

Ballarat CBD Movement and Transport Analysis Report

Prepared for the City of Ballarat

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Institute for Sensible Transport

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We respectfully acknowledge their Ancestors and Elders, past and present.

We also acknowledge the Traditional Custodians and their Ancestors of the lands and waters across Australia where we conduct our business.

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Executive Summary



This *Movement and Transport Analysis* provides a foundation for ensuring that the Ballarat CBD is an even better place to live, work and visit. The CBD has been identified as an area of *substantial change* and earmarked for higher density residential development. As the population and economy grow, the transport network will play a critical role in supporting the CBD to attract residents, visitors and commercial activity.

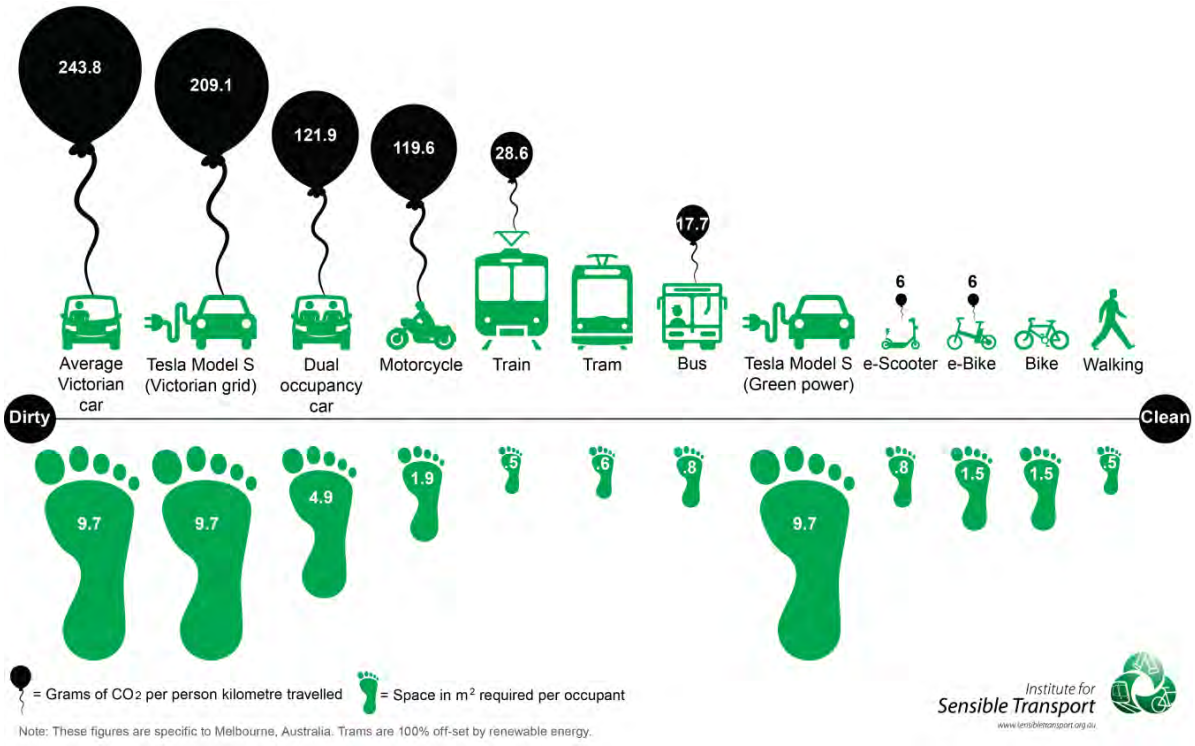
Why this project is important

The *Ballarat Housing Strategy* includes an action to develop the *Ballarat CBD Urban Design Framework and Structure Plan* to guide development in the CBD. As part of the *Ballarat CBD Urban Design Framework and Activity Centre Plan*, it is necessary to complete a movement and transport analysis to better understand the future pressures of higher density development, and plan for more sustainable transport options.

Ballarat is forecast to be home to 147,901 people by 2036 and 164,365 by 2046, representing an increase of more than 50,000 residents over the next 20 years.

If transport mode share remains the same as the population grows, significant pressure will be placed on the transport network. The graphic below highlights why a shift towards a less car dependent Ballarat is important. It compares the emissions intensity (black balloons) for different transport modes as well as how much space is required, on a m^2 per person basis (footprints).

Even electric vehicles contribute to congestion and, while better from an emissions perspective, still put pressure on the transport system. Alternatively, public and active travel offer the most energy and space efficient modes of travel. The future Ballarat CBD will benefit from a better set of transport choices, that provide everyone with the opportunity to choose transport options that reduce environmental and space consumption impacts.



Balloons and footprint diagram

What did this project involve?

This multi-stage project included an analysis of mobility, demographic and land use data, a site assessment and close engagement with various units within Council. A separate *Background and Site Assessment Report* was prepared, prior to the development of this *Movement and Transport Analysis*. The stages of this project are summarised in the graphic below.

What did we find?

A summary of key facts related to transport and demographics in the Ballarat CBD is offered in the graphic on the following page. The data revealed that Ballarat has:

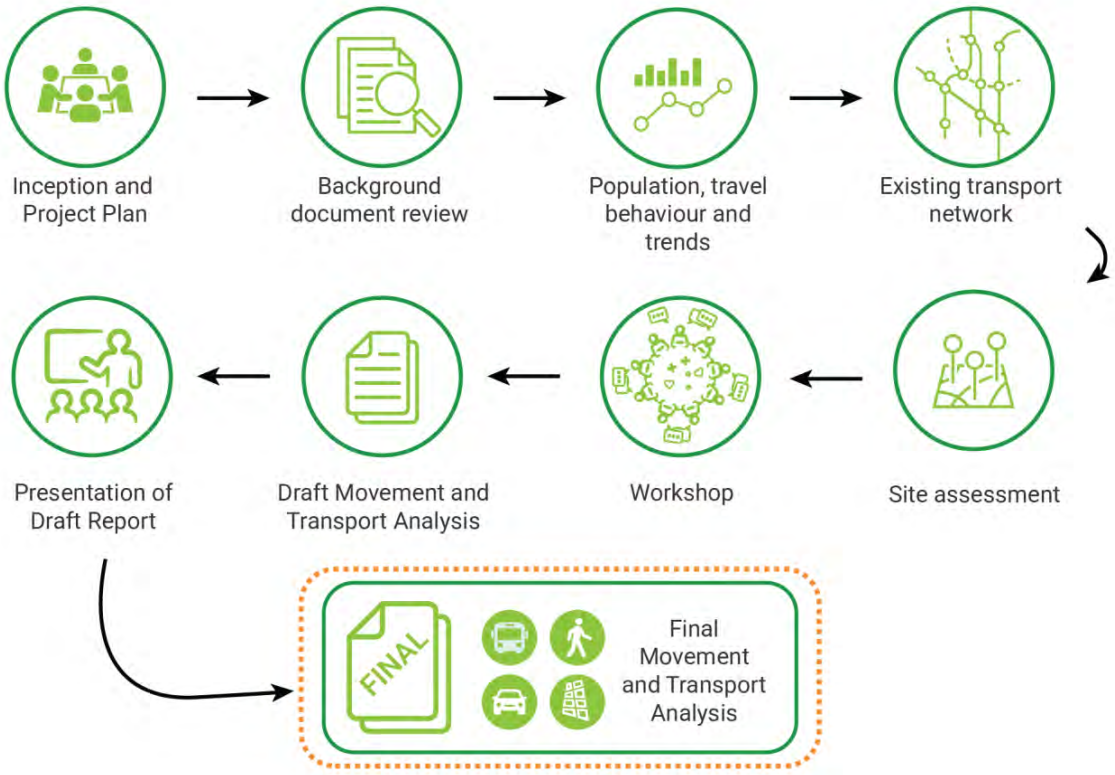
- A small residential population in the CBD; with only one in 200 residents living within the CBD
- High levels of car use, with some 86% of trips using a car and less than 1% by bicycle
- A significant number of short trips to work; some 40% are 5km or less, yet almost all of these trips are by car
- Infrequent, inconsistent and indirect public transport services
- A disconnected network of cycling infrastructure, limiting people's choice to ride
- An oversupply of car parking.

Staff workshop

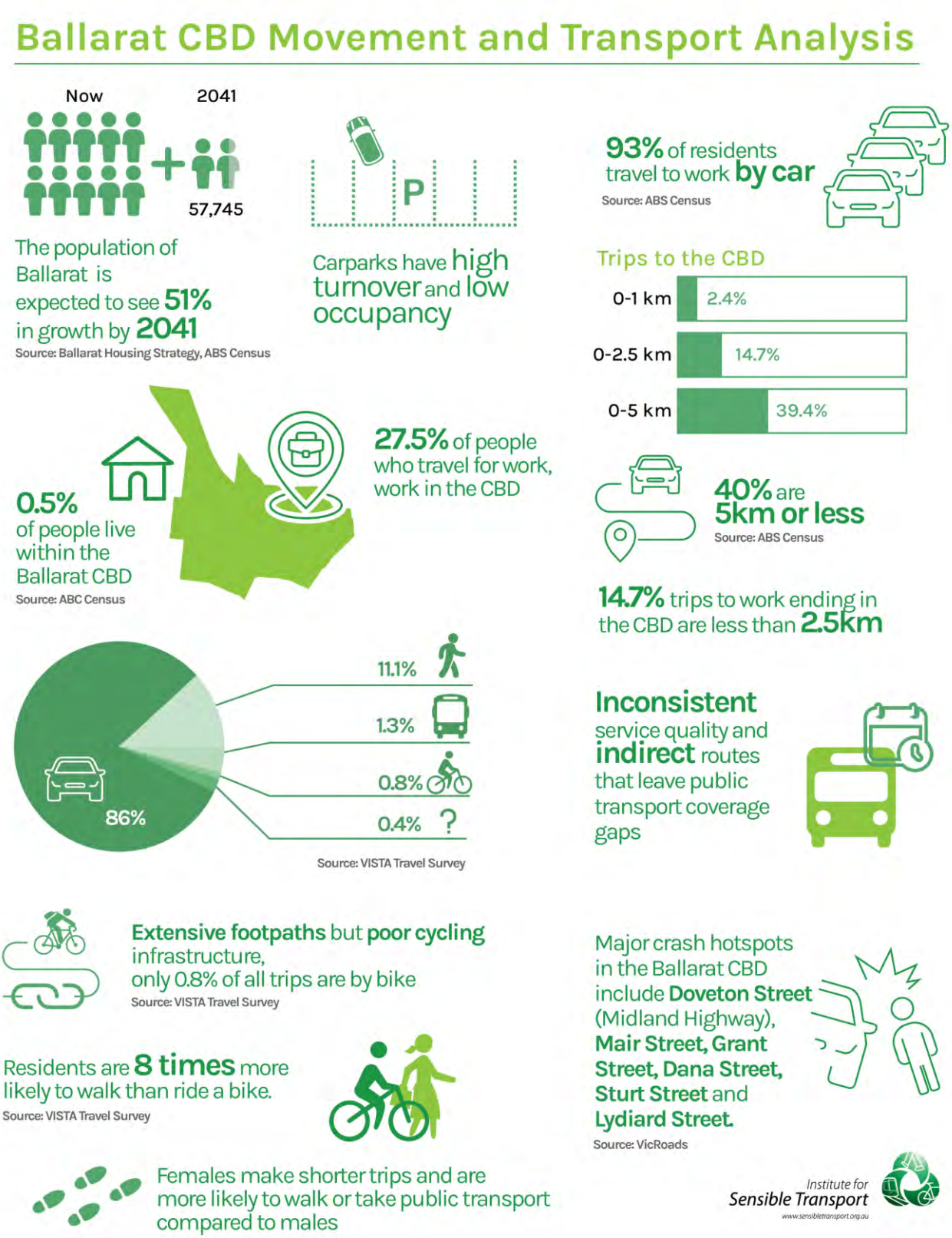
A critical part of this project involved a workshop with Council staff across a broad range of departments. Participants were asked to explore the barriers and facilitators to grow sustainable transport choices, and selected their preferred *future transport scenario*. The workshop activities and outcomes have been documented in a separate *Engagement Summary Report*. The key finding was a need for better public and active transport options, to enable the CBD to thrive. A central theme was the need to re-allocate road space towards place making, walking and cycling. Three scenarios of change were offered, including:

- business as usual
- incremental change
- sustainable change.

The majority of participants considered *sustainable change* to most closely align with Council's wider strategic objectives and long-term ambition for the Ballarat CBD.



Project stages



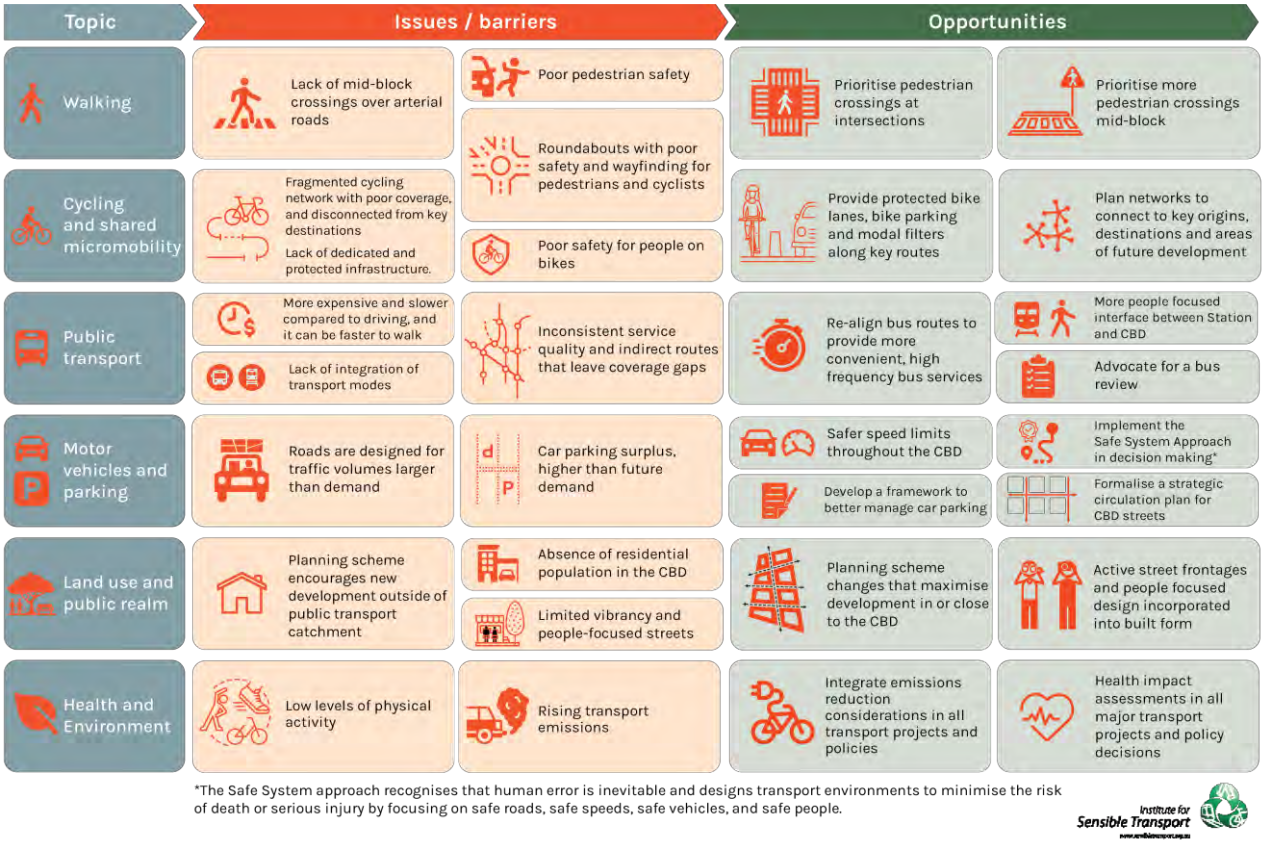
Snapshot of transport and demographics in Ballarat

Vision and actions

The *Ballarat CBD Movement and Transport Analysis Report* is led by a vision, supported by a set of guiding principles and measurable strategic objectives. These will be achieved through the implementation of a set of recommended actions. The vision is that:

Ballarat's CBD is vibrant, safe and accessible, supporting sustainable transport choices for all.

This project revealed some crucial insights regarding the key barriers and opportunities to enhance transport choice, accessibility, safety and sustainability in the Ballarat CBD. Opportunities to enhance the vibrancy of the streets have also been identified. These insights are illustrated in the graphic below, with the corresponding key action areas summarised on the next page.



Key issues and opportunities

Urban Design Framework and Activity Centre Plan

The recommendations in this *Movement and Transport Analysis* will help inform the future *Ballarat CBD Urban Design Framework and Activity Centre Plan.* As the CBD grows, transport, land use, urban design and placemaking must work together to support increased housing, employment and activity.

This report identifies opportunities to create a more vibrant, attractive and people-focused CBD. By supporting more sustainable and space-efficient modes of transport, the recommended actions will help make the CBD an even better place to live, work and visit. Council may choose other options based on community sentiment, budgets, and upgrades already included in capital works programs. Roads managed by the Department of Transport and Planning (DTP) would require further collaboration and engagement to understand the appetite for change recommended in this document and proposed interventions set out in the *Urban Design Framework and Activity Centre Plan.*


Study area
Safer roundabout
Sustainable transport corridors
Improve pedestrian amenity
Reduce vehicle through traffic
Active transport links
KM
0
0.25
0.5
Improved interface between the Railway Station and the CBD
Apply Safe Systems in roundabout design to improve safety for all users
Develop a safe and connected active and public transport network
Ballarat Railway Station
Prioritise movement on designated routes for freight and motor vehicles
Improve pedestrian environment and sense of place
Create a network of safe intersections and crossings
Implement a circulation plan to create a people focused city centre
Reduce vehicle through traffic to create people focused shared zones
Provide active transport links across major transport and natural barriers
Macarthur Street
Midland Highway
Doveton Street N
Mair Street
Curtis Street
Bridge Mall
Eastwood Street
Albert Street
Grant Street
Victoria Street
Institute for Sensible Transport

Key actions

1. Introduction



The Ballarat CBD has been identified as an area of *substantial change* for higher density residential development. As the population and economy grow, the transport network will play a critical role in supporting the CBD to attract residents, visitors and commercial activity. This *Movement and Transport Analysis* provides a foundation for ensuring that the Ballarat CBD is an even better place to live, work and visit.

1.1 About this project

The Ballarat Housing Strategy 2041 includes an action to develop the *Ballarat CBD Urban Design Framework and Structure Plan* to guide development in the CBD. As part of the *Ballarat CBD Urban Design Framework and Activity Centre Plan*, it is necessary to complete a movement and transport analysis to better understand the future pressures of higher density development, and plan for smarter, more sustainable transport options.

The *Ballarat Planning Scheme* identifies the CBD as an area where higher density residential development should be encouraged and facilitated to take advantage of transport, shops, jobs and services. By creating more sustainable transport opportunities, Ballarat will be in a stronger position to absorb growth in a manner that enhances its liveability and vibrancy.

The stages of this project are outlined in Figure 1. This includes an analysis of mobility, demographic and land use data, a physical site assessment and close engagement with various units within Council including an in-person workshop.

A separate *Background and Site Assessment Report* and *Workshop Summary Report* were prepared to inform the development of this *Ballarat CBD Movement and Transport Analysis Report*.

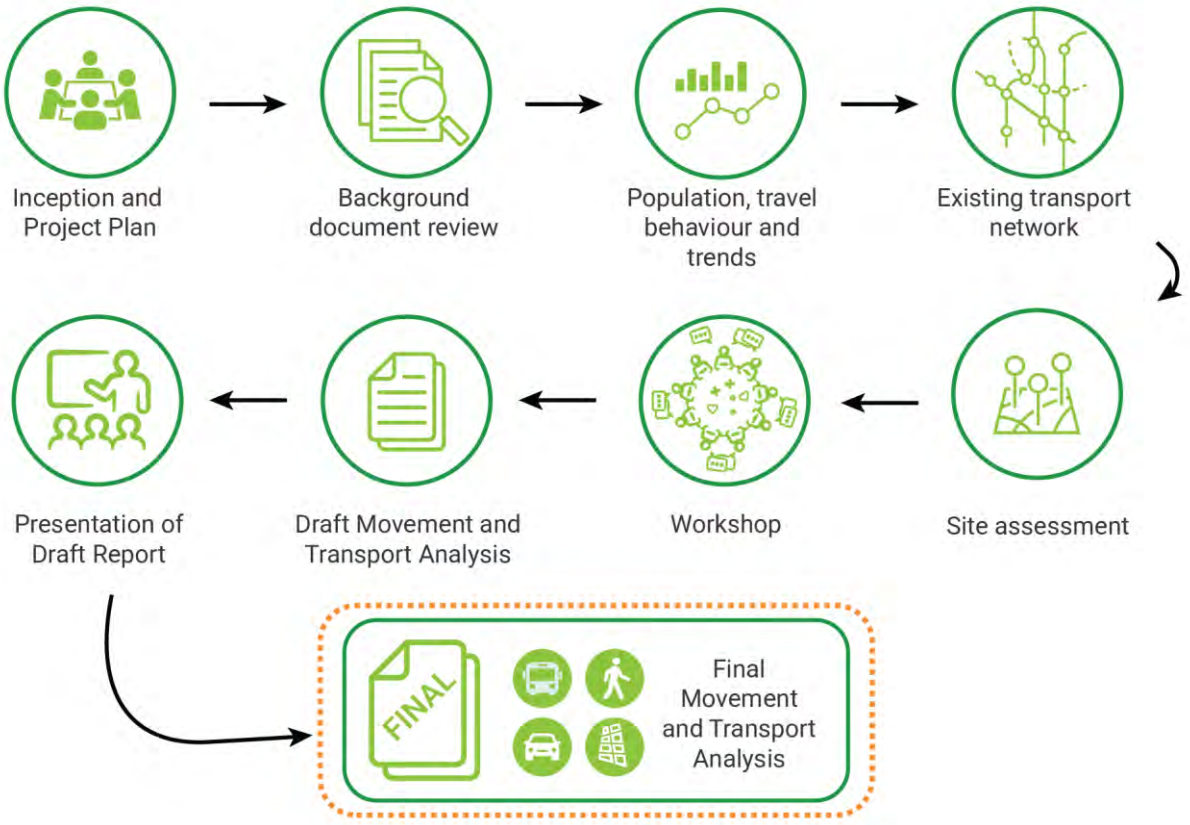


Figure 1 Project stages

Source: Institute for Sensible Transport

1.1.1 The Ballarat CBD

The Ballarat CBD plays an important role as a regional hub and destination for many locals and visitors in the region. Education, business, shopping and tourism are some of the many reasons people visit the Ballarat CBD.

