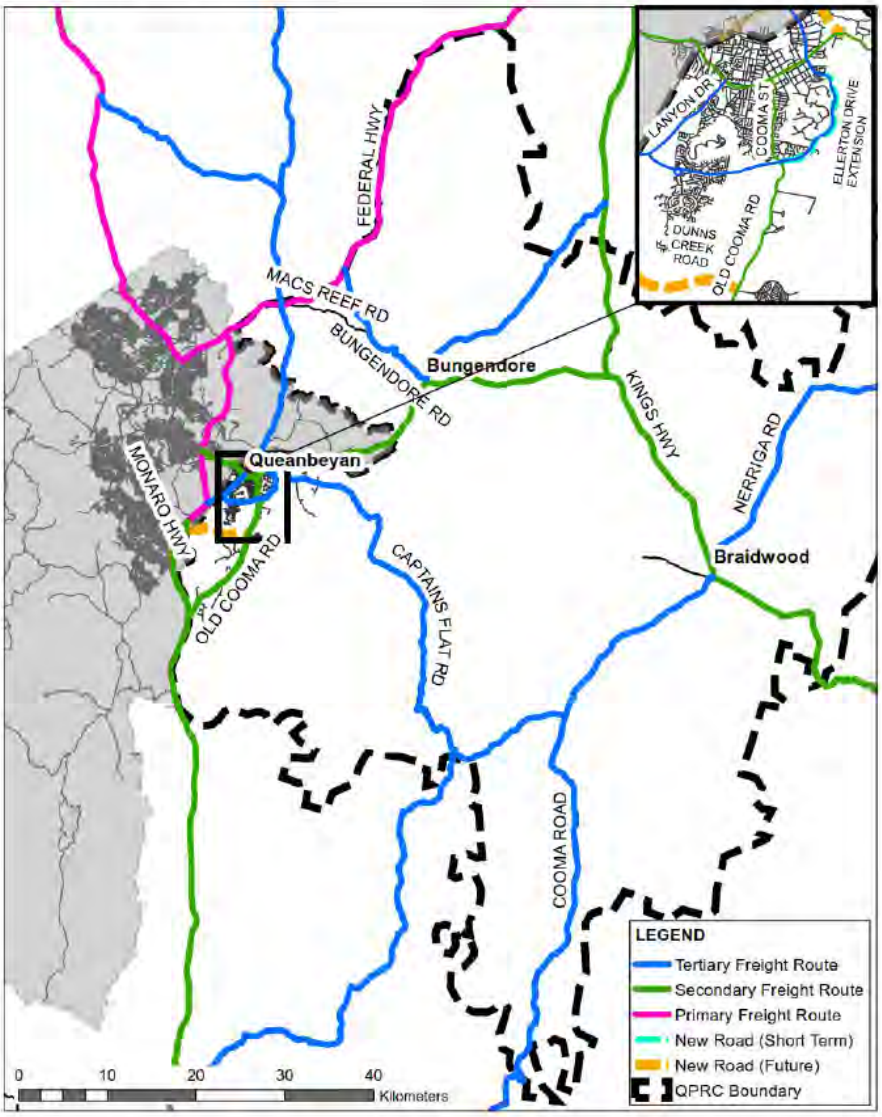
The suggested freight route hierarchy for Queanbeyan and region is shown in Figure 34.

Management of freight movement

The vast majority of freight in the region is transported by road. The relatively small amount of freight that arrives via rail or air is distributed by road from the airport or rail stations.

The draft freight route hierarchy should be reviewed and a recommended hierarchy adopted by Council. This provides a basis for decisions regarding design standards and management of freight movements. One of the important decisions in relation to the route hierarchy is the future role of Monaro Street and an alternative route via EDE, Edwin-Land Parkway, Tompsitt Street and Lanyon Drive. To better understand this choice it will be important to conduct surveys of heavy vehicle movements around Queanbeyan, including traffic counts and origin-destination surveys.

Figure 34: Freight route hierarchy



The incorporation of an intermodal hub (to be situated in the proposed Tralee commercial precinct) into the freight task will allow better solutions to the issues with first mile / last mile within the region.

RMS and QPRC play an important role in ensuring that network planning is in place and the infrastructure and land needed to carry and store goods, connect services and suppliers functions as reliably and efficiently as possible while at the same time having a positive impact on the community and urban amenity. At a broad level this means ensuring our infrastructure and transport networks (road, rail and air) are well planned and sufficiently designed for larger vehicles and trucks associated with bulk goods movement. At a more localised level, there is a particular need to better understand and manage the access and interface issues, including delivery, loading and parking requirements at local shops as well as noise and amenity impacts.

Key actions in relation to freight management are summarised in Table 23. These largely relate to data collection needs and future policy strategies and complement current ACT policies.

Table 23: Freight management actions

Strategy	Actions
Understand the freight task	Conduct surveys of heavy vehicle movements, including traffic counts and origin-destination surveys around Queanbeyan
Plan for future freight activities	Review and adopt a freight route hierarchy for QPRC and map 'last mile' routes
	Identify and protect future freight activities, corridors and local freight access.
Upgrade road and bridge infrastructure	Identify road network constraints that limit heavy vehicle movements in the region or adversely affect safety (e.g., bridge overhead clearances, widths and load limits)
	Develop a prioritised infrastructure upgrade program to meet the needs of future freight activities and larger freight vehicles, including decoupling stations and heavy vehicle parking
	Review supply and management of loading zones both on street and within developments, particularly in Queanbeyan CBD
	Develop options to reduce trucks using Monaro Street
	Establish corridors for future bypasses of Braidwood and Bungendore
Better regulation and enforcement of heavy vehicle movements	Investigate options for larger freight vehicle access to local destinations and also for limiting such access where urban planning may require
Build community involvement	Engage the community in understanding freight management needs, treatments and opportunities
Connect with regional stakeholders	Work with Australian, state and local governments and industry to take a strategic approach to protect and enhance freight routes and facilities in the region (e.g., freight hubs, fuel stops, rest stops, decoupling locations and weigh stations)
	Integrate freight movements in ACT and NSW heavy vehicle route plans

5.1.3.8 Other road matters

A number of additional policy responses or actions have been developed for roads in response to issues raised during consultation, as noted in Section 4.2.4. These are:

- In consultation with RMS, continue to update Council traffic studies and recommendations as new data becomes available including any increase in public transport usage (happening).
- Program for maintenance of Council roads by hierarchy.
- Develop plan to assist access for future red rapid service extension along Canberra Avenue to Queanbeyan.

5.2 Public Transport

5.2.1 Context

A large proportion of travel to work involves cross-border movement into and out of ACT. The ACT Government holds responsibility for the planning, implementation and operation of the ACT public transport and arterial road networks, whilst the NSW Government is responsible public transport and arterial road networks in QPRC.

The development of a strong partnership with ACT and NSW Governments is fundamental to the development of an integrated transport system that provides real travel choice across the region, especially improving the public transport network can only be achieved through working in close partnership with the ACT and NSW Governments.

Most of the actions for arterial roads and public transport cannot be implemented by QPRC, but by other Government authorities (Transport NSW, RMS); QPRC can work with these authorities to help implement these changes and can only advocate for such changes.

In terms of the current situation, the main good and bad features of QPRC's public transport system are:

- Good features
  - A relatively good public transport coverage of the urban area of Queanbeyan.
  - Bus interchange near CBD has park and ride and is being upgraded.
  - Reasonable accessibility to public transport.
  - Commuter connections to Bungendore.
- Bad features
  - Limited regional connections to Braidwood, Cooma and Tarago.
  - Public transport has higher costs than in ACT (this has been partially addressed through recent changes to fare subsidies for QCity Transit).
  - Public transport is not well integrated with ACT public transport system (buses, services, information).
  - Timeliness of schedules and connections.
  - Integration between rail and bus (buses, services, information).
  - Affordability of cross- border bus services.
  - By 2031 more than 50% of Queanbeyan residents will live south-west of Mount Jerrabomberra with constrained transport access.

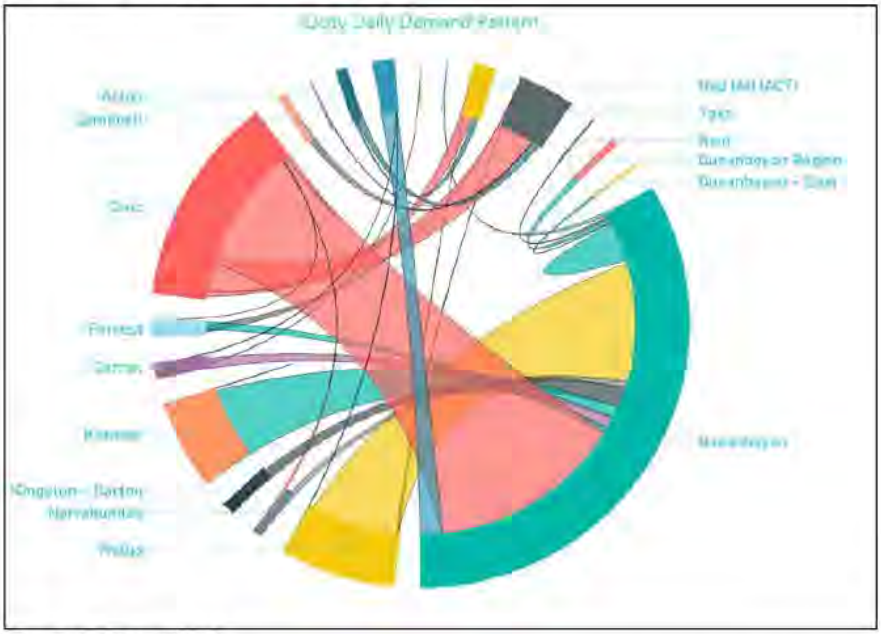
The needs for public transport improvements flow from bad features of the public transport system. These have been identified in more detail during consultation and a review of previous technical studies.

5.2.2 Future public transport demand

MR Cagney (2017) have recently analysed QCity ticket data for cross-border movements into ACT. This is summarised in Figure 35. It shows that the most significant demand for QCity services occurs between the Queanbeyan and Civic. There is also, although smaller, demand for services within the Queanbeyan region, reflecting the necessity for an integrated network. Within the ACT there is also demand for travel between Civic and Woden, Gungahlin, Belconnen and to a lesser extent Erindale.

Public transport passenger data extracted from ACT Strategic Transport Model indicates that passenger numbers between Queanbeyan and the ACT will increase 6.5% per year (compounding) between the 2016 and 2021 model years, and will increase by 5.0% per year (compounding) between the 2021 and 2031 model years. This is considerably higher than the expected traffic growth (1.7% per year) and is likely to reflect an integrated fare system.

Figure 35: Origin and destination of QCity trips



Source: MR Cagney (2017)

In January 2018 the NSW government provided increased fare subsidies to QCity bus services. The impact of the resulting passenger fare reduction is yet to be determined.

The current mode share for journey to work public transport trips between Queanbeyan and ACT is about 2.5%. MR Cagney (2017) indicates that a future public transport mode share of 8 to 10% could be achievable by 2031, with integration with ACT services and increased frequencies. With integrated fares, increased patronage will allow for bus frequencies to be increased.

5.2.3 Actions

Actions to address the identified needs are generally expressed in terms of infrastructure projects, but can also relate to changes in policy. The infrastructure actions to address the issues identified in this study are summarised in map form in Appendix A. The bases for these actions are described under separate headings relating to the different types of actions.

A review of existing documents and consultation has identified a number of strategic responses or actions in relation to public transport (Section 4.2.2). The most noteworthy recent report in relation to public transport in the region was prepared by MR Cagney for ACT Government in May 2017 - a draft report on Cross Border Public Transport Issues and Options. The report to ACT Government, and its recommendations is being assessed by the ACT Government as part of the ACT's broader strategic transport planning activities. The report made numerous recommendations, some of these are:

- Extend the Red Rapid service into Queanbeyan and permit greater ACT patronage of the QCity network.
- Provide a seamless cross border public transport system with one ticketing and fare arrangement across all public transport modes including the future light rail network.
- Improve Park and Ride facilities along the Canberra Avenue corridor.
- Provide appropriate subsidies for these services.

Detailed recommendations that accord with the considerations of this project are included below, where appropriate.

5.2.3.1 New bus routes and services

Queanbeyan

An independent review of Queanbeyan bus routes and community feedback indicated the potential for improvements to the network by providing better connections to Canberra. The suggested improvements need to be evaluated in more detail by QCity and Transport NSW, prior to seeking approval for additional routes into Canberra from ACT Government.

Queanbeyan's bus routes are focussed on Queanbeyan interchange. Hence, bus passengers from the growing areas of Googong or Jerrabomberra who want to travel to Canberra, which is the majority, have to travel an indirect route and change buses in Queanbeyan interchange. Unlike in outlying suburbs of Canberra, there are no peak hour express routes.

To help overcome this weakness and better integrate bus services between Queanbeyan and Canberra it is proposed to initiate three new direct bus services from Googong and / or Jerrabomberra, as follows:

- Short-term (1-4 years)
  - Express peak hour service to Parliamentary Triangle and Canberra City from Googong and Jerrabomberra via Old Cooma Road, Edwin Land Parkway, Tompsitt Drive, Lanyon Drive, Monaro Highway and Canberra Avenue, then following the ACTION Red Rapid Route to City to connect with future light rail and other public transport services
- Medium-term (5-14 years)
  - Route to Woden from Googong and Jerrabomberra via above route and Hindmarsh Drive, to connect with future stage 2 of light rail to Woden and other ACTION public transport services
  - Route to Canberra Airport, Russell and City from Googong via Old Cooma Road, the new Ellerton Drive Extension, Yass Road and Pialligo Avenue
- In long-term (15+ years)
  - Route to Erindale and Tuggeranong from Googong via a future Dunns Creek Road, Isabella Drive, Ashley Drive and Erindale Drive

The routes via Ellerton Drive Extension would require the construction of additional bus stops, not allowed for in the current design. The preferred location for these should be investigated.

Two additional routes are also proposed from Queanbeyan interchange:

- In the short-term, an extended ACTION red rapid service from Fyshwick via Canberra Avenue and Uriarra Road, replacing the existing QCity routes 830, 833 and 834. The timing of this will depend on an agreement between the ACT and NSW Governments and bus operators, currently being considered. This change will have the biggest impact of all proposed route changes, especially if similar fares to those in Canberra are adopted for this service.
- In the medium-term, a new route to the Airport, Russell and Canberra City via Yass Road and Pialligo Avenue. This would be subject to duplication of Pialligo Avenue, for which funding is likely to be sought in the short-term.

It is desirable to relocate the routes of the Canberra services only from Morisset Street to Antill Street when the intersection of Crawford Street and Antill Street is signalised. A bus stop exists on Antill Street close to Aldi and Woolworths, but it would be difficult to locate another stop opposite there; instead it is proposed to provide a new bus stop on Crawford Street, opposite Aldi.

The change in route for Canberra services would solve the AM peak bus congestion problem on Morisset Street adjacent to Riverside Plaza. Congestion causes buses to back-up blocking the pedestrian crossing between Riverside Plaza and Woolworths.

More frequent services are required in peaks and on weekends, to be more in line with Canberra's Frequent Network. A first step for this is to extend the red rapid service to Queanbeyan interchange. In the medium- to long-term, a rapid service could be provided to Jerrabomberra and Googong.

Increased services on weekends could be provided using a demand responsive service, similar to that which currently exists for Bungendore.

Bungendore

Bungendore is serviced by rail, coach and bus services with relatively low frequency of service. No new services are proposed and any increase in frequency is likely to depend on increased demand, unless the NSW Government decides to further subsidise additional services to Bungendore from Queanbeyan.

A QCity demand responsive service (route 850) runs each weekday from various stops in Bungendore to Queanbeyan and return. This endeavours to respond to needs through QCity's Travellerinfo system.

Braidwood

Braidwood is serviced by bus and coach services. There are coach services between Braidwood, Queanbeyan and Canberra, typically running twice a day. There are also a number of school bus services.

5.2.3.2 New rail services

One strategy to improve public transport options for travel from rural areas east of Queanbeyan and reduce traffic loads on Kings Highway and Bungendore Road - Macs Reef Road is to investigate the feasibility of a future commuter rail service between Bungendore and Kingston (ACT), via Queanbeyan. This could also consider a new rail station at the Australian Headquarters Joint Operations Command (HQJOC).

5.2.3.3 Park and ride facilities

Bungendore

The potential for a park and ride car park near to Bungendore Station should be investigated as part of a study of the feasibility of a future commuter rail service between Bungendore and Kingston. This could be used by rail or bus travellers.

Queanbeyan

In general, park and ride facilities should preferably be provided in the periphery of an urban area on lower value land, rather than in a commercial centre or CBD. Important criteria for locating a park and ride facility include:

- Proximity to a higher speed frequent bus routes
- Availability of suitable land for car parking with good car and pedestrian access (or an existing under-utilised car park during weekdays, such as adjacent to playing fields)
- Adjacent to existing or proposed active transport facilities.

There is an existing park and ride facility on Tom Price Street in Fyshwick used by Queanbeyan commuters. It is served by the Red Rapid every 15 minutes to Canberra City. The car park currently has a gravel seal and should be sealed and line-marked if considered a permanent facility. There are also no signs on Canberra Avenue advertising the existence of the facility and this should be addressed. This facility is likely to remain popular when the red rapid service is extended from Fyshwick to Queanbeyan. There is a risk that the Tom Price Street site will be used as a development site in future and an alternative park and ride facility will need to be found in the same general vicinity.

The location of the Fyshwick Park & Ride facility could potentially undermine several cross-border services, so opportunities for Park & Ride within Queanbeyan would be beneficial to intercept car trips before crossing into the ACT.

There is also an existing park and ride facility adjacent to Queanbeyan bus interchange. This location is likely to become more popular when the red rapid service is extended to Queanbeyan interchange. Other potential locations for future park and ride facilities in Queanbeyan include:

- Off Edwin Land Parkway, near Jerrabomberra

- Near the corner of the intersection of Old Cooma Road with Edwin Land Parkway
- Near the northern end of Ellerton Drive
- In the future NH2 (Neighbourhood 2) of Googong.

There are three potential sites off Edwin Land Parkway, near Jerrabomberra (see Figure 36):

- Site A has significant land available for car parking adjacent to the oval off Lerra Street. The road would need to be widened to provide bus layby and pedestrian refuge facilities. This is most easily implemented in the short-term and could service a new express route from Googong, via Jerrabomberra to Inner Canberra, as well as local travellers from Jerrabomberra. This site's feasibility would need to be investigated in a detailed site investigation study.
- Site B would be adjacent to the shopping centre car park and would need to be accessed via Limestone Drive. The existing car park could be expanded to provide additional space for shoppers and park and ride travellers, but the existing ICON watermain in the northern verge would limit what might be achieved. The road would need to be widened to provide bus layby and pedestrian refuge facilities, with an option for possible pedestrian signals. The signals would also assist safer movement to the shops. This site is not likely to be a desirable location.
- Site C could be a longer-term option if Jerrabomberra Circle is converted to a new 4-way signalised intersection, as recommended by SMEC (2015). The southern end of Jerrabomberra Circle could then form an access to the future car park (see Figure 37), with bus stops developed along Edwin Land Parkway on either side of the newly formed signalised intersection. The signals would provide a safe crossing point for bus passengers and other pedestrians and cyclists.

Figure 36: Indicative locations for future park and ride car parks near Jerrabomberra

Figure 37: Potential reconstruction of Jerrabomberra Circle

Source: SMEC (2015)

Two potential sites have been identified near the corner of the intersection of Old Cooma Road with Edwin Land Parkway (see Figure 38):

- Near south-west corner of the intersection of Old Cooma Road with Edwin Land Parkway (Site D). The site could be accessed off Old Cooma Road, with bus stops developed on either side of the newly formed signalised intersection. A potential left-in/left-out access / egress may be feasible off Edwin Land Parkway. The nearby signals would provide a safe crossing point for bus passengers and other pedestrians and cyclists.
- Near north-west corner of intersection (Site E). This site could perform a similar role to Site D, in terms of accessing different future bus services via the signals at the nearby intersection. The primary access for this site would be off Candlebark Road. A potential left-in / left-out access / egress may be feasible off Edwin Land Parkway. The presence of Barracks Creek and topography here makes this site difficult.

This facility has the potential to be used by travellers wanting to board bus services along Old Cooma Road from Googong, either travelling west to Jerrabomberra and Inner Canberra, to Queanbeyan CBD interchange, or a future service via EDE to Canberra via Pialligo Avenue. Thus it is a potential site that could be considered in the medium-term (say 5-10 years), as bus services from Googong grow.

Figure 38: Indicative location for future park and ride car park near Old Cooma Road

Two potential longer-term sites have been identified near the northern end of Ellerton Drive (see Figure 39):

- Site F would utilise an existing gravel car park off Old Sydney Road, which could be upgraded to make more efficient use of the space and to provide a higher quality facility. It can potentially double as a parking facility for the adjacent playing fields on weekends. Bus stops could be located along Ellerton Drive, either side of the roundabout with Old Sydney Road.
- Site G offers more flexibility in relation to space available and could be readily accessed off Mowatt Street. There may be a better alternative use of this site and locations closer to Edwin Land Parkway are likely to better utilised.

This facility has the potential to be used by travellers wanting to board bus services along EDE to Canberra via Pialligo Avenue. This location is likely to service limited bus services in the forseeable future and thus is a potential long-term site.

Figure 39: Indicative locations for future park and ride car parks near Ellerton Dr

In future, a park and ride facility should also be considered adjacent to the proposed school and Googong Commons in Neighbourhood 2 of Googong. The car parking for Googong Commons could be largely used by park and ride travellers during the week and recreation users on weekends. There may be an overlap of parking demands with the school and training evenings, but this can be factored into the required parking supply.

5.2.3.4 Interchange and station facilities

Queanbeyan bus interchange

Recent upgrades to the existing Queanbeyan interchange have been completed with the primary purpose to improve pedestrian safety at the interchange. The existing bus interchange features:

- Formalised bus stands with seating and awnings
- Toilet facilities
- Bike storage and change room facility
- Taxi rank

- Vehicle parking for 253 spaces including 14 disabled parking bays and 12 dedicated motorcycle parking bays
- CCTV Infrastructure.

Train stations

Feedback during consultation indicated that coach parking and passenger facilities at the Queanbeyan and Bungendore train stations should be reviewed. This should be the subject of a future investigation in consultation between QPRC and Transport for NSW. Any upgrades to these facilities should also include carparking to serve travellers between Canberra, Queanbeyan and Bungendore.

5.2.3.5 Bus priority

The highest number of buses and bus passengers occurs at Queanbeyan Interchange and the nearby stop on Morisset Street. The interchange experiences its peak usage during the school zone periods of 7.45 am – 8.45 am and 3.30 pm – 4.30 pm with up to 30 buses entering from Morisset Street and departing from Collett Street. There is congestion at the Morisset Street bus stop adjacent to Riverside Plaza, especially in the AM peak, resulting in the occasional blockage of the pedestrian crossing by queued buses.

A bus priority lane has been suggested along Morisset Street because of the relatively high volume of buses along here and difficulty turning right onto Crawford Street. A preliminary plan for this is shown in Figure 40. This could work for buses proceeding straight ahead along Morisset Street into Lowe Street, but it would not assist the ACT bound services.

To reduce congestion on Morisset Street it is recommended that the ACT-bound buses be re-routed via Antill Street, when new signals are installed at the intersection of Crawford Street and Antill Street. Bus stops already exist near Aldi that can service this change in route.

Figure 40: Possible future Morisset Street bus lane

Source: QPRC (2016a)

QCity indicates that there are two other locations in or nearby to Queanbeyan that are of concern in relation to delays to buses:

- Cooma Street / Barracks Flat Drive signals
  - The operation of this intersection needs to be investigated by RMS, but is likely to be postponed until after the opening of EDE.
- The Harman bus stop on Canberra Avenue
  - The operation of this bus stop and adjacent merge needs to be investigated by ACT Government to improve the safety and operation of buses exiting this bus stop. An option for resolving the safety problem would be to run the buses into Harman, turning around and stopping near the entrance, rather than stopping on Canberra Avenue.

An investigation of options for further bus priority measures along Canberra Avenue should be conducted prior to the future extension of the red rapid service to Queanbeyan. Traffic modelling would be required to investigate additional priority measures and likely impacts on bus travel times and reliability.

5.2.3.6 Pricing and ticketing

Background

MR Cagney (2017) has recently reviewed issues affecting public transport movements between ACT and NSW. A key objective of their study was to recommend initiatives and actions for moving towards a seamless cross-border public transport system between the ACT and NSW. MR Cagney consider that the main barriers to cross-border public transport are the different regulatory environments in ACT and NSW – fares is only one component, although an important one.

The ACT Government is committed with working with councils in surrounding regional towns and the NSW Government to improve transport connectivity between Canberra and the region. The ACT Government (2012) publication 'Transport for Canberra – Transport for a Sustainable City 2012 -2031 plan' states that:

> *The ACT will continue to work towards more effective cross border transport services to achieve a seamless connection between jurisdictions—seamless fares, seamless service, seamless timetables, and seamless public transport planning.*

The Office of the Cross-Border Commissioner was established by the NSW Government in 2011 to facilitate the progression of issues that communities face as a result of being located near state or territory borders. However, it has limited power and can only advocate for a common approach to public transport regulation. IPART and Transport for NSW have greater power in relation to making changes in regulations.

There is strong planning intent and commitment to collaboration. The NSW Government's formal planning commitments suggest strongly that Transport for NSW recognise the need to improve connections and would be prepared to contribute funding to cross-border transport improvements.

Fare price

The primary reason for low bus patronage in Queanbeyan is the lack of integration between ACT and NSW public transport services. This lack of integration is predominantly due to differing passenger transport regulatory environments between the ACT and NSW. Key deterrents to the use of buses in Queanbeyan are fare price, frequency, bus transfers and directness of routes to ACT. ACT public transport services are heavily subsidised by the ACT Government with the result that NSW's fares are more than double ACTION fares.

NSW residents living close to the state's borders with the ACT often travel to these neighbouring states for work, education or business, or to access services. The NSW Government is committed to collaborating with these states on cross-border travel issues. It has signed Memoranda of Understanding (MOUs) with the ACT Governments to ensure local public transport for those living in cross-border regions is seamless. The MOUs identify integrated border bus services, more efficient, flexible transport solutions and improved infrastructure connectivity as priorities.

The Independent Pricing and Regulatory Tribunal IPART (2017b) found that the most significant barrier to cross border travel is the current disparity between the fares charged in NSW and those in the bordering states. IPART is addressing the price differential between ACT and Queanbeyan bus fares and is currently seeking feedback on proposed changes, including new fares implemented from 1 January 2018.

IPART considers that addressing fare disparities is a high priority to facilitate improved travel services for border residents. They also consider that their draft set of maximum fares sufficiently addresses this issue, as it better aligns both the level and structure of NSW fares with those in neighbouring states (see Table 24).

Table 24: Comparison of NSW current and proposed fares with ACT

Typical distance of travel	NSW maximum fare		ACT fare
	Current	Proposed	
Queanbeyan to Canberra (about 18 km)	$8.80	$4.90	$3.06 (MyWay card) $4.80 (paper ticket)

Source: IPART (2017b)

The NSW and ACT bus operators also use different fare structures. The ACT system is zone based with flat fares, irrespective of length of trip. However, NSW bus fares are distance based, making NSW services operating to Canberra significantly more expensive for these public transport users. Thus, the above comparison is based on a 'typical' bus journey of 18 km. The fare differential is less for trips shorter than 18 km, but greater for longer trips.

ACTION's existing structure has a number of attractive features, most notably its 'flat fare' and 'trip based' simplicity. Simplicity is strongly linked to the patronage growth objective – simplicity increases system 'legibility' and makes it easier for customers to understand and use the system.

IPART sets maximum fares for different trip lengths of rural and regional bus trips in NSW. Bus companies can set fares below these limits. Discounts for frequent use of services are possible, such as that which exists with the MyWay card in ACT. QCity has recently introduced a Smart card, which enables the option for discounts.

IPART (2017b) is also recommending that, in the long-term and before the expiry of current contracts in 2024, contracts to provide public transport services in all rural and regional areas be competitively tendered. When tendering for border regions, contracts should ensure that service levels facilitate connectivity to cross border transport services, and address any ticketing issues and necessary fare revenue sharing arrangements.

Bus transfers

All QCity services are centred on Queanbeyan interchange, requiring a change in bus and additional fares to travel to other locations, such as Canberra. Through ticketing is offered to all passengers changing buses at Queanbeyan Interchange to complete a journey. This means that they do not have to pay the "flag fall" component of the fare on the second bus boarded. However, there is an additional fare in boarding an ACTION bus to go to another location in Canberra not serviced by QCity.

What currently happens for persons using QCity services is that they can only travel on these services to a limited number of ACT stops. If they wish to travel beyond those stops, they must purchase an ACTION ticket for that purpose. This makes the overall cost of travel high, with QCity to Canberra ticket currently costing $8.00 per trip (to Civic) and an ACTION ticket costing less than $4.00 for a single trip regardless of distance travelled.

A lack of interoperability by different service providers is a key barrier to greater use (and implementation) of cross-border public transport services.

Customers may need to transfer and are required to hold two different smart cards (or tickets) and incur transfer penalties for transfers that may simply be due to a non-integrated network design. The challenge in developing the public transport system in the region is thus to form a single multimodal transportation system that does not separate between transport modes, but instead enables users to choose the most suitable means of transport for each trip.

Passengers using a MyWay card or ACTION paper ticket can transfer for free within 90 minutes of their first boarding. This free transfer entitlement is not provided for QCity commuters.

Fare concessions

According to MR Cagney (2017) the key differences in concession entitlements between NSW and ACT bus services relates to student fares - unlike primary and secondary students receiving an additional 25% discount off the 50% concession entitlement on ACTION bus services, NSW students only receive 50% concession. ACTION buses services are significantly cheaper for seniors / pensioners than NSW regional buses serving Canberra. Furthermore, under the fares structure for QCity services there are no off-peak discounts or frequent user discounts such as daily / monthly fare capping.

Conclusion

There remain significant legal, regulatory, economic, and political challenges to overcome to achieve a single purchase contract for passengers regardless of mode or operator. While resolution of some of the regulatory issues is likely to be negotiated, the disparity between fare structures and associated issues of public subsidisation of public transport are likely to present some significant challenges to the development of a model of seamless service, at least in the short to medium term.

Longer term solutions which facilitate interoperability and different fare structures under the same account based platform is the ultimate and preferred long term solution. Any changes to the current fare structure must be integrated with planned changes in ticketing technology. Future progress to this next generation of ticketing will significantly removing barriers to interoperability, harmonised fares, discount and loyalty incentives and concessionary policies. A current inhibitor to Action Buses providing services in NSW is the current bike racks that are on the front of some of their buses that are not legal in NSW.

Actions in relation to public transport pricing and ticketing that have been recommended by MR Cagney (2017) are as follows:

- Short-term (1-4 years)
  - Review current ACTION fares structure and concessions/discount policies – consider potential for outer fare zone
  - Review and negotiate progression to a more harmonised fares policy between ACT and neighbouring NSW regional service contracts
  - Explore ways to enable QCity transfers on ACTION services
  - Extend bus transfer functionality between QCity and ACTION services
  - Minor changes to fares policies to standardise concession ages/categories and enable transfers
  - New/extended Red Rapid services to operate under ACTION fares structure/policies
  - Dual ticketing systems on QCity / ACTION services, possibly using MyWay as an interim solution
- Medium- to long-term (5+ years)
  - Develop outer-zone for long distance public transport travel (e.g., Bungendore-ACT services), if ACT fare pricing is adopted for future integrated public transport system
  - Integrated account based ticketing system
  - Consider further harmonisation (nationally) of fares concession policies and passenger transport regulations to facilitate inter-operability and system legibility for all public transport users.

These actions can only be implemented by the ACT and NSW Governments; Council can simply demonstrate the need and lobby for change.

5.2.3.7 Information

One of the comments from consultation was the need for improving online public transport customer information for the region, including integration with ACT systems. Ease of understanding (including availability of information) and ease of use will assist in encouraging people to trial and to continue to use passenger transport.

An integrated network of the future with greater interoperability across services will need to consider some elements of co-branding - to connect all passenger transport information, services, and modes together. A strong unifying brand supports ease of understanding and use by tying all the elements together making it highly visible and legible for new users as well as enhancing the transport experience of visitors to the region.

Actions in relation to public transport information and marketing that have been recommended by MR Cagney (2017) are as follows:

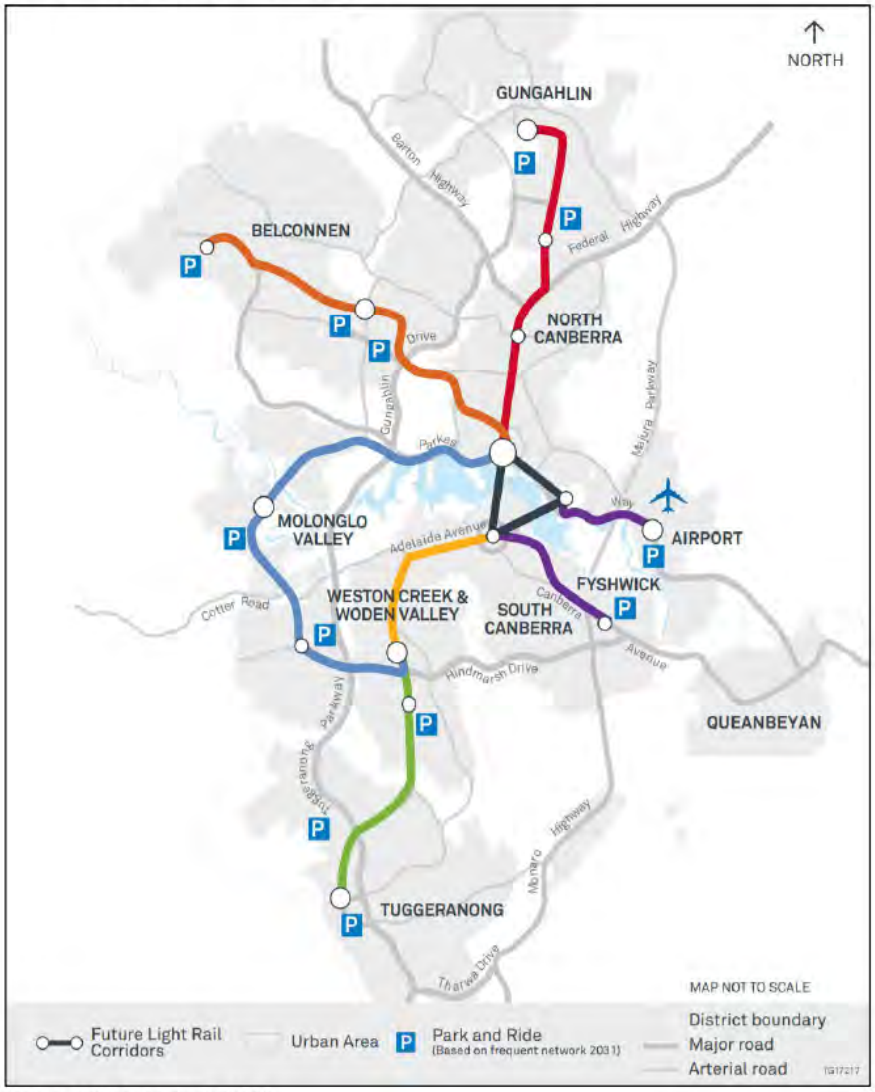
- Short-term (1-4 years)
  - Improve information access by linking operator websites and journey planners and consider a jointly-funded and managed marketing and communications campaign targeting cross-border commuters
  - Bus stop/static directional signage improvements
  - Mobility Apps improvements
  - Branding improvements to recognise both ACTION and QCity as part of an overall public transport system for the region.
- Medium- to long-term (5+ years)
  - Progress to a Mobility management service delivery framework enabled by account-based ticketing.

5.2.3.8 Light rail

In late 2015, the ACT Government released the draft Light Rail Network Plan, which presents a city-wide 25-year vision for building a strong and efficient public transport network with light rail as its backbone (see Figure 41). The first stage of Light Rail will connect the fast growing area of Gungahlin, through Dickson to the City. A second stage is currently being planned. It is expected that this will form the north-south spine for the ACT public transport system for many years, with east-west bus routes linking to the light rail system to form an overall integrated public transport system.

In the long-term there are planned connections to the airport and along Canberra Avenue. The latter is more likely to be considered for extension to Queanbeyan, as part of the development of a broader ACT / NSW public transport network. Preliminary planning would need to be undertaken to determine the feasibility and future land requirements to extend the light rail system further east to Queanbeyan.

Figure 41: ACT light rail network master plan



Source: ACT Government (2017)

5.2.3.9 Other

Some of the NSW Government initiatives for the region that could affect QPRC in future include:

- Improving community transport services including funding for:
  - NSW Community Transport Program
  - Regional transport Coordination Program
  - Country Passenger Transport Infrastructure Grants Scheme
  - NSW Community Care Supports Program (jointly funded with Australian Government).
- Supporting community proposals for investigations into the feasibility of converting non-operational rail lines into tourist or active transport corridors (e.g., rail line from Queanbeyan to Michelago).
- Support the ongoing delivery of wheelchair accessible vehicles and the Taxi Transport Subsidy Scheme.
- Integration of community and point to point transport services into the public transport network.
- Review public transport connections to regional train stations.
- Inform community of existing public transport services (e.g. many residents don't realise that they can use the many school bus services that run throughout the region).
- Develop a strategy for bus and coach passenger shelters for region.

MR Cagney (2017) envisages the following priorities for addressing bus operator policy and regulatory issues:

- Adopt consistent, or mutually recognised, operator accreditation, driver licensing and authorisation, and public transport standards
  - Seek mutual recognition of driver authorities
  - Seek ACTION accreditation with Transport NSW.
- Coordinate cross border transport networks and systems, including:
  - Develop inter-government agreements for delivery of integrated public transport services
  - Agreed set of standards and reporting requirements that set a safety and operation benchmark that is mutually recognised across borders for all registered buses
  - Develop integrated ticketing systems
  - Develop online intelligent transport solutions to improve regulatory compliance and passenger information (including integrated transport and mobility apps for customers).

Under a future integrated network it would be anticipated that Transport Canberra initiatives such as bikes on buses and ACT's real time passenger information system would operate on cross-border routes. Although bicycles are currently not permitted to be carried on buses in NSW, this does not appear to be precluded under the NSW Rural and Regional bus contracts.

Other public transport policy responses or actions from consultation during this project include:

- Land-use planning to support improved public transport
- Identify corridors for increased development densities
- Promote increased densities and mixed-use development in vicinity of Queanbeyan CBD and major existing and future commercial centres, including Googong, Braidwood and Bungendore Centres.

5.3 Active Travel

5.3.1 Context

The needs for cycle network improvements flow from the bad features of the existing network. These have been identified in more detail during consultation, an analysis of potential bicycle routes and a review of previous technical studies.

Queanbeyan

In terms of the current situation, the main good and bad features of Queanbeyan's walk and bicycle network are:

- Good features
  - Generally flat terrain in major urban areas
  - Construction of new roads aims to include on road provisions and off road shared paths (e.g., Ellerton Drive Extension and Old Cooma Road duplication)
  - Some good recreational trails.
- Bad features
  - Existing pathway facilities are not well signed and continuity and wayfinding is poor
  - A number of major roads carrying high volumes of traffic that create barriers for safe pedestrian and bicycle movements during peak periods
  - Quality of path widths and surfaces
  - Missing links or kerb ramps
  - Data quality and asset tracking
  - More on-road cycle lanes required
  - No clearly defined network hierarchy within Council for path infrastructure
  - Bicycle parking and end of trip facilities especially within the central areas and in new developments.

Bungendore and Braidwood

- Good features
  - The town is a small size to enable walking and cycling, with over 80% of residents within 1.5 kilometres of the town centre
  - Bungendore is an ideal town for cycling because of the flat topography and it is relatively safe
  - Traffic volumes are generally light (fewer than 1,000 vehicles per day), with the highest volume on Kings Highway having up to 6,000 vehicles a day
  - Within the precincts of Bungendore, traffic speeds are relatively moderate.
- Bad features
  - Kings Highway passes through the centre of the town
  - The grid street pattern provides opportunities for a variety of routes, but is compromised (in terms of accessibility) at a number of points due to watercourses and street closures
  - At most intersections, the intersecting streets connect at a large radius. This has the following impacts: vehicles can take the corner at faster speeds, distances for crossing the road are relatively long, and kerb ramps (and hence footpaths) are relatively distant from the kerb of the path of travel.

5.3.2 Actions

Actions to address the identified needs are generally expressed in terms of infrastructure projects, but can also relate to changes in policy.

Infrastructure works

The infrastructure related actions to address the issues identified in this study are summarised in map form in Appendix A. The bases for these actions are described in separate bicycle and pedestrian facilities plan reports for Queanbeyan, Bungendore and Braidwood (AECOM 2018b, c and d).

Network master plans have been defined for upgrading the walk and bicycle networks for Queanbeyan, Bungendore and Braidwood. These form the basis of future actions and the staging and implementation plan outlined in Section 6.0.

The proposed walk and bicycle network master plan for Queanbeyan, Bungendore and Braidwood are shown in Figure 42 to Figure 44. It shows existing and future pedestrian and bicycle facilities.

Upgrades to the cycle network typically occur with capital road improvement i.e Old Cooma Road, Pialligo Avenue and the proposed river corridor to Fyshwick.

Future facilities include:

- Local road links (for cyclists)
- Shared paths
- Footpaths
- Cycle lanes (on-road).

A list of proposed works is included in the bicycle and pedestrian facilities plan reports (AECOM 2018a, 2018b, 2018c).

Policy actions

A number of non-infrastructure actions were identified in Section 4.2.1, as follows:

- Support increased provision of end of trip facilities, especially at bus interchange and rail stations
- Prioritise people and pedestrian movement within Queanbeyan CBD
- Introduce lower speed limits in high pedestrian activity areas such as Queanbeyan CBD
- Implement a program to promote active transport use and facilitate community participation
- Improve amenity and pedestrian facilities in Queanbeyan CBD and the townships of Braidwood, Bungendore and Captains Flat (happening).

Figure 42: Proposed Queanbeyan walk and bicycle network master plan

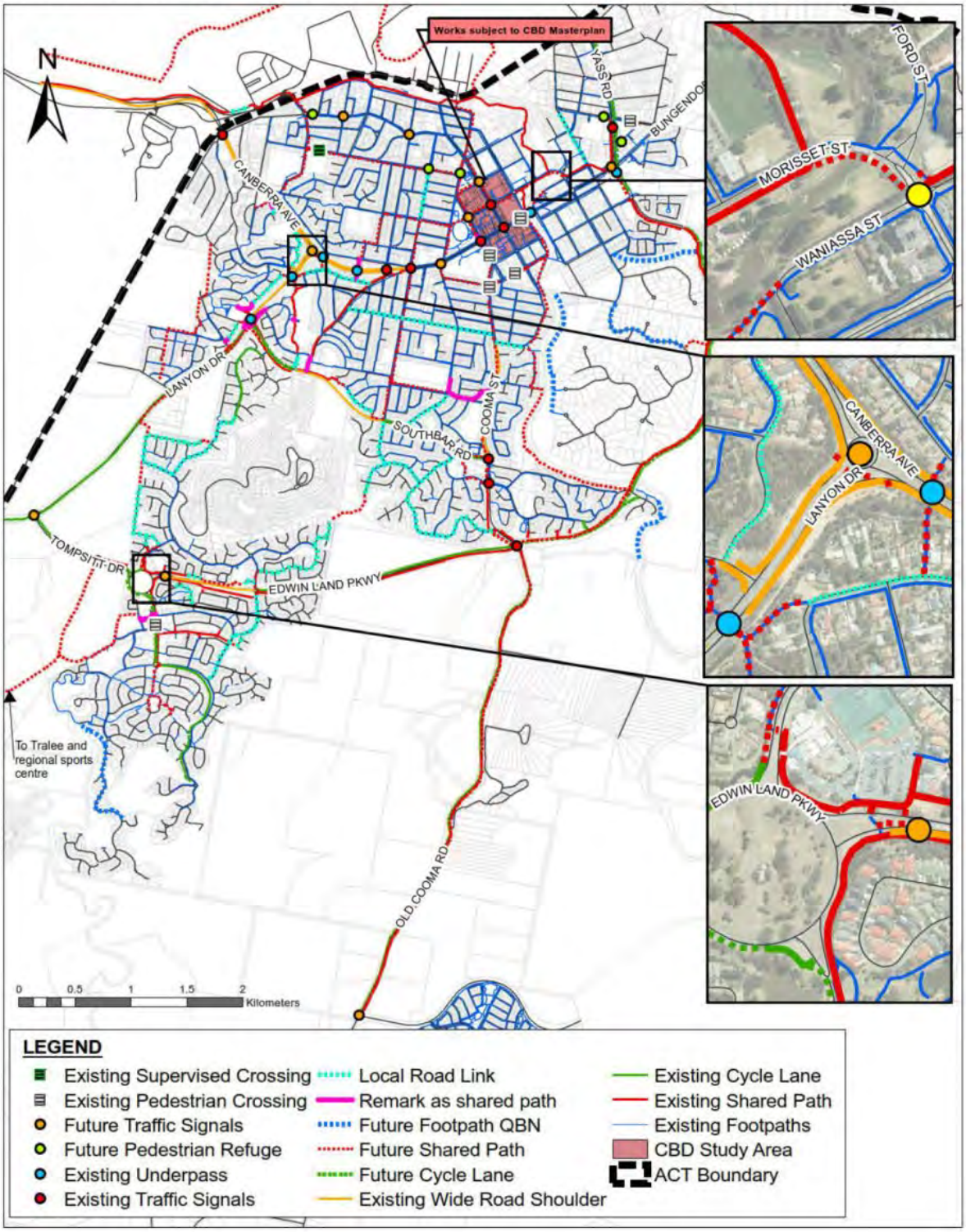


Figure 43: Proposed Bungendore walk and bicycle network master plan

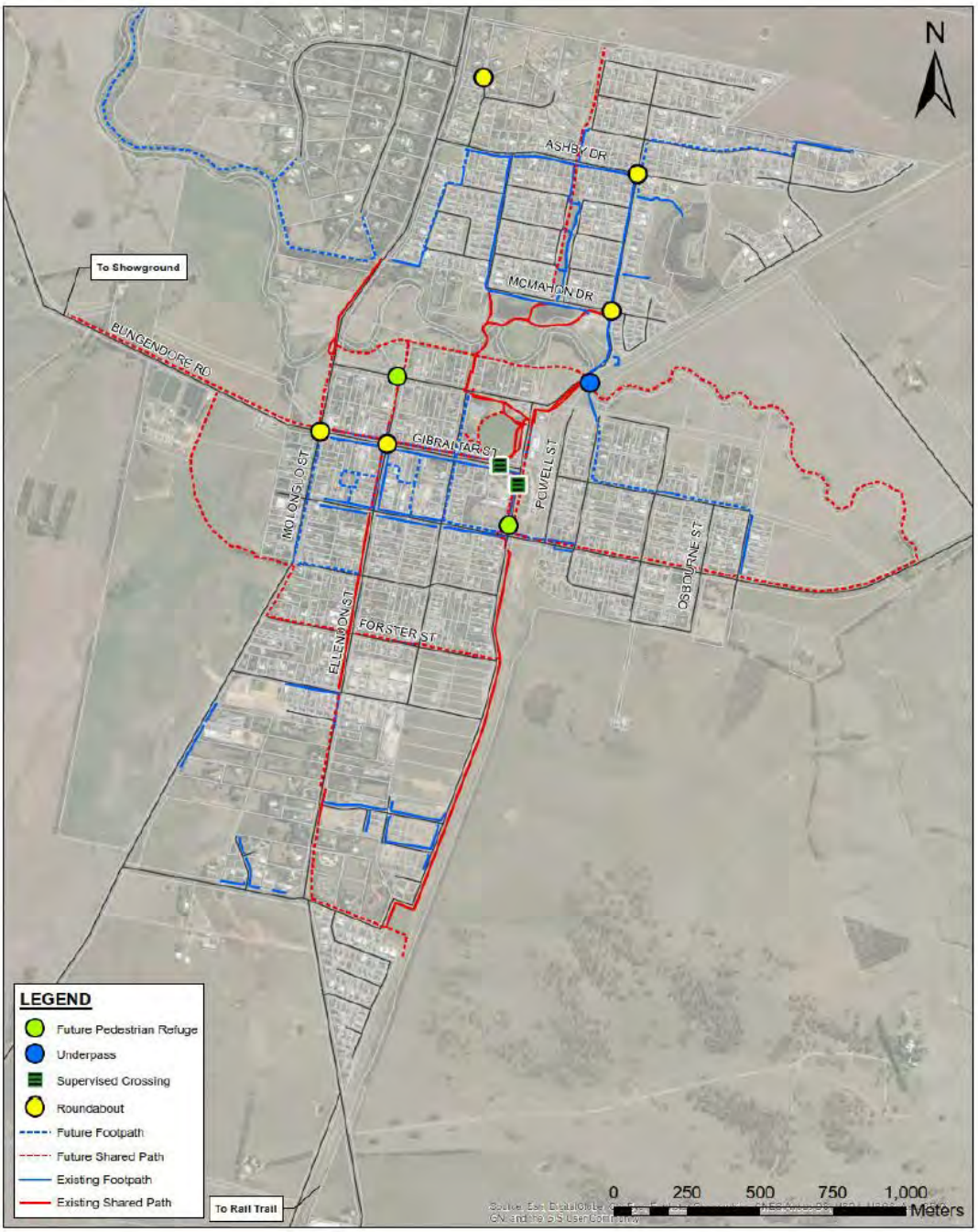


Figure 44: Proposed Braidwood walk and bicycle network master plan

6.0 Implementation Plan

The implementation plan provides priorities for the implementation of network development actions identified in Section 5.0. The plan for active travel (walk / bike) also includes estimates of costs. The actions included in the implementation plan represent high priority projects for Council to undertake in the short-term (1-4 years) to medium-term (5-14 years). Other actions identified in Section 5.0 should be considered in the long-term (15+ years), with priorities updated when this strategy is updated in five years.

6.1 Roads and Freight Network

6.1.1 Roads and intersections

A range of road and intersection improvements have been identified and described in Section 5.0. Priorities for implementation of these improvements have been assigned based on the needs identified from previous studies, traffic analyses and feedback from recent consultation. The infrastructure works in relation to roads and intersections are also highlighted in the action plan maps in Appendix A.

Figure 45: Action table showing priorities for roads and intersections

Location	Proposed Work or Action	Priority	Lead	Status
Bungendore commercial area	Upgrade of kerb and guttering, road pavement, underground drainage and footpaths	Committed	QPRC	Ongoing
Captains Flat township	Landscaping, tree planting and park / playground works	Committed	QPRC	Planning
Charleyong bridge (Nerriga Rd)	Bridge replacement	Committed	RMS	Construction
Cooma Road - Shoalhaven River crossing at Bendoura	Bridge replacement	Committed	RMS	Planning
Ellerton Drive Extension	New road	Committed	QPRC	Under construction
Kings Highway	Route strategy study	Committed	RMS	Identify
Kings Hwy / Tarago Rd	Construct roundabout	Committed	QPRC	Develop
Lascelles Street, Braidwood	Upgrade of kerb and guttering, road pavement, underground drainage and footpaths	Committed	QPRC	Planning
Nerriga Rd	Sealing the road between Charleyong and Braidwood	Committed	QPRC	Construction
Old Cooma Road – Googong to EDE	Duplication	Committed	QPRC	Construction
Old Cooma Rd / Googong Rd	New signals	Committed	QPRC	Developer to deliver
Tompsitt Dve / Lanyon Dve	Reconstruct roundabout as signals	Committed	RMS	Construction
Barrack Flat Dr / Cooma St	Undertake study to review signals if need post-EDE opening	High	QPRC	Planning
Bridge over Monkittee Creek, Braidwood	Construct kerb and extend paved area on western side of bridge and consider for future widening of the bridge	High	QPRC	Planning
Candlebark Rd / Cooma St	Review need for upgrade post-opening of EDE	High	QPRC	Planning

Location	Proposed Work or Action	Priority	Lead	Status
Captains Flat Road	Rehabilitation works between Molonglo River Drive to Kearns Parade	High	QPRC	Planning
Crawford St / Antill St	New Signals – Blackspot application	High	QPRC	Planning - Funding sought
Crawford St / Antill St	New Queanbeyan CBD gateway treatment	High	QPRC	Coincide with new signals
Crawford St / Campbell St / Erin St	Right turn ban from Campbell St West and new pedestrian refuge on Crawford St	High	QPRC	Funding sought
Dunns Creek Road	Ensure the alignment for the proposed Dunn's Creek Road is preserved, together with a link to Monaro Highway in ACT	High	QPRC	Planning
Elrington Street / Monkittee Street /Little River, Braidwood	Local area traffic management study	High	QPRC	Identify
Kings Hwy (Bungendore Rd) / Yass Rd	Part-time signals	High	RMS	Subject to review post-opening of EDE
Lanyon Dve / Canberra Ave	Part-time signals	High	QPRC	Subject to review
Lanyon Dve / Gilmore Rd	Right turn ban out of Gilmore Road	High	QPRC	
Macs Reef Road and Bungendore Road	Road safety audits and the development of road safety improvement strategies	High	QPRC	
Old Cooma Rd / NH2 Access	New roundabout	High	QPRC	Planning - New access to Googong
Pialligo Avenue duplication	Support a grant application from ACT Government	High	ACT	
QPRC region	Continue to review need for intersection improvements	High	QPRC	Update traffic modelling
QPRC region	Continue to update Council traffic studies and recommendations	High	QPRC	Consultation with RMS
QPRC region	Develop program for maintenance of Council roads	High	QPRC	
QPRC region	Develop plan to assist access for future red rapid service extension to Queanbeyan	High	QPRC / ACT	
Queanbeyan CBD	Conduct a study to investigate options for improving amenity and pedestrian movement	High	QPRC	Planning – CBD Masterplan
Queanbeyan CBD	Implement a 40 km/h area	High	QPRC	Subject to investigation & RMS approval
Southbar Rd / Cooma St	Undertake study to review signals if need post-EDE opening	High		With Barrack Flat Road intersection study

Location	Proposed Work or Action	Priority	Lead	Status
Wallace Street / Duncan Street, Braidwood	Channelisation of the intersection	High		Subject to investigation and design
Wallace St / Lascelles St, Braidwood	Undertake study to review options to improve safety	High	QPRC	
Canberra Ave / Cameron Road	New signals	Medium	QPRC	
Captains Flat Road	Road safety audit and road safety improvement strategy	Medium	QPRC	
Captains Flat Road east of Captains Flat	Consider paving road	Medium	QPRC	Subject to future review
Cooma Street – EDE to Southbar Road	Duplication – Stage 3	Medium	QPRC	
Jerrabomberra Circle	Further review of the current roundabout with a set of traffic signals	Medium	QPRC	Preliminary design and review of environmental factors undertaken
Majors Creek bridge	Undertake investigation for new bridge	Medium	QPRC	
Old Cooma Road (south of Googong Road)	Road safety audit and road safety improvement strategy	Medium	QPRC	
Surveyor St / Ross Rd	Undertake study to review options to improve safety	Medium	QPRC	
Sutton Road	Road safety audit and road safety improvement strategy	Medium	QPRC / ACT	In coordination with ACT Government
Uriarra Rd / Frederick St / McKeahnie St	New signals	Medium	QPRC	Design complete, awaiting funding
Uriarra Rd / Crawford St	Right turn ban	Medium	QPRC	Awaiting funding
Uriarra Rd / Ross Rd	New signals	Medium	QPRC	Design complete, funding sought
Uriarra Rd / Stornaway Rd	Right turn ban	Medium	QPRC	Funding sought
Yass Rd / Hincksman St / Endurance Ave	New signals	Medium	QPRC	Design complete
Yass Rd / Shropshire Ave	Ban right turns from Shropshire Ave	Medium	QPRC	To be banned when signals installed at Hincksman St
Yass Rd / Silva Av / Waterloo St	Ban right turns from Silva Av and Waterloo St	Medium	QPRC	To be banned when signals installed at Hincksman St

Note: High priority works should be implemented in the 1-4 year time-frame, whilst medium priority works should be implemented in the 5-14 year timeframe.

6.1.2 Parking

A number of actions that mainly involve investigations prior to the implementation of changes were listed for Queanbeyan CBD in Section 5.1.3.6. These are split into high and medium-term actions in Table 25.

Table 25: Priorities for car parking management actions

Action	Priority
Review parking supply and demand and restrictions in Queanbeyan CBD and surrounds	Committed
Review parking supply and demand and restrictions in other key centres in Queanbeyan, Braidwood and Bungendore	High
Reduce maximum duration for on street parking to short-stay within the CBD.	High
Prioritise on-street parking for short term parking, parking for people with disabilities, loading zones, and visitor pick-up and set-down (private, community and coach) in the CBD.	High
Seek opportunities to develop additional off-street parking beyond outer core of CBD	High
Review provision and design of disabled parking bays.	High
Review options for the potential redevelopment of Council-owned public car parks and changed parking needs.	High
Encourage strategies to minimise temporary loss of publicly available parking, loading and set down areas during construction of significant inner city developments.	High
Examine options to introduce new information technology to improve parking access and efficiency in Queanbeyan CBD	High
Link public parking messaging to Council's vision and priorities, adopted plans, and public transport and walking and cycling strategies.	High
Negotiate parking management contracts which allow for policy and technological changes to meet the goals and objectives of the strategy.	High
Consider automated car parking technologies to improve capacity and operations in design for existing and future public car parks.	High
Review potential changes to Council's parking code requirements for new development, so as to encourage the use of alternative modes	High
Seek opportunities to provide long term 'Park & Walk' or 'Park & Pedal' locations connected to CBD by walking and cycling facilities.	Medium
Implement wayfinding linked to real time information on the current availability of parking spaces and or navigational links.	Medium
Prepare for autonomous vehicles and other disruptive technology through periodic review of the strategy.	Medium

Note: High priority works should be implemented in the 1-4 year time-frame, whilst medium priority works should be implemented in the 5-14 year timeframe.

6.1.3 Freight

A number of actions in relation to freight movement were listed in Section 5.1.3.7. These are split into high and medium-term actions in Table 26.

Table 26: Freight management actions

Action	Priority
Conduct surveys of heavy vehicle movements	High
Review and adopt a freight route hierarchy for QPRC and map 'last mile' routes	High
Identify road network constraints that limit heavy vehicle movements in the region or adversely affect safety	High

Action	Priority
Develop a prioritised infrastructure upgrade program to meet the needs of larger freight vehicles	High
Develop options to reduce trucks using Monaro Street	High
Integrate freight movements in ACT and NSW heavy vehicle route plans	High
Review supply and management of loading zones, particularly in Queanbeyan CBD	High
Investigate options for larger freight vehicle access to local destinations	High
Engage the community in understanding freight management needs	High
Work with Australian, state and local governments and industry to take a strategic approach to protect and enhance freight routes and facilities in the region	High
Establish corridors for future bypasses of Braidwood and Bungendore	Medium
Identify and protect future freight activities, corridors and local freight access	Medium

Note: High priority works should be implemented in the 1-4 year time-frame, whilst medium priority works should be implemented in the 5-14 year timeframe.

6.2 Public Transport

A number of actions in relation to public transport were listed in Section 5.2. These are split into high and medium-term actions in Table 27. Most of the actions cannot be implemented by QPRC, but by other Government authorities (Transport NSW and Transport Canberra); QPRC can work with these authorities to help implement these changes and can only advocate for such changes.

Table 27: Action table showing priorities for public transport

Proposed Work or Action	Priority	Comment
Advocate for new express peak hour service to Parliamentary Triangle and Canberra City from Googong and Jerrabomberra	High	
Advocate to extend the ACTION red rapid service to Queanbeyan Interchange, to operate under ACTION fares structure/policies	High	Agreement needed between governments and bus operators
Advocate to relocate QCity's direct Canberra routes from Morisset Street to Antill Street	High	When the intersection of Crawford Street and Antill Street is signalised
Advocate for installation of direction signs to park and ride facility on Tom Price Street	High	Advocate with ACT Government
Investigate a park and ride facility off Edwin Land Parkway, near Jerrabomberra	High	Site accessed off Lerra St likely to be preferable
Advocate to upgrade the existing Queanbeyan interchange	High	Plans developed and funding is available
Advocate to review Harman bus stop on Canberra Ave	High	Advocate with ACT Government
Advocate to address fare disparities to facilitate improved travel services for border residents	High	Transport NSW introducing new fares from 1 January 2018
Advocate progression to a more harmonised fares policy between ACT and NSW	High	

Proposed Work or Action	Priority	Comment
Advocate to explore ways to enable QCity transfers on ACTION services	High	
Advocate to extend bus transfer functionality between QCity and ACTION services	High	
Advocate changes to fare policies to standardise ACT/NSW concession ages/categories and enable transfers	High	
Advocate for dual ticketing systems on QCity / ACTION services	High	
Advocate for improved information access by linking operator websites and journey planners	High	
Advocate for bus stop/static directional signage improvements	High	
Advocate for Mobility Apps improvements	High	
Advocate branding improvements to recognise both ACTION and QCity as part of an overall public transport system for the region	High	
Advocate for improvements to community transport services	High	
Advocate for a review public transport connections to regional train stations	High	
Support the ongoing delivery of wheelchair accessible vehicles and the Taxi Transport Subsidy Scheme	High	
Support the integration of community and point to point transport services into the public transport network	High	
Inform community of existing public transport services (e.g. many residents don't realise that they can use the many school bus services that run throughout the region)	High	
Develop a strategy for bus and coach passenger shelters for region	High	In consultation with QCity and coach operators
Advocate for consistent, or mutually recognised, operator accreditation, driver licensing and authorisation, and public transport standards	High	
Advocate for development of inter-government agreements for delivery of integrated public transport services	High	
Advocate for agreed set of standards and reporting requirements that set a safety and operation benchmark that is mutually recognised across borders for all registered buses	High	
Advocate for development of integrated ticketing systems	High	
Advocate for development of online intelligent transport solutions to improve regulatory compliance and passenger information (including integrated transport and mobility apps for customers)	High	
Advocate for new route to Woden from Googong and Jerrabomberra	Medium	

Proposed Work or Action	Priority	Comment
Advocate for new route to Canberra Airport, Russell and Canberra City from Googong via Old Cooma Road	Medium	
Advocate new route to Canberra Airport, Russell and Canberra City from Queanbeyan interchange via Pialligo Ave	Medium	Depends on upgrade of Pialligo Ave
Advocate for more frequent services in peaks and on weekends for Queanbeyan and Bungendore	Medium	Dependent on patronage and subsidies
Advocate for upgrade existing park and ride facility on Tom Price Street	Medium	Advocate with ACT Government
Investigate a park and ride facility near south-west corner of Old Cooma Rd and Edwin Land Pwy	Medium	
Investigate a park and ride facility near northern end of Ellerton Dr	Medium	
Investigate a park and ride facility in Googong	Medium	Adjacent to Googong Commons may be preferable
Advocate to review needs for upgrading coach parking and passenger facilities at Queanbeyan and Bungendore rail stations	Medium	
Advocate for Morisset Street bus priority lane	Medium	Consider when ACT bound buses re-routed to Antill St
Advocate for more bus priority measures along Canberra Ave	Medium	Advocate with ACT Government
Advocate for introduction of new bus operator contracts to facilitate connectivity to cross border transport services, address any ticketing issues and necessary fare revenue sharing arrangements	Medium	Transport NSW expected to introduce this by 2024
Advocate for outer-zone for long distance public transport travel (e.g., Bungendore-ACT services)	Medium	For future integrated Canberra/QPRC public transport system
Advocate for integrated account based ticketing system	Medium	
Advocate progress to a Mobility management service delivery framework enabled by account-based ticketing	Medium	
Investigate feasibility of a future light rail connection to Queanbeyan via Canberra Avenue	Medium	
Land-use planning to support improved public transport	Medium	
Identify corridors for increased development densities	Medium	
Promote increased densities and mixed-use development in vicinity of Queanbeyan CBD and major existing and future commercial centres, including Googong, Braidwood and Bungendore Centres	Medium	

Note: High priority works should be implemented in the 1-4 year time-frame, whilst medium priority works should be implemented in the 5-14 year timeframe. Timing of public transport works is dependent on decisions by ACT and NSW Governments, independent of Council

6.3 Active Travel

A summary of the estimated costs for this work by priority is given in Table 28. This includes some new refuge islands shown in the works masterplans for each town - Figure 42 to Figure 44. Project details are provided in the bicycle and pedestrian facilities plan reports (AECOM 2019 b, c and d).

Table 28: Cost of pedestrian and cycle network upgrades

Town	Priority	Footpaths	Shared Paths	Mixed Traffic Links	Cycle Lanes	Refuge Islands	Total
Queanbeyan	High	$232,000	$1,735,500	$150,500	$52,000	$100,000	**$2,270,000**
	Medium	$530,500	$1,704,000	$55,000	$387,500	$25,000	**$2,702,000**
	Total	**$772,500**	**$3,439,500**	**$205,500**	**$439,500**	**$125,000**	**$4,982,000**
Bungendore	High	$34,000	$641,500	$0	$0	$75,000	**$750,500**
	Medium	$532,000	$972,500	$6,500	$0	$0	**$1,511,000**
	Total	**$566,000**	**$1,614,000**	**$6,500**	**$0**	**$75,000**	**$2,261,500**
Braidwood	High	$159,000	$261,500	$0	$0	$100,000	**$520,500**
	Medium	$215,500	$305,000	$6,500	$0	$50,000	**$577,000**
	Total	**$374,500**	**$566,500**	**$6,500**	**$0**	**$150,000**	**$1,097,500**
QPRC Total	High	**$425,000**	**$2,638,500**	**$150,500**	**$52,000**	**$275,000**	**$3,541,000**
	Medium	**$1,278,000**	**$2,981,500**	**$68,000**	**$387,500**	**$75,000**	**$4,790,000**
	Total	**$1,713,000**	**$5,620,000**	**$218,500**	**$439,500**	**$350,000**	**$8,341,000**

Note: This excludes committed works or works fully funded by others

A number of non-infrastructure actions in relation to active travel were listed in Section 5.3.2. These are split into high and medium-term actions in .

Table 29: Action table showing priorities for active transport (non-infrastructure actions)

Action	Priority
Support increased provision of end of trip facilities, especially at bus interchange and rail stations	High
Prioritise people and pedestrian movement within Queanbeyan CBD	High
Introduce lower speed limits in high pedestrian activity areas such as Queanbeyan CBD	High
Implement a program to promote active transport use and facilitate community participation	High
Improve amenity and pedestrian facilities in Queanbeyan CBD and the townships of Braidwood, Bungendore and Captains Flat	High

The priorities for pedestrian and bicycle network improvements for Queanbeyan are summarised in Figure 46 to Figure 47, for high priority (1-4 years) and medium priority works respectively. Recommended pedestrian and bicycle network improvements for Bungendore and Braidwood are shown in Figure 48 and Figure 49; in these figures, works on route numbers that have a green box outline are highest priority (1-4 years).