Figure 2 outlines some of the key destinations in and around the CBD. Understanding these destinations is crucial, as major attractors significantly influence how people move through the city. Tourism is another key contributor to Ballarat's economy, with the CBD acting as a central destination for cultural, heritage, and commercial trips. The city welcomes high visitor numbers, many of whom arrive by road or via Ballarat Station. Major attractions include Sovereign Hill, the Eureka Centre, the Art Gallery of Ballarat, and Lake Wendouree. While not all within the CBD itself, these sites are closely connected and contribute to the overall visitor experience in Ballarat.

It is also important to acknowledge that the Ballarat CBD is not an island and many of the transport movements that occur within the CBD are likely to have had their origin outside the CBD. It is therefore important that Council take a wider perspective, encompassing a broader geography than the CBD alone.

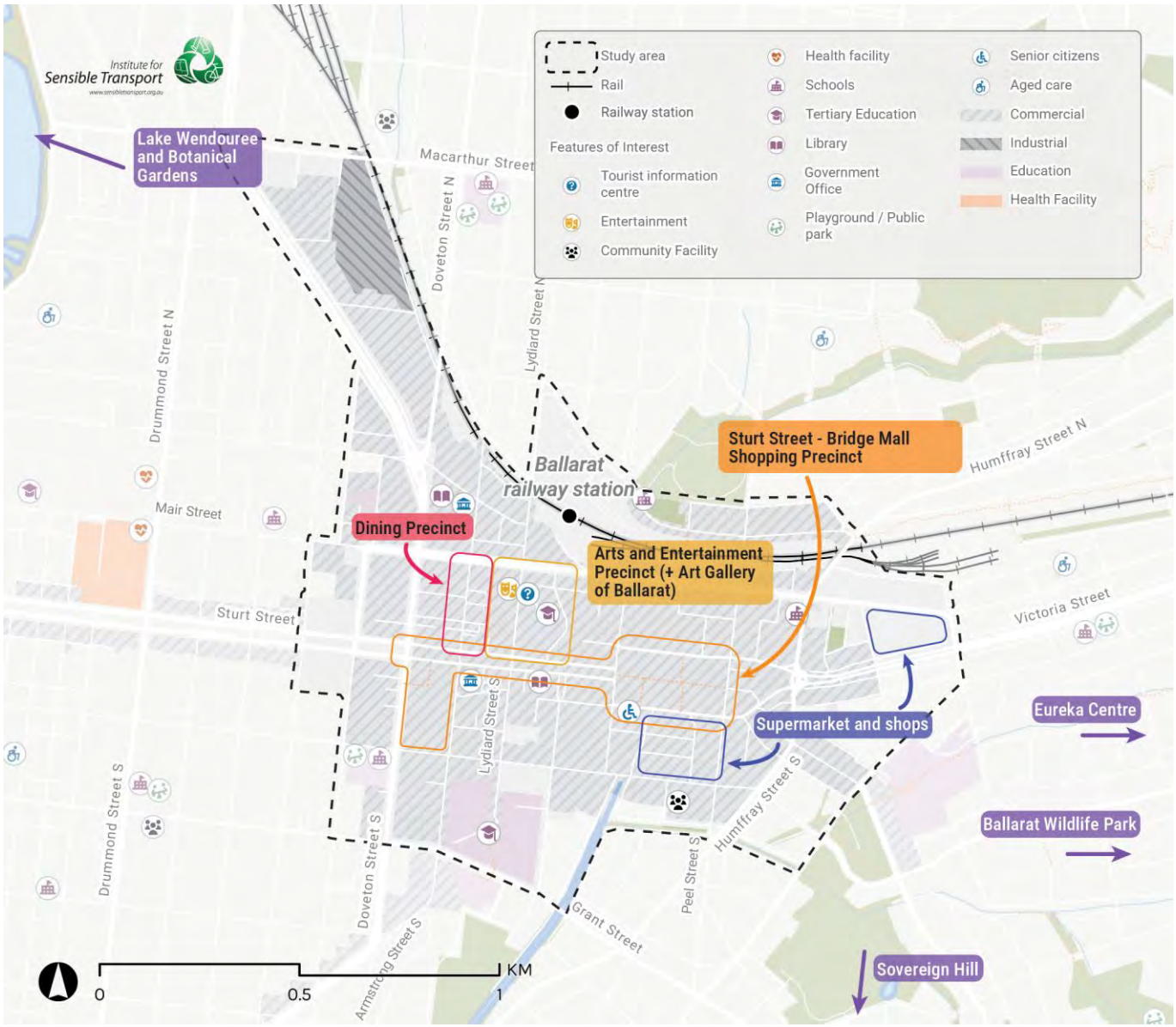


Figure 2 The Ballarat CBD study area and key precincts

Source: Institute for Sensible Transport

1.1.2 Why this project is important and objectives

The Ballarat CBD has the potential to improve its performance in terms of economic activity, road safety, all-abilities access and the efficient use of street space by encouraging sustainable forms of transport.

As the population grows, there is a need to address these issues through policy reform, infrastructure and road space reallocation. This project examined transport movements across all modes, as well as access and public realm considerations. The *Background and Site Assessment Report* includes analysis of transport and land use data for the Ballarat CBD.

This *Movement and Transport Analysis* provides recommendations to:

- Improve the active transport network
- Enhance connectivity for all users including students, tourists, workers and locals
- Adopt an inclusionary approach towards the design of streets to balance the needs of all potential users of public spaces
- Improve the public realm around public transport stops and stations
- Reinforce the *Principal Pedestrian Network*.

1.2 Structure of this Report

This report provides coverage across the topic areas shown in Figure 3 and described below:

- Section 2 provides an overview of key transport and demographics in the Ballarat CBD.
- Section 3 outlines the local and state policy context.
- Section 4 outlines the vision, guiding principles and strategic objectives.
- Section 5 highlights the big issues facing the CBD.
- Section 6 discusses the opportunities to make the CBD an even better place to live, work and visit.
- Section 7 provides a summary of the environmental impact of transport and the pathways to lowering transport emissions.
- Section 8 provides a high-level discussion on benefits and costs associated with the creation of a more people-focused CBD.
- Section 9 outlines the monitoring and evaluation framework to track progress on meeting the objectives.
- Section 10 provides the implementation plan for the recommendations to improve the CBD.

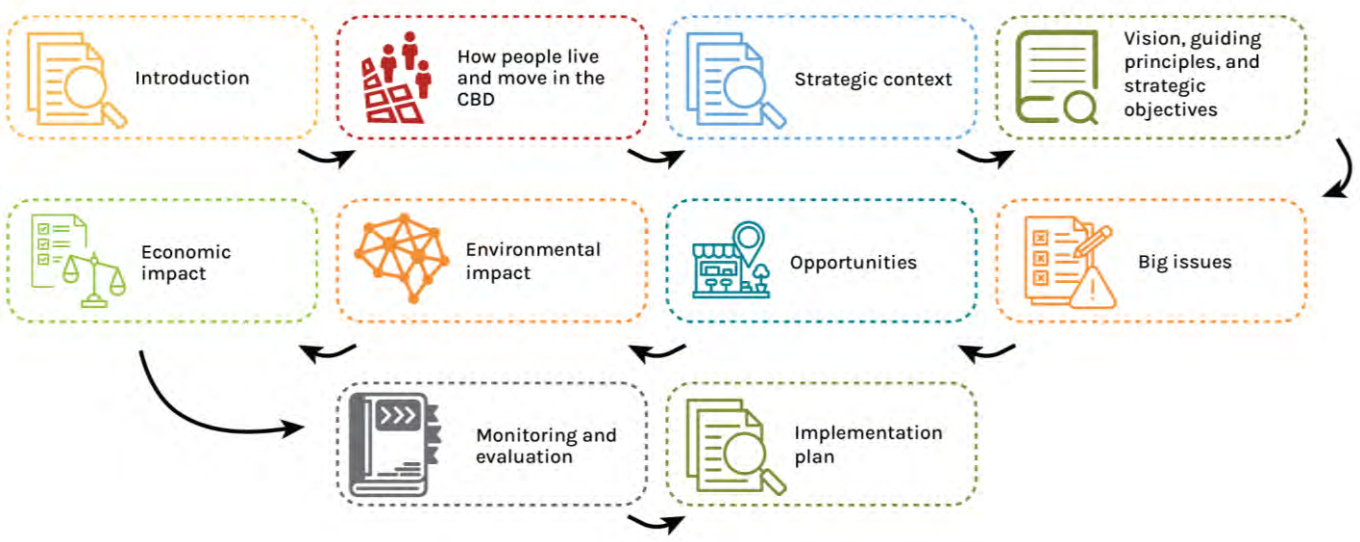


Figure 3 Structure of this report

Source: Institute for Sensible Transport

2. How people live and move in the CBD



Figure 4 provides a snapshot of some key transport, land use, and demographics for the Ballarat CBD. A more detailed analysis can be found in the separate *Background and Site Assessment Report.*

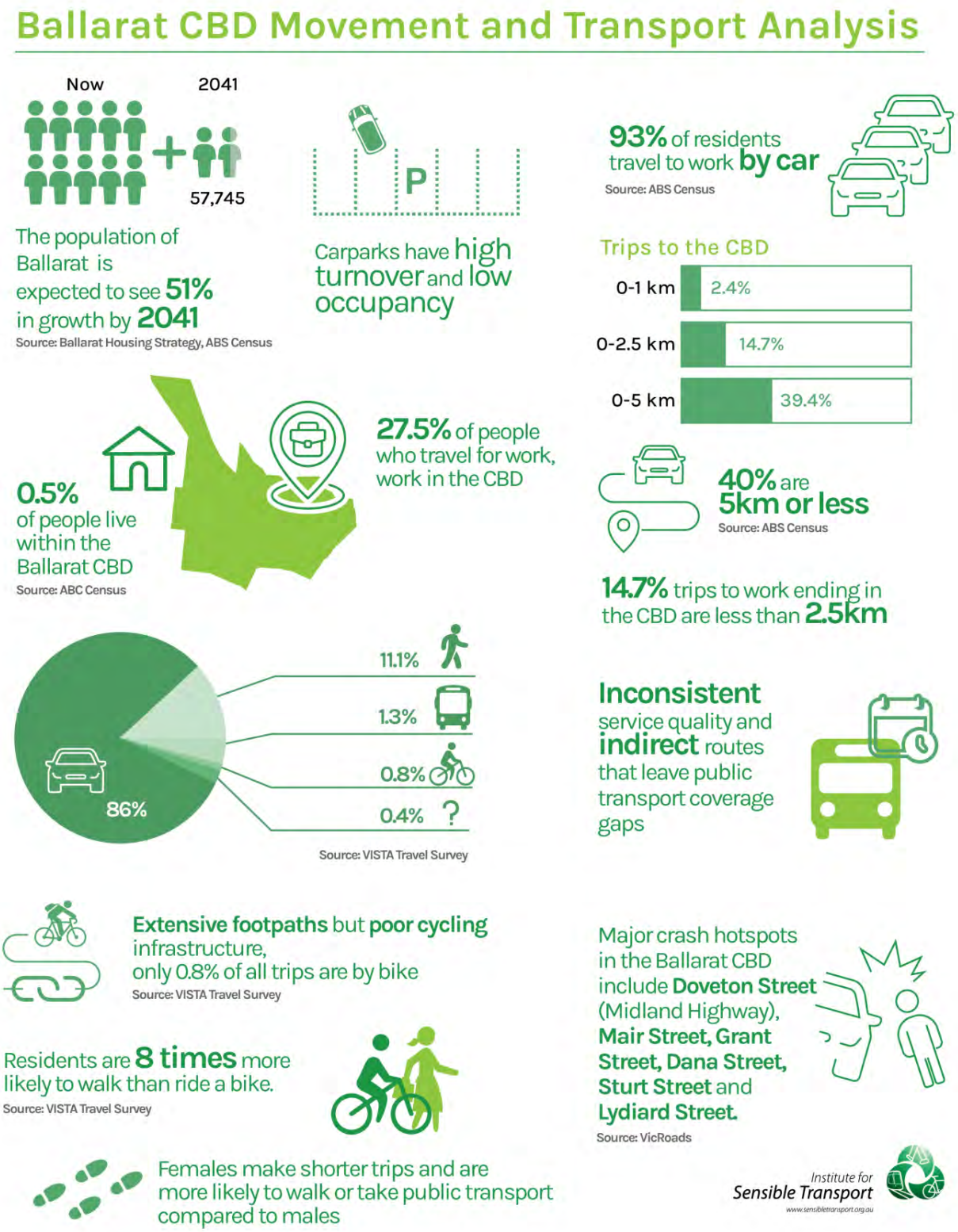


Figure 4 Transport and demographics in Ballarat

Source: Institute for Sensible Transport

The transport network is shown in Figure 5. The CBD bus network provides very good coverage; however, poor frequency and circuitous routes make them less convenient for most people. Similarly, there is an emerging network of cycling paths and lanes, however missing links make riding a less attractive option for a large portion of the community.

The street network in and around the CBD has adapted to facilitate high motor vehicle throughput. This car-centric design reflects the planning priorities of the mid-to-late 20th century, when increasing road volume and capacity was viewed as the primary response to congestion.

The street network in and around the Ballarat CBD has adapted to facilitate high vehicle throughput.

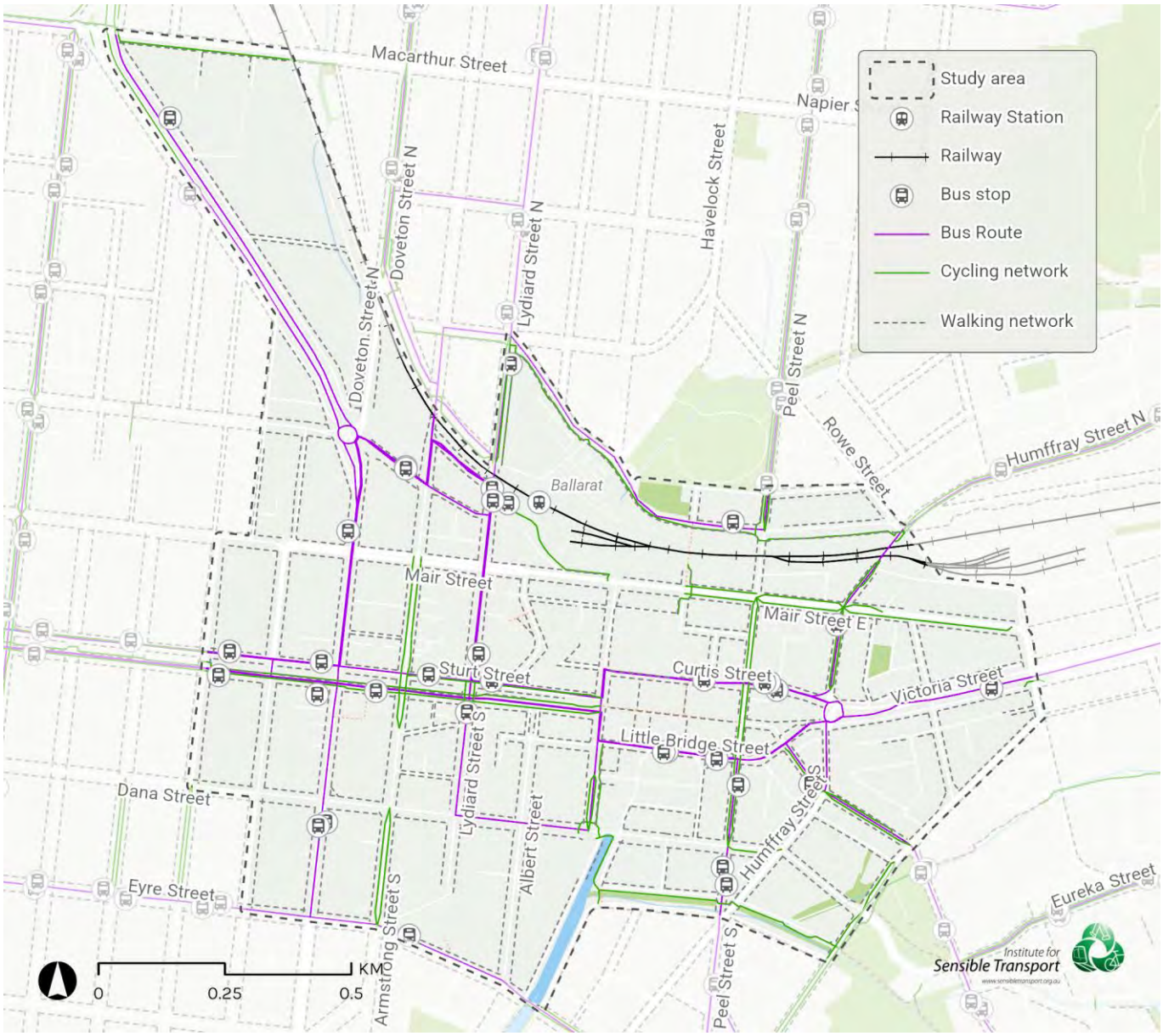


Figure 5 Transport networks, Ballarat CBD Study Area

Source: Institute for Sensible Transport

Data from traffic signal detectors within the CBD has been combined to estimate average daily traffic volumes for key approaches (Figure 6). The data shows that traffic within the CBD largely follows the declared arterial road network.[1]

Mair Street and Doveton Street (Midland Highway) carry the highest traffic volumes through the CBD. Movement patterns show that Mair Street functions primarily as a through-route, with vehicles diverting from Victoria Street before entering and passing through the CBD. In contrast, traffic on Sturt Street is more likely to have an origin or destination within the CBD rather than passing through it.

Some streets in the CBD primarily carry through traffic, while others serve local destinations.

Freight and heavy vehicles form a key component of this traffic task and generally follow the same movement patterns. Doveton Street (Midland Highway) operates as the *National Key Freight Route*, carrying large heavy vehicles between Geelong, Ballarat and Bendigo. Other arterial roads in the CBD, including Mair Street, Grant Street and Barkly Street, are also approved for B-Double access and align with the declared road network.



Figure 6 CBD Traffic light volume data

Source: DTP, Institute for Sensible Transport

[1] Declared roads are freeways or arterial roads listed in VicRoads' Register of Public Roads and are managed by the *Department of Transport and Planning.*

Understanding where trips take place in the region helps to identify areas with the highest potential to shift trips from cars to more sustainable options. Figure 7 shows work trip patterns for Ballarat residents and the five neighbouring LGAs (Central Goldfields, Pyrenees, Hepburn, Moorabool and Golden Plains). It uses UCLs (Urban Centres and Localities) and DZNs (Destination Zones) as network nodes, showing commuter volumes to or from the network nodes as desire lines.

The volume of commuters between each node is represented by line colour and line thickness. There are up to 17,000 trips per day that run to, from, or through the Ballarat CBD, with the most significant commuter corridor between Ballarat and Bacchus Marsh, Ballarat and Creswick to the north, and Ballarat and Beaufort to the west. The Midland Highway and Sturt Street carry the majority of commuter traffic.