Figure 46: Proposed works plan for Queanbeyan – high priority

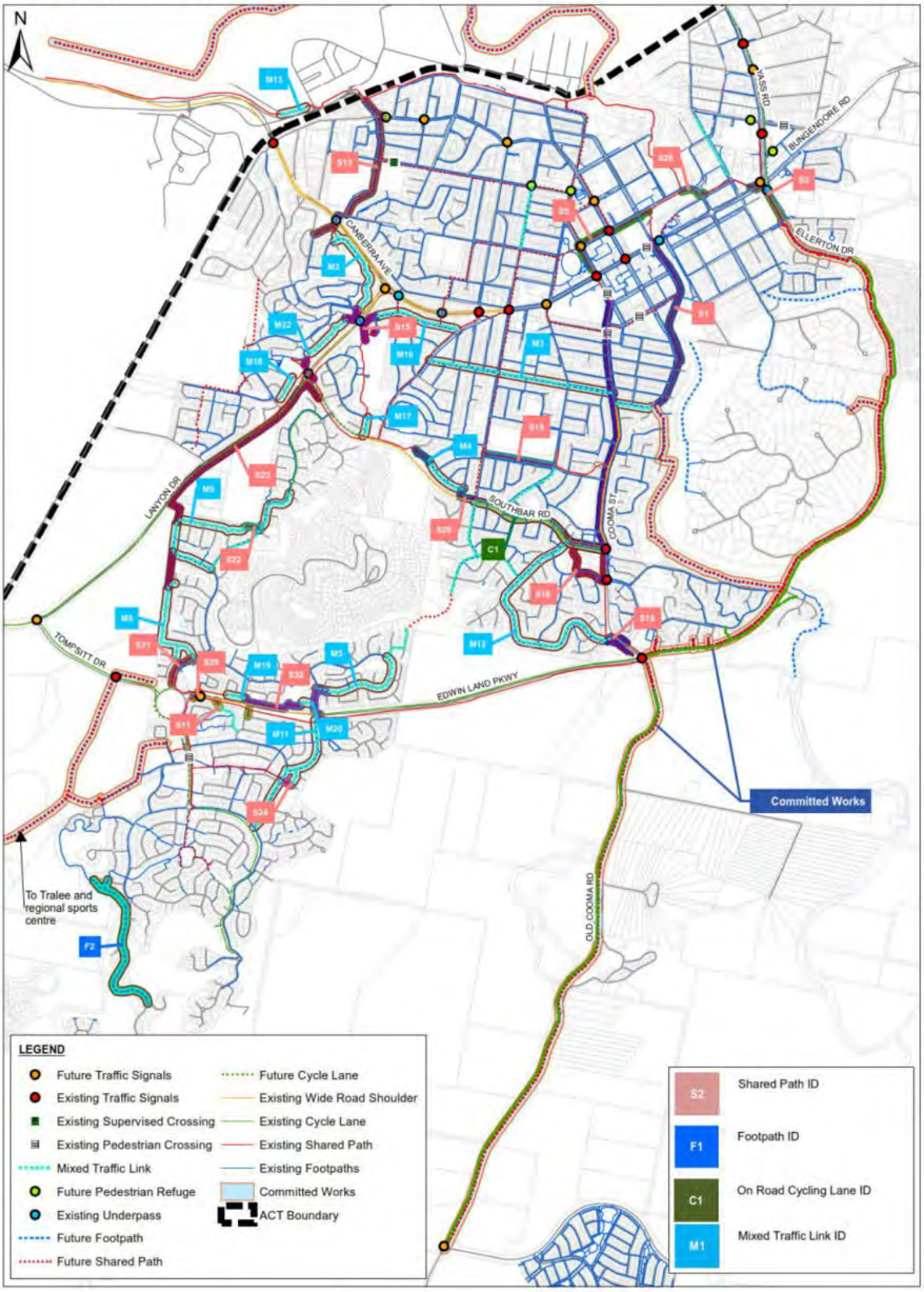


Figure 47: Proposed works plan for Queanbeyan – medium priority

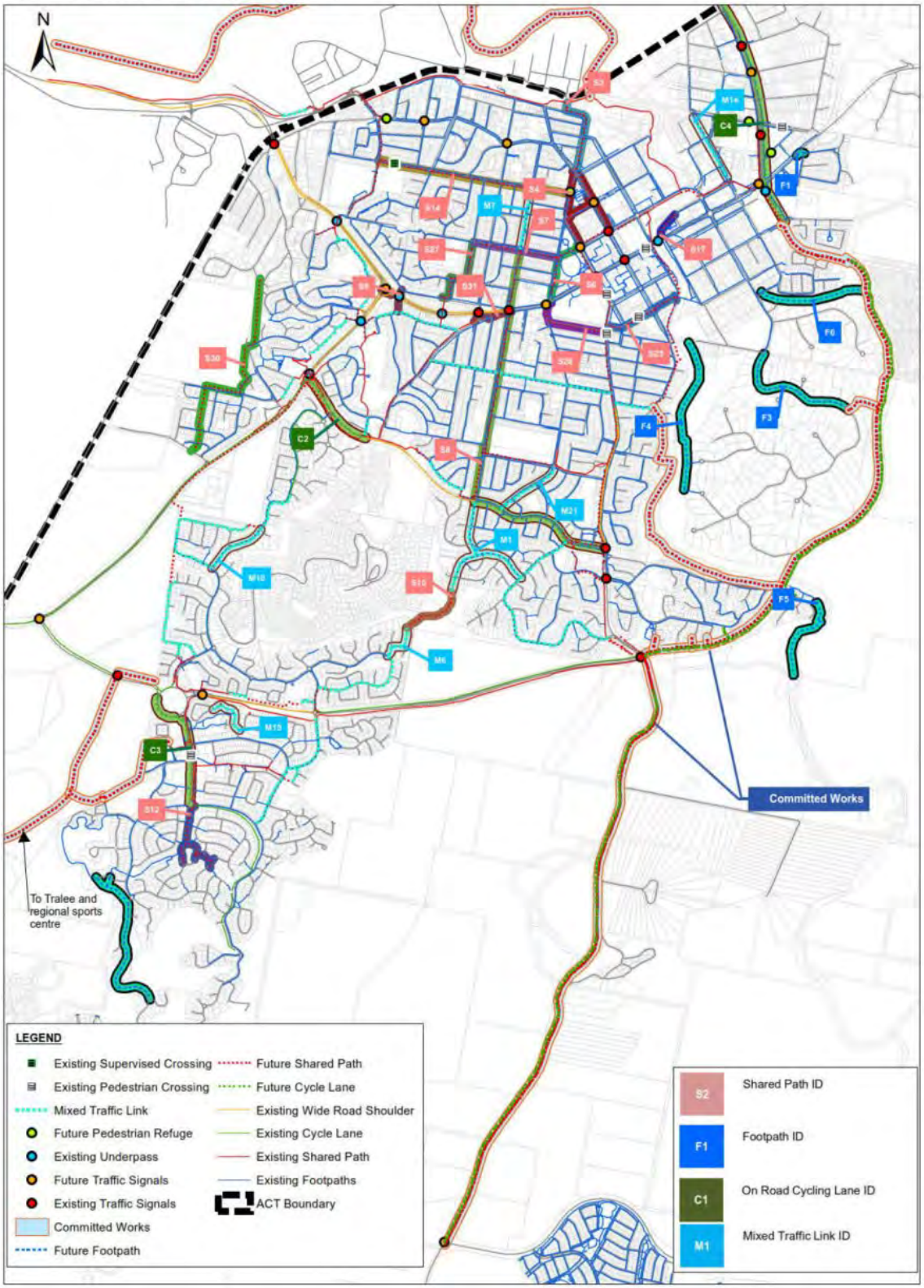
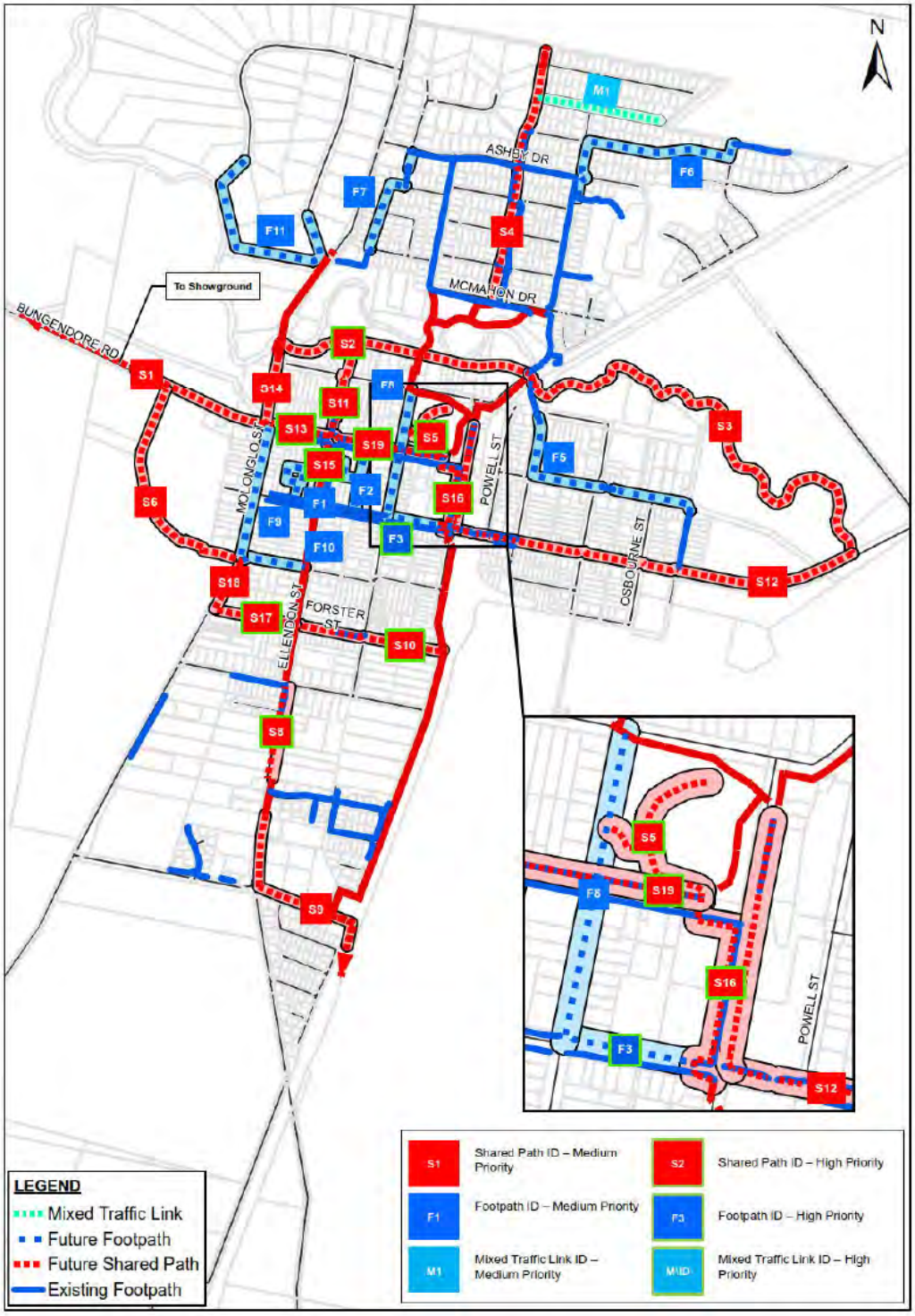


Figure 48: Bungendore walk and bicycle network upgrade priorities



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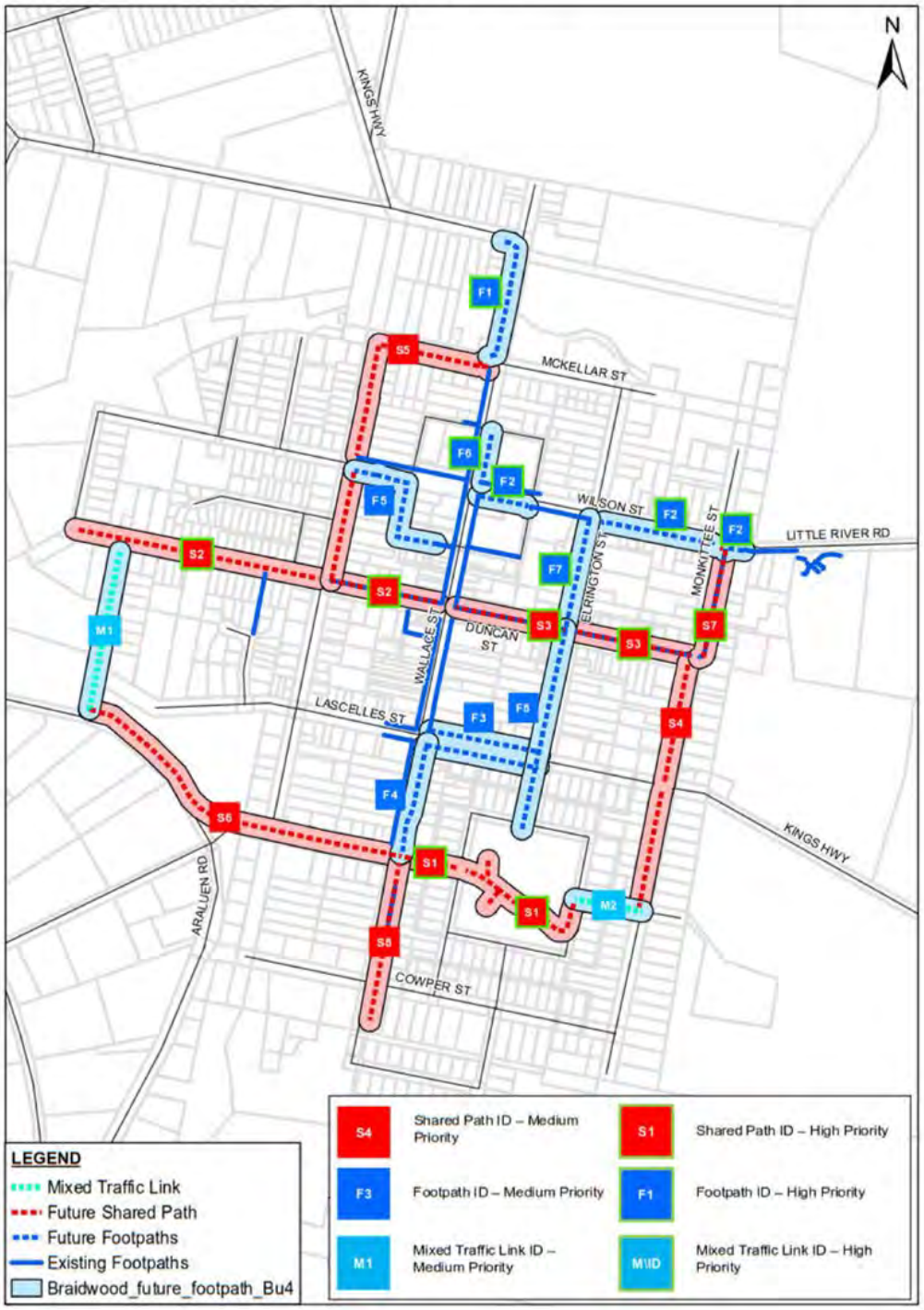
Revision 5 – 21-Jun-2019
Prepared for – Queanbeyan-Palerang Regional Council – ABN: 95 933 070 982

Figure 49: Braidwood walk and bicycle network upgrade priorities



7.0 Monitoring and Review Plan

Monitoring the success of the overall ITS is critical to achieving ongoing funding support from Council and the NSW Government, and community feedback. The following actions are proposed to help ensure that progress against the objectives of the ITS is tracked:

- **ITS review:** Ongoing review of the ITS is important to ensure that it accurately reflects the latest population and development data for QPRC, and adjustments are made as necessary to ensure it remains relevant.
- **Project delivery and coordination:** Ongoing monitoring of the delivery of ITS 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 travel demand, behaviour and assessment of how and when ITS objectives will be achieved is critical to understand the impact and relevance of the ITS, and make changes or adjustments as necessary. Monitoring changes in cross-border traffic volumes in bus passenger numbers will be an important element of this.
- **Opportunities for funding:** Ongoing partnership with the ACT, NSW and Federal Government is required to identify funding opportunities and maximise the ability to present business cases for investment. At the same time, new developments within QPRC are likely to provide opportunities to deliver projects as negotiated outcomes through the planning process.

In addition to these actions, the following opportunities 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 ACT Government and the Department of Transport to progress the 'advocacy' actions contained within the ITS.
- Continue to monitor development approvals and activity, to capitalise on any opportunities that may arise through private sector development.
- Provide additional smart hub facilities for staff/personnel to utilise as a joint trial with the ACT and Federal Government Departments.
- Nominate bypasses for both Braidwood and Bungendore to be included within the structure plans. The location of industrial lands should be considered when investigating a bypass location.

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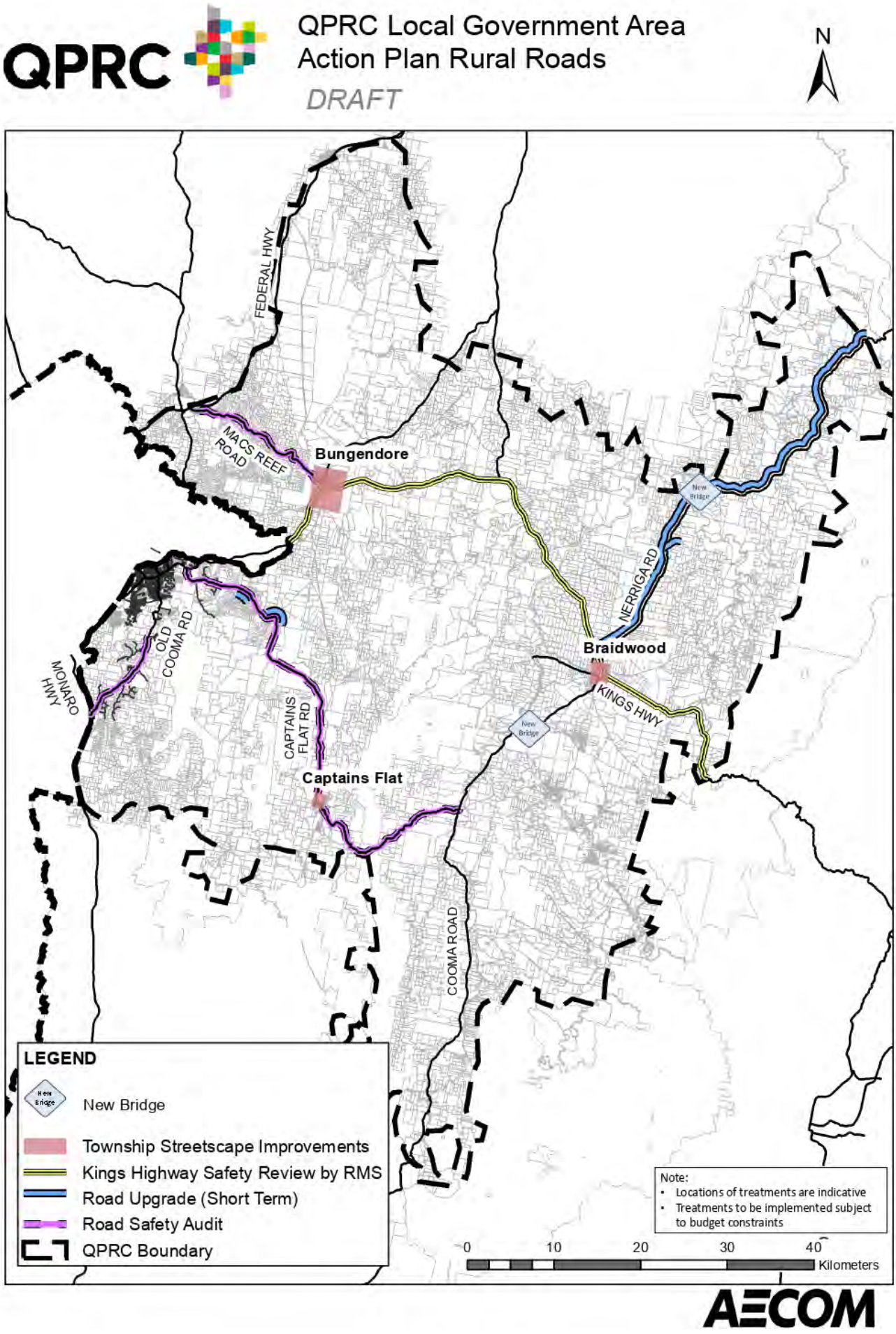
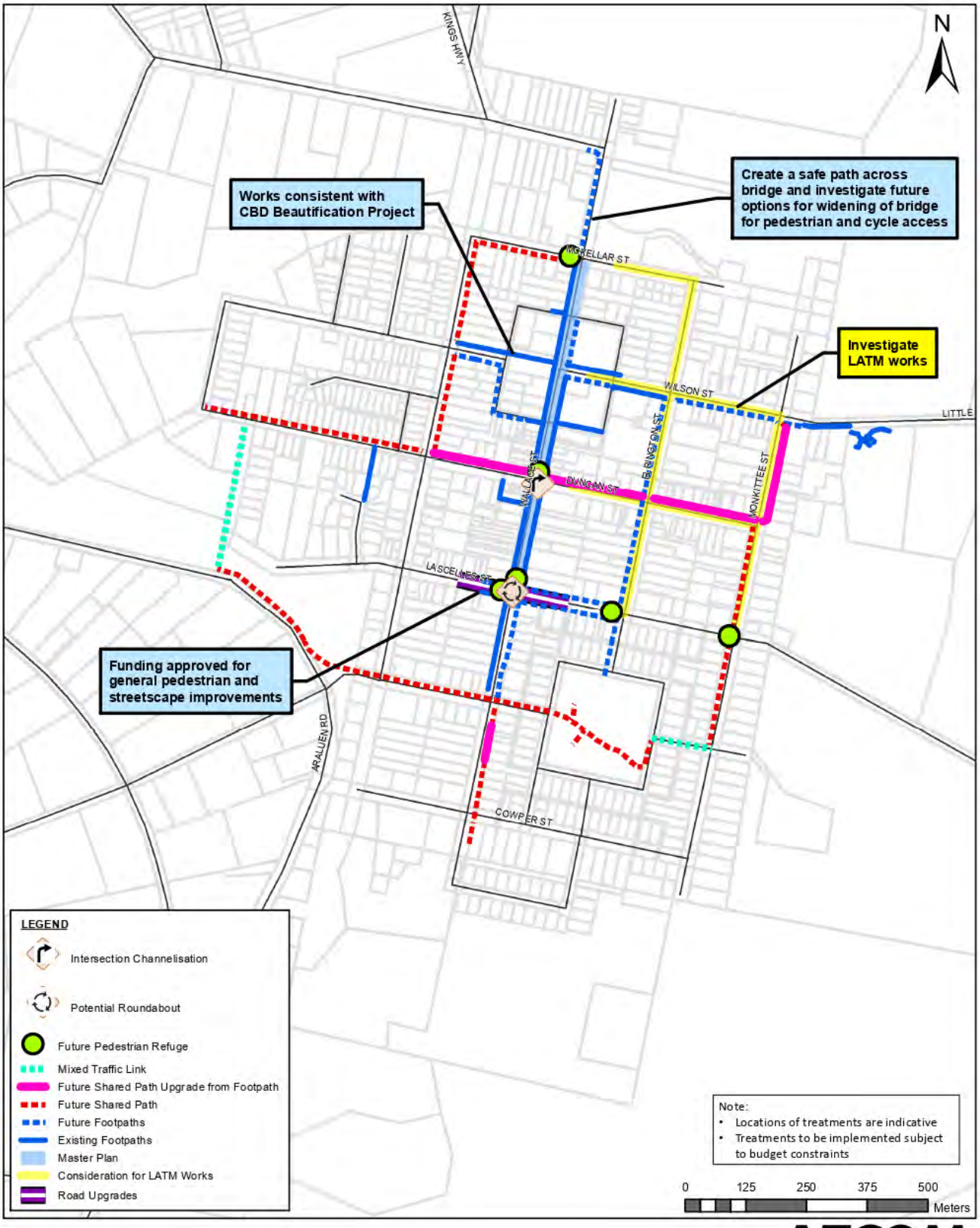
Appendix A

Action Plan Maps

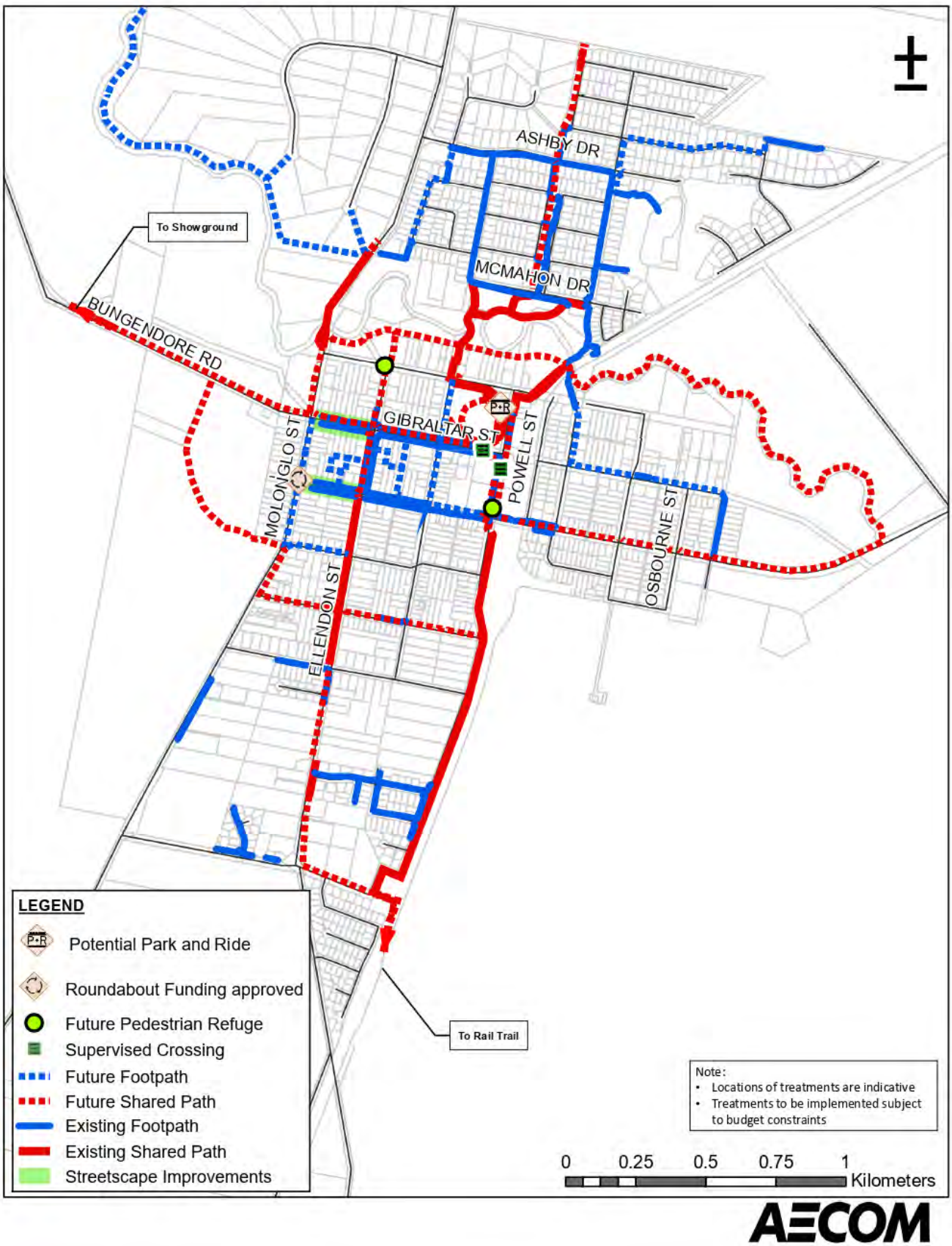

QPRC
QPRC Local Government Area
Action Plan Rural Roads
DRAFT
N
FEDERAL HWY
MACS REEF ROAD
Bungendore
NERRIGA RD
Braidwood
KINGS HWY
OLD COOMA RD
MONARO HWY
CAPTAINS FLAT RD
Captains Flat
COOMA ROAD
New Bridge
LEGEND
New Bridge
Township Streetscape Improvements
Kings Highway Safety Review by RMS
Road Upgrade (Short Term)
Road Safety Audit
QPRC Boundary
Note:
• Locations of treatments are indicative
• Treatments to be implemented subject to budget constraints
0 10 20 30 40
Kilometers
AECOM

Braidwood Transport Action Plan



QPRC

Bungendore Transport Action Plan



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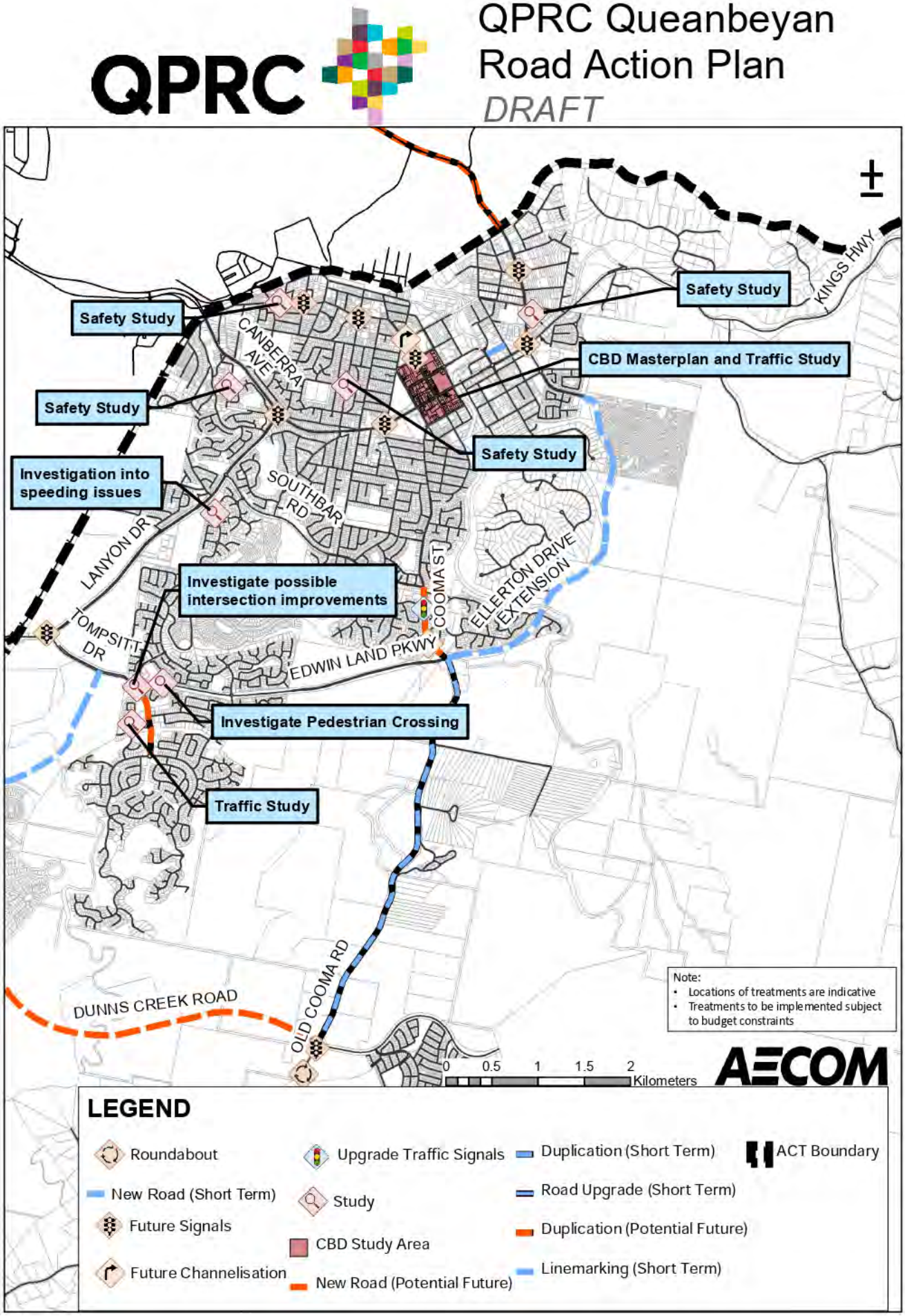
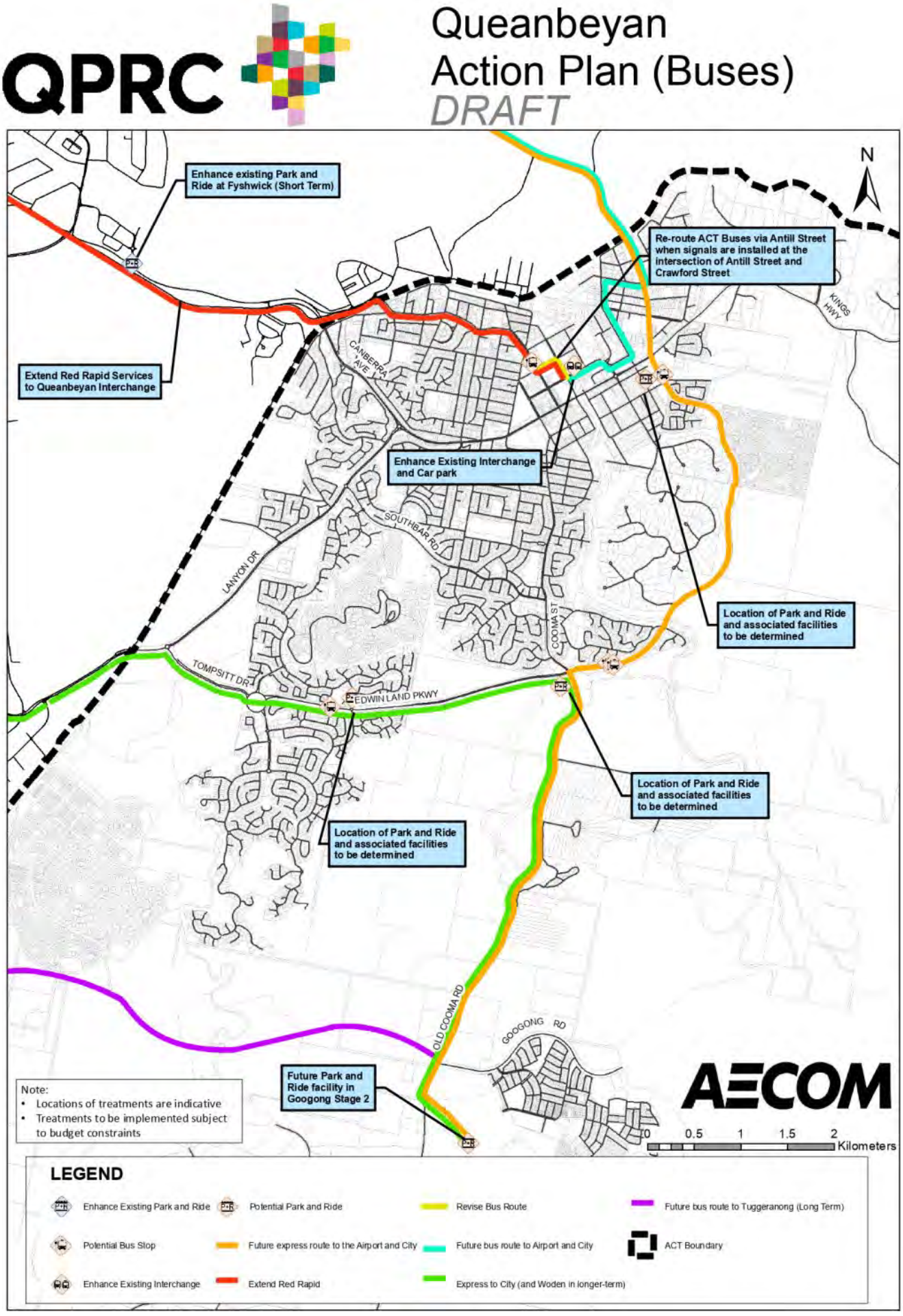
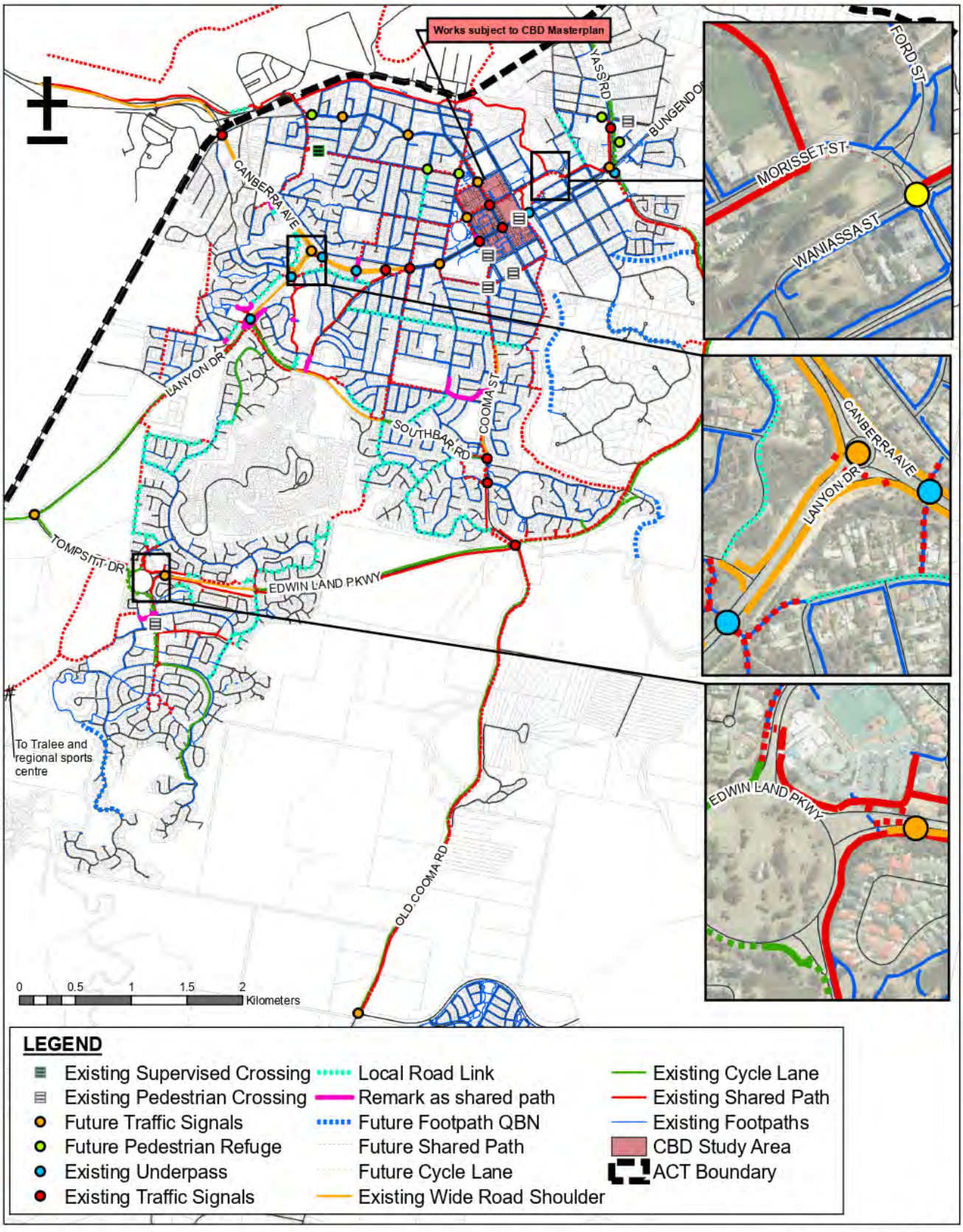

QPRC
QPRC Queanbeyan Road Action Plan
DRAFT
Safety Study
Safety Study
Safety Study
CBD Masterplan and Traffic Study
Safety Study
Investigation into speeding issues
Investigate possible intersection improvements
Investigate Pedestrian Crossing
Traffic Study
KINGS HWY
CANBERRA AVE
SOUTHBAR RD
LANYON DR
TOMPSITT DR
COOMA ST
ELLERTON DRIVE EXTENSION
EDWIN LAND PKWY
OLD COOMA RD
DUNNS CREEK ROAD
Note:
• Locations of treatments are indicative
• Treatments to be implemented subject to budget constraints
0 0.5 1 1.5 2 Kilometers
AECOM
LEGEND
Roundabout
Upgrade Traffic Signals
Duplication (Short Term)
ACT Boundary
New Road (Short Term)
Study
Road Upgrade (Short Term)
Future Signals
CBD Study Area
Duplication (Potential Future)
Future Channelisation
New Road (Potential Future)
Linemarking (Short Term)


QPRC
Queanbeyan
Action Plan (Buses)
DRAFT
N
Enhance existing Park and Ride at Fyshwick (Short Term)
Extend Red Rapid Services to Queanbeyan Interchange
Re-route ACT Buses via Antill Street when signals are installed at the intersection of Antill Street and Crawford Street
Enhance Existing Interchange and Car park
Location of Park and Ride and associated facilities to be determined
Location of Park and Ride and associated facilities to be determined
Location of Park and Ride and associated facilities to be determined
Future Park and Ride facility in Googong Stage 2
CANBERRA AVE
KINGS HWY
SOUTHBAR RD
LANYON DR
COOMA ST
TOMPSITT DR
EDWIN LAND PKWY
OLD COOMA RD
GOOGONG RD
Note:
• Locations of treatments are indicative
• Treatments to be implemented subject to budget constraints
AECOM
0 0.5 1 1.5 2 Kilometers
LEGEND
Enhance Existing Park and Ride
Potential Park and Ride
Revise Bus Route
Future bus route to Tuggeranong (Long Term)
Potential Bus Stop
Future express route to the Airport and City
Future bus route to Airport and City
ACT Boundary
Enhance Existing Interchange
Extend Red Rapid
Express to City (and Woden in longer-term)

Greater Queanbeyan Proposed Paths



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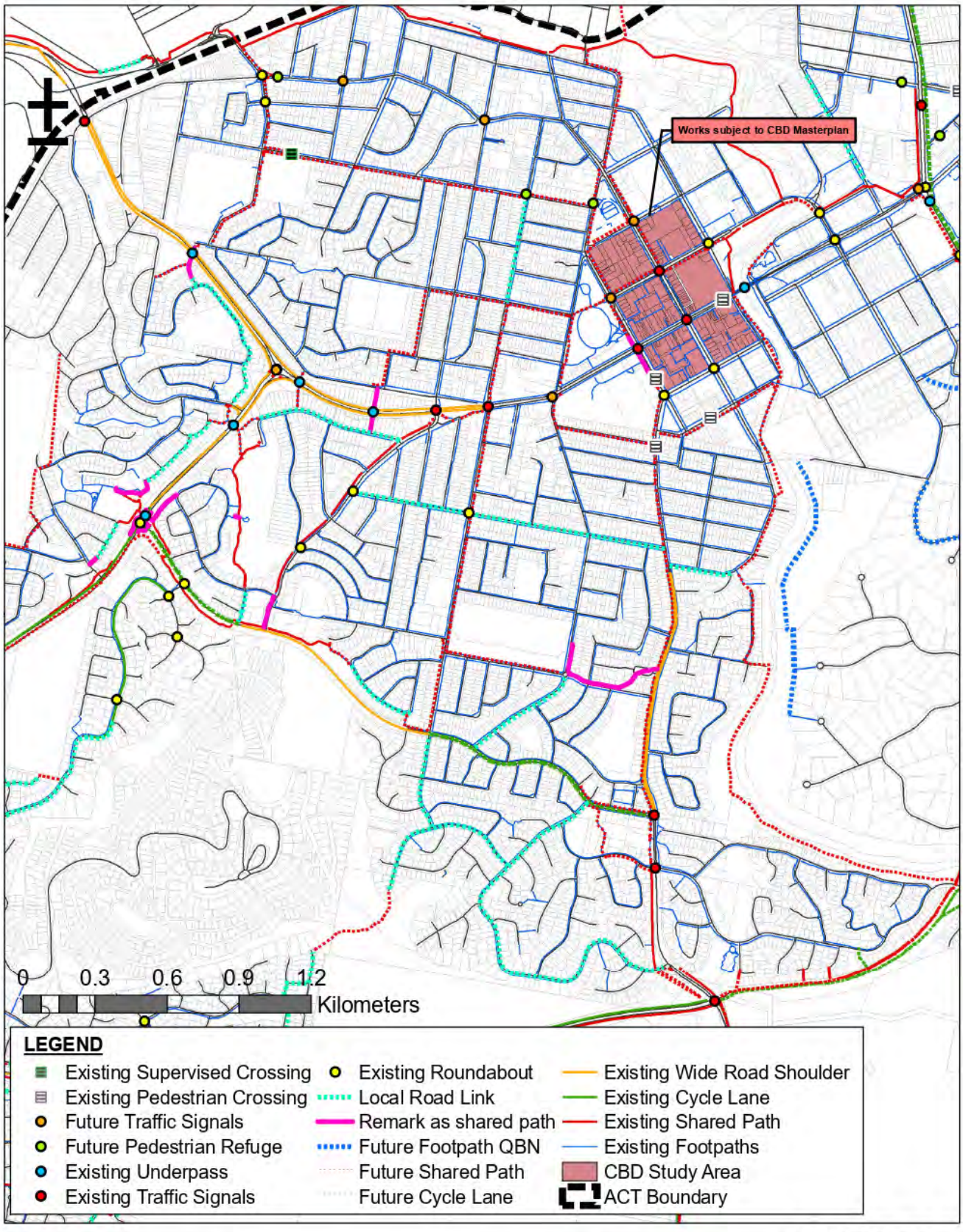
QPRC

Greater Queanbeyan Proposed Paths



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QUEANBEYAN-PALERANG REGIONAL COUNCIL

Council Meeting Attachment

25 SEPTEMBER 2019

ITEM 9.12 INTEGRATED TRANSPORT STRATEGY

ATTACHMENT 2 QUEANBEYAN PAMP & BIKE PLAN - 20 JUNE 2019 - FINAL DRAFT

AECOM Imagine it. Delivered.

QPRC Integrated Transport Strategy
Queanbeyan-Palerang Regional Council
20-Jun-2019

Commercial-in-Confidence

Queanbeyan Bicycle and Pedestrian Facilities Plan

Integrated Transport Strategy

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Revision 5 – 20-Jun-2019
Prepared for – Queanbeyan-Palerang Regional Council – ABN: 95 933 070 982

Queanbeyan Bicycle and Pedestrian Facilities Plan

Integrated Transport Strategy

Client: Queanbeyan-Palerang Regional Council

ABN: 95 933 070 982

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20-Jun-2019

Job No.. 6054 4563

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Quality Information

Document Queanbeyan Bicycle and Pedestrian Facilities Plan

Ref 6054 4563

Date 20-Jun-2019

Prepared by Nethmei Senarath & Brendan Hogan

Reviewed by Neil Graham

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Rev	Revision Date	Details	Authorised (Name/Position)
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2	30-Nov-2017	Second Draft (post Stage 1 Consultation)	Neil Graham, Project Manager
3	14-Jun-2018	Final Draft (post Stage 2 Consultation and Exhibition)	Neil Graham, Project Manager
4	05-Feb-2019	Revised Final Draft (post Stage 2 Consultation and Exhibition)	Neil Graham, Project Manager
5	20-Jun-2019	Revised Final Draft (post Stage 3 Exhibition)	Neil Graham, Project Manager

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Executive Summary

AECOM has prepared an integrated bicycle and pedestrian facilities plan for Queanbeyan; there are other similar reports for Braidwood and Bungendore as part of an Integrated Transport Strategy (ITS) for Queanbeyan-Palerang Regional Council (QPRC). The facilities plan will help Council to manage priorities and funding for future works.

Key steps in developing this strategy were to:

- Identify a functional network for walking and cycling. This is intended to create a practical network for pedestrians and cyclists, best serving the needs of the local community.
- Identify routes to service different users of the networks using a catchment analysis for seniors, school, shopping and recreation.
- Prioritise routes and works into an action plan and implementation plan.

From a cyclist and pedestrian perspective, the most important features of the road and traffic environment in Queanbeyan appear to be:

- Three key centres; being Queanbeyan CBD, Jerrabomberra and the developing Googong. These require strong regional and local routes connecting them. Kings Highway passes through the centre of the town, forming the main street (Monaro Street).
- Existing pathway facilities are not well signed and continuity and wayfinding is poor.
- A number of major roads carrying high volumes of traffic that create barriers for safe pedestrian and bicycle movements during peak periods.
- On-street parking arrangements vary, but there is typically parallel parking with angled parking on some of the streets within the CBD area. Most of the commercial and retail parking is provided through off-street parking.
- The topography of Queanbeyan presents some challenges with gradients and ease of use of paths.
- Regional road networks have some links that provide adequate sealed shoulder widths to cater for on road cycling but there is not currently continuity to create an entire route.

There are three stages to this project and three stages of consultation:

1. Setting context and identifying issues, as part of Stage 1 consultation in June 2017.
2. Developing a draft action plan for the various means of travel in the region, as part of Stage 2 consultation in December 2017.
3. Finalising the action plan and creating implementation and monitoring plans for public exhibition and comment (Stage 3).

There have been three rounds of consultation on this project that have been considered in developing the Action Plan and Implementation Plan for bicycle and pedestrian facilities in Queanbeyan, as follows:

1. Setting context and identifying issues, as part of Stage 1 consultation.
2. Developing a draft action plan, implementation plan and report for comment as part of Stage 2 consultation.
3. Developing a draft action plan, implementation plan and report for public exhibition and comment (Stage 3).

The action plan, implementation plan and report have now been finalised for Council endorsement, taking account of final comments in Stage 3.

During the community consultation in this project the following issues were raised regarding walking and cycling in Queanbeyan:

- The importance of building and encouraging healthy communities especially through active transport options. For example, bicycle carriages on buses and trains and bicycle racks outside key points of interest within the city centre.
- The importance of safety and security of people who are crossing the road.
- Improved pedestrian and cyclist crossings especially pram ramps and near schools and child care centres.
- Need for surface upgrades including roadways, footpaths and cycle ways, which in many areas are 'poor and uneven'.
- Improved connectivity between different regions especially to and from the city centre including cycling and walking tracks to and from the city centre and along the riverbank.
- Extend the footpath that runs to White Rocks near the river. White Rocks is a popular place for people to swim.
- Widen cycle tracks on Carolyn Jackson Drive, Jerrabomberra.
- Install a pedestrian crossing on Morton Street near Stornaway Road.
- Additional footpaths for children to walk and ride bikes, especially around schools.
- In general the mobility of pedestrians and cyclists are not supported by underpasses or overpasses to reduce conflict with vehicles. This is a particular concern for vulnerable user groups such as people with disabilities, the elderly and children.
- East Queanbeyan seems to missing attention in terms of active travel routes.
- Connections between Greenleigh and Queanbeyan are lacking in terms of safe active travel infrastructure. Greenleigh Estate does not have streetlights or footpaths constructed.
- A high priority requirement for an underpass under the Edwin Land Parkway once the EDE is open. It is currently dangerous for the community to cross over the road from the shopping centre to 'the park'. This will continue to get worse once the road is open and Googong continues to grow.
- Shared path link between Edwin Land Parkway and Candlebark Road on western side of Cooma Street.
- Southbar Road near Karabar shops needs to be a Shared Zone.
- Council should support the proposed Monaro Rail Trail which would be a fantastic commuting and recreational trail from Harman to Jerra and the proposed Tralee.
- Traffic lights on Bungendore Road in Queanbeyan East to assist safe pedestrian and cyclist crossings.
- Working with ACT Government to construct a Molonglo River riverside bikeway to Monaro Highway / Majura Parkway.
- Pedestrian refuge to help pedestrians cross Thurralilly Street on the western side of Yass Road.
- Pathway link on Macqoid Street between Buttle Street and Ellerton Drive underpass.
- A number of safe crossing points are needed across Bungendore Road, especially linking to the Yass Road pedestrian traffic signals adjacent to the Queanbeyan East Primary School, either side of the current roundabout intersection with Ellerton Drive.
- A pathway link to Ellerton Drive Extension (EDE) via the open space corridor between Yarrow Street, Bywong Street and EDE.
- Pedestrian safety crossing Campbell Street.

- There needs to safer cycling paths along Yass Road connecting to Pialligo Avenue, particularly the section under the rail bridge and over the narrow Molonglo River bridge.
- Access to the underpass of Ellerton Drive just south of Bungendore Road is poor from the western side.
- No underpass of Edwin Land Parkway for Jerrabomberra community to cross over this road to the shopping centre.
- No pathway in Plan that link to the Poplars Marketplace Development, South Jerrabomberra, the Regional Sports Precinct and the high school and Poplars Business Park.
- The Plan has mapped out actions which appear to be a filling the gaps approach, rather than projecting inspiring, dramatic and accelerated changes to the bike and walkway system.
- There are no changes in the Plan on how anyone can safely cross Kings Highway / Bungendore Road and it needs to be addressed as a priority, in consultation with Roads and Marine Services.
- Safety issues for pedestrians and cyclists on Yass Road, Bungendore Road and Ellerton Drive have not been adequately addressed. There is a need for good connections for bike/shared routes from the future Ellerton Road Extension to East and South Queanbeyan (e.g. connections to Greenleigh, along Bywong Creek down to the Queanbeyan River Suspension bridge).
- Pedestrian and cycle access and safety along Atkinson Street and Morisset Street between Macquoid Street and Waniassa Street, but especially across Bungendore Road.
- There are no changes to pedestrian links in Queanbeyan East in the Plan, even though it is highlighted as an area with poor pedestrian access. Queanbeyan East active travel routes need to be prioritised. The current and planned network of bicycle paths/lanes, footpaths and safe road crossings is inadequate, especially in the vicinity of Queanbeyan East Primary School.
- The streets surrounding Queanbeyan East Primary School have disjointed footpaths with several industrial driveways (e.g. the pedestrian crossings on Thurralilly Street and Mulloon Street do not link well to existing footpaths). The Mulloon Street crossing is poorly marked and the footpath on the southern side of the crossing is sporadic and difficult for parents with prams and scooters to negotiate.
- The walkway from Mulloon Street to Kings Highway along Burra Street is poorly maintained.

The following issues were noted with respect to the QPRC cycling network:

- Widen cycle tracks on Carolyn Jackson Drive, Jerrabomberra.
- There needs to safer cycling paths along Yass Road connecting to Pialligo Avenue, particularly the section under the rail bridge and over the narrow Molonglo River bridge.
- No bicycle facilities within the CBD (with the exception of some short term bicycle parking).
- Existing off-road bicycle network does not uniformly meet relevant standards.
- Existing on-road bicycle network is discontinuous and limited.
- Existing bicycle facilities do not adequately connect to form an overall network of facilities appropriate to the needs of various cyclist user groups.
- Limited wayfinding signage and infrastructure.
- A lack of end of trip facilities (parking, showers / lockers) at key destinations and land uses throughout QPRC.
- 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 QPRC. 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 QPRC.

The proposed walk and cycle network master plan for Queanbeyan endeavours to address these and other identified issues where appropriate and is shown in Figure 1. It is important to note that:

- This a strategic network, rather than an itemisation of every route that might ultimately be desired.
- Proposed link types are for master planning purposed and more detailed investigation my results is a different type of facility being more suitable to that location accounting for constraints, services or future development.
- The bicycle and pedestrian facilities plan has a definite timeframe. The networks shown are based on a timescale of about 10 years. It is assumed that the plan will be reviewed every five years.
- Changes in land uses can have large impacts on walking and cycling needs, but not all land use changes that will occur can be predicted and incorporated into the networks.

The proposed works plan for bicycle and pedestrian facilities in Queanbeyan is shown in Figure 2 for high priority works (1 – 4 year time frame). This shows how the works proposed in the path program combine with existing paths, plus the proposed street crossing points and existing crossing places, to create an overall network. In this sense, “existing” also includes those paths that have committed funding (where known).

The estimated cost of works considered high priority (to be built in next 5 years) for Queanbeyan is $2.3M. The priority works includes:

- 4.9 km of new footpaths
- 11.6 km of new shared paths
- 10.2 km of marked mixed use streets
- 1.1 km of new cycle lanes
- five new pedestrian refuges.

In addition, a budget of $6,750 per year is proposed for a kerb ramp replacement program and bicycle parking in Queanbeyan.

A summary of projects and costs is included in Appendix A.

Construction of any works identified in this project will be subject to the availability of funding.

Figure 1: Proposed Queanbeyan walk and bicycle network master plan

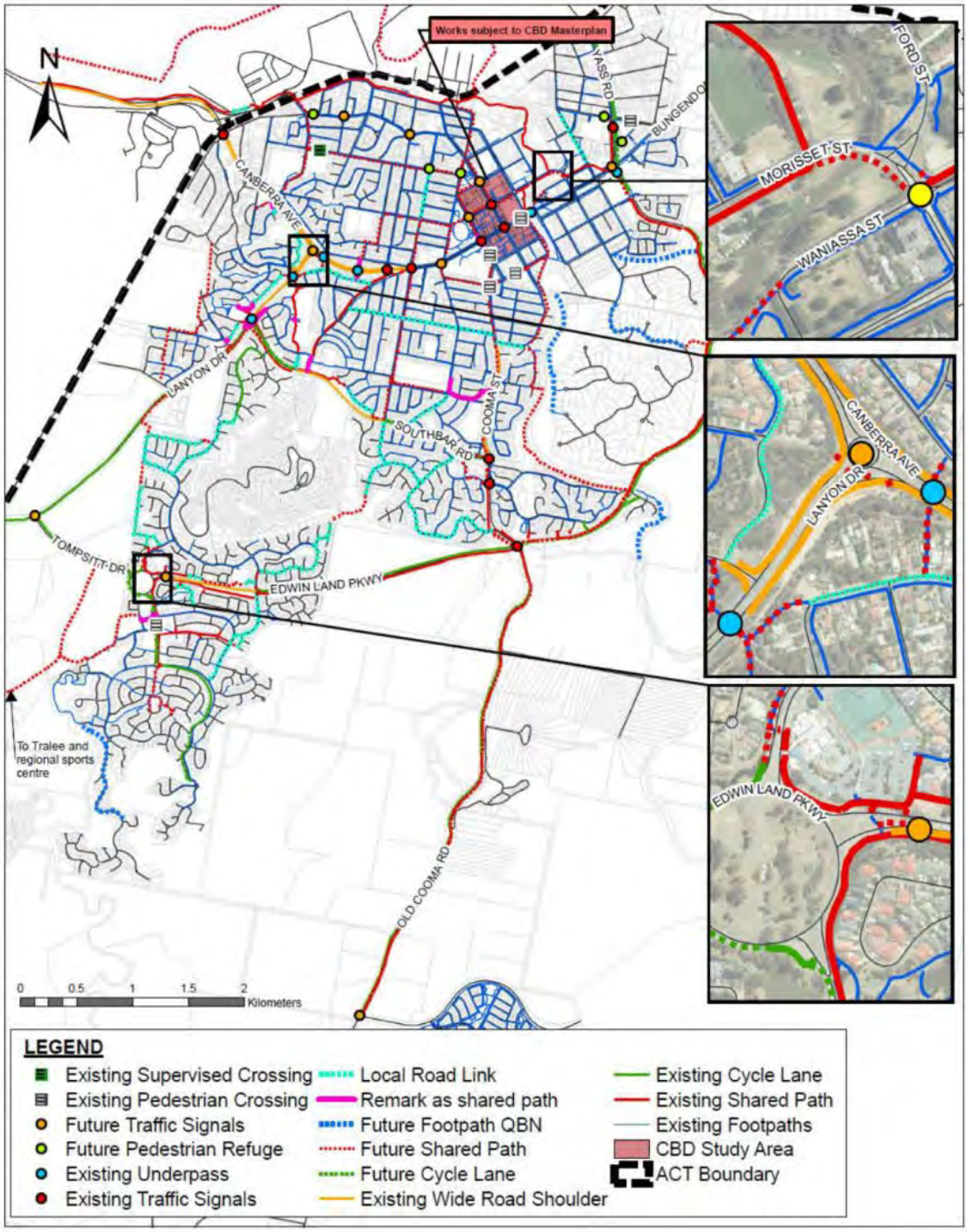
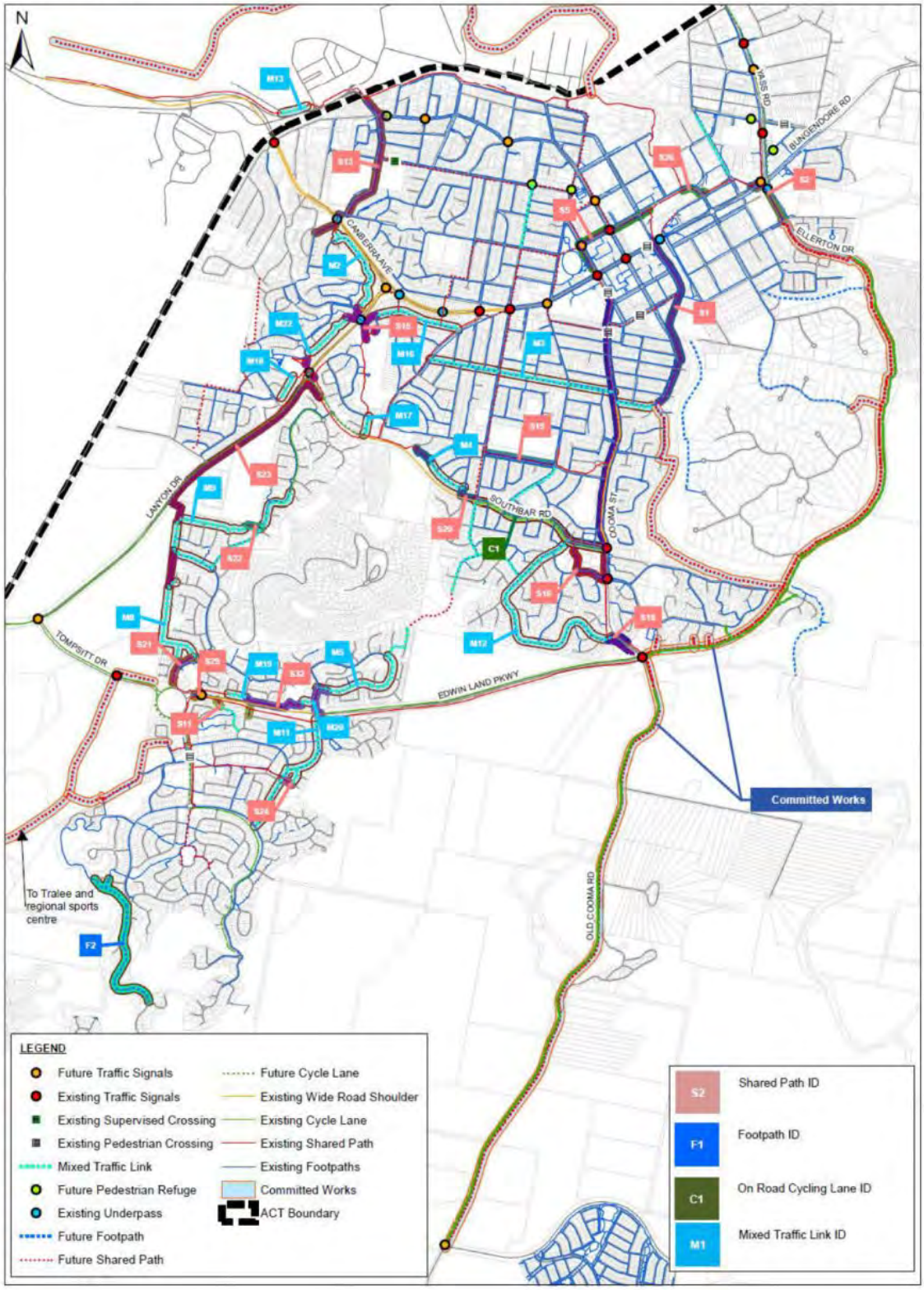


Figure 2: Proposed works plan for Queanbeyan – high priority



1.0 Introduction

1.1 Background

Queanbeyan-Palerang Regional Council (QPRC) has commissioned AECOM Pty Ltd (AECOM) to prepare an Integrated Transport Strategy (ITS) in order to plan for the transport needs of the growing population of Queanbeyan, Bungendore and Braidwood. To meet Council's requirement for the project, AECOM has prepared an integrated bicycle and pedestrian facilities plan for Queanbeyan; there are other similar reports for Bungendore and Braidwood.

The facilities plan will help Council to manage priorities and funding to address the study objectives listed below.

1.2 Study Objectives

The objective of preparing this report is to review and update the bicycle and pedestrian plans developed by Geocon in 2010. More specific objectives are:

1. Facilitate improvements in pedestrian and cycle connectivity and ensure the safe crossing of roads.
2. Facilitate improvements in the level of personal mobility and safety for all members of the community, in particular vulnerable road users, enhancing pedestrian and bicycle infrastructure and facilities.
3. Facilitate the integration of the pedestrian and bicycle network with other transport services.
4. Create an attractive alternative to car travel by providing active transport (walk/bike) links to community facilities including schools, churches, transport interchange, local shops, swimming pools, and sport and recreation facilities.
5. Ensure that pedestrian and bicycle facilities remain appropriate and relevant to the surrounding land use and user groups.
6. Provide a plan showing existing pathways and proposed new pathways.
7. Create an action plan map showing:
    a. existing paths and active transport facilities,
    b. new pedestrian and bicycle routes, and
    c. treatment (e.g., existing sealed road shoulder, shared concrete path).

1.3 Process

There are three key stages to this project:

1. Setting objectives and data collection. This included:
    a. Technical Analysis – AECOM utilised the geographical and spatial capabilities of GIS modelling software in order to undertake an analysis of the available transport data for Queanbeyan. The analysis consisted of analysing traffic volumes, crash statistics, existing facilities and existing and planned paths.
    b. Site Visits – In conjunction with the community consultation workshops Queanbeyan was visited on a number of occasions throughout the project.
    c. Community Consultation – Residents of Queanbeyan were invited to a drop-in information session where they were able to identify issues and opportunities associated with the pedestrian or cyclist networks.
2. Draft action plan and draft report. This has included the development of routes, works priorities and estimated implementation costs. This was reviewed as part of a second round of community consultation.

3. Final action plan and report. The plan and report was finalised following the second round of community consultation.

Key steps in developing this strategy were to:

- Identify a functional network for walking and cycling. This is intended to create a practical network for pedestrians and cyclists, best serving the needs of the local community.
- Identify routes to service different users of the networks using a catchment analysis for seniors, school, shopping and recreation.
- Prioritise routes and works into an action plan.

The final outcome of this element of the project is the development of a strategy plan for walking and cycling in Queanbeyan, as represented by the action plan and implementation later in this report.

Figure 3 shows the key tasks undertaken for completing the bicycle and pedestrian facilities plan

1.4 Study Area

The study area for Queanbeyan is shown in Figure 4.

1.5 Structure of Report

The structure of this report is as follows:

- Section 2 outlines the characteristics of the study area, including land use, transport movements and crashes
- Section 3 summarises the outcomes of stakeholder and community consultation carried out to date
- Section 4 outlines details of relevant policies, programmes and planning principles
- Section 5 presents the pedestrian and bicycle network master plan and a catchment analysis for key user groups
- Section 6 describes the bicycle and pedestrian route priority strategy and implementation plan, including estimated costing of works
- Section 7 outlines the implementation and monitoring of the bicycle and pedestrian facilities plan.

Appendix A provides a schedule of works of projects that form part of the plan.

Figure 3: Key tasks for completing a bicycle and pedestrian facilities plan

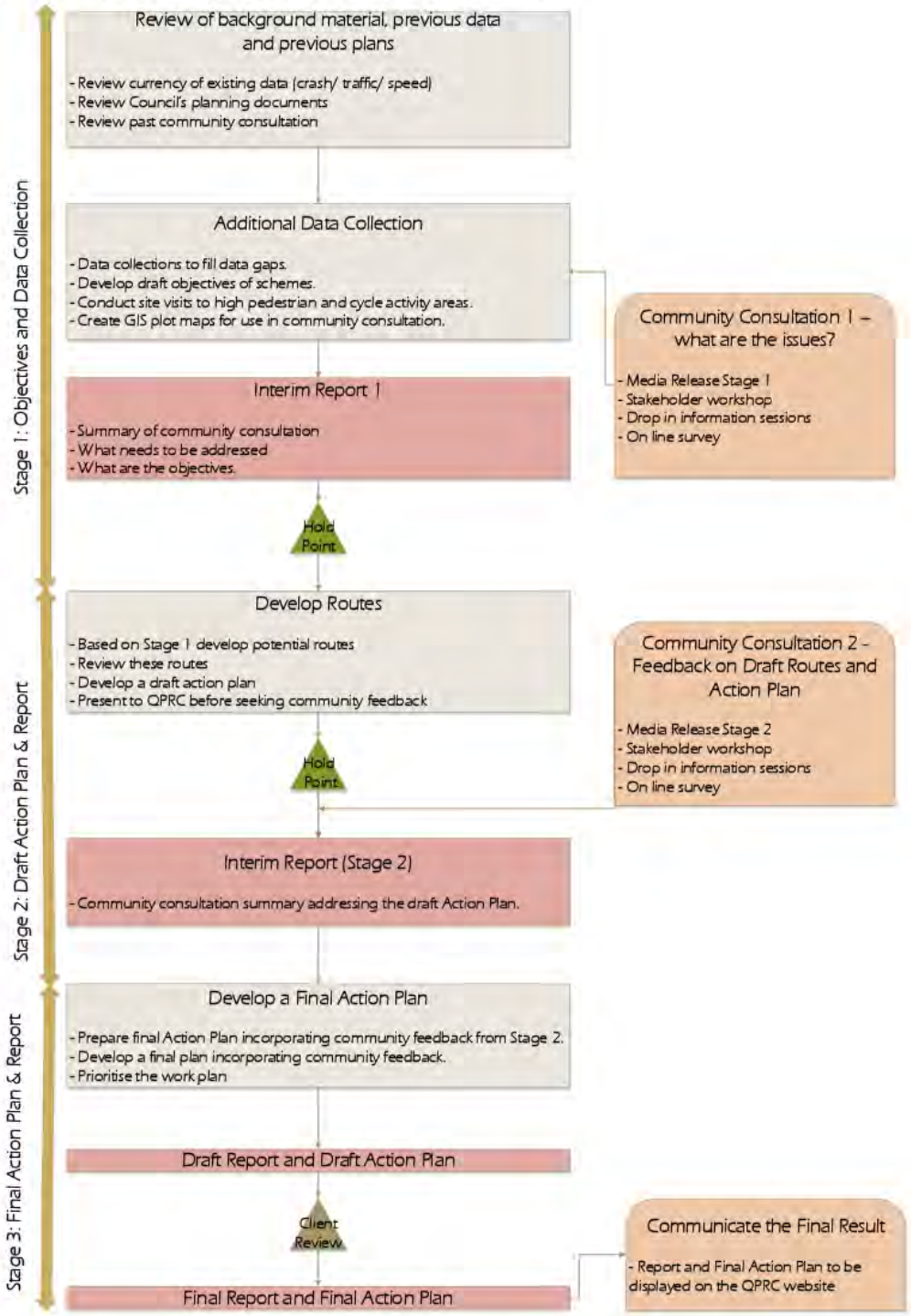


Figure 4: Queanbeyan study area

2.0 Characteristics of the Study Area

2.1 Land Use

2.1.1 Queanbeyan population

Queanbeyan is located next to the ACT and in the Southern Tablelands region. It is of importance due to its function as a regional service centre and its proximity to the ACT.