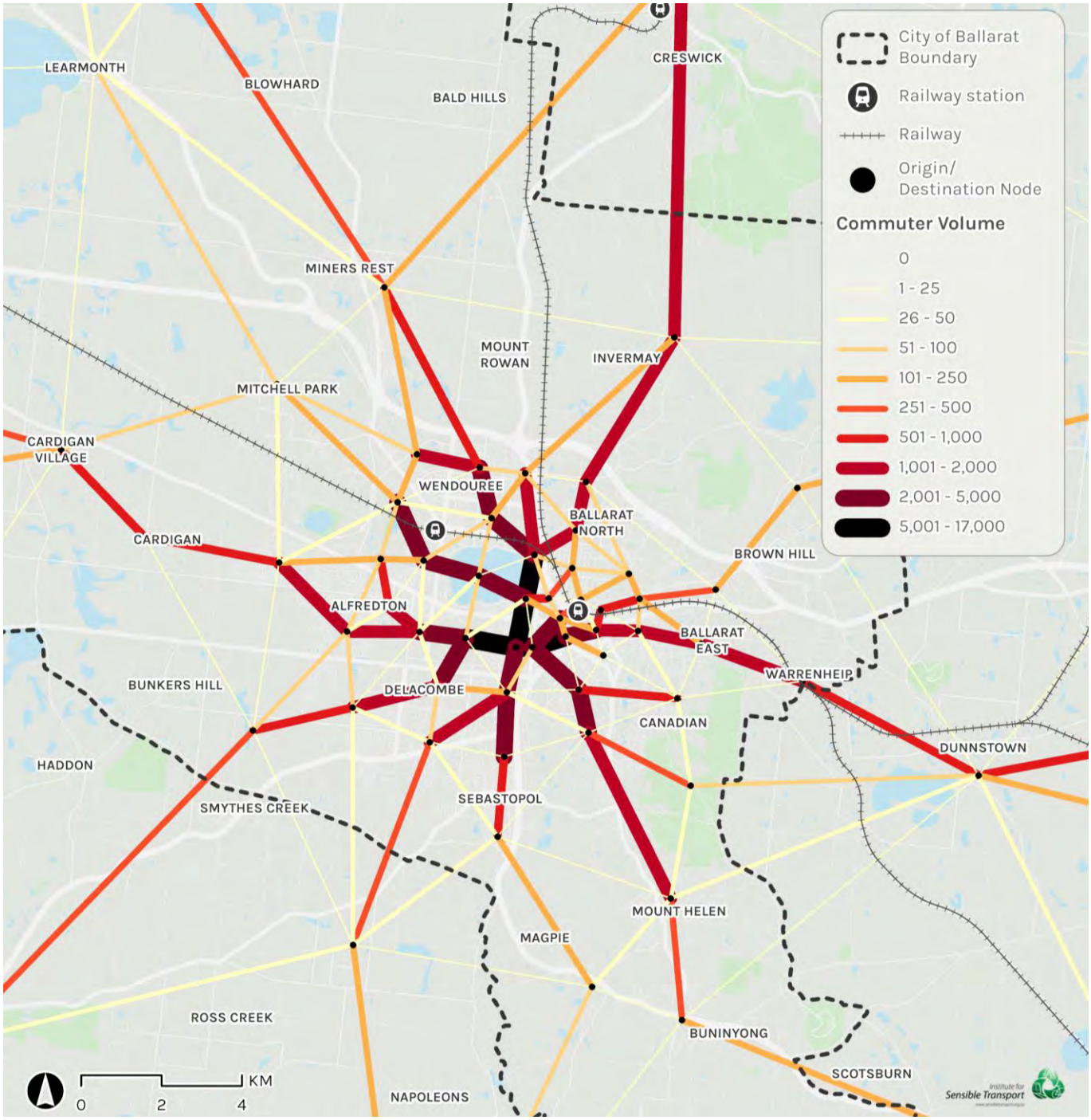


Figure 7 Internal commuter volumes for journeys to work

Source: ABS Census 2021

3. Strategic context



The *Ballarat CBD Urban Design Framework and Activity Centre Plan* will play a key role in delivering Council's broader strategic goals and objectives. This section provides an overview of the policy context.

3.1 Policy guidance

3.1.1 Local policy

The overarching theme in Council's strategic policy position is that the Ballarat CBD is well suited for increased residential development, with an emphasis on supporting population growth and reducing car dependency.

The *Ballarat Housing Strategy* supports increasing the CBD's residential population to realise the associated benefits of greater density, while the *Making Ballarat Central Action Plan* acknowledges that a reliance on private vehicles is unsustainable.

The *Ballarat Integrated Transport Action Plan* outlines a vision for a seamless, better connected, and less car dependent transport system. This includes a focus on a *people-first approach* and *diversifying transport options* which reflects Council's commitment to a more people-friendly city. The *Ballarat Net Zero Emissions Plan* includes the goal of achieving net zero emissions by 2030. It is hard to overstate the difficulty of achieving this goal.

A number of future strategic documents are currently under development that will provide further strategic guidance on transport and land use. This includes the *Ballarat Regional Transport Assessment*, the *Ballarat Integrated Transport and Land Use Strategy*, and the *Open Space and Public Realm Plan*. It is essential that these documents strengthen integrated planning across movement, development and public realm outcomes.

3.1.2 State policy

A number of State Government policies and frameworks have played a role in shaping the recommendations of this report. These include the *Victorian Movement and Place Framework*, which seeks to balance the dual role of streets as movement corridors and places in their own right.

The State Government has established transport and safety targets, including *Victoria's Active Transport Plan* target of 25% of trips to be made by active modes by 2030, and the *Victorian Road Safety Strategy* which targets the halving of road deaths and significantly reducing serious injuries by 2030, with a long-term vision of zero road deaths by 2050.

This *Movement and Transport Analysis* supports these objectives by identifying infrastructure and policy interventions that will enable the CBD to accommodate growth while becoming a more attractive, safe and accessible place to live, work and visit.

The policy framework establishes a strong strategic mandate for change in the CBD.

Recent State policy has focused on supporting a more diverse range of housing options. *Plan for Victoria* includes a set of housing targets to guide this growth, which are explored in further detail in the following section.

3.2 Population and change

There are currently very few people living in the CBD. Ballarat resembles what is known as a '*donut city*', where the CBD primarily consists of employment land uses, surrounded by residential suburbs. This development pattern creates longer trip distances to access employment and services, placing greater pressure on the transport network.

Population forecasts expect Ballarat to be home to 147,901 people by 2036 and 164,365 by 2046, representing an increase of more than 50,000 residents over the next 20 years. These forecasts do not account for recent *Plan for Victoria* housing targets, which identify an additional 46,900 dwellings in Ballarat by 2051, including 28,000 dwellings in non-greenfield areas.[2]

Figure 8 shows that suburbs further from the CBD are expected to experience greater growth than those closer in. This is likely to reinforce car dependency given the limited viable alternatives to driving. Without a shift toward medium-density, mixed-use development in the CBD, existing travel patterns will become further entrenched as the population grows.

Continuing population growth on the urban fringe will reinforce car dependency.

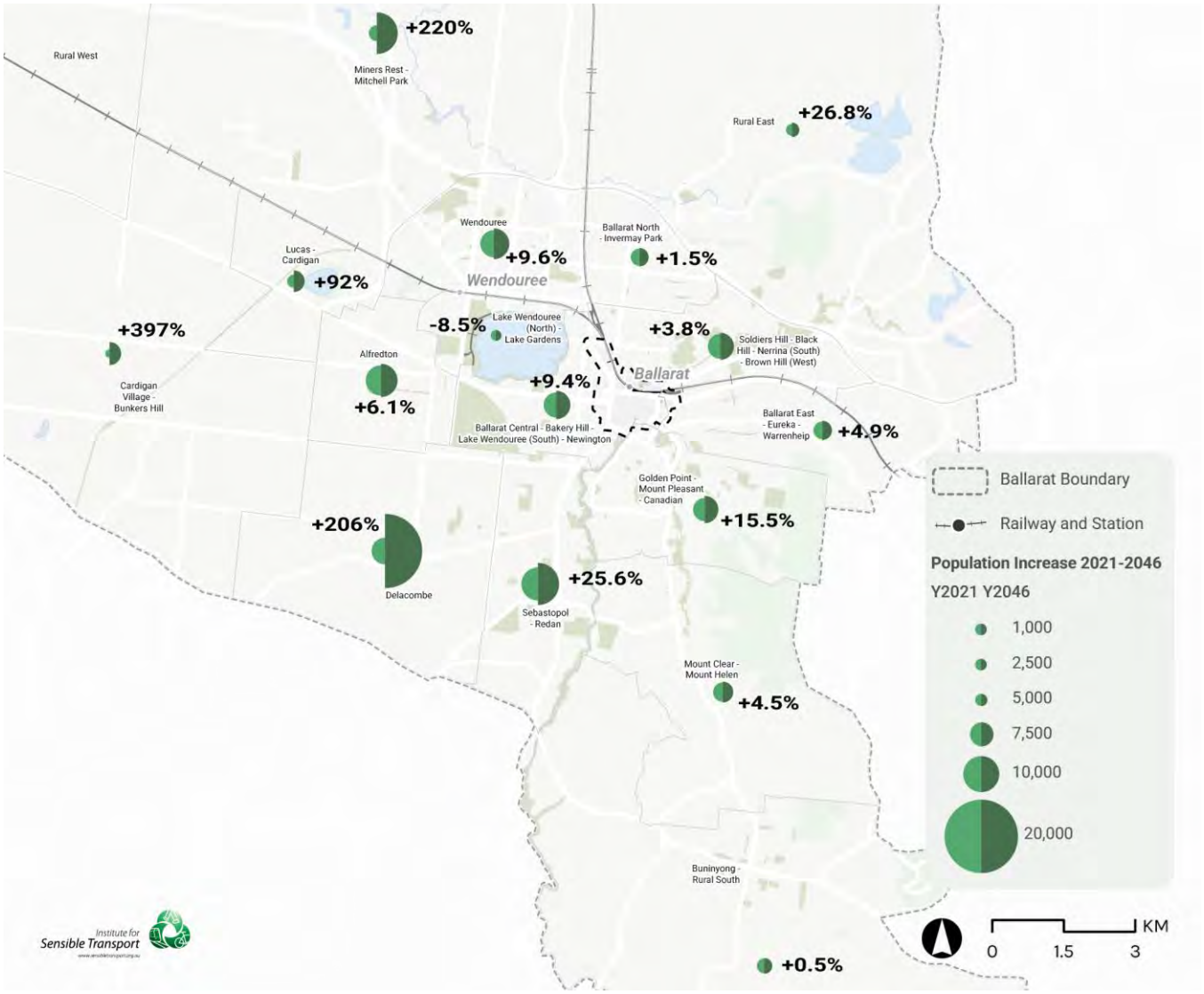


Figure 8 Forecast population increases by suburb and locality

Source: ABS Census Data, forecast.id

[2] Plan for Victoria Statewide housing targets

Land use zoning is shown in Figure 9. Most of the CBD is zoned *Commercial 1 Zone* (C1Z) which prioritises commercial uses, but also allows for housing as part of mixed-use developments (e.g. shops at ground level with residential uses above).

Encouraging greater mixed-use development in the CBD will mean more people live within a short walk or ride of most of their everyday needs. This will help Ballarat grow in a more sustainable way, increase activity in the CBD, and support greater transport choice, reducing the need for car trips within the city centre.

The CBD is mostly zoned for commercial uses, which allows for housing in mixed-use developments.

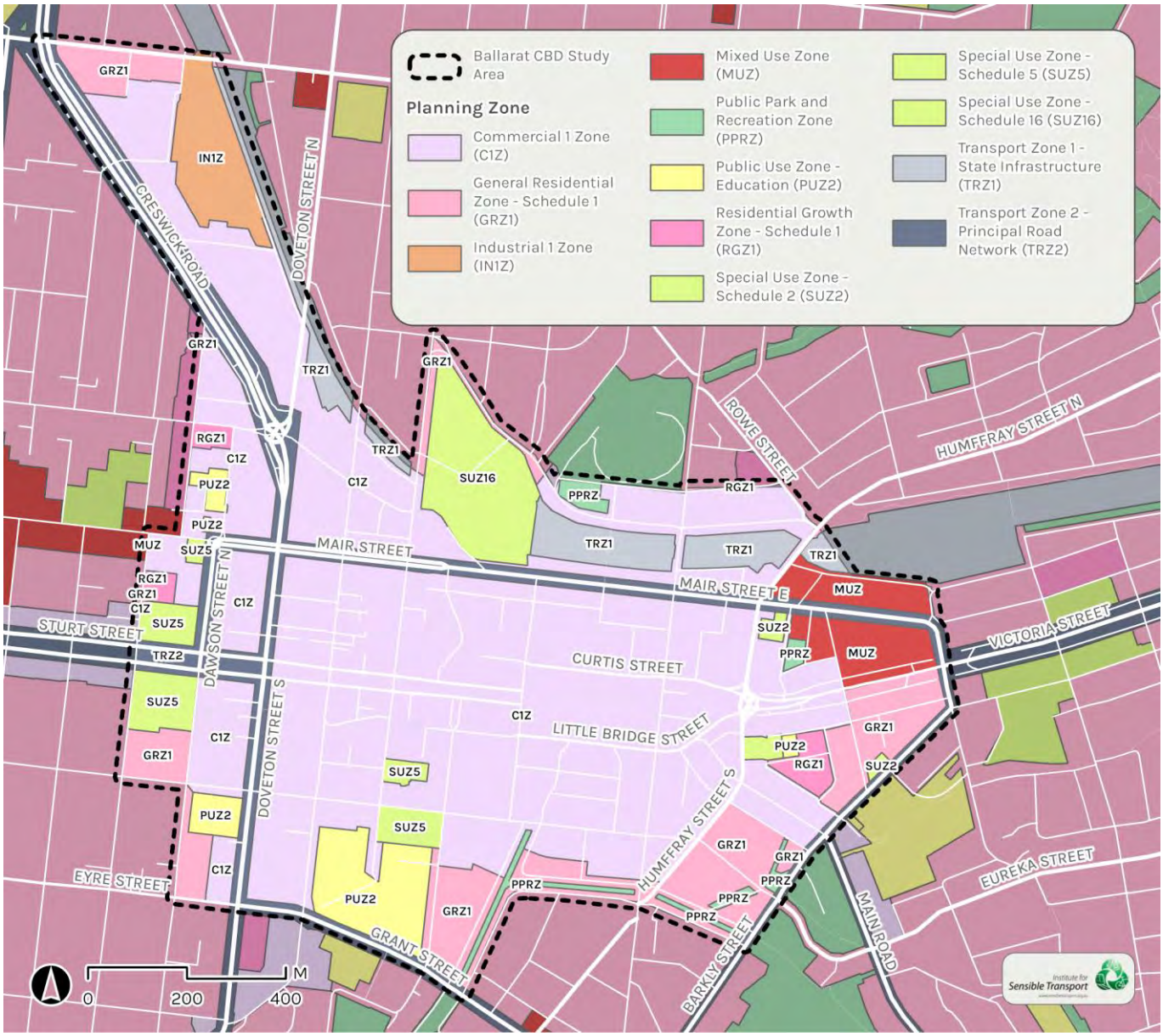


Figure 9 VicPlan Planning Scheme Zones, Ballarat CBD Study Area

Source: VicPlan

4. Vision, guiding principles and strategic objective



The *Ballarat CBD Movement and Transport Analysis Report* is led by a vision, supported by a set of guiding principles and strategic objectives.

4.1 Vision

The vision is that:

Ballarat's CBD is vibrant, safe and accessible, supporting sustainable transport choices for all.

The vision is supported by the guiding principles, which are underpinned by strategic objectives. The strategic objectives are designed to be measurable to enable Council to measure progress towards achieving the vision.

Figure 10 captures the structure of how the vision, guiding principles, strategic objectives and actions fit together. The actions are the recommended initiatives for Council that support the changes needed to realise the vision for the CBD.



Figure 10 Vision, principles, objectives and actions

Source: Institute for Sensible Transport

4.2 Guiding principles

Six guiding principles have been developed to inform the recommendations of this report which support achieving the vision for the CBD (Figure 11). They have been informed by the *Ballarat Integrated Transport Action Plan* and adapted for the CBD context.



Figure 11 Guiding principles

Source: Institute for Sensible Transport

4.3 Strategic objectives

This report uses strategic objectives to help Council evaluate progress towards achieving the vision. Some strategic objectives are entirely within the control of Council, while others will require advocacy to higher levels of government. Table 1 identifies the strategic objectives and their alignment with the guiding principles. Further information on priority indicators that can be used to track system-wide outcomes using available or readily collectible data is provided in Section 9. The *Fully integrated and reliable transport network* and *Advocacy and partnership* objectives are presented together to reflect their shared reliance on collaboration with higher levels of government and external agencies.

Table 1 Strategic objectives

Guiding principle	Strategic objectives
People first approach	• Use the *Movement and Place Framework*[3] in the management and design of streets to support a strong sense of place.
	• Ensure the transport system supports tourism and visitors to access key destinations by active and public transport.
	• Reduce the number of heavy vehicles on high place value streets, while ensuring that freight can go where it needs to.
	• Reduce serious road injury and fatalities by half, in line with the *Victorian Road Safety Strategy*.
	• Increase the proportion of streets with speed limits in line with the *Movement and Place Framework* and the *Speed Zoning Policy*.
Fully integrated and reliable transport network & Advocacy and partnership	• Harmonise public transport timetables to support interchanges that minimise transfer times for passengers.
	• Increase the proportion of CBD streets that are serviced by high quality, frequent public transport services.
Universal accessibility	• Ensure the *Principal Pedestrian Network* in the CBD is *Disability Discrimination Act* compliant.
	• Ensure bus stops in the CBD are *Disability Discrimination Act* and *Disability Standards for Accessible Public Transport* compliant.
Better use of parking spaces	• Better manage car parking in the CBD to balance the needs of all users, with a goal of occupancy below 85% during most times of the day.
	• Ensure there is adequate supply of accessible parking bays.
	• Grow the number of public EV charging stations in line with demand as per the *Public Electric Vehicle Charging Framework and Implementation Plan*.

[3] Movement and Place in Victoria

Guiding principle	Strategic objectives
Sustainable and diversified travel options	• Support a mode share vision for the Ballarat LGA over the next 10-20 years of: – Walking and cycling: 15-20% of trips – Micromobility and shared modes: 5%+ of trips – Public transport: 10-15% of trips (dependent on improved bus frequency, reliability and connectivity – see Section 6.7) – Private vehicle: reducing to below 70% of trips.
	• Support the Victorian government goal for 25% of all trips to be made by walking or riding by 2030.[4]
	• Increase annual investment in active transport to at least $50 per resident per year, including from external sources.
	• Increase the proportion of CBD streets that are safe for all ages and abilities to walk and cycle.
	• Increase the proportion of pedestrian and cycling priority crossings in the CBD.
	• Reduce transport-related emissions to achieve a net zero transport system by 2030. These targets are consistent with the *Ballarat Net Zero Emissions Plan*.

[4] Victoria's Active Transport Plan

Ballarat Net Zero Emission Plan

The *Ballarat Net Zero Emission Plan* includes a target to reduce transport-related emissions to achieve a net zero transport system by 2030. Transport is the fastest-growing source of greenhouse gas emissions in Australia and is expected to become the largest single source by 2030.

Sustained and unprecedented action will be required to arrest and then reverse this trend.

The evidence reviewed as part of this project shows that private passenger vehicles in Ballarat are responsible for 94% of total emissions while accounting for 90% of total passenger kilometres travelled. With continued growth in motor vehicle mode share over the past decade, a business-as-usual approach to investment will result in Ballarat not meeting its 2030 net zero commitment.

Box 1 Sustainability goals

4.4 Scenarios of change

A range of change scenarios was explored with Council officers during an interactive workshop to understand the level of change required to achieve the vision. Each scenario implies a different level of Council intervention, ranging from a *business-as-usual* approach where current practices continue, through to a *sustainable change* scenario that supports a substantive shift in transport planning priorities.

Council identified the *Sustainable Change* scenario as the preferred approach to guide the recommendations in this report. The *Sustainable Change* scenario encompasses:

- Supporting more people to live in and around the Ballarat CBD
- Rebalancing road space allocation in favour of sustainable and space efficient modes of transport
- People-focused streets and places
- Reduced parking provision
- A prioritised pedestrian and cycling network.
- Improved public transport provision, through increased frequency and better integration between regional, commuter and trunk services.

Council identified a *Sustainable Change* scenario to guide the recommendations in this report.

As set out in adopted local policies and strategies, the City of Ballarat is committed to reducing Ballarat's high private vehicle mode share. Under the *Sustainable Change* scenario, private vehicle travel remains the dominant mode; however, its relative share is reduced, with a greater proportion of trips made by walking, cycling and public transport. Population growth is also assumed to be increasingly directed in and around the CBD, where there is greater access to employment, services and public transport options.

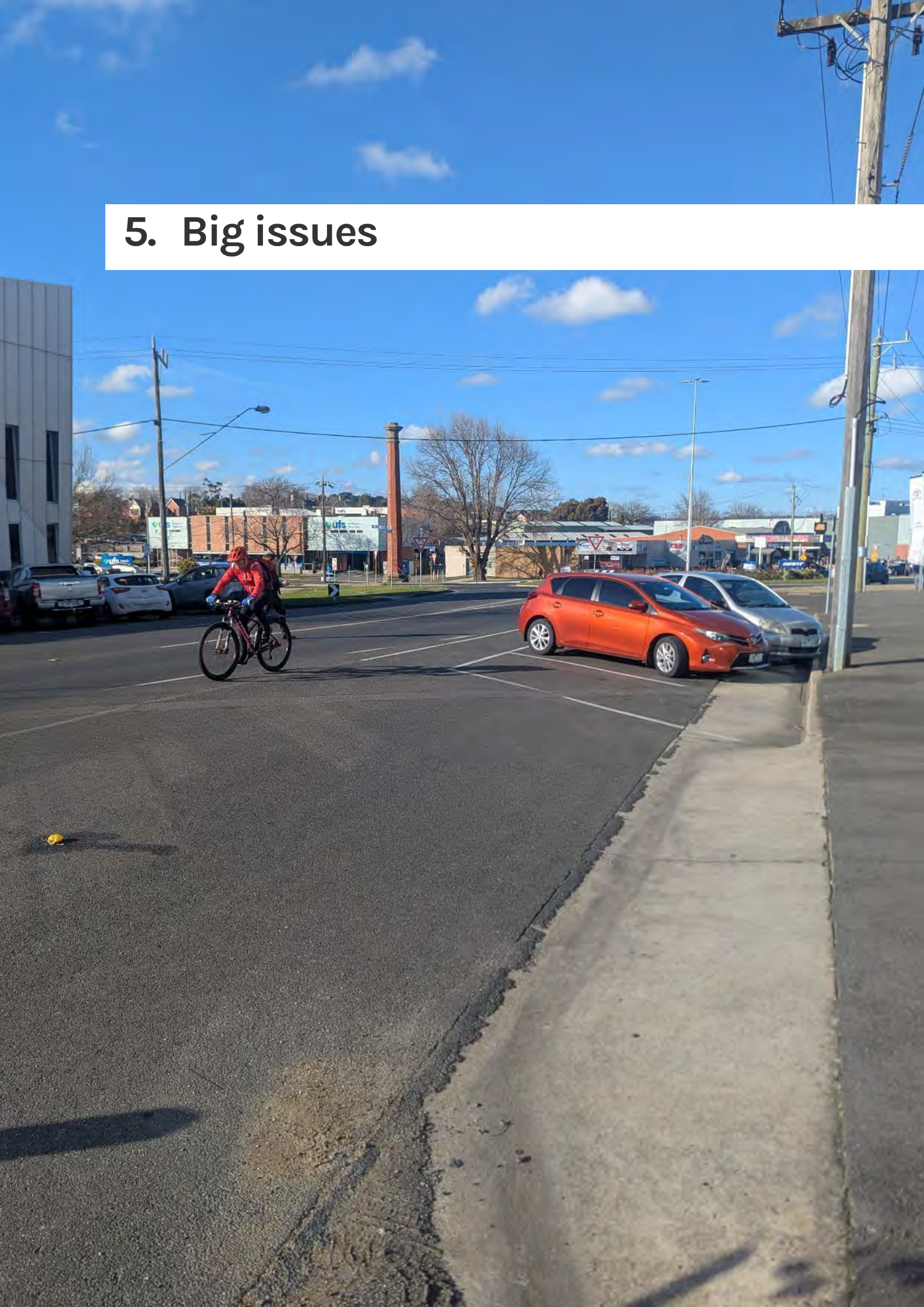
While this scenario supports a shift toward more sustainable travel behaviours, mode share targets have not been developed as part of this project. This reflects the role of the CBD within the broader Ballarat transport network, where the majority of trips originate outside the CBD and are influenced by factors beyond Council's direct control.