The estimated population in the Queanbeyan urban area was approximately 38,000 people in the 2016 census. By 2036 it is expected to grow to approximately 57,000 people, with a majority of this growth occurring in Googong (QPRC website, September 2017).

Seniors and the elderly (people in the age group 70+) make up approximately 7% of the population in Queanbeyan (QPRC website, September 2017). An aging population is important when considering disability, which include limits to mobility and impediments in vision and hearing.

2.1.2 Pedestrian and cyclist trip generators and attractors

The locations of cyclist attractors and generators are shown in Figure 5. Queanbeyan currently has existing cyclist infrastructure and attractions which generate cyclist activity. The major generators and attractors for Queanbeyan include:

- Educational institutions (primary and secondary schools and TAFE)
- Shopping and commercial centres
- Community centres
- Recreational facilities
- Caravan parks.

The locations of pedestrian attractors and generators are shown in Figure 5. The largest generators of pedestrian movement include schools, shops, clubs, aged housing and medical facilities.

There are six primary schools in Queanbeyan and three secondary schools, in addition to a new primary school in Googong. The schools are likely to generate pedestrian activity from surrounding residential areas and attract many bus trips.

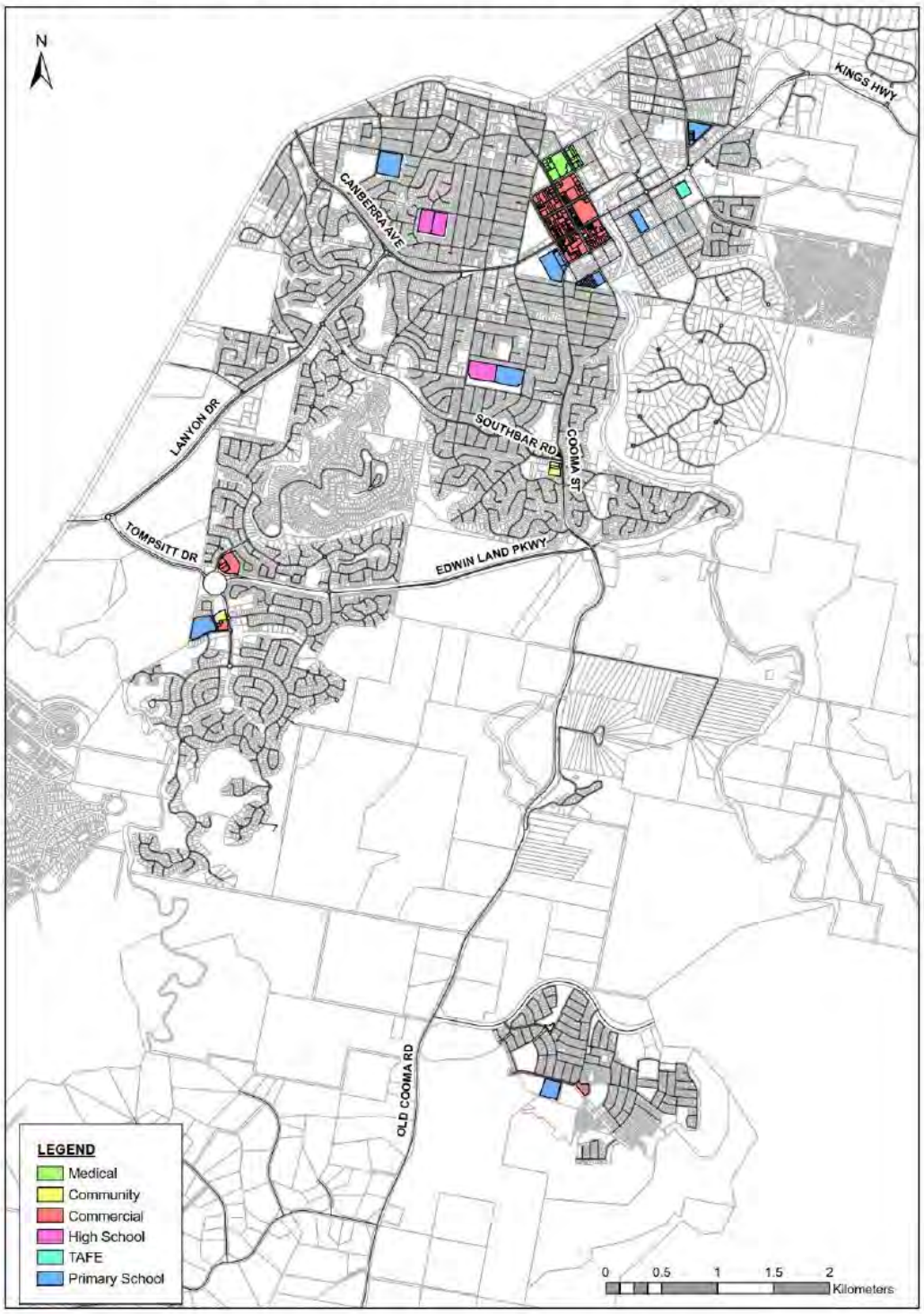
The CBD is a major attractor for residents and visitors to Queanbeyan and has the majority of commercial and retail activity in the urban area. The swimming pool, sports fields and other open spaces are attractors particularly for youth. Community facilities such as the Civic Centre, community centres, clubs are significant attractors for seniors.

2.1.3 Future land use changes

Recent traffic modelling of Queanbeyan and region by TDG (2014) assumed that the Queanbeyan population will grow by about 3% per annum over the next 15 years (i.e. to about 55,000 by 2031). Most of this population growth is expected to occur in Googong (about 48% of growth) and South Jerrabomberra (about 29% of growth).

The modelling also assumed a significant amount of jobs growth in Queanbeyan, by almost 6% per annum over the next 15 years; almost doubling the current number of jobs. Most of this job growth is expected to occur in South Jerrabomberra (about 60% of growth). If achieved, it will have a noticeable effect on current commuter travel patterns.

Figure 5: Queanbeyan pedestrian and bicycle key generators, attractors and facilities



2.2 Transport Movements

2.2.1 Mode use

Figure 6 shows mode use splits that were recorded using the 2016 Journey to Work census data for Queanbeyan. It shows that public transport use is small (about 2%) and that car is the main mode of transport to work.

Figure 6: 2016 Census journey to work mode use in Queanbeyan

The use of bicycle for work trips in Queanbeyan is 1%, probably reflecting a lack of bicycle facilities. Walk trips make up a reasonable proportion of trips (3%) and are an important mode of travel.

2.2.2 Road hierarchy, traffic volumes and speeds

The current road hierarchy of arterial, collector and local roads is shown in Figure 7. The road hierarchy generally represents expected traffic volumes, travel speeds and hence the type of pedestrian facilities which are appropriate for the various road categories. In Queanbeyan, the industrial road classification indicates where a larger number of heavy vehicles are expected.

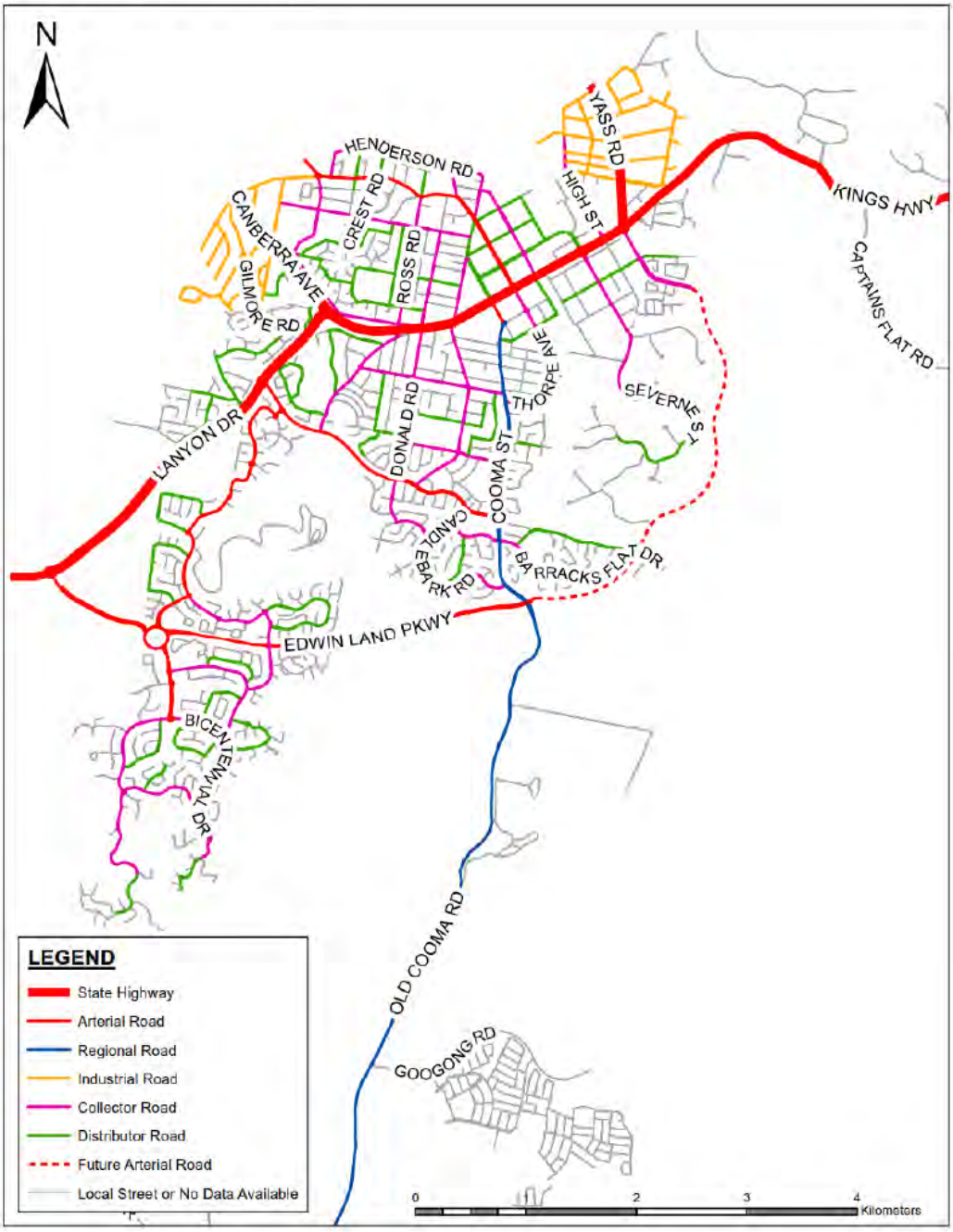
The 4.6 km Ellerton Drive extension (EDE) provides an alternative route around the Central Business District and connects east and west Queanbeyan to the new southern population growth areas. EDE runs from the current end point of Ellerton Drive, near Yass Road/Bungendore Road, in Queanbeyan East to the Old Cooma Road / Edwin Land Parkway intersection in Karabar.

The objective of EDE is to retain a minimum Level of Service (LOS) D on Cooma Street, Queens Bridge and Monaro Street, and reduce heavy vehicle movements and traffic congestion in the Queanbeyan city centre. Monaro Street would become a more pedestrian friendly environment enabling further civic and inner city improvements.

Results of recent traffic counts in vehicles per day in Queanbeyan are shown in Figure 8 and posted speed limits across the Queanbeyan road system is shown in Figure 9. Posted speed limits on Council roads have evolved and been refined over time and appear to be generally appropriate for the network. The 40 km/h speed limits are only applicable during student arrival and departure times on school days.

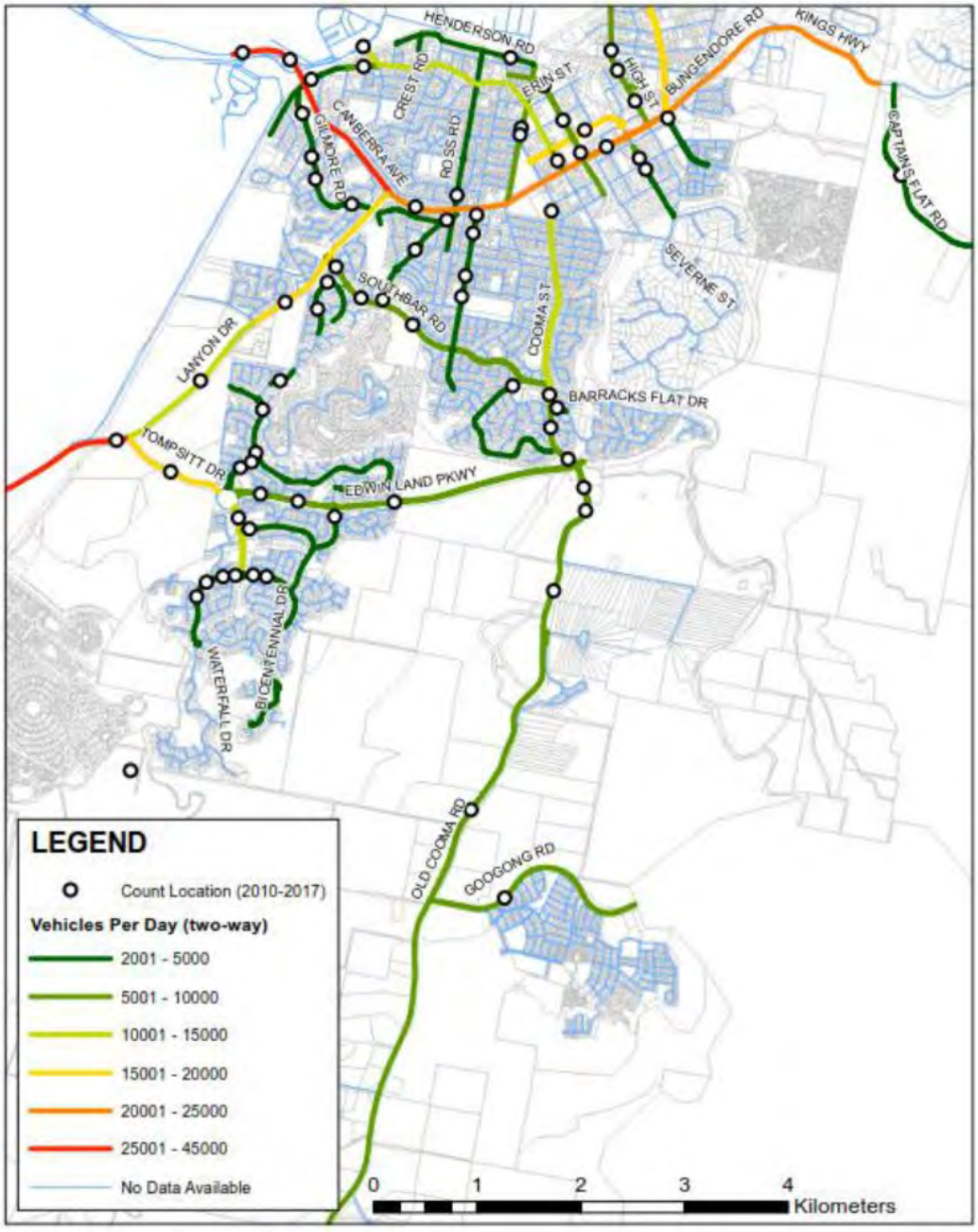
Figure 10 indicates the difference between the 85th percentile measured speed and posted speed limit. There are some notable non-compliance areas such as Gilmore Road and Old Cooma Road. Caroline Jackson Drive is also displaying some speed non-compliance, due to its connectivity to Southbar Road. A connection to Lanyon Drive could alleviate some of this speeding. Googong Road has no urban friction to encourage speed limit compliance since its speed limit reduction from prior to the Googong subdivision commencing.

Figure 7: Queanbeyan road hierarchy



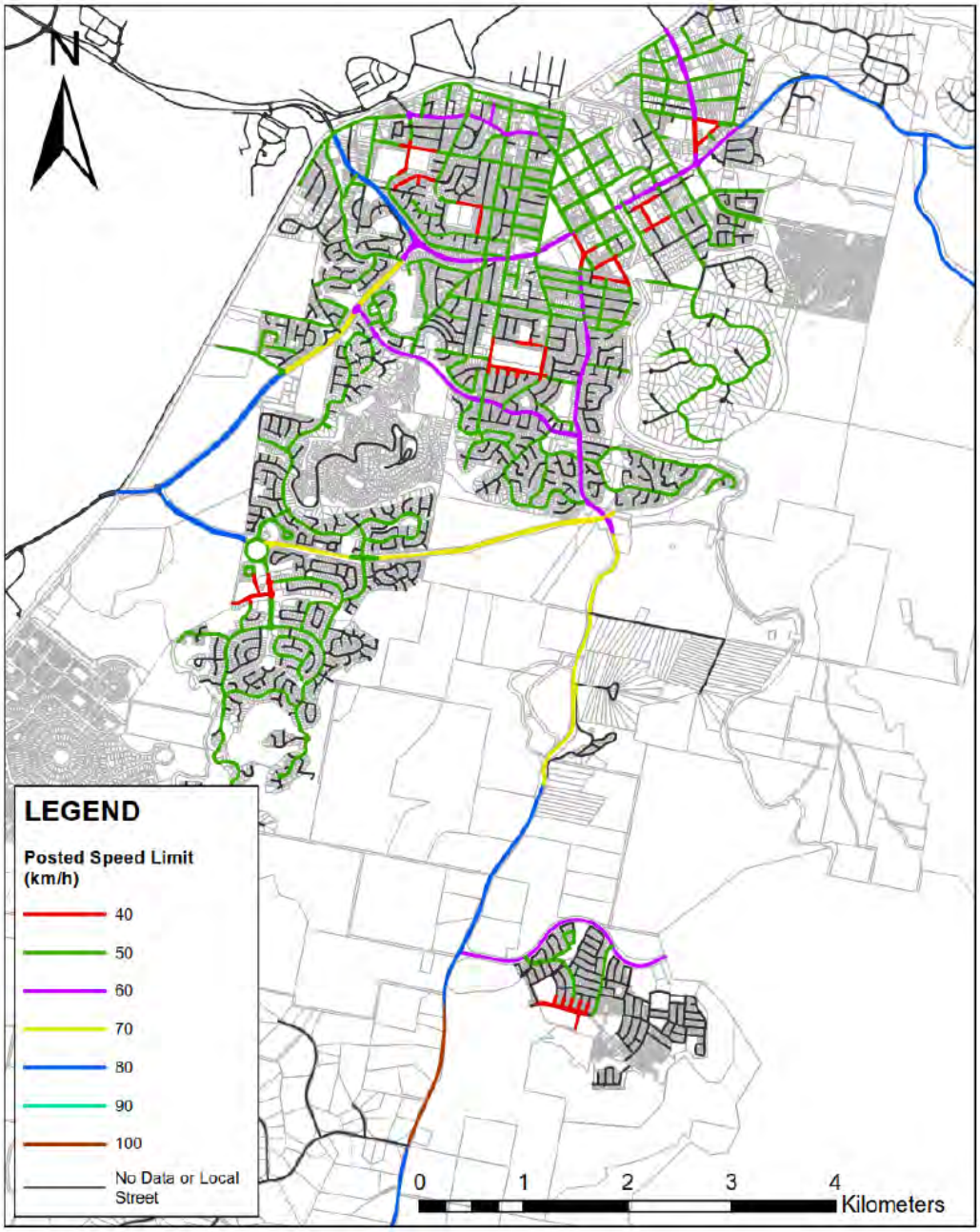
Source: AECOM (June 2017)

Figure 8: Queanbeyan daily traffic volumes



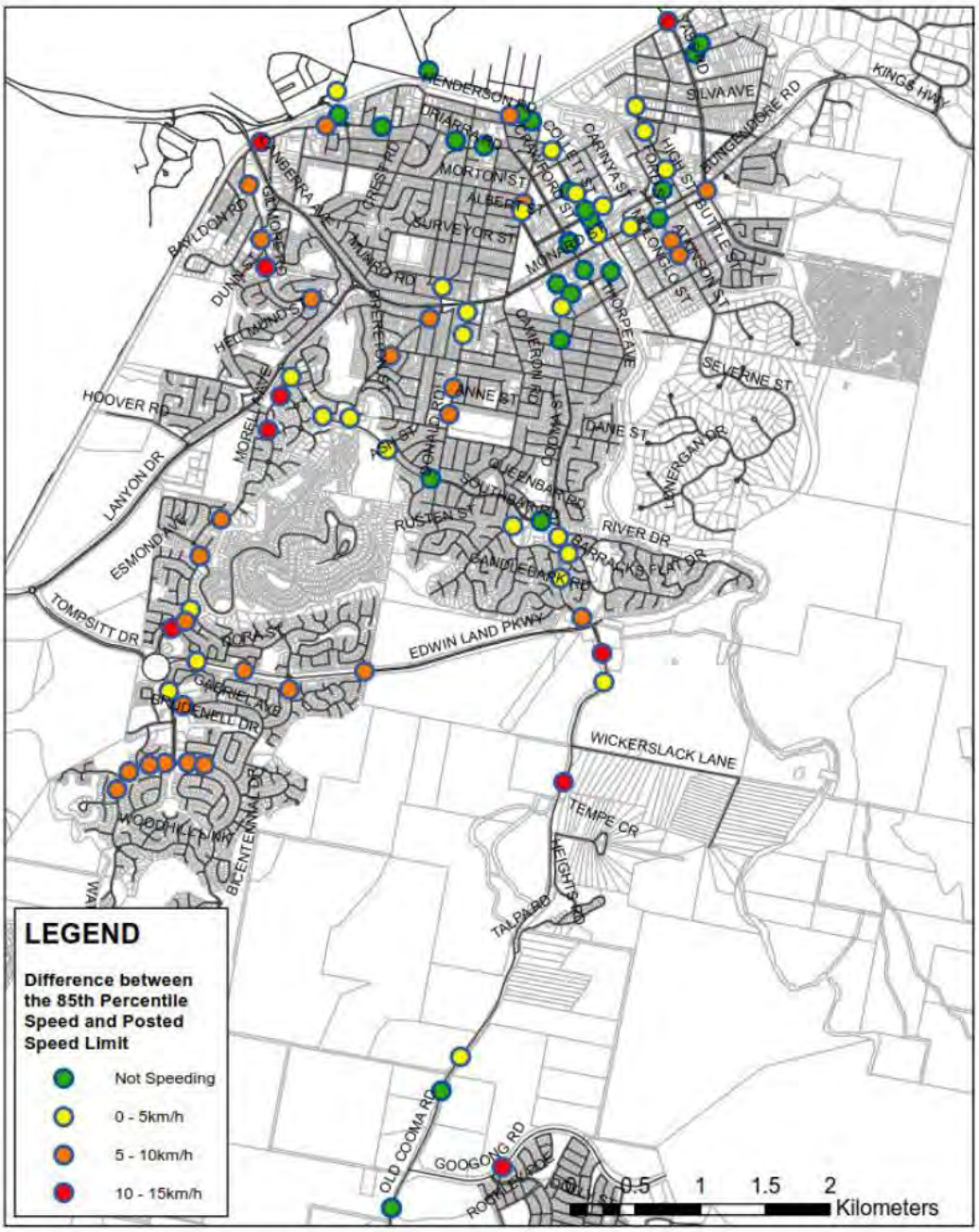
Source: QPRC data base (May 2017)

Figure 9: Posted speed limits in Queanbeyan



Source: QPRC data base (May 2017)

Figure 10: Difference between 85th percentile and posted speeds



Source: QPRC data base (May 2017)

2.2.3 Public transport

Queanbeyan is serviced by the following public transport:

- QCity urban bus network
- ACTION (from the Canberra Outlet Centre park and ride car park at Fyshwick, ACT)
- Countrylink Train (Bungendore – Queanbeyan – Kingston) and coaches
- Regional Coach Services (some via Canberra and Batemans Bay)
- Valmar community transport
- Taxis
- Uber (often from Canberra)
- Airlines (via Canberra Airport).

All inter-town bus routes in Queanbeyan meet at the interchange in Collett Street. Currently, there are no means to transport bicycles on buses in Queanbeyan, as RMS consider bicycle racks on buses a safety hazard. A recent upgrade of the Queanbeyan Bus interchange included the installation of a bike cage and bike parking.

2.2.3.1 QCity Transit

The current Queanbeyan Bus Network Map is shown in Figure 11 and Figure 12. There are four QCity public transport services that cross into the ACT which include two services that terminate at Canberra City. The remaining two services terminate at Woden Interchange and Brindabella Business Park.

QCity Transit and Transborder buses also cover school routes in Queanbeyan, Yass and Canberra. In addition, a Bungendore Demand Responsive Service is available. Importantly, a LocalLink service is offered to the mobility impaired. After completing its designated route, the service picks people up from pre-booked locations and travels into the Queanbeyan CBD.

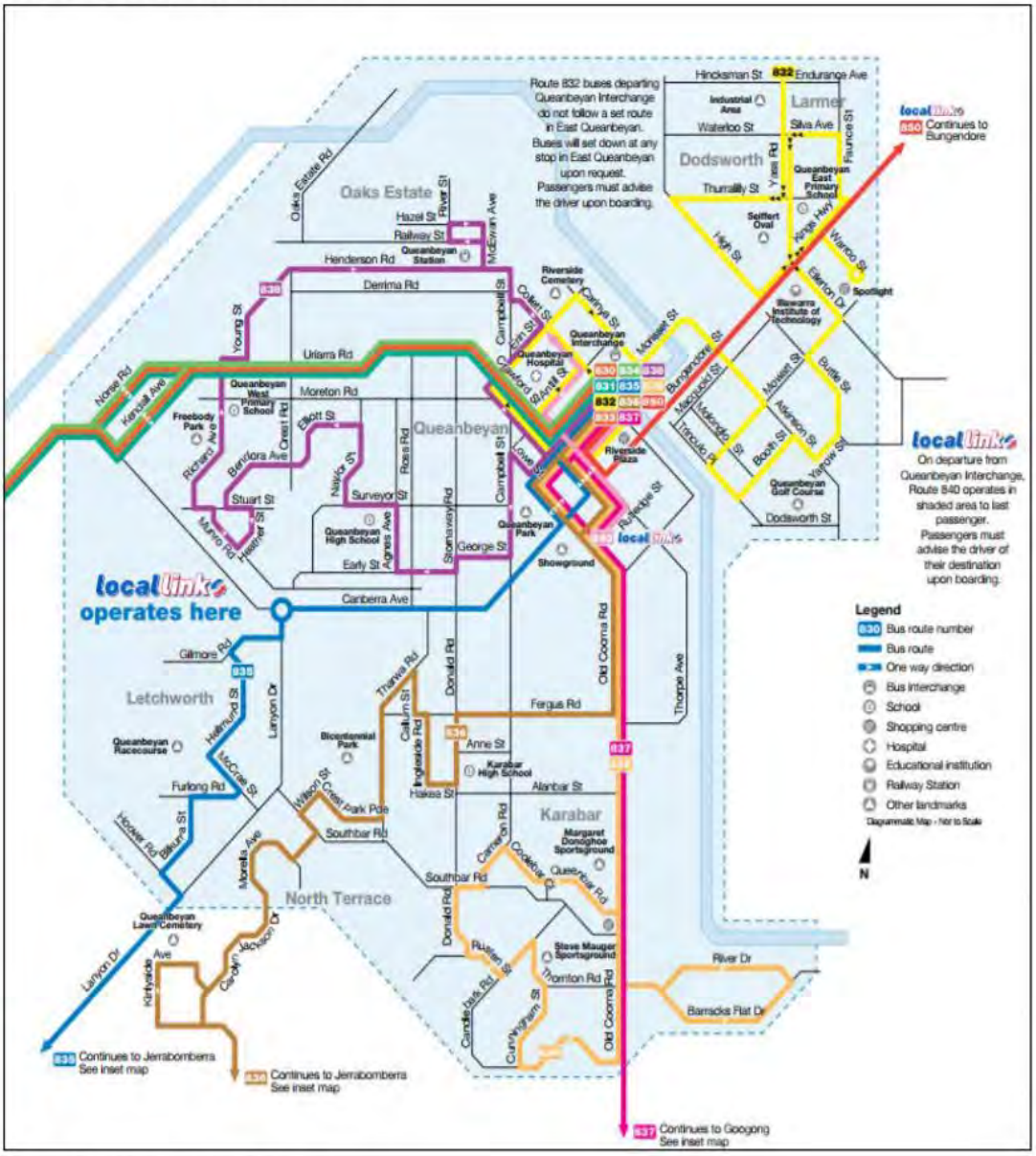
Plans have been developed and funding is available to upgrade the existing Queanbeyan interchange. The primary purpose of the upgrade is to improve pedestrian safety at the interchange.

A design has been created by QPRC (2017) to implement upgrades at the bus interchange to improve pedestrian safety, driver safety and the pedestrian waiting area.

The proposed upgrade would see the following changes at the bus interchange:

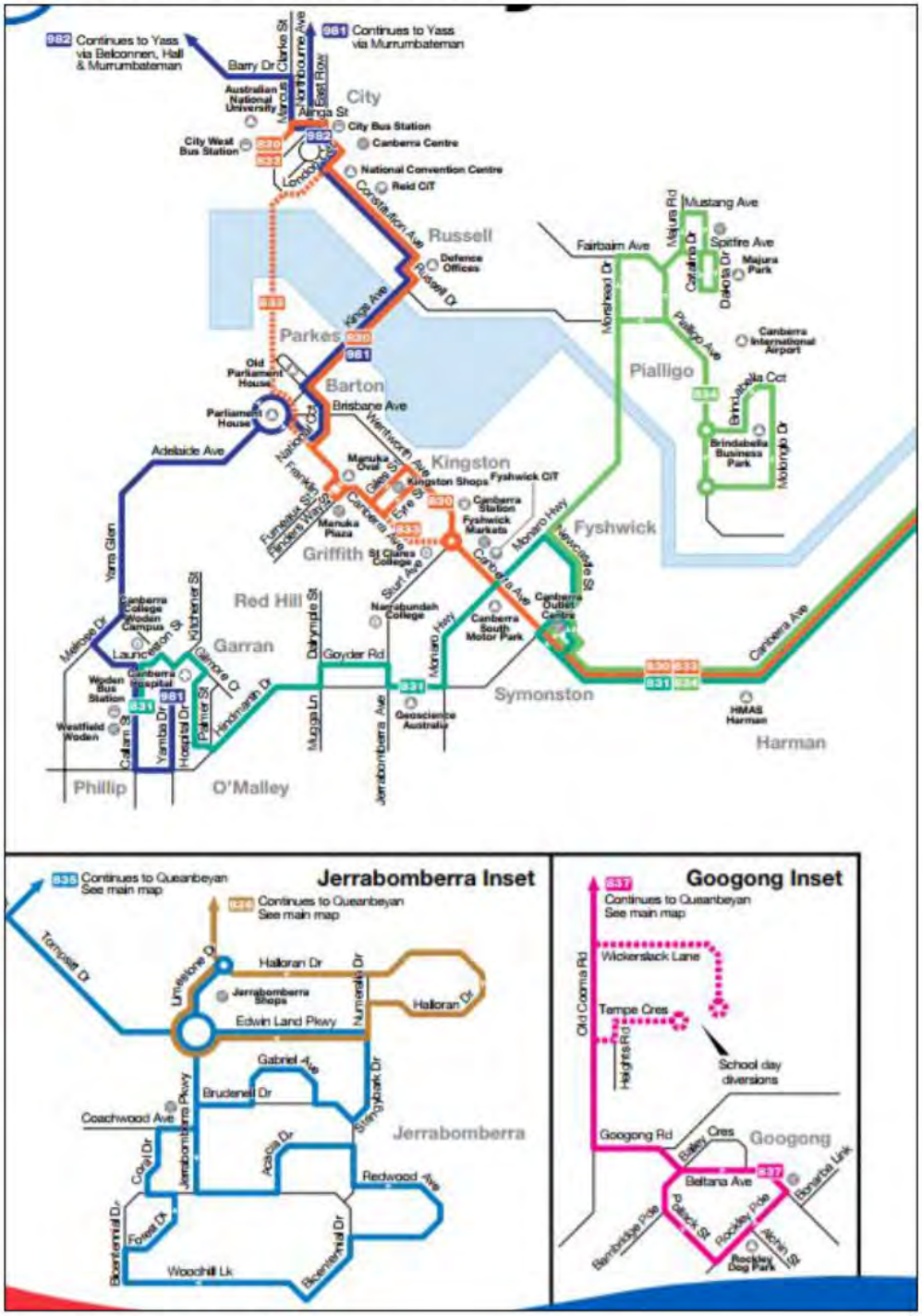
- Pedestrian fencing installed along the length of the car park separating the car parking bays from the 'Bus Only' road area and directing pedestrians to crossing facilities
- Pedestrian fencing extending at the end of Bus Stand 2 to wrap around the end of the stand
- New pedestrian (zebra) crossing facility installed to link pedestrian facilities with the new fencing
- Relocation of the vehicle entrance to the car parking bays with additional directional signage
- Relocation of disability parking bays and installation of new kerbing and bollards
- Wind protection installed for lengths on the northern and southern bus stands.

Figure 11: QCity Queanbeyan bus services



Source: QCityTransit (September 2017)

Figure 12: QCity Canberra, Jerrabomberra and Googong bus services



Source: QCityTransit (September 2017)

2.2.4 Pedestrian and cyclist facilities

Figure 13 illustrates the location of existing pedestrian and cyclist facilities in Queanbeyan. Pedestrian signals and zebra crossings offer the highest level of crossing safety on arterial roads. Currently, there are no cyclist crossing facilities in Queanbeyan offered by traffic signals.

There is on-road and off-road shared path route in the north-west of Queanbeyan that continues into the ACT along Canberra Avenue. This is possibly the best bicycle connection that exists in Queanbeyan, which has a limited system of shared paths or cycle lanes.

2.2.5 Route usage

A heat map provided by Strava for riding and running trips can be used to help create an understanding of cyclist and pedestrian movements within Queanbeyan. The maps also highlight routes that may benefit from cyclist and pedestrian network improvements – see Figure 14 (for riding) and Figure 15 (for running).

2.3 Crashes

2.3.1 Cyclist crashes

From the period between 2012 and 2016, there were 16 recorded crashes involving cyclists in Queanbeyan. All of these crashes were minor to moderate injury crashes and with no fatalities.

The location of cyclist crashes is illustrated in Figure 16. These crashes are generally scattered around the CBD and north-west Queanbeyan.

Table 1 shows that eleven out of the thirteen recorded crashes in the 2012-2016 study period occurred on the carriageway. The cyclist crash data from indicates that a number of cyclists involved in crashes are adults (69%), in the facility user group age range 26 to 59 years old.

Table 1: Number of crashes by cyclist manoeuvre code

Cyclist Manoeuvre Code	10	13	21	25	27	29
Number of Crashes	11	1	1	1	1	1

Note: The type of crashes cyclists were involved in have been summarised with reference to the manoeuvre codes based in the CrashLink Reporting System Data Manual (2015). The relevant codes from the manual are listed in .

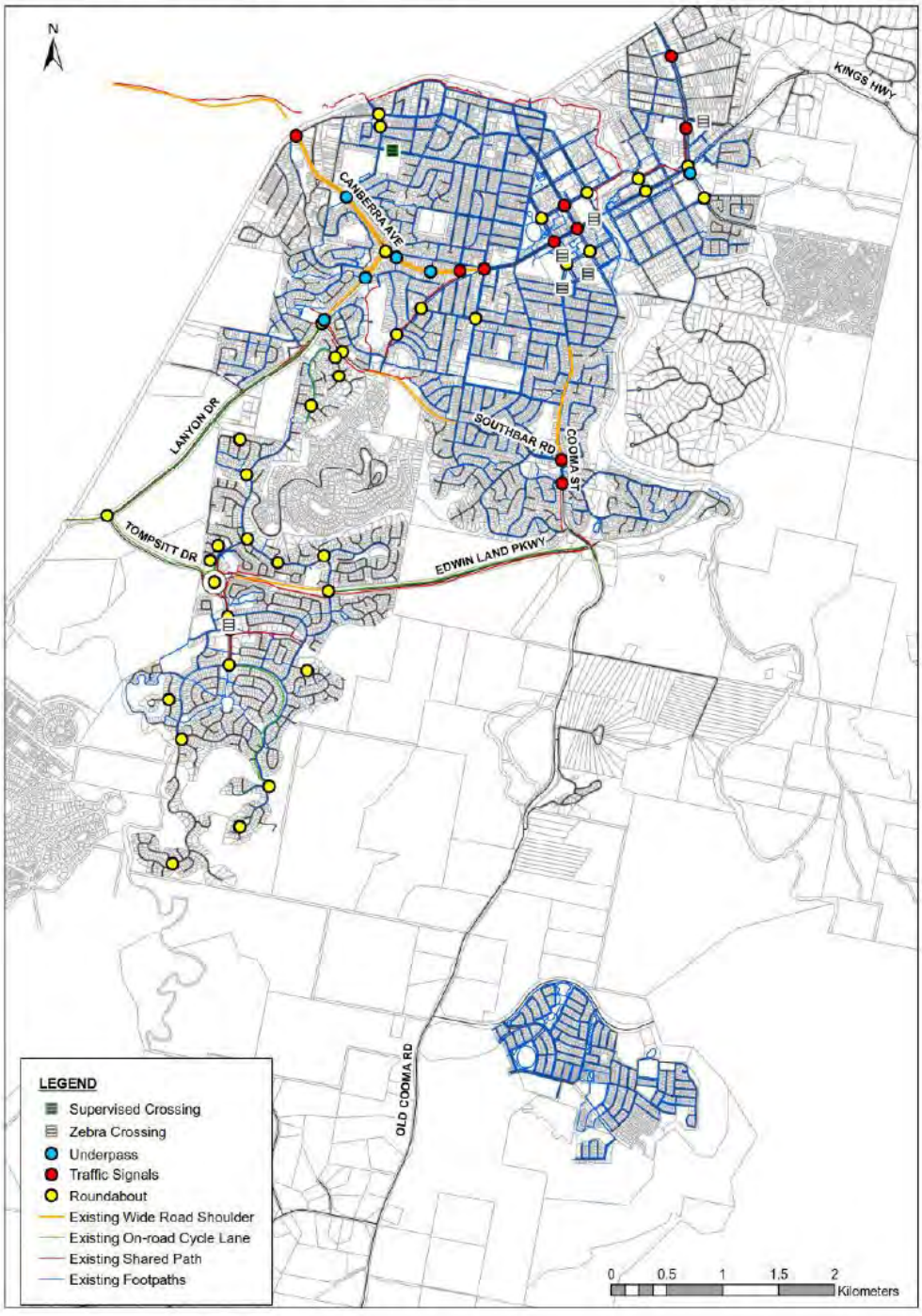
Table 2: Number of crashes by cyclist Facility User Group age

FUG	0-4	5-8	9-11	12-17	18-25	26-59	60+	Total
Number of Crashes	0	0	0	1	1	11	3	**16**
% of Population	0%	0%	0%	6%	6%	69%	19%	**100%**

Table 3: Manoeuvre code - cyclists

Code Number	Description
10	Proceeding along lane (on either straight or curved carriageway)
13	Veering to left to change to a lane moving in the same direction
21	Turning left out of own lane
25	Entering carriageway from driveway (forward or unspecified)
27	Moving along footpath
29	Performing other / unspecified forward manoeuvre

Figure 13: Queanbeyan existing street map and pathways



Note: Current as of December 2017

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Revision 5 – 20-Jun-2019
Prepared for – Queanbeyan-Palerang Regional Council – ABN: 95 933 070 982

Figure 14: Queanbeyan Strava heat map – riding

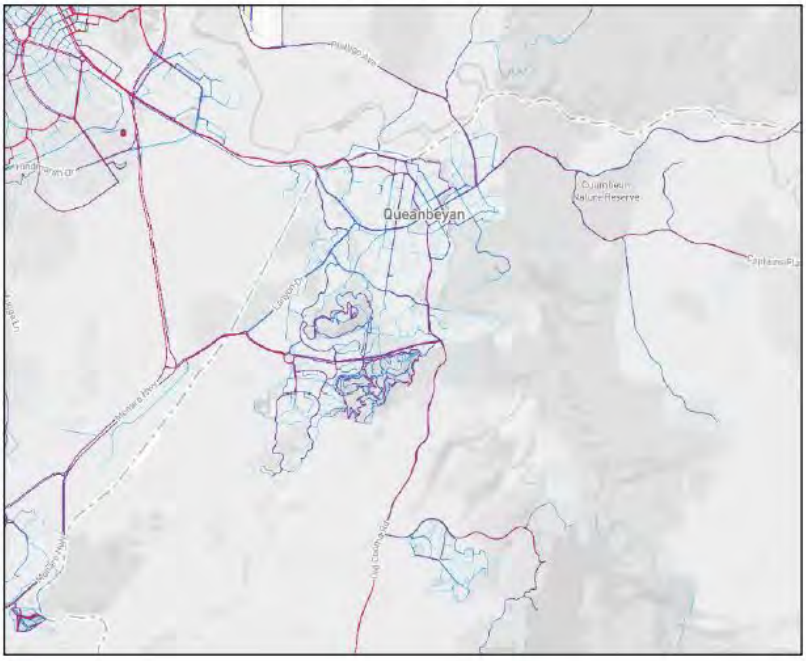
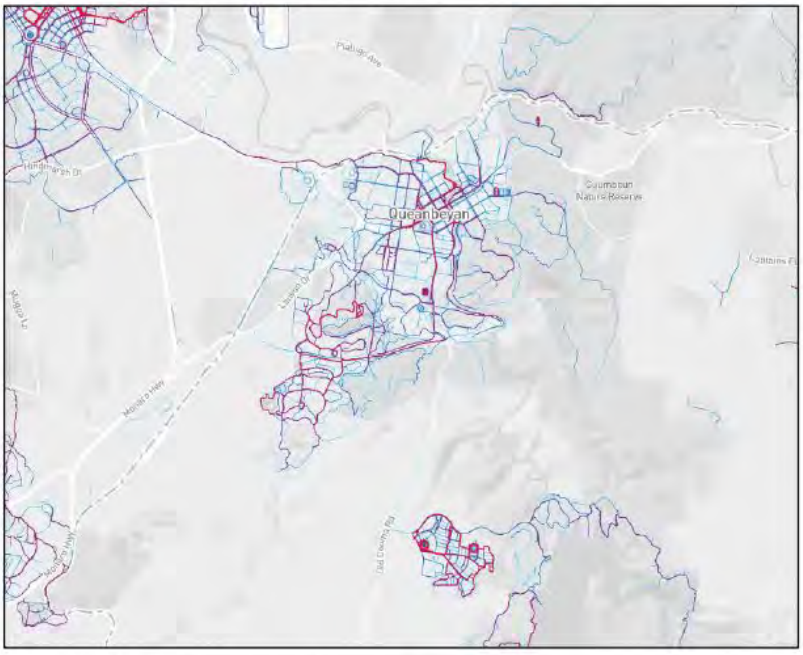
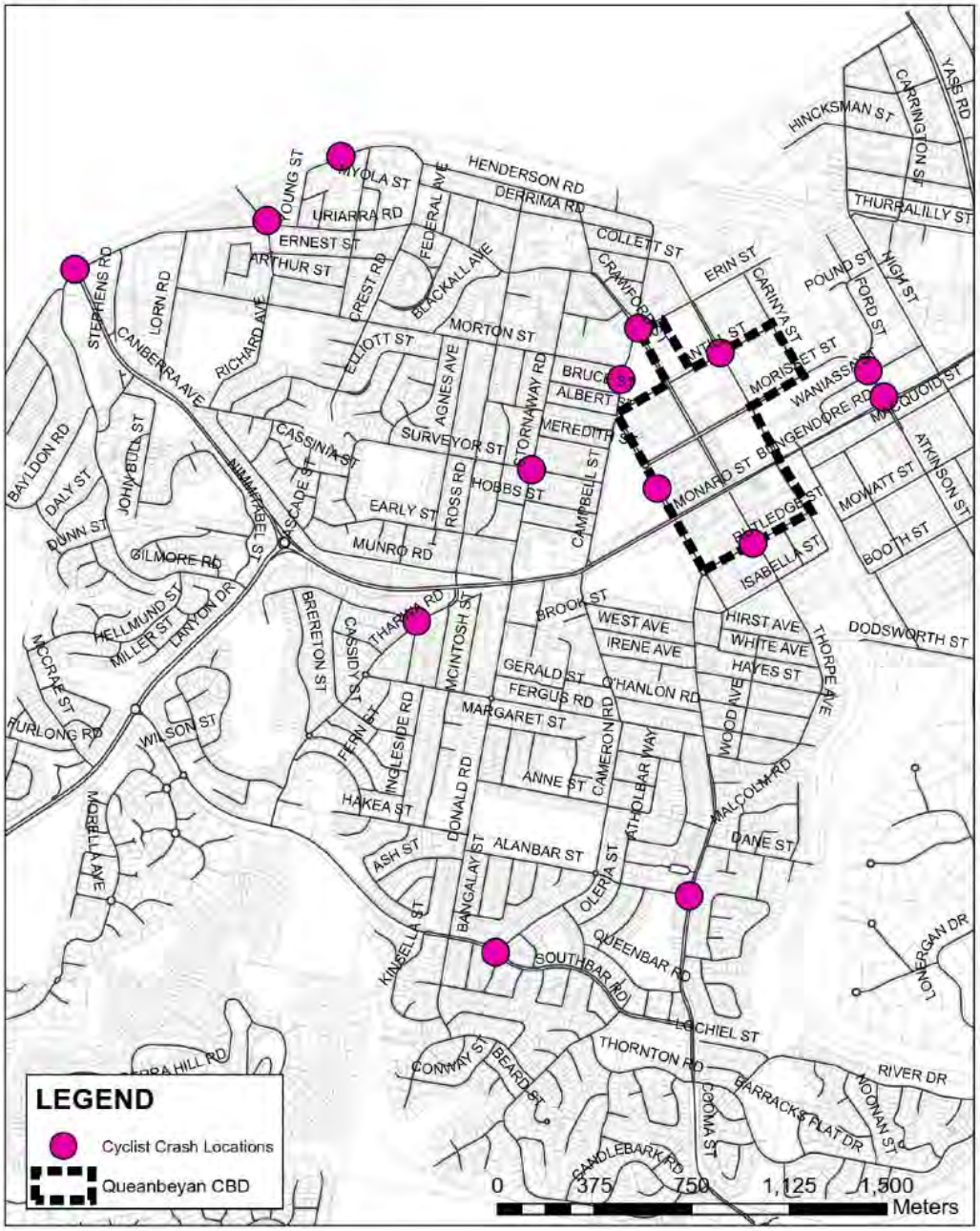


Figure 15: Queanbeyan Strava heat map – running



Source: Strava Heat Maps (Accessed June 2018)

Figure 16: Queanbeyan cycle crash locations



2.3.2 Pedestrian crashes

From the period between 2012 and 2016, there were 16 recorded crashes involving pedestrians in Queanbeyan. Most of these crashes were minor to moderate injury crashes and with one crash resulting in a fatality.

Locations of pedestrian crashes are illustrated in Figure 17. The majority have occurred on Monaro Street and Canberra Avenue in or close to Queanbeyan CBD, with one crash on Monaro Street involving a fatality.

Table 4 and Table 5 details profiles of the pedestrians involved in crashes. It is evident from Table 4 that a significant number of the crashes during the 2012-2016 study period occurred on the carriageway. Data from Table 5 shows that the majority of crash-involved pedestrians (44%) are adults, in the facility user group age range 26 to 59 years old.

Table 4: Number of crashes by pedestrian manoeuvre code

Pedestrian Manoeuvre Code	40	41	42	45	47	48	50	53
Number of Crashes	5	2	2	1	2	1	1	2

Note: The type of crashes pedestrians were involved in have been summarised with reference to the manoeuvre codes based in the CrashLink Reporting System Data Manual (2015). The relevant codes from the manual are listed in Table 6.

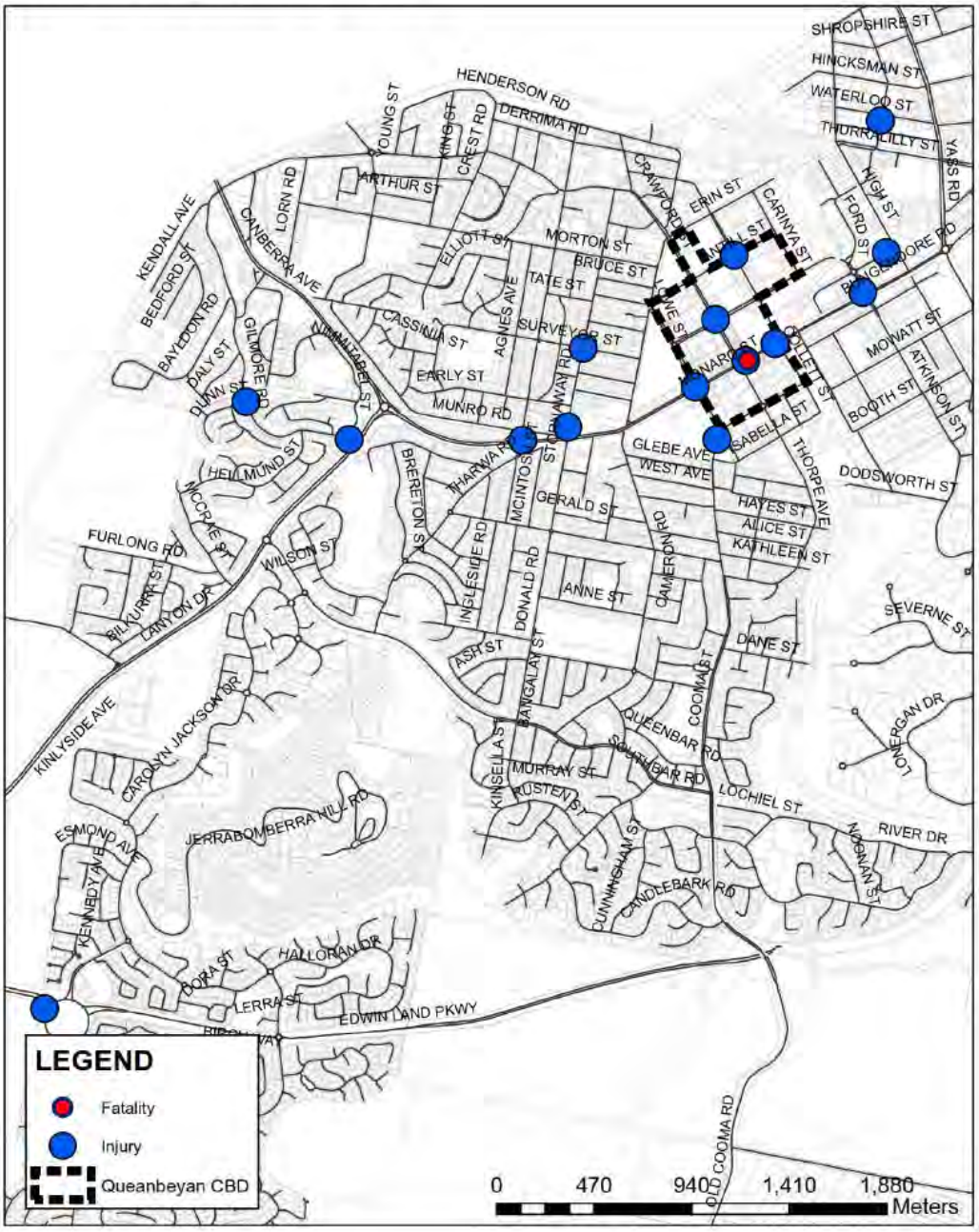
Table 5: Number of crashes by pedestrian Facility User Group age

FUG	0-4	5-8	9-11	12-17	18-25	26-59	60+	Total
Number of Crashes	0	0	1	5	1	7	2	**16**
% of Population	0%	0%	6%	31%	6%	44%	13%	**100%**

Table 6: Manoeuvre code - pedestrians

Code Number	Description
40	Pedestrian walking across carriageway
41	Pedestrian running across carriageway
42	Pedestrian standing still on carriageway
45	Pedestrian walking on vehicle on carriageway
47	Pedestrian in / on toy vehicle on carriageway
48	Pedestrian moving along edge of carriageway with traffic
50	Pedestrian stepping off / onto kerb
53	Pedestrian on skateboard / roller skates or blades

Figure 17: Queanbeyan pedestrian crash locations



Source: RMS data base (2012-2016)

3.0 Community Consultation

There have been three rounds of consultation on this project that have been considered in developing the Action Plan and Implementation Plan for bicycle and pedestrian facilities in Queanbeyan, as follows:

1. Setting context and identifying issues, as part of Stage 1 consultation.
2. Developing a draft action plan, implementation plan and report for comment as part of Stage 2 consultation.
3. Developing a draft action plan, implementation plan and report for public exhibition and comment (Stage 3).

An outline of the consultation processes and outcomes to date follows. More details are given in the project consultation reports.

3.1 Stage 1 Consultation

Activities and tools implemented in Stage 1 included:

- A stakeholder workshop to discuss the vision and objectives of the Integrated Transport Strategy (ITS) and key issues, barriers, needs, gaps and opportunities.
- A community survey to collect people's feedback.
- Information sessions held at venues in Queanbeyan during the week commencing 20 June 2017.
- Letter to key stakeholders with information attached informing them of the project, consultation process and feedback opportunities.
- Posters displayed at each of the public information sessions with background information about the project and analyses to date.
- Feedback sheets available at the public information sessions for attendees to write down their thoughts and ideas about transport in the region.
- Text for the QPRC website about the consultation process.
- Email and phone feedback available through transportstrategy@qprc.nsw.gov.au .
- QPRC Communications, Media and Public relations drafted a media release with help from AECOM to inform people about the consultation.

Stage 1 feedback was collected in June 2017 from residents in Queanbeyan. This included a stakeholder workshop, community information sessions and surveys. 53 survey responses from residents in the Queanbeyan region and feedback received by both phone and email. Six people attended the pedestrian information session in Queanbeyan, whilst three people attended the cycling information session including one representative from the Queanbeyan Bicycle User Group.

The key issues for pedestrians and cyclists arising from the Stage 1 consultation in Queanbeyan were:

- The importance of building and encouraging healthy communities especially through active transport options. For example, bicycle carriages on buses and trains and bicycle racks outside key points of interest within the city centre.
- The importance of safety and security of people who are crossing the road.
- Improved pedestrian and cyclist crossings especially pram ramps and near schools and child care centres.
- Need for surface upgrades including roadways, footpaths and cycle ways which in many areas are 'poor and uneven'.
- Improved connectivity between different regions especially to and from the city centre including cycling and walking tracks to and from the city centre and along the riverbank.

3.2 Stage 2 Consultation

A Stage 2 Stakeholder Workshop was held on Tuesday 29 August 2017 in Queanbeyan. Attendees included representatives from AECOM, QPRC, Googong Residents Association, TfNSW, QCity Transit, QueanBUG and ACT Government.

Stakeholders were asked to provide feedback on strategic response statements that were developed to address key issues of concern arising from the Stage 1 consultation. In addition, stakeholders were asked to provide comments and identify priorities on the Action Plan Maps that were developed from feedback from Stage 1 consultation.

Key pedestrian and bicycle related issues for Queanbeyan arising from the Stage 2 workshop were:

1. Identifying targets to promote active travel use and facilitate participation.
2. Integration of cross-border public transport network and pedestrian and cycle facilities.

Some changes to the Draft Action Plan Maps were identified during the workshop, to be addressed prior to the Stage 2 community consultation.

Activities and tools implemented in Stage 2 included:

- A community survey to collect people's feedback.
- A total of four Information sessions held at venues in Braidwood during the week commencing 4 December 2017.
- Posters displayed at each of the public information sessions with background information about the project and analyses to date.
- Feedback sheets available at the information sessions for attendees to write down their thoughts and ideas about transport in the region.
- Text for the QPRC website about the consultation process.
- Email and phone feedback available through transportstrategy@qprc.nsw.gov.au.
- QPRC Communications, Media and Public relations drafted a media release with help from AECOM to inform people about the consultation.

The primary feedback from this consultation with regards active travel was as follows:

- Extend the footpath that runs to White Rocks near the river. White Rocks is a popular place for people to swim.
- Widen cycle tracks on Carolyn Jackson Drive, Jerrabomberra.
- Install a pedestrian crossing near Stornaway Road.
- Additional footpaths for children to walk and ride bikes, especially around schools.
- Safety issues regarding the cycle and pedestrian network along Yass, Bungendore and Ellerton Roads.
- In general the mobility of pedestrians and cyclists are not supported by underpasses or overpasses to reduce conflict with vehicles. This is a particular concern for vulnerable user groups such as people with disabilities, the elderly and children.
- East Queanbeyan seems to missing attention in terms of active travel routes.
- Connections between Greenleigh and Queanbeyan are lacking in terms of safe active travel infrastructure.
- Greenleigh Estate does not have streetlights or footpaths constructed.
- A high priority requirement for an underpass under the Edwin Land Parkway once the EDE is open. It is currently dangerous for the community to cross over the road from the shopping centre to 'the park'. This will continue to get worse once the road is open and Googong continues to grow.

3.3 Stage 3 Consultation

This report and associated plans and reports for the ITS were exhibited for comment on Council's website from 1 March 2019 to 16 April 2019. There were 16 responses received from website surveys and five formal written responses. Of these, eleven survey responses were received in relation to Queanbeyan and three written response,

The primary feedback from this consultation with regards active travel was as follows:

- Suggestions:
  - Shared path link between Edwin Land Parkway and Candlebark Road on western side of Cooma Street.
  - Southbar Road near Karabar shops needs to be a Shared Zone.
  - Council should support the proposed Monaro Rail Trail which would be a fantastic commuting and recreational trail from Harman to Jerra and the proposed Tralee.
  - Traffic lights on Bungendore Road in Queanbeyan East to assist safe pedestrian and cyclist crossings.
  - Working with ACT Government to construct a Molonglo River riverside bikeway to Monaro Highway / Majura Parkway.
  - Pedestrian refuge to help pedestrians cross Thurralilly Street on the western side of Yass Road.
  - Pathway link on Macqoid Street between Buttle Street and Ellerton Drive underpass.
  - A number of safe crossing points are needed across Bungendore Road, especially linking to the Yass Road pedestrian traffic signals adjacent to the Queanbeyan East Primary School, either side of the current roundabout intersection with Ellerton Drive.
  - A pathway link to Ellerton Drive Extension (EDE) via the open space corridor between Yarrow Street, Bywong Street and EDE.
- Concerns:
  - Pedestrian safety crossing Campbell Street.
  - There needs to safer cycling paths along Yass Road connecting to Pialligo Avenue, particularly the section under the rail bridge and over the narrow Molonglo River bridge.
  - Access to the underpass of Ellerton Drive just south of Bungendore Road is poor from the western side.
  - No underpass of Edwin Land Parkway for Jerrabomberra community to cross over this road to the shopping centre.
  - No pathway in Plan that link to the Poplars Marketplace Development, South Jerrabomberra, the Regional Sports Precinct and the high school and Poplars Business Park.
  - The Plan has mapped out actions which appear to be a filling the gaps approach, rather than projecting inspiring, dramatic and accelerated changes to the bike and walkway system.
  - There are no changes in the Plan on how anyone can safely cross Kings Highway / Bungendore Road and it needs to be addressed as a priority, in consultation with Roads and Marine Services.

- Safety issues for pedestrians and cyclists on Yass Road, Bungendore Road and Ellerton Drive have not been adequately addressed. There is a need for good connections for bike/shared routes from the future Ellerton Road Extension to East and South Queanbeyan (e.g. connections to Greenleigh, along Bywong Creek down to the Queanbeyan River Suspension bridge).
- Pedestrian and cycle access and safety along Atkinson Street and Morisset Street between Macquoid Street and Waniassa Street, but especially across Bungendore Road.
- There are no changes to pedestrian links in Queanbeyan East in the Plan, even though it is highlighted as an area with poor pedestrian access. Queanbeyan East active travel routes need to be prioritised. The current and planned network of bicycle paths/lanes, footpaths and safe road crossings is inadequate, especially in the vicinity of Queanbeyan East Primary School.
- The streets surrounding Queanbeyan East Primary School have disjointed footpaths with several industrial driveways (e.g. the pedestrian crossings on Thurralilly Street and Mulloon Street do not link well to existing footpaths). The Mulloon Street crossing is poorly marked and the footpath on the southern side of the crossing is sporadic and difficult for parents with prams and scooters to negotiate.
- The walkway from Mulloon Street to Kings Highway along Burra Street is poorly maintained.

4.0 Relevant Policies, Programmes and Planning Principles

4.1 State Policy

The *Draft Future Transport Strategy 2056* sets out the vision, strategic directions and customer outcomes for the infrastructure and services plans for Greater Sydney and Regional NSW. The strategy is focused on six state-wide outcomes for the future mobility of NSW, shown in Figure 18. The aim is to positively impact the economy, communities and environments of the state, with these six outcomes are set to be the focus on every planning decision. These outcomes also guide the priorities set for regional communities which currently experience lower service levels and slower population growth than Greater Sydney.

Figure 18: Six customer and network outcomes

Source: NSW Government, Draft Future Transport Strategy, 2017

The draft Strategy highlights that regional NSW has 19 regional cities and 27 regional centres. The 19 regional cities include two Global Gateway Cities (Greater Newcastle and Canberra), which serve extended catchments around Canberra-Queanbeyan and the Hunter areas as shown in Figure 19 below. Greater Sydney is the third Global Gateway City for NSW. Improved transport will broaden the catchment around each of these Global Gateway Cities, improving access to major service precincts, advanced industries and international infrastructure for the purposes of travel and trade.

Significant investment in connecting regional cities is outlined in the Strategy. These connections will be made through smarter procurement and the deployment of technology-enabled and innovative service models.

Figure 19: Importance of Global Gateway Cities

Source: NSW Government, Draft Future Transport Strategy, 2017

The future regional transport network will be planned around a 'hub and spoke' model within a strategic framework of servicing principles allowing for local adaptation and interpretation. Servicing principles include connectivity, flexibility and efficiency, access and equity, legibility and timeliness, provision of accurate information and safety. The network will support local towns and Regional Cities and Centres and help make them better places to live, visit and do business.

This draft Plan was published by the NSW Government in late 2017. It supports the *Future Transport Strategy 2056* and sets a 40 year vision for transport in Regional NSW to support communities and productive economies. An emphasis has also been placed on the importance of providing stronger links between regional cities and centres, rather than focussing on connections to Sydney or the interstate capitals. Along with this shift in focus, the draft Plan identifies Canberra as one of three Global Gateway Cities. These cities are to provide the state-level services and facilities required to support the growing population in NSW.

The draft Plan highlights the following objectives for transport in Regional NSW:

- A safe, secure and resilient transport system that efficiently connects communities
- A transport system that improves productivity and supports regional economies and communities
- An equitable transport system that helps to vitalise our communities

- Accessible transport options for all customers
- A regional transport system that is reliable, flexible, personalised and responsive to customer needs
- A transport system that is affordable and makes best use of resources and assets.

Broad initiatives for implementation over the next 40 years include improving inter-region and regional city connectivity, and expanding the regional public transport network. The initiatives apply generally in aspects such as the road network, public transport, active travel, freight, and town centre infrastructure initiatives. These initiatives include a regional interchange program, walking and cycling programs, town access improvement programs and a regional airport program.

For the South-East and Tablelands region where Canberra is situated, the NSW Government has proposed several policy, service and infrastructure initiatives for investigation (listed below). These initiatives are intended for potential commitment or implementation over the next 20 years.

4.2 Local Policy

QPRC has a 'three tier' hierarchy of plans consisting of a Community Strategic Plan, a Delivery Program and Operational Plan.

Planning for QPRC is framed around the Community Strategic Plan. It is a 10 year document (2013 – 2023), which identifies the community's key priorities, and outlines strategies of how Council and other stakeholders will achieve those priorities. It is informed by a number of key strategic documents, including:

- The Delivery Program details activities the Council will undertake to achieve the objectives of the Community Strategic Plan and is updated every four years.
- The Operational Plan directly addresses the actions outlined in the Delivery Program and identifies activities (projects and programs) Council will be undertaking within the financial year. The Operational Plan, which is supported by a detailed budget, allocates responsibilities for each action or set of actions, and identifies suitable measures to determine the effectiveness of the activities undertaken.

The Community Vision portrays the desired destination for the Queanbeyan community by 2021. The Vision provides key principles that form the basis of developing specific strategies. It is an overarching guide to the way future strategies and Council plans are developed and implemented.

Key themes raised in consultation as important to the community include:

- **The CBD:** traffic, parking, image, activities, the river and social issues
- **Transport:** public transport, bikes/walkways, major roadways, CBD traffic flow
- **Infrastructure:** planning and location of new infrastructure, planning for and managing future growth

The 2021 vision for infrastructure, access and transport for Queanbeyan is:

> *"As Queanbeyan has grown, an emphasis on the long term planning for infrastructure, and its development and maintenance, has meant that the services and facilities have kept pace with the development and there is capacity for continuing growth. Innovative solutions to funding the necessary infrastructure will involve private sector, federal and state government and the ACT. Safe and accessible road and rail transport has ensured that heavy traffic has by-passed the CBD, and built up areas, as well as products being transported efficiently. People can easily move between suburbs, into the city, and to and from the ACT. There is a choice of affordable public services at times that meet peak and off-peak demand. In designing and delivering both transport and other infrastructure, the desire to live and act sustainably as well as catering for adequate mobility access has been taken into consideration."*
>
> *Source: City of Queanbeyan (November 2013)*

There are a number of key directions and strategies in relation to transport in the Vision document, including:

- Planning for future growth
  - Continue to work collaboratively with the government sectors; NSW, ACT and Federal and, where appropriate, with the private sector, to provide infrastructure and services for new greenfield areas
  - Promote and support private and public sector investment in the development and maintenance of key asset infrastructure in the Queanbeyan area
- Integrated land use and transport
  - Implement the Googong and Tralee Traffic Study including construction of Ellerton Drive through partnership agreements with three levels of government
- Sustainable transport options
  - Continue open dialogue with the public transport agencies for an investigation into current public transport service provision and opportunities for further route scheduling and better linkage with the ACT
  - Further develop an integrated transport strategy prioritising works and service development, and investigating the feasibility of other innovative solutions to access and transport
  - Actively promote walking and cycling as transport options to move in and around the Queanbeyan area
  - Investigate opportunities for a LGA wide car sharing program to facilitate management of traffic congestion in peak periods for those that travel daily to the ACT
- Transport infrastructure
  - Ensure scheduled maintenance and capital works for roads are founded on reliable and justifiable data
  - Investigate feasibility of major intersection upgrades following recommendations of the Googong and Tralee Traffic study
  - Continue investigating impacts of heavy vehicles on LGA road network and possible solutions for identified impacts.

4.3 Planning Principles

The intent of understanding the need for facilities and provision of appropriate infrastructure, education campaigns and users awareness is centred around providing viable alternatives to private motor car usage. The benefits of this are well known and include reduced emissions, improved health and social cohesion.

The approach used in the development of the new walking and cycling plan for the area focused on providing the necessary enabling conditions for riding and walking to become an attractive mode of transport for a range of trips for various age, gender and cultural backgrounds. Infrastructure is a critical part of the enabling process but is a means to an end not an-end product in itself. Enabling people to walk and cycle is to support them to adopt a new behaviour or to do more of an existing behaviour.

Behavioural change and the uptake of walking and cycling can be attributed to three things - Capability, Opportunity and Motivation (COM). Collectively these are known as the COM model for behavioural change. It is illustrated in Figure 20.

The three aspects work together to promote and enable the behavioural goal. This plan has been developed to help provide improved physical opportunities for trips and improve the amenity and safety for users. In applying this plan the principles for cyclists and pedestrians have been outlined.

Figure 20: COM model for behavioural change

4.4 Network Design Principles

The over-riding principles of designing this network are outlined in Table 7. While these are derived from cycling aspects the principles are the same.

Table 7: Network features

Route feature	Comments
Safety	Minimal risk of injury, low perceived danger, space to ride / walk, minimum conflict with vehicles
Coherence	Infrastructure should form a coherent entity, link major trip origins and destinations, have connectivity, be continuous, signed, consistent in quality, easy to follow, and have route options
Directness	Route should be direct, based on desire lines, have low delay through routes for commuting, avoid detours and have efficient operating speeds
Attractiveness	Lighting, personal safety, aesthetics, integration with surrounding area, access to different activities
Comfort	Smooth slip-resistant surface, gentle gradients, avoid complicated manoeuvres, reduced need to stop, minimum obstruction from vehicles

Source: Adapted from Cycling Aspects of Austroads Guidelines Table 2.2

The key facilitators to grow cycling and walking participation in the area include:

- A pedestrian and cyclist friendly CBD.
- Developing off road facilities that provide key links between key origin and destinations.
- Provide separated facilities for higher speed links reducing conflict between high speed cyclists and lower speed cyclists / pedestrians.
- Improving efficiency of links by making them more direct and providing signage and line marking as appropriate.
- Ensuring all school and key public transport nodes are connected to the proposed network.

While there are similarities, the principles for the pedestrian and cyclists have been separated.

4.5 Pedestrian Planning Principles

4.5.1 Different pedestrian user types

When assessing existing infrastructure it is critical that consideration is given to the different user groups. This section of the report explores the different user groups that could be considered as the primary and vulnerable users in the assessment.

When planning for pedestrian facilities ideally the placement of facilities should match the usage patterns. There are a number of pedestrian user groups that have to be focused on, with the aim to encapsulate all pedestrian users' mobility and access needs.

The AustRoads Guide to Traffic Engineering Practice, states that pedestrian facilities are often designed to cater for the 'average' pedestrian. In order to meet the needs of different users AustRoads identifies ten broad groups of pedestrians:

1. Commuters
2. Children walking to school
3. Utility activities*
4. Parents/carers with prams
5. Wheelchair users
6. People with disabilities
7. Seniors and people with mobility aids
8. Recreational pedestrians
9. Runners/joggers
10. Dog walkers.

*Includes people undertaking shopping actives with trolleys and bags

The Queensland Government 'Designing for Pedestrian and Cyclists Course' handbook identifies three groups as shown in Table 8.

4.5.2 Walking user groups

For the purpose of providing usable and practical facilities these user types can be narrowed down to three key user groups of:

1. Vulnerable walkers– school children, the elderly, disabled walkers, adults with strollers/ trolleys
2. Mobile adults – people who walk or use their bicycle for transport to travel for a purpose around their communities
3. Sport and fitness riders and walkers – power walkers, joggers, fitness riders.

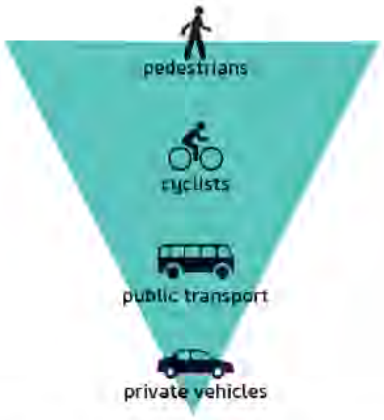
These user types were applied in the assessment of the Queanbeyan area.

Table 8: Different pedestrian types

User Type	Purposes	Operating Characteristics
Vulnerable to traffic	Elderly walkers Disabled walkers Parents with prams Children to 15 years of age Traffic shy adults	Speeds slower than 4 km/h Vulnerable Lower reaction times Lower skill levels Shorter trip distances
Mobile adults	Purposeful adult walkers Commuters Recreational/social walkers Tertiary students	Speeds 2 – 8 km/h Purposeful walking Higher skill levels Medium to quick reaction times Medium to long trip distances
Sports and fitness	Runners Triathletes Fitness walkers Recreational and social walkers	Speeds higher than 8 km/h Quick reaction times High skill levels Often walk in groups Medium to long trip distances Need high-quality walking surface

4.5.3 Principle intent

There is an opportunity to provide a better balance of priority focus in the town through recommendations outlined in this plan. A modern urban core (town centre) should provide the following movement prioritisation:



Delivery and service vehicles are an important part of any vibrant core and will be considered with any recommendations. Taxis are considered with public transport.

A shift to this hierarchy of transport priority in the town core would result in a stronger focus on pedestrian safety, function and amenity in exchange for a potential increase in delay for private motor vehicles.

Wayfinding and consistency are important aspects in network legibility and pedestrian experience. Clarity of pedestrian facilities and links can greatly assist in wayfinding, legibility and usage. High contrast treatments and raised tactile treatments should be considered for vision impaired users for any new or retrofitted works especially within the CBD. This could include the use of yellow, rather than white, line markings on light colour concrete. Raised tactile markers should be allied for new road crossing locations within the CBD and at traffic signals.

4.5.4 Approach

In determining appropriate facilities, our approach to this project has incorporated the Safe Systems approach. The Safe System approach is a guiding philosophy that operates on the principle that it is not acceptable for a road user to be killed or seriously injured if they make a mistake. The approach aims to create a forgiving road system based on the following four principles:

1. People make mistakes – People make mistakes and some crashes are inevitable.
2. People are vulnerable – Our bodies have a limited ability to withstand crash forces without being killed or seriously injured.
3. We need to share responsibility – System designers and people who use the roads must share responsibility for creating a road system where crash forces do not result in death or serious injury.
4. We need to strengthen all parts of the road transport system – We need to improve the safety of all parts of the system, roads and roadsides, speeds, vehicles, and road use so that if one part fails, other parts will still protect the people involved.

The principles and the interaction between them are outlined in Figure 21.

Figure 21: Safe system approach

Source: ARRB Group

Safe speeds and safe roads and roadsides are the principle domain in which Council has the ability to influence traveller behaviour. An understanding of road users in each area can also assist in developing effective solutions.

All new footpaths should be a minimum of 1.5 m wide to allow two wheelchairs or prams to pass each other without the need for one of them to leave the path.

4.6 Bike Planning Principles

The planning approach for the development of a bicycle network includes shared use paths and on-road cycling facilities (bicycle lanes or advisory treatments) as means of providing for cyclists. Off-road bicycle facilities (shared use paths, bicycle-only paths) provide separation to motor vehicles and hence are often favoured for their perceived safety. However in the Australian context, right-of-way provisions at intersections and side streets, risks from vehicles entering and exiting driveways, and often poor maintenance standards can have a significant impact on the safety performance of off-road facilities. Therefore, the planning approach does not rely on off-road facilities as the sole or even main form of bicycle facility, but uses both on-road and off-road facilities depending on circumstances.

On-road bicycle treatments can be the most cost-effective way of providing for cycling trips, and research demonstrates that these are also effective at increasing cyclist safety. However, on-road cycling is generally not suited to young children without supervision; hence children under the age of 12 are legally allowed to cycle on footpaths in Australia. Youths or adult parents/ guardians accompanying such children are also legally allowed to cycle on footpaths.

Even where sealed paths exist on a route, it is often desirable for higher speed cyclists to be separated from pedestrians, child cyclists and slower cyclists by providing on-road facilities. Bicycle lanes or advisory bicycle treatments can also provide a traffic safety role, by calming the traffic, creating a driving environment that encourages slower speeds and designating a space outside the travel lanes that pedestrians can enter when crossing a road.

There are a number of types of on-road treatment possible. The amount of space, speed environment, whether or not parking is permitted on a street and the turnover rates of on-street parking all affect the type of treatment that might be provided. These differences and applications are detailed in guides such as Cycling aspects of Austroads Guidelines 2017 edition. Bicycle lanes have associated with them certain regulatory requirements. For example, bicycles must use a bicycle lane if one is provided (unless turning right); cars cannot drive in a bicycle lane except to turn left.

4.6.1 Bicycle user categories

In determining infrastructure treatments and priorities, it is important to understand who will be using the facility and what their needs and capabilities are. The type of cyclist that use bicycle networks can be categorised based on their experience and skill levels.

The four general categories used to describe cyclists in this report are:

- Children cyclists
- Adult local cyclists
- Adult commuters
- Recreational cyclists.

4.6.1.1 Children cyclists

Children cyclists in the Primary School age range do not have fully developed cognitive skills. This makes them a vulnerable road user due to their lack of experience and little to no understanding of road rules. It is necessary for these children to be supervised when riding. Separation from motor vehicles is important when identifying suitable infrastructure for these users.

4.6.1.2 Adult local cyclists

Adult local cyclists are those who accompany children for short trip bicycle rides. Trip purposes include a range of activities such as recreational trips and short trips to local shops.

4.6.1.3 Adult commuters

Adult commuters are the most advanced riders who are less affected by motor vehicles on the road. These riders are able to share lanes with vehicular traffic, although dedicated lanes may be preferred. Speed is a more important factor than separation from motor vehicles. Hence, facilities should be designed and maintained to allow reasonable high speed riding. This may sometimes result in parallel facilities to cater for different user categories such as on road lanes and off road shared path facilities.

4.6.1.4 Recreation cyclists

Recreation trip lengths may vary depending on the level of experience of the rider. Skill levels also vary from beginner primary school aged children to advanced adult riders. These riders typically avoid busy roads and direct routes as the trip purpose is mainly the cycling experience.

4.6.2 The bicycle network

The bicycle network consists of a number of interconnected routes signed for bicycle use either on road or off road. The cycling speed and distance covered, has an impact on the spacing of routes. Assuming an average cycle speed of 15 km/h, or 20 km/h for commuter cycling on local roads, then cyclists living or working within 500 metres of a cycle route are within acceptable distance to the facility. This distance would take an average cyclist one to two minutes to cycle on local streets to join a bicycle route. However, the network must provide a level of service comparable with the intended cyclist's level of experience, road safety expectations, and directness of route.

Bicycles are vehicles under the Australian Road Rules; therefore all streets are cycling streets. In reality, however, due to the differences in speed of travel, size of cars and trucks and the personal safety differences between the cyclist and the car driver, in order to be pro-active in addressing these imbalances, specific engineering works are required to establish a bicycle network. Essentially a bicycle network consists of a hierarchy of routes.

In this Bike Plan, the network functions have been adopted from the NSW Bicycle guidelines. If Council wish to further refine a hierarchy for their active travel network it is recommended that consistency is applied across the whole Council area. When considering definitions and treatments other jurisdictions within close proximity should be reviewed to consider merits and possible ease of integration.

The bicycle network functions in this hierarchy are:

- Regional bicycle routes
  These are longer distance regional routes connecting the major regions of the town and beyond. As they are often on highly trafficked roads, taking advantage of the most direct road alignments, they require the highest level of bicycle facility. They are often on-road sharing the road space with cars and trucks and are designed for use by experienced commuter cyclists. Some are on State and regional roads where RMS agreement and implementation may be required.
- Local bicycle routes
  These are connectors within suburbs and cater to local trips to school, shops, community facilities and local recreation attractors. These link to the Regional Routes and are typically shorter distance facilities that are disproportionately used by less experienced cyclists such as children, teenagers and less experienced adult cyclists. These are typically off road routes but when they are on-road, the cycle lanes are normally on slower, lower volume council roads. These can also be more circuitous taking advantage of open space corridors, the local topography, access to views and linking in a leisurely fashion to land use attractors along the way. As these routes are inevitably shared with pedestrians, they are not designed for high bicycle speeds. Detailed design of such routes can add value to the cycling experience; this can include stopping areas / picnic areas, network distance signage, points of interest signs as well as under-cover seating for wet weather protection.
- Mixed Traffic Streets
  These link with the residential street system to provide residential access to destinations. Where the road link is used to connect between local or Regional bicycle routes on road markings and watch for cyclists signage can aid with the legibility of the cycle network. While not all residential streets will be marked as mixed traffic streets, indicating road with reasonable topography, low vehicle volumes and speeds as cycle friendly streets on bike maps can help users identify suitable path links to take.

5.0 Network Plans

5.1 Network Constraints and Opportunities

The study area already presents a large range of opportunities for pedestrian and cycle movement. QPRC wishes to enhance these facilities through the development and implementation of the bicycle and pedestrian facilities plan and through future re-development of sites when they occur. Existing facilities should link in with highly used cyclist and pedestrian routes and upgraded when required.

Opportunities for improved walking and cycling facilities in Queanbeyan include:

- Improved connections to existing off-road shared paths
- Existing road crossing facilities which include traffic signals and pedestrian refuges
- Parks and open space where cycle networks can be built to encourage recreation activities
- Pedestrian underpasses and pedestrian bridges
- Rail trails which can be used for recreational cycling
- Low volume streets.

Constraints to walking and cycling in Queanbeyan include:

- Topography (steep grades and creeks)
- High volume roads such as the Kings Highway to Canberra Avenue route, Yass Road and Lanyon Drive
- Through streets with a significant amount of kerbside parking (Monaro St)
- Roads with slip lanes that cut through cyclist travel paths
- Industrial area which generate a large volume of truck traffic
- Narrow bridges (Morisset St)
- Railway lines, utility easements.

There is an existing network of paved footpath on both sides of the road on the majority of streets within the Queanbeyan CBD. Existing facilities also include site connections, signalised intersections, pedestrian refuges, zebra crossings and 40 km/h school zone areas. Existing facilities should link in with highly used pedestrian routes and upgraded when required.

Open spaces or park areas present opportunities for the construction of paths to assist short-cuts or recreational walking. Furthermore, a shared pathway system in some areas of Queanbeyan would extend the travel range and safety particularly of children as well as recreation walkers.

The lack of footpaths and appropriate safe crossing facilities are the major constraint to walking both in established areas and in the newer suburbs. Along arterial roads, where footpaths are missing, their construction is necessarily a high priority.

For those with disabilities, there are many barriers, depending on the nature of the disability. It must be remembered that most seniors, especially those over 75 years of age, suffer from some form of disability, usually less agility and poorer eyesight.

5.2 Network Master Plan

A network master plan has been developed for Queanbeyan according to the approach and principles already described in this report. The proposed walk and cycle network master plan for Queanbeyan is shown in Figure 22.

Figure 22: Proposed Greater Queanbeyan walk and bicycle network master plan

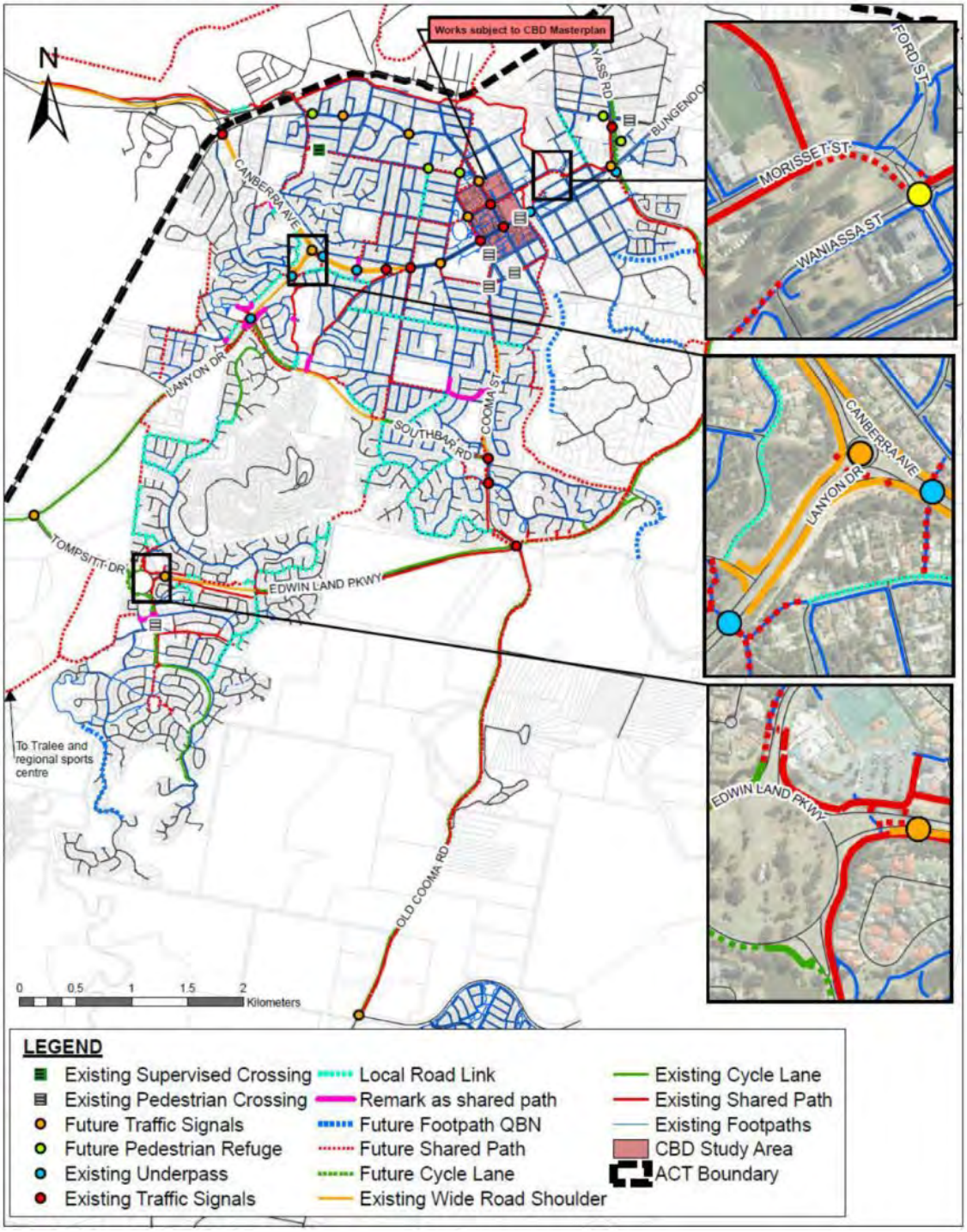
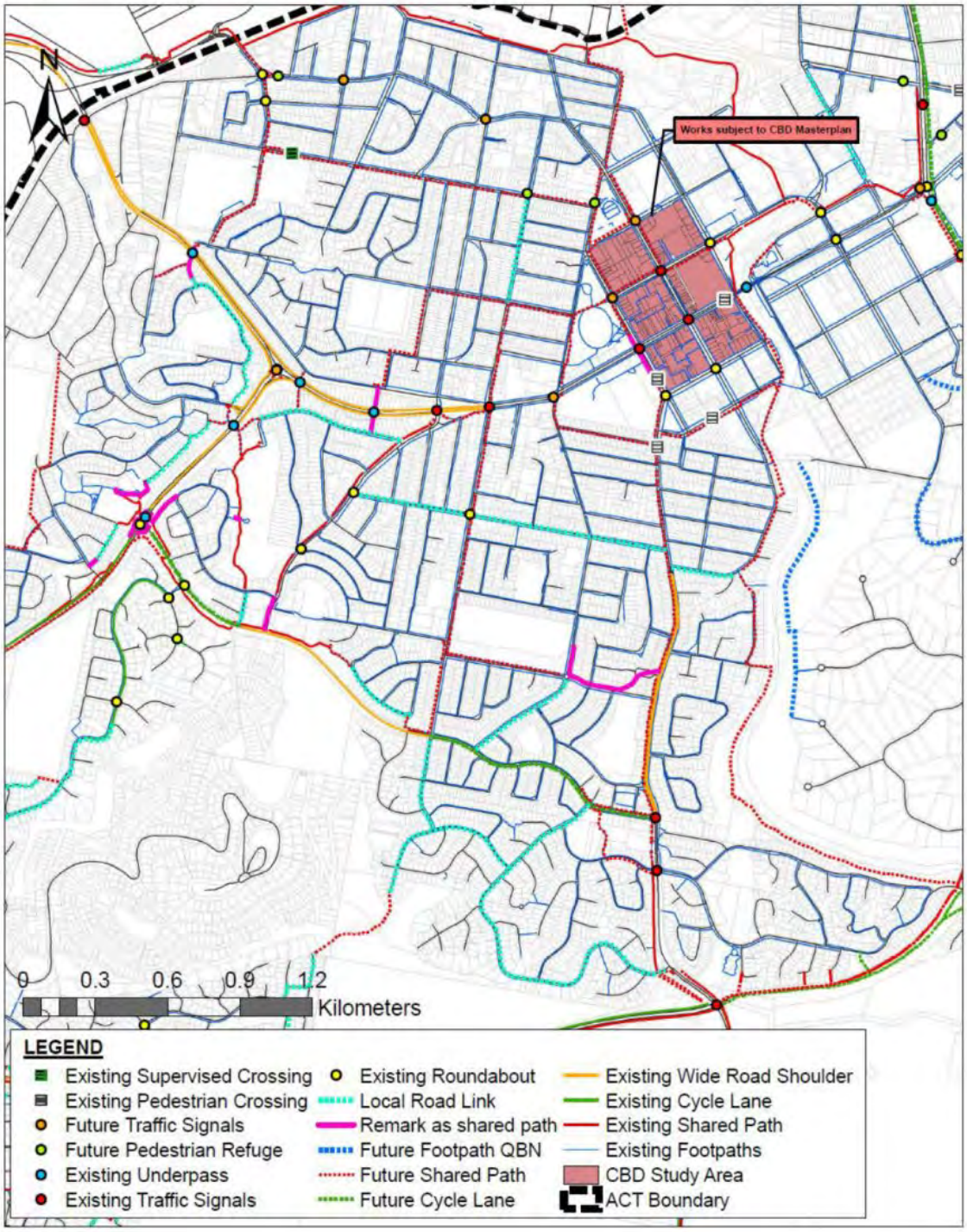


Figure 23: Proposed Inner Queanbeyan walk and bicycle network master plan



It is important to note that:

- This a strategic network, rather than an itemisation of every route that might ultimately be desired. They identify routes with an additional level of priority to those that could be desired on every street.
- Network feature definitions shown in the master plan figure are defined for planning purposes. The action plans then interpret these into the physical networks that should be implemented, and the priorities for these.
- The bicycle and pedestrian facilities plan has a definite timeframe. The networks shown are based on a timescale of about 10 years. It is assumed that the plan will be reviewed every five years.
- Changes in land uses can have large impact on walking and cycling needs, but not all land use changes that will occur can be predicted and incorporated into the networks.

5.3 Catchments

To help identify priority link items and where greater density of activities are likely to occur, catchment maps for key generators and vulnerable users have been developed. The catchments have been developed based on the path network rather than as the crow flies to help identify actual distances and missing links. The distances are based on the current path and road network.

5.3.1 Pedestrian catchments

Having established the constraints and opportunities, the conceptual pedestrian generators, attractors and catchment areas are illustrated for various pedestrian target groups. Catchments are based on distance covered at a defined walking speed.

Examining the overlapping catchments for various attractors, it is clear that there needs to be a process for determining the site inspections and ultimately the priority for implementation. If walking is to be encouraged, then the planning method must be changed to be pro-active rather than reactive to existing behaviour. This has been the method used in bicycle transport facility planning.

5.3.1.1 Seniors and mobility impaired catchments

Figure 24 illustrates the 0.9 km walking radii around senior's attractors such as retail nodes, railway stations and community centres. The aged housing is located in respect to these. While the path link distance used to establish the catchment for planning purposes is 0.9 km - it is expected that the actual walking distance is likely to be more than this. Some seniors' attractors have no identifiable cluster of aged housing near them. This does not mean that there are no elderly living within the catchment of that facility.

5.3.1.2 School catchments

For schools, the potential walking catchments are linked to the walking radius around the school within which bus travel is not subsidised. The path link distances used in the walking catchment are 1.6 km radius for primary schools (Figure 25) schools and 2 km radius for secondary schools (Figure 26). As can be seen, the catchment areas overlap substantially illustrating that every street is a walking street to school. It is therefore not realistic just to plan for the school frontage or a single route to a school. Essentially children walk from all directions as in a gravity model - it will be necessary to ensure that on roads of higher road classification, high speed or volume, appropriate crossing facilities are in place and on arterial and sub arterial roads where children would be expected to walk there are continuous footpaths.

As the streets converge on the school, it is more likely that pedestrian crossing facilities already exist. However even on streets over 1 km away from the school, children would still be expected to cross traffic routes to access the school by foot. In many cases, parents would then drive their children to school if safe appropriate crossing facilities are not available, thus increasing unnecessary vehicle trips. There is an existing or proposed shared path that links to most schools. A notable exception to this is St Gregorys on Molonglo Street which has a school crossings and is generally surrounded by lower speed, lower order roads with a good foot path connections.

Figure 24: Seniors walking catchments

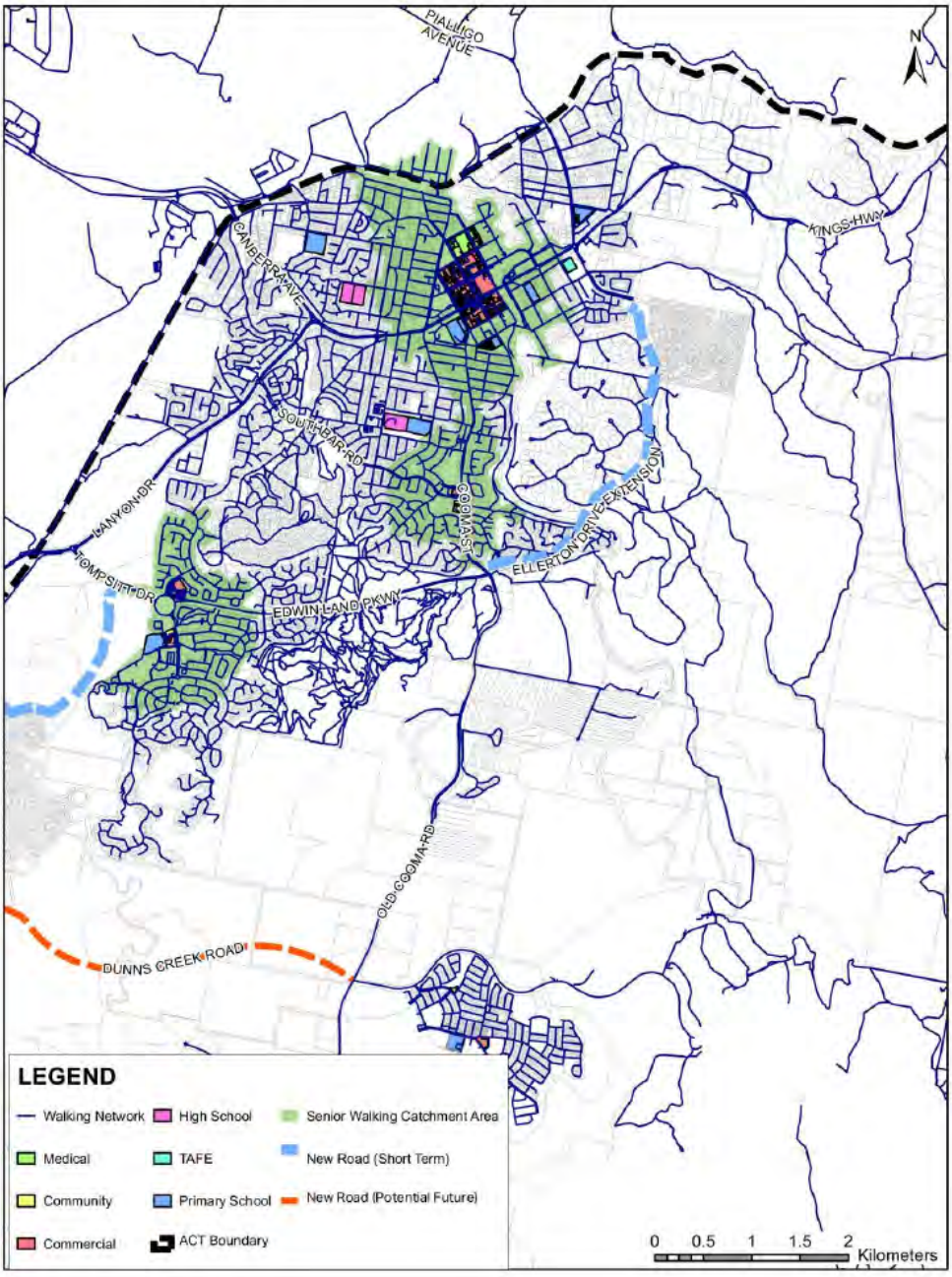


Figure 25: Primary school walking catchments

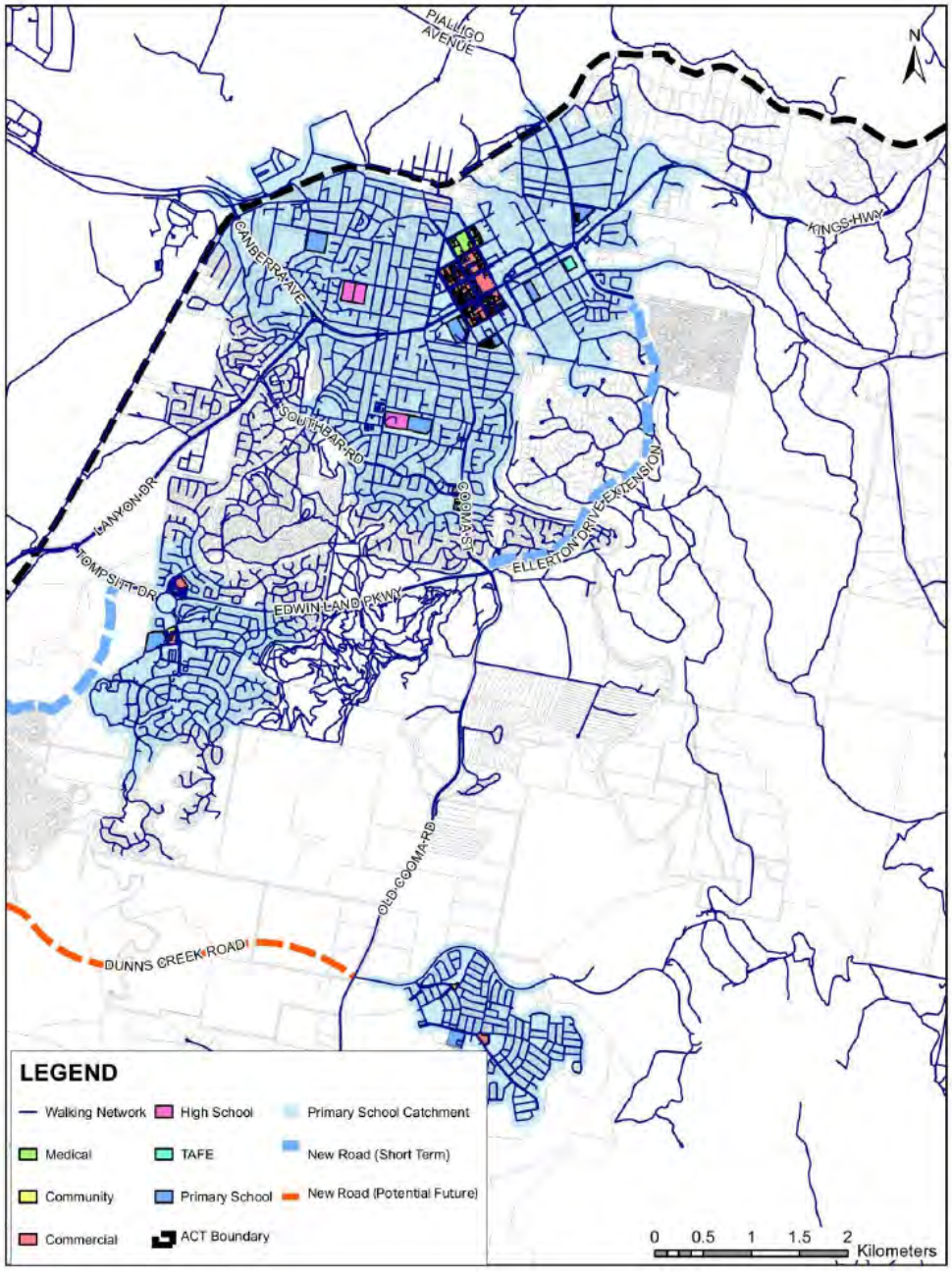
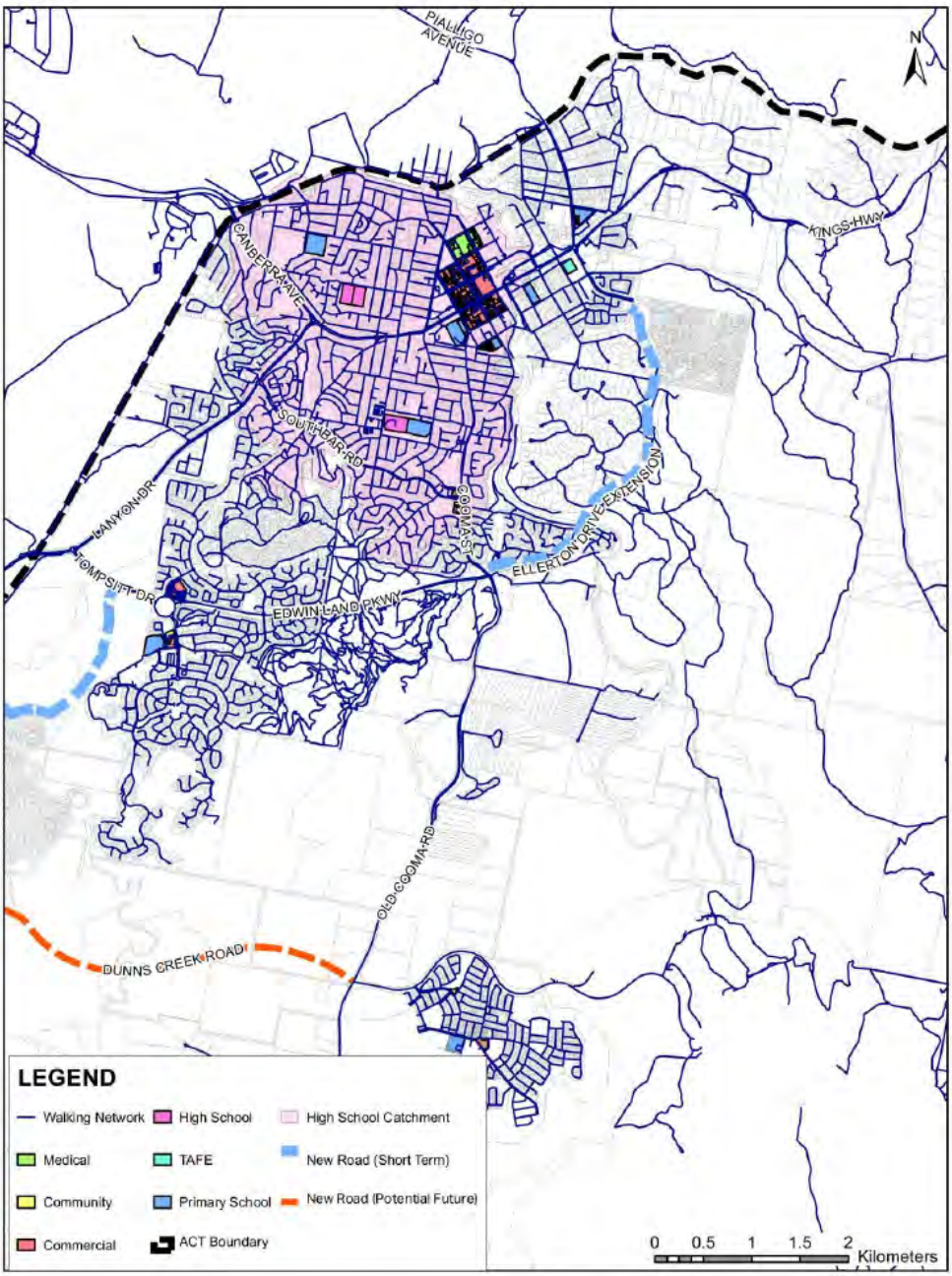


Figure 26: High school walking catchments



5.3.1.3 Shopping walking catchments

The conceptual catchments of major retail nodes are presented in Figure 27. The path link distance used to establish the catchment for planning purposes is 1.3 km - it is expected that actual walking distance will vary according to topography and street permeability. Queanbeyan town centre is a key attractor and it may be that people would be prepared to walk longer distances to the CBD if continuous good quality paths and crossings are available.

Again as with school routes, it will be necessary to ensure that appropriate crossing facilities are in place particularly on arterial and sub arterial roads and there are continuous footpaths.

5.3.1.4 Recreation walking catchments

Finally, the conceptual catchments of recreation attractors are presented in Figure 28. The path link distance used to establish the catchment for local sporting facility planning purposes is 1.7 km - as it is expected that these would be catering to youth who would be prepared to walk longer distances. For the sporting facilities, a 2.5 km walking distance is considered appropriate for able-bodied walkers and teenagers.

5.3.2 Cyclist catchments

The recreational walking catchments extend to cover almost the entire town boundary. The cycling catchment of an attractor to / from a generator is generally determined by the type of trip purpose and age / competence of the cyclist. AUSTROADS suggests an average of 20 km/h cycling speed for adults; children would be expected to cycle at 10 km/h while commuter cyclists would achieve 30 km/h. A 15 minute trip could therefore cover from 2.5 to 7.5 km depending on the cyclist. Given the lower end of this is the same as the recreational trip cycling catchments would cover the entire town and therefore have not been provided. It does however indicate that the size of Queanbeyan has excellent opportunities to increase cycling patronage if improved amenity and awareness is created. There is no standard trip length determined for recreational trips.

5.3.3 End of trip facilities

AGTM11 (Austroads 2017) and the Australian Standard AS2980.3 provides information on bicycle parking and end-of-trip facilities. The Australian Standard classifies bicycle parking facilities by the level of security provided for the parked bicycle by the following classes:

- Security level A facilities – Individual locker with high security locking mechanism.
- Security level B facilities – Secure rooms or structures protected from the weather allowing users to lock the bicycle frame and both wheels.
- Security level C facilities – A bicycle parking space where the bicycle frame and both wheels can be locked.

5.3.3.1 Security level A bicycle parking

There are bicycle parking lockers within Queanbeyan bus interchange.

5.3.3.2 Security level B bicycle parking

Locked cages are most appropriate near transport hubs, employment centres and educational institutions. Given the scale this is not considered to be critical for Queanbeyan. Employee bicycle parking should be considered for commercial tenancies.

5.3.3.3 Security level C bicycle parking

Low security bicycle parking is more appropriate for short-term parking such as near retail centre, libraries and recreational facilities such as the pool or park. Facilities should be located in well-lit areas and close to the user's destinations.

Figure 27: Shopping walking catchments

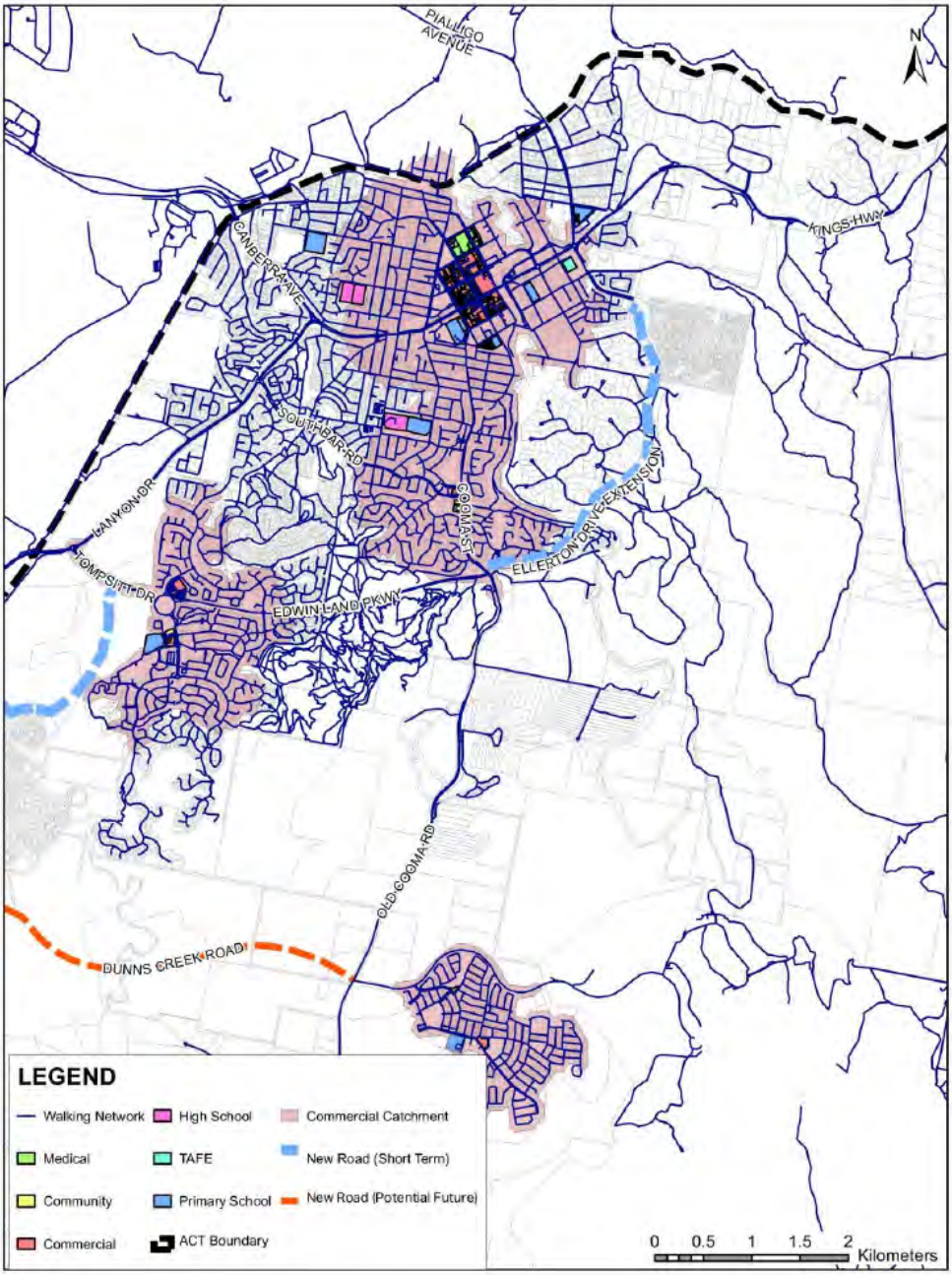
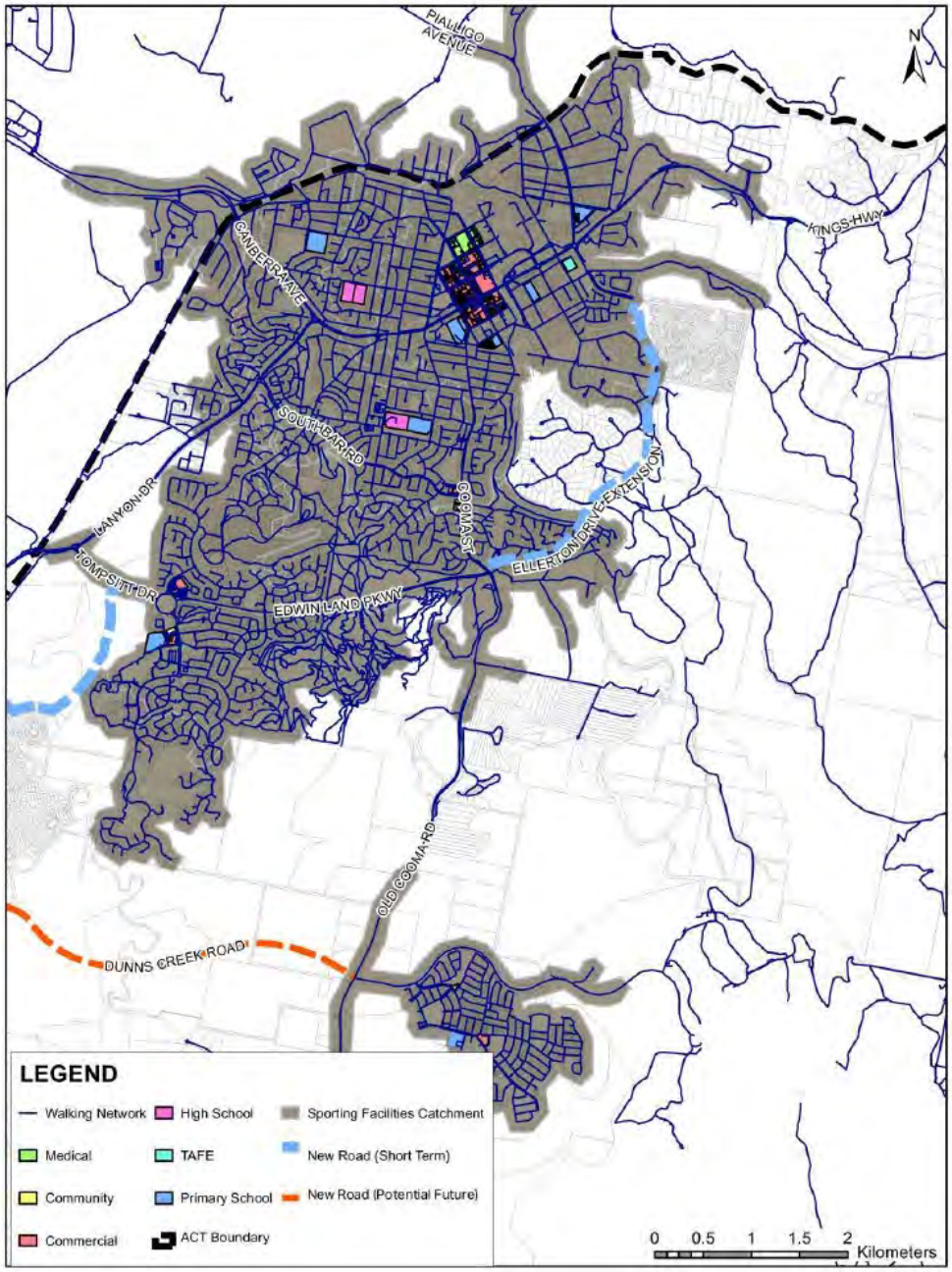


Figure 28: Recreation walking catchments



Recommended locations for low security bicycle parking rails are:

- Along Streets within the CBD including Morisset Street, Crawford Street and Lowe Street
- Around parks
- At the Karabar Shops
- Outside community centres and facilities
- At the Jerrabomberra shops.

5.3.4 Network features and design standards

The network planning for Queanbeyan has adopted the following network features:

- Commercial zones; the most frequent destinations for walking and cycling trips
- Secondary zones: other major destinations for walking and cycling trips, for example schools and recreation facilities
- Main access routes; these provide main level of access to the destination zones (and vice versa), forming a spine for local walking and cycling
- Local access routes; parts of the general street network that have strategic value in providing walking and cycling access to main access routes, secondary zones and commercial zones
- Cut throughs; generally short sections of path that provide access where no road or street alignment otherwise exists recreational routes; for providing recreational opportunities
- Regional routes; for fast and unhindered cycle travel between the towns and other regional destinations.

6.0 Route Priority Strategy and Implementation Plan

The Action Plan for improved bicycle and pedestrian facilities for Queanbeyan is shown in Figure 22. This Chapter sets out the priorities and estimated costs for implementing the works.

6.1 Route Prioritisation

Routes will be developed in stages when funding becomes available. The selection of active travel routes was based on consideration of the following elements:

- Connectivity to attractors and generators
- Route Continuity
- Proximity to a schools and aged care
- Proximity to public transport
- Safety
- Cost.

This provides a good framework for assessment. In cases where two parallel routes were identified the need for both was considered. If it connected to a school or a shopping precinct the route split near the point of interested to provide connectivity to both.

Routes have been allocated as high priority with the intent to undertake the works within the next five years and medium priority for likely future path links that should be considered with any planning or new development works.

Shared paths as opposed to footpaths have typically been proposed as they provide for a wider range of users and provide adequate widths for two-way passing of wheelchairs and prams. The width rather than surface treatment has been outlined as the defining characteristic for this study.

Each town has their own local character and walking and cycling infrastructure should reinforce this character. This infrastructure is also important as part of presenting a picture of how the towns (and QPRC) regard their walking and cycling to residents and visitors. At the same time, infrastructure needs to be functional, and this functionality needs to be balanced against aesthetics in developing a good streetscape design outcome.

6.1.1 Route connectivity

Where a local route connects to an attractor or a generator, there is greater likelihood of that facility being used. Connectivity is a key determinant of the potential use of the network. This is particularly relevant to local routes, the main purpose of which is to create a facility which can be used for a range of trip purposes, thus decreasing the need to use a car. This criterion therefore creates a relationship between the local route length, and the number of attractors and generators served by the route. This also includes new development areas.

The type of facility and selected alignments have been considered in determining priorities. Pedestrian crossings could be integrated with the roundabout metering to help improve connections across those roads especially the Kings Highway near Yass Road.

6.1.2 Route continuity

This criterion relates to new route connectivity to other proposed routes as well as to connecting to existing routes. There is clear value in growing an existing facility rather than building a new isolated route, as there is usually an existing bicycle user base whose range can be expanded.

6.1.3 Proximity to schools and aged care

Facilities close to schools or aged care housing typically cater for more vulnerable road users who rely on active travel.

6.1.4 Road safety

Where possible, the bicycle network should address the existing bicycle road safety issues reflected in the bicycle crash record. The most recent five year RMS crash data base is the key input in assessing this criterion and this showed that there were no bicycle crashes in Queanbeyan during this period.

6.1.5 Cost of routes

There is typically a balance between amenity and cost. Wider paths can offer a greater amenity but may reduce the extent to which the network can be developed with the available funding. In developing a masterplan for the active travel network, greater amenity has been targeted where higher usage is expected. Cost can also be related to physical constraints such as existing infrastructure. Where costs would be substantial, such as widening Queens Bridge over the Queanbeyan River to provide for a regional cycle link connection, alternatives have been sought.

6.2 Routes

Defining a network hierarchy of regional and local routes helps define work priorities and an implementation plan. It can also help identify what types of infrastructure should exist for each location and how users of the infrastructure should be managed.

Considerations for developing the network hierarchy in this study include:

- A single hierarchy for both pedestrians and cyclists has been developed drawing upon the common factors affecting pedestrians and cyclists (such as land uses that generate trips). A hierarchy that applies to both walking and cycling is simple and facilities that cater to both can be a more efficient use of resources, compared to parallel routes with duplication of facilities such as refuges. However, pedestrians and cyclists can also have different needs and this is taken into account in developing network infrastructure improvements.
- Routes are much more effective if they form a network. A network is a series of routes that are connected to each other in some form of pattern. The hierarchy can be used to reinforce a network, to ensure that people can move from any one point in an area to any other point, without facing barriers in terms of gaps in the facilities offered.
- Networks do not necessarily have to be hierarchies. For example a grid pattern, with all links having equal status, is a network without a hierarchy. A network can also be used to separately identify different functions of routes; for example, routes that provide connectivity between areas can be distinguished from routes providing access within areas.
- Different routes types in the hierarchy are identified that reflect trip types, purposes and user types; but these also reflect that lower pedestrian and cyclist volumes will start in lower order routes and collect on higher order routes.

A broad indication of desires lines for the regional and local travel that help define a network hierarchy are presented in Figure 29. Commentary on physical links that could help serve these desire links follows.

6.2.1 Regional routes

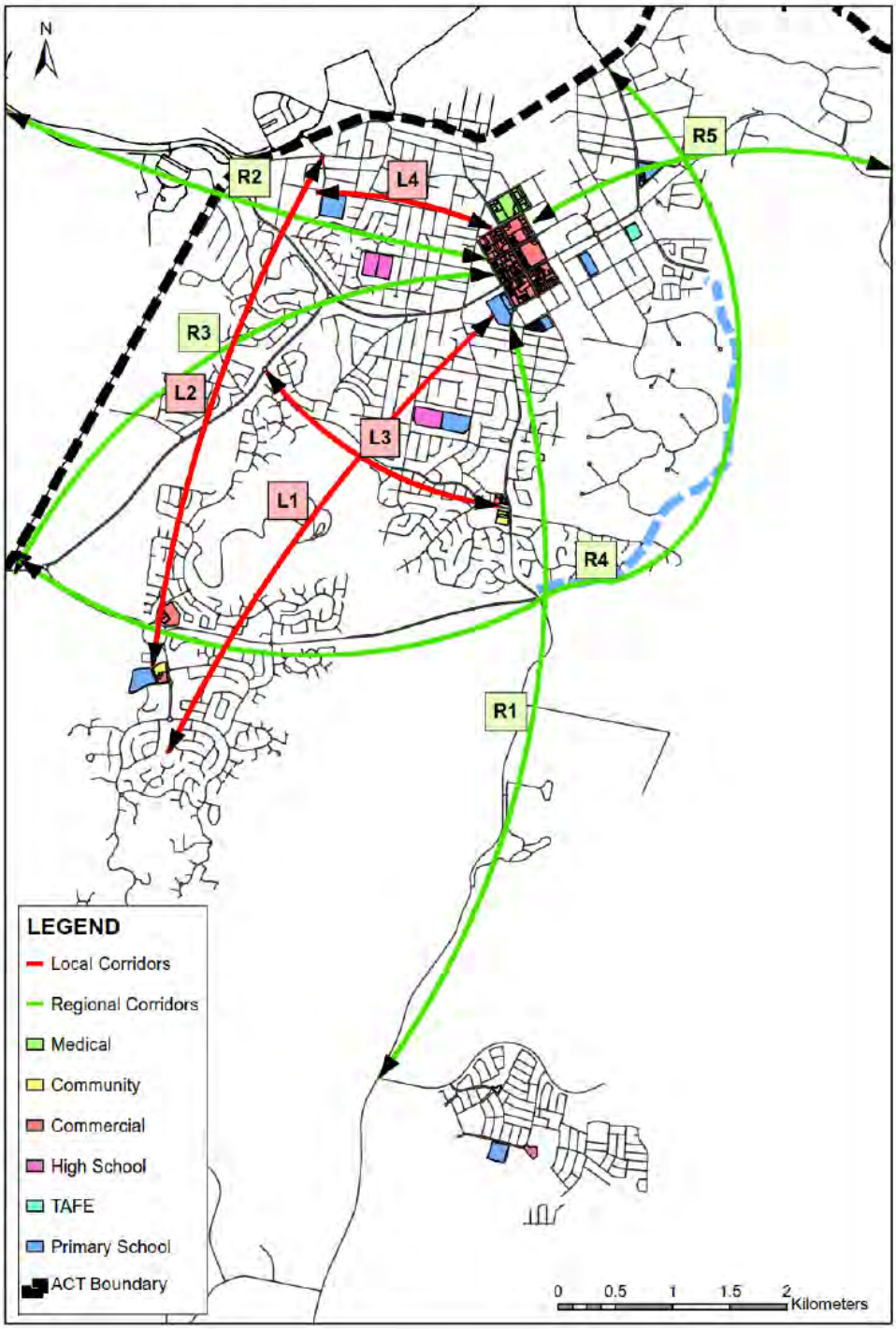
These routes are the longer distance links connecting the Queanbeyan suburbs and beyond. They have typically been associated with longer distance cycling; however, they do include a mix of on and off road facilities. A description of each of the regional routes is outlined below.

Route R1 – Googong to Queanbeyan CBD

As Googong develops this will become an increasingly important link. There is confirmed funding for on-road cycle lanes and a shared path along Old Cooma Road from Googong to the Edwin Land Parkway. In the longer-term Cooma Street is to be duplicated between Edwin Land Parkway and Southbar Road. This widening should also have on road cycle lanes.

A shared path has been proposed along Cooma Street connecting Queanbeyan CBD to the north and Old Cooma Road to the south. There is also an existing wide shoulder along Cooma Street between Thorpe Avenue and Southbar Road where on-road cycle lanes could continue.

Figure 29: Active travel route hierarchy



North of Southbar Road, the route would have to be on-road due to the existing urban land uses. The existing road treatment of pavement markings and islands would need to be reviewed along with a new road treatment scheme, with consideration for vehicular, pedestrian and cyclists' needs.

Route R2 Canberra Avenue to Queanbeyan CBD

This is the main east-west route through Queanbeyan, linking to the ACT in the north-west. There are two possible connection options for this route:

- Directly along Canberra Avenue
- Along Norse Road via either the shared path or a circuitous route through the Crestwood Road network.

Given the significance of this route, both shared path and on-road cycle lane options are recommended.

Currently, Canberra Avenue has wide marked shoulders for the majority of its length until Cameron Road / Campbell Street. However, the route loses its shoulders at almost all intersections. This creates an unsafe environment where there is uncertainly for both cyclists and vehicles about ability to use the road space.

Most of the unsignalised intersections should be able to be adjusted with some line marking and reduction to the length of some of the left turn deceleration lanes. The signalised intersections may require some localised changes at the intersections. A Concept Design study of Canberra Avenue should be undertaken in consultation with RMS to include:

- Adequate on road cycle lane widths
- Changes to signalised intersection configurations including head start boxes
- Links to the adjacent network including cut thoughts at key points such as the Stuart Street – Nimmitabel Place underpass to connect the adjacent local cycle network to Canberra Avenue
- Conversion of continuous left turn lanes to slip lane with priority for Canberra Avenue
- Consideration of northbound cyclists at the Lanyon Drive roundabout
- Integration with other regional and local route links.

Route R3 –Lanyon Drive

This route is a direct commuter route for those travelling between Jerrabomberra and Queanbeyan / Canberra. This route starts on Canberra Avenue and then connects to the Monaro highway. It links Routes R2 and R4 and local Routes L2 and L3.

Route R4 – Tompsitt Drive, Edwin Land Parkway and Ellerton Drive to Yass Rd

Along Tompsitt Drive the route runs along the shoulder lane to the intersection with Edwin Land Parkway / Limestone Drive where cyclists lose their facilities and need to share the road space with vehicles. A shared path is provided along the southern side to Cooma Street. On-road facilities are reintroduced east of the roundabout at Numeralia Drive and Stringybark Drive.

The Ellerton Drive extension has committed funding and once constructed will have both on-road cycle lanes and a shared path. These will continue to the Mowatt Street / Old Sydney Road roundabout.

A shared path is then recommended to connect to the Yass Road shared path link, with on-road cycles lanes continuing to the ACT border, connecting with Pialligo Avenue that will have on-road cycle lanes when duplicated in future.

6.2.2 Local routes

Four key local route desire lines have been identified. These are further refined within the masterplan to link with generators, destinations and existing infrastructure. The local routes tend to align themselves with the collector, distributor and local level street network rather than regional or arterial roads. A description of each of the local routes follows.

Route L1 – Jerrabomberra to Queanbeyan CBD

This link is an important connection between two major centres within Queanbeyan. To enable adequate catchments the route has been split into two either side of Jerrabomberra Hill for its application to route links for the network. The eastern link uses Donald Road, crossing the reserve and linking to Halloran Drive before connecting into broader Jerrabomberra. The western side links along Tharwa Drive to connect to existing infrastructure and ties in with Route L3 on Southbar Road.

Route L2 – western North –South Route

L2 covers a similar area to R3 as a north-south link along the west of Queanbeyan. It connects Jerrabomberra to Crestwood via local links and connects to R2, R3, L1, L3 and L4. The selected prioritised links for this route from the north include:

- Proposed shared path connections along Richard Avenue.
- Connecting to the Stuart Street / Nimmitabel Street underpass of Canberra Avenue.
- Utilising Nimmitabel Street and Crest Road as mixed traffic streets.
- Upgrading the footpath to a shared path between Gilmore Road and Harman Place.
- A connection across Lanyon Drive can be facilitated by the underpass linking Gilmore Road with Gilmore Place (note the anti motorbike barriers need to be addressed as they also pose a risk to cyclists especially in low light conditions where forward visibility of them may be poor).
- Harman Place and Miller Street could be marked as a mixed traffic street and a new link provided between the car park at the end of Miller Street and the shared path that goes around Letchworth Regional Park.
- A new shared path is then proposed adjacent to Lanyon Drive to link Southbar Road with Kinlyside Avenue with a mix of shared paths and mixed traffic streets connecting to the Jerrabomberra Shops.

Route L3 – Southbar Road

This route runs east-west through Karabar from Lanyon Drive to Cooma Street. The route offers a strategic corridor linking local routes to the north and south. It connects Routes R4, R3 L1 and L2. The current route is made up of shared paths, local traffic links adjacent to Southbar Road and some existing wide shoulders. With some localised improvements and treatments at the intersections most of Southbar Road could be converted to incorporate good quality on-road cycle lanes.

An adjacent shared path network should still be provided to cater for non-commuter based users and enable good walking connections as well. Route L3 also has a proposed shared path branch that will connect to Karabar High School.

Route L4 – Queanbeyan CBD to Freebody Park and Queanbeyan West Public School

Local route L4 is intended to provide an adequate interim link to Regional Route R2. The on-road and off-road segments of R2 are on average about 1 km apart and there were not adequate local facilities between them. L4 provides for an important connection with education and recreation land uses.

6.3 Implementation Plan

To avoid fragmentation of works an integrated approach was undertaken to balance each of the criteria and associated works. The networks identified in the plan present a 0-10 year timeframe. Typically the high priority items cover a 0 - 4 year time frame and the medium priority works relate to a 5 - 15 year time frame. However, the plan should be reviewed at the end of five years for currency and changed conditions, the implementation of works, likely forward works, available funding levels, changes in strategy, etc.

A Schedule of Works of proposed facilities and a cost estimate are provided in Appendix A. The cost estimates for each item are based on unit rates as agreed with Council. These unit rates are based on 2017 estimates and inflation should be taken into account for proposed works in future years.

6.3.1 Queanbeyan proposed works plan

The proposed works plan for bicycle and pedestrian facilities in Queanbeyan has been broken down by priority for clarity. The high priority links are shown in Figure 30 and the medium priority links in Figure 32. They include priorities for shared path or footpath improvements.
These figures demonstrate how the works proposed in the path program combine with existing paths, plus the proposed street crossing points and existing crossing places, to create an overall network. In this sense, "existing" also includes those paths that developers have committed to providing (where known).

6.3.2 Cost rates

The cost rates used in the implementation plan are based on the cost of recent similar works, in consultation with Council staff, and are presented in Table 9. These rates have been used to determine the indicative costs based on route lengths More detailed costing will be undertaken in the design phase.

Table 9: Infrastructure cost rates

Item	Rate	Cost
Concrete Path	Per square metre	$150
Bitumen path	Per square metre	$60
Pedestrian refuge island	Per item	$25,000
Mixed Street signage and line marking	Per metre	$30
Cycle lane – signage and line marking	Per metre	$50
Cycle lane – widening pavement	Per metre	$300

Note: 2018 prices

In regard to these, it should be noted that:

- Path rates have been nominated by Council.
- The cost rates exclude design and drafting of plans, community consultation or traffic control associated with works, and which might occur in-house or as part of other projects.

In developing the schedule of works and costs the type of treatment recommended was based on AUSTROADS and the RMS's NSW Bicycle Guidelines, using the following general principles:

- Shared off-road path regulatory signage is located every 500 metres and / or at intersections;
- Bicycle lane regulatory signage is located every 500 metres and / or at intersections;
- Bicycle network route directional signage is located at decisions points, such as the beginning and end of a route, where two routes intersect or where a route changes direction
- Bicycle lane logos are located every 75 metres and / or at intersections
- Shared off-road path logos located every 200 metres and / or at intersections
- Cycle lane widening pavement assumes widening by 1.5 m including signage and line marking – it excludes as service utility or street lighting relocation.

Network route directional signage has not been costed as part of these works. Signage would typically be located at decisions points; such as the beginning and end of a route, where two routes intersect or where a route changes direction.