Broader strategic direction will be refined through future transport planning work, including the *Ballarat Strategic Regional Transport Assessment* and the *Ballarat Integrated Transport and Land Use Strategy*. However, Council has an endorsed mode share vision which sets an aspirational long-term shift over the next 10–20 years for the City of Ballarat. This includes:

- Walking and cycling: 15-20% of trips
- Micromobility and shared modes: 5%+ of trips
- Public transport: 10-15% of trips (dependent on improved bus frequency, reliability and connectivity – see Section 6.7)
- Private vehicle: reducing to below 70% of trips.

The focus of this report is identifying infrastructure, policy and street network changes within the CBD that support sustainable travel choices and align with long-term strategic policy guidance.

5. Big issues



A summary of the big issues facing the Ballarat CBD is shown in Figure 12. As the population increases and more trips are made to and from the CBD, these issues will place greater pressure on the transport network and public realm.



Figure 12 Major issues facing the Ballarat CBD

Source: Institute for Sensible Transport

5.1 Motor vehicle dominated public realm

The road network within and leading into the Ballarat CBD has been designed to prioritise motor vehicle throughput, often at the expense of other modes of transport. European settlement in Ballarat began in the mid-1800s, before the invention of the automobile.

Streets were laid out for horse-drawn carriages and pedestrians, often resulting in wide carriageways that allowed for U-turns and generous turning radii. Trams were introduced in 1887 (Figure 13) and the Ballarat tramway network, at its peak in 1937, was the largest in Australia operating outside of a capital city.[5]



Figure 13 The intersection of Lydiard and Sturt Streets (c. 1905)

Source: State Library of Victoria

In the post-war era, growth continued, and in response to a housing shortage, the city expanded into suburban areas. As Ballarat grew outwards, transport planning favoured the efficient movement of motor vehicles.

The car-centric design reflects the planning priorities of the mid-to-late 20th century, when increasing road capacity was viewed as the primary response to traffic congestion. This has resulted in a street network that makes the car the most convenient choice for most trips.

CBD streets have been shaped by car-based planning, limiting the appeal of walking, cycling and public transport.

5.2 Central Ballarat has an oversupply of car parking

Ballarat's CBD has an estimated 15,000 parking spaces across the centre, equating to one parking space for every 30 square metres of commercial floor space. This is much more car parking than is found in many regional centres, such as Bendigo or Geelong, indicating a potential oversupply.

Previous work by PMP has argued there is a '*sweet spot*' for regional city centres of around one space for every 100-150 square metres of floorspace, depending on the quality of public transport services. PMP also found that peak occupancy for both on-street and off-street parking is less than 55%.

Peak occupancy for on- and off-street parking is less than 55%.

The provision of car parking has been shaped by policies which have prioritised vehicle access and minimum parking rates. These act to incentivise short car trips. This is despite a number of Council policies that recognise the impact car parking has on mode choice and that a more evidence-based approach is required.

The Ballarat CBD has an oversupply of car parking.

Car parking in and around the CBD is shown in Figure 14. On-street parking is generally free for the first hour, after which it attracts a fee. The fee is payable between 9am and 5:30pm from Monday to Saturday. Other areas of on-street parking are time restricted without cost.

[5] Ballarat Integrated Transport Action Plan

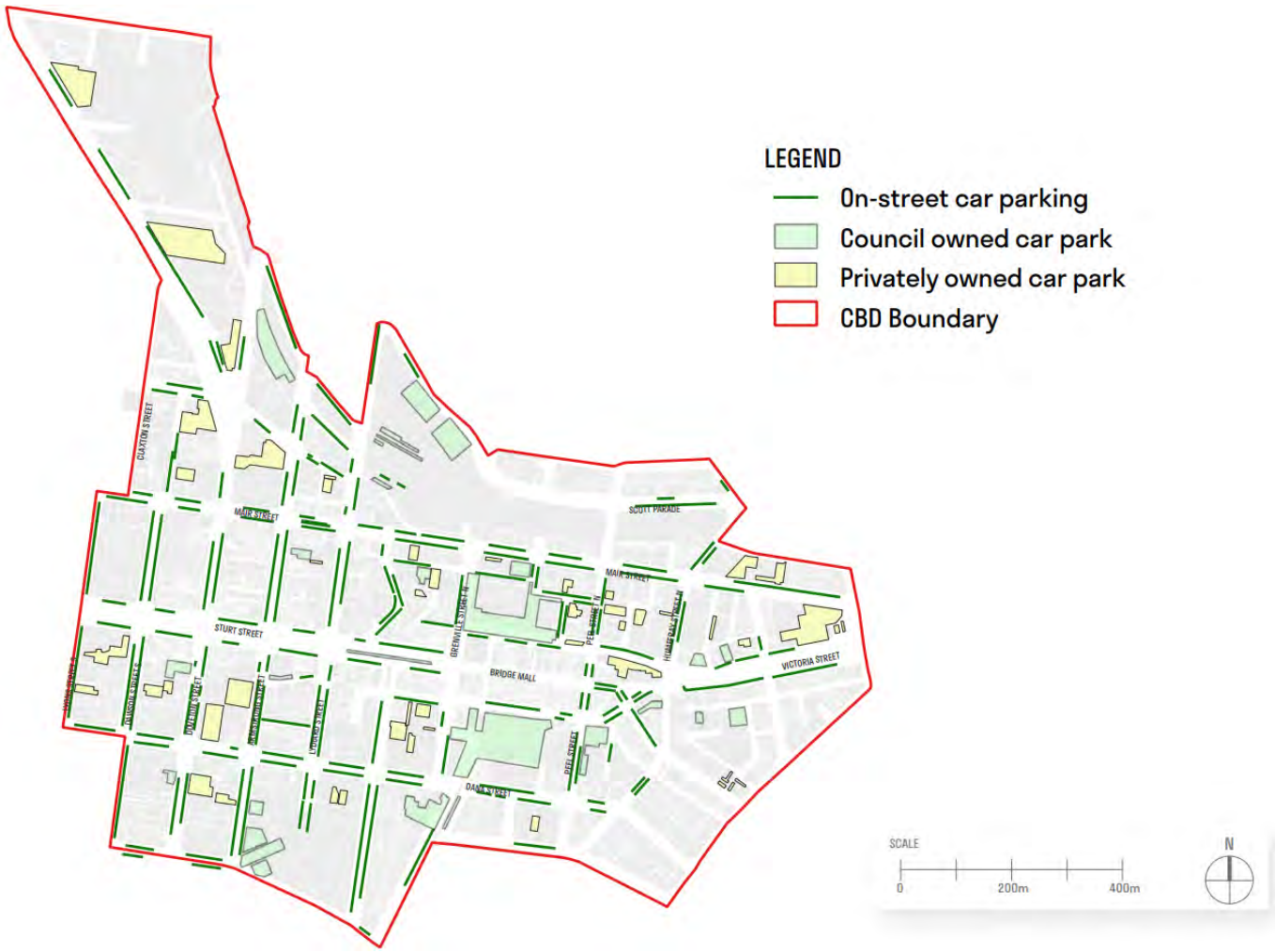


Figure 14 Car parking in the CBD
Source: City of Ballarat

5.3 A poor pedestrian environment

One of the key barriers to creating a more walkable and liveable CBD is the lack of pedestrian priority at key crossing points. Midblock crossings, roundabouts, and unsignalised intersections are common throughout the city centre, but many are poorly designed for people walking.

There are several roundabouts and intersections that prioritise vehicle flow over pedestrian safety. They often lack designated pedestrian crossing points, have obstructed sightlines, and encourage unsafe speeds through poor design. This forces pedestrians to wait for a break in traffic, making the experience feel unsafe and inconvenient.

Many of the arterial roads within the CBD have long blocks with few formal midblock crossing points, making people walk significantly out of their way to cross. These shortcomings reinforce car dominance and undermine walking as a safe, convenient and attractive mode of transport.

Poorly designed intersections, roundabouts and a lack of crossings can make walking feel unsafe and inconvenient.

5.4 Street network lacks permeability and legibility

As the Ballarat CBD grows, a clear and well-connected street network is essential to support safe movement for all users. The street network can prioritise through traffic for motor vehicles, often at the expense of pedestrian needs and the quality of the public realm. At the same time, limited and

inconsistent wayfinding makes navigation on foot or by bicycle less intuitive.

The absence of a clear road hierarchy means that traffic is not always consistently directed onto appropriate movement routes, reducing the ability of other streets to function as people-focused places. Formalising a road hierarchy (Section 6.1) would help better balance the dual roles streets play as movement corridors and vibrant public spaces.

A lack of a clear road hierarchy and intuitive wayfinding can make the CBD hard to navigate.

5.5 Poor public realm and place outcomes

The relationship between built form and the public realm has a significant influence on how safe, active and welcoming the CBD feels. For example, the interface between the Ballarat Railway Station and the CBD fails to reflect the city's distinctive heritage and character. As the gateway to Ballarat, the station precinct plays a key role in shaping first impressions for both residents and visitors arriving by rail, bus and coach.

Active street frontages and the presence of other people not only support economic vitality but also enhance both actual and perceived safety. Areas that are well-lit, busy, and offer opportunities for passive surveillance tend to feel more welcoming and safer.

Within the CBD there are isolated and underutilised areas lacking these qualities. Some streets are lined with blank façades or inactive frontages, reducing street-level engagement and limiting the sense of place. This can contribute to feelings of disconnection and create a sense of distance between destinations. In particular, large street-facing car parks not only create poor visual outcomes but also limit opportunities for activity beyond driving.

As the residential population grows in the city centre, streets and public spaces will naturally become busier throughout the day and into the night. Improving the interface between the built form and the public realm is essential to creating a safer and more vibrant Ballarat CBD.

Some streets in the CBD have inactive frontages, diminishing the sense of place.

5.6 Lack of safe cycling connections throughout the CBD

As more people live in the CBD, many local trips will be short enough to be cycled. A connected network of high-quality, protected infrastructure is needed to support cycling. This would better link people to key destinations such as shops, workplaces, schools and transport hubs. The goal should be to enable a wide range of the community, including children and older adults, to feel comfortable choosing to ride.

While the CBD has some high-quality off-street shared paths (e.g. Sturt Street and Greville Street), these facilities are limited and are not connected to the broader network. In most areas, people on bikes must either ride in narrow painted lanes or share the road with motor vehicles, creating a higher risk of dooring and crashes at intersections.

A lack of a connected and safe network discourages everyday trips by bike and reduces the overall accessibility of the CBD for less confident riders.

The lack of safe and connected cycling network in the CBD limits cycling participation.

5.7 Public transport is inconvenient and indirect

The Ballarat public transport network, formed by bus and V/line services, suffers from inefficiencies that prevent it from being an easy choice for getting around. The bus network provides the

principal public transport service across the city, with almost all routes spanning radially outwards from the CBD. Today, 14 bus routes terminate at the Ballarat station bus interchange, and almost all routes head to the suburbs via the Bridge Mall bus interchange.

The network's strongly CBD-centric structure means most suburban trips require backtracking into the CBD to transfer, even where origins and destinations are relatively close (i.e. from Delacombe to Wendouree). Routing all services through the Bridge Mall and Ballarat Station, regardless of passenger demand or network efficiency, introduces unnecessary deviations that add several minutes to journey times. As a result, buses are often significantly less time competitive than driving.

Despite the Ballarat railway station being the terminus of all bus routes on the network, under 5% of V/line passengers access the station this way. The Ballarat bus network is overwhelmingly used for local trips, not journeys to Melbourne, despite the network serving most local trips poorly.

Most services operate at 30/60-minute frequencies on weekdays and 40-minute frequencies on weekends, with onward V/line connections to Melbourne provided. Hours of operation generally fall between 5am and 8pm on weekdays, though many routes finish before 6pm on Sundays, meaning public transport often cannot be relied upon in the evenings.

While the CBD is generally well-serviced in terms of coverage, the quality of service is often inconsistent. Due to almost all bus services being aligned to V/line rail departure times, there are no frequent public transport corridors in the Ballarat CBD, even where many routes overlap.

While the CBD is well covered by bus routes, service quality is often inconsistent.

Independent mobility is essential for all members of the community to engage fully in society. For those who cannot or choose not to drive, public transport can provide essential transport independence. To improve mobility and encourage public transport use, Ballarat needs a network that offers convenient and frequent services to enable people to get where they need to go, when they need to.

5.8 Issues and Opportunities

The key issues and opportunities have been identified from the analysis of transport data, existing infrastructure and strategic documents, along with findings from the site assessment. Figure 15 provides an overview of the barriers limiting safe, efficient and sustainable movement, as well as the opportunities to improve transport choice and the quality of the public realm.

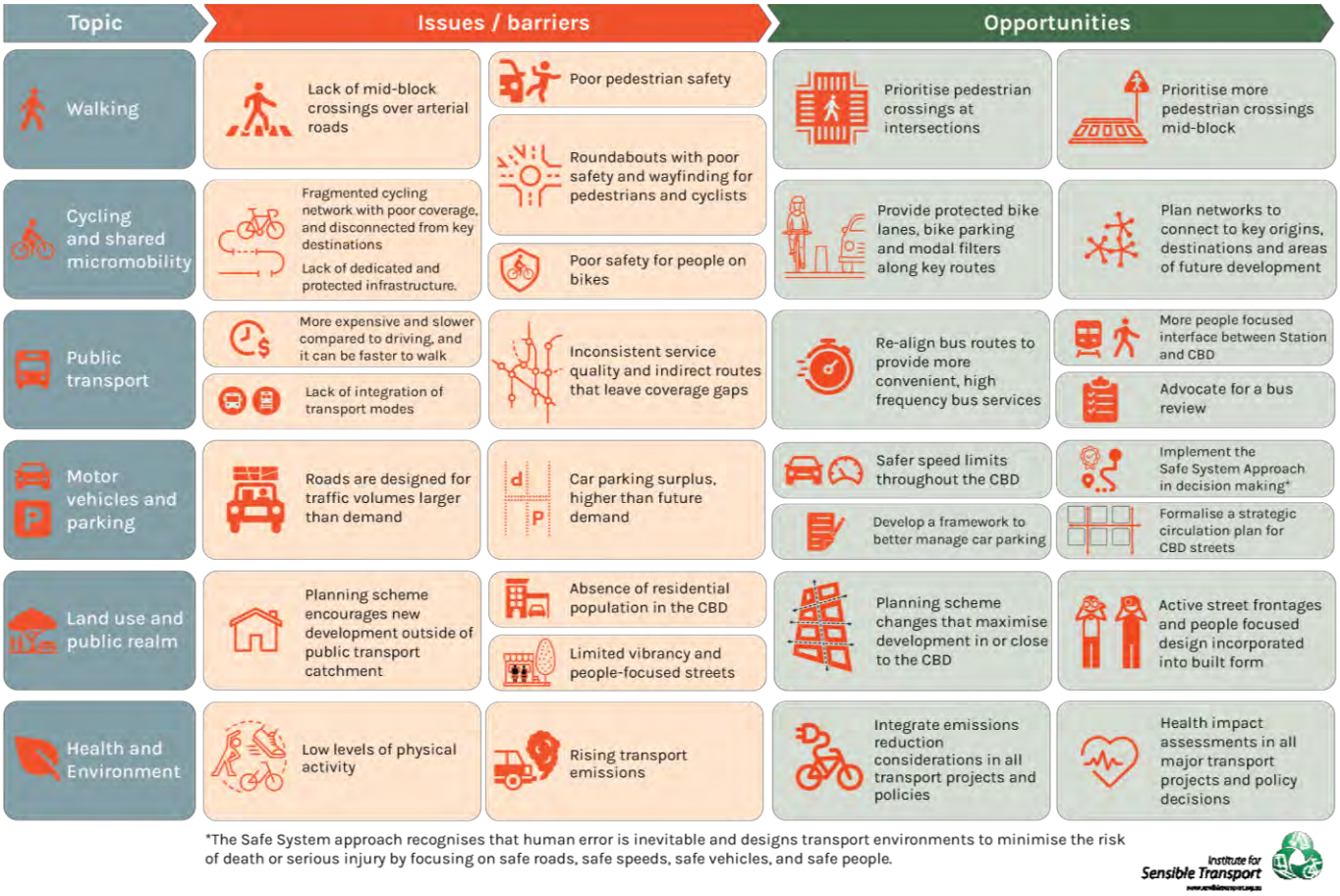


Figure 15 Key Issues and opportunities for the Ballarat CBD

Source: Institute for Sensible Transport

Figure 16 spatially illustrates a selection of the key opportunities and indicative actions, highlighting where high-level interventions may be required. These locations represent areas where targeted changes could deliver the greatest benefit. Further detail on the proposed actions and how they could be implemented is provided in the following section.



Figure 16 Opportunities map

Source: Institute for Sensible Transport

6. Opportunities



This section details the opportunities to enhance the CBD's capacity to increase its population, liveability and sustainability outcomes. These opportunities include better management of motor vehicle traffic, improvement to public realm, sustainable transport and safety outcomes.

A fundamental shift is required to better reflect contemporary challenges faced by Ballarat. Forecast population growth, emissions targets and the State government's objectives all point to an inevitable requirement to prioritise the needs of pedestrians, people on bikes and public transport. Moreover, for many people, the CBD is the destination, and more needs to be done to enhance the urban vibrancy of CBD streets.

6.1 Creating a safer, more sustainable mode hierarchy

To assist in making consistent, transparent decisions that support Council's vision for a more vibrant, safe and accessible CBD, a mode hierarchy has been developed.

Figure 17 presents the mode hierarchy, which places pedestrians, public transport and people riding a bike at the top. This means that planning, design, and management of the transport network will prioritise the safety, comfort and connectivity of these users ahead of others lower in the hierarchy, such as trucks and private motor vehicles.

The mode hierarchy assists in determining how space is allocated between modes where there is insufficient space to cater for all.

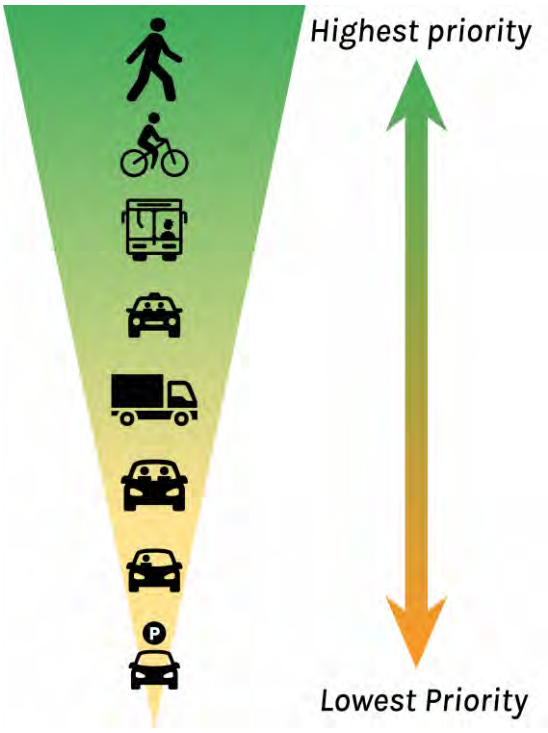


Figure 17 Ballarat CBD mode hierarchy

Source: Institute for Sensible Transport

6.2 Enhancing movement and place with a circulation plan

Traffic movements in the CBD provide an opportunity to better manage vehicle circulation. By adopting a *Movement and Place* approach, traffic can be prioritised on designated *movement* corridors, leaving other streets to facilitate sustainable modes and more vibrant *places*. Figure 18 shows the street type relevant to each Movement and Place classification.



Figure 18 Movement and Place Framework

Source: DTP

6.2.1 Movement and Place in Ballarat

The *Movement and Place* framework recognises that streets have dual roles as corridors of movement *and* places for people. This allows a classification of streets, based on six typologies in Figure 18, ranging from connectors such as freeways to city places and city streets, with high senses of place.



Figure 19 Existing movement and place

An assessment of the current movement and place classification of Ballarat CBD streets is shown in Figure 19. This shows that many streets are activity streets and boulevards, a typology that often struggles with the competing needs of a corridor of significant movement, and being a place of high significance.



Figure 20 Potential movement and place

A future typology is shown in Figure 20. This is what could be realised if through movement were focused on the periphery of the CBD, freeing up the core to have an enhanced sense of place.

A circulation plan is a practical method of directing motor vehicles onto preferred routes when travelling through the CBD, supporting the *Movement and Place Framework* described above. Importantly, a circulation plan does not restrict vehicle access to the CBD; rather, it manages how vehicles move through the network.

The aim is to direct through traffic onto designated routes, allowing internal CBD streets to function primarily as destinations rather than through routes. Local access for businesses, residents, visitors and last-mile freight would be maintained; however, it may require a slightly altered route.

Figure 21 shows a conceptual circulation plan to direct through vehicle movements onto key corridors, such as Mair Street and Doveton Street. Directing through traffic and heavy vehicles onto these routes would reduce pressure on other CBD streets, freeing space for people-focused place-based initiatives.

Implementing a circulation plan early is critical, as it acts as an enabler for other actions to create the conditions required to achieve the vibrant, people-focused outcomes envisioned for the CBD.



Figure 21 A circulation plan for the Ballarat CBD

Source: Institute for Sensible Transport

6.3 Safe speeds

Speed is one of the most important factors influencing safety outcomes. Figure 22 highlights the relationship between speed and the chance of survival. When a pedestrian is hit by a car travelling at 50km/h, they only have a 1.5 in 10 chance of survival, compared to a 9 in 10 rate at 30km/h.

Recent changes to State Government policy allow 30 km/h to be applied as a standard speed limit in areas that require increased pedestrian safety.

Figure 23 shows the map of proposed speed limits in the CBD. It is recommended that a default speed of 30km/h be applied to all streets, other than key freight routes and shared zones.

To ensure changes to speed limits are effective, it is also important to incorporate street design elements that self-reinforce safe speeds.

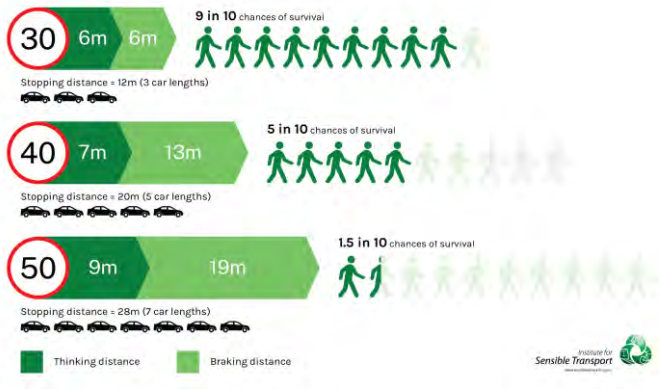


Figure 22 Relationship between speed and safety

Source: World Health Organisation

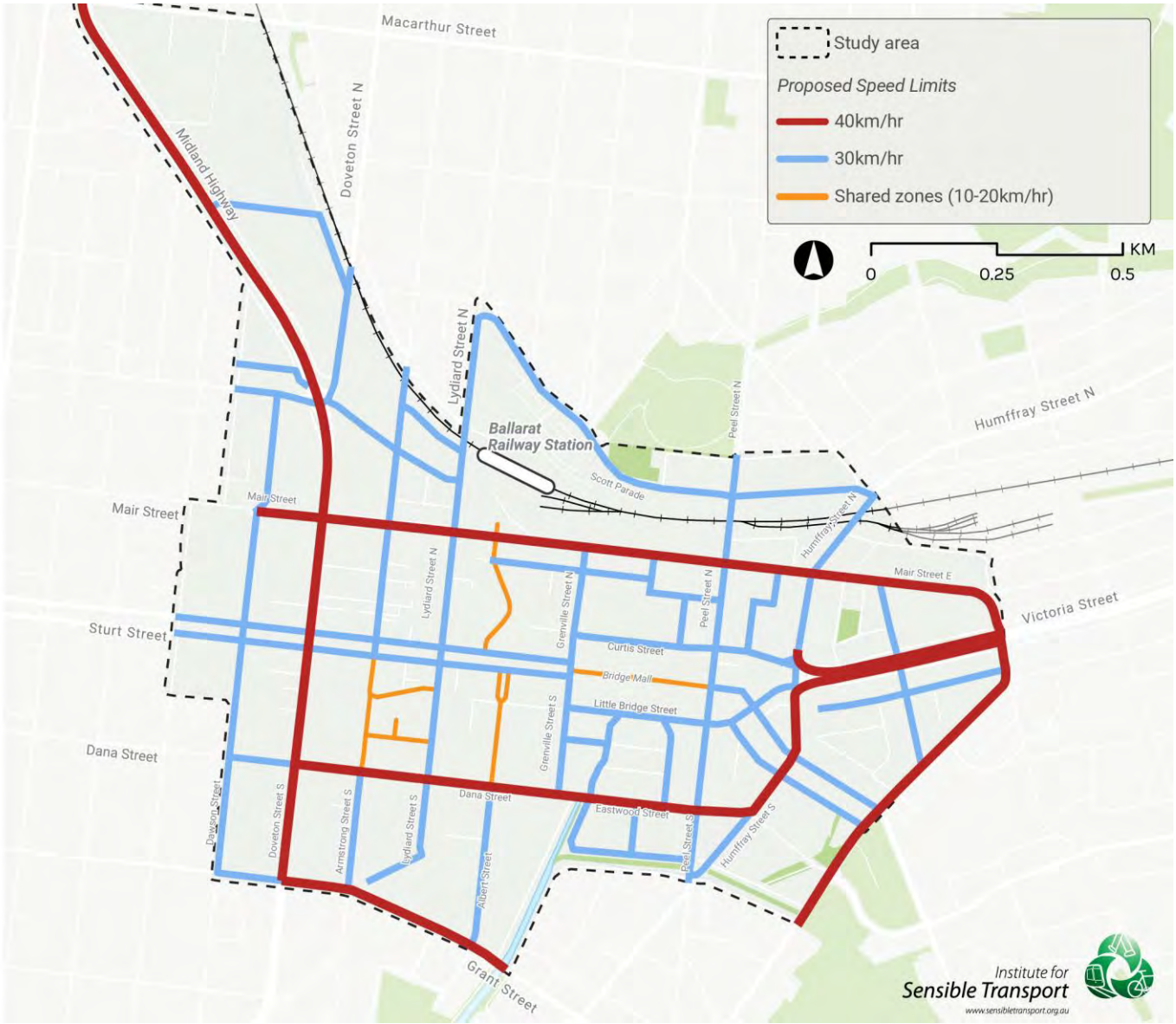


Figure 23 Proposed safe speed limits

Source: Institute for Sensible Transport

6.4 Creating a more pedestrian friendly CBD

A more attractive walking environment is essential to encourage short, local trips by foot or personal mobility device. While the city centre is compact, many streets and intersections are difficult to navigate or lack the amenity and legibility needed for walking to feel easy, safe and enjoyable.

Improvements to connectivity, wayfinding, and the design of public spaces can help make walking a more appealing everyday choice. This section outlines the design principles and infrastructure upgrades needed to create a safer, more accessible pedestrian network.

Ballarat's *Principal Pedestrian Network* (PPN) has been developed to prioritise footpath gaps to provide a complete network between activity centres. The PPN comprises three separate categories:

- Primary Network
- Secondary Network
- Off Road Network

While all streets in the CBD should provide a pedestrian-friendly environment, the PPN offers a hierarchy for prioritising future investment. The recommendations in this section are intended to support and reinforce the PPN.

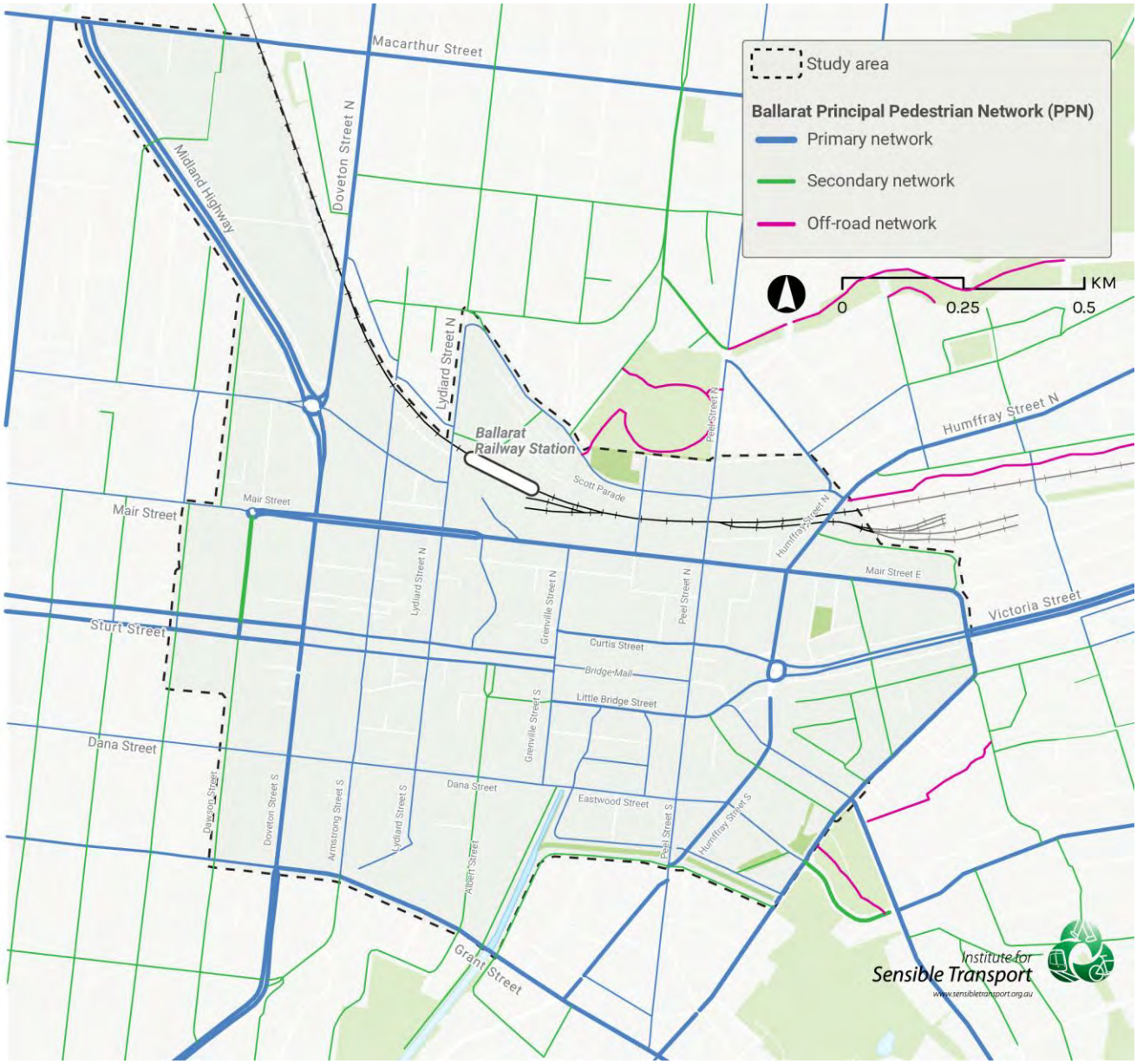


Figure 24 Ballarat Principal Pedestrian Network

Source: Institute for Sensible Transport

6.4.1 Connectivity and permeability

Ballarat's CBD follows a grid-style street network, providing a strong foundation for pedestrian movement. A number of existing laneways and mid-block connections already support high levels of permeability. Maintaining and enhancing the pedestrian network will be important as the CBD evolves to accommodate new development.

6.4.1.1 Enhancing walkability through redevelopment

Design outcomes should encourage a pedestrian network that is safe, accessible, and connected. To achieve this, new developments in the Ballarat CBD should support through-connections and permeability considerations. Future developments should consider:

- **Through-block pedestrian connections**: Where the average urban block length is greater than 100 metres, development should provide a new through-block pedestrian connection. Where possible, pedestrian connections should be located less than 70 metres from the next intersection or pedestrian connection.
- **High-demand pedestrian areas**: Within 200 metres of a railway station or the PPN Primary Network, more frequent pedestrian connections should be provided to manage high pedestrian volumes.
- **Connectivity between streets and laneways:** Development with an abuttal to two or more streets or laneways should provide a pedestrian connection between those abuttals where this improves the walkability of the urban block. Where an adjoining site has a potential or existing connection, the development should provide the completion of the through-block connection.
- **Retaining and improving existing connections:** Development should maintain and improve the quality of existing pedestrian connections and laneways.
- **Vehicle access and loading:** The position of vehicle entries, services, and building entries should respond to road hierarchy (see Figure 17). Vehicle access and loading bays:
  - Should not be located on main streets.
  - Should not be constructed on a traffic conflict frontage.[6]
- **Car parking:** The location and width of car park entries should minimise negative impacts on the pedestrian experience.

Implementing these requirements will help ensure new development contributes to more people-focused outcomes and supports a walkable CBD.

6.4.2 Walkability checklist

To help ensure the walking experience is constantly improved, a *walkability checklist* should be applied to ensure both new and existing developments hold the design characteristics that encourage walking. The *walkability checklist* is attached in Appendix A.1.

This should occur on the PPN Primary Network first, where the highest standard of pedestrian amenity and accessibility is expected. Over time, the checklist should also be applied to the Secondary Network and Off-Road Network to support a consistently high-quality walking environment across the CBD.

6.4.3 Wayfinding

Wayfinding is a critical component of any transport network. Both residents and visitors of Ballarat need to be able to understand where they are, then assess and plan their onward journey. Users need wayfinding information before and throughout their journey, enabling them to find their way with ease and confidence. It is recommended that as part of the *Ballarat City Centre Plan*, Council develop an accompanying *Wayfinding Strategy* for the Ballarat CBD. This should encompass:

- Location of signage
- Type of signage (finger boards, map boards, digital kiosks, interpretative)
- Maps that include bicycle network, preferred walking routes, public transport stops, taxi ranks,

[6] Traffic conflict frontages occur where driveway access is sought onto a site via a footpath crossover in an area of high pedestrian activity and amenity.

key shopping, educational destinations, public toilets, café/restaurant precincts

- 10-minute walking and riding catchment maps (to enable the user to see what destinations are reachable within a ten-minute walk and ride of their current location)
- Time and distance estimates for finger board directional signage for both walking and cycling
- Accessibility compliance (e.g. contrast, density, letter size and cap X-height).

Figure 26 shows the different types of signage, such as digital kiosks, finger boards and map boards. Wayfinding should be located in areas likely to involve a *'decision point'*; where the user will need to decide in which direction they head. Map boards are a more substantive installation, used primarily at key entry points.

For on-street mapping, maps should adopt a 'heads-up' orientation, aligning the map with the user's forward view, as shown in Figure 25. This improves usability by helping users quickly locate themselves and reference nearby landmarks. It is also common practice to include walking and cycling catchments as concentric circles to support journey planning. Any wayfinding system must be regularly maintained and kept up to date to ensure reliability and user trust. It should also always consider bicycle users, with appropriate signage and mapping that complements the pedestrian network.

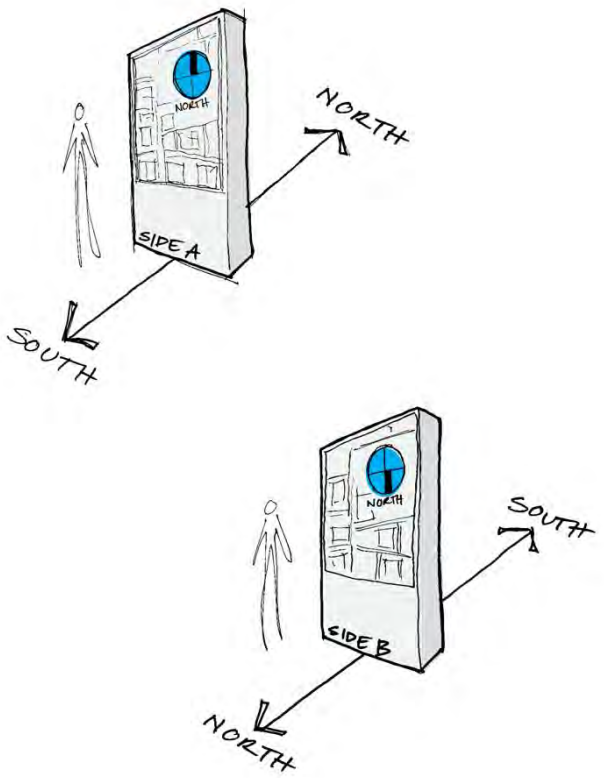


Figure 25 Heads up mapping

Source: Institute for Sensible Transport and fwdesign.

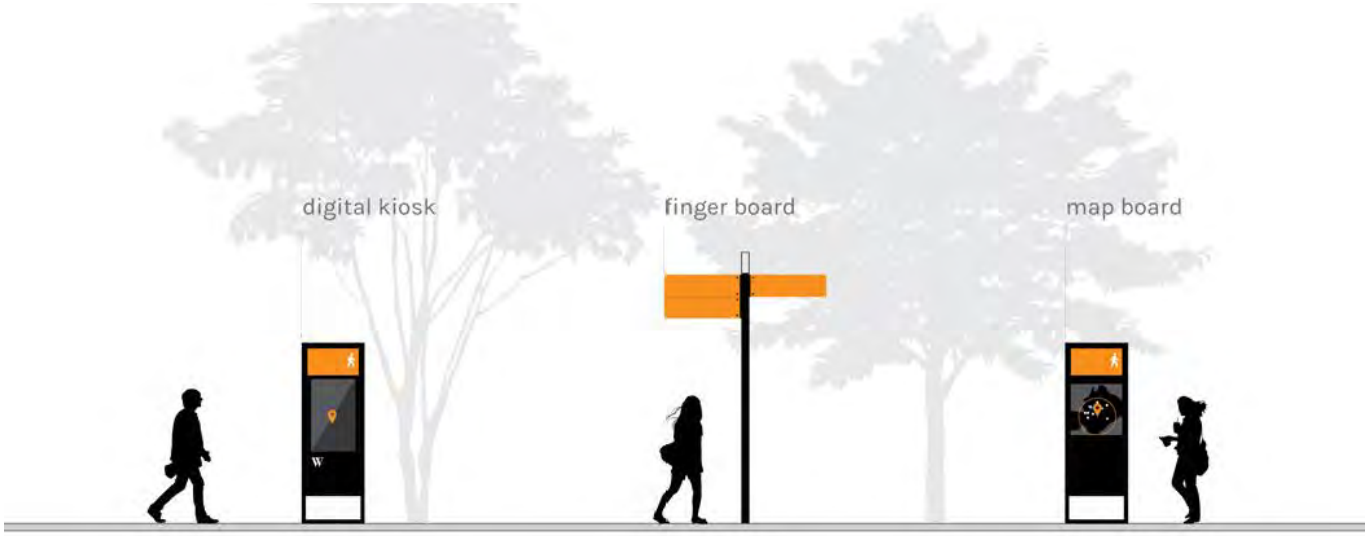


Figure 26 Wayfinding sign types

Source: Institute for Sensible Transport and fwdesign.

6.4.4 Intersections and crossings

Intersections are important focal points within the CBD and are both places of movement and exchange. Safe and convenient movement for pedestrians is dependent on being able to safely cross the street. Several intersections in the CBD have recently been upgraded to provide safer crossing opportunities. This has been achieved via zebra crossings and continuous footpaths, to give pedestrian priority at intersections (e.g. see Figure 27).

Additional opportunities have been identified to make the CBD's intersections safe and easier to navigate by applying the Safe Systems approach in design. Figure 28 shows the different types of crossing treatments that can be applied.