Figure 30: Proposed works plan for Greater Queanbeyan – high priority

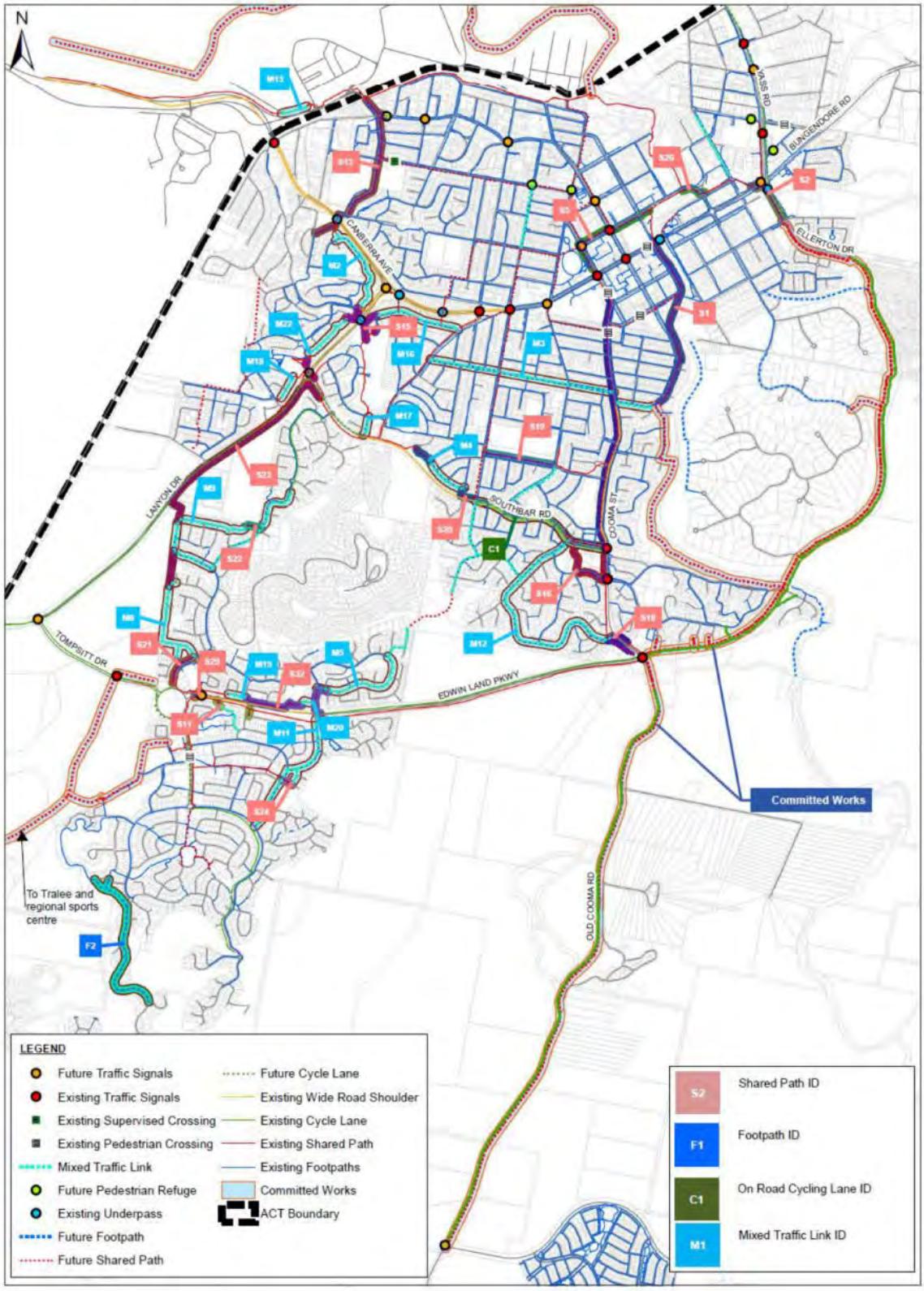


Figure 31: Proposed works for inner Queanbeyan – high priority

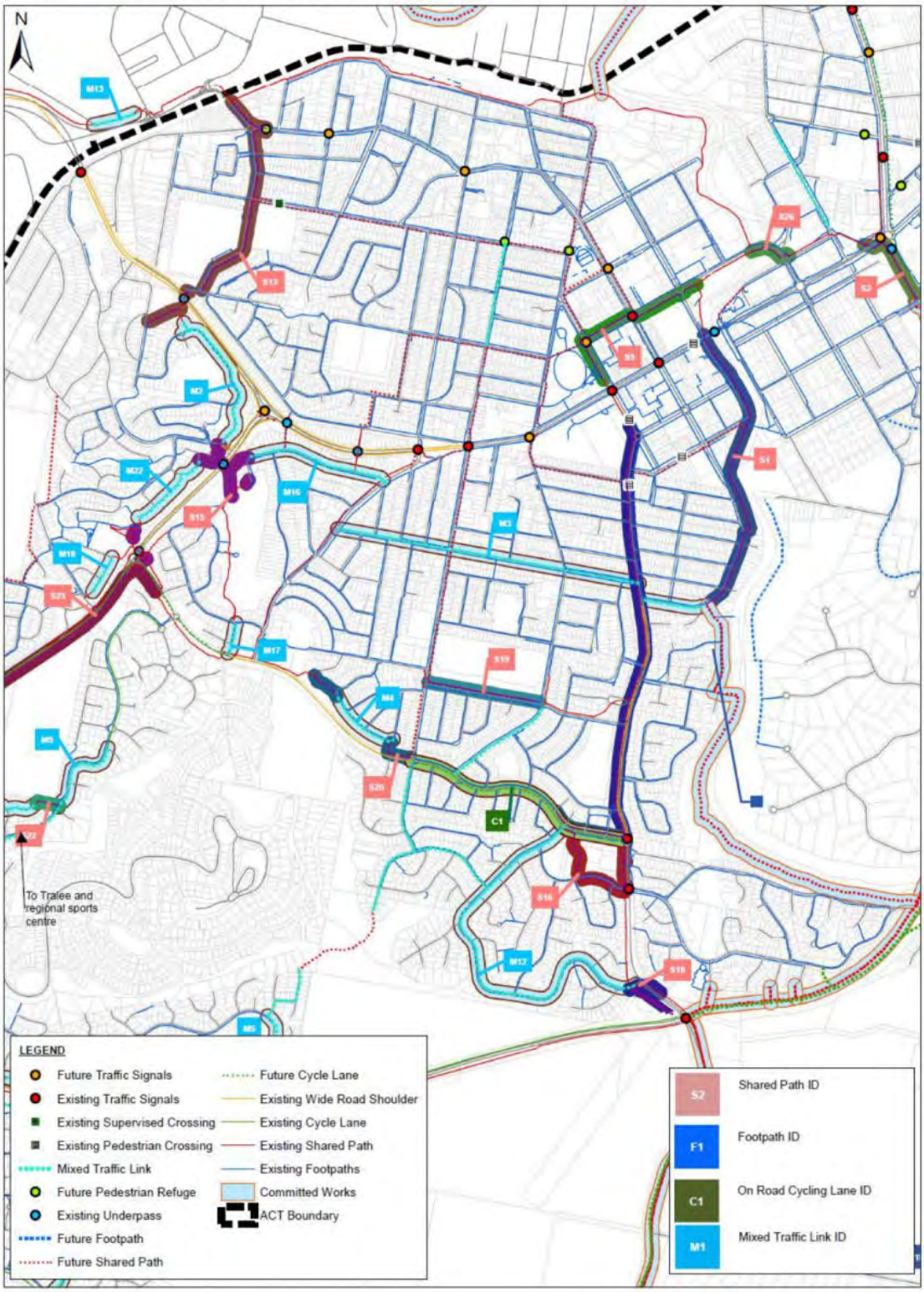


Figure 32: Proposed works plan for Greater Queanbeyan – medium priority

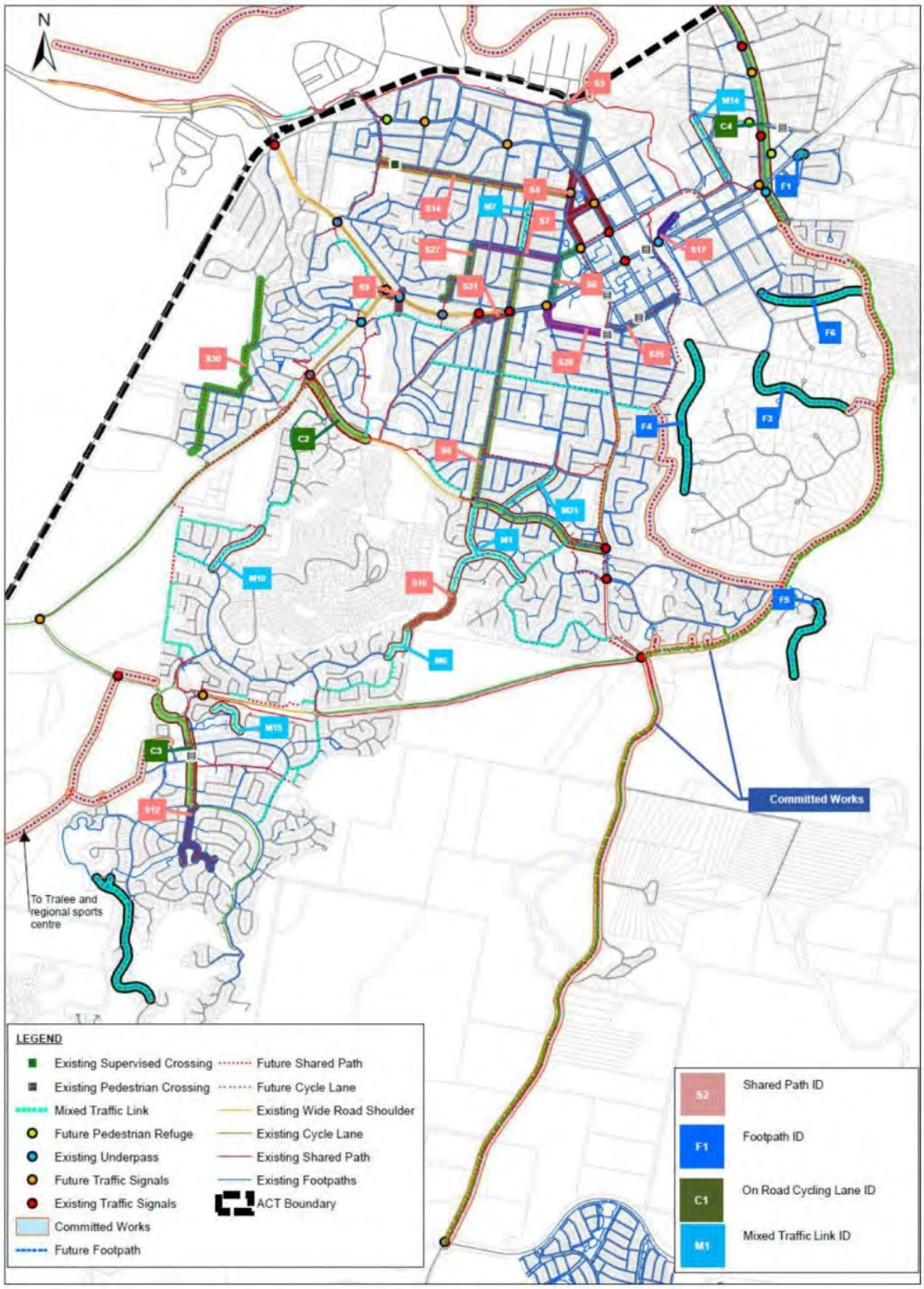
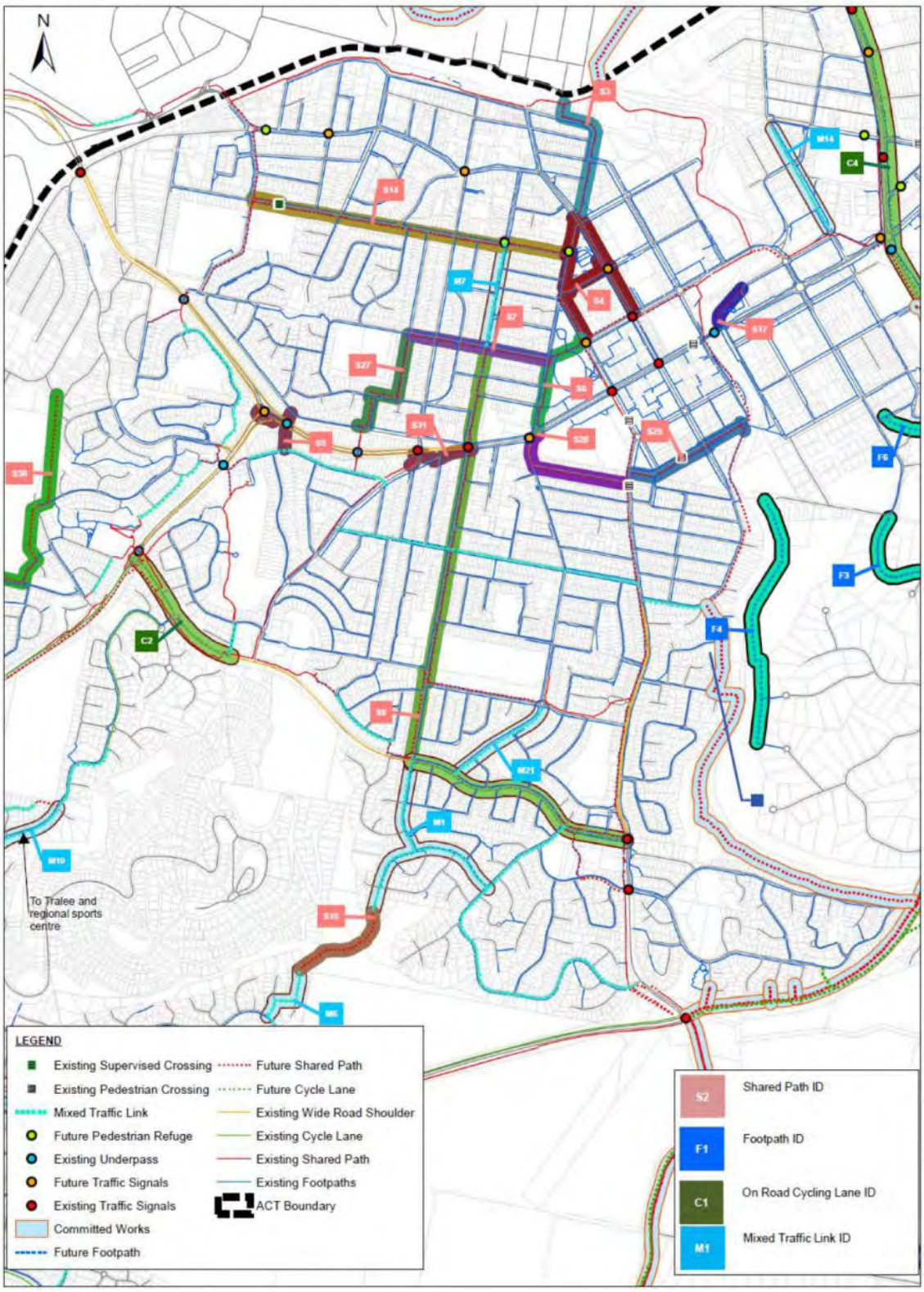


Figure 33: Proposed works plan for inner Queanbeyan – medium priority



6.3.3 Path program

The estimated cost of path improvements in Queanbeyan is given in Table 10 for footpaths and in Table 11 for shared paths. The tables itemise each of the routes in the path program, with an estimated cost. The tables also assign a map reference to each path and lists paths in (roughly) priority order.

It should be noted that depending on the condition of the existing footpath it may be possible to convert a footpath to a shared path at a lower rate than what is nominated in the tables. Without a detailed study of the condition of existing paths it has been decided to cost all shared paths at the higher amount which is likely to be conservative.

This program addresses the priority infrastructure required to link existing facilities to form usable networks. These typically comprise of shared use paths to as they cater for both pedestrian and cyclists affording greater use and path capacity.

The high priority treatments have sought to connect the identified north-south and east-west routes and provide continuous routes where there are missing links.

The memorandum of understanding for Council Projects funded by the RMS outlines terms of funding assistance for these works, as follows:

- Pedestrian crossings on, and kerb ramps provided to access footpaths adjacent to, streets under the care and control of the RMS are generally eligible for 100% RMS funding, subject to available funds and other funding priorities, if provided in accordance with an approved pedestrian facilities plan.
- Bicycle facilities provided in compliance with an approved Bicycle Plan are generally eligible for 50% funding from the RMS, subject to the availability of funds and competing funding priorities. This also applies to shared use paths.

Table 10: Queanbeyan proposed footpaths

REF ID	Link Description	Priority	Path Length (m)	Total Cost
F2	Waterfall Drive - From Bellbush Close to Lake Jerrabomberra	High	1290	$232,000
			sub total	**$232,000**
F1	Elizabeth Crescent to Kings Highway	Medium	60	$11,000
F3	Severne Street	Medium	950	$142,500
F4	Along Queanbeyan River – Between Granville Close and Dodsworth Street	Medium	1130	$169,500
F5	Along Queanbeyan River	Medium	680	$102,000
F6	Along open space corridor between Yarrow Street and Ellerton Drive Extension	Medium	770	$115,500
			sub total	**$530,500**
			Total	**$772,500**

Note: All estimated costs rounded to nearest $500

2. REFID is shown in Figure 30 and Figure 32

Table 11: Queanbeyan proposed shared paths

REFID	Priority	Link Description	Path Length	Total Cost
S1	High	Along the Queanbeyan River between Riverside Plaza and Ellerton Drive	1330	$199,500
S2	High	Along Ellerton Drive between Kings Highway and Mowatt Street	380	$56,500
S5	High	Along Morisset Street between Queanbeyan River and Brad Haddin Oval (including the eastern side of the Brad Haddin Oval)	700	$105,000
S11	High	Connections on southern side between Edwin Land Parkway's existing shared path and both Poplar Crescent and Rosewood Glen	100	$15,500
S13	High	Along Lorn Road and Kealman Road between Uriarra Road and John Bull Street	1220	$183,000
S15	High	Lanyon Drive connections allowing cyclists and pedestrians to have access to a shared path that uses the underpass	560	$83,500
S16	High	Along Cooma Street and Thornton Road in the vicinity of the Karabar Preschool and the local sporting facilities	660	$99,500
S18	High	Cooma Street between Southbar Road and Lowe Street and also additional connections near Candlebark Road to Edwin Land Parkway	2280	$342,500
S19	High	Along Alanbar Street between Donald Road and Cameron Road	490	$73,500
S20	High	Southbar Road Connection that combined with Sassafras Crescent run parallel to Southbar Rd	590	$88,500
S21	High	Along Limestone Drive between Edwin Land Parkway and Jerrabomberra Parkway intersection to O'Sullivan Road	260	$39,000
S22	High	From Carolyn Jackson Drive to Pepper Place	110	$16,000
S23	High	Along Lanyon Drive between Southbar Road and Esmond Avenue	1880	$282,000
S24	High	Connection from Brudenell Drive to and the end of Tea Tree Close	70	$10,000
S26	High	Connection from Waniassa Street to Carinya Street across the bridge	180	$26,500
S29	High	Edwin Land Parkway crossing near the shops	60	$9,000
S32	High	Connections on northern side of Edwin Land Parkway near the shops that enable access from Dora Street to Unwin Avenue	710	$106,000
			High Priority Sub-Total	**$1,735,500**
S3	Medium	Along McEwan Ave, Henderson Rd and Campbell St between the bridge over the railway line and the intersection of Campbell Street and Crawford Street	600	$90,500
S4	Medium	Works in the vicinity of the Queanbeyan Aquatic Centre on Campbell Street, Lowe Street, Crawford Street and Morisset Street	1260	$189,500
S6	Medium	Link across Brad Haddin Oval and along	490	$73,000

REFID	Priority	Link Description	Path Length	Total Cost
		Campbell Street		
S7	Medium	Along Surveyor Street between Brad Haddin Oval to the Queanbeyan High School.	550	$83,000
S8	Medium	Along Donald Road between Southbar Road and Surveyor Street	1750	$263,000
S9	Medium	Canberra Avenue connections crossing Lanyon Drive near the roundabout.	220	$33,500
S10	Medium	Connection between Murruba Place and Rusten Place crossing the Jerrabomberra Mountain Reserve	460	$68,500
S12	Medium	From Jerrabomberra Parkway to the Allan McGrath Reserve through the park and connecting several other streets to the Allan McGrath Reserve	840	$126,000
S14	Medium	Along Morton Street between Lorn Road and the Queanbeyan Aquatic Centre	1430	$214,000
S17	Medium	Connection between Trinculo Place and Waniassa Street through the Sensory Gardens.	180	$27,000
S25	Medium	Along Isabella Street between the Queanbeyan River and Cooma Street.	570	$85,500
S27	Medium	Along Spendelove Street, Early Street and Agnes Ave between Surveyor Street to Munro Road	570	$85,000
S28	Medium	Along Glebe Avenue between Cooma Street to Canberra Avenue	560	$84,500
S30	Medium	From Gordan Avenue to Hoover Road around the Queanbeyan Race Club	1640	$246,500
S31	Medium	Connections on Canberra Avenue between Donald Road and Tharwa Road	230	$34,500
			Medium Priority Sub-Total	**$1,704,000**
			Total	**$3,439,500**

Note: 1. All estimated costs rounded to nearest $500
2. REFID is shown in Figure 30 and Figure 32

6.3.4 Mixed traffic links

The map reference and cost for these are given in Table 12.

Table 12: Queanbeyan proposed mixed use roads

REFID	Priority	Link Description	Path Length (m)	Total Cost ($)
M2	High	Along Nimmitabel Street between the underpass on Canberra Avenue and the underpass on Lanyon Drive	710	$10,500
M3	High	Along Fergus Road between Tharwa Road and Cooma Street	1590	$24,000
M4	High	Along Sassafras Crescent parallel to Southbar Road	340	$5,000
M5	High	Along Halloran Drive between Allambee Street and Numeralia Drive	740	$11,000

REFID	Priority	Link Description	Path Length (m)	Total Cost ($)
M8	High	O'Sullivan Road and Esmond Drive between Limestone Drive and path connecting to Kinlyside Ave	830	$12,500
M9	High	Along Halloran Dr, Kinlyside Ave, Carolyn Jackson Dr between Carolyn Jackson Drive and Hamilton Place	1420	$21,500
M11	High	Allong Stringybark Dr and Brudennel Drive between Edwin Land Parkway and Bicentennial Drive	1100	$16,500
M12	High	Along Candlebark Road between Cooma Street and Southbar Road	1750	$26,500
M16	High	Along Gilmore Place between Tharwa Road and Lanyon Drive	620	$9,500
M17	High	Along Telopea Place between Crest Park Parade and Southbar Road	140	$2,000
M18	High	From Letchworth Park to Maloney Street	170	$2,500
M19	High	Along Unwin Avenue parallel to Edwin Land Parkway connecting the shared path	130	$2,000
M20	High	Along Lerra Street between Numeralia Drive and a future shared path	110	$1,500
M22	High	Along Miller Street and Harman Place	370	$5,500
			Sub-Total	**$150,500**
M1	Medium	Donald Road between Southbar Road and Rusten Street and all of Rusten Street	1130	$17,000
M6	Medium	Connecting Allambee Street, Gurrana Street and Murruba Place to a shared path that crosses the Jerrabomberra Mountain Reserve	300	$4,500
M7	Medium	Ross Road between Surveyor Street and Morton Street	450	$7,000
M10	Medium	Carolyn Jackson Dr between Halloran Dr and Kinlyside Ave	460	$7,000
M14	Medium	High St between Thurralilley St and Bungendore Rd	490	$7,500
M15	Medium	Along Rosewood Glen connecting the Bicentennial Drive to Edwin Land Parkway	320	$4,500
M21	Medium	Cameron Rd between Southbar Rd and Alanbar Rd	500	$7,500
			Sub-Total	**$55,000**
			Total	**$205,500**

Note: 1. All estimated costs rounded to nearest $500

2. REFID is shown in Figure 30 and Figure 32

6.3.5 Cycle lanes

Cycle lanes are proposed to be implemented in two ways. First, signage and line marking within minimal changes to existing pavement. Second, to provide a sealed shoulder or widen an existing shoulder. The map reference and cost for these are given in Table 13.

Table 13: Queanbeyan proposed cycle lanes

REFID	Link_Description	Priority	Path Length	Total Cost
C1	Southbar Road from Donald Road to Cooma Street*	High	1030	$52,000
			High Priority Sub-Total	**$52,000**
C2	Widen shoulder Southbar Road from Lanyon Drive and before Tharwa Road	Medium	600	$180,500
C3	Along Jerrabomberra Parkway*	Medium	820	$41,000
C4	Along Yass Road and Ellerton Drive*	Medium	2200	$166,000
			Medium Priority Sub-Total	**$387,500**
			Total	**$439,500**

Note: 1. All estimated costs rounded to nearest $500

2. REFID is shown in Figure 30 and Figure 32

Assumes signage and line marking alterations only

6.3.6 Street crossing program

The greatest safety hazard for road users is at intersections. Intersections and street crossings therefore have a high priority in the action plan.

A lack of kerb ramps also affects access for people with disabilities (a particular area of interest for council, given statutory requirements such as the Disability Discrimination Act and Disability Standards for Accessible Public Transport) and for people using strollers, etc. Construction of street crossings will also provide kerb ramps.

The priority for street crossings is where crossings:

- Are of high traffic volume streets
- Are used by high pedestrian and / or cyclist volumes
- Link routes to form or enhance networks.

Kerb extensions, raised pedestrian crossings and road crossing facilities provided on local and regional roads (those not under the care and control of the RMS) are generally eligible for up to 50% funding by the RMS, subject to availability of funds and competing funding priorities.

Table 14 outlines the proposed crossing facilities, in the form of refuge islands. The location of these are shown in Figure 22 and described in Table 14.

Table 14: Queanbeyan proposed street crossing facilities

Link Description	Priority	Items	Total Cost
Refuge Island – Uriarra Road east of Richard Avenue	High	1	$25,000
Refuge Island – Campbell Street near Morton Street	High	1	$25,000
Refuge Island – Thurralilly Street west of Yass Road	High	1	$25,000
Refuge Island – Mulloon Street east of Yass Road	High	1	$25,000
		High Priority Sub-Total	**$100,000**

Link Description	Priority	Items	Total Cost
Refuge Island – Morton Street near Stornaway Street	Medium	1	$25,000
		Medium Priority Sub-Total	**$25,000**
		Total	**$125,000**

6.3.7 Kerb ramp replacement program

A kerb replacement program has been actioned and many of the links with footpaths have installed pram ramps. All sites with footpaths or shared paths should have kerb ramps installed. The kerb ramps associated with older footpaths generally do not meet current disability standards in terms of gradients, ease of mounting, directional guidance provided by Tactile Ground Surface Indicators (TGSIs); are poorly located and aligned; and in some cases do not exist at all.

If kerb ramps are only installed with new infrastructure, they are not provided in a strategic way - i.e. to create usable routes - and accessible routes and networks would not be created in a reasonable timeframe.

The kerb ramp replacement program aims to provide or replace kerb ramps in existing footpaths, to create a basic framework of accessible routes within each town within five years. Priority should be determined by the following factors:

- Amount of pedestrian use
- Currently programmed works (whether the kerb ramp would otherwise be constructed)
- Providing continuously accessible routes, especially in commercial and secondary destination zones, but also other locations well- used by frail pedestrians (typically the elderly) and/ or people using prams or strollers
- Providing number of circular loops to cater for some degree of recreational opportunities.

The cost of constructing new kerb ramps is about $1,100 per kerb ramp, plus around $160 per square metre of footpath where footpath construction or reinstatement is required in addition to the kerb ramp.

A kerb ramp replacement program of $11,000 per year is proposed in the first instance. This would provide for some ten kerb ramps to be replaced each year, or 50 over the life of the program. This should allow sufficient funds to complete the kerb upgrade works within Queanbeyan. Other works, such as constructing new kerb and installing new footpaths, will also provide new kerb ramps. Kerb ramps will typically need to be provided in pairs, so that kerb ramps facing each other across a street or intersection are both compliant.

It is understood that Council has undertaken an audit of kerb ramps and is undertaking a kerb ramp replacement program.

"Kerb ramps provided to access footpaths adjacent to roads under the care and control of the RMS are eligible for 100% funding by the RMS, subject to availability of funds and competing funding priorities. Kerb ramps provided as an upgrade of existing pedestrian facilities on local and regional roads (those not under the care and control of the RMS) are eligible for up to 50% funding through local government pedestrian facilities programs *by the RMS, subject to availability of funds and competing funding priorities".*

6.3.8 Off-network program

The preceding programs have all concentrated on creating the pedestrian and cycling networks for Queanbeyan. However, to maximise the use, utility and ultimately value of these networks, a number of other activities can be undertaken. This includes capital works activities, policy or planning activities, and promotional activities.

These are termed "off-network" activities and this program covers these activities.

Bicycle parking

An almost complete lack of bicycle parking was noted during the community consultation and site visit. Basic bicycle parking levels are specified in the design standards. Bicycle parking provided in addition to this should be installed on an incremental basis, with additional parking dependent on observations of take up.

The custom coloured bike racks out the front of the library on Rutledge Street are considered very effective and assist to raise awareness for cycling based on their shape.

It is suggested that the bicycle program allow for at least five rails to be installed each year. It is preferable for the rails to be installed singly or as pairs of rails, rather than only installed at a single location each year. At a cost of about $250 each, this would be $1,250 a year.

Bicycle facilities provided in compliance with an approved Bicycle Plan are generally eligible for 50% funding from the RMS, as outlined in the Council Projects Funded by the RTA Memorandum of Understanding, subject to the availability of funds and competing funding priorities.

Proposed locations for bicycle parking are:

- Adjacent all sporting ovals and public parks
- Various locations with the CBD preferably within 100m of the main riverside plaza entrances and along the main street.

Better signage to existing parking would also greatly improve awareness and likely usage.

Activities raising awareness of the bicycle and pedestrian facilities plan

In assisting to enable behavioural change, motivation can play an equally important factor as opportunity. Pedestrian and cycling infrastructure can create the opportunity. Hand in hand with this should be walking and cycling motivation, education and awareness - those things that enable the physical facilities to be used to its best extent. Education, promotion and encouragement activities could include:

- Educate communities about the new facilities provided and opportunities these present;
- Encourage the use of facilities; and
- Create goodwill between the community and Council.

The cost to implement these actions will depend on the type and extent of activities selected for implementation, the degree to which they fall under existing budgets, the degree to which grant funding or resources are available to assist in their implementation and the degree to which Council actively pursues these actions. Hence a firm cost estimate cannot be given.

Bicycle training courses, BikeWeek activities, bicycle use promotions and map production may be eligible for part funding from the RMS through the bicycle user support program, subject to the availability of funds and competing funding priorities.

7.0 Plan Implementation and Monitoring

7.1 Implementation

The staged implementation plan identified through this study would need to be assessed and implemented based on specific site conditions and reflect the latest pedestrian and bicycle facilities standards at the time of implementation. The staged action plan would be considered by Council as part of other projects (e.g. road upgrade, place making projects etc.) or included as standalone items in future Delivery Programs and Operational Plans.

Construction of any works identified in this study will be subject to the availability of funding.

7.2 Monitoring

As the pedestrian and bicycle network is developed, it will be important to monitor the progress of the network over time. Monitoring could relate to the following three areas:

- Route conditions and overall route quality
- Changes in demand
- Implementation of work program.

Monitoring of the quality of pedestrian and bicycle routes could be undertaken by measuring the quality of the route against the existing design criteria as part of a "look and see" audit process. This will enable the overall quality of routes to be improved, problems to be addressed and resources to be targeted appropriately. Council would monitor the pedestrian and bicycle plan deliverables as per the action plan. A typical assessment would involve an assessment of route conditions by a person familiar with pedestrian and bicycle design issues and would involve a site visit along the specified route.

8.0 References

ABS (2011) Australian Bureau of Statistics, Census of Population and Housing 2011

ABS (2016) Australian Bureau of Statistics, Census of Population and Housing 2016

AECOM (2017a) Integrated Transport Strategy Stage 1 Consultation, July 2017

AECOM (2018a) Integrated Transport Strategy Stage 2 Consultation, for QPRC, February 2018

Geoplan (2010a) Queanbeyan bicycle plan, for Queanbeyan City Council, May 2010

Geoplan (2010b) Queanbeyan pedestrian and mobility plan, for Queanbeyan City Council, May 2010

NSW Government (2017) Draft future transport strategy 2056, October 2017

Queanbeyan City Council (2012a) Community Strategic Plan 2013-23

Queanbeyan City Council (2013a) Queanbeyan tomorrow community vision 2021, November 2013

RTA (2011) NSW Bicycle Guidelines, January 2011

RMS (2017) 2012-2016 road crash statistics data base, May 2017

Appendix A

Schedule of Works

Appendix A Schedule of Works

REF ID	Priority	Link Description	Path Length (m)	Total Cost
C1	High	Southbar Road between Donald Road and Cooma Street	1032	$51,500
F2	High	Waterfall Drive between Bellbush Close and two end connections near Lake Jerrabomberra.	1290	$232,000
PR1	High	Uriarra Road east of Richard Avenue	1 item	$25,000
PR2	High	Campbell Street near Morton Street	1 item	$25,000
PR3	High	Thurralilly Street west of Yass Road	1 item	$25,000
PR4	High	Mulloon Street east of Yass Road	1 item	$25,000
S1	High	Along the Queanbeyan river between the Riverside Plaza and Ellerton Drive	1330	$199,500
S2	High	Along Ellerton Drive between Kings Highway and Mowatt Street	380	$56,500
S5	High	Along Morisset Street between Queanbeyan River and Brad Haddin Oval (Including the eastern side of Brad Haddin Oval)	700	$105,000
S11	High	Connections on southern side between Edwin Land Parkway's existing shared path and both Poplar Crescent and Rosewood Glen	100	$15,500
S13	High	Along Lorn Road and Kealman Road between Uriarra Road and John Bull Street	1220	$183,000
S15	High	Lanyon Drive connections allowing cyclists and pedestrians to have access to a shared path that uses the underpass	560	$83,500
S16	High	Along Cooma Street and Thornton Road in the vicinity of the Karabar Preschool and the local sporting facilities	660	$99,500
S18	High	Cooma Street between Southbar Road and Lowe Street and also additional connections near Candlebark Road to Edwin Land Parkway	2280	$342,500
S19	High	Along Alanbar Street between Donald Road and Cameron Road	490	$73,500
S20	High	Southbar Road Connection that combined with Sassafras Crescent run parallel to Southbar Road	590	$88,500
S21	High	Along Limestone Drive between Edwin Land Parkway and Jerrabomberra Parkway intersection to O'Sullivan Road	260	$39,000
S22	High	From Carolyn Jackson Drive to Pepper Place	110	$16,000
S23	High	Along Lanyon Drive between Southbar Road and Esmond Avenue	1880	$282,000
S24	High	Connection from Brudenell Drive to and the end of Tea Tree Close	70	$10,000
S26	High	Connection from Waniassa Street to Carinya Street across the bridge	180	$26,500
S29	High	Edwin Land Parkway Crossing near the shops	60	$9,000

REF ID	Priority	Link Description	Path Length (m)	Total Cost
S32	High	Connections on northern side of Edwin Land Parkway near the shops that enable access from Dora Street to Unwin Avenue	710	$106,000
M2	High	Along Nimmitabel Street between the underpass on Canberra Avenue and the underpass on Lanyon Dr	710	$10,500
M3	High	Along Fergus Road between Tharwa Road and Cooma Street	1590	$24,000
M4	High	Along Sassafras Crescent parallel to Southbar Road	340	$5,000
M5	High	Along Halloran Drive between Allambee Street and Numeralia Drive	740	$11,000
M8	High	O'Sullivan Road and Esmond Drive between Limestone Drive and path connecting to Kinlyside Ave	830	$12,500
M9	High	Along Halloran Dr, Kinlyside Ave, Carolyn Jackson Dr between Carolyn Jackson Drive and Hamilton Place	1420	$21,500
M11	High	Allow Stringybark Dr and Brudennel Drive between Edwin Land Parkway and Bicentennial Dr	1100	$16,500
M12	High	Along Candlebark Road between Cooma Street and Southbar Road	1750	$26,500
M16	High	Along Gilmore Place between Tharwa Road and Lanyon Drive	620	$9,500
M17	High	Along Telopea Place between Crest Park Parade and Southbar Road	140	$2,000
M18	High	From Letchworth Park to Maloney Street	170	$2,500
M19	High	Along Unwin Avenue parallel to Edwin Land Parkway connecting the shared path	130	$2,000
M20	High	Along Lerra Street between Numeralia Dr and a future shared path	110	$1,500
M22	High	Along Miller Street and Harman Place	370	$5,500
C2	Medium	Southbar Road between Lanyon Drive and Tharwa Road	601	$180,500
C3	Medium	Along Jerrabomberra Parkway from Bicentennial Drive to Tompsitt Drive	820	$41,000
C4	Medium	Along Yass Road and Ellerton Drive between the QRPC border and the Mowatt Street / Old Sydney Road	2213	$110,500
F1	Medium	Elizabeth Crescent crossing the nature strip to the side of the Kings Highway	60	$11,000
F3	Medium	Severne Street	950	$142500
F4	Medium	Along Queanbeyan River – Between Granville Close and Dodsworth Street	1130	$169,500
F5	Medium	Along Queanbeyan River	680	$102,000
F6	Medium	Along open space corridor between Yarrow Street and Ellerton Drive Extension	770	$115,500
PR4	Medium	Morton Street near Stornaway Street	1 item	$25,000
S3	Medium	Along McEwan Ave, Henderson Rd and Campbell St between the bridge over the railway line and the intersection of Campbell Street and Crawford Street	600	$90,500

REF ID	Priority	Link Description	Path Length (m)	Total Cost
S4	Medium	Several road works in the vicinity of the Queanbeyan Aquatic Centre on Campbell Street, Lowe Street, Crawford Street and Morisset Street.	1260	$189,500
S6	Medium	Link across Brad Haddin Oval and along Campbell Street	490	$73,000
S7	Medium	Along Surveyor Street between Brad Haddin Oval to Queanbeyan High School	550	$83,000
S8	Medium	Along Donald Road between Southbar Road and Surveyor Street	1750	$263,000
S9	Medium	Canberra Avenue connections crossing Lanyon Drive near the roundabout	220	$33,500
S10	Medium	Connection between Murruba Place and Rusten Place crossing the Jerrabomberra Mountain Reserve	460	$68,500
S12	Medium	From Jerrabomberra Parkway to the Allan McGrath Reserve through the park and connecting several other street connections to the Allan McGrath Reserve	840	$126,000
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S27	Medium	Along Spendelove Street, Early Street and Agnes Ave between Surveyor Street to Munro Road	570	$85,000
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S30	Medium	From Gordan Avenue to Hoover Road around the Queanbeyan Race Club	1640	$246,500
S31	Medium	Connections on Canberra Avenue between Donald Road and Tharwa Road.	230	$34,500
M1	Medium	Donald Road between Southbar Road and Rusten Street and all of Rusten Street.	1130	$17,000
M6	Medium	Connecting Allambee Street, Gurrana Street and Murruba Place to a shared path that crosses the Jerrabomberra Mountain Reserve	300	$4,500
M7	Medium	Ross Road between Surveyor Street and Morton Street	450	$7,000
M10	Medium	Carolyn Jackson Dr between Halloran Dr and Kinlyside Ave	460	$7,000
M14	Medium	High St between Thurralilley St and Bungendore Rd	490	$7,500
M15	Medium	Along Rosewood Glen connecting the Bicentennial Drive to Edwin Land Parkway	320	$4,500
M21	Medium	Cameron Rd between Southbar Rd and Alanbar Rd	500	$7,500

QUEANBEYAN-PALERANG REGIONAL COUNCIL

Council Meeting Attachment

25 SEPTEMBER 2019

ITEM 9.12 INTEGRATED TRANSPORT STRATEGY

ATTACHMENT 3 BRAIDWOOD PAMP & BIKE PLAN - 20 JUNE 2019 - FINAL DRAFT

AECOM Imagine it. Delivered.

Queanbeyan-Palerang Regional Council
20-Jun-2019

Braidwood Bicycle and Pedestrian Facilities Plan

Integrated Transport Strategy

P:\CBR\60544563\8. Issued Docs\8.1 Reports\Active Travel\Braidwood - PAMP&Bike Plan DRAFT FINAL 20 June 2019.docx
Revision 4 – 20-Jun-2019
Prepared for – Queanbeyan-Palerang Regional Council – ABN: 95 933 070 982

Braidwood Bicycle and Pedestrian Facilities Plan

Integrated Transport Strategy

Client: Queanbeyan-Palerang Regional Council

ABN: 95 933 070 982

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20-Jun-2019

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 AS/NZS4801 and OHSAS18001.

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Revision 4 – 20-Jun-2019
Prepared for – Queanbeyan-Palerang Regional Council – ABN: 95 933 070 982

Quality Information

Document Braidwood Bicycle and Pedestrian Facilities Plan

Ref 6054 4563

Date 20-Jun-2019

Prepared by Alex Miles & Neil Graham

Reviewed by Brendan Hogan

Revision History

Rev	Revision Date	Details	Authorised (Name/Position)
1	22-Nov-2017	Draft (post Stage 1 Consultation)	Neil Graham, Project Manager
2	08-Jun-2018	Final Draft (post Stage 2 Consultation and Exhibition)	Neil Graham, Project Manager
3	05-Feb-2019	Revised Final Draft (post Stage 2 Consultation and Exhibition)	Neil Graham, Project Manager
4	20-Jun-2019	Revised Final Draft (post Stage 3 Exhibition)	Neil Graham, Project Manager

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Executive Summary

AECOM has prepared an integrated bicycle and pedestrian facilities plan for Braidwood; there are other similar reports for Queanbeyan and Bungendore as part of an Integrated Transport Strategy (ITS) for Queanbeyan-Palerang Regional Council (QPRC). The facilities plan will help Council to manage priorities and funding for future works.

Key steps in developing this strategy were to:

- Identify a functional network for walking and cycling. This is intended to create a practical network for pedestrians and cyclists, best serving the needs of the local community.
- Identify routes to service different users of the networks using a catchment analysis for seniors, school, shopping and recreation.
- Prioritise routes and works into an action plan and implementation plan.

From a cyclist and pedestrian perspective, the most important features of the road and traffic environment in Braidwood appear to be:

- The town is a small size to enable walking and cycling, with almost all residents within a kilometre of the town centre. Kings Highway passes through the centre of the town, forming the main street (Wallace Street) and Lascelles Street. There is a ninety degree right turn from Lascelles Street into Wallace Street.
- Within the precincts of Braidwood, traffic speeds are relatively moderate. All of Braidwood roads are posted at 50 km/h.
- Traffic volumes are generally light (fewer than 1,000 vehicles per day), with the highest volume (Kings Highway/ Wallace Street/ Lascelles Street) having 6,000 vehicles a day. The grid street pattern provides opportunities for a variety of routes, but is compromised (in terms of accessibility) at a number of points due to watercourses and street closures.
- On-street parking arrangements vary, but on the some of the most important streets there is nose-in 60° angle parking. There are indented parking bays at key destinations: Central Braidwood, schools, the hospital and the supermarket.
- At most intersections, the intersecting streets do so at a large radius. This has the following impacts: vehicles can take the corner at faster speeds, distances for crossing the road are relatively long, and kerb ramps (and hence footpaths) are relatively distant from the kerb of the path of travel.

There have been three rounds of consultation on this project that have been considered in developing the Action Plan and Implementation Plan for bicycle and pedestrian facilities in Braidwood, as follows:

1. Setting context and identifying issues, as part of Stage 1 consultation.
2. Developing a draft action plan, implementation plan and report for comment as part of Stage 2 consultation.
3. Developing a draft action plan, implementation plan and report for public exhibition and comment (Stage 3).

The action plan, implementation plan and report have now been finalised for Council endorsement, taking account of final comments in Stage 3.

During community consultation in this project the following issues were raised regarding walking and cycling in Braidwood:

- Coronation Avenue: Missing footpath on northern side from Ryrie Street to ex- serviceman club.
- Council needs to consider disabled access compliance particular for heritage buildings to better define "deemed to comply" in the building requirements.
- Post Office in Braidwood has no disabled access.

- Include paths on Coronation Avenue and Wilson Street.
- Include ramps at Archers Bridge.
- More paths and tracks to Mount Gillamatong.
- Kerb ramps have lips and bad angles that make it difficult for the wheel chair to get up.
- There needs to be more crossings and paths going to schools.
- There is no safe pedestrian or cyclist crossing over Monkittee Creek.
- Monkittee Creek Bridge access and crossing is in a very bad condition. Safety is a concern as children, bikes and prams cross this bridge. This bridge needs to be brought to a better condition.
- The 80 km/h speed limit along Kings Highway is working well. However, it might be a good idea to add rumble strips.
- Comment that footpath next to guard rail at corner of Ryrie Street and Lascelles Street needs gravel. This footpath can get very muddy when it rains.
- There is no pram crossing near Braidwood Park (near toilets) until near the pub.
- There needs to be lighting in the park.
- IGA supermarket needs a metal ramp for access and also a pram crossing.
- There is no path on Wilson Street, south side or Coronation Avenue.
- The Council Chambers and Office have doors at the top of the ramp with no flat section. It is difficult to open the doors while staying on the ramp.
- There needs to be a path along Park Lane South to provide a safer route for school children.
- There needs to be a path along Elrington Street adjacent to St Bedes school, especially between Wilson Street and Duncan Street.
- Concern regarding the stability of footbridge at southern end of Garvey Street.
- A safer footpath on the bridge across Monkittee Creek is a high priority action.
- A pedestrian refuge on Lascelles Street just west of Elrington Street.
- Safety of elderly residents and young school children walking along Duncan Street east of Wallace Street.

The proposed walk and cycle network master plan for Braidwood endeavours to address these and other identified issues where appropriate and is shown in Figure 1. The red and blue dotted lines on Duncan Street and Monkittee Street indicate that it is proposed that the existing footpaths will be widened to form shared paths.

It is important to note that:

- This a strategic network, rather than an itemisation of every route that might ultimately be desired.
- Hierarchy definitions shown in the master plan are defined for planning purposes. The action and implementation plans then interpret these into the physical networks that should be implemented, and the priorities for these.
- The bicycle and pedestrian facilities plan has a definite timeframe. Networks shown are based on a timescale of about 10 years. It is assumed that the plan will be reviewed every five years.
- Changes in land uses can have large impacts on walking and cycling needs, but not all land use changes that will occur can be predicted and incorporated into the networks.

The proposed works plan for bicycle and pedestrian facilities in Braidwood is shown in Figure 2. It includes priorities for shared path or footpath improvements. High priority works (1 – 4 years) are shown with a green box outline.

This figure demonstrates how the works proposed in the path program combine with existing paths, plus the proposed street crossing points and existing crossing places, to create an overall network. In this sense, "existing" also includes those paths that developers have committed to providing (where known). Within these works there may be some constraints due to heritage.

The estimated cost of these works for Braidwood is $1,097,500, with $520,500 of works considered high priority (to be built in next 4 years). The priority works includes:

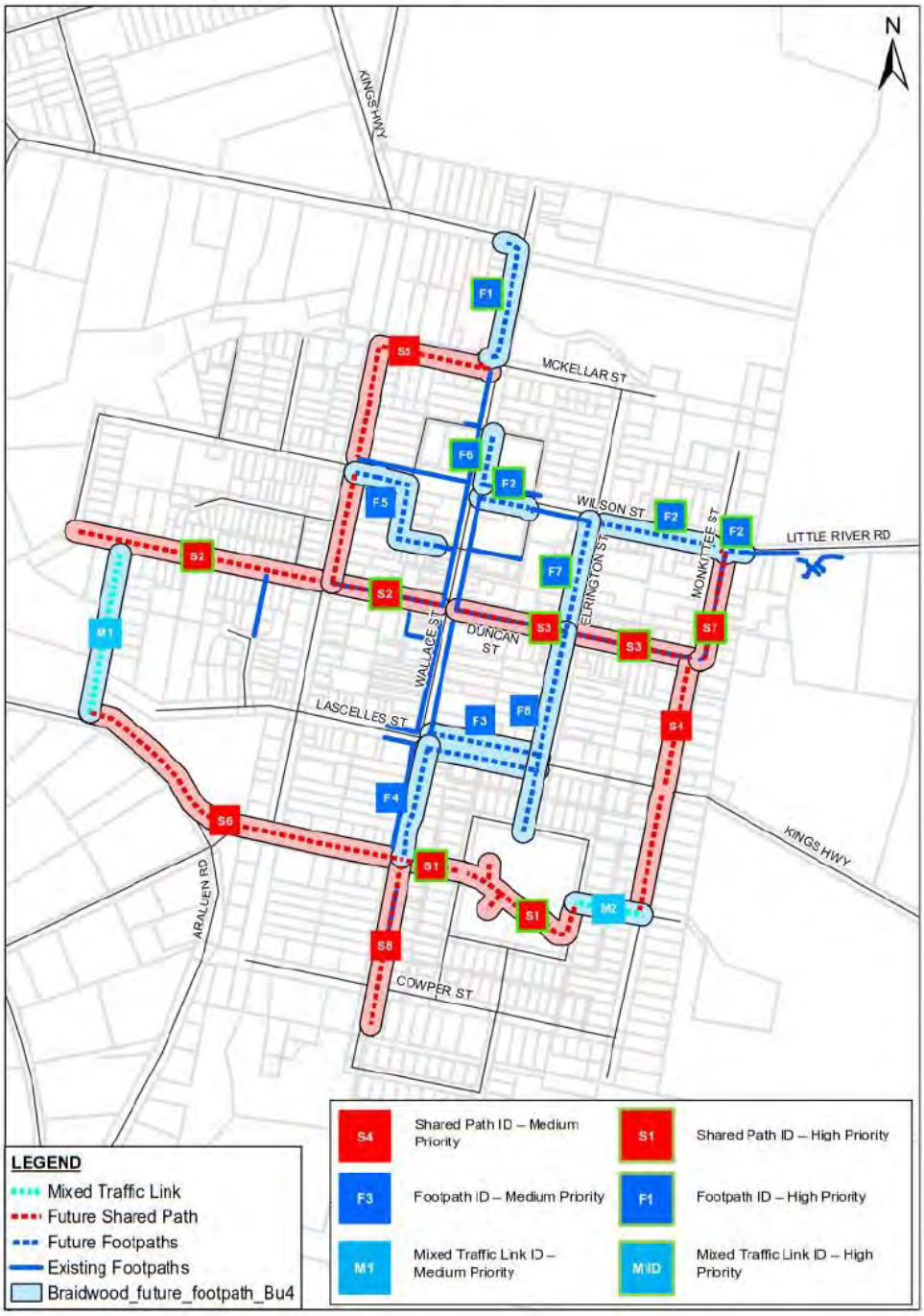
- 2,230 m of new footpaths
- 3,780 m of new shared paths
- Five new pedestrian refuges.

In addition, a budget of $6,750 per year is proposed for a kerb ramp replacement program and bicycle parking in Braidwood.

A summary of projects and costs is included in Appendix A. Construction of any works identified in this project will be subject to the availability of funding.

Figure 1: Proposed walking and cycling network master plan for Braidwood

Figure 2: Proposed works plan for Braidwood with priorities



1.0 Introduction

1.1 Background

Queanbeyan-Palerang Regional Council (QPRC) has commissioned AECOM Pty Ltd (AECOM) to prepare an Integrated Transport Strategy (ITS) in order to respond to the current growing population of Queanbeyan, Bungendore and Braidwood. To meet Council's requirement for the project, AECOM has prepared an integrated bicycle and pedestrian facilities plan for Braidwood; there are other similar reports for Queanbeyan and Bungendore.

The facilities plan will help Council to manage priorities and funding to address the study objectives listed below.

1.2 Study Objectives

The objective of preparing this report is to review and update the bicycle and pedestrian plans developed by Hub in 2010. More specific objectives are:

1. Facilitate improvements in pedestrian and cycle connectivity and ensure the safe crossing of roads.
2. Facilitate improvements in the level of personal mobility and safety for all members of the community, in particular vulnerable road users, enhancing pedestrian and bicycle infrastructure and facilities.
3. Facilitate the integration of the pedestrian and bicycle network with other transport services.
4. Create an attractive alternative to car travel by providing active transport (walk/bike) links to community facilities including schools, churches, transport interchange, local shops, swimming pools, and sport and recreation facilities.
5. Ensure that pedestrian and bicycle facilities remain appropriate and relevant to the surrounding land use and user groups.
6. Provide a plan showing existing pathways and proposed new pathways.
7. Create an action plan map showing:
    a. existing paths and active transport facilities,
    b. new pedestrian and bicycle routes, and
    c. treatment (e.g., existing sealed road shoulder; shared concrete path).

1.3 Process

There are three key stages to this project:

1. Setting objectives and data collection. This included:
    a. Technical Analysis – AECOM utilised the geographical and spatial capabilities of GIS modelling software in order to undertake an analysis of the available transport data for Braidwood. The analysis consisted of analysing traffic volumes, crash statistics, existing facilities and existing and planned paths.
    b. Site Visits – In conjunction with the community consultation meetings Braidwood was visited in June and December 2017.
    c. Community Consultation – Residents of Braidwood were invited to a drop-in information session where they were able to identify issues and opportunities associated with the pedestrian or cyclist networks.
2. Draft action plan and draft report. This has included the development of routes, works priorities and estimated implementation costs. This was reviewed as part of a second round of community consultation.

3. Final action plan and report. The plan and report was finalised following the second round of community consultation.

Key steps in developing this strategy were to:

- Identify a functional network for walking and cycling. This is intended to create a practical network for pedestrians and cyclists, best serving the needs of the local community.
- Identify routes to service different users of the networks using a catchment analysis for seniors, school, shopping and recreation.
- Prioritise routes and works into an action plan and implementation plan.

The final outcome of this element of the project is the development of a strategy plan for walking and cycling in Braidwood, as represented by the action plan and implementation later in this report.

Figure 3 shows the key tasks undertaken for completing the bike and pedestrian plan.

1.4 Study Area

The study area for Braidwood is shown in Figure 4.

1.5 Structure of Report

The structure of this report is as follows:

- Section 2 outlines the characteristics of the study area, including land use, transport movements and crashes.
- Section 3 summarises the outcomes of stakeholder and community consultation carried out to date.
- Section 4 outlines details of relevant policies, programmes and planning principles.
- Section 5 details the pedestrian and bicycle network.
- Section 6 discusses bicycle and pedestrian route priority strategy and implementation plan.
- Section 7 outlines the implementation and monitoring of the action plan.

Appendix A provides a schedule of works of projects that form part of the action plan.

Figure 3: Key tasks for creating a pedestrian and bike plan

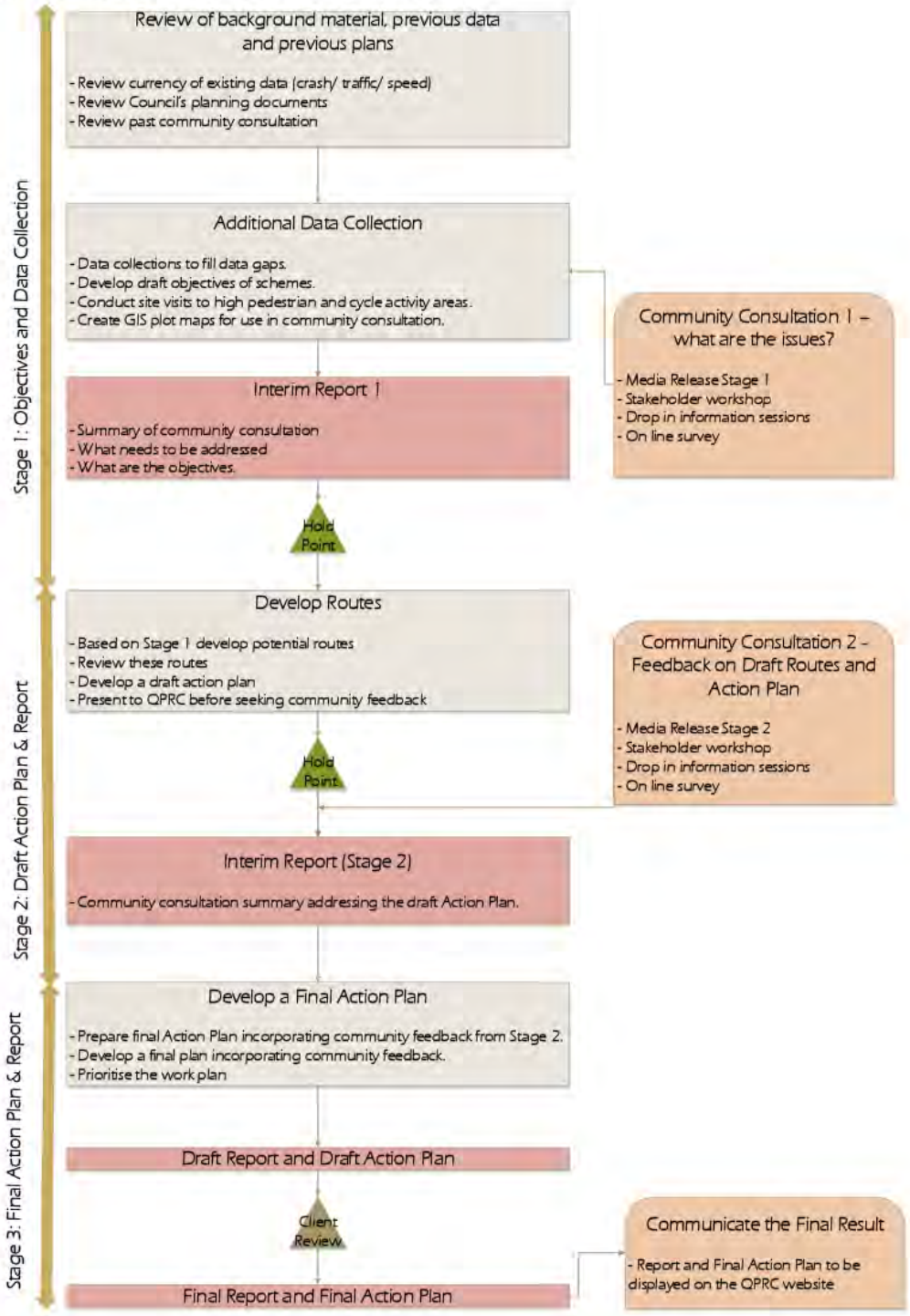


Figure 4: Braidwood study area

2.0 Characteristics of the Study Area

2.1 Land Use

2.1.1 Braidwood population

Braidwood is located about 73 km east of Queanbeyan and is more reliant on local employment than Bungendore. It is a popular tourist area located on the Kings Highway with some of the town having heritage protection. Table 1 presents a summary of population trends from recent census data. It shows quite strong growth (about 2.1% per annum).

Table 1: Braidwood population statistics

Age Group	2011		2016	
	Number	%	Number	%
0-14 years	301	20.1	315	19.0
15-24 years	127	8.5	142	8.6
25 - 64 years	734	49.0	792	47.8
65 and over	336	22.4	408	24.6
Total	**1498**	**100%**	**1657**	**100%**

Source: ABS Census, 2011 & 2016

2.1.2 Pedestrian and cyclist trip generators and attractors

The locations of pedestrian and cyclist attractors and generators in Braidwood are shown in Figure 5. The major generators and attractors for Braidwood include:

- Schools
- Shopping and commercial centres
- Community centres
- Recreational facilities.

These are primarily located in the town centre, with residential uses outside of the centre.

The town centre is a major attractor for residents and visitors which comprise predominately of commercial and retail activity throughout the area. The swimming pool, sports fields and open space areas are strong attractors particularly for youth. Community facilities such as the Civic Centre, community centres, bowls club and RSL club are significant attractors for seniors

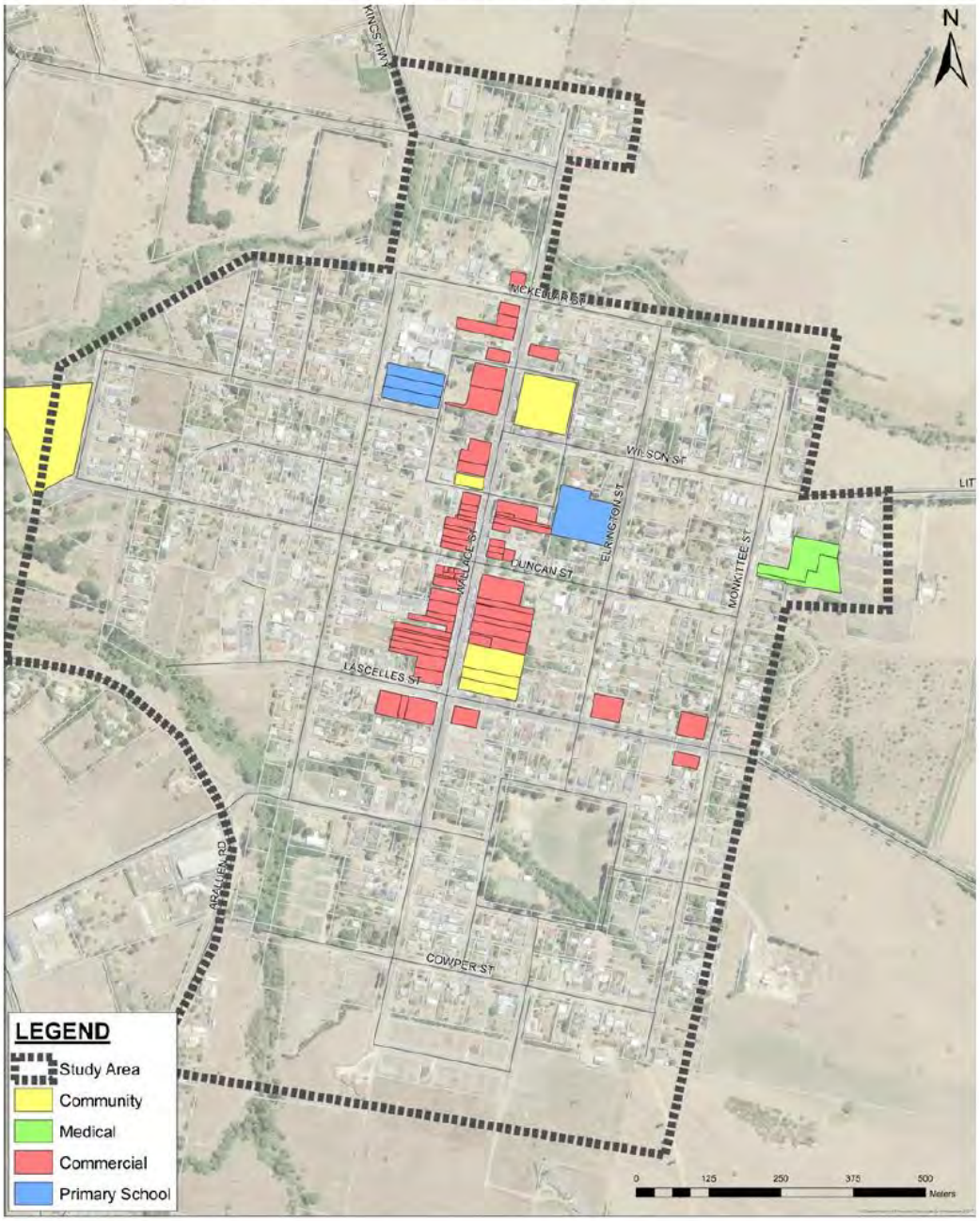
The largest generators of pedestrian and cyclist movement include schools, shops, clubs, aged housing, caravan parks and medical facilities.

Braidwood has two schools:

- St Bede's Red Hill Catholic School (kindergarten to year 6)
- Braidwood Central School (kindergarten to year 12; it also caters for a significant number of adult learners).

A pre-school is located in Wilson Street, between Elrington Street and Monkittee Street (there is a pre-school crossing sign associated with this). A day care centre is located in Wallace Street, between Coghill Street and Cowper Street. There is also the Braidwood multi-purpose service located near the eastern edge of Braidwood on Wilson Street.

Figure 5: Braidwood pedestrian and bicycle key generators and attractors



2.1.3 Future land use changes

Braidwood is functionally divided into precincts with distinctive walking and cycling conditions. The divisions in Braidwood are relatively straight forward to define, in that there is one main residential area and two satellite areas with little development:

- The Braidwood built-up area can be broadly defined as being the area enclosed by the two creek lines, extending east to those properties that front Monkittee Street; but also including the houses located around Solus Street, on the north side of Monkittee Street. The western extent of the built-up area is mainly taken up by the golf course.
- South-western Braidwood (the area located around Saleyards and Monkittee Lane, west of the creek lines and Captains Flat Road) is sparsely settled, although this also hosts a small number of light industrial sites on the southern side of Monkittee Lane.
- North-western Braidwood (a possible development area accessed off Glenmore Road) is physically separated from the nearby Braidwood built-up area by Monkittee Creek and a buffer area about 100 metres wide. This area has larger lot sizes (similar to other development along Glenmore Road) and is mainly undeveloped. Aerial photography indicates the presence of a bridge over Monkittee Creek close to this area, but this is located on private land preventing it from being considered as part of the existing network.

Due to the heritage character of the township, there are limited opportunities for new development within the township. Areas on the southern edge of Braidwood represent a significant area for new development. This includes areas off Badgery Street and the extension of Elrington Street. There is an opportunity for Council's depot to be relocated to land outside the township boundary, or at least more distant from the main street area it currently occupies.

The most likely future expansion will be a 122 lot subdivision on the southern boundary (Cowper Street), known as Braidwood Heights. Houses in the development will be at least 1 km from the town centre. Given the existing demographics, and the likelihood that this would prove attractive to those who have previously been living on farms nearby, it is important that this development be well connected with Braidwood's footpath network, and in particular with Wallace Street.

There is further potential for subdivision in the Saleyards Lane/ Bombay Road area under the existing Local Environmental Plan (LEP); the nearest house of which would be about 800 metres from the Wallace Street/ Duncan Street intersection. However, existing levels of demand suggests that this development is some way into the future.

The existing Council depot is off Ryrie Street, between Duncan Street and Lascelles Street. Its location close to the Wallace Street has led to proposals that it be redeveloped as a major off-street car park. This would require an upgrade of the footpath on the southern side of Duncan Street, west of Wallace Street. There is also an opportunity to enhance and existing direct link to Wallace Street between the shops.

The demand for aged accommodation is likely to increase given the ageing population of both Braidwood and the surrounding rural areas. However no preferred location has been identified for such development.

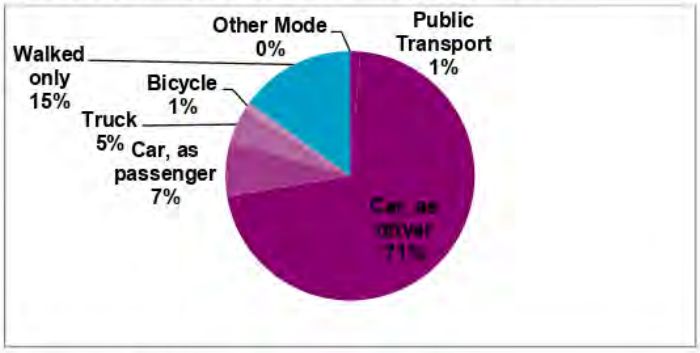
2.2 Transport Movements

2.2.1 Mode use

Figure 6 shows mode use splits that were recorded using the 2016 Journey to Work census data for Braidwood. It shows that use of public transport is negligible and that car is the main mode of transport to work.

Of particular relevance to this study is that approximately 20% of the population walked to work in Braidwood and cycling was less than 4%. While there is a high rate of walking, given the relatively small distances between residential and commercial areas (approx. 95% less than 1.5km) there is opportunity to improve the cycling to this region as well.

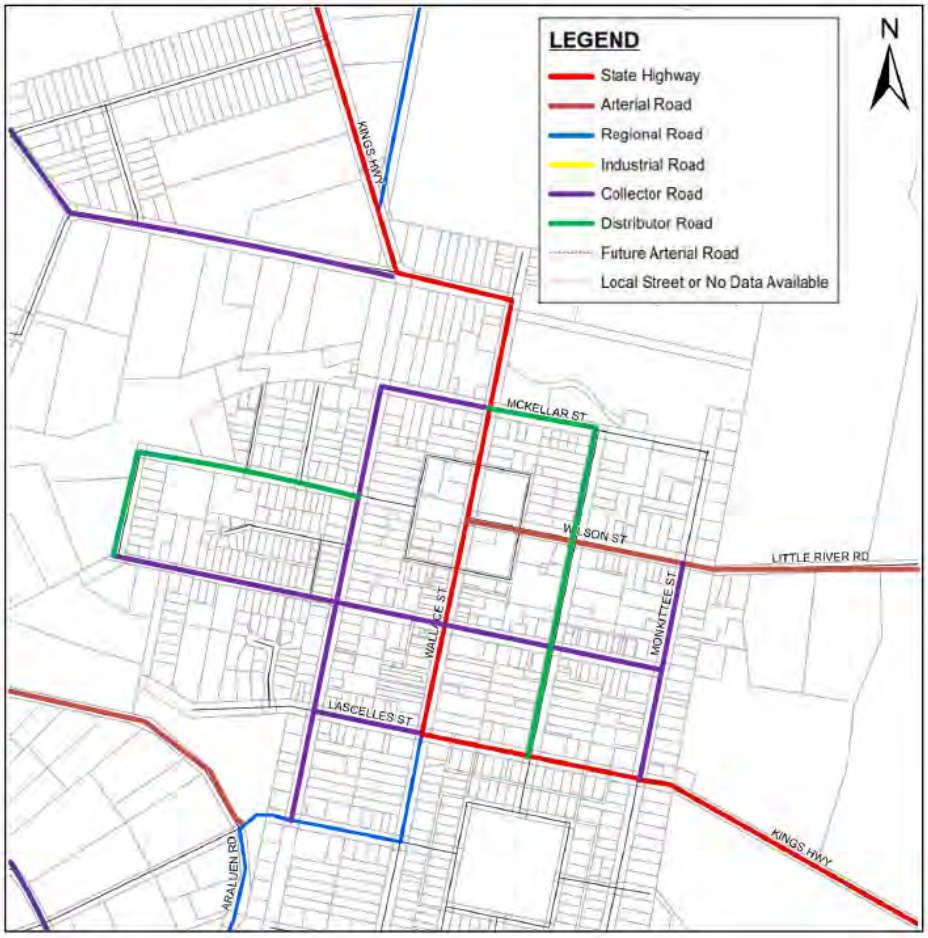
Figure 6: 2016 Census journey to work mode use in Braidwood



2.2.2 Road hierarchy and traffic volumes

The current road hierarchy of arterial, collector and local roads is shown in Figure 7. The road hierarchy generally represents expected traffic volumes, travel speeds and hence the type of pedestrian facilities which are appropriate for the various road categories.

Figure 7: Braidwood road hierarchy



The main north-south street running through the centre of the town is Wallace Street, which also represents the north-south alignment of the Kings Highway as it passes through town. North of the town, about 100 metres after it crosses Monkittee Creek, the Kings Highway turns west; 200 metres west of this point, it turns to the north-west at an intersection with Glenmore Road. A further 230 metres past this point, Nerriga Road branches off the Kings Highway.

Streets extending to the periphery of the town do not continue and in general are not linked. A number of street alignments (but no formed road) exist — notably Monkittee Street to McKellar Street and Lascelles Street to Gawey Street.

A summary of recent traffic counts in the region are shown in Figure 8. These are expressed in average daily vehicle volumes.

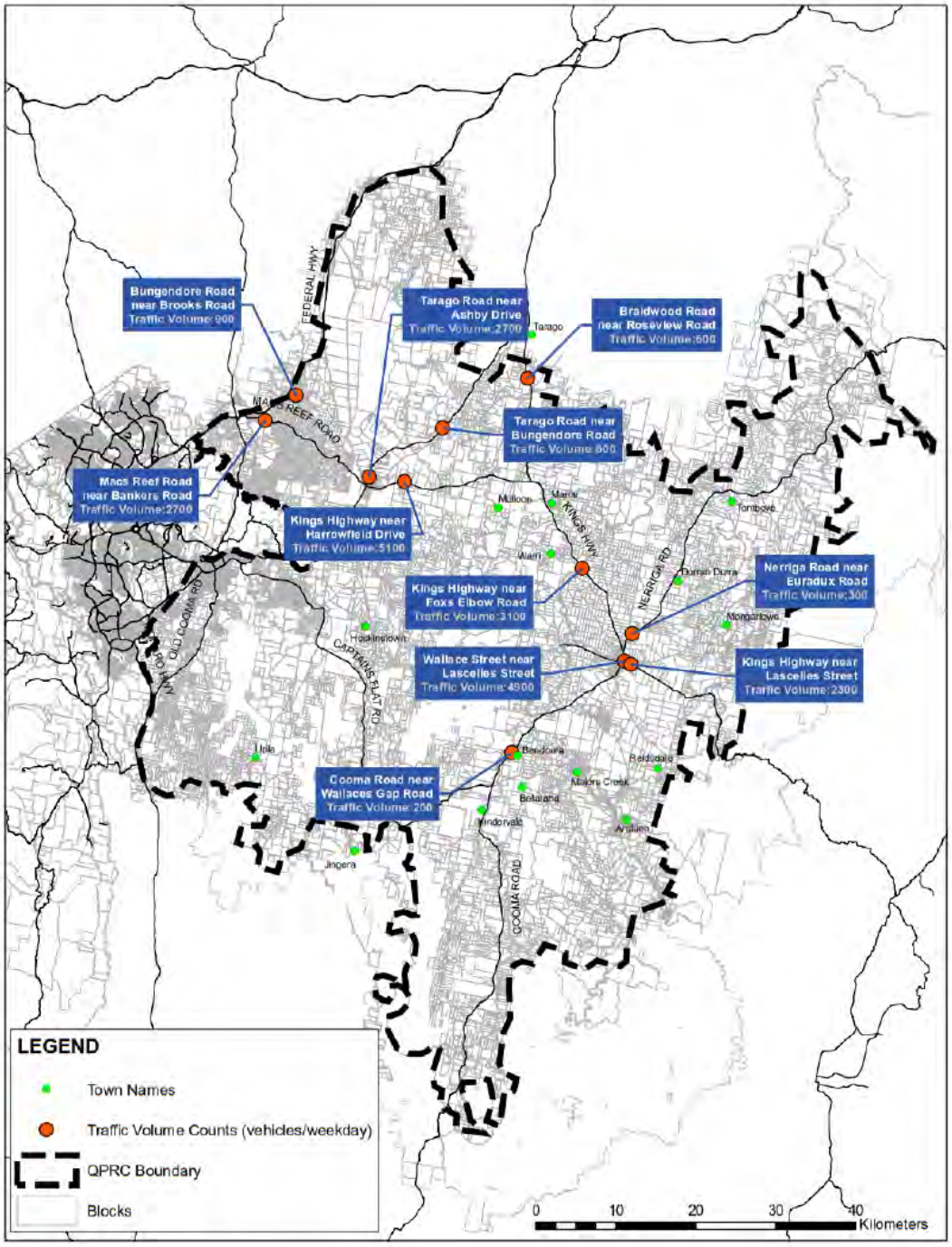
As the Kings Highway passes through Braidwood, people using the highway to access the South Coast (notably Batemans Bay) and Braidwood, plus visitors to Braidwood itself, contribute to traffic volumes on weekends, public holidays and school holidays. Unlike most other areas, the overall traffic levels on the main roads in Braidwood do not decrease on weekends. In fact traffic on the Kings Highway is generally higher on weekends than during the week. The Kings Highway is also a route for freight traffic and agricultural traffic.

2.2.2.1 Road environment

From a cyclist and pedestrian perspective, the most important features of the road and traffic environment in Braidwood appear to be:

- The town is a small size to enable walking and cycling, with almost all residents within a kilometre of the town centre. Kings Highway passes through the centre of the town, forming the main street (Wallace Street) and Lascelles Street. There is a ninety degree right turn from Lascelles Street into Wallace Street.
- Within the precincts of Braidwood, traffic speeds are relatively moderate. Streets in eastern, western and southern Braidwood are posted at 50 km/h, apart from 60 km/h on Lascelles Street west of Arulen Street. (Note that at this point Lascelles Street separates much of Braidwood from its oval and other sporting facilities.)
- Traffic volumes are generally light (fewer than 1,000 vehicles per day), with the highest volume (Kings Highway/ Wallace Street/ Lascelles Street) having 6,000 vehicles a day. The grid street pattern provides opportunities for a variety of routes, but is compromised (in terms of accessibility) at a number of points due to watercourses and street closures.
- On street parking arrangements vary, but on the some of the most important streets there is nose-in 60 degree angle parking. There are indented parking bays at key destinations: Central Braidwood, schools, the hospital and the supermarket.
- At most intersections, the intersecting streets do so at a large radius. This has the following impacts: vehicles can take the corner at faster speeds, distances for crossing the road are relatively long, and kerb ramps (and hence footpaths) are relatively distant from the kerb of the path of travel.