Figure 27 Raised threshold crossing in Ballarat

Source: Institute for Sensible Transport

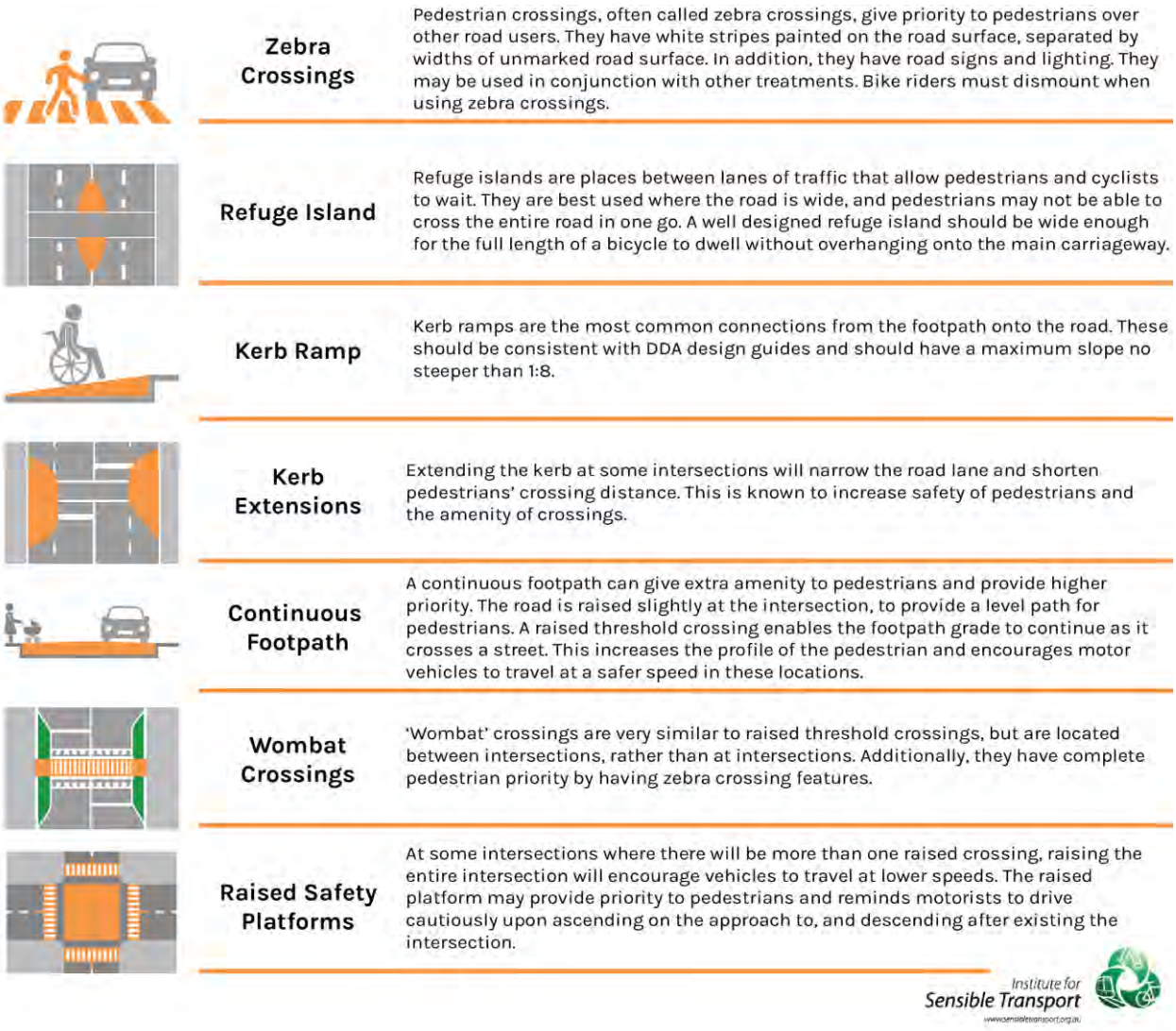


Figure 28 Crossing types

Source: Institute for Sensible Transport

6.4.5 Recommended intersection upgrades

Recommended intersection upgrades, by intersection type are shown in Figure 29. Upgrades should seek to create a safe and convenient pedestrian environment in the CBD. A shift toward active transport should be the preferred mode for short local trips within the CBD. On State-managed roads, Council should advocate for crossing upgrades.

Some intersections in the CBD prioritise vehicle movement over people, reducing safety and visibility for pedestrians and people cycling. Roundabouts and side-street crossings can be retrofitted with raised zebra crossings to slow vehicles and improve pedestrian priority and safety.

Continuous footpaths should be applied on side streets and laneways to signal pedestrian priority and support safer vehicle behaviour. Where crossings occur on major roads, raised zebra crossings (wombat crossings) are preferred.

These treatments should be prioritised along the PPN, particularly the Primary Network where higher levels of pedestrian activity are expected, followed by the Secondary and Off-Road Networks. A series of concept designs are provided below to illustrate how different intersection types could be upgraded to operate more safely for people walking and cycling. These concept designs provide a flexible framework that can be adapted across multiple locations in the CBD.



Figure 29 Proposed intersection upgrades

Source: Institute for Sensible Transport

6.4.5.1 Safer roundabouts

There are a number of roundabouts in the CBD that prioritise vehicle flow over safety. They often lack designated safe crossing points and encourage unsafe vehicle speeds through poor design. As a result, pedestrians and people on bikes are often forced to wait for gaps in traffic, making the experience feel unsafe and inconvenient.

Figure 30 illustrates how roundabouts in the Ballarat CBD could be upgraded to provide safer access for all modes. The concept includes raised crossing points on all approaches to slow vehicle speeds and improve pedestrian visibility, as well as provide clear separation between cycling movements and vehicle lanes. This treatment is commonly referred to as a *Dutch-style* roundabout.

This design could be applied to multiple roundabouts across the CBD to create a network of consistent, legible and safe roundabouts for all modes. The design can also be adapted to accommodate connecting bicycle lanes either in front of or behind vehicle parking, depending on future provision.

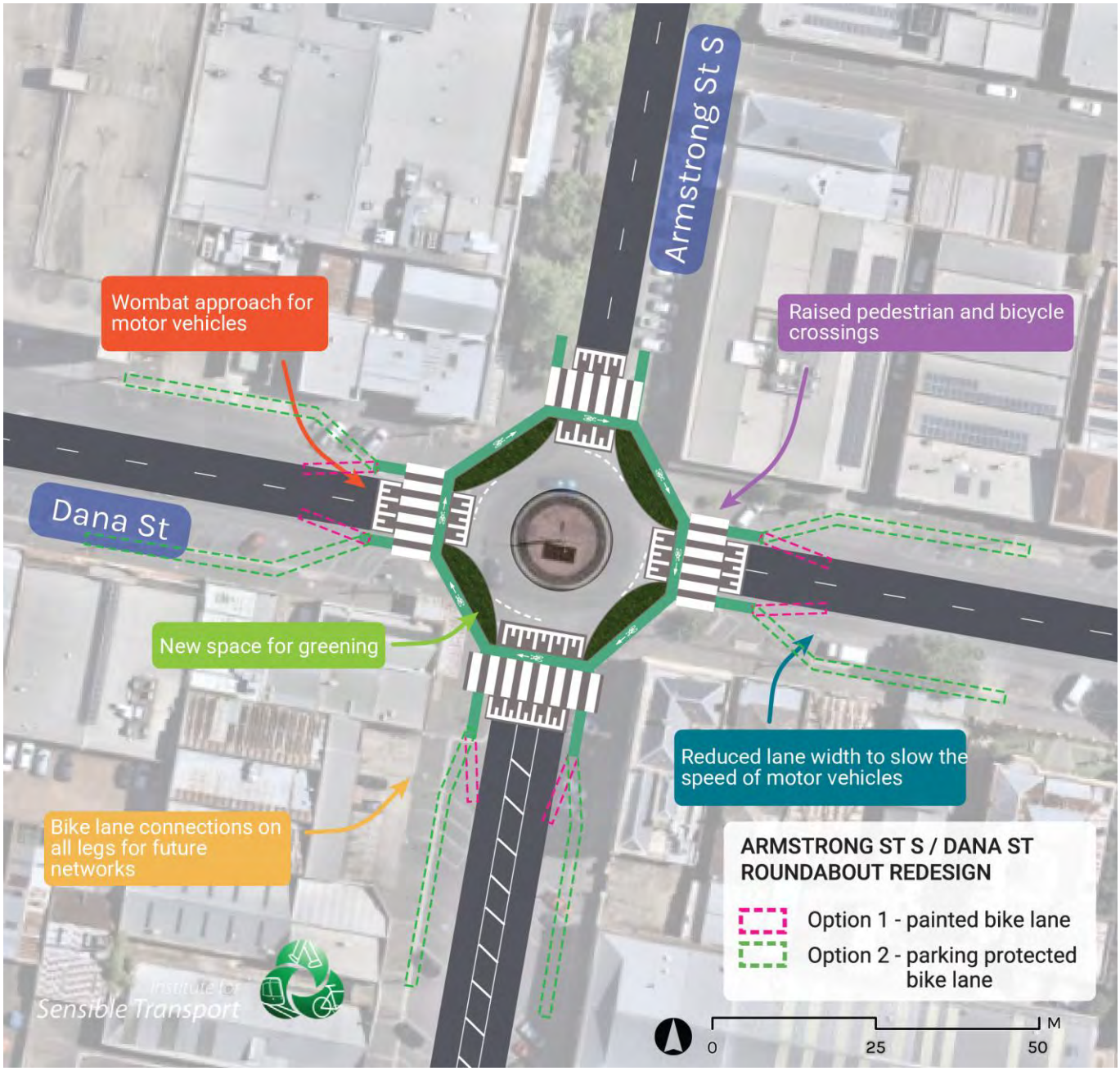


Figure 30 Concept design roundabout

Source: Institute for Sensible Transport

6.4.5.2 Safer intersections

The CBD contains a number of intersections that could be improved from both a safety and pedestrian amenity perspective. Figure 31 illustrates how the intersection of Sturt Street and Lydiard Street could be redesigned to provide safer conditions for people walking and cycling, while also accommodating bus priority measures where feasible.

Several improvements are proposed at this intersection. For example, raising the entire intersection would signal to drivers that the space should be traversed cautiously and at safe speeds. This treatment would also enable priority crossing points on all legs for pedestrians and provide advanced signal timing to allow people riding to take the lane when travelling through the intersection onto connecting streets.

While the concept shown applies specifically to the intersection of Lydiard and Sturt Streets, this intersection typology is common within the CBD. The principles illustrated in Figure 31 should therefore be applied more broadly across the network where similar conditions exist.

The design principles illustrated in Figure 31 can be applied more broadly across the network where similar conditions exist.

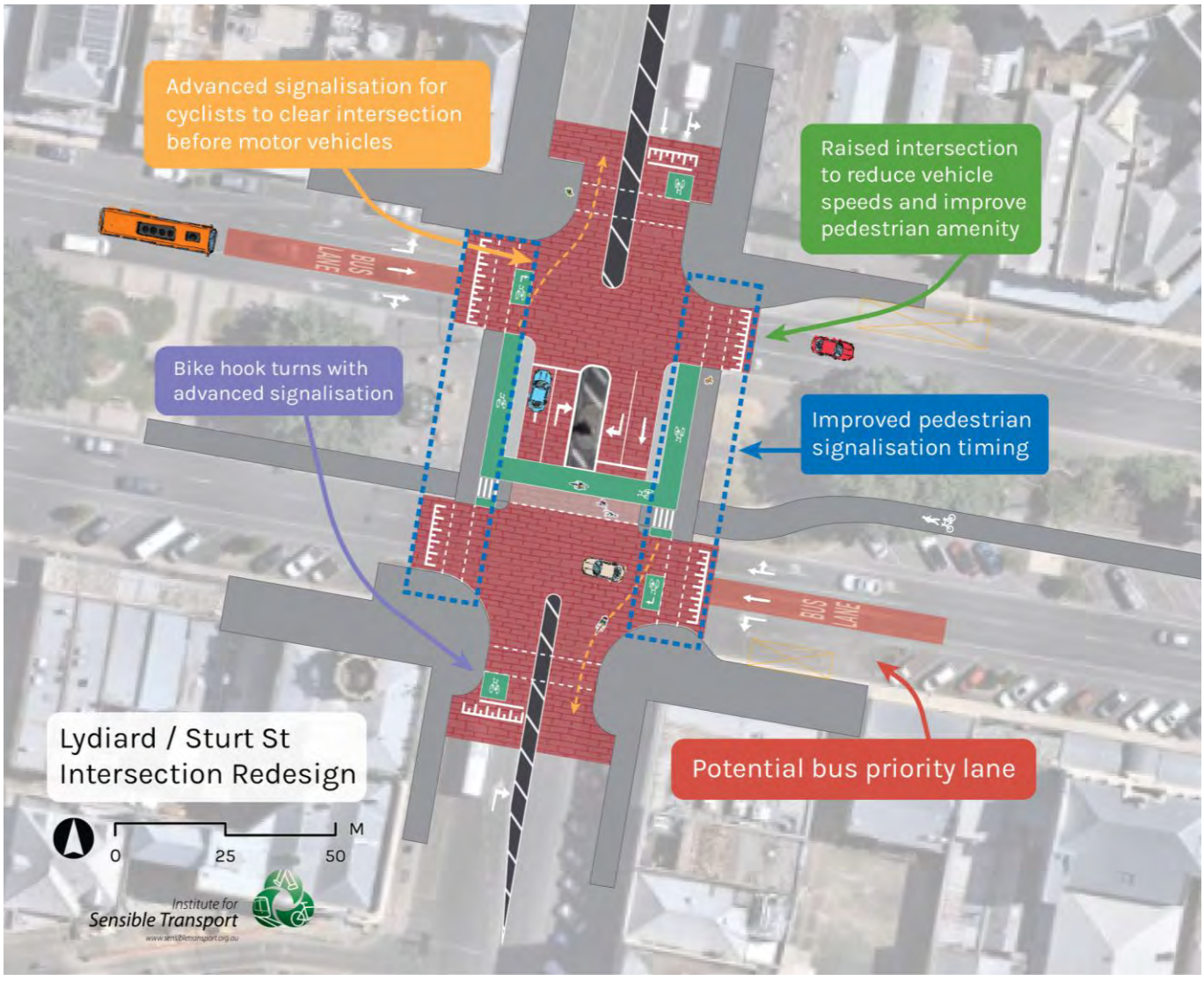


Figure 31 Concept design intersection

Source: Institute for Sensible Transport

6.5 Vibrant streetscapes

It is recommended that Council update the *2013 Street and Park Furniture Guidelines*. The guidelines should be updated to support vibrant streetscapes within the CBD and respond to contemporary expectations for amenity, accessibility and place value.

The updated guidelines should establish consistent standards for the design, selection and installation of street and park furniture, while retaining flexibility to respond to local context. They should not prescribe the exact treatment and detail at every location; rather, site-specific conditions, character and function should inform streetscape outcomes. Future updates should include recommendations on street greenery that are sensitive to Ballarat's heritage streetscapes.

Figure 32 shows a *street and public open space hierarchy plan*, identifying streets where enhanced amenity such as street trees, landscaping and improved footpaths should be prioritised. These streets largely align with the proposed Circulation Plan (Section 6.2), highlighting the role it plays in enabling streetscape improvements by reducing motor vehicle through traffic on priority streets.

By reallocating street space and changing the function of these streets, the circulation plan creates the conditions necessary to support greening, improved pedestrian amenity and more vibrant streetscapes. Together, this provides a framework to guide future public realm investment within the CBD.

The northern section of Doveton Street (Midland Highway) is identified as a primary street within the *street and public open space hierarchy*. Doveton Street is a declared arterial road under the authority of DTP, meaning any future upgrades would need to be developed in partnership with DTP and be subject to State Government approval and funding.

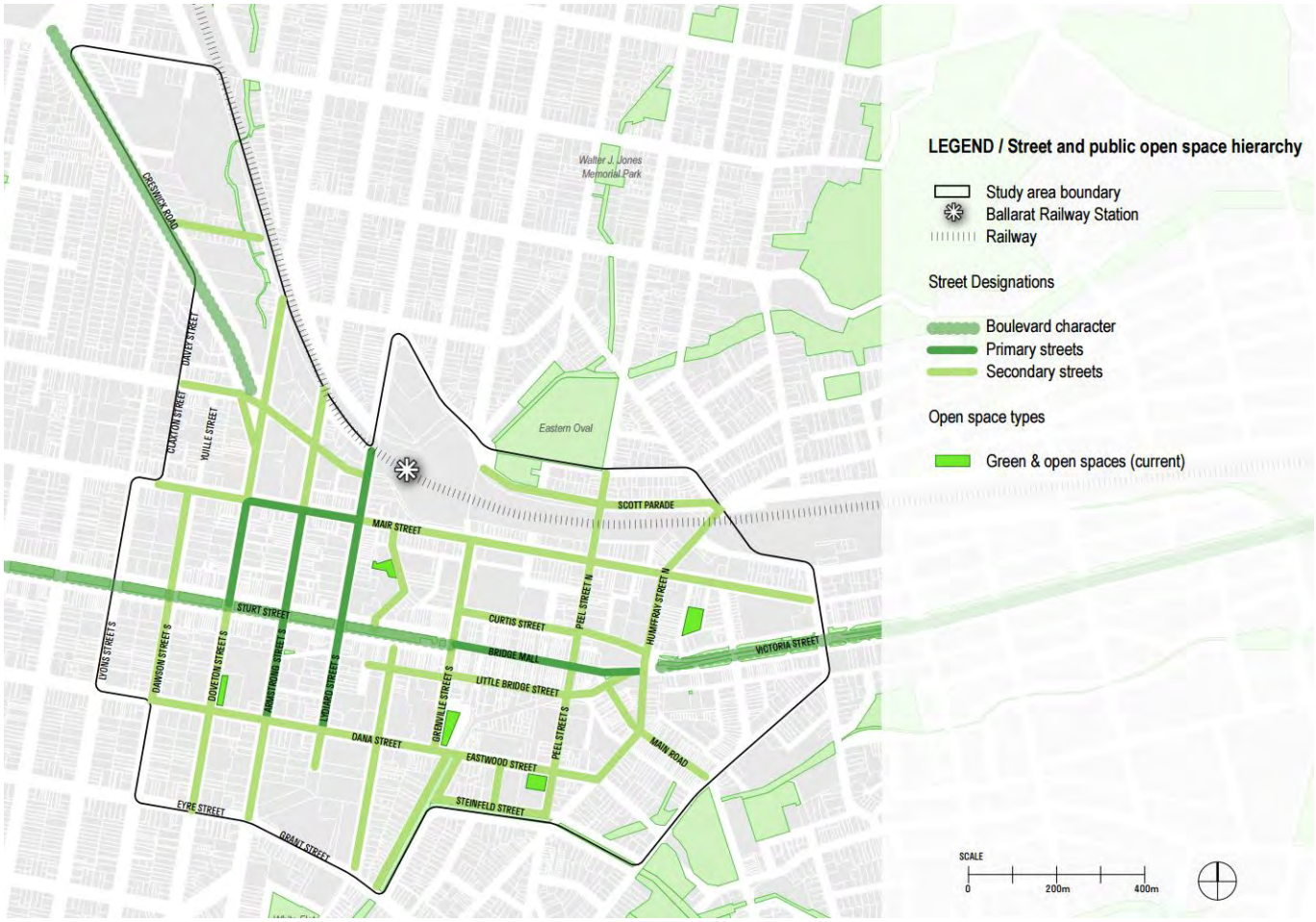


Figure 32 Street and public open space hierarchy

Source: City of Ballarat

Doveton Street is also identified as a key movement corridor in the proposed circulation plan and forms part of the *National Key Freight Network*, connecting Ballarat with Geelong to the south and Bendigo to the north. It is also a primary route on the *Principal Pedestrian Network*.

Together, these classifications highlight the important transport function Doveton Street performs for a wide range of users. However, its current design is heavily oriented towards the movement of motor vehicles, resulting in few safe crossing opportunities, poor public realm outcomes and limited provision for safe cycling. This presents an opportunity to rebalance the corridor over time while maintaining its strategic transport role.

Figure 33 and Figure 34 illustrate how Doveton Street could be upgraded within the existing road reserve to better accommodate all modes. Figure 34 compares the existing and proposed cross-sections, while Figure 33 demonstrates how this arrangement could function. The concept involves narrowing vehicle lanes to create space for protected bicycle lanes, while introducing mid-block pedestrian crossings, kerb extensions and additional street tree planting to improve safety and strengthen the public realm. These changes would not reduce the corridor's capacity, but would instead reallocate available road space to deliver a safer, more attractive street for all users.