Figure 8: Traffic counts in the region



2.2.2.2 Wallace Street

Wallace Street warrants being considered separately to the rest of Braidwood, as it has a number of features that together make walking and cycling conditions quite distinct. These are:

- Commercial land uses (with Lascelles Street)
- 2.8 metre wide footpaths from McKellar Street to just south of Lascelles Street verandas over footpaths
- Kerb buildouts at zebra crossings
- Front-in angle parking, which can pose a danger to cyclists from reversing vehicles, particularly if the cyclists are travelling at speed on the hilly road
- Well-utilised on-street car parking
- Heavy vehicles using Kings Highway
- Schools either side, as well as community facilities (Ryrie Park, Library)
- A crest that limits sight distances, particularly approaching the Park Lane pedestrian crossing from the north
- The main tourist area, creating a lot of walking and demand for parking lots fronting Wallace Street often have narrow frontages and driveways to rear parking (where parking exists)
- Deep gutters.

2.2.3 Public transport

Coaches and buses

A number of school bus services operate, including feeder buses, to high schools in the ACT. Apart from these, there is no bus service to Braidwood.

Coaches passing through Braidwood to other locations will stop at Braidwood, but pick up/ set down needs to be coordinated with these services and does not represent an equivalent service to a public transport bus service.

Rixons Coaches runs a regular mini-coach service between the Eurobodalla Coast and Canberra via Braidwood. This offers flexible destinations and door-to-door transport on request, and a shuttle service to Canberra airport.

Murrays Coaches have morning coach services from Canberra to Batemans Bay via Braidwood with afternoon return, with an additional service on Thursdays and Fridays.

The Braidwood Taxi Service services Braidwood and surrounding areas. Under the NSW Taxi Transport Subsidy Scheme (TTSS), residents of NSW with a qualifying severe and permanent disability can have taxi fares subsidised, allowing TTSS participants to travel by taxi at half fare.

Bensley Bus and Coach Service, based in Braidwood, run a school bus service from Braidwood to Bungendore and connect with the QCity Buslines service. Bensley also provides a charter service.

2.2.4 Pedestrian and cyclist facilities

A map of the existing pedestrian and cyclist facilities is provided in Figure 9.

There are no on-road bike lanes in Braidwood and no off-road cycle paths or shared-use paths. However, the verges are generally wide and capable of being ridden on by children. Also the low traffic volumes mean that cycling is reasonably safe on most streets.

Figure 9: Braidwood existing walking and cycling network

Note: Current as of December 2017

With some exceptions, the footpaths are confined to Wallace Street between Monkittee Creek and McKellar Street on the western side and between Lascelles Street and Wilson Street on the eastern side; and to the northern side of Duncan Street between Ryrie Street and Monkittee Street. The exceptions are:

- Small intrusions off Wallace Street on Lascelles Street, Duncan Street, east of Wilson Street and Park Lane
- Monkittee Street (east side) from the hospital to about 40 m north of Duncan Street
- The Wilson Street frontage of Braidwood Central School
- The frontage of the Summerfield aged accommodation units
- Wilson Street (south side) between Ryrie Park and Erlington Street
- A short piece of footpath on the north side of Wilson Street, just east of Park Lane.

Ryrie Park is criss-crossed by gravel paths. While there is no formal footpath network, the verges are generally tidy and even. There are many worn tracks on the verges indicating pedestrian use.

The 2.8 metre wide footpaths on Wallace Street are wider than many shared use paths, but this is a high pedestrian area with lots of conflict and street furniture making it unsuitable for through cycle traffic.

With the exception of the Library there were no other observed facilities for parking bicycles in the commercial area.

2.2.4.1 Route usage

A heat map provided by Strava for riding and running trips can be used to help create an understanding of cyclist and pedestrian movements within Braidwood and highlight routes that may benefit from cyclist and pedestrian network improvements. These are presented in Figure 10 (riding) and Figure 11 (running). It should be noted that this data is skewed towards the users of Strava which would typically include recreational or training users rather than commuter or school usage.

Figure 10: Braidwood Strava heat map – riding

Source: Strava Heat Maps (Accessed June 2018)

Figure 11: Braidwood Strava heat map – running

Source: Strava Heat Maps (Accessed June 2018)

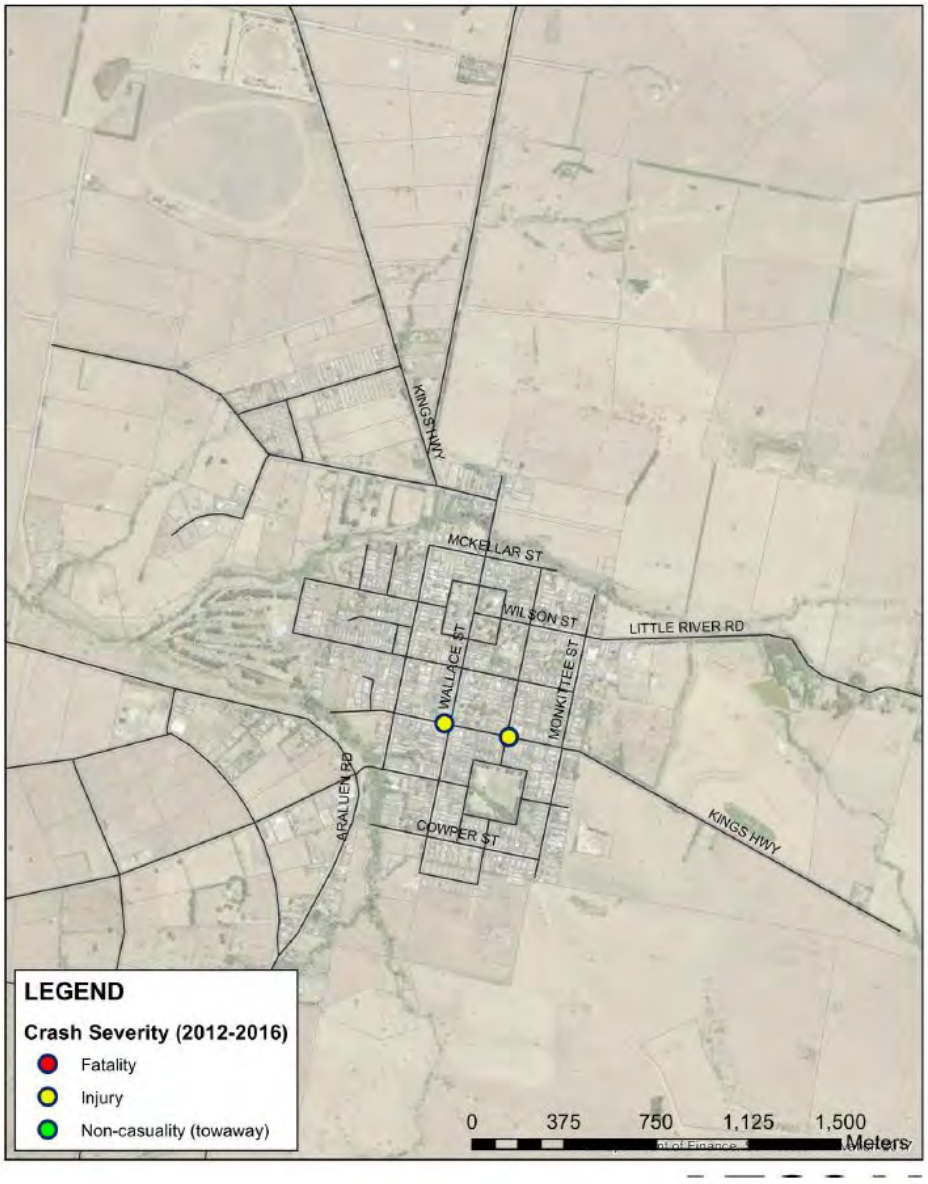
Bombay Road and Sandholes Road appear to be used for recreational running; there is very little data for other pedestrian links. Wallace Street appears to get reasonable bicycle patronage.

2.3 Crashes

A crash analysis of the study area indicated that there were two recorded crashes where injury occurred during the period between the 1st of January 2012 and the 31st of December 2016 that involved pedestrians. During this time there were no crashes involving cyclists.

Figure 12 indicates the location of the two pedestrian crashes that occurred during this time. Both of these were on Lascelles Street.

Figure 12: Braidwood pedestrian crash severities and locations



3.0 Community Consultation

There have been three rounds of consultation on this project that have been considered in developing the Action Plan and Implementation Plan for bicycle and pedestrian facilities in Braidwood, as follows:

1. Setting context and identifying issues, as part of Stage 1 consultation.
2. Developing a draft action plan, implementation plan and report for comment as part of Stage 2 consultation.
3. Developing a draft action plan, implementation plan and report for public exhibition and comment (Stage 3).

An outline of the consultation processes and outcomes to date follows. More details are given in the project consultation reports.

3.1 Stage 1 Consultation

Activities and tools implemented in Stage 1 included:

- A stakeholder workshop to discuss the vision and objectives of the Integrated Transport Strategy (ITS) and key issues, barriers, needs, gaps and opportunities.
- A community survey to collect people's feedback.
- Information sessions held at venues in Braidwood during the week commencing 20 June 2017.
- Letter to key stakeholders with information attached informing them of the project, consultation process and feedback opportunities.
- Posters displayed at each of the public information sessions with background information about the project and analyses to date.
- Feedback sheets available at the public information sessions for attendees to write down their thoughts and ideas about transport in the region.
- Text for the QPRC website about the consultation process.
- Email and phone feedback available through transportstrategy@qprc.nsw.gov.au .
- QPRC Communications, Media and Public relations drafted a media release with help from AECOM to inform people about the consultation.

During the community consultation the following issues were raised regarding the pedestrian and bicycle network in Braidwood:

- Coronation Avenue: Missing footpath on northern side from Ryrie Street to ex- serviceman club.
- Council needs to consider disabled access compliance particular for heritage buildings to better define "deemed to comply" in the building requirements.
- Post Office in Braidwood has no disabled access.
- Kerb ramps have lips and bad angles that make it difficult for the wheel chair to get up.
- There needs to be more crossings and paths going to schools.
- There is no safe pedestrian or cyclist crossing over Monkittee Street.
- Include ramps at Archers Bridge.
- Include paths on Coronation Avenue and Wilson Street.
- More paths and tracks to Mount Monkittee.
- Monkittee Creek Bridge access and crossing is in a very bad condition. Safety is a concern as children, bikes and prams cross this bridge. This bridge needs to be brought to a better condition and grade.

- The 80 km/hr speed limit along Kings Highway is working well. However, it might be a good idea to add rumble strips.
- Comment that footpath next to guard rail at corner of Ryrie Street and Lascelles Street needs gravel. This footpath can get very muddy when it rains.
- There is no pram crossing near Braidwood Park (near toilets) until near the pub.
- There needs to be lighting in the park.
- IGA supermarket needs a metal ramp for access and a pram crossing.
- There is no path on Wilson Street, south side or Coronation Avenue.
- The Council Chambers and Office have doors at the top of the ramp with no flat section. It is difficult to open the doors while staying on the ramp.

3.2 Stage 2 Consultation

A Stage 2 Stakeholder Workshop was held on Tuesday 29 August 2017 in Queanbeyan. Attendees included representatives from AECOM, QPRC, Googong Residents Association, TfNSW, QCity Transit, QueanBUG and ACT Government.

Stakeholders were asked to provide feedback on strategic response statements that were developed to address key issues of concern arising from the Stage 1 consultation. In addition, stakeholders were asked to provide comments and identify priorities on the Action Plan Maps that were developed from feedback from Stage 1 consultation.

High priority works were identified for Braidwood arising from the Stage 2 workshop. These were presented to the community for feedback during the Stage 2 community consultation in December 2017. Activities and tools implemented in Stage 2 included:

- A community survey to collect people's feedback.
- A total of four Information sessions held at venues in Queanbeyan, Bungendore and Braidwood during the week commencing 4 December 2017.
- Posters displayed at each of the public information sessions with background information about the project and analyses to date.
- Feedback sheets available at the information sessions for attendees to write down their thoughts and ideas about transport in the region.
- Text for the QPRC website about the consultation process.
- Email and phone feedback available through transportstrategy@qprc.nsw.gov.au.
- QPRC Communications, Media and Public relations drafted a media release with help from AECOM to inform people about the consultation.

The primary feedback from this consultation with regards active travel was as follows:

- Suggestions
  - Install footpaths around school and popular walking routes to and from school.
  - Educate parents and children on pedestrian safety.
  - Consider the following documents to help inform the study:
    - Draft Future Transport Strategy 2056 Plan
    - Queanbeyan Palerang Tourism Plan 2017-2025.
- Concerns:
  - Concern about how large trucks will access roads where roundabouts have been proposed
  - The footbridge on Garvey Street isn't stable and is unsafe for walking.

3.3 Stage 3 Consultation

This report and associated plans and reports for the ITS were exhibited for comment on Council's website from 1 March 2019 to 16 April 2019. There were 16 responses received from website surveys and five formal written responses. Of these, six survey responses were received in relation to Braidwood and one written response,

The primary feedback from this consultation with regards active travel was as follows:

- Suggestions:
  - A safer footpath on the bridge across Monkittee Creek is a high priority action.
  - A pedestrian refuge on Lascelles Street just west of Elrington Street.
- Concerns:
  - Safety of elderly residents and young school children walking along Duncan Street east of Wallace Street.

4.0 Relevant Policies, Programmes and Planning Principles

4.1 State Policy

The *Draft Future Transport Strategy 2056* sets out the vision, strategic directions and customer outcomes for the infrastructure and services plans for Greater Sydney and Regional NSW. The strategy is focused on six state-wide outcomes for the future mobility of NSW, shown in Figure 13. The aim is to positively impact the economy, communities and environments of the state, with these six outcomes are set to be the focus on every planning decision. These outcomes also guide the priorities set for regional communities which currently experience lower service levels and slower population growth than Greater Sydney.

Figure 13: Six customer and network outcomes

Source: NSW Government, Draft Future Transport Strategy, 2017

The draft Strategy highlights that regional NSW has 19 regional cities and 27 regional centres. The 19 regional cities include two Global Gateway Cities (Greater Newcastle and Canberra), which serve extended catchments around Canberra-Queanbeyan and the Hunter areas as shown in Figure 14 below. Greater Sydney is the third Global Gateway City for NSW. Improved transport will broaden the catchment around each of these Global Gateway Cities, improving access to major service precincts, advanced industries and international infrastructure for the purposes of travel and trade.

Significant investment in connecting regional cities is outlined in the Strategy. These connections will be made through smarter procurement and the deployment of technology-enabled and innovative service models.

Figure 14: Importance of Global Gateway Cities

Source: NSW Government, Draft Future Transport Strategy, 2017

The future regional transport network will be planned around a 'hub and spoke' model within a strategic framework of servicing principles allowing for local adaptation and interpretation. Servicing principles include connectivity, flexibility and efficiency, access and equity, legibility and timeliness, provision of accurate information and safety. The network will support local towns and Regional Cities and Centres and help make them better places to live, visit and do business.

This draft Plan was published by the NSW Government in late 2017. It supports the *Future Transport Strategy 2056* and sets a 40 year vision for transport in Regional NSW to support communities and productive economies. An emphasis has also been placed on the importance of providing stronger links between regional cities and centres, rather than focussing on connections to Sydney or the interstate capitals. Along with this shift in focus, the draft Plan identifies Canberra as one of three Global Gateway Cities. These cities are to provide the state-level services and facilities required to support the growing population in NSW.

The draft Plan highlights the following objectives for transport in Regional NSW:

- A safe, secure and resilient transport system that efficiently connects communities
- A transport system that improves productivity and supports regional economies and communities
- An equitable transport system that helps to vitalise our communities

- Accessible transport options for all customers
- A regional transport system that is reliable, flexible, personalised and responsive to customer needs
- A transport system that is affordable and makes best use of resources and assets.

Broad initiatives for implementation over the next 40 years include improving inter-region and regional city connectivity, and expanding the regional public transport network. The initiatives apply generally in aspects such as the road network, public transport, active travel, freight, and town centre infrastructure initiatives. These initiatives include a regional interchange program, walking and cycling programs, town access improvement programs and a regional airport program.

For the South-East and Tablelands region where Canberra is situated, the NSW Government has proposed several policy, service and infrastructure initiatives for investigation (listed below). These initiatives are intended for potential commitment or implementation over the next 20 years.

4.2 Local Policy

QPRC has a 'three tier' hierarchy of plans consisting of a Community Strategic Plan, a Delivery Program and Operational Plan. Planning for QPRC is framed around the Community Strategic Plan. It is a 10 year document (2013 – 2023), which identifies the community's key priorities, and outlines strategies of how Council and other stakeholders will achieve those priorities. It is informed by a number of key strategic documents, including:

- The Delivery Program details activities the Council will undertake to achieve the objectives of the Community Strategic Plan and is updated every 4 years.
- The Operational Plan directly addresses the actions outlined in the Delivery Program and identifies activities (projects and programs) Council will be undertaking within the financial year. The Operational Plan, which is supported by a detailed budget, allocates responsibilities for each action or set of actions, and identifies suitable measures to determine the effectiveness of the activities undertaken.

4.3 Planning Principles

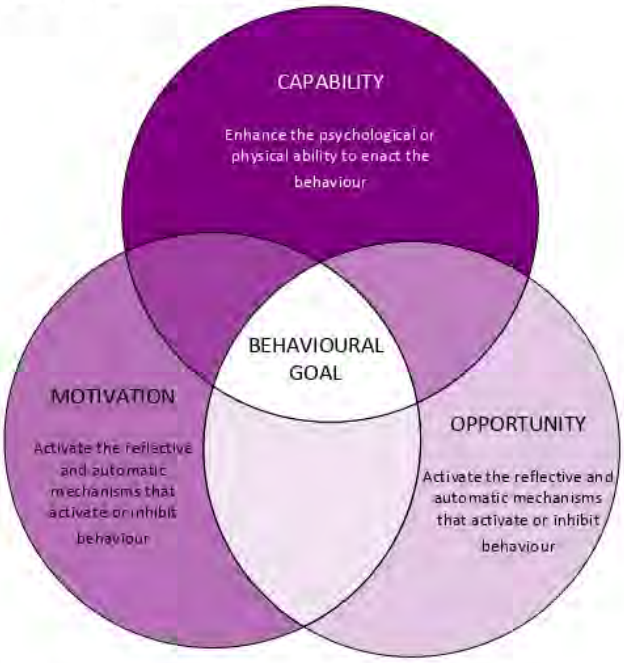
The intent of understanding the need for facilities and provision of appropriate infrastructure, education campaigns and users awareness is centred around providing viable alternatives to private motor car usage. The benefits of this are well known and include reduced emissions, improved health and social cohesion.

The approach used in the development of the new walking and cycling plan for the area focused on the providing the necessary enabling conditions for riding and walking to become an attractive mode of transport for a range of trips for various age, gender and cultural backgrounds. Infrastructure is a critical part of the enabling process but is a means to an end not an end product in itself. Enabling people to walk and cycle is to support them to adopt a new behaviour or to do more of an existing behaviour.

Behavioural change and the uptake of walking and cycling can be attributed to three things - Capability, Opportunity and Motivation (COM). Collectively these are known as the COM model for behavioural change. It is illustrated in Figure 15.

The three aspects work together to promote and enable the behavioural goal. This plan has been developed to help provide improved physical opportunities for trips and improve the amenity and safety for users. In applying this plan the principles for cyclists and pedestrians have been outlined.

Figure 15: COM model for behavioural change



4.4 Network Design Principles

The over-riding principles of designing this network are outlined in Table 2. While these are derived from cycling aspects the principles are the same.

Table 2: Network features

Route feature	Comments
Safety	Minimal risk of injury, low perceived danger, space to ride / walk, minimum conflict with vehicles
Coherence	Infrastructure should form a coherent entity, link major trip origins and destinations, have connectivity, be continuous, signed, consistent in quality, easy to follow, and have route options
Directness	Route should be direct, based on desire lines, have low delay through routes for commuting, avoid detours and have efficient operating speeds
Attractiveness	Lighting, personal safety, aesthetics, integration with surrounding area, access to different activities
Comfort	Smooth slip-resistant surface, gentle gradients, avoid complicated manoeuvres, reduced need to stop, minimum obstruction from vehicles

Source: Adapted from Cycling Aspects of Austroads Guidelines Table 2.2

The key facilitators to grow cycling and walking participation in the area include:

- A pedestrian and cyclist friendly town centre.
- Developing off road facilities that provide key links between key origin and destinations.
- Provide separated facilities for higher speed links reducing conflict between high speed cyclists and lower speed cyclists / pedestrians.
- Improving efficiency of links by making them more direct and providing signage and line marking as appropriate.
- Ensuring all school and key public transport nodes are connected to the proposed network.

While there are similarities the principles for the pedestrian and cyclists have been separated.

4.5 Pedestrian Planning Principles

4.5.1 Different pedestrian user types

When assessing existing infrastructure it is critical that consideration is given to the different user groups. This section of the report explores the different user groups that could be considered as the primary and vulnerable users in the assessment.

When planning for pedestrian facilities ideally the placement of facilities should match the usage patterns. There are a number of pedestrian user groups that have to be focused on, with the aim to encapsulate all pedestrian users' mobility and access needs.

The AustRoads Guide to Traffic Engineering Practice, states that pedestrian facilities are often designed to cater for the 'average' pedestrian. In order to meet the needs of different users the AustRoads identifies ten broad groups of pedestrians:

1. Commuters
2. Children walking to school
3. Utility activities*
4. Parents/carers with prams
5. Wheelchair users
6. People with disabilities
7. Seniors and people with mobility aids
8. Recreational pedestrians
9. Runners/joggers
10. Dog walkers.

*Includes people undertaking shopping actives with trolleys and bags

The Queensland Government 'Designing for Pedestrian and Cyclists Course' handbook identifies three groups as shown in Table 3.

4.5.2 Walking user groups

For the purpose of providing usable and practical facilities these user types can be narrowed down to three key user groups of:

1. Vulnerable walkers– school children, the elderly, disabled walkers, adults with strollers/ trolleys
2. Mobile adults – people who walk or use their bicycle for transport to travel for a purpose around their communities
3. Sport and fitness riders and walkers – power walkers, joggers, fitness riders.

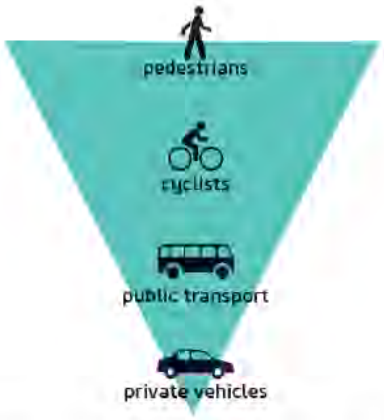
These user types were applied in the assessment of the Braidwood area.

Table 3: Different pedestrian types

User Type	Purposes	Operating Characteristics
Vulnerable to traffic	Elderly walkers Disabled walkers Parents with prams Children to 15 years of age Traffic shy adults	Speeds slower than 4 km/h Vulnerable Lower reaction times Lower skill levels Shorter trip distances
Mobile adults	Purposeful adult walkers Commuters Recreational/social walkers Tertiary students	Speeds 2 – 8 km/h Purposeful walking Higher skill levels Medium to quick reaction times Medium to long trip distances
Sports and fitness	Runners Triathletes Fitness walkers Recreational and social walkers	Speeds higher than 8 km/h Quick reaction times High skill levels Often walk in groups Medium to long trip distances Need high-quality walking surface

4.5.3 Principle intent

There is an opportunity to provide a better balance of priority focus in the town through recommendations outlined in this plan. A modern urban core (town centre) should provide the following movement prioritisation:



Delivery and service vehicles are an important part of any vibrant core and will be considered with any recommendations. Taxis are considered with public transport.

A shift to this hierarchy of transport priority in the town core would result in a stronger focus on pedestrian safety, function and amenity in exchange for a potential increase in delay for private motor vehicles. In a town like Braidwood the impacts should be fairly minimal and a good balance achieved.

Wayfinding and consistency are important aspects in network legibility and pedestrian experience. Clarity of pedestrian facilities and links can greatly assist in wayfinding, legibility and usage.

4.5.4 Approach

In determining appropriate facilities, our approach to this project has incorporated the Safe Systems approach. The Safe System approach is a guiding philosophy that operates on the principle that it is not acceptable for a road user to be killed or seriously injured if they make a mistake. The approach aims to create a forgiving road system based on the following four principles:

1. People make mistakes – People make mistakes and some crashes are inevitable.
2. People are vulnerable – Our bodies have a limited ability to withstand crash forces without being killed or seriously injured.
3. We need to share responsibility – System designers and people who use the roads must share responsibility for creating a road system where crash forces do not result in death or serious injury.
4. We need to strengthen all parts of the road transport system – We need to improve the safety of all parts of the system, roads and roadsides, speeds, vehicles, and road use so that if one part fails, other parts will still protect the people involved.

The principles and the interaction between them are outlined in Figure 16.

Figure 16: Safe system approach

Source: ARRB Group.

Safe speeds and safe roads and roadsides are the principle domain in which Council has the ability to influence traveller behaviour. An understanding of the road users in each area can also assist in developing effective solutions.

All new footpaths should be a minimum of 1.5 m wide to allow two wheelchairs or prams to pass each other without the need for one of them to leave the path.

4.6 Bike Planning Principles

In developing options for the bicycle network there are various principles that should be considered.

The planning approach includes shared use paths and on-road cycling facilities (bicycle lanes or advisory treatments) as means of providing for cyclists. Off-road bicycle facilities (shared use paths, bicycle-only paths) provide separation to motor vehicles and hence are often favoured for their perceived safety. However in the Australian context, right-of-way provisions at intersections and side streets, risks from vehicles entering and exiting driveways, and often poor maintenance standards can have a significant impact on the safety performance of off-road facilities. Therefore, the planning approach does not rely on off-road facilities as the sole or even main form of bicycle facility, but uses both on-road and off-road facilities depending on circumstances.

On-road bicycle treatments can be the most cost-effective way of providing for cycling trips, and research demonstrates that these are also effective at increasing cyclist safety. However, on-road cycling is generally not suited to young children without supervision; hence children under the age of 12 are legally allowed to cycle on footpaths in Australia. Youths or adult parents/ guardians accompanying such children are also legally allowed to cycle on footpaths.

Even where sealed paths exist on a route, it is often desirable for higher speed cyclists to be separated from pedestrians, child cyclists and slower cyclists by providing on-road facilities.

Bicycle lanes or advisory bicycle treatments can also provide a traffic safety role, by calming the traffic, creating a driving environment that encourages slower speeds and designating a space outside the travel lanes that pedestrians can enter when crossing a road.

There are a number of types of on-road treatment possible. The amount of space, speed environment, whether or not parking is permitted on a street and the turnover rates of on-street parking all affect the type of treatment that might be provided. These differences and applications are detailed in guides such as cycling aspects of Austroads Guidelines 2017 edition. Bicycle lanes have associated with them certain regulatory requirements. For example, bicycles must use a bicycle lane if one is provided (unless turning right); cars cannot drive in a bicycle lane except to turn left.

4.6.1 Bicycle user categories

In determining infrastructure treatments and priorities, it is important to understand who will be using the facility and what their needs and capabilities are. The type of cyclist that use bicycle networks can be categorised based on their experience and skill levels.

The four general categories used to describe cyclists in this report are:

- Children cyclists
- Adult local cyclists
- Adult commuters
- Recreational cyclists.

4.6.1.1 Children cyclists

Children cyclists in the Primary School age range do not have fully developed cognitive skills. This makes them a vulnerable road user due to their lack of experience and little to no understanding of road rules. It is necessary for these children to be supervised when riding. Separation from motor vehicles is important when identifying suitable infrastructure for these users.

4.6.1.2 Adult local cyclists

Adult local cyclists are those who accompany children for short trip bicycle rides. Trip purposes include a range of activities such as recreational trips and short trips to local shops.

4.6.1.3 Adult commuters

Adult commuters are the most advanced riders who are less affected by motor vehicles on the road. These riders are able to share lanes with vehicular traffic, although dedicated lanes may be preferred. Speed is a more important factor than separation from motor vehicles. Hence, facilities should be designed and maintained to allow reasonable high speed riding. This may sometimes result in parallel facilities to cater for different user categories such as on road lanes and off road shared path facilities.

4.6.1.4 Recreation cyclists

Recreation trip lengths may vary depending on the level of experience of the rider. Skill levels also vary from beginner primary school aged children to advanced adult riders. These riders typically avoid busy roads and direct routes as the trip purpose is mainly the cycling experience.

4.6.2 The bicycle network

There is currently no marked bicycle network or on-road facilities within Braidwood.

The cycling speed and distance covered, has an impact on the spacing of routes. Assuming an average cycle speed of 15 km/h, or 20 km/h for commuter cycling on local roads, then cyclists living or working within 500 metres of a cycle route are within acceptable distance to the facility. Within a smaller town such as Braidwood this should be reduced further where possible to within 250 m. This distance would take an average cyclist 1-2 minutes to cycle on local streets to join a bicycle route. However, the network must provide a level of service comparable with the intended cyclist's level of experience, road safety expectations, and directness of route. It is a principle in the development of the Braidwood bicycle plan that as far as practicable, most of the settled urban area is within 250 m of a bicycle route.

Bicycles are vehicles under the Australian Road Rules; therefore all streets are cycling streets. In reality, however, due to the differences in speed of travel, size of cars and trucks and the personal safety differences between the cyclist and the car driver, in order to be pro-active in addressing these imbalances, specific engineering works are required to establish a bicycle network. Essentially a bicycle network consists of a hierarchy of routes.

In this plan, the network functions have been adopted from the NSW Bicycle Guidelines. If Council wish to further refine a hierarchy for their active travel network it is recommended that consistency is applied across the whole Council area. When considering definitions and treatments other jurisdictions within close proximity should be reviewed to consider merits and possible ease of integration.

The bicycle network functions are

- Regional bicycle routes

  These are longer distance regional routes connecting the major regions of the town and beyond. As they are often on highly trafficked roads, taking advantage of the most direct road alignments, they require the highest level of bicycle facility. They are often on-road sharing the road space with cars and trucks and are designed for use by experienced commuter cyclists. Some are on State and regional roads where RMS agreement and implementation may be required.

- Local bicycle routes

  These are connectors within suburbs and cater to local trips to school, shops, community facilities and local recreation attractors. These link to the Regional Routes and are typically shorter distance facilities that are disproportionately used by less experienced cyclists such as children, teenagers and less experienced adult cyclists. These are typically off road routes but when they are on-road, the cycle lanes are normally on slower, lower volume council roads. These can also be more circuitous taking advantage of open space corridors, the local topography, access to views and linking in a leisurely fashion to land use attractors along the way. As these routes are inevitably shared with pedestrians, they are not designed for high bicycle speeds. Detailed design of such routes can add value to the cycling experience; this can include stopping areas/picnic areas, network distance signage, points of interest signs as well as under-cover seating for wet weather protection.

- Mixed Traffic Streets

  These link with the residential street system to provide residential access to destinations. Where the road link is used to connect between local or Regional bicycle routes on road markings and watch for cyclists signage can aid with the legibility of the cycle network. While not all residential streets will be marked as mixed traffic streets, indicating road with reasonable topography, low vehicle volumes and speeds as cycle friendly streets on bike maps can help users identify suitable path links to take.

5.0 Network Plans

5.1 Network Constraints and Opportunities

The study area already presents a large range of opportunities for pedestrian and cycle movement. QPRC wishes to enhance these facilities through the development and implementation of the bicycle and pedestrian facilities plan and through future re-development of sites when they occur. Existing facilities should link in with highly used pedestrian routes and upgraded when required.

Opportunities for improved walking and cycling facilities in Braidwood include:

- Connecting to new development areas to the south
- Existing road crossing facilities such as Zebra Crossings
- Parks and open space where cycle networks can be built to encourage recreation activities
- Low volume streets.

Constraints to improved walking and cycling facilities in Braidwood include:

- Creeks and water courses
- High volume roads such as the Kings Highway
- Through streets with a significant amount of kerbside parking
- Large distances and poor road shoulder conditions for travellers leaving Braidwood.

The lack of path links and appropriate safe crossing facilities are the major constraint to active travel. Along major roads, where footpaths are missing, their construction is necessarily a high priority.

For those with disabilities, there are many barriers, depending on the nature of the disability. It must be remembered that most seniors, especially those over 75 years of age, suffer from some form of disability, usually less agility and poorer eyesight.

5.2 Network Master Plan

A network master plan has been developed for Braidwood according to the approach and principles already described in this report. The proposed walk and cycle network master plan for Braidwood is shown in Figure 17. The red and blue dotted lines on Duncan Street and Monkittee Street indicate that it is proposed that the existing footpaths will be widened to form shared paths.

It is important to note that:

- This a strategic network, rather than an itemisation of every route that might ultimately be desired. It identifies routes with an additional level of priority to that which could be desired on every street
- Hierarchy definitions shown in the master plan figure are defined for planning purposes. The action and implementation plans then interpret these into the physical networks that should be implemented, and the priorities for these.
- The bicycle and pedestrian facilities plan has a definite timeframe. The networks shown are based on a timescale of about 10 years. It is assumed that the plan will be reviewed every five years.
- Changes in land uses can have large impacts on walking and cycling needs, but not all land use changes that will occur can be predicted and incorporated into the networks.

Figure 17: Proposed walking and cycling network master plan for Braidwood

5.3 Catchments

To help identify priority link items and where greater density of activities are likely to occur, catchment maps for key generators and vulnerable users have been developed. The catchments have been developed based on the path network rather than as the crow flies to help identify actual distances and missing links. The distances are based on the current path and road network.

Given the compact size of Braidwood the catchments for most users cover the whole of the town area. As a basis of analysis each of the areas has still been generated and a description of each follows.

5.3.1 Pedestrian catchments

Having established the constraints and opportunities, the conceptual pedestrian generators, attractors and catchment areas are illustrated for various pedestrian target groups. Catchments are based on distance covered at a defined walking speed.

While walking is quite high compared to other areas the size of the township lends itself to walking with almost all of the town covered by the walking catchment. If increased walking (or cycling) is to be encouraged, then the planning method must be changed to be pro-active rather than reactive to existing behaviour.

5.3.1.1 Seniors and mobility impaired catchments

Figure 18 illustrates the 0.9 km walking radii around senior's attractors such as retail nodes and community centres. The aged housing is located in respect to these. While path link distance used to establish the catchment for planning purposes is 0.9 km - it is expected that the actual walking distance is likely to be more than this. Some seniors' attractors have no identifiable cluster of aged housing near them. This does not mean that there are no elderly living within the catchment of that facility. In this case, within the walking catchment.

5.3.1.2 School catchments

For schools, the potential walking catchments are linked to the walking radius around the school within which bus travel is not subsidised. The path link distances used in the walking catchment are 1.6km radius for primary schools and 2 km radius for secondary schools. The catchment map for the combined primary/high school site is shown in Figure 19, based on a 1.6km catchment. This covers most of the town; a 2km catchment would extend slightly further.

The catchment areas overlap substantially illustrating that every street is a walking street to school. It is therefore not realistic just to plan for the school frontage or a single route to a school. Essentially children walk from all directions - it will be necessary to ensure that on roads of higher road classification, high speed or volume, appropriate crossing facilities are in place and on arterial and sub arterial roads where children would be expected to walk there are continuous footpaths.

As the streets converge on the school, it is more likely that pedestrian crossing facilities already exist. However it must be remembered that on streets even over 1km away from the school, children would still be expected to cross traffic routes to access the school by foot. In many cases, parents would then drive their children to school if safe appropriate crossing facilities are not available, thus increasing unnecessary vehicle trips.

5.3.1.3 Shopping walking catchments

The conceptual walking catchment for shopping is presented in Figure 20. The straight line distance used to establish the catchment for planning purposes is 1.3 km - it is expected that the actual walking distance would vary according to topography and street permeability. Braidwood town centre is a key attractor and it may be that people would be prepared to walk longer distances to the centre if continuous good quality paths and crossings were available.

Again as with school routes, it will be necessary to ensure that appropriate crossing facilities are in place particularly on arterial and sub arterial roads and there are continuous footpaths.

Figure 18: Seniors walking catchment

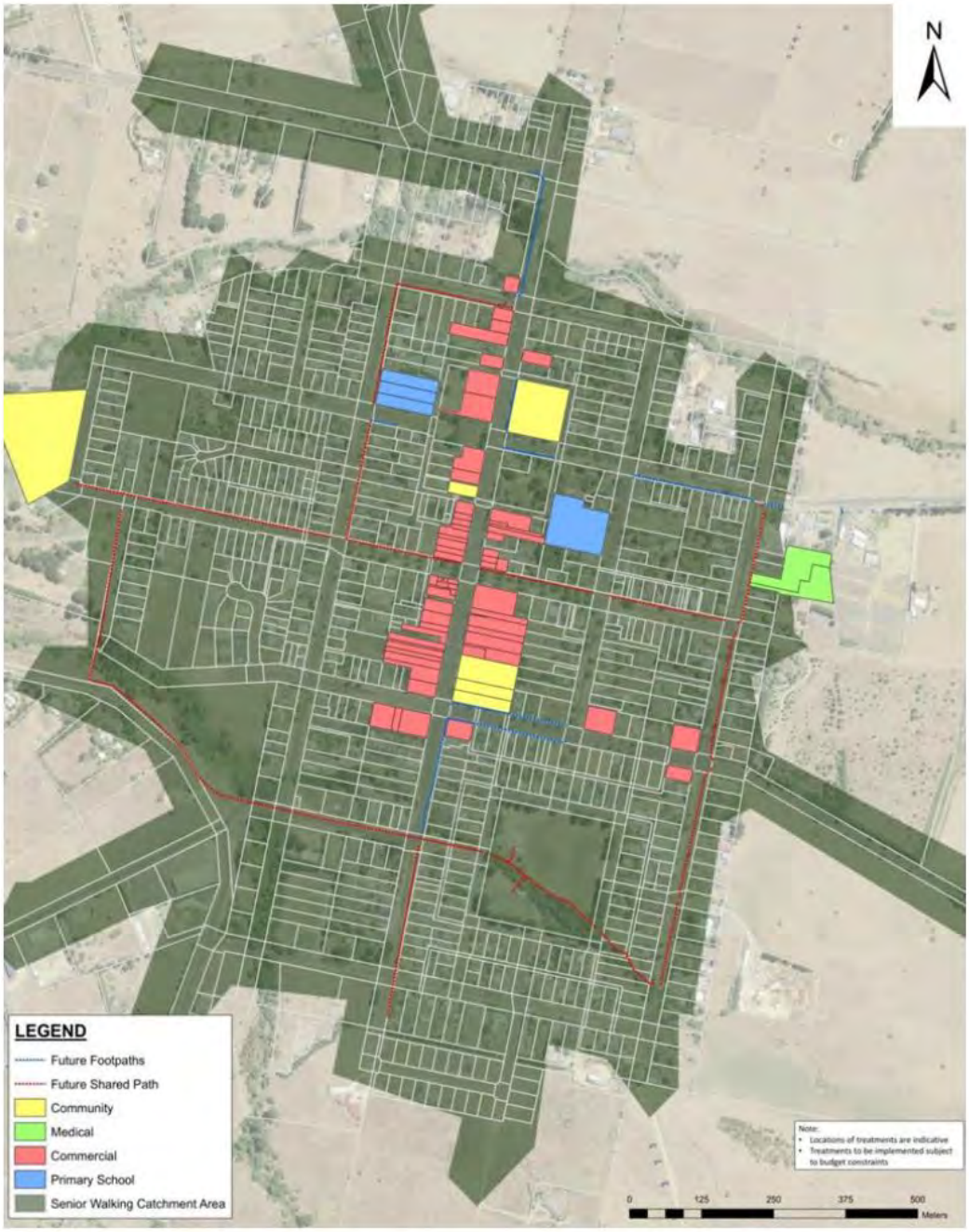


Figure 19: School walking catchment

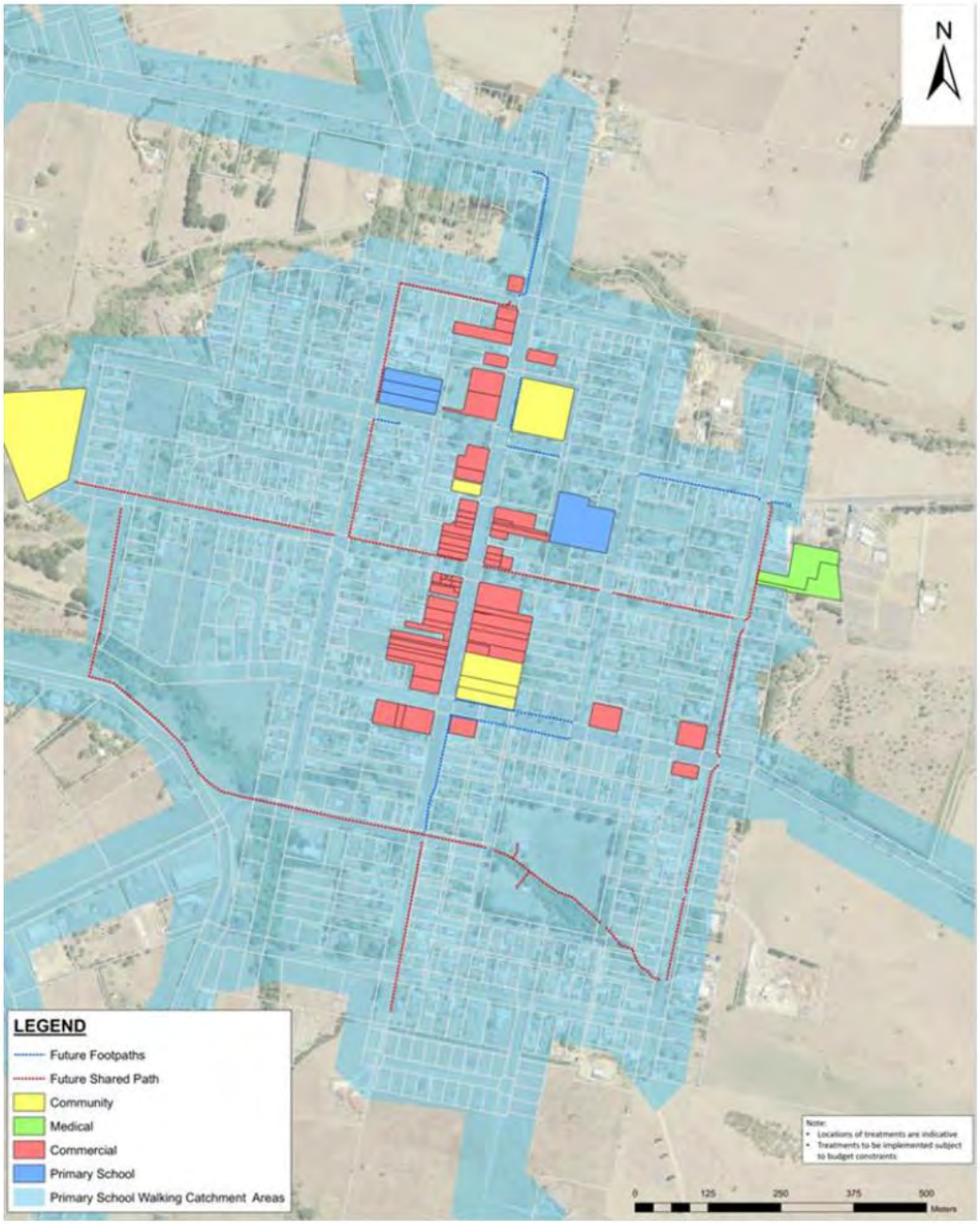
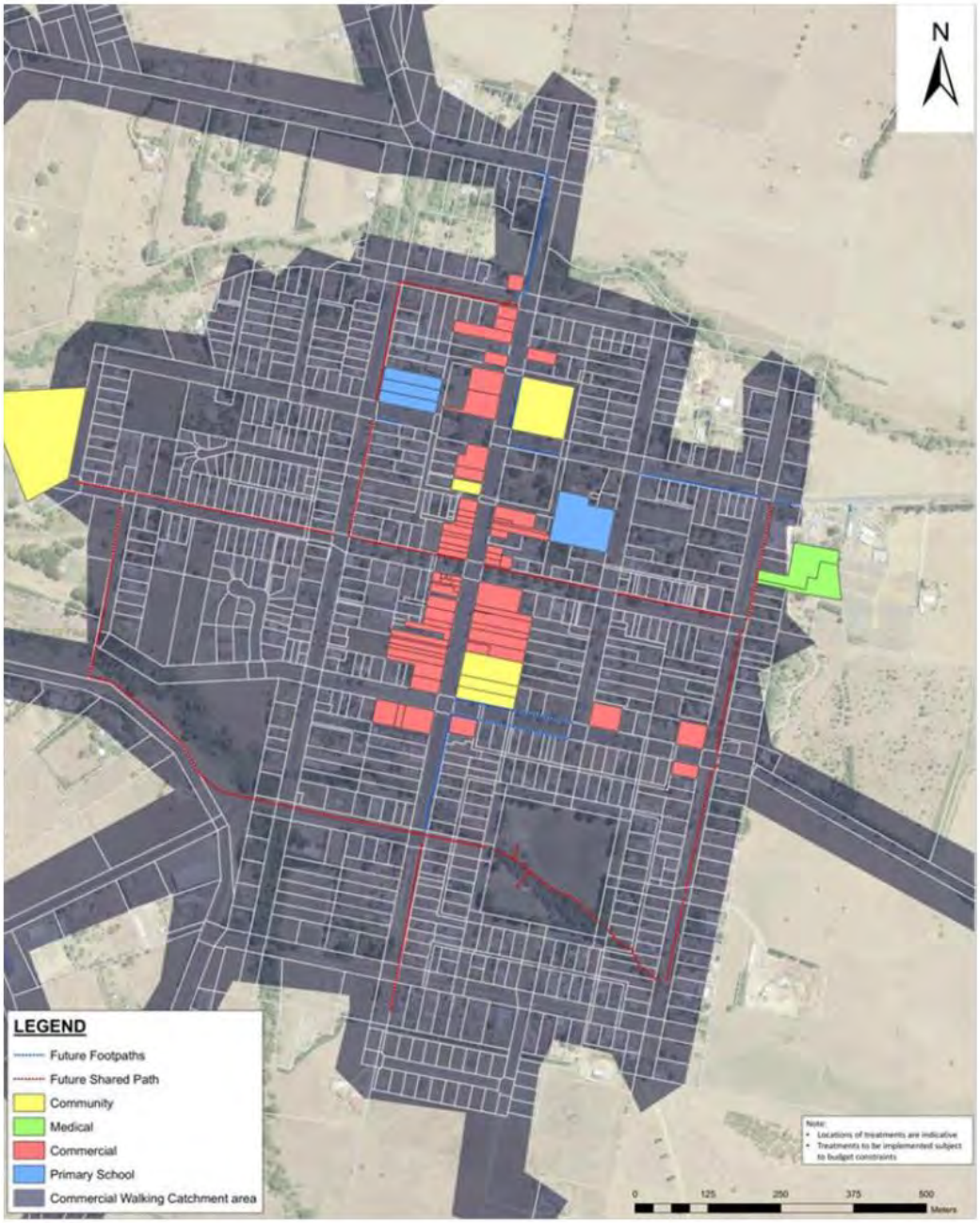


Figure 20: Shopping walking catchments



5.3.2 Cyclist catchments

Cyclist catchments extend well beyond the town boundary, so they are not shown for Braidwood.

5.3.3 End of trip facilities

AGTM11 (Austroads 2017) and the Australian Standard AS2980.3 provides information on bicycle parking and end-of-trip facilities. The Australian Standard classifies bicycle parking facilities by the level of security provided for the parked bicycle by the following classes:

- Security level A facilities – individual locker with high security locking mechanism.
- Security level B facilities – secure rooms or structures protected from the weather allowing users to lock the bicycle frame and both wheels.
- Security level C facilities – a bicycle parking space where the bicycle frame and both wheels can be locked.

5.3.3.1 Security level A bicycle parking

There are currently no known level A bicycle parking or lockers within Braidwood.

5.3.3.2 Security level B bicycle parking

Locked cages are most appropriate near transport hubs, employment centres and educational institutions. Given the scale this is not considered to be critical for Braidwood. Employee bicycle parking should be considered for commercial tenancies.

5.3.3.3 Security level C bicycle parking

Low security bicycle parking is more appropriate for short-term parking such as near retail centre, libraries and recreational facilities such as the pool or park. Facilities should be located in well-lit areas and as close to the user's destinations.

Recommended locations for low security bicycle parking rails are:

- Along Wallace Street
- Within the school grounds for students
- At the park and swimming pool.

5.3.4 Network hierarchy and design standards

The network planning for Braidwood has adopted the following network features:

- Commercial zones; the most frequent destinations for walking and cycling trips
- Secondary zones; other major destinations for walking and cycling trips, for example schools and recreation facilities
- Main access routes; these provide main level of access to the destination zones (and vice versa), forming a spine for local walking and cycling
- Local access routes; parts of the general street network that have strategic value in providing walking and cycling access to main access routes, secondary zones and commercial zones
- Cut throughs; generally short sections of path that provide access where no road or street alignment otherwise exists recreational routes; for providing recreational opportunities
- Regional routes; for fast and unhindered cycle travel between towns and other regional destinations.

6.0 Route Priority Strategy and Implementation Plan

The Action Plan for improved bicycle and pedestrian facilities for Braidwood is shown in Figure 17. This Chapter sets out the priorities and estimated costs for implementing the works.

6.1 Route Prioritisation

Routes will be developed in stages when funding becomes available. The selection of active travel routes was based on consideration of the following elements:

- Connectivity to attractors and generators
- Route continuity
- Proximity to a schools and aged care
- Proximity to public transport
- Safety
- Cost.

This provides a good framework for assessment. In cases where two parallel routes were identified only one was taken forwards based on consideration of the above factors and engineering judgement. In some cases short links within a route were prioritised if they provided a path connection.

Routes have been allocated as high priority with the intent to undertake the works within the next five years and medium priority for likely future path links that should be considered with any planning or new development works.

Shared paths as opposed to footpaths have typically been proposed as they provide for a wider range of users and provide adequate widths for two way passing of wheelchairs and prams. The width rather than surface treatment has been outlined as the defining characteristic of proposed paths in this study.

Each town has their own local character and walking and cycling infrastructure should reinforce this character. This infrastructure is also important as part of presenting a picture of how the town (and QPRC) regard their walking and cycling to residents and visitors. At the same time, infrastructure needs to be functional, and this functionality needs to be balanced against aesthetics in developing a good streetscape design outcome.

6.1.1 Route connectivity

Where a local route connects to an attractor or a generator, there is greater likelihood of that facility being used. Connectivity is a key determinant of the potential use of the network. This is particularly relevant to local routes, the main purpose of which is to create a facility which can be used for a range of trip purposes, thus decreasing the need to use a car. This criterion therefore creates a relationship between the local route length, and the number of attractors and generators served by the route. This also includes new development areas.

The types of facility and selected alignments have been considered in determining priorities.

6.1.2 Route continuity

This criterion relates to new route connectivity to other proposed routes as well as to connecting to existing routes. There is clear value in growing an existing facility rather than building a new isolated route, as there is usually an existing bicycle user base whose range can be expanded.

6.1.3 Proximity to schools and aged care

Facilities close to schools or aged care housing typically cater for the more vulnerable road users who rely on active travel.

6.1.4 Road safety

Where possible, the bicycle network should address the existing bicycle road safety issues reflected in the bicycle crash record. The most recent five year RMS crash data base is the key input in assessing this criterion and this showed that there were no bicycle crashes in Braidwood during this period.

6.1.5 Cost of routes

There is typically a balance between amenity and cost. Wider paths can offer a greater amenity but may reduce the extent to which the network can be developed with the available funding. In developing a masterplan for the active travel network, greater amenity has been targeted where higher usage is expected.

6.2 Implementation Plan

To avoid fragmentation of works an integrated approach was undertaken to balance each of the criteria and associated works. The networks identified in the plan present a 15 year timeframe. Typically the high priority items cover a 0 - 4 year time frame and the medium priority works relate to a 5 - 15 year time frame. However, the plan should be reviewed at the end of five years for currency and changed conditions, the implementation of works, likely forward works, available funding levels, changes in strategy, etc.

6.2.1 Braidwood proposed works plan

The proposed works plan for bicycle and pedestrian facilities in Braidwood is shown in Figure 21. It includes priorities for shared path or footpath improvements. High priority works (1 – 4 years) are shown with a green box outline.

This figure demonstrates how the works proposed in the path program combine with existing paths, plus the proposed street crossing points and existing crossing places, to create an overall network. In this sense, "existing" also includes those paths that developers have committed to providing (where known).

6.2.2 Cost rates

The cost rates used in the implementation plan are based on the cost of recent similar works, in consultation with Council staff, and are presented in Table 4. These rates have been used to determine the indicative costs based on route lengths. More detailed costing will be undertaken in the design phase.

Table 4: Infrastructure cost rates

Item	Rate	Cost
Concrete Path	Per square metre	$150
Bitumen path	Per square metre	$60
Pedestrian refuge island	Per item	$25,000
Mixed Street signage and line marking	Per metre	$30

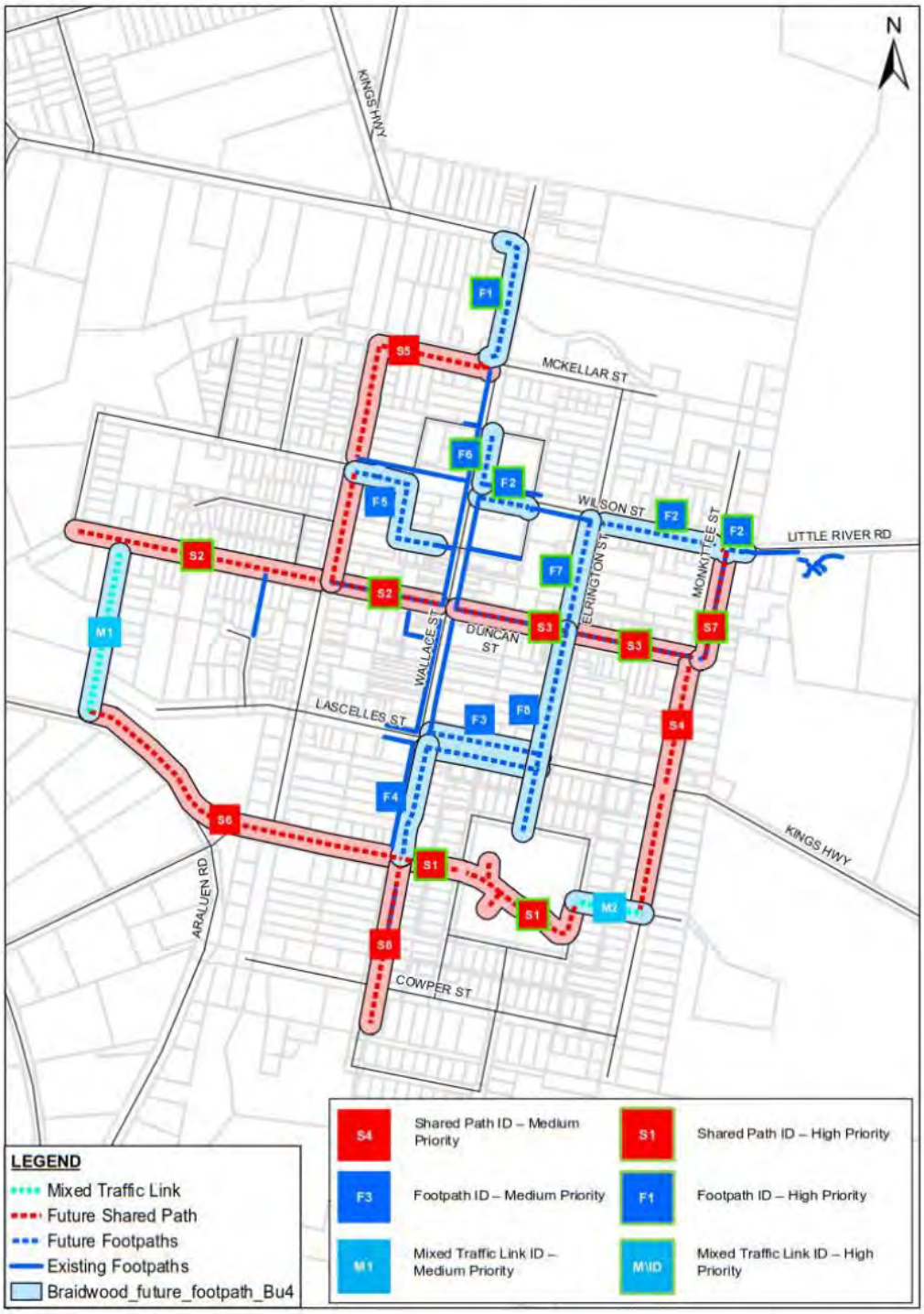
Note: 2018 cost rates

In regard to these, it should be noted that:

- Path rates (concrete and bitumen) have been nominated by Council.
- The cost rates exclude design and drafting of plans, community consultation or traffic control associated with works, and which might occur in-house or as part of other projects.

Proposed streetscape improvements in the town centre have already received funding and are not costed as part of this plan.

Figure 21: Proposed works plan for Braidwood with priorities



6.2.3 Path program

The estimated cost of path improvements in Braidwood is given in Table 5 for footpaths and Table 6 for shared paths. The tables itemise each of the routes in the path program, with an estimated cost. The tables also assign a map reference to each path and lists paths in (roughly) priority order.

It should be noted that depending on the condition of the existing footpath it may be possible to convert a footpath to a shared path at a lower rate than what is nominated in the tables. Without a detailed study of the condition of existing paths it has been decided to cost all shared paths at the higher amount which is likely to be conservative.

This program addresses the priority infrastructure required to link existing facilities to form usable networks. These will typically comprise footpaths within the town core, but shared use paths are also proposed as they cater for both pedestrian and cyclists affording greater use and path capacity.

For the high priority treatments, the priorities are:

- Development of east-west shared path on Duncan Street including compliant pram ramps
- Completion of path network around park and pool
- Provide footpath to Monkittee Creek bridge crossing including stabilising embankments
- Linking major trip origins (i.e. residential precincts) and destinations (major non-residential land uses)
- Providing continuous routes where there are missing links.

Furthermore, many streets in and around Braidwood and surrounding extents have an insufficient seal width to accommodate on-road bicycle facilities. It is therefore assumed that cyclists likely to undertake longer distance trips outside the townships would be reasonably comfortable with on-road cycling and large scale road widening or shoulder sealing (an expensive exercise) is not proposed. This should instead be carried out in conjunction with other works along these roads.

The memorandum of understanding for Council Projects funded by the RMS outlines terms of funding assistance for these works, as follows:

- Pedestrian crossings on, and kerb ramps provided to access footpaths adjacent to, streets under the care and control of the RMS are generally eligible for 100% RMS funding, subject to available funds and other funding priorities, if provided in accordance with an approved pedestrian facilities plan.
- Bicycle facilities provided in compliance with an approved Bicycle Plan are generally eligible for 50% funding from the RMS, subject to the availability of funds and competing funding priorities. This also applies to shared use paths.

Table 5: Braidwood proposed footpaths

ID	Priority	Link Description	Path Length (m)	Total Cost ($)
F1	High	Kings Highway- between Mckellar Street and the Braidwood Colonial	250	$45,000
F2	High	Wilson Street - Between Wallace Street and the Braidwood Multi-Purpose Service	360	$65,000
F6	High	Wallace Street - Between Park Lane and Wilson Street	100	$18,000
F7	High	Elrington Street - Between Wilson Street and Duncan Street	210	$31,000
			Sub-total	**$159,000**
F3	Medium	Laccelles Street - Between Wallace Street and Elrington Street	430	$77,500
F4	Medium	Wallace Street - Lascelles Street and Coghill Street	220	$39,500
F5	Medium	Wilson Street - Between Ryrie Street and Park Lane	280	$42,000
F8	Medium	Elrington Street - Between Duncan Street and the Recreation Ground	380	$56,500
			Sub-total	**$215,500**
			Total	**$374,500**

Note: All estimated costs rounded to nearest $500
2. REFID is shown in Figure 21

Table 6: Braidwood proposed shared paths

ID	Priority	Link Description	Path Length (m)	Total Cost ($)
S1	High	Shared path link across the recreation grounds	450	$68,000
S2	High	Link between Wallace Street and the Services Club	660	$98,500
S3	High	Duncan Street - between Wallace Street and Monkittee Street	420	$62,500
S7	High	Monkittee Street- Between Wilson street and Duncan Street	220	$32,500
			Sub-Total	**$261,500**
S4	Medium	Monkittee Street - between Duncan Street and Cowper Street	440	$66,500
S5	Medium	Ryrie Street and McKellar Street - Between Duncan Street and Kings Highway	630	$95,000
S6	Medium	Link between Wallace Street along Coghill to Coronation Avenue	660	$99,000
S8	Medium	Wallace street - Between Coghill Street and Cowper Street	300	$44,500
			Sub-Total	**$305,000**
			Total	**$566,500**

Note: All estimated costs rounded to nearest $500
2. REFID is shown in Figure 21

6.2.4 Mixed use roads

Garvey Street and Coghill Street are nominated as mixed use roads in the plan for Braidwood. The map reference and cost for these are given in Table 7.

Table 7: Braidwood proposed mixed use roads

REFID	Link Description	Priority	Path Length (m)	Total Cost
M1	Along Garvey Street - Between Flood Creek and Coronation Avenue	Medium	290	$4,500
M2	Along Coghill Street - Between the Recreation Ground and Monkittee Street	Medium	130	$2,000
			Total	**$6,500**

Note: All estimated costs rounded to nearest $500
2. REFID is shown in Figure 21

6.2.5 Street crossing program

The greatest safety hazard for road users is at intersections. Intersections and street crossings therefore have a high priority in the action plan.

A lack of kerb ramps also affects access for people with disabilities (a particular area of interest for council, given statutory requirements such as the Disability Discrimination Act and Disability Standards for Accessible Public Transport) and for people using strollers, etc. Construction of street crossings will also provide kerb ramps.

The priority for street crossings is where crossings:

- Are of high traffic volume streets
- Are used by high pedestrian and/ or cyclist volumes
- Link routes to form or enhance networks.

Kerb extensions, raised pedestrian crossings and road crossing facilities provided on local and regional roads (those not under the care and control of the RMS) are generally eligible for up to 50% funding by the RMS through local government pedestrian facilities programs, subject to availability of funds and competing funding priorities.

Table 8 outlines the proposed crossing facilities, in the form of refuge islands. The location of these are shown in Figure 17 and described in Table 8.

Table 8: Braidwood proposed street crossing facilities

Link Description	Priority	Items	Total Cost
Refuge Island – McKellar Street west of Wallace Street	High	1	$25,000
Refuge Island – Wallace Street north of Duncan Street	High	1	$25,000
Refuge Island – Wallace Street north of Lascelles Street	High	1	$25,000
Refuge Island – Lascelles Street west of Wallace Street	High	1	$25,000
Refuge Island – Lascelles Street west of Monkittee Street	Medium	1	$25,000
Refuge Island – Lascelles Street west of Elrington Street	Medium	1	$25,000
		Total	**$150,000**

6.2.6 Kerb ramp replacement program

A kerb replacement program has been actioned and many of the links with footpaths have installed pram ramps. All sites with footpaths or shared paths should have kerb ramps installed. The kerb ramps associated with older footpaths generally do not meet current disability standards in terms of gradients, ease of mounting, directional guidance provided by Tactile Ground Surface Indicators (TGSIs); are poorly located and aligned; and in some cases do not exist at all.

If kerb ramps are only installed with new infrastructure, they are not provided in a strategic way - i.e. to create usable routes - and accessible routes and networks would not be created in a reasonable timeframe.

The kerb ramp replacement program aims to provide or replace kerb ramps in existing footpaths, to create a basic framework of accessible routes within each town within five years. Priority should be determined by the following factors:

- Amount of pedestrian use
- Currently programmed works (whether the kerb ramp would otherwise be constructed)
- Providing continuously accessible routes, especially in commercial and secondary destination zones, but also other locations well- used by frail pedestrians (typically the elderly) and/ or people using prams or strollers
- Providing number of circular loops to cater for some degree of recreational opportunities.

The cost of constructing new kerb ramps is about $1,100 per kerb ramp, plus around $150 per square metre of footpath where footpath construction or reinstatement is required in addition to the kerb ramp.

A kerb ramp replacement program of $5,500 per year is proposed in the first instance. This would provide for some five kerb ramps to be replaced each year, or 25 over the life of the program. This should allow sufficient funds to complete the kerb upgrade works within Braidwood. Other works, such as constructing new kerb and installing new footpaths, will also provide new kerb ramps. Kerb ramps will typically need to be provided in pairs, so that kerb ramps facing each other across a street or intersection are both compliant.

It is understood that Council has undertaken an audit of kerb ramps and is undertaking a kerb ramp replacement program.

"Kerb ramps provided to access footpaths adjacent to roads under the care and control of the RMS are eligible for 100% funding by the RMS, subject to availability of funds and competing funding priorities. Kerb ramps provided as an upgrade of existing pedestrian facilities on local and regional roads (those not under the care and control of the RMS) are eligible for up to 50% funding by the RMS, subject to availability of funds and competing funding priorities".

6.2.7 Off-network program

The preceding programs have all concentrated on creating the pedestrian and cycling networks for Braidwood. However, to maximise the use, utility and ultimately value of these networks, a number of other activities can be undertaken. This includes capital works activities, policy or planning activities, and promotional activities.

These are termed "off-network" activities and this program covers these activities.

Bicycle parking

An almost complete lack of bicycle parking was noted during the community consultation and site visit. Basic bicycle parking levels are specified in the design standards. Bicycle parking provided in addition to this should be installed on an incremental basis, with additional parking dependent on observations of take up.

It is suggested that the bicycle program allow for at least five rails to be installed each year. It is preferable for the rails to be installed singly or as pairs of rails, rather than only installed at a single location each year. At a cost of about $250 each, this would be $1,250 a year.

The school was noted to have some bicycle parking; much of it poorly used. The observed racks do not provide support for bicycles, in compliance with ASZ890.3, or protection from the weather.

Bicycle facilities provided in compliance with an approved Bicycle Plan are generally eligible for 50% funding from the RMS, as outlined in the Council Projects Funded by the RTA Memorandum of Understanding, subject to the availability of funds and competing funding priorities.

Proposed locations for bicycle parking are:

- Sporting oval
- Along the main street
- Outside the pool.

Activities raising awareness of the bicycle and pedestrian facilities plan

In assisting to enable behavioural change, motivation can play an equally important factor as opportunity. Pedestrian and cycling infrastructure can create the opportunity. Hand in hand with this should be walking and cycling motivation, education and awareness - those things that enable the physical facilities to be used to its best extent. Education, promotion and encouragement activities could include:

- Educate communities about the new facilities provided and opportunities these present
- Encourage the use of facilities
- Create goodwill between the community and Council.

The cost to implement these actions will depend on the type and extent of activities selected for implementation, the degree to which they fall under existing budgets, the degree to which grant funding or resources are available to assist in their implementation and the degree to which Council actively pursues these actions. Hence a firm cost estimate cannot be given.

Bicycle training courses, BikeWeek activities, bicycle use promotions and map production may be eligible for part funding from the RMS, subject to the availability of funds and competing funding priorities.

7.0 Plan Implementation and Monitoring

7.1 Implementation

The staged implementation plan identified through this study would need to be assessed and implemented based on specific site conditions and reflect the latest pedestrian and bicycle facilities standards at the time of implementation. The staged action plan would be considered by Council as part of other projects (e.g. road upgrade, place making projects etc.) or included as standalone items in future Delivery Programs and Operational Plans.

Construction of any works identified in this study will be subject to the availability of funding.

7.2 Monitoring

As the pedestrian and bicycle network is developed, it will be important to monitor the progress of the network over time. Monitoring could relate to the following three areas:

- Route conditions and overall route quality
- Changes in demand
- Implementation of work program.

Monitoring of the quality of pedestrian and bicycle routes could be undertaken by measuring the quality of the route against the existing design criteria as part of a "look and see" audit process. This will enable the overall quality of routes to be improved, problems to be addressed and resources to be targeted appropriately. Council would monitor the pedestrian and bicycle plan deliverables as per the action plan. A typical assessment would involve an assessment of route conditions, undertaken by a person familiar with pedestrian and bicycle design issues and would involve a site visit along the specified route.