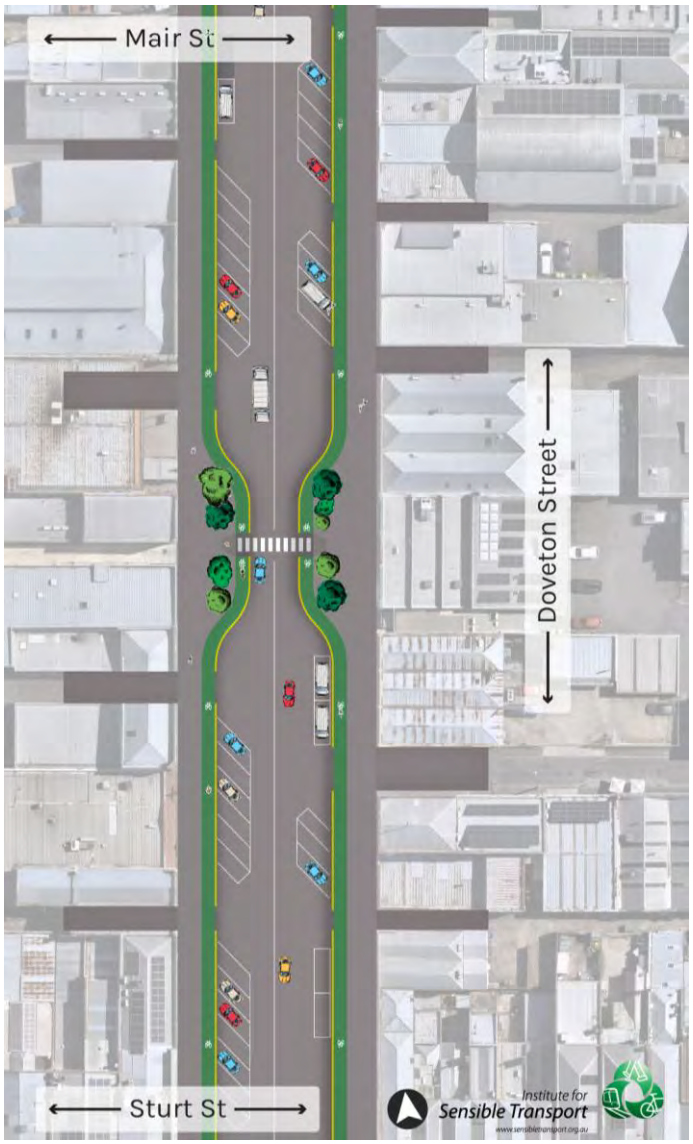


Figure 33 Concept design, Doveton Street

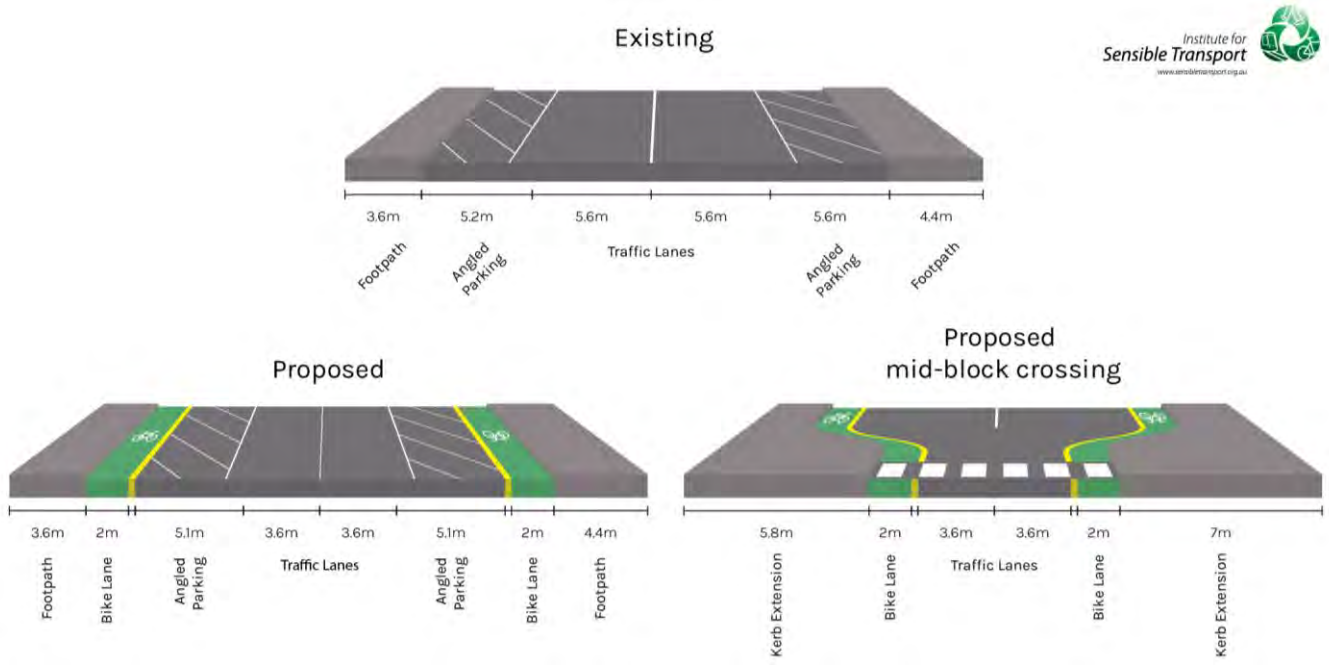


Figure 34 Cross-section design, Doveton Street

Source: Institute for Sensible Transport

6.6 Safe cycling network

The existing cycling network across Ballarat lacks the cohesion necessary to support people's choice to ride. As documented in the *Background and Site Assessment Report*, the existing network is fragmented, and where it does exist, does not provide the level of safety required to encourage a broad range of the community to ride.

High-quality, safe infrastructure is necessary to grow participation, and the type of infrastructure must be appropriate to the function and design of the road. As a continuing theme within this report, the success of stimulating cycling within the CBD will require upgrades to the network *beyond* the CBD network, as this is where many trips originate.

A matrix to guide the most suitable type of bicycle infrastructure based on the *speed* and *volume* of motor vehicles is shown in Figure 35. These factors significantly influence the level of protection needed to address real and perceived safety concerns. Infrastructure should also align with people's preferences, as the type of facility provided will determine the range of users who consider cycling.

As shown in Figure 36, no infrastructure, painted lanes, and sharrows generally offer a lower level of comfort and are unsuitable for a broad range of users (8–80 years). These treatments should only be considered where there is a clear justification for not providing infrastructure suitable for all ages and abilities.

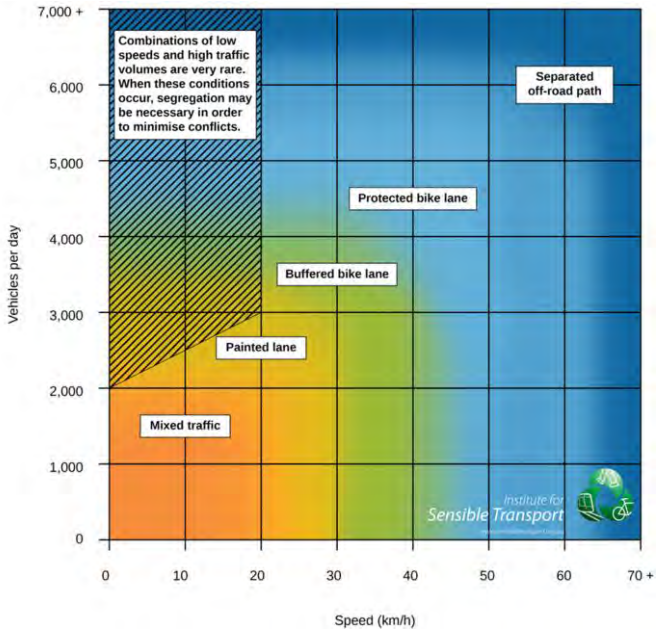


Figure 35 Bicycle infrastructure design based on the speed and volume of motor vehicle traffic

Source: Institute for Sensible Transport, for Austroads

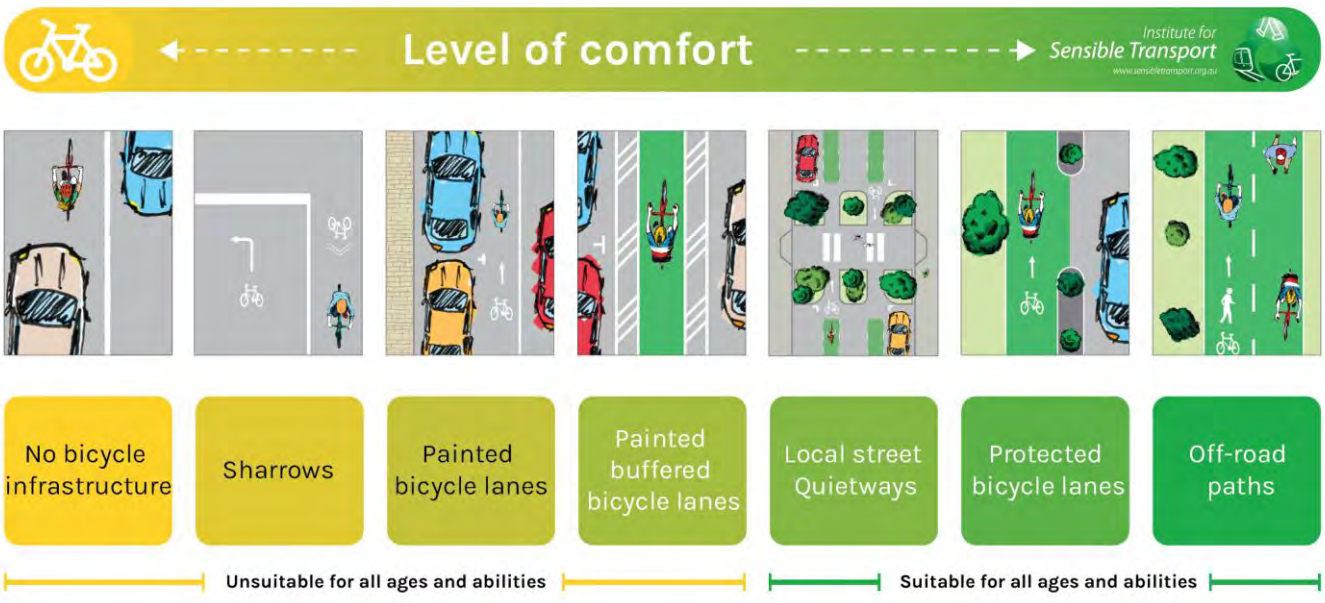


Figure 36 Cycling treatments and level of comfort

Source: Institute for Sensible Transport

6.6.1 A new Cycling Action Plan

Council has an existing *Cycling Action Plan 2017–2025*, which has reached its horizon date. The Plan recognised the CBD as a key destination for cycling and identified the importance of establishing a connected network both to and from the CBD. The implementation of a safe cycling network in the CBD has been limited.

It is recommended that Council prepare a new *Cycling Action Plan* that provides a high-quality network connecting to and through the CBD. Figure 37 shows existing proposals for the *Strategic Cycling Corridors* (SCC) network and *Ballarat Bicycle Network* (BBN), focusing on creating safe cycling corridors by linking existing infrastructure with key destinations.

A series of additional strategic links have been included to create a future network that can support a growing population. Detailed network planning is required to confirm alignments and infrastructure treatments informed by best practice. Consideration should also be given to intersection design to ensure infrastructure is provided through intersections where riders are at greatest risk.



Figure 37 Concept bicycle network

Source: Institute for Sensible Transport

6.6.2 Bicycle parking

Having a safe place to store a bicycle when not in use is essential. People require on-street parking for short term uses (e.g. visiting shops, community facilities) as well as off-street parking for longer stays (e.g. strata/multi-dwelling developments and workplaces).

6.6.2.1 On-street bicycle parking

The *Background and Site Assessment Report* identified a shortage of bicycle parking in some high-demand areas of the CBD. It is recommended that Council adopt a consistent approach to the provision of bike parking. The recommended style of parking hoop is shown in Figure 38, which is consistent with Austroads guidelines and enables a range of different bicycle types to be locked. To achieve a consistent level of bike parking through the CBD, it is recommended that Council provide:

- A minimum of two bike parking hoops every 100 m of either side of the street in existing high pedestrian activity areas.
- A minimum of two bike parking hoops outside community facilities.
- A minimum of four bike parking hoops at tourist destinations.



Figure 38 On street bike hoop

Source: Institute for Sensible Transport

6.6.2.2 Off street bicycle parking

Ensuring people have a safe and convenient place to park a bike at a residential or work location is also important. As the built form in the CBD diversifies, a range of different development types that require off-street bicycle parking will occur. For new developments within the CBD, it is recommended Council require:

- Bike parking rates of one hoop per dwelling in multi-dwelling developments, plus visitor parking of one hoop for every ten units.
- Bike parking rates of one hoop per 150m^2, one visitor parking hoop per 400m^2 for new commercial developments.
- Bike parking rates of one park per room/unit available for visitors (e.g. one hoop per two bedrooms) in hotels and other visitor accommodation.
- Require bicycle parking to be accessible to all ages and abilities. Box 2 outlines considerations for siting and type requirements to achieve accessibility.

Floor vs wall parking for new developments

While it may be easier to install wall mounted bike parking in new developments, people find this type of parking inconvenient. It especially disadvantages women, who are much less likely to find vertical parking acceptable. Horizontal (on the ground) parking also helps people with unusual bikes or with baskets or child seats to be able to easily lock up their bike.

It is recommended Council require new developments to install:

- A maximum of 20% of bike parking to be vertical (on a wall), with at least 80% horizontal (on the ground).
- All bike parking areas should be convenient to the user and be located with consideration for theft minimisation (e.g. secured area, well lit, passive surveillance).



Photo: Bicycle Network

Box 2 Floor vs wall parking for new developments

6.7 Public transport

Ballarat benefits from train, coach and bus services, providing access to destinations across the city. However, service frequency, connectivity, and infrastructure can limit the appeal and usability of public transport. While the Victorian Government manages the public transport network, Council has a role in advocating for service improvements and delivering complementary infrastructure such as accessible bus stops and shelters.

6.7.1 Reimagining buses in Ballarat

Reimagining the Ballarat bus network to better serve the CBD through faster and more direct trips should be a priority. Today, 14 bus routes terminate at the Ballarat station interchange, and almost all routes head to the suburbs via the Bridge Mall interchange. This can add several minutes to bus trips, making public transport less competitive compared to driving.

Redesigning the bus network to reduce unnecessary detours will improve efficiency.

Council has long advocated for a review and overhaul of the bus network to improve efficiency and make better use of available service kilometres. In late 2025, DTP undertook consultation on how buses could better serve Ballarat. The next stage involves reviewing submissions, with a consultation report expected in mid-2026. Any future changes will be subject to funding.

6.7.1.1 Key principles

The City of Ballarat provided a detailed submission to the Ballarat bus network review. This outlined preferred actions of relevance to the CBD which include:

- Providing more direct, legible cross-city connections by creating high-frequency east–west and north–south corridors
- Developing a hierarchy of corridors (core / supporting / local), with high-frequency spines linking key areas, activity centres, and destinations
- Introducing a demand-based staged bus priority program on core corridors
- Ensuring early provision of public transport in growth areas
- Aligning timetables with train arrivals, school start/finish times or hospital shifts.

6.7.1.2 Route concepts

A concept has been developed in Figure 39 to show how buses could be rerouted to provide more direct services without impacting coverage. This concept would slightly reduce the total number of route kilometres travelled, which could be reinvested into improved service quality.

Regional network considerations influence overall public transport usability but are outside the scope of this report. These should be addressed through broader strategic work such as the *Ballarat Regional Transport Assessment*.

Key features of network reform should include:

- Logical route alignment from Ballarat Station to Bridge Mall depending on which direction buses arrive from. Almost all buses would continue serving both key interchanges, apart from routes 10, 13, and 14 which would also serve Federation University.
- Bus timetables should provide frequent ‘turn up and go’ services, with buses running every 10-15 minutes on key corridors.
- Network connectivity improvements to provide faster journeys and transfers to make public transport more time competitive with driving.
- The current dual CBD interchange system at Ballarat Railway Station and Bridge Mall limits opportunities to simplify routes and adds operational complexity. The network concept addresses this by improving overall network efficiency while retaining both locations as key CBD access points.
- Consider the introduction of through-routing for selected services to improve cross-town connectivity and reduce the need for transfers on orbital trips. This approach is used in comparable regional networks such as Geelong and Bendigo and would support faster, more legible journeys across Ballarat.

Mode share vision

As set out in local policy and Council's submission to the DTP bus network review, there is a commitment to reducing private vehicle mode share towards a more sustainable transport mix. While detailed directions will be refined through future strategic transport planning work, the submission included an aspirational 10–20-year mode share pathway. These outcomes are dependent on significant improvements to public transport frequency, reliability and connectivity. Targets include:

- Walking and cycling: 15-20% of trips
- Micromobility and shared modes: 5%+ of trips
- Public transport: 10-15% of trips (dependent on improved bus frequency, reliability and connectivity
- Private vehicle: reducing to below 70% of trips.

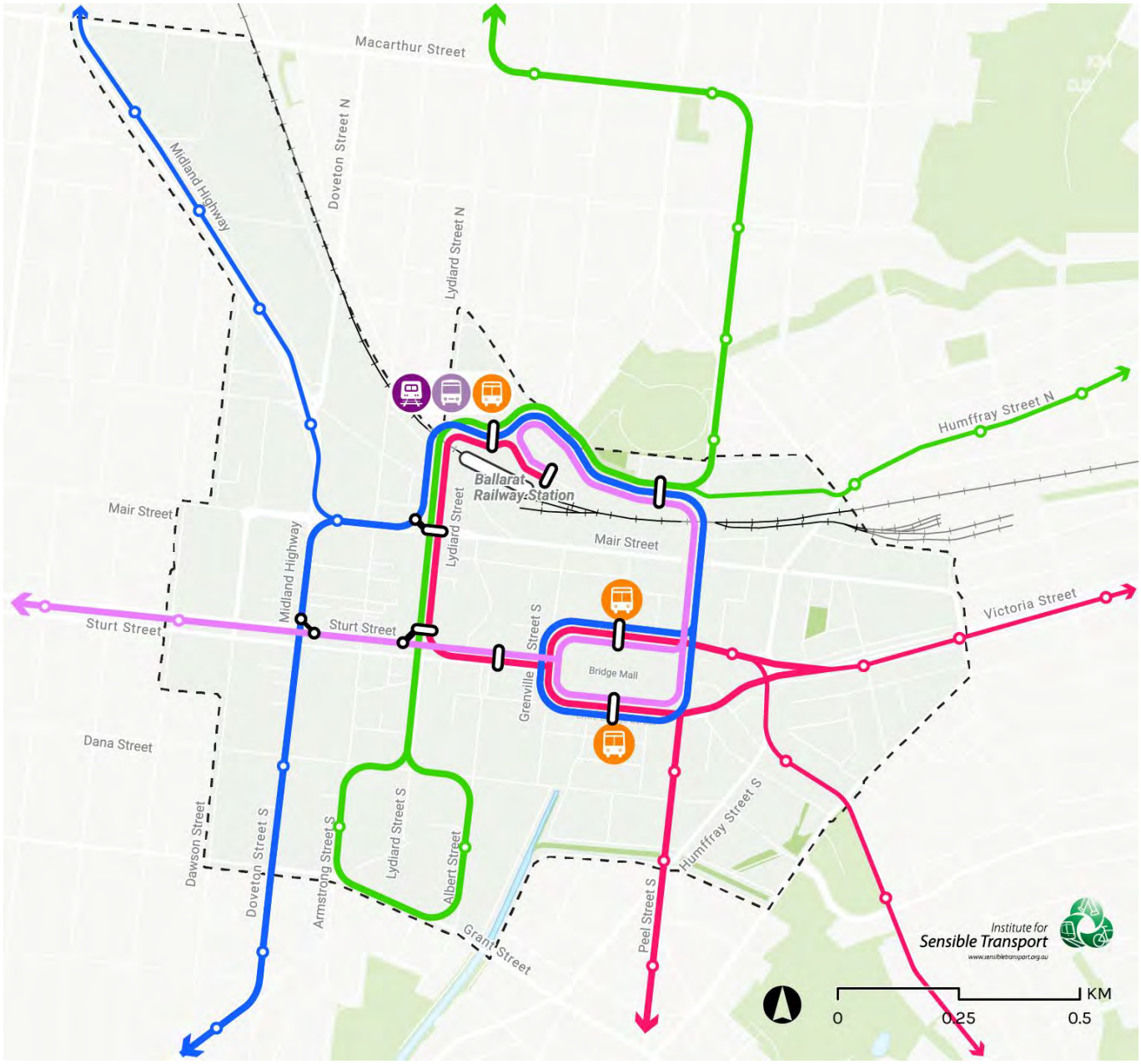


Figure 39 Concept bus network

Source: Institute for Sensible Transport

6.7.1.3 Bus stops and interchanges

Most bus stops in Victoria have only a basic level of infrastructure. In 2021, around three-quarters of the bus stops in the network had no formal shelter or additional amenities.[7] Bus stops should provide a level of service relative to their role in the public transport network.

While there are basic features that all bus stops require, there are various ways these can be delivered. A nuanced approach to assessing needs can ensure a basic level of service is provided across the network, while delivering higher quality infrastructure in more appropriate places. This is particularly true for an area like the Ballarat CBD, which may see significant changes in the near future and an upgraded bus network to provide for the increased population.

Bus stops in the Ballarat CBD can be categorised into four tiers based on their service profiles. Each of these tiers requires a different level of service provision, as shown in the matrix provided in Table 2. The four tiers are:

- Tier 1 – A bus stop served by a regular bus route
- Tier 2 – A bus stop served by multiple routes running along the same network section
- Tier 3 – A bus stop, or stops, which act as a minor interchange (e.g. a bus stop where shared running routes branch or two different routes intersect)
- Tier 4 – A bus stop that serves as a major interchange.

The amenity matrix should be used as a guide to deliver an appropriate level of supporting infrastructure that reflects both the level of service provided and the stop's role within the wider network. Given the uncertainty around the outcomes of a future Ballarat bus network review, it is recommended that bus stop infrastructure upgrades be staged and aligned with any service changes arising from a revised bus network.

Table 2 Matrix of amenities required for bus stop tier

Bus stop amenity	Tier 1	Tier 2	Tier 3	Tier 4
Paved footpath and level access to buses for boarding	✓	✓	✓	✓
Level footpath, connected to bus stop pad	✓	✓	✓	✓
DDA-compliant tactile marking	✓	✓	✓	✓
Bus stop showing routes and a timetable (accessible)	✓	✓	✓	✓
Seating	✓	✓	✓	✓
Real-time Passenger Information Display	✗	?	✓	✓
Shelter	✓	✓	✓	✓
Waste bins	?	?	✓	✓
Toilet	✗	✗	✗	✓

[7] Josephine Eady and Duane Burrt (2021) Getting to the bus stop, Victoria Walks

6.7.1.4 Accessible public transport

Accessibility is a fundamental requirement of all public transport infrastructure. Bus stops must be *Disability Discrimination Act* compliant to ensure they are usable by people of all ages and abilities, regardless of mobility, sensory or cognitive impairment. Supporting infrastructure such as shelters, seating, footpaths and clear boarding areas plays a critical role in making public transport practical and inclusive.

While not all bus stops require the same level of amenity, all upgrades should prioritise accessibility. Figure 40 provides a checklist to guide Council when upgrading bus stops to ensure minimum accessibility standards are met across all tiers. Ensuring consistent, accessible design will help maximise the usability of the network and support equitable access to public transport.



Figure 40 Public transport accessibility checklist

Source: Institute for Sensible Transport

6.7.2 Bike racks on buses

Walking and riding are important access modes to public transport. Many trips in Ballarat can be too far to cycle and sometimes the closest bus stop is beyond an easy walk. Installing bus racks on the front of buses is a relatively easy way to expand the catchment of routes and helps improve the door-to-door journey time for people travelling by bus. It can also help to offer flexibility to the user when circumstances change (e.g. poor weather), as well as to overcome hilly routes.