8.0 References

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Queanbeyan City Council (2012a) Community Strategic Plan 2013-23

Queanbeyan City Council (2013a) Queanbeyan tomorrow community vision 2021, November 2013

RTA (2011) NSW Bicycle Guidelines, January 2011

RMS (2017) 2012-2016 road crash statistics data base, May 2017

Appendix A

Schedule of Works

Appendix A Schedule of Works

REFID	Link Description	Priority	Path Length (m)	Total Cost
F1	Kings Highway- between McKellar Street and the Braidwood Colonial	High	250	$45,000
F2	Wilson Street - Between Wallace Street and the Braidwood Multi-Purpose Service	High	360	$65,000
F6	Wallace Street - Between Park Lane and Wilson Street	High	100	$18,000
F7	Elrington Street - Between Wilson Street and Duncan Street	High	210	$31,000
S1	Shared path link across the recreation grounds	High	450	$68,000
S2	Link between Wallace Street and the Services Club	High	660	$98,500
S3	Duncan Street - between Wallace Street and Monkittee Street	High	420	$62,500
S7	Monkittee Street- Between Wilson street and Duncan Street	High	220	$32,500
R1	Refuge Island – McKellar Street west of Wallace Street	High	1 item	$25,000
R2	Refuge Island – Wallace Street north of Duncan Street	High	1 item	$25,000
R3	Refuge Island – Wallace Street north of Lascelles Street	High	1 item	$25,000
R4	Refuge Island – Lascelles Street west of Wallace Street	High	1 item	$25,000
R5	Refuge Island – Lascelles Street west of Monkittee Street	Medium	1 item	$25,000
R6	Refuge Island – Lascelles Street west of Elrington Street	Medium	1 item	$25,000
F3	Lascelles Street - Between Wallace Street and Elrington Street	Medium	430	$77,500
F4	Wallace Street - Lascelles Street and Coghill Street	Medium	220	$39,500
F5	Wilson Street - Between Ryrie Street and Park Lane	Medium	280	$42,000
F8	Elrington Street - Between Duncan Street and the Recreation Ground	Medium	380	$56,500
S4	Monkittee Street - between Duncan Street and Cowper Street	Medium	440	$66,500
S5	Ryrie Street and McKellar Street - Between Duncan Street and Kings Highway	Medium	630	$95,000
S6	Link between Wallace Street along Coghill to Coronation Avenue	Medium	660	$99,000
S8	Wallace Street - Between Coghill Street and Cowper Street	Medium	300	$44,500
M1	Along Garvey Street - Between Flood Creek and Coronation Avenue	Medium	290	$4,500
M2	Along Coghill Street - Between the Recreation Ground and Monkittee Street	Medium	130	$2,000

Note: 1. Type of work: F = footpath, S = shared path, M = marked mixed traffic street, R = refuge
2. Location of work – described in above table and in Figure 17 and Figure 21.

QUEANBEYAN-PALERANG REGIONAL COUNCIL

Council Meeting Attachment

25 SEPTEMBER 2019

ITEM 9.12 INTEGRATED TRANSPORT STRATEGY

ATTACHMENT 4 BUNGENDORE PAMP & BIKE PLAN - 18 SEPT 2019 - FINAL DRAFT

AECOM Imagine it. Delivered.

Queanbeyan-Palerang Regional Council
18-Sep-2019

Commercial-in-Confidence

Bungendore Bicycle and Pedestrian Facilities Plan

Integrated Transport Strategy

Bungendore Bicycle and Pedestrian Facilities Plan

Integrated Transport Strategy

Client: Queanbeyan-Palerang Regional Council

ABN: 95 933 070 982

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Quality Information

Document Bungendore Bicycle and Pedestrian Facilities Plan

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Date 18-Sep-2019

Prepared by Alex Miles & Neil Graham

Reviewed by Brendan Hogan

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1	22-Nov-2017	Draft (post Stage 1 Consultation)	Neil Graham, Project Manager
2	30-Nov-2017	Second Draft (post Stage 1 Consultation)	Neil Graham, Project Manager
3	12-June-2018	Final Draft (post Stage 2 Consultation and Exhibition)	Neil Graham, Project Manager
4	05-Feb-2019	Revised Final Draft (post Stage 2 Consultation and Exhibition)	Neil Graham, Project Manager
5	20-Jun-2019	Revised Final Draft (post Stage 3 Exhibition)	Neil Graham, Project Manager
6	18-Sep-2019	Revised Document (Council meeting comments)	Neil Graham Project Manager

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Executive Summary

AECOM has prepared an integrated bicycle and pedestrian facilities plan for Bungendore; there are other similar reports for Queanbeyan and Braidwood as part of an Integrated Transport Strategy (ITS) for Queanbeyan-Palerang Regional Council (QPRC). The facilities plan will help Council to manage priorities and funding for future works.

Key steps in developing this strategy were to:

- Identify a functional network for walking and cycling. This is intended to create a practical network for pedestrians and cyclists, best serving the needs of the local community.
- Identify routes to service different users of the networks using a catchment analysis for seniors, school, shopping and recreation.
- Prioritise routes and works into an action plan and implementation plan.

From a cyclist and pedestrian perspective, the most important features of the road and traffic environment in Bungendore appear to be:

- The town is a small size to enable walking and cycling, with over 80% of residents within 1.5 kilometres of the town centre. Kings Highway passes through the centre of the town, running parallel to the main Street (Gibraltar Street)
- Within the precincts of Bungendore, traffic speeds are relatively moderate with the majority of streets posted at 50 km/h.
- Traffic volumes are generally light (fewer than 1,000 vehicles per day), with the highest volume (Kings Highway) having 4,000 vehicles a day. The grid street pattern provides opportunities for a variety of routes, but is compromised (in terms of accessibility) at a number of points due to watercourses and street closures.
- On street parking arrangements are typically parallel parking. There is 90 degree centre of the road parking along Gibraltar Street and some 60 degree parking on parts of Ellendon Street.
- At most intersections, the intersecting streets connect at a large radius. This has the following impacts: vehicles can take the corner at faster speeds, distances for crossing the road are relatively long, and kerb ramps (and hence footpaths) are relatively distant from the kerb of the path of travel.

There have been three rounds of consultation on this project that have been considered in developing the Action Plan and Implementation Plan for bicycle and pedestrian facilities in Bungendore, as follows:

1. Setting context and identifying issues, as part of Stage 1 consultation.
2. Developing a draft action plan, implementation plan and report for comment as part of Stage 2 consultation.
3. Developing a draft action plan, implementation plan and report for public exhibition and comment (Stage 3).

The action plan, implementation plan and report have now been finalised for Council endorsement, taking account of final comments in Stage 3.

During community consultation in this project the following issues were raised regarding walking and cycling in Bungendore:

- A cycle link (shared path) is needed from Bungendore to Showground.
- Missing footpath links from along Ellendon Street from southern residential into the CBD.
- Complete shared path loop within park at front of Council.
- Turallo Creek Bridge has a path on opposite side of where the shared path is along Tarago Road.

- The population of cycling is increasing and active travel should be encouraged.
- The provision of cycle racks and other infrastructure in the village should be encouraged.
- Bungendore is an ideal town for cycling because of the flat topography and it is relatively safe.
- It would help if bicycles could be taken on trains.
- Consideration of a footpath link from Elmslea Estate to Gilbraltar Street.
- Integrate a dirt trail along Turallo Creek to the flood mitigation work around Tarago Road. Consider extending dirt trail under the bridge at Tarago Road.
- Include cycle carriage on bus and train routes from Bungendore to Canberra.
- Footpath Forester Street (West) – integrate with Ellendon Street.
- There is uneven path over the railway and along the highway which is dangerous.
- Footpath under Rail Bridge at culvert near Dog Park to access east Bungendore under the rail tracks from integrated pathways.
- Existing footpath that runs from Malbon Street and across the railway crossing should be upgraded. There is a concern for safety for pedestrians with prams who currently have to step onto the road and then back onto the footpath.
- Upgrade the existing footpath along Molongo Street.
- Create a cycling route around the Bungendore town centre.
- Build a path along the creek.
- The shared path on Eleanor Street is too narrow.
- There is no footpath on Hyland Drive.
- Pedestrian crossing across Malbon Street.
- Footpath connection to a proposed Molonglo Rail Trail should it ever occur.
- Future walking track along Turallo Creek at the back of Old Elmslea.
- Track suitable for horses to the Showgrounds and link to the Wamboin trails.
- Dangerous gravel humps along Forster Street that are a hazard for our young bike riders.

The proposed walk and cycle network master plan for Bungendore endeavours to address these and other identified issues where appropriate and is shown in Figure 1. The red and blue dotted lines indicate proposed paths.

It is important to note that:

- This a strategic network, rather than an itemisation of every route that might ultimately be desired.
- Hierarchy definitions shown in the master plan are defined for planning purposes. The action and implementation plans then interpret these into the physical networks that should be implemented, and the priorities for these.
- The bicycle and pedestrian facilities plan has a definite timeframe. Networks shown are based on a timescale of about 10 years. It is assumed that the plan will be reviewed every five years.
- Changes in land uses can have large impacts on walking and cycling needs, but not all land use changes that will occur can be predicted and incorporated into the networks.

The proposed works plan for bicycle and pedestrian facilities in Bungendore is shown in Figure 2. It includes priorities for shared path or footpath improvements. High priority works (1 – 4 years) are shown with a green box outline.

This figure demonstrates how the works proposed in the path program combine with existing paths, plus the proposed street crossing points and existing crossing places, to create an overall network. In this sense, "existing" also includes those paths that developers have committed to providing (where known).

The estimated cost of these works for Bungendore is approximately $2,399,000, with $750,500 of works considered high priority (to be built in next 4 years). The priority works includes:

- 3,789 m of new footpaths
- 10,760 m of new shared paths
- Three new pedestrian refuges.

In addition, a budget of $6,750 per year is proposed for a kerb ramp replacement program and bicycle parking in Bungendore.

A summary of projects and costs is included in Appendix A.

Construction of any works identified in this project will be subject to the availability of funding.

Figure 1: Proposed walking and cycling network master plan for Bungendore

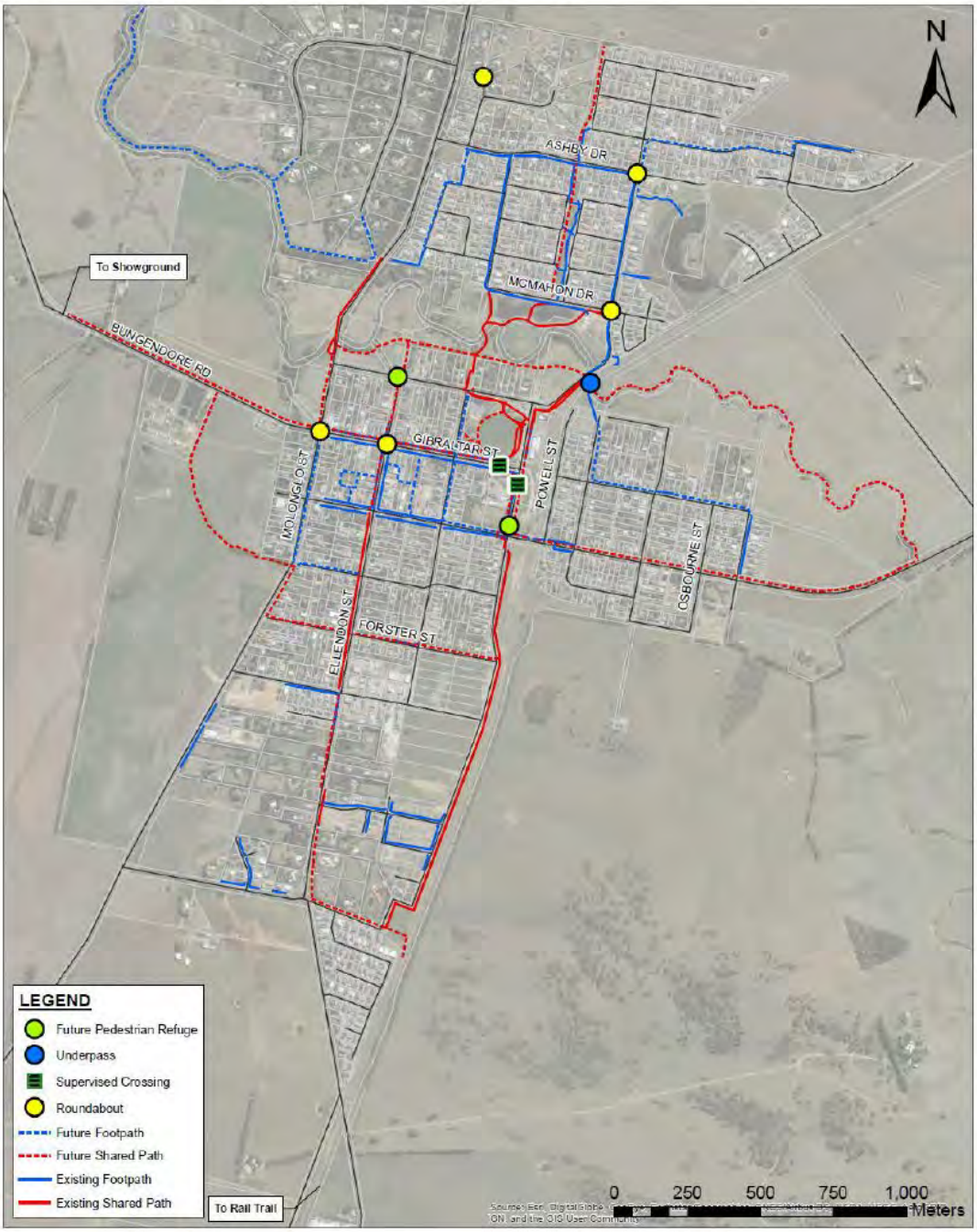
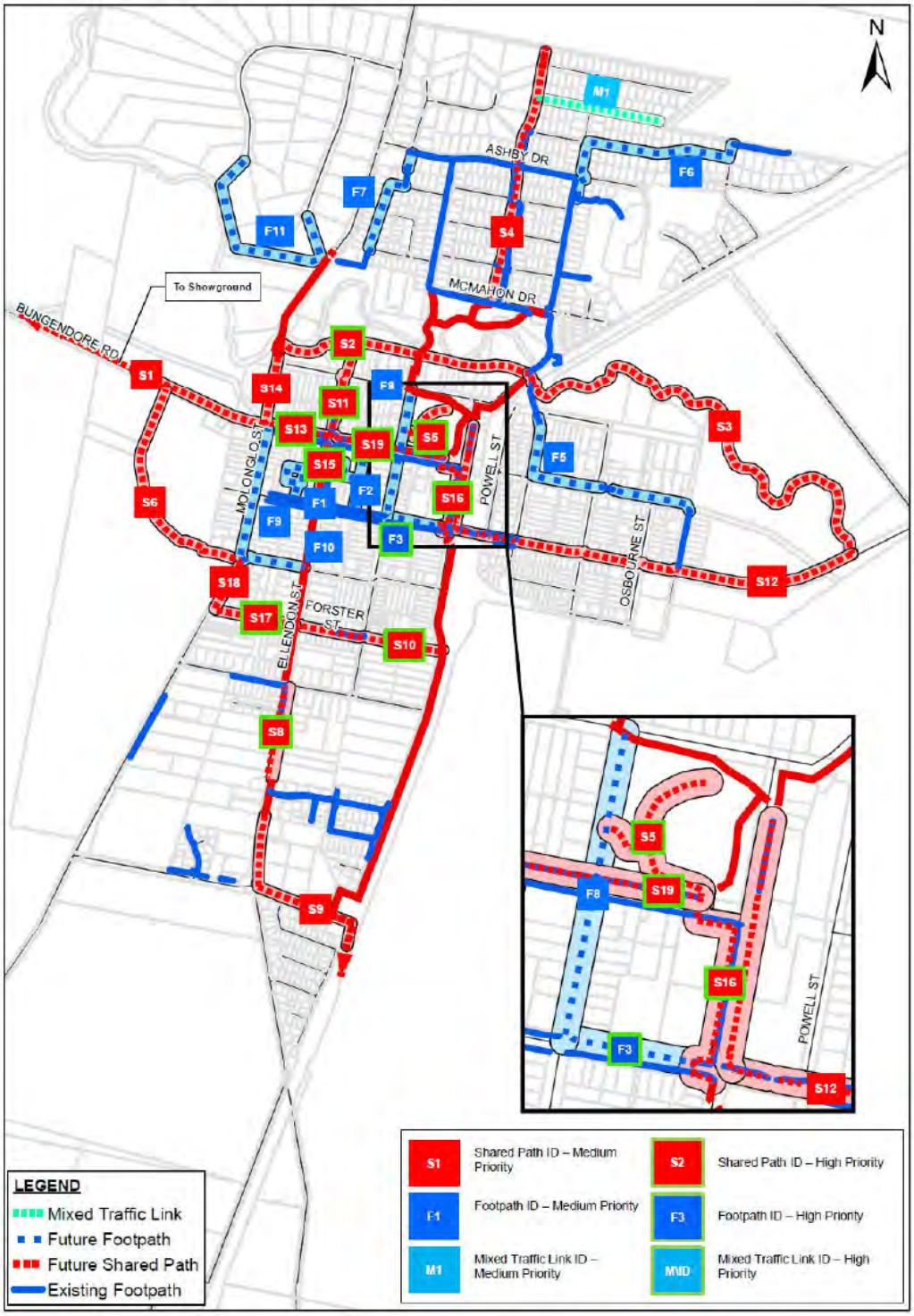


Figure 2: Proposed works plan for Bungendore



1.0 Introduction

1.1 Background

Queanbeyan-Palerang Regional Council (QPRC) has commissioned AECOM Pty Ltd (AECOM) to prepare an Integrated Transport Strategy (ITS) in order to plan for the transport needs of the growing population of Queanbeyan, Bungendore and Braidwood. To meet Council's requirement for the project, AECOM has prepared an integrated bicycle and pedestrian facilities plan for Bungendore; there are other similar reports for Queanbeyan and Braidwood.

The facilities plan will help Council to manage priorities and funding to address the study objectives listed below.

1.2 Study Objectives

The objective of preparing this report is to review and update the bicycle and pedestrian plans developed by Hub in 2010. More specific objectives are:

1. Facilitate improvements in pedestrian and cycle connectivity and ensure the safe crossing of roads.
2. Facilitate improvements in the level of personal mobility and safety for all members of the community, in particular vulnerable road users, enhancing pedestrian and bicycle infrastructure and facilities.
3. Facilitate the integration of the pedestrian and bicycle network with other transport services.
4. Create an attractive alternative to car travel by providing active transport (walk/bike) links to community facilities including schools, churches, transport interchange, local shops, swimming pools, and sport and recreation facilities.
5. Ensure that pedestrian and bicycle facilities remain appropriate and relevant to the surrounding land use and user groups.
6. Provide a plan showing existing pathways and proposed new pathways.
7. Create an action plan map showing:
    a. existing paths and active transport facilities,
    b. new pedestrian and bicycle routes, and
    c. treatment (e.g., existing sealed road shoulder, shared concrete path).

1.3 Process

There are three key stages to this project:

1. Setting objectives and data collection. This included:
    a. Technical Analysis – AECOM utilised the geographical and spatial capabilities of GIS modelling software in order to undertake an analysis of the available transport data for Bungendore. The analysis consisted of analysing traffic volumes, crash statistics, existing facilities and existing and planned paths.
    b. Site Visits – In conjunction with the community consultation meetings Bungendore was visited in June and December 2017.
    c. Community Consultation – Residents of Bungendore were invited to a drop-in information session where they were able to identify issues and opportunities associated with the pedestrian or cyclist networks.
2. Draft action plan and draft report. This has included the development of routes, works priorities and estimated implementation costs. This was reviewed as part of a second round of community consultation.

3. Final action plan and report. The plan and report was finalised following the second round of community consultation.

Key steps in developing this strategy were to:

- Identify a functional network for walking and cycling. This is intended to create a practical network for pedestrians and cyclists, best serving the needs of the local community.
- Identify routes to service different users of the networks using a catchment analysis for seniors, school, shopping and recreation.
- Prioritise routes and works into an action plan.

The final outcome of this element of the project is the development of a strategy plan for walking and cycling in Bungendore, as represented by the action plan and implementation later in this report.

Figure 3 shows the key tasks undertaken for completing the bicycle and pedestrian facilities plan

1.4 Study Area

The study area for Bungendore is shown in Figure 4.

1.5 Structure of Report

The structure of this report is as follows:

- Section 2 outlines the characteristics of the study area, including land use, transport movements and crashes.
- Section 3 summarises the outcomes of stakeholder and community consultation carried out to date.
- Section 4 outlines details of relevant policies, programmes and planning principles.
- Section 5 presents the pedestrian and bicycle network master plan and a catchment analysis for key user groups.
- Section 6 describes the bicycle and pedestrian route priority strategy and implementation plan, including estimated costing of works.
- Section 7 outlines the implementation and monitoring of the bicycle and pedestrian facilities plan.

Appendix A provides a schedule of works of projects that form part of the plan.

Figure 3: Key tasks for completing a bicycle and pedestrian facilities plan

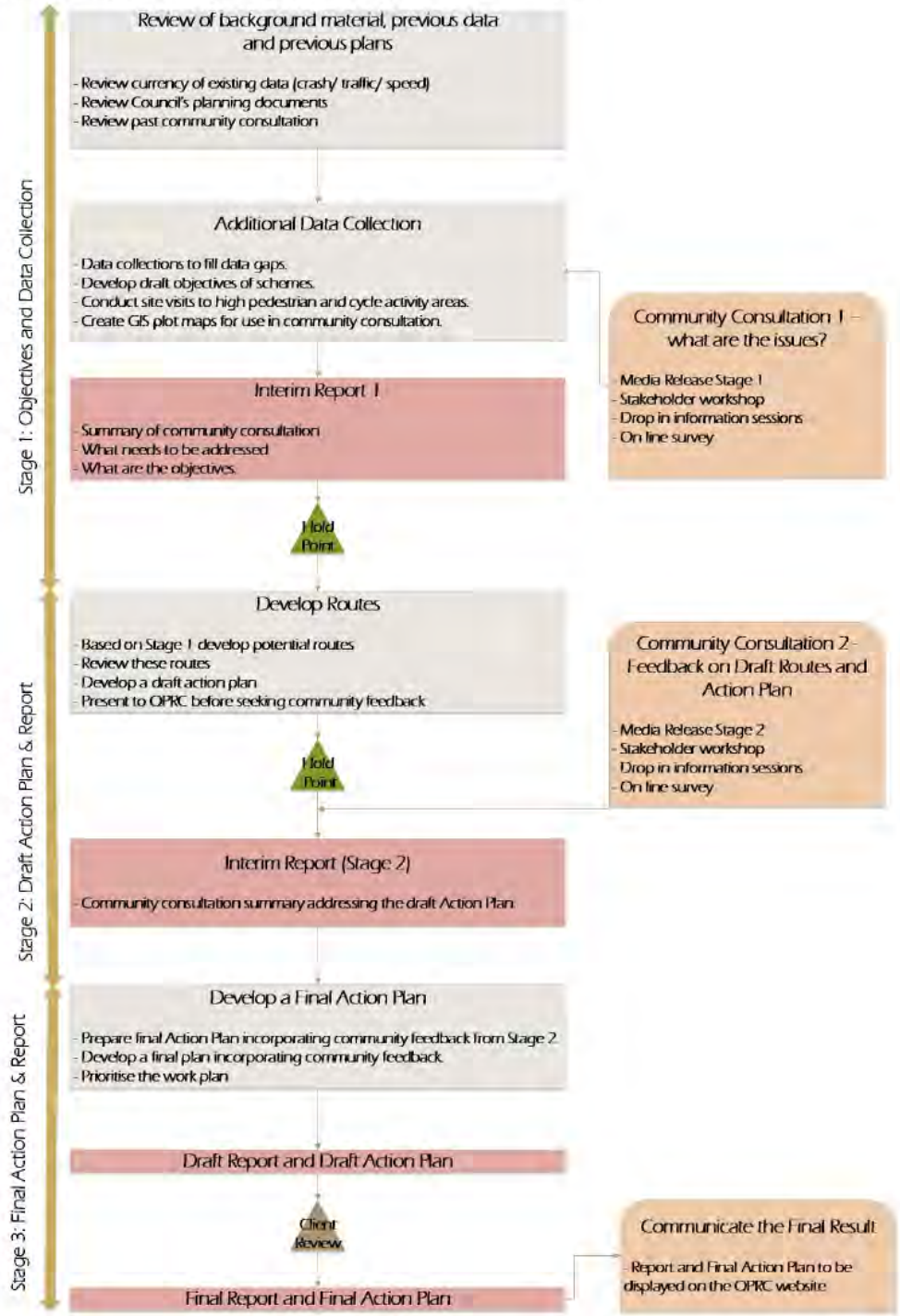
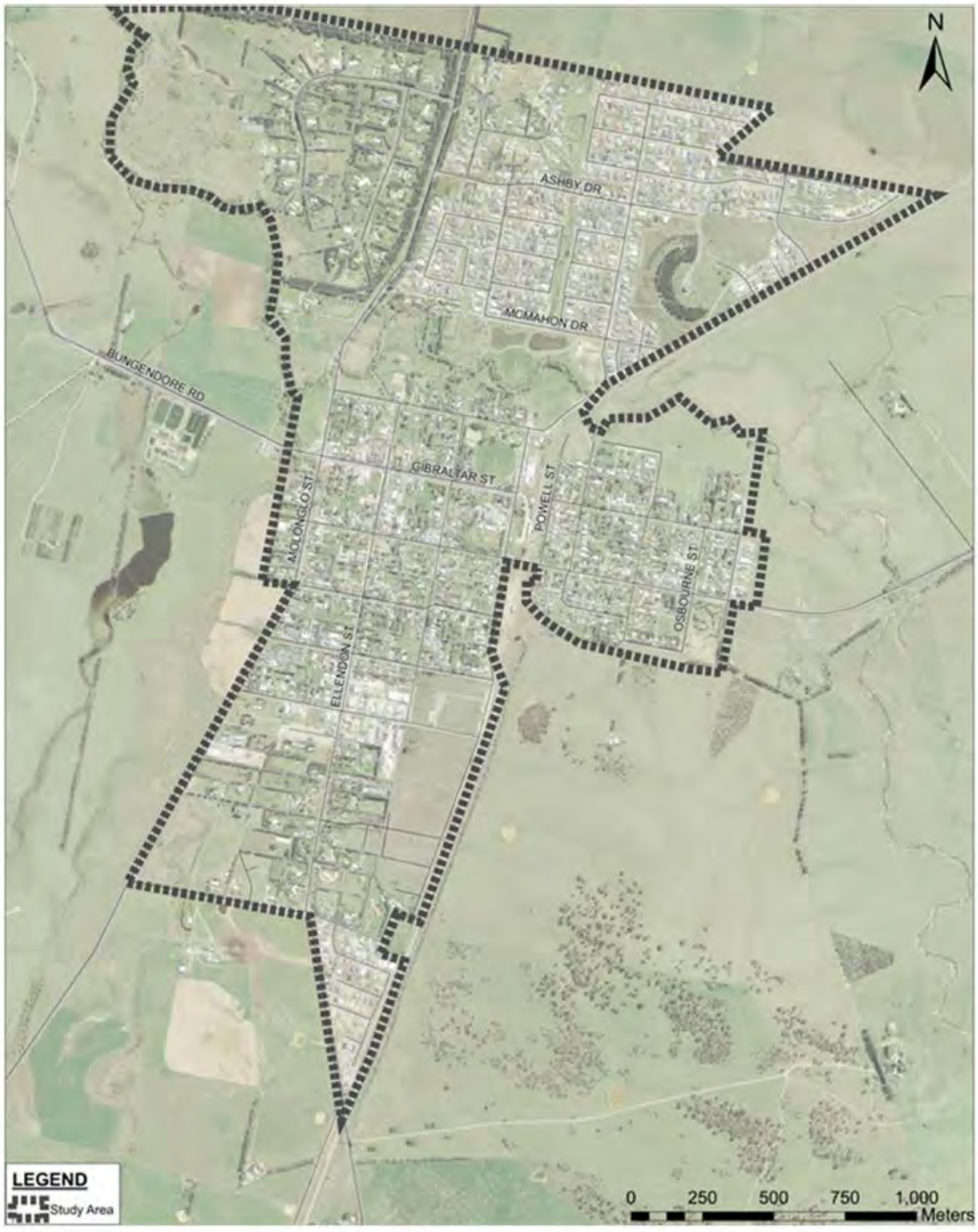


Figure 4: Bungendore study area



2.0 Characteristics of the Study Area

2.1 Land Use

The topography in Bungendore is generally flat with only slight rises and falls. Elmslea Estate does have a less moderate topography and people living in these areas may find the undulating terrain a disincentive to walking and cycling. This could well apply to people with mobility restrictions. On the other hand, this terrain also provides vantage points from which to enjoy views, and many people find that undulating terrain adds interest and is more rewarding for recreational walking and cycling.

2.1.1 Bungendore population

Bungendore is located about 27 km east of Queanbeyan and is relatively close to employment in Queanbeyan and Canberra, as well as Australia's Headquarters Joint Operations Command (HQJOC). It is a popular tourist area located on the Kings Highway. Table 1 presents a summary of population trends from recent Census data. It shows a relatively high rate of growth over the past 5 years (about 3.5% per annum).

Table 1: Bungendore population statistics

Age Group	2011		2016	
	Number	%	Number	%
0 - 14 years	878	24.7	988	23.6
15 - 24 years	377	10.6	461	11.0
25 - 64 years	2,013	56.6	2,334	55.9
65 and over	287	8.1	395	9.5
Total	**3,555**	**100%**	**4,178**	**100%**

Source: ABS Census, 2011 & 2016

2.1.2 Pedestrian and cyclist trip generators and attractors

The locations of pedestrian and cyclist attractors and generators in Bungendore are shown in Figure 5. The major generators and attractors for Bungendore include:

- Schools
- Shopping and commercial centres
- Community centres
- Recreational facilities.

These are primarily located in the town centre, with residential uses outside of the centre.

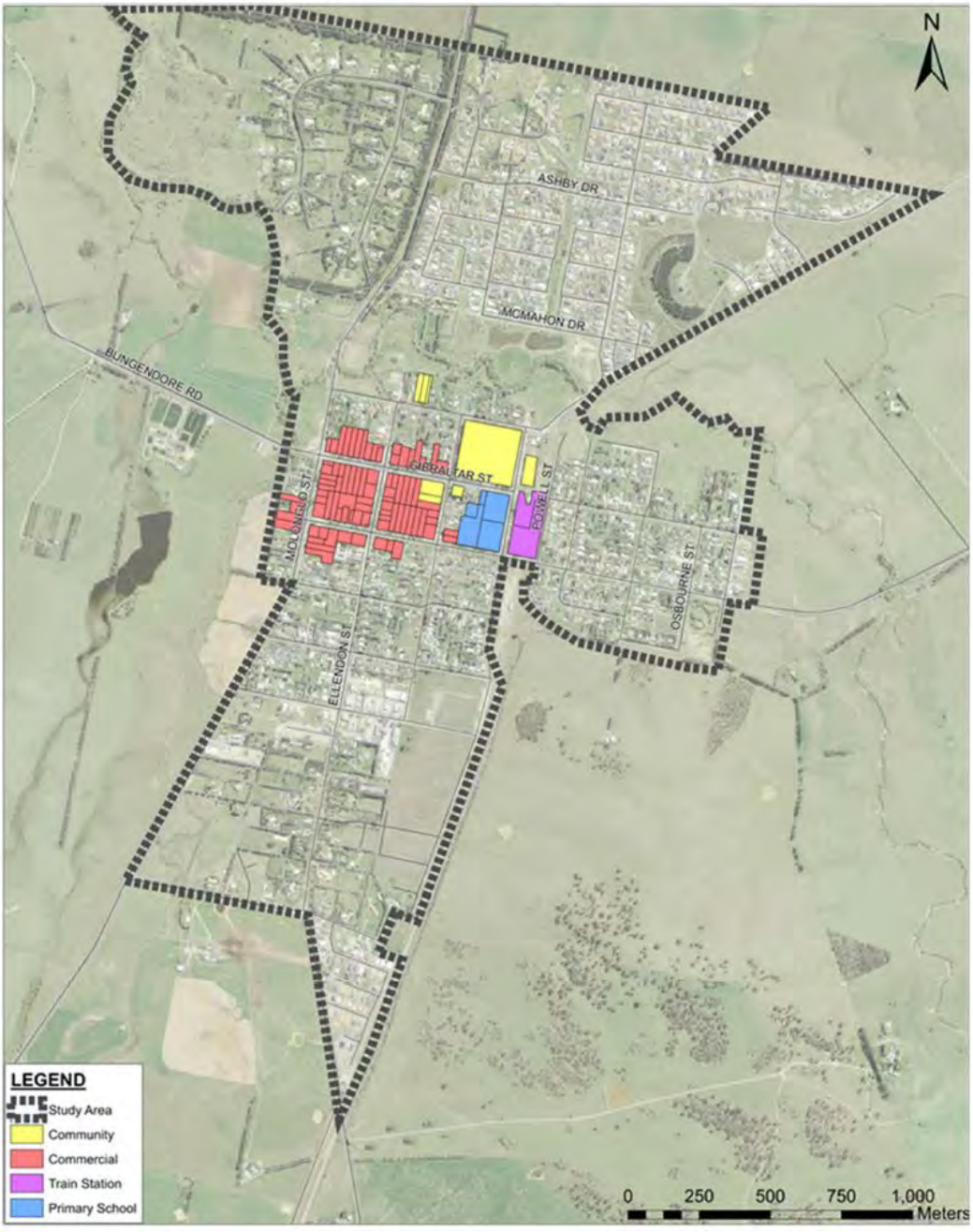
The town centre is a major attractor for residents and visitors as it provides for most of the commercial and retail activity in the town. The sports fields and other open spaces are attractors particularly for youth. Community facilities such as the Civic Centre, community centres and bowls club are significant attractors for seniors.

The largest generators of pedestrian movement include schools, shops, clubs, aged housing and medical facilities.

Shops

Retail and commercial activity is centred around the Historic Bungendore area and generally focused on Gibraltar Street, from Molonglo Street to Ellendon Street, with lower levels of activity extending from here along Gibraltar Street almost to Butmaroo Street and in Ellendon Street to Malbon Street and in Malbon Street either side of Ellendon Street. There are a number of residential properties along these streets which interrupt the concentration of retail/ commercial land uses.

Figure 5: Bungendore pedestrian and bicycle key generators and attractors



Schools

Bungendore Public School is located opposite the Bungendore Railway Station, with frontages to Gibraltar Street and Majara Street and access across its grounds to the Kings Highway/ Malbon Street. Associated with this are:

- A school crossing with refuge in Gibraltar Street
- A school crossing in Majara Street opposite the train station, whose grounds are used for parking by parents
- A refuge on the Kings Highway/ Malbon Street, just west of Majara Street
- School bus drop off and pick up in Majara Street, opposite the train station
- School zones on Majara Street, Gibraltar Street and Malbon Street/ the Kings Highway
- Footpaths along the school frontages on Majara Street and Gibraltar Street, and connecting the refuge on the Kings Highway/ Malbon Street with the Majara Street
- Footpath and a footpath on the south side of Malbon Street.

A pre-school is located on the north side of Turallo Terrace, between Butmaroo Street and Majara Street, opposite the oval. There is also a childcare centre at the western end of Forster Street. There are no street treatments particularly associated with either of these.

Recreation Areas

The oval is located between Turallo Terrace, Gibraltar Street, Majara Street and Butmaroo Street. This has a pool and playground located adjacent to it and forms the main recreation grounds for Bungendore and main recreation resource for Historic Bungendore.

2.1.3 Future land use changes

Development of the New Elmslea estate has absorbed most of the new housing demand. There is scope for this to extend to the north-east to accommodate further growth and the walking and cycling network should expand with this. Current zoning for the residential development in New Elmslea would also allow for the development of cottage industries, and a small convenience store as part of a community activities centre. Such development would depend on economic conditions and the quality of the development application in meeting design requirements.

The area around Ellendon Street, between Trucking Yard Land and King Street, has generally larger lot sizes. This area presents an opportunity for the residential density to increase. In the area between Trucking Yard Lane, the railway line and Hoskinstown Road, a subdivision fronting Trucking Yard Lane has been approved; a further application with greater density has recently been received.

The area between Turallo Terrace and Turallo Creek, east of the railway line and west of Mecca Lane, has been identified as village zone and potentially could be developed for residential usage. In the longer term, the area to the south-east of Historic Bungendore —south of Rutledge Street and east of the railway line — could become a future area for residential development, notwithstanding the potential for a bypass of Bungendore to skirt this area.

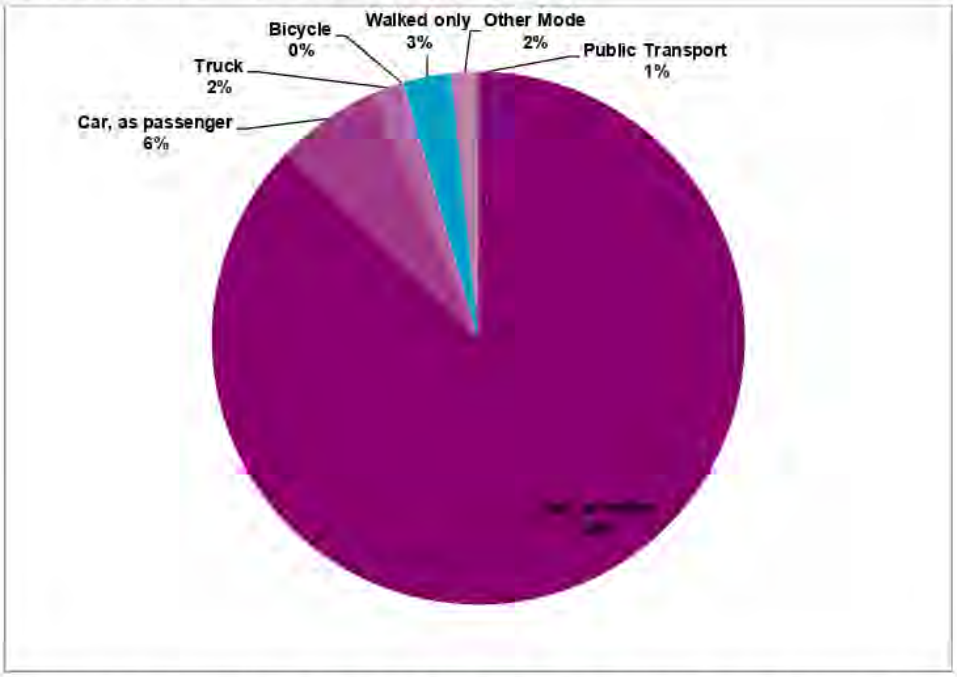
The location for the sports fields is still under consideration. However, current thinking on the preferred site is to the west of Tarago Road. The vicinity of Mecca Lane has been identified as a desirable location for a new playground, possibly provided in conjunction with the sports fields.

2.2 Transport Movements

2.2.1 Mode use

Figure 6 shows mode use splits that were recorded using the 2016 Journey to Work census data for Bungendore. It shows that use of public transport is negligible and that car is the main mode of transport to work.

Figure 6: 2016 Census journey to work mode use in Bungendore



Of particular relevance to this study is that only 3% of the population walked to work in Bungendore and cycling was negligible. Given the relatively small distances between residential and commercial areas (80% less than 1.5 km) there is opportunity to improve this.

2.2.2 Road hierarchy and traffic volumes

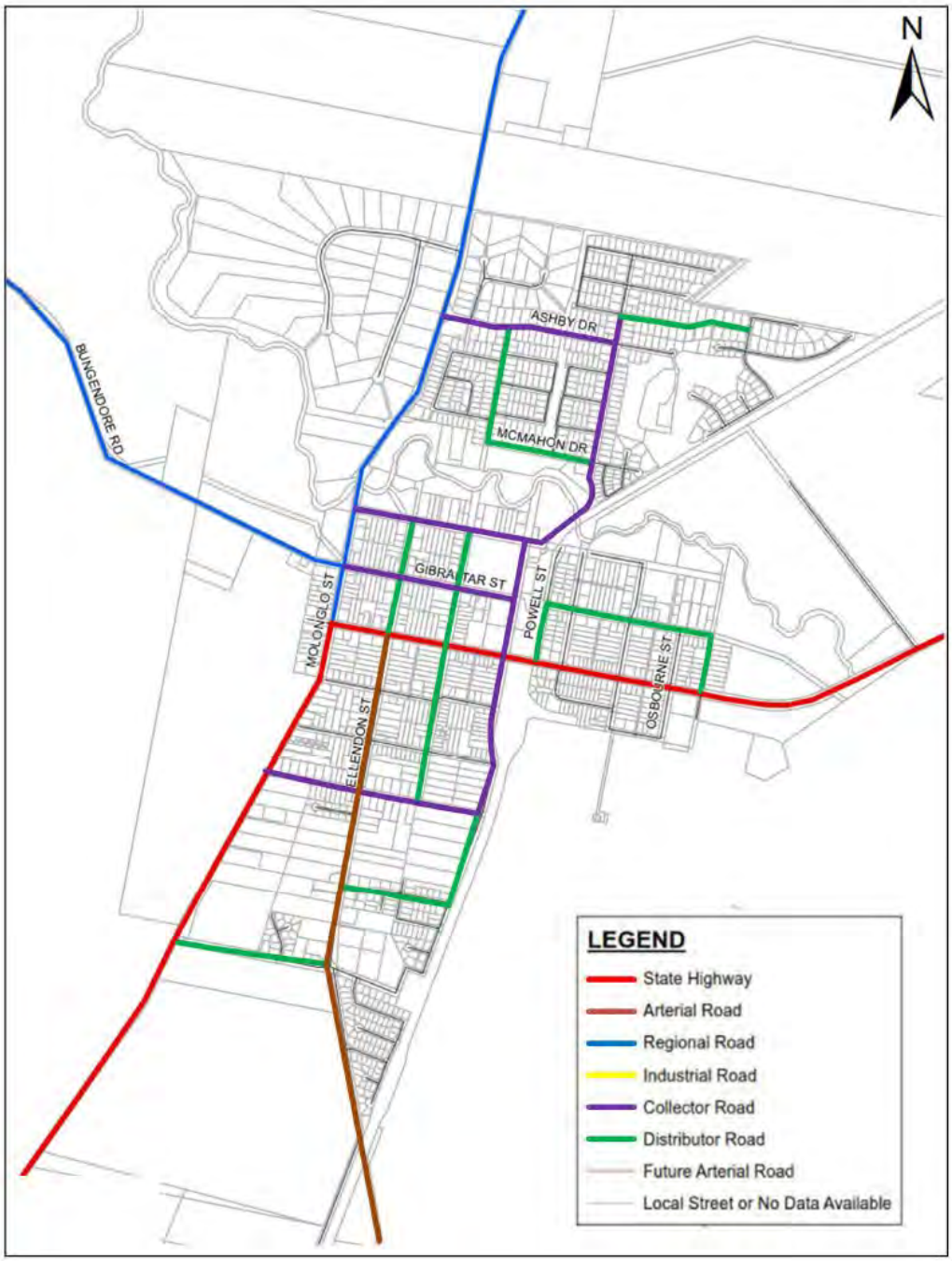
The current road hierarchy of arterial, collector and local roads is shown in Figure 7. The road hierarchy generally represents expected traffic volumes, travel speeds and hence the type of pedestrian facilities which are appropriate for the various road categories.

Malbon Street forms the east-west aligned section of the Kings Highway as it passes through Bungendore, bisecting Historic Bungendore and at the same time providing the only formal vehicular, pedestrian or cycle link between the eastern and western sections of Historic Bungendore.

To the east, the Kings Highway continues to Braidwood; to the west, the Kings Highway turns south on the outskirts of Historic Bungendore, creating a western edge to the town. North of this point, the road continues as Molonglo Street, its name changed to Tarago Road at the bridge. As Tarago Road and then Bungendore Road, this then leads to Tarago, some 20 km north-east of Bungendore, connecting to Bungendore Road to continue north to Goulburn.

A connection from the Kings Highway east of Mecca Lane south of Malbon Street and around the town to join the Kings Highway south of Trucking Yard Lane has been proposed as a bypass for the town. This would require a crossing of the railway line; while not an immediate priority for the region it should be outlined and any corridor reservations and planning should start to occur now.

Figure 7: Bungendore road hierarchy



The main street is Gibraltar Street, which runs in an east-west direction parallel to and a block north of the Kings Highway. This joins Molonglo Street at a roundabout, and continues to the west and then north-west as Bungendore Road. Macs Reef Road branches off Bungendore Road about 9 km north-west of Bungendore, joining the Federal Highway after another 10 km, not far from Sutton.

King Street, about 630 metres south of and running parallel to Malbon Street/ the Kings Highway, forms the southern edge of Historic Bungendore, and forms a rough boundary between residential and rural residential lots. A small light industrial area is centred on King Street, between Butmaroo Street and Ellendon Street.

Trucking Yard Lane runs east-west from the Kings Highway to the unformed continuation of Majara Street, some 740 metres south of and parallel to King Street. (The unformed continuation of Majara Street is also known as Trucking Yard Lane). Trucking Yard Lane currently forms the southern edge of Bungendore; however there is a proposal for a subdivision on Trucking Yard Lane, on the eastern outskirts of the southern part of town.

Ellendon Street is the only street running north-south between King Street and Trucking Yard Lane, apart from the Kings Highway. In this area, Ellendon Street runs roughly half-way between the Kings Highway and the (unformed) Majara Street alignment which runs along the edge of the rail line. Ellendon Street ends in a four-way intersection at Trucking Yard Lane, with Hoskinstown Road continuing as a south-east running road. This crosses the rail line for the 16 kilometres to Hoskinstown, with several roads branching off it, dividing into Captains Flat Road and Rossi Road five kilometres past Hoskinstown.

A summary of recent traffic counts in the region are shown in Figure 8. These are expressed in average daily vehicle volumes.

As the Kings Highway passes through Bungendore, people using the highway to access the South Coast (notably Batemans Bay) and Bungendore, plus visitors to Bungendore itself, contribute to traffic volumes on weekends, public holidays and school holidays. Unlike most other areas, the overall traffic levels on the main roads in Bungendore do not decrease on weekends. Traffic on the Kings Highway is generally higher on weekends than during the week. The Kings Highway is also a route for freight traffic and agricultural traffic.

2.2.3 Public transport

Coaches and buses

There is one QCity bus route between Bungendore and Queanbeyan, which operates on demand. There is also a number of school bus services operate in the area, including feeder buses to high schools in the ACT.

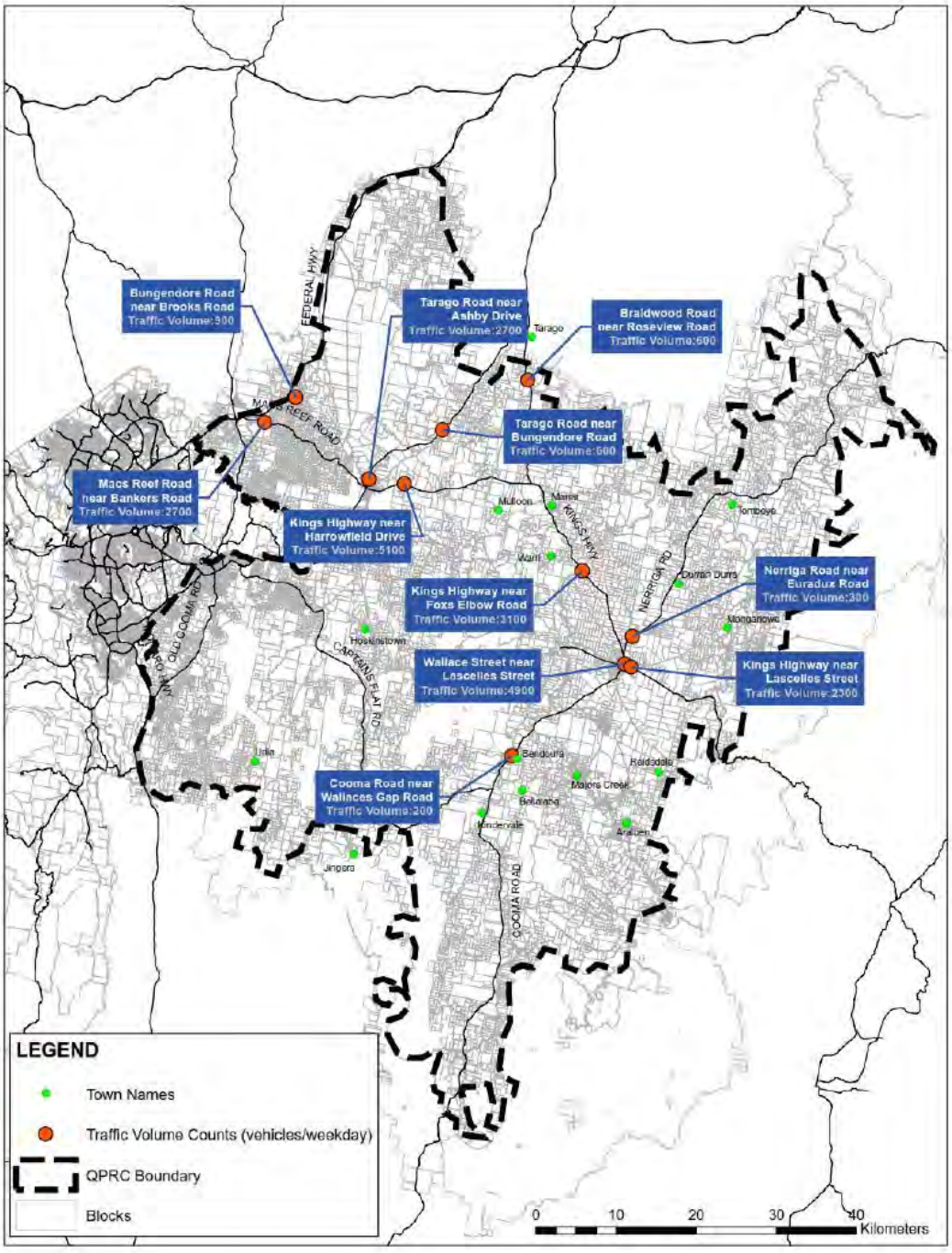
All inter-town bus routes in Queanbeyan meet at the interchange in Collett Street. Currently, there are no “Park and Ride” facilities or means to transport bicycles on buses in Bungendore, as RMS consider bicycle racks on buses are a safety hazard.

Coaches passing through Bungendore to other locations will stop at Bungendore, but pick up/ set down needs to be coordinated with these services and does not represent an equivalent service to a public transport bus service.

Rail

The Bungendore Railway Station sits about mid-block between Gibraltar Street and the Kings Highway/ Malbon Street intersection. The rail line from Queanbeyan enters from the south, roughly parallel to the Kings Highway, bisecting Historic Bungendore before veering north-east out of the town.

Figure 8: Traffic counts in the region



Bungendore Railway Station is still serviced by NSW TrainLink services, with daily services as follows:

- Mid-morning and mid-afternoon/ evening from Bungendore to Canberra (trip time about 50 minutes)
- Early morning and lunch/ evening from Canberra to Bungendore (trip time about 40 minutes)
- Early morning and early afternoon/ later afternoon from Bungendore to Sydney (trip time about 3 hours)
- Early morning and lunch/ evening from Sydney to Bungendore (trip time about 3 hours).

None of these rail services would suit standard commuting patterns. The rail line is also used by a few freight trains each night. About five kilometres south of the railway station, a line branches off the line to Queanbeyan and runs to Captains Flat. This line has been disused since 1968.

2.2.4 Pedestrian and cyclist facilities

A map of the existing facilities is shown in Figure 9.

2.2.4.1 Overall network

Shared path network

The current shared path network is somewhat disconnected with no clear signage or paths linking through the town centre. The majority of the path network is about 1.2 metres in width. This width is not suitable for shared use. It is also the minimum general footpath width, which does not allow for pedestrians to comfortably be able to pass a stroller or wheelchair without leaving the path.

There appears to be little delineation between the shared path and footpath networks - albeit this may relate to the preliminary nature of works. For children up to 12 years of age either can be used for cycling, however adults and children over the age of 12 generally cannot legally use footpaths. This can become relevant in some circumstances. In particular, intersections and the different onward paths of cyclists as opposed to pedestrians are not well defined; design requirements for pedestrians and cyclists can be distinct, which is not recognised in the design standards adopted.

Shared path signage is the means by which shared use is legally designated under the Australian Road Rules. While this has limited impact on actual functionality, consistent signage of shared use paths is considered important to assist in generating an appreciation of when it is suitable for cyclists to share paths with pedestrians.

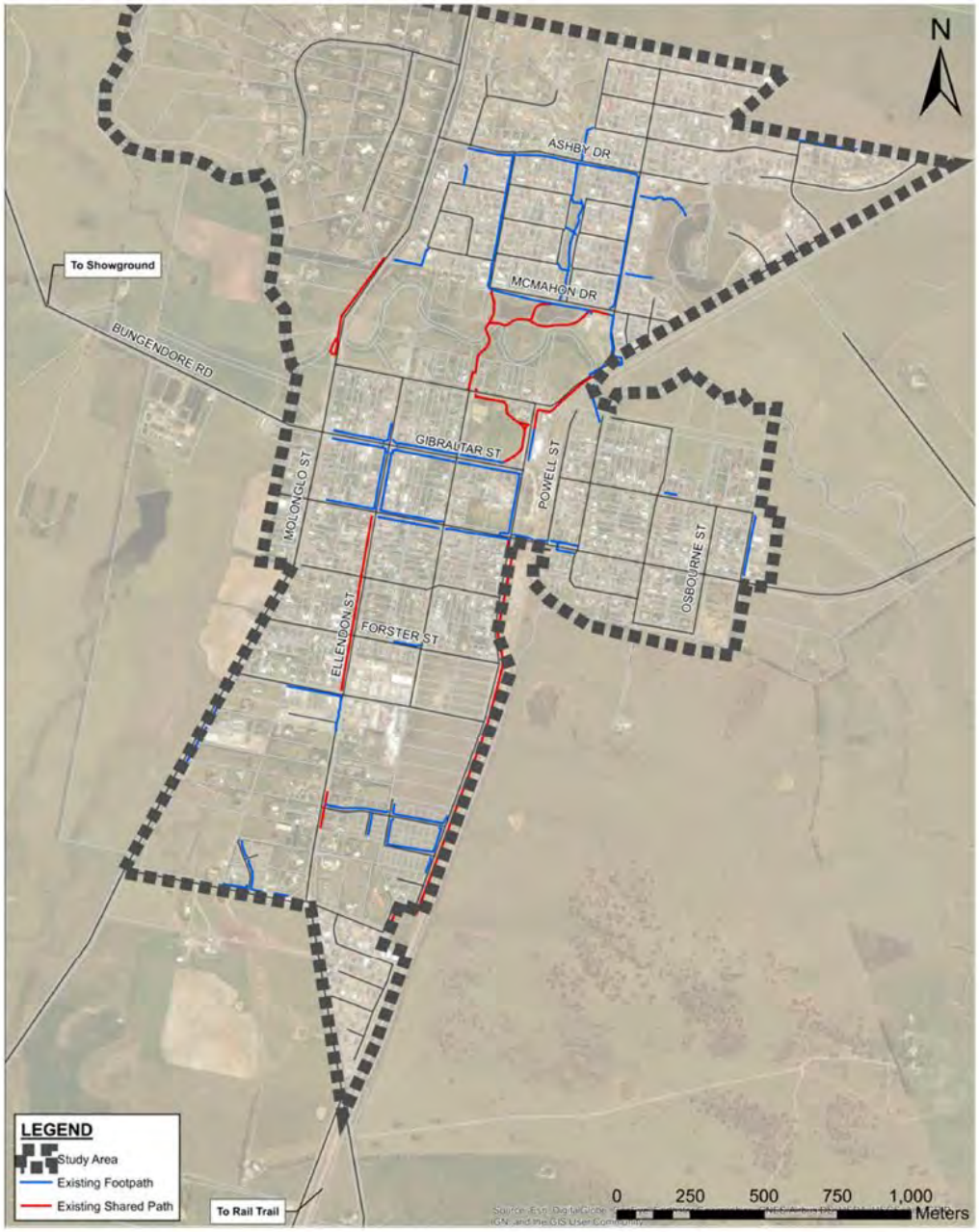
Footpath network

The footpath network has progressed since the review undertaken in the previous PAMP. However, some of the established footpath network is quite dated and there is inconsistency in treatments especially at road crossings. Many of the paths do not have kerb ramps. This repents hazards for people in wheelchairs, prams or children on bikes. Where a driveway crosses a footpath, this should be made clear and the gradient and material of the driveway should conform to footpath standards for the width of the footpath. Interestingly in New Elmslea, the driveway rather than the footpath is continuous. Where driveways are not sealed or these is gravel adjacent the path, loose material can spill onto the path which may form a trip hazard.

Tree plantings are often quite close to the footpath. As the trees mature, they are likely to cause cracking of the footpaths, creating trip hazards and becoming a costly maintenance item. This should be considered for new path infrastructure.

Not all streets require footpaths, especially where traffic volumes and speeds are low. There is also a desire from some residents to retain the rural feel of the verge without a footpath. The locations where there are high vehicle speeds, high vehicle volumes or high numbers of vulnerable users should be prioritised for implementation of a safe, all weather, well-marked path.

Figure 9: Bungendore existing walking and cycling network



Note: Current as of December 2017

While the low traffic volumes may make walking on streets safe, if a lack of kerb ramps accompanies the lack of footpaths, people with disabilities may have difficulty travelling from the footpath network to the road network. In this regard, it should be noted that roll-over kerbing does not meet the Australian Standards relating to kerb ramp gradients and does not necessarily provide the ability for people in wheelchairs or electric scooters to safely move from footpaths to street level.

A need for additional safe crossing locations was identified. Pedestrian refuges are only provided at certain locations. Away from these, it can be difficult to cross increasingly busy streets. With an ageing population, the time required to safely cross streets is likely to increase.

Information

There is very little directional or way finding signage for the active travel links. This can impact on the functionality and uptake of the routes as residents and visitors to Bungendore are generally not aware of the walking and cycling opportunities available. It can also lead to confusion and conflict over permitted users. Apart from street signs, there is a lack of directional or interpretive signage for new residents or visitors.

2.2.4.2 Facilities in different areas of Bungendore

The walking, and to a lesser extent cycling, conditions in Bungendore vary significantly between areas within Bungendore. The five main areas are:

- Old Elmslea
- New Elmslea (Elmslea Estate)
- Historic Bungendore
- South Bungendore
- Outlying areas.

Old Elmslea

Old Elmslea has a larger allotment size and is separated from both New Elmslea and Historic Bungendore by Molonglo Road/ Tarago Road. Although there are reserves providing access from the ends of Elmslea Drive and Reardon Place, these do not have formed walking tracks and nor are these complemented by crossing points on Molonglo Road/ Tarago Road. For both walking and cycling, Old Elmslea is therefore isolated from New Elmslea and, particularly, from Historic Bungendore. Traffic volumes are relatively low and shared road space is considered appropriate but better links and connections need to be provided at the extents, especially to the planned sports precinct further to the south-west.

New Elmslea

New Elmslea (Elmslea Estate) incorporates planning of a relatively extensive network of off-road walking trails. Better provision of shared facilities could be included. The estate has sealed trails both north-south through the centre of the development and around the edge of the development (with the exception of along Tarago Road). The central pathway in particular provides for utility and commuter access, in addition to the recreational opportunities provided by the trails around the development; however, it is not a shared path. The grid-based form of development coupled with the central pathway and strategically located cut-throughs where the road network does not provide access mean that levels of permeability are maintained for active travel.

Elmslea Estate has a reasonable level connectivity and permeability. A path proposed under the railway bridge, linking to the eastern side of Historic Bungendore, would increase access and permeability opportunities.

Historic Bungendore

Historic Bungendore contains the non-residential land uses of the town and some of the older residences. These include the main destinations for residents and visitors to Bungendore, where the footpaths will have generally higher walking levels than the rest of Bungendore. The non-residential land uses in Historic Bungendore, fairly permeable grid road network and standard sized housing lots lead to overall modest trip distances. This generally supports utility walking and cycling, and walking and cycling to school. In terms of walking and cycling infrastructure, Historic Bungendore predates the widespread construction of footpaths and cycle paths and so it does not have a full path network.

Some of the streetscape beautification works are improving the quality and linkages of the path network. There are still some gaps in the network and the proposed action plans looks to address the higher priority items.

South Bungendore

This covers the area to the south of the town typically from King Street where the lots are larger more rural lots with some industrial uses. It also covers the new housing areas off Hereford Street and Finch Street. New development on Finch, Hopkins and Jacombs Streets have a footpath network and provide links to the Majara Street shared path.

The housing area off Hereford Street was not constructed with a footpath network. Given the road alignment and relatively small number of blocks accessed here, resulting in lower speeds and lower volumes, mixed use of the road network is considered appropriate. Better links to the Majara Street shared path and Ellendon Street connections would be beneficial.

Outlying areas

Bungendore is a centre for many nearby adjacent rural land holdings, estates and some places of employment. Typically none of these have a forded active travel network. Rural settings typically pose a number of accessibility issues which include:

- Longer distances from origins to destinations for walking and cycling, discouraging walking and cycling and translates to a high cost per person to provide facilities.
- Higher speed limits on rural roads.

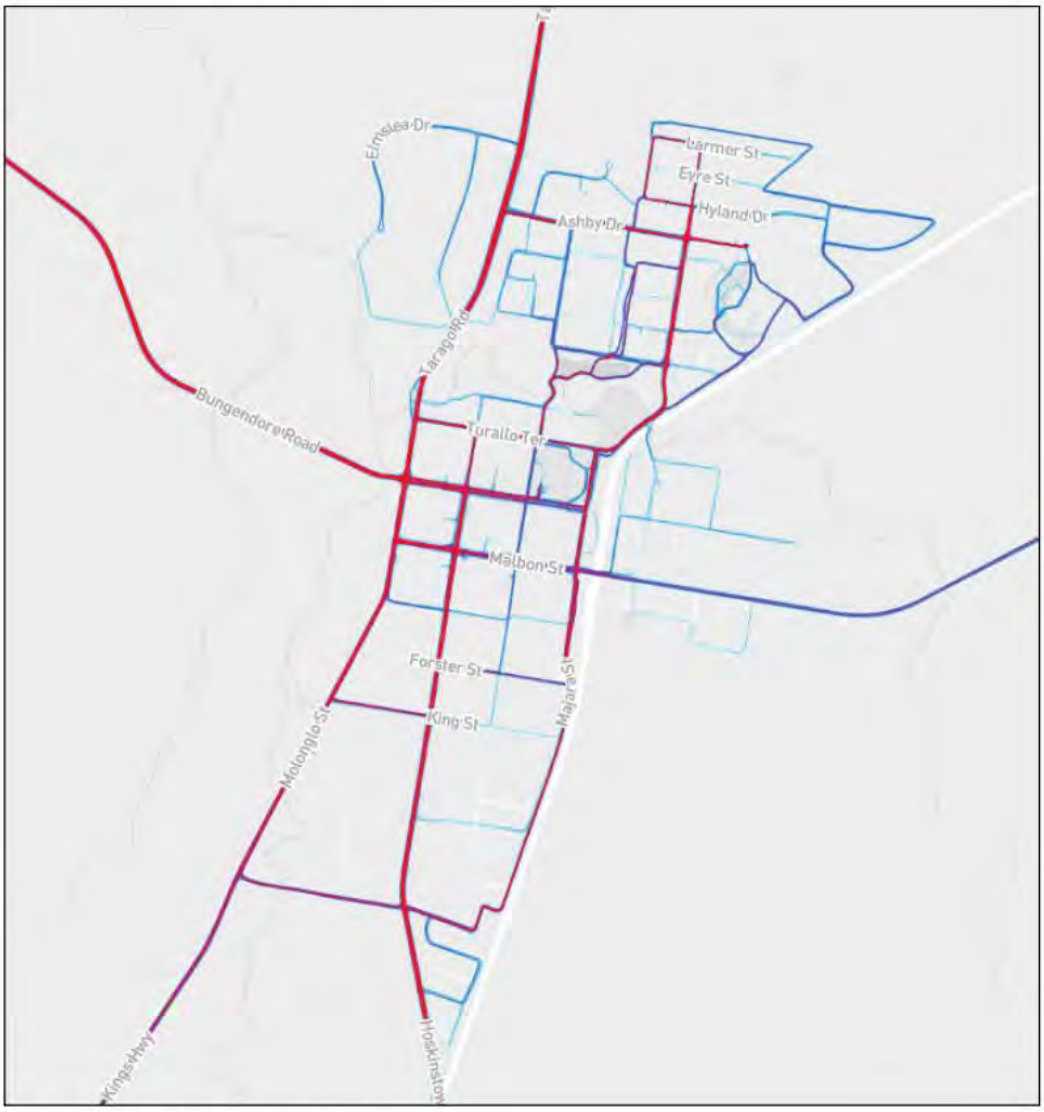
The key aspects of consideration for Bungendore as they apply to walking and cycling are:

- The (well-used) Showgrounds on Bungendore Road – given the type of users and frequency a sealed off-road path is considered desirable in the longer term to provide a link of approximately 3 km to the town.
- The HQJOC facility – likely a commuter based demand so adequate sealed shoulders could be provided to this facility.
- The Buckingham development areas north of Bungendore – a sealed shoulder on Tarago Road from Hope Drive to Bungendore Road (approximately 4.5 km) could help provide improved cycle amenity and safety and would present a viable alternative for some adult cyclists.
- Inter-town trips, such as to Captains Flat or Queanbeyan.

2.2.5 Path usage

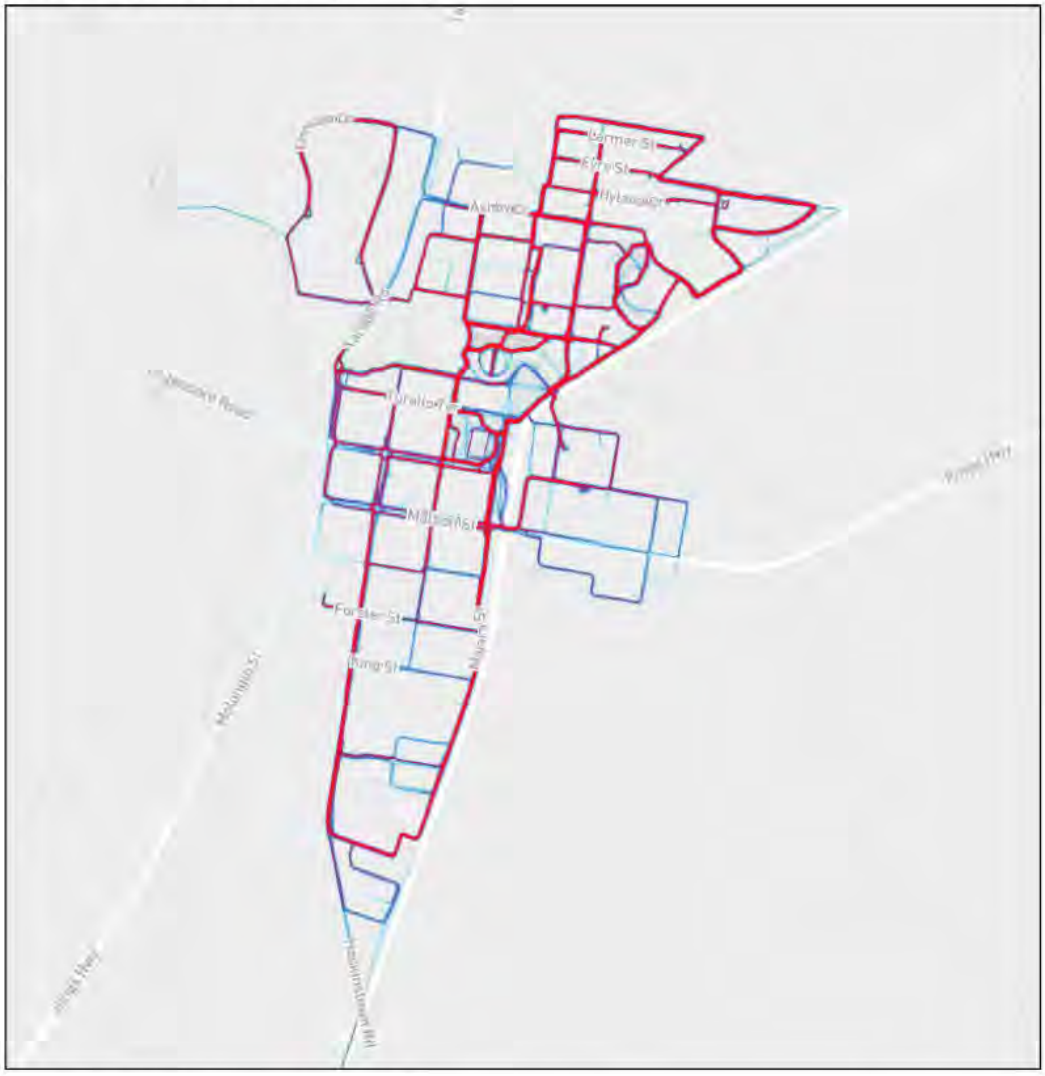
A heat map provided by Strava for riding and running trips can be used to help create an understanding of cyclist and pedestrian movements within Bungendore and highlight routes that may benefit from cyclist and pedestrian network improvements. These are presented in Figure 10 (riding) and Figure 11 (running). Of note is the strong usage along Tarago Road to the north of Bungendore. It should be noted that this data is skewed towards the users of Strava which would typically include recreational or training users rather than commuter or school usage.

Figure 10: Bungendore Strava heat map – riding



Source: Strava Heat Maps (Accessed June 2018)

Figure 11: Bungendore Strava heat map – running



Source: Strava Heat Maps (Accessed June 2018)

There is a strong demand around the southern part of the town as well as along the northern section of Elmslea Estate. Forster Street functions heavily as an east west connection for both the cycling and walking usage. Cycling links then deviate to King Street or the Kings Highway as the east west link as Forster Street does not continue through. A shared path connection through to link Forster Street west to the highway would provide connectively benefits.

2.3 Crashes

A crash analysis of the study area indicated that there were one recorded injury crash involving a cyclist in Bungendore along Majara Street during the period between the 1st of January 2012 and the 31st of December 2016. There were no recorded crashes involving a pedestrian during this period.

3.0 Community Consultation

There have been three rounds of consultation on this project that have been considered in developing the Action Plan and Implementation Plan for bicycle and pedestrian facilities in Bungendore, as follows:

1. Setting context and identifying issues, as part of Stage 1 consultation.
2. Developing a draft action plan, implementation plan and report for comment as part of Stage 2 consultation.
3. Developing a draft action plan, implementation plan and report for public exhibition and comment (Stage 3).

An outline of the consultation processes and outcomes follows. More details are given in the project consultation reports.

3.1 Stage 1 Consultation

Activities and tools implemented in Stage 1 included:

- A stakeholder workshop to discuss the vision and objectives of the Integrated Transport Strategy (ITS) and key issues, barriers, needs, gaps and opportunities.
- A community survey to collect people's feedback.
- Information sessions held at venues in Bungendore during the week commencing 20 June 2017, with six attendees.
- Letter to key stakeholders with information attached informing them of the project, consultation process and feedback opportunities.
- Posters displayed at each of the public information sessions with background information about the project and analyses to date.
- Feedback sheets available at the public information sessions for attendees to write down their thoughts and ideas about transport in the region.
- Text for the QPRC website about the consultation process.
- Email and phone feedback available through transportstrategy@qprc.nsw.gov.au .
- QPRC Communications, Media and Public relations drafted a media release with help from AECOM to inform people about the consultation.

During the community consultation the following issues were raised regarding the pedestrian and bicycle network in Bungendore:

- A cycle link (shared path) is needed from Bungendore to Showground.
- Missing footpath links from along Ellendon Street from southern residential into the CBD.
- Complete shared path loop within park at front of Council.
- Turallo Creek Bridge has a path on opposite side of where the shared path is along Tarago Road.
- The population of cycling is increasing and that active travel should be encouraged.
- Provision of cycle racks and other infrastructure in the village should be encouraged.
- Bungendore is an ideal town for cycling because of the flat topography and it is relatively safe.
- It would help if bicycles could be taken on trains.
- Consider a footpath link from Elmslea Estate to Gilbraltar Street.
- Integrate a dirt trail along Turallo Creek to the flood mitigation work around Tarago Road. Consider extending dirt trail under the bridge at Tarago Road.

- Include cycle carriage on bus and train routes from Bungendore to Canberra.
- Footpath Forester Street (West) – integrate with Ellendon Street.
- There is uneven path over the railway and along the highway that is dangerous.
- Footpath under Rail Bridge at culvert near Dog Park to access east Bungendore under the rail tracks from integrated pathways.

3.2 Stage 2 Consultation

A Stage 2 Stakeholder Workshop was held on Tuesday 29 August 2017 in Queanbeyan. Attendees included representatives from AECOM, QPRC, Googong Residents Association, TfNSW, QCity Transit, QueanBUG and ACT Government.

Stakeholders were asked to provide feedback on strategic response statements that were developed to address key issues of concern arising from the Stage 1 consultation. In addition, stakeholders were asked to provide comments and identify priorities on the Action Plan Maps that were developed from feedback from Stage 1 consultation.

High priority works were identified for Bungendore arising from the Stage 2 workshop. These were presented to the community for feedback during the Stage 2 community consultation in December 2017.

Activities and tools implemented in Stage 2 included:

- A community survey to collect people's feedback.
- A total of four Information sessions held at venues in Queanbeyan, Bungendore and Braidwood during the week commencing 4 December 2017.
- Posters displayed at each of the public information sessions with background information about the project and analyses to date.
- Feedback sheets available at the information sessions for attendees to write down their thoughts and ideas about transport in the region.
- Text for the QPRC website about the consultation process.
- Email and phone feedback available through transportstrategy@qprc.nsw.gov.au.
- QPRC Communications, Media and Public relations drafted a media release with help from AECOM to inform people about the consultation.

The primary feedback from this consultation with regards active travel was as follows:

- Suggestions:
  - A cycling route around the Bungendore town centre and a footpath around the creek.
  - Upgrade the existing footpath that runs from Malbon Street and across the railway crossing. There is a concern for safety for pedestrians with prams who currently have to step onto the road and then back onto the footpath.
  - Upgrade the existing footpath along Molongo Street.
- Concerns:
  - The existing shared path on Eleanor Street is too narrow.
  - There is no footpath on Hyland Drive.
  - Concern for the safety of cyclists sharing the road with vehicles.

3.3 Stage 3 Consultation

This report and associated plans and reports for the ITS were exhibited for comment on Council's website from 1 March 2019 to 16 April 2019. There were 16 responses received from website surveys and five formal written responses. Of these, seven survey responses were received in relation to Bungendore and one written response,

The primary feedback from this consultation with regards active travel was as follows:

- Suggestions:
  - Pedestrian crossing across Malbon Street.
  - Footpath connection to the proposed Molonglo Rail Trail.
  - Future walking track along Turallo Creek at the back of Old Elmslea.
  - Track suitable for horses to the Showgrounds and link to the Wamboin trails.
- Concerns:
  - Dangerous gravel humps along Forster Street that are a hazard for our young bike riders.
  - Concern for the safety crossing Malbon Street.

4.0 Relevant Policies, Programmes and Planning Principles

4.1 State Policy

The *Draft Future Transport Strategy 2056* sets out the vision, strategic directions and customer outcomes for the infrastructure and services plans for Greater Sydney and Regional NSW. The strategy is focused on six state-wide outcomes for the future mobility of NSW, shown in Figure 12. The aim is to positively impact the economy, communities and environments of the state, with these six outcomes are set to be the focus on every planning decision. These outcomes also guide the priorities set for regional communities which currently experience lower service levels and slower population growth than Greater Sydney.

Figure 12: Six customer and network outcomes

Source: NSW Government, Draft Future Transport Strategy, 2017

The draft Strategy highlights that regional NSW has 19 regional cities and 27 regional centres. The 19 regional cities include two Global Gateway Cities (Greater Newcastle and Canberra), which serve extended catchments around Canberra-Queanbeyan and the Hunter areas as shown in Figure 13 below. Greater Sydney is the third Global Gateway City for NSW. Improved transport will broaden the catchment around each of these Global Gateway Cities, improving access to major service precincts, advanced industries and international infrastructure for the purposes of travel and trade.

Significant investment in connecting regional cities is outlined in the Strategy. These connections will be made through smarter procurement and the deployment of technology-enabled and innovative service models.

Figure 13: Importance of Global Gateway Cities

Source: NSW Government, Draft Future Transport Strategy, 2017

The future regional transport network will be planned around a 'hub and spoke' model within a strategic framework of servicing principles allowing for local adaptation and interpretation. Servicing principles include connectivity, flexibility and efficiency, access and equity, legibility and timeliness, provision of accurate information and safety. The network will support local towns and Regional Cities and Centres and help make them better places to live, visit and do business.

This draft Plan was published by the NSW Government in late 2017. It supports the *Future Transport Strategy 2056* and sets a 40 year vision for transport in Regional NSW to support communities and productive economies. An emphasis has also been placed on the importance of providing stronger links between regional cities and centres, rather than focussing on connections to Sydney or the interstate capitals. Along with this shift in focus, the draft Plan identifies Canberra as one of three Global Gateway Cities. These cities are to provide the state-level services and facilities required to support the growing population in NSW.

The draft Plan highlights the following objectives for transport in Regional NSW:

- A safe, secure and resilient transport system that efficiently connects communities
- A transport system that improves productivity and supports regional economies and communities
- An equitable transport system that helps to vitalise our communities

- Accessible transport options for all customers
- A regional transport system that is reliable, flexible, personalised and responsive to customer needs
- A transport system that is affordable and makes best use of resources and assets.

Broad initiatives for implementation over the next 40 years include improving inter-region and regional city connectivity, and expanding the regional public transport network. The initiatives apply generally in aspects such as the road network, public transport, active travel, freight, and town centre infrastructure initiatives. These initiatives include a regional interchange program, walking and cycling programs, town access improvement programs and a regional airport program.

For the South-East and Tablelands region where Canberra is situated, the NSW Government has proposed several policy, service and infrastructure initiatives for investigation (listed below). These initiatives are intended for potential commitment or implementation over the next 20 years.

4.2 Local Policy

QPRC has a 'three tier' hierarchy of plans consisting of a Community Strategic Plan, a Delivery Program and Operational Plan.

Planning for QPRC is framed around the Community Strategic Plan. It is a 10 year document (2013 – 2023), which identifies the community's key priorities, and outlines strategies of how Council and other stakeholders will achieve those priorities. It is informed by a number of key strategic documents, including:

- The Delivery Program details activities the Council will undertake to achieve the objectives of the Community Strategic Plan and is updated every 4 years.
- The Operational Plan directly addresses the actions outlined in the Delivery Program and identifies activities (projects and programs) Council will be undertaking within the financial year. The Operational Plan, which is supported by a detailed budget, allocates responsibilities for each action or set of actions, and identifies suitable measures to determine the effectiveness of the activities undertaken.

4.3 Planning Principles

The intent of understanding the need for facilities and provision of appropriate infrastructure, education campaigns and users awareness is centred around providing viable alternatives to private motor car usage. The benefits of this are well known and include reduced emissions, improved health and social cohesion.

The approach used in the development of the new walking and cycling plan for the area focused on the providing the necessary enabling conditions for riding and walking to become an attractive mode of transport for a range of trips for various age, gender and cultural backgrounds. Infrastructure is a critical part of the enabling process but is a means to an end not an end product in itself. Enabling people to walk and cycle is to support them to adopt a new behaviour or to do more of an existing behaviour.

Behavioural change and the uptake of walking and cycling can be attributed to three things - Capability, Opportunity and Motivation (COM). Collectively these are known as the COM model for behavioural change. It is illustrated in Figure 14.

The three aspects work together to promote and enable the behavioural goal. This plan has been developed to help provide improved physical opportunities for trips and improve the amenity and safety for users. In applying this plan the principles for cyclists and pedestrians have been outlined.

Figure 14: COM model for behavioural change

4.4 Network Design Principles

The over-riding principles of designing this network are outlined in Table 2. While these are derived from cycling aspects the principles are the same.

Table 2: Network features

Route feature	Comments
Safety	Minimal risk of injury, low perceived danger, space to ride / walk, minimum conflict with vehicles
Coherence	Infrastructure should form a coherent entity, link major trip origins and destinations, have connectivity, be continuous, signed, consistent in quality, easy to follow, and have route options
Directness	Route should be direct, based on desire lines, have low delay through routes for commuting, avoid detours and have efficient operating speeds
Attractiveness	Lighting, personal safety, aesthetics, integration with surrounding area, access to different activities
Comfort	Smooth slip-resistant surface, gentle gradients, avoid complicated manoeuvres, reduced need to stop, minimum obstruction from vehicles

Source: Adapted from Cycling Aspects of Austroads Guidelines Table 2.2

The key facilitators to grow cycling and walking participation in the area include:

- A pedestrian and cyclist friendly town centre.
- Developing off road facilities that provide key links between key origin and destinations.
- Provide separated facilities for higher speed links reducing conflict between high speed cyclists and lower speed cyclists / pedestrians.
- Improving efficiency of links by making them more direct and providing signage and line marking as appropriate.
- Ensuring all school and key public transport nodes are connected to the proposed network.

While there are similarities the principles for the pedestrian and cyclists have been separated.

4.5 Pedestrian Planning Principles

4.5.1 Different pedestrian user types

When assessing existing infrastructure it is critical that consideration is given to the different user groups. This section of the report explores the different user groups that could be considered as the primary and vulnerable users in the assessment.

When planning for pedestrian facilities ideally the placement of facilities should match the usage patterns. There are a number of pedestrian user groups that have to be focused on, with the aim to encapsulate all pedestrian users' mobility and access needs.

The AustRoads Guide to Traffic Engineering Practice, states that pedestrian facilities are often designed to cater for the 'average' pedestrian. In order to meet the needs of different users the AustRoads identifies ten broad groups of pedestrians:

1. Commuters
2. Children walking to school
3. Utility activities*
4. Parents/carers with prams
5. Wheelchair users
6. People with disabilities
7. Seniors and people with mobility aids
8. Recreational pedestrians
9. Runners/joggers
10. Dog walkers.

*Includes people undertaking shopping actives with trolleys and bags

The Queensland Government 'Designing for Pedestrian and Cyclists Course' handbook identifies three groups as shown in Table 3.

4.5.2 Walking user groups

For the purpose of providing usable and practical facilities these user types can be narrowed down to three key user groups of:

1. Vulnerable walkers– school children, the elderly, disabled walkers, adults with strollers/ trolleys
2. Mobile adults – people who walk or use their bicycle for transport to travel for a purpose around their communities
3. Sport and fitness riders and walkers – power walkers, joggers, fitness riders.

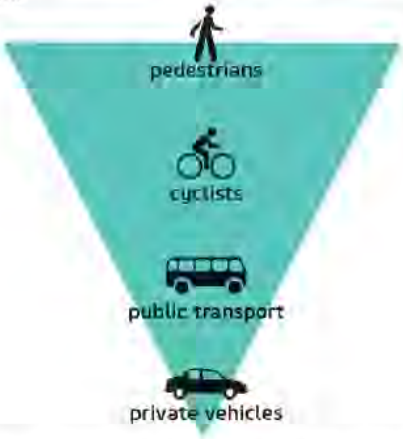
These user types were applied in the assessment of the Bungendore area.

Table 3: Different pedestrian types

User Type	Purposes	Operating Characteristics
Vulnerable to traffic	Elderly walkers Disabled walkers Parents with prams Children to 15 years of age Traffic shy adults	Speeds slower than 4 km/h Vulnerable Lower reaction times Lower skill levels Shorter trip distances
Mobile adults	Purposeful adult walkers Commuters Recreational/social walkers Tertiary students	Speeds 2 – 8 km/h Purposeful walking Higher skill levels Medium to quick reaction times Medium to long trip distances
Sports and fitness	Runners Triathletes Fitness walkers Recreational and social walkers	Speeds higher than 8 km/h Quick reaction times High skill levels Often walk in groups Medium to long trip distances Need high-quality walking surface

4.5.3 Principle intent

There is an opportunity to provide a better balance of priority focus in the town through recommendations outlined in this plan. A modern urban core (town centre) should provide the following movement prioritisation:



Delivery and service vehicles are an important part of any vibrant core and will be considered with any recommendations. Taxis are considered with public transport.

A shift to this hierarchy of transport priority in the town core would result in a stronger focus on pedestrian safety, function and amenity in exchange for a potential increase in delay for private motor vehicles. In a town like Bungendore the impacts should be fairly minimal and a good balance achieved.

The recent streetscape works along Gibraltar Street has provided wider footpaths, centre of road parking, improved pavements markings, pedestrian refuges, roundabouts, and landscaping throughout the centre. This series of infrastructure improvements should continue to be expanded upon into the future, in order to provide the best pedestrian experience throughout the commercial and school areas.

Wayfinding and consistency are important aspects in network legibility and pedestrian experience. Clarity of pedestrian facilities and links can greatly assist in wayfinding, legibility and usage.

4.5.4 Approach

In determining appropriate facilities, our approach to this project has incorporated the Safe Systems approach. The Safe System approach is a guiding philosophy that operates on the principle that it is not acceptable for a road user to be killed or seriously injured if they make a mistake. The approach aims to create a forgiving road system based on the following four principles:

1. People make mistakes – People make mistakes and some crashes are inevitable.
2. People are vulnerable – Our bodies have a limited ability to withstand crash forces without being killed or seriously injured.
3. We need to share responsibility – System designers and people who use the roads must share responsibility for creating a road system where crash forces do not result in death or serious injury.
4. We need to strengthen all parts of the road transport system – We need to improve the safety of all parts of the system, roads and roadsides, speeds, vehicles, and road use so that if one part fails, other parts will still protect the people involved.

The principles and the interaction between them are outlined in Figure 15.

Figure 15: Safe system approach

Source: ARRB Group.

Safe speeds and safe roads and roadsides are the principle domain in which Council has the ability to influence traveller behaviour. An understanding of the road users in each area can also assist in developing effective solutions.

All new footpaths should be a minimum of 1.5 m wide to allow two wheelchairs or prams to pass each other without the need for one of them to leave the path.

4.6 Bike Planning Principles

In developing options for the bicycle network there are various principles that should be considered.

The planning approach includes shared use paths and on-road cycling facilities (bicycle lanes or advisory treatments) as means of providing for cyclists. Off-road bicycle facilities (shared use paths, bicycle-only paths) provide separation to motor vehicles and hence are often favoured for their perceived safety. However in the Australian context, right-of-way provisions at intersections and side streets, risks from vehicles entering and exiting driveways, and often poor maintenance standards can have a significant impact on the safety performance of off-road facilities. Therefore, the planning approach does not rely on off-road facilities as the sole or even main form of bicycle facility, but uses both on-road and off-road facilities depending on circumstances.

Off road facilities in Bungendore are located where there are fewer driveway or crossing conflicts. In some instances this necessitates the need to cross a road to get to one facility. For example the Majara Street shared path. Road crossings have attempted to be limited and provided on lower volume roads.

On-road bicycle treatments can be the most cost-effective way of providing for cycling trips, and research demonstrates that these are also effective at increasing cyclist safety. However, on-road cycling is generally not suited to young children without supervision; hence children under the age of 12 are legally allowed to cycle on footpaths in Australia. Youths or adult parents/ guardians accompanying such children are also legally allowed to cycle on footpaths.

Even where sealed paths exist on a route, it is often desirable for higher speed cyclists to be separated from pedestrians, child cyclists and slower cyclists by providing on-road facilities.

Bicycle lanes or advisory bicycle treatments can also provide a traffic safety role, by calming the traffic, creating a driving environment that encourages slower speeds and designating a space outside the travel lanes that pedestrians can enter when crossing a road.

There are a number of types of on-road treatment possible. The amount of space, speed environment, whether or not parking is permitted on a street and the turnover rates of on-street parking all affect the type of treatment that might be provided. These differences and applications are detailed in guides such as cycling aspects of Austroads Guidelines 2017 edition. Bicycle lanes have associated with them certain regulatory requirements. For example, bicycles must use a bicycle lane if one is provided (unless turning right); cars cannot drive in a bicycle lane except to turn left.

Within Bungendore there are currently no on-road cycle lanes marked. There are wide shoulders on:

- Tarago Road between Rutledge Street and Turallo Terrace
- Kings Highway between Duralla Street and Mecca Lane.

Connectivity to and from these shoulders is limited and marking of other on road cycle lanes such as along the Kings Highway would require the removal of on-street parking or the widening of the pavement. Parts of the Kings Highway and Bungendore Road also have sealed shoulders of reasonable widths but it is not consistent.

4.6.1 Bicycle user categories

In determining infrastructure treatments and priorities, it is important to understand who will be using the facility and what their needs and capabilities are. The type of cyclist that use bicycle networks can be categorised based on their experience and skill levels.

The four general categories used to describe cyclists in this report are:

- Children cyclists
- Adult local cyclists
- Adult commuters
- Recreational cyclists.

4.6.1.1 Children cyclists

Children cyclists in the Primary School age range do not have fully developed cognitive skills. This makes them a vulnerable road user due to their lack of experience and little to no understanding of road rules. It is necessary for these children to be supervised when riding. Separation from motor vehicles is important when identifying suitable infrastructure for these users.

4.6.1.2 Adult local cyclists

Adult local cyclists are those who accompany children for short trip bicycle rides. Trip purposes include a range of activities such as recreational trips and short trips to local shops.

4.6.1.3 Adult commuters

Adult commuters are the most advanced riders who are less affected by motor vehicles on the road. These riders are able to share lanes with vehicular traffic, although dedicated lanes may be preferred. Speed is a more important factor than separation from motor vehicles. Hence, facilities should be designed and maintained to allow reasonable high speed riding. This may sometimes result in parallel facilities to cater for different user categories such as on road lanes and off road shared path facilities.

4.6.1.4 Recreation cyclists

Recreation trip lengths may vary depending on the level of experience of the rider. Skill levels also vary from beginner primary school aged children to advanced adult riders. These riders typically avoid busy roads and direct routes as the trip purpose is mainly the cycling experience.

4.6.2 The bicycle network

The bicycle network consists of a number of interconnected routes signed for bicycle use either on road or off road, and covering Bungendore.

The cycling speed and distance covered, has an impact on the spacing of routes. Assuming an average cycle speed of 15 km/h, or 20 km/h for commuter cycling on local roads, then cyclists living or working within 500 metres of a cycle route are within acceptable distance to the facility. Within a smaller town such as Bungendore this should be reduced further where possible to within 250 m. This distance would take an average cyclist 1-2 minutes to cycle on local streets to join a bicycle route. However, the network must provide a level of service comparable with the intended cyclist's level of experience, road safety expectations, and directness of route. It is a principle in the development of the Bungendore bicycle plan that as far as practicable, most of the settled urban area is within 250 m of a bicycle route, both in the north-south and east-west orientations.

Bicycles are vehicles under the Australian Road Rules; therefore all streets are cycling streets. In reality, however, due to the differences in speed of travel, size of cars and trucks and the personal safety differences between the cyclist and the car driver, in order to be pro-active in addressing these imbalances, specific engineering works are required to establish a bicycle network. Essentially a bicycle network consists of a hierarchy of routes.

In this plan, the network functions have been adopted from the NSW Bicycle guidelines. If Council wish to further refine a hierarchy for their active travel network it is recommended that consistency is applied across the whole Council area. When considering definitions and treatments other jurisdictions within close proximity should be reviewed to consider merits and possible ease of integration.

The bicycle network functions are:

- Regional bicycle routes

  These are longer distance regional routes connecting the major regions of the town and beyond. As they are often on highly trafficked roads, taking advantage of the most direct road alignments, they require the highest level of bicycle facility. They are often on-road sharing the road space with cars and trucks and are designed for use by experienced commuter cyclists. Some are on State and regional roads where RMS agreement and implementation may be required.

- Local bicycle routes

  These are connectors within suburbs and cater to local trips to school, shops, community facilities and local recreation attractors. These link to the Regional Routes and are typically shorter distance facilities that are disproportionately used by less experienced cyclists such as children, teenagers and less experienced adult cyclists. These are typically off road routes but when they are on-road, the cycle lanes are normally on slower, lower volume council roads. These can also be more circuitous taking advantage of open space corridors, the local topography, access to views and linking in a leisurely fashion to land use attractors along the way. As these routes are inevitably shared with pedestrians, they are not designed for high bicycle speeds. Detailed design of such routes can add value to the cycling experience; this can include stopping areas/picnic areas, network distance signage, points of interest signs as well as under-cover seating for wet weather protection.

- Mixed Traffic Streets

  These link with the residential street system to provide residential access to destinations. Where the road link is used to connect between local or Regional bicycle routes on road markings and watch for cyclists signage can aid with the legibility of the cycle network. While not all residential streets will be marked as mixed traffic streets, indicating road with reasonable topography, low vehicle volumes and speeds as cycle friendly streets on bike maps can help users identify suitable path links to take.

5.0 Network Plans

5.1 Network Constraints and Opportunities

The study area already presents a large range of opportunities for pedestrian and cycle movement. QPRC wishes to enhance these facilities through the development and implementation of the bicycle and pedestrian facilities plan and through future re-development of sites when they occur. Existing facilities should link in with highly used cyclist and pedestrian routes and upgraded when required.

Opportunities for improved walking and cycling facilities in Bungendore include:

- Improved connections to existing off-road shared paths
- Existing road crossing facilities such as pedestrian refuges
- Parks and open space where cycle networks can be built to encourage recreation activities
- Rail trails which can be used for recreational cycling
- Low volume streets.

Constraints to improved walking and cycling facilities in Bungendore include:

- Topography (steep grades and creeks)
- High volume roads such as the Kings Highway
- Through streets with a significant amount of kerbside parking
- Large distances and poor road shoulder conditions for travellers leaving Bungendore.

The lack of footpaths and appropriate safe crossing facilities are the major constraint to active travel. Along major roads, where footpaths are missing, their construction is necessarily a high priority.

For those with disabilities, there are many barriers, depending on the nature of the disability. It must be remembered that most seniors, especially those over 75 years of age, suffer from some form of disability, usually less agility and poorer eyesight.

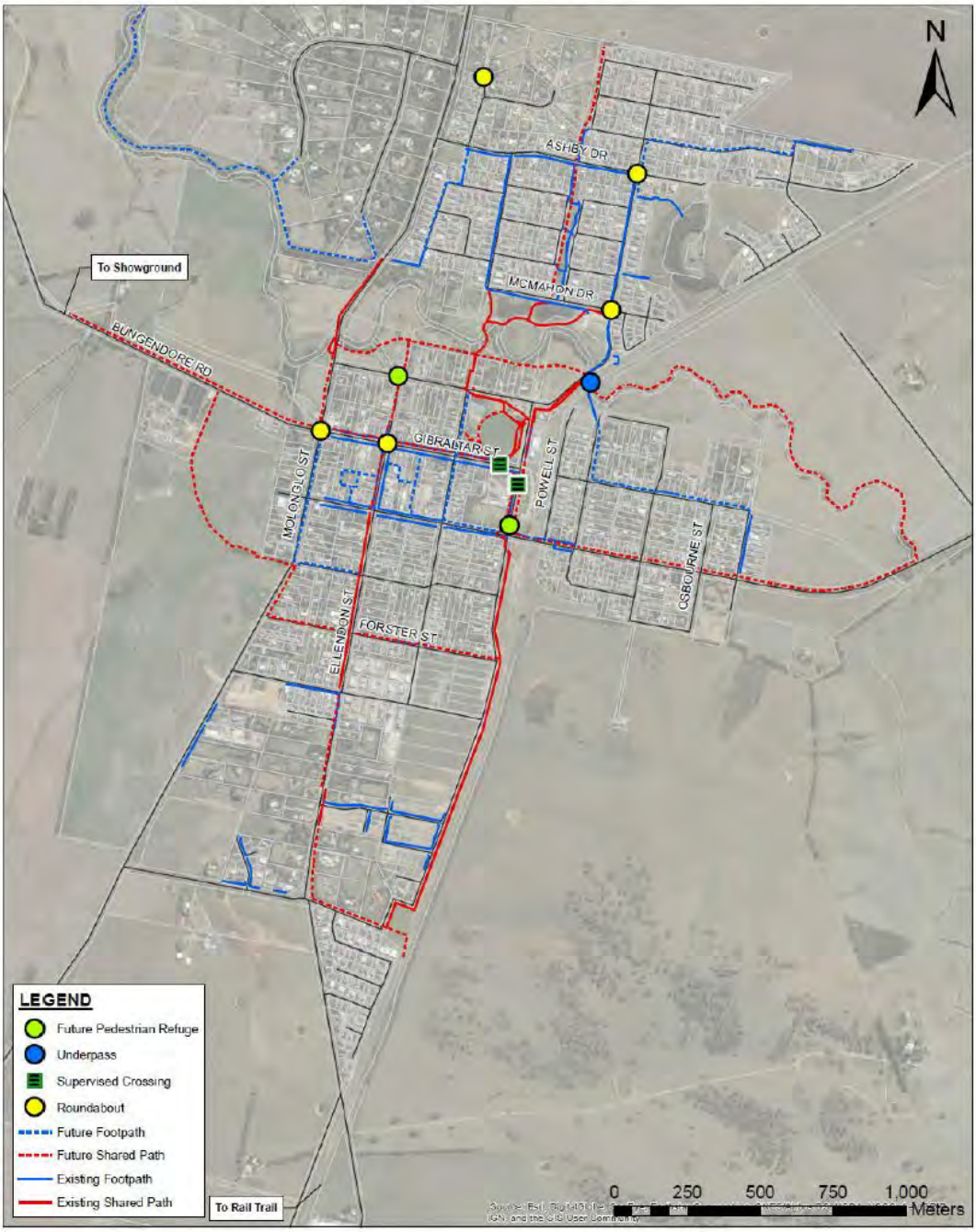
5.2 Network Master Plan

A network master plan has been developed for Bungendore according to the approach and principles already described in this report. The proposed walk and cycle network master plan for Bungendore is shown in Figure 16. The red and blue dotted lines on Gibraltar, Majara, Malbon and Forster Street indicate that it is proposed that the existing footpaths will be widened to form shared paths.

It is important to note that:

- This a strategic network, rather than an itemisation of every route that might ultimately be desired. They identify routes with an additional level of priority to those that could be desired on every street.
- Hierarchy definitions shown in the master plan figure are defined for planning purposes. The action plans then interpret these into the physical networks that should be implemented, and the priorities for these.
- The bicycle and pedestrian facilities plan has a definite timeframe. The networks shown are based on a timescale of about 10 years. It is assumed that the plan will be reviewed every five years.
- Changes in land uses can have large impact on walking and cycling needs, but not all land use changes that will occur can be predicted and incorporated into the networks. Also, some longer term routes — such as a town boundary walk for Bungendore — will not be achievable in the network timeframe, and shorter-term routes are shown as intermediate staging for the desirable long-term route.

Figure 16: Proposed walking and cycling network master plan for Bungendore



5.3 Catchments

To help identify priority link items and where greater density of activities are likely to occur, catchment maps for key generators and vulnerable users have been developed. The catchments have been developed based on the path network rather than as the crow flies to help identify actual distances and missing links. The distances are based on the current path and road network.

5.3.1 Pedestrian catchments

Having established the constraints and opportunities, the conceptual pedestrian generators, attractors and catchment areas are illustrated for various pedestrian target groups. Catchments are based on distance covered at a defined walking speed.

If walking (or cycling) is to be encouraged, then the planning method must be changed to be pro-active rather than reactive to existing behaviour. This has been the method used in bicycle transport facility.

5.3.1.1 Seniors and mobility impaired catchments

Figure 17 illustrates the 0.9 km walking radii around senior's attractors such as retail nodes, railway stations and community centres. The aged housing is located in respect to these. While path and road distance used to establish the catchment for planning purposes is 0.9 km - it is expected that the actual walking distance is likely to be more than this. Some seniors' attractors have no identifiable cluster of aged housing near them. This does not mean that there are no elderly living within the catchment of that facility.

5.3.1.2 School catchments

For schools, the potential walking catchments are linked to the walking radius around the school within which bus travel is not subsidised. The path link distances used in the walking catchment are 1.6km radius for primary schools (Figure 18).

As can be seen, the catchment areas overlap substantially illustrating that every street is a walking street to school. It is therefore not realistic just to plan for the school frontage or a single route to a school. Essentially children walk from all directions - it will be necessary to ensure that on roads of higher road classification, high speed or volume, appropriate crossing facilities are in place and on arterial and sub arterial roads where children would be expected to walk there are continuous footpaths.

As the streets converge on the school, it is more likely that pedestrian crossing facilities already exist. However it must be remembered that on streets even over 1km away from the school, children would still be expected to cross traffic routes to access the school by foot. In many cases, parents would then drive their children to school if safe appropriate crossing facilities are not available, thus increasing unnecessary vehicle trips.

5.3.1.3 Shopping walking catchments

The conceptual walking catchment for shopping is presented in Figure 19. The path link distance used to establish the catchment for planning purposes is 1.3 km - it is expected that the actual walking distance would vary according to topography and street permeability. Bungendore town centre is a key attractor and it may be that people would be prepared to walk longer distances if continuous good quality paths and crossings were available.

Again as with school routes, it will be necessary to ensure that appropriate crossing facilities are in place particularly on arterial and sub arterial roads and there are continuous footpaths.

Figure 17: Seniors walking catchment

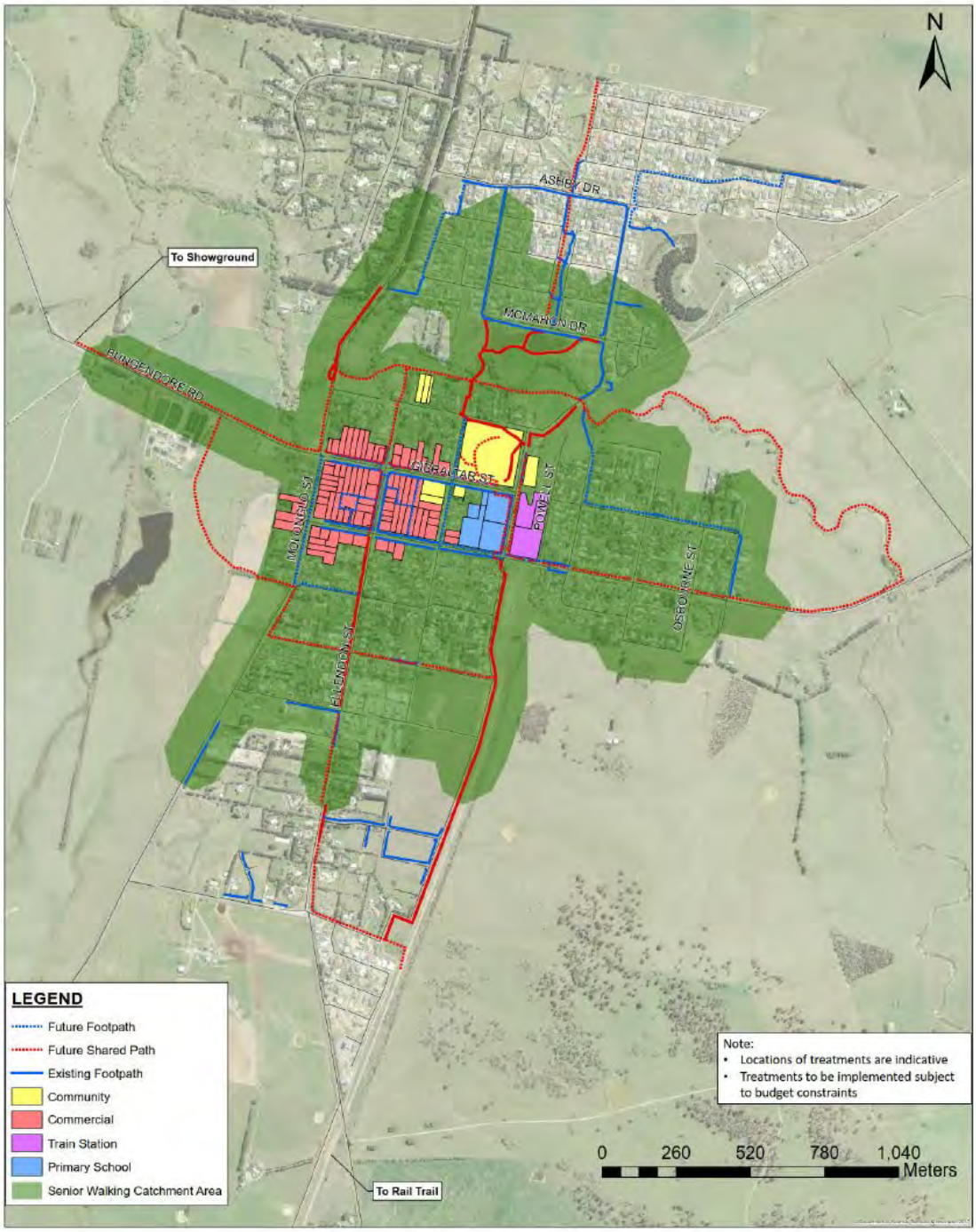


Figure 18: School walking catchment

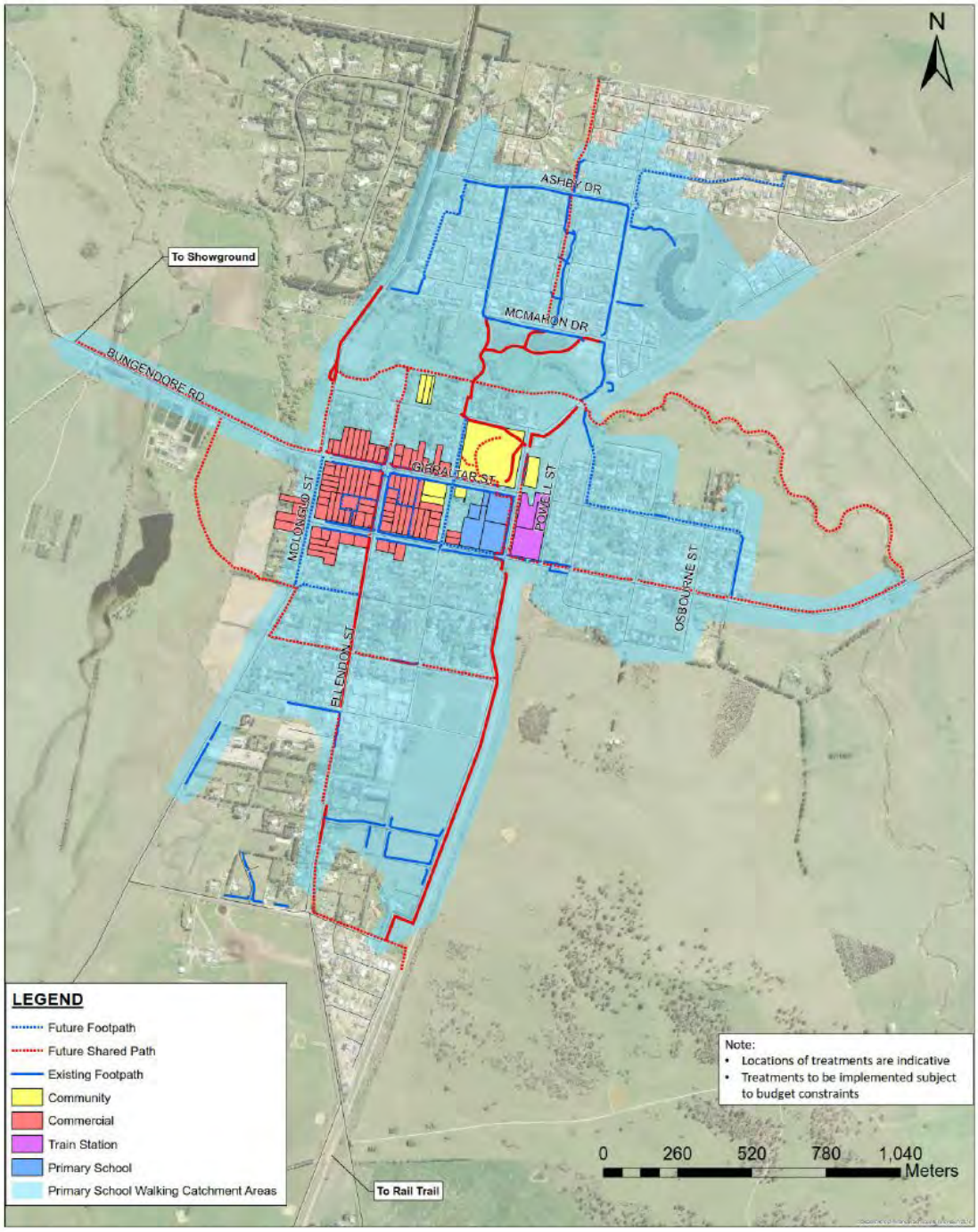
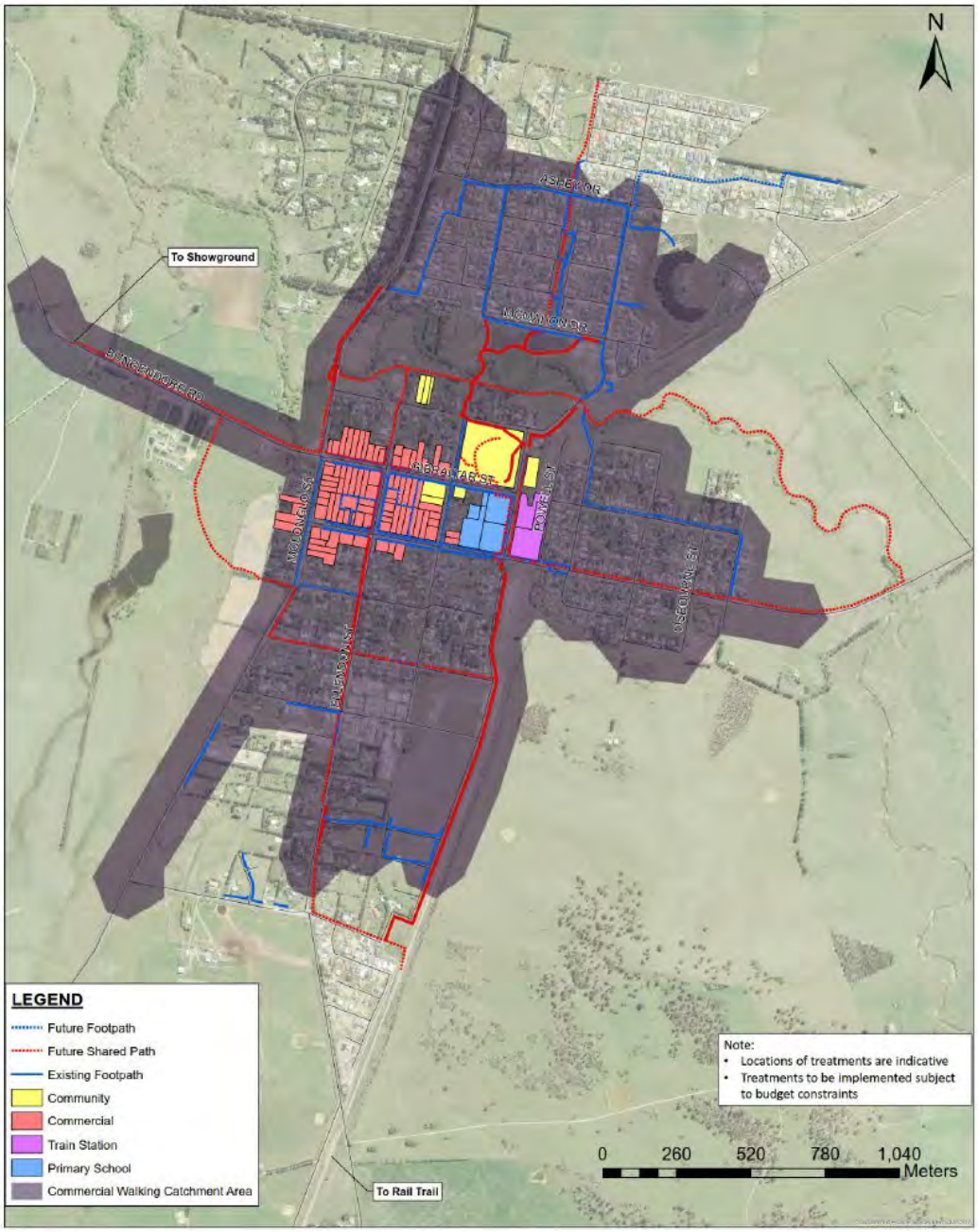


Figure 19: Shopping walking catchment



5.3.2 Cyclist catchments

Cyclist catchments extend well beyond the town boundary, so they are not shown for Bungendore.

5.3.3 End of trip facilities

AGTM11 (Austroads 2017) and the Australian Standard AS2980.3 provides information on bicycle parking and end-of-trip facilities. The Australian Standard classifies bicycle parking facilities by the level of security provided for the parked bicycle by the following classes:

- Security level A facilities – individual locker with high security locking mechanism.
- Security level B facilities – secure rooms or structures protected from the weather allowing users to lock the bicycle frame and both wheels.
- Security level C facilities – a bicycle parking space where the bicycle frame and both wheels can be locked.

5.3.3.1 Security level A bicycle parking

There are currently no lockers at Bungendore railway station. In NSW, lockers at major transport hubs are managed by Transport for NSW, with over 130 bike locker locations available across the network. Individuals are able to request for an investigation that bike lockers are available for hire through the following website:

https://appln.transport.nsw.gov.au/bikelockers/

5.3.3.2 Security level B bicycle parking

Locked cages are most appropriate near transport hubs, employment centres and educational institutions. Given the scale this is not considered to be critical for Bungendore. Employee bicycle parking should be considered for commercial tenancies.

5.3.3.3 Security level C bicycle parking

Low security bicycle parking is more appropriate for short-term parking such as near retail centre, libraries and recreation facilities such as parks. Facilities should be located in well-lit areas and as close to the user's destinations.

Recommended locations for low security bicycle parking rails are:

- Main street
- Adjacent sports oval
- Within school grounds for students.

5.3.4 Network hierarchy and design standards

The network planning for Bungendore has adopted the following network features:

- Commercial zones; the most frequent destinations for walking and cycling trips
- Secondary zones; other major destinations for walking and cycling trips, for example schools and recreation facilities
- Main access routes; these provide main level of access to the destination zones (and vice versa), forming a spine for local walking and cycling
- Local access routes; parts of the general street network that have strategic value in providing walking and cycling access to main access routes, secondary zones and commercial zones
- Cut throughs; generally short sections of path that provide access where no road or street alignment otherwise exists recreational routes; for providing recreational opportunities
- Regional routes; for fast and unhindered cycle travel between towns and other regional destinations.

6.0 Route Priority Strategy and Implementation Plan

The Action Plan for improved bicycle and pedestrian facilities for Bungendore is shown in Figure 16. This Chapter sets out the priorities and estimated costs for implementing the works.

6.1 Route Prioritisation

Council has identified commitments such as the Gibraltar Street and Kings Highway upgrade works and the roundabout at the intersection of Tarago Road and Kings Highway. Routes will be developed in stages when funding becomes available.

The selection of active travel routes was based on consideration of the following elements:

- Connectivity with existing infrastructure
- Route continuity
- Proximity to a schools and aged care
- Proximity to public transport
- Safety
- Cost.

This provides a good framework for assessment. In cases where two parallel routes were identified only one was taken forwards based on consideration of the above factors and engineering judgement. In some cases short links within a route were prioritised if they provided a path connection.

Routes have been allocated as high priority with the intent to undertake the works within the next five years and medium priority for likely future path links that should be considered with any planning or new development works.

Shared paths as opposed to footpaths have typically been proposed as they provide for a wider range of users and provide adequate widths for two way passing of wheelchairs and prams. The width rather than surface treatment has been outlined as the defining characteristic of proposed paths in this study.

Each town has their own local character and walking and cycling infrastructure should reinforce this character. This infrastructure is also important as part of presenting a picture of how the town (and QPRC) regard their walking and cycling to residents and visitors. At the same time, infrastructure needs to be functional, and this functionality needs to be balanced against aesthetics in developing a good streetscape design outcome.

6.1.1 Route connectivity

Where a local route connects to an attractor or a generator, there is greater likelihood of that facility being used. Connectivity is a key determinant of the potential use of the network. This is particularly relevant to local routes, the main purpose of which is to create a facility which can be used for a range of trip purposes, thus decreasing the need to use a car. This criterion therefore creates a relationship between the local route length, and the number of attractors and generators served by the route. This also includes new development areas.

The types of facility and selected alignments have been considered in determining priorities.

6.1.2 Route continuity

This criterion relates to new route connectivity to other proposed routes as well as to connecting to existing routes. There is clear value in growing an existing facility rather than building a new isolated route, as there is usually an existing bicycle user base whose range can be expanded.

6.1.3 Proximity to schools and aged care

Facilities close to schools or aged care housing typically cater for the more vulnerable road users who rely on active travel.

6.1.4 Road safety

Where possible, the bicycle network should address the existing bicycle road safety issues reflected in the bicycle crash record. The most recent five year RMS crash data base is the key input in assessing this criterion and this showed that there were no bicycle crashes in Bungendore during this period.

6.1.5 Cost of routes

There is typically a balance between amenity and cost. Wider paths can offer a greater amenity but may reduce the extent to which the network can be developed with the available funding. In developing a masterplan for the active travel network, greater amenity has been targeted where higher usage is expected.

6.2 Implementation Plan

To avoid fragmentation of works an integrated approach was undertaken to balance each of the criteria and associated works. The networks identified in the plan present a 15 year timeframe. Typically the high priority items cover a 0 - 4 year time frame and the medium priority works relate to a 5 - 15 year time frame. However, the plan should be reviewed at the end of five years for currency and changed conditions, the implementation of works, likely forward works, available funding levels, changes in strategy, etc.

6.2.1 Bungendore proposed works plan

The proposed works plan for bicycle and pedestrian facilities in Bungendore is shown in Figure 20. It includes priorities for shared path or footpath improvements. High priority works (1 – 4 years) are shown with a green box outline.

This figure demonstrates how the works proposed in the path program combine with existing paths, plus the proposed street crossing points and existing crossing places, to create an overall network. In this sense, "existing" also includes those paths that developers have committed to providing (where known).

6.2.2 Cost rates

The cost rates used in the implementation plan are based on the cost of recent similar works, in consultation with Council staff, and are presented in Table 4. These rates have been used to determine the indicative costs based on route lengths. More detailed costing will be undertaken in the design phase.

Table 4: Infrastructure cost rates

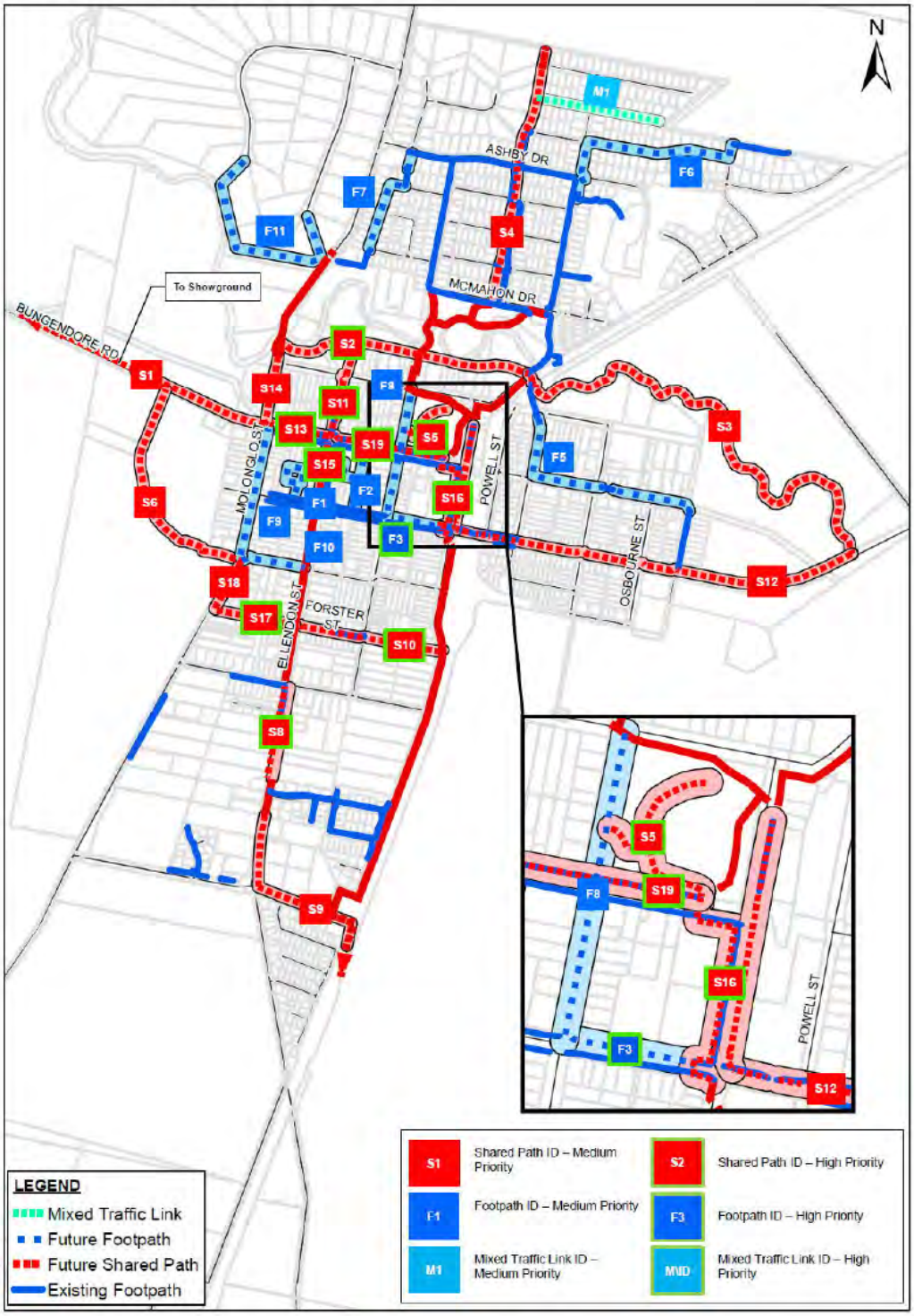
Item	Rate	Cost
Concrete Path	Per square metre	$150
Bitumen path	Per square metre	$60
Pedestrian refuge island	Per item	$25,000
Mixed Street signage and line marking	Per metre	$30

Note: 2018 cost rates

In regard to these, it should be noted that:

- Path rates (concrete and bitumen) have been nominated by Council.
- The cost rates exclude design and drafting of plans, community consultation or traffic control associated with works, and which might occur in-house or as part of other projects.
- Proposed streetscape improvements and the Malbon Street roundabout have already received funding and are not costed as part of this plan.

Figure 20: Proposed works plan for Bungendore



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Revision 6 – 18-Sep-2019
Prepared for – Queanbeyan-Palerang Regional Council – ABN: 95 933 070 982

6.2.3 Path program

The estimated cost of path improvements in Bungendore is given in Table 5 for footpaths and Table 6 for shared paths. The tables itemises each of the routes in the path program, with an estimated cost. The tables also assign a map reference to each path and lists paths in (roughly) priority order.

It should be noted that depending on the condition of the existing footpath it may be possible to convert a footpath to a shared path at a lower rate than what is nominated in the table above. Without a detailed study of the condition of existing paths it has been decided to cost all shared paths at the higher amount which is likely to be conservative.

This program addresses the priority infrastructure required to link existing facilities to form usable networks. These will typically comprise footpaths within the town core, but shared use paths are also proposed as they cater for both pedestrian and cyclists affording greater use and path capacity.

For the high priority treatments, the priorities are:

- Completion of all commercial zone footpaths and links within the town centre
- Completion of major east – west links between the train station and the commercial area
- Completion of facilities around the central sports fields and recreational areas
- Providing new path for some links rather than upgrading existing footpaths to meet specified performance criteria (e.g. widening existing paths)
- Linking major trip origins (i.e. residential precincts) and destinations (major non-residential land uses)
- Providing continuous routes where there are missing links.

Furthermore, many streets in and around Bungendore and surrounding extents have an insufficient seal width to accommodate on-road bicycle facilities. It is therefore assumed that cyclists likely to undertake longer distance trips outside the townships would be reasonably comfortable with on-road cycling and large scale road widening or shoulder sealing (an expensive exercise) is not proposed. This should instead be carried out in conjunction with other works along these roads.

Given these priorities, it should be noted that land use development has the potential to influence inclusions in the path program, should such development occur within the five- year timeframe of this implementation plan. For example, development of the sports fields would naturally lead to a need for an access path to the sports fields, which is currently listed as a medium priority.

The memorandum of understanding for Council Projects funded by the RTM outlines terms of funding assistance for these works, as follows:

- Pedestrian crossings on, and kerb ramps provided to access footpaths adjacent to, streets under the care and control of the RMS are generally eligible for 100% RMS funding, subject to available funds and other funding priorities, if provided in accordance with an approved pedestrian facilities plan.
- Bicycle facilities provided in compliance with an approved Bicycle Plan are generally eligible for 50% funding from the RMS, subject to the availability of funds and competing funding priorities. This also applies to shared use paths.

Table 5: Bungendore proposed footpaths

REFID	Priority	Link Description	Path Length (m)	Total Cost
F3	High	Malbon Street - between Majara Street and Butmaroo Street	190	$34,000
			sub total	**$34000**
F1	Medium	Connecting Kings Highway to Ellendon Street	340	$59,500
F2	Medium	Connecting Malbon Street, Gibraltor Street and Ellendon Street	370	$66,000
F5	Medium	Between Powell Street and Kings Hwy along Gibraltar Street	740	$132,000
F6	Medium	From Ashby Drive, along McCusker Drive and along Hyland Drive	760	$136,000
F7	Medium	From Day Circuit to Ashby Drive	360	$63,000
F10	Medium	Forster Street - Between Ellendon Street and Molonglo Street	230	$40,500
F11	Medium	Turallo Creek Track – between Tarago Road and Elmslea Drive	199	$35,000
			sub total	**$532,000**
			Total	**$566,000**

Note: 1. All estimated costs rounded to nearest $500
2. REFID is shown in Figure 20

Table 6: Bungendore proposed shared paths

REFID	Priority	Link Description	Path Length (m)	Total Cost
S2	High	Off-Road - Molonglo Street towards Community Gateway	900	$135,000
S5	High	Mick Sherd Oval	350	$52,500
S8	High	Ellendon Street - King Street to Finch Street	320	$48,500
S10	High	Forster Street - Ellendon Street to Majara Street	500	$74,500
S11	High	Ellendon Street - Gibraltor Street to Turallo Creek	380	$57,000
S13	High	Gibraltor Street - Ellendon Street to Molonglo Street	210	$31,500
S15	High	Ellendon Street - Gibraltor Street to Kings Highway	240	$36,000
S16	High	Majara Street - Gibraltor Street to Kings Highway	720	$108,000
S17	High	Forster St - Between Molonglo Street and Ellendon Street	280	$42,500
S19	High	Gibraltor Street - Majara Street and Ellendon Street	370	$56,000
			High Priority Sub-Total	**$641,500**
S1	Medium	Bungendore Road - Molonglo Street towards the Showground	500	$74,500
S3	Medium	Off-Road - Community Gateway towards Kings Highway	1810	$271,500
S4	Medium	Wild Terrace - McMahon Drive to Larmer Street	870	$130,000

REFID	Priority	Link Description	Path Length (m)	Total Cost
S6	Medium	Off-Road - Kings Highway to Bungendore Road	830	$124,500
S9	Medium	Ellendon Street and Trucking Yard Lane	680	$102,000
S12	Medium	Kings Highway - From Majara Street along Kings Hwy	1350	$202,000
S14	Medium	Molonglo Street - Gibraltar Street to Turallo Creek	260	$39,000
S18	Medium	Molonglo Street - Between Forster Street and King Street	190	$29,000
			Medium Priority Sub-Total	**$972,500**
			Total	**$1,614,000**

Note: All estimated costs rounded to nearest $500
2. REFID is shown in Figure 20

6.2.4 Marked mixed traffic streets

Eyre Street is the only road nominated as a mixed use road in the plan for Bungendore. The map reference and cost for this is given in Table 7.

Table 7: Bungendore proposed mixed use roads

REFID	Priority	Link Description	Path Length (m)	Total Cost
M1	Medium	Eyre Street –from Lamer Street along Eyre Street	435	$6,500

Note: All estimated costs rounded to nearest $500
2. REFID is shown in Figure 20

6.2.5 Street crossing program

The greatest safety hazard for road users is at intersections. Intersections and street crossings therefore have a high priority in the action plan.

A lack of kerb ramps also affects access for people with disabilities (a particular area of interest for council, given statutory requirements such as the Disability Discrimination Act and Disability Standards for Accessible Public Transport) and for people using strollers, etc. Construction of street crossings will also provide kerb ramps.

The priority for street crossings is where crossings:

- Are of high traffic volume streets
- Are used by high pedestrian and/ or cyclist volumes
- Link routes to form or enhance networks.

Kerb extensions, raised pedestrian crossings and road crossing facilities provided on local and regional roads (those not under the care and control of the RMS) are generally eligible for up to 50% funding by the RMS, subject to availability of funds and competing funding priorities.

Table 8 outlines the proposed crossing facilities, in the form of refuge islands. The location of these are shown in Figure 16 and described in Table 8.

Table 8: Bungendore proposed street crossing facilities

REFID	Priority	Link Description	Items	Total Cost
PR1	High	Refuge Island - Ellendon Street near Forster Street	1	$25,000
PR2	High	Refuge Island - Powell Street near Kings Highway	1	$25,000
PR3	High	Refuge Island - Ellendon Street north of Gibraltar Street	1	$25,000
			Total	**$75,000**

6.2.6 Kerb ramp replacement program

A kerb replacement program has been actioned and many of the links with footpaths have installed pram ramps. All sites with footpaths or shared paths should have kerb ramps installed. The kerb ramps associated with older footpaths generally do not meet current disability standards in terms of gradients, ease of mounting, directional guidance provided by Tactile Ground Surface Indicators (TGSIs); are poorly located and aligned; and in some cases do not exist at all.

If kerb ramps are only installed with new infrastructure, they are not provided in a strategic way - i.e. to create usable routes - and accessible routes and networks would not be created in a reasonable timeframe.

The kerb ramp replacement program aims to provide or replace kerb ramps in existing footpaths, to create a basic framework of accessible routes within each town within five years. Priority should be determined by the following factors:

- Amount of pedestrian use
- Currently programmed works (whether the kerb ramp would otherwise be constructed)
- Providing continuously accessible routes, especially in commercial and secondary destination zones, but also other locations well- used by frail pedestrians (typically the elderly) and/ or people using prams or strollers
- Providing number of circular loops to cater for some degree of recreational opportunities.

The cost of constructing new kerb ramps is about $1,100 per kerb ramp, plus around $160 per square metre of footpath where footpath construction or reinstatement is required in addition to the kerb ramp.

A kerb ramp replacement program of $5,500 per year is proposed in the first instance. This would provide for some five kerb ramps to be replaced each year, or 25 over the life of the program. This should allow sufficient funds to complete the kerb upgrade works within Bungendore. Other works, such as constructing new kerb and installing new footpaths, will also provide new kerb ramps. Kerb ramps will typically need to be provided in pairs, so that kerb ramps facing each other across a street or intersection are both compliant.

It is understood that Council has undertaken an audit of kerb ramps and is undertaking a kerb ramp replacement program.

"Kerb ramps provided to access footpaths adjacent to roads under the care and control of the RMS are eligible for 100% funding by the RMS, subject to availability of funds and competing funding priorities. Kerb ramps provided as an upgrade of existing pedestrian facilities on local and regional roads (those not under the care and control of the RMS) are eligible for up to 50% funding by the RMS, under the local government pedestrian facilities program subject to availability of funds and competing funding priorities".

6.2.7 Off-network program

The preceding programs have all concentrated on creating the pedestrian and cycling networks for Bungendore. However, to maximise the use, utility and ultimately value of these networks, a number of other activities can be undertaken. This includes capital works activities, policy or planning activities, and promotional activities.

These are termed “off-network” activities and this program covers these activities.

Bicycle parking

An almost complete lack of bicycle parking was noted during the community consultation and site visit. Basic bicycle parking levels are specified in the design standards. Bicycle parking provided in addition to this should be installed on an incremental basis, with additional parking dependent on observations of take up.

It is suggested that the bicycle program allow for at least five rails to be installed each year. It is preferable for the rails to be installed singly or as pairs of rails, rather than only installed at a single location each year. At a cost of about $250 each, this would be $1,250 a year.

The school was noted to have some bicycle parking; much of it poorly used. The observed racks do not provide support for bicycles, in compliance with ASZ890.3, or protection from the weather.

Bicycle facilities provided in compliance with an approved Bicycle Plan are generally eligible for 50% funding from the RMS, as outlined in the Council Projects Funded by the RTA Memorandum of Understanding, subject to the availability of funds and competing funding priorities.

Proposed locations for bicycle parking are:

- Sporting oval
- Along the main street
- Outside the supermarket.

Activities raising awareness of the bicycle and pedestrian facilities plan

In assisting to enable behavioural change, motivation can play an equally important factor as opportunity. Pedestrian and cycling infrastructure can create the opportunity. Hand in hand with this should be walking and cycling motivation, education and awareness - those things that enable the physical facilities to be used to its best extent. Education, promotion and encouragement activities could include:

- Educate communities about the new facilities provided and opportunities these present
- Encourage the use of facilities
- Create goodwill between the community and Council.

The cost to implement these actions will depend on the type and extent of activities selected for implementation, the degree to which they fall under existing budgets, the degree to which grant funding or resources are available to assist in their implementation and the degree to which Council actively pursues these actions. Hence a firm cost estimate cannot be given.

Bicycle training courses, BikeWeek activities, bicycle use promotions and map production may be eligible for part funding from the RMS, subject to the availability of funds and competing funding priorities.

7.0 Plan Implementation and Monitoring

7.1 Implementation

The staged implementation plan identified through this study would need to be assessed and implemented based on specific site conditions and reflect the latest pedestrian and bicycle facilities standards at the time of implementation. The staged action plan would be considered by Council as part of other projects (e.g. road upgrade, place making projects etc.) or included as standalone items in future Delivery Programs and Operational Plans.

Construction of any works identified in this study will be subject to the availability of funding.

7.2 Monitoring

As the pedestrian and bicycle network is developed, it will be important to monitor the progress of the network over time. Monitoring could relate to the following three areas:

- Route conditions and overall route quality
- Changes in demand
- Implementation of work program.

Monitoring of the quality of pedestrian and bicycle routes could be undertaken by measuring the quality of the route against the existing design criteria as part of a "look and see" audit process. This will enable the overall quality of routes to be improved, problems to be addressed and resources to be targeted appropriately. Council would monitor the pedestrian and bicycle plan deliverables as per the action plan. A typical assessment would involve an assessment of route conditions by a person familiar with pedestrian and bicycle design issues and would involve a site visit along the specified route.

8.0 References

ABS (2011) Australian Bureau of Statistics, Census of Population and Housing 2011

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AECOM (2017a) Integrated Transport Strategy Stage 1 Consultation, July 2017

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Hub (2009) Bike plan and pedestrian access mobility plan – Bungendore & Braidwood, for Palerang Council, February 2009

NSW Government (2017) Draft Future Transport Strategy 2056, October 2017

Queanbeyan City Council (2012a) Community Strategic Plan 2013-23

Queanbeyan City Council (2013a) Queanbeyan tomorrow community vision 2021, November 2013

RTA (2011) NSW Bicycle Guidelines, January 2011

RMS (2017) 2012-2016 road crash statistics data base, May 2017

Appendix A

Schedule of Works

Appendix A Schedule of Works

REFID	Priority	Link Description	Path Length (m)	Total Cost
F3	High	Malbon Street - between Majara Street and Butmaroo Street	190	$34,000
PR1	High	Refuge Island - Ellendon Street near Forster Street	1 item	$25,000
PR2	High	Refuge Island - Powell Street near Kings Highway	1 item	$25,000
PR3	High	Refuge Island - Ellendon Street north of Gibraltar Street	1 item	$25,000
S2	High	Off-Road - Molonglo Street towards Community Gateway	900	$135,000
S5	High	Mick Sherd Oval	350	$52,500
S8	High	Ellendon Street - King Street to Finch Street	320	$48,500
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S15	High	Ellendon Street - Gibraltor Street to Kings Highway	240	$36,000
S16	High	Majara Street - Gibraltor Street to Kings Highway	720	$108,000
S17	High	Forster St - Between Molonglo Street and Ellendon Street	280	$42,500
S19	High	Gibraltor Street - Majara Street and Ellendon street	370	$56,000
F1	Medium	Connecting Kings Highway to Ellendon Street	340	$59,500
F2	Medium	Connecting Malbon Street, Gibraltor Street and Ellendon Street	370	$66,000
F5	Medium	Between Powell Street and Kings Hwy along Gibraltar Street	740	$132,000
F6	Medium	From Ashby Drive, along McCusker Drive and along Hyland Drive	760	$136,000
F7	Medium	From Day Circuit to Ashby Drive	360	$63,000
F8	Medium	Butmaroo Street – Between Turallo Terrace and Kings Highway	460	$69,000
F9	Medium	Molonglo Street – Between Gilbraltar Street and Rutledge Street	460	$69,000
F10	Medium	Forster Street - Between Ellendon Street and Molonglo Street	230	$40,500
F11	Medium	Turallo Creek Track – between Tarago Road and Elmslea Drive	199	$35,000
M1	Medium	From Lamer Street along Eyre Street	430	$6,500
S1	Medium	Bungendore Road - Molonglo Street towards the Showground	500	$74,500
S3	Medium	Off-Road - Community Gateway towards Kings Highway	1810	$271,500
S4	Medium	Wild Terrace - McMahon Drive to Larmer Street	870	$130,000

REFID	Priority	Link Description	Path Length (m)	Total Cost
S6	Medium	Off-Road - Kings Highway to Bungendore Road	830	$124,500
S9	Medium	Ellendon Street and Trucking Yard Lane	680	$102,000
S12	Medium	Kings Highway - From Majara Street along Kings Hwy	1350	$202,000
S14	Medium	Molonglo Street - Gibraltar Street to Turallo Creek	260	$39,000
S18	Medium	Molonglo Street - Between Forster Street and King Street	190	$29,000

Note: 1. Type of work: F = footpath, S = shared path, M = marked mixed traffic street, R = refuge
2. Location of work – described in above table and in Figure 20.