To support this, Council will advocate to *Transport Victoria* for the introduction of bike racks on buses. To ensure consistency for the user and operational simplicity, installing racks on all buses is preferred.



Figure 41 Example of bike rack on bus in Bendigo

Source: Institute for Sensible Transport

6.7.3 Regional V/Line services

The Ballarat CBD plays a key role in Western Victoria's public transport network. The Ballarat railway station hosts regional rail and road coach connections, though it primarily serves trips to and from metropolitan Melbourne. The station is also one of the largest regional coach hubs in Victoria, servicing a broad range of destinations such as Mount Gambier and Mildura. Opportunities to improve interchange between bus and train are discussed in Box 3.

There are opportunities to increase train frequencies between Ballarat and Melbourne to every 20 minutes during off-peak times. In future, when the line is electrified to Melton, there is the potential to run Ballarat trains express between Melton and Sunshine stations, speeding up journeys. There is also the opportunity to increase service frequencies on the Maryborough and Ararat lines to support long-distance regional journeys.

Ballarat Station Bus Interchange

The Ballarat bus interchange currently serves as the terminus for all but one urban bus route. Its construction was a key feature of the *2021 Ballarat Station Precinct Redevelopment*. The interchange was moved from its previous location on Lydiard Street to a new off-street interchange with dedicated bus bays, shelters and layover locations. The new configuration enhanced connectivity to the railway station, however it also placed public transport services slightly further from the main core of the CBD.



As shown in the Ballarat bus network concept (Figure 39), reform should seek to realign some bus routes away from the interchange, to improve the directness and efficiency of the wider network. To support this concept, some bus stops in the CBD would require relocation, including within and near the Ballarat station bus interchange.

The *Ballarat Station Southside Precinct Master Plan* originally identified opportunities to shift the V/line coach departure bays from their existing bays inside the station forecourt to the new Ballarat bus interchange.[8] This shift potentially risks creating longer and more inconvenient transfers between V/line coach and rail services and must be considered carefully.

Box 3 Opportunities for the Ballarat bus interchange

[8] Ballarat Station Southside Masterplan

6.8 Car parking management

One of the guiding principles of this analysis is for parking policy in Ballarat to contribute to a vibrant city centre, sustainable transport choices, successful retailers and equitable access. To support this direction, it is recommended that Council develop a new CBD Car Parking Strategy to replace the *2007 Ballarat Central Business Area (CBA) Car Parking Strategy*.

Principles for managing car parking have been developed. The principles (Table 3) are based on previous parking work completed for Council and are designed to guide decision-making regarding car parking in the CBD.

Table 3 Better parking management principles

Principle	Description
Efficiency	Car parking should reflect an efficient use of scarce public land and should not be a barrier to the creation of high value public space or development
Sustainability	Parking policy should support a shift to sustainable travel modes
Equity	Car parking should facilitate fair access to public spaces and services for people with special access requirements
Affordability	Car parking should be provided in a cost-effective manner that represents best value to Council
Quality Urban Forms	The location, configuration and design of car parking facilities should contribute to attractive, safe and vibrant streets and places

6.8.1 Better use of Council owned parking

At-grade off-street car parking lots consume vast amounts of space while adding little to the vibrancy of an area. As a result, they reduce possibilities and, in many cases, exclude alternative uses, creating a significant opportunity cost. This is a common issue in urban areas and has forced councils to rethink how land is used for car parking. One alternative use is for housing to be developed on council owned car parking lots, as discussed in Box 4.

Council should investigate the options to deliver social or affordable long-term rental housing on top of Council owned car parks. This would provide new housing in desirable locations, support those in housing need, and provide examples to the private development market of what is possible in Ballarat CBD, encouraging more development.

Council should investigate the options to deliver social or affordable long-term rental housing on top of Council owned car parks.

Using car parks to support more housing

Many Victorian councils are beginning to explore the option to increase their supply of social housing through their existing at-grade car parking assets. Housing First, a community housing organisation, has been redeveloping car parks to provide social housing, while retaining public car parking.

The Marlborough St car park in City of Port Phillip has recently been redeveloped with 46 new homes, and a publicly accessible basement car park of 39 spots, shown below.



Photo source: Housing First

Box 4 Using car parks to support more housing

6.8.2 Car parking action framework

To support the guiding principles, a *Car Parking Action Framework* (see Figure 42) has been produced to provide a transparent process for determining actions to better manage car parking in the CBD. The *Framework* presents the process for the appropriate actions and response to feedback from the community and visitors.

By following the process identified in Figure 42, Council can ensure decisions on car parking align with the municipality's wider strategic objectives and current best practice.

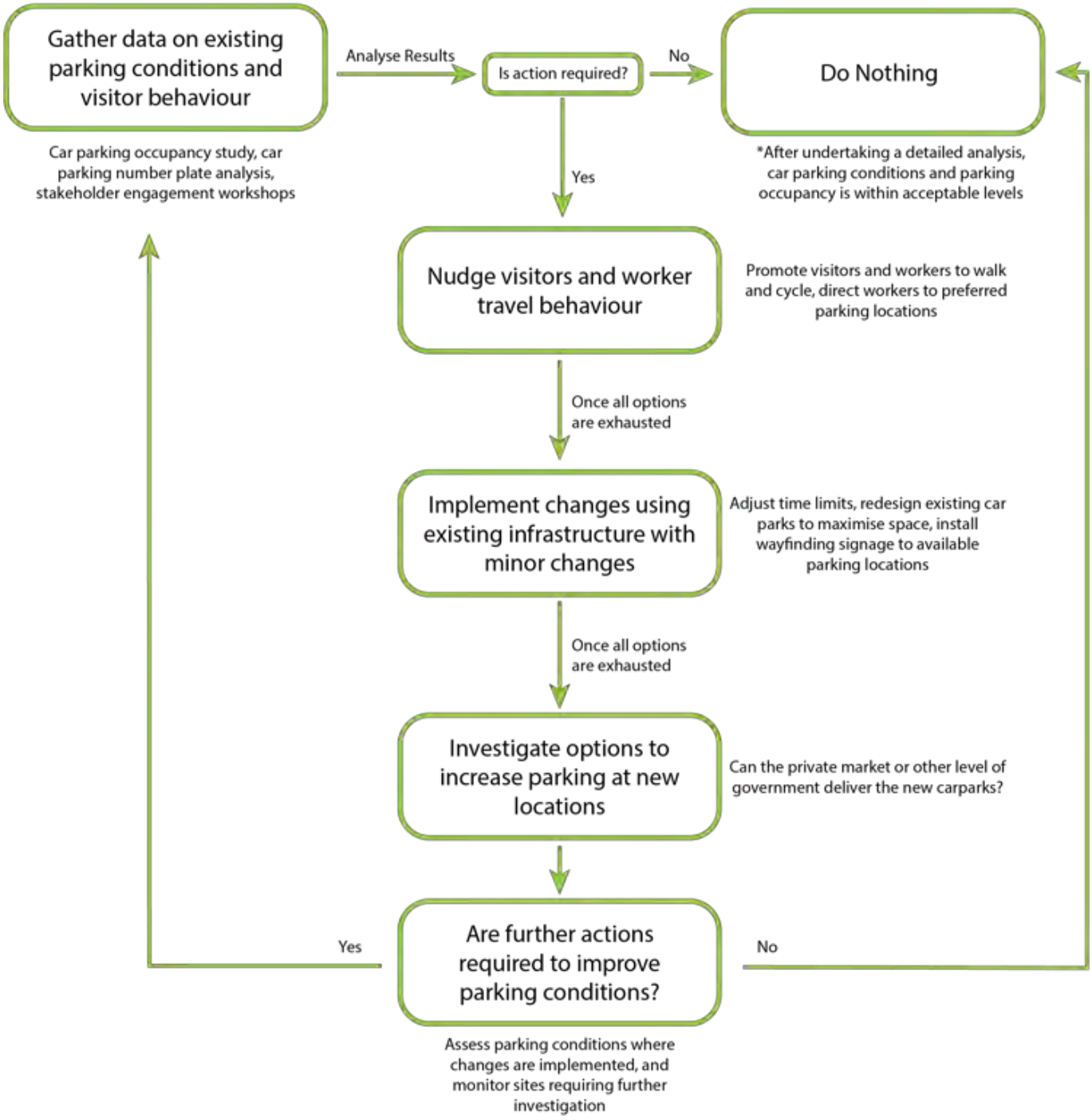


Figure 42 Ballarat CBD Car Parking Action Framework

Source: Institute for Sensible Transport

As part of the new *CBD Car Parking Strategy*, Council should investigate a range of parking management interventions to help deliver the vision for parking and give effect to the guiding principles outlined in Table 3. This includes monitoring occupancy and utilisation where changes in parking management have occurred to better understand how spaces are being used. For example, Council could investigate the use of parking sensors and other data collection methods within the Bridge Mall shared zone to understand how parking demand changes over time and inform future management decisions.

These interventions align with the *Car Parking Action Framework* by translating high-level principles into on-the-ground actions that can be applied in response to local conditions and community feedback. Table 3 provides a suite of potential parking management interventions, organised by the relevant principle. These interventions are not intended to be implemented simultaneously but rather provide a menu of options that Council can consider as part of an evidence-based approach to car parking management in the Ballarat CBD.

Table 4 Potential parking management interventions

Principle	Potential parking management interventions
Efficiency	• Repurpose on-street parking to provide space for sustainable modes of transport and/or place making initiatives • Remove minimum parking requirements and consider maximum parking requirements • Provide real-time parking occupancy wayfinding.
Sustainability	• Cap off-street supply at existing levels • Allocate some on-street spaces to car share vehicles in locations the industry is willing to invest • Facilitate the implementation of public EV charging stations in line with the *Ballarat Electric Vehicle Public Charging Framework* • Investigate a Sustainable Transport fund from parking revenue • Exclude residents of new multi-unit developments from accessing residential parking permits • Increase tree cover in off-street car parks.
Equity	• Increase the provision of accessible parking • Increase the provision of preferential parking bays, e.g. Parents with Prams (or similar) • Improve footpath accessibility to existing and future car parking bays • Provide safe and separated pedestrian pathways and crossing facilities within all off-street car parks.
Affordability	• Investigate dynamic pricing models for all car parking • Remove cash in lieu in conjunction with removal of minimum parking requirements • Advocate to the State Government to introduce paid parking at railway station car parks.
Quality Urban Forms	• Reduce off-street parking supply in favour of uses that enhance the vibrancy of the CBD • Investigate redevelopment of Council owned at grade car parks into housing and mixed-use developments • Consolidate off-street parking into multi-storey facility with activated street frontages • Establish and manage a parklet program for business to repurpose on-street parking spaces.

7. Environmental impact



Transport is the fastest-growing source of greenhouse gas emissions and is expected to become the largest single source of emissions by 2030.

Figure 43 illustrates the stark contrast between dirty and clean transport modes and the space each mode consumes.

- The size of the black balloons represents grams of CO_2 per person kilometre for the different modes shown.
- The footprints represent the space consumption for each mode, expressed as m^2 per person.

The comparison demonstrates that walking, cycling and public transport are highly efficient from both a space and emissions perspective.

Private motor vehicles, by comparison, are both emissions intensive and space inefficient. While electric vehicles produce lower emissions than internal combustion vehicles, they still contribute to congestion and require the same amount of road and parking space.

As with many other cities in Australia, the street network in Ballarat continues to reflect a priority for modes that are both emissions intensive and space inefficient.

The *Ballarat Net Zero Emission Plan* includes a target to reduce transport-related emissions to achieve a net zero transport system by 2030. With continued growth in motor vehicle mode share over the past decade, a business-as-usual approach to investment will result in Ballarat not meeting its 2030 net zero commitment.

Ballarat's ability to become a more liveable, accessible city will be somewhat dependent on the degree to which it can create the conditions in which walking, cycling and public transport thrive.

The street network in Ballarat continues to reflect a priority for modes that are both emissions intensive and space inefficient.

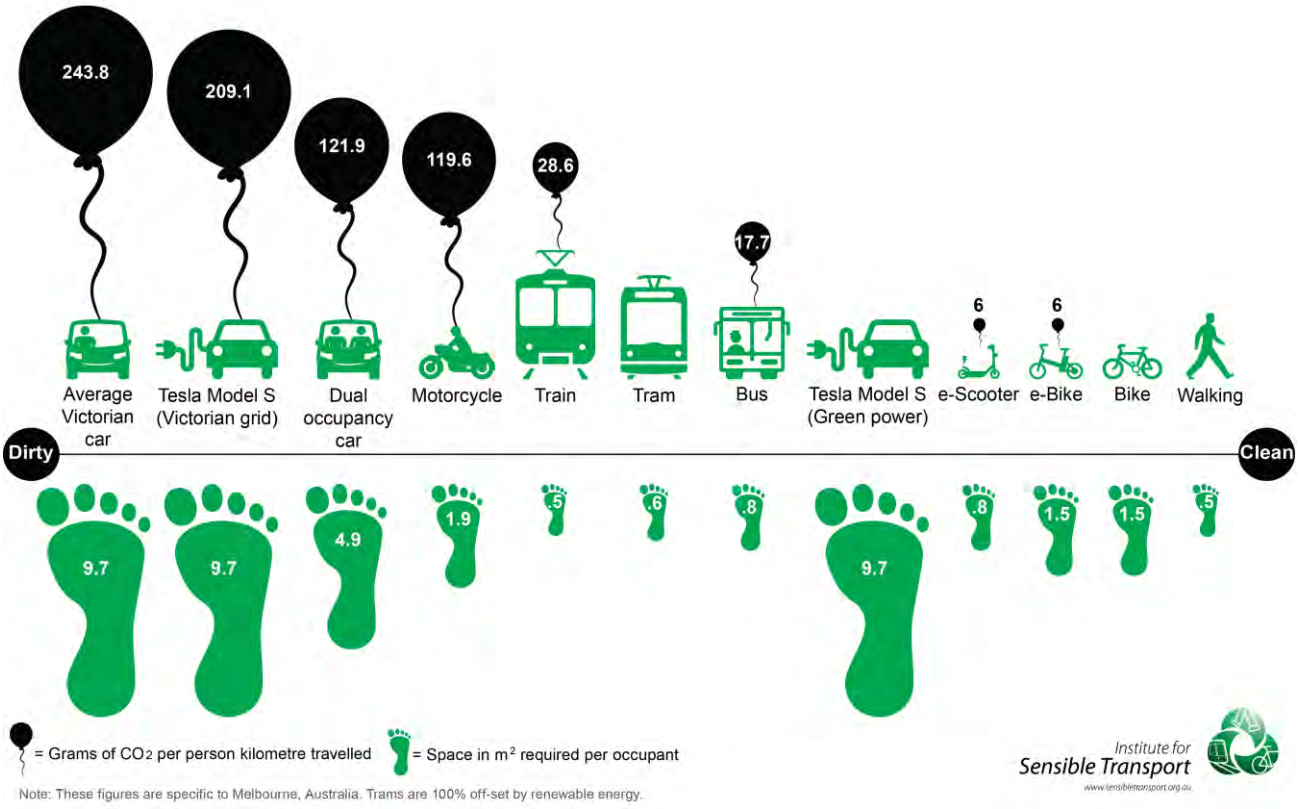


Figure 43 Emissions and space intensity, various modes

Source: Institute for Sensible Transport

7.1 Accounting transport emissions

Estimated emissions for different types of transport, separated by emission scope for 2025 are shown in Table 5. On-road transport is by far the largest contributor, accounting for the majority of total emissions across all scopes. In contrast, emissions from public transport (buses and rail combined) represent 3% of transport emissions.

Table 5 Emissions by transport type and scope, 2025 (metric tonnes CO_2-e)

Type	Scope 1	Scope 2	Scope 3	Total
On-road transport	27,870	78	6,987	34,936
Railways	212		46	258
Total	28,082	78	7,033	35,194

Source: Institute for Sensible Transport

On-road transport accounts for the majority of total emissions across all scopes.

A more detailed breakdown of emissions by vehicle type for 2025 is provided in Figure 44. Passenger vehicles are the largest source of GHG emissions, producing approximately 13,911 tonnes of CO_2-e[9] in 2025.

Commercial vehicles, both light and heavy, also contribute significantly, producing 6,080 tonnes and 7,320 tonnes of CO_2-e respectively. Combined, these vehicle types represent a substantial share of Ballarat's on-road transport emissions.

Public transport modes contribute a much smaller share of total emissions, with buses producing around 530 tonnes, and trains 212 tonnes of CO_2-e.

Passenger vehicles are the largest source of GHG emissions.

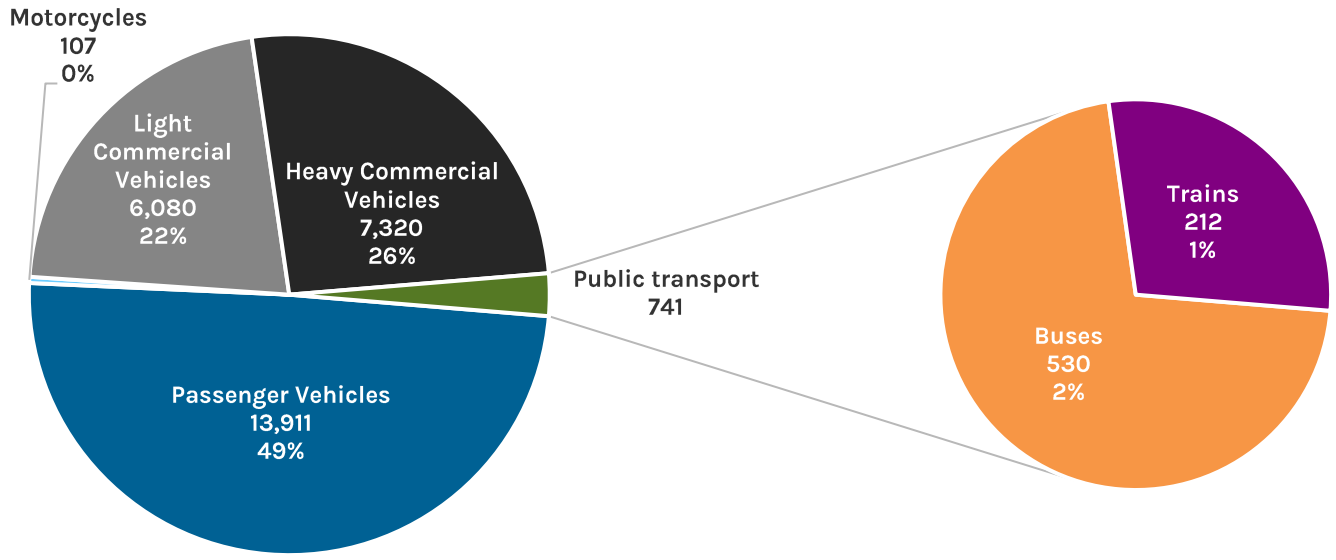


Figure 44 Emissions (metric tonnes CO_2-e) per vehicle type, 2025

Source: Institute for Sensible Transport

[9] CO_2-e is a reporting unit for carbon dioxide equivalent, which is a measure of the warming potential of greenhouse gasses as carbon dioxide. The greenhouse gases accounted for are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).

Passenger emissions are represented in greater detail in Table 6. Private passenger vehicles are responsible for 94% of total emissions while accounting for 90% of total passenger kilometres travelled. Public transport modes, although contributing a much smaller share of total emissions, achieve significantly lower emissions intensity per passenger kilometre travelled (PKT).

Private passenger vehicles are responsible for 94% of total emissions while accounting for 90% of total passenger kilometres travelled.

This reflects the efficiency benefits of higher occupancy rates in public transport, despite the higher per-vehicle emissions of rail services. It reinforces that reducing car dependency and encouraging mode shift to public and active transport represent the most effective pathways for lowering transport-related emissions in Ballarat. As patronage of buses and trains rises, the emissions per PKT decreases, highlighting the importance of encouraging mode shift for a broad range of trips.

Reducing car dependency by encouraging public and active transport represents the most effective pathways for lowering transport emissions in Ballarat.

Table 6 Passenger emissions by vehicle type, 2025

Vehicle	Emissions (tonnes CO_2-e)	Vehicle kilometres travelled (VKT)	Passenger kilometres travelled (PKT)	grams CO_2-e per VKT	grams CO_2-e per PKT	% of emissions	% of VKT	% of PKT
Passenger Vehicles	13,911	56,893,207	62,582,528	245	222	94%	97%	90%
Motorcycles	107	780,891	780,891	137	137	1%	1%	1%
Buses	530	764,446	2,599,312	693	204	4%	1%	4%
Trains	212	39,045	3,248,658	5,419	65	1%	0%	5%

Source: Institute for Sensible Transport

7.2 Pathways to lowering transport emissions

The evidence reviewed in recent assessments shows that current transport emissions exceed the levels required to meet Australia's obligations under the *Paris Climate Agreement*. These emissions are forecast to increase under the existing policy context.

Sustained and unprecedented action will be required to arrest increasing emissions and then reverse this trend.

Figure 45 provides an outline of the pathways through which transport emissions can be reduced. These pathways must all be taken at once, simultaneously increasing fuel efficiency, decreasing motor vehicle mode share and vehicle kilometres travelled (VKT) or unnecessary trips.

Emissions reductions require action across all levels of government. Mode shift requires both State and Local governments to work together to deliver more transport choice, through frequent public transport services and more high-quality walking and cycling paths.

Integrating transport and land-use planning can support more people to live closer to destinations and each other. This reduces trip distances and the need to travel by private vehicle. Supporting increased residential density within the Ballarat CBD is therefore a fundamental component of reducing transport emissions while creating a more vibrant and accessible city centre.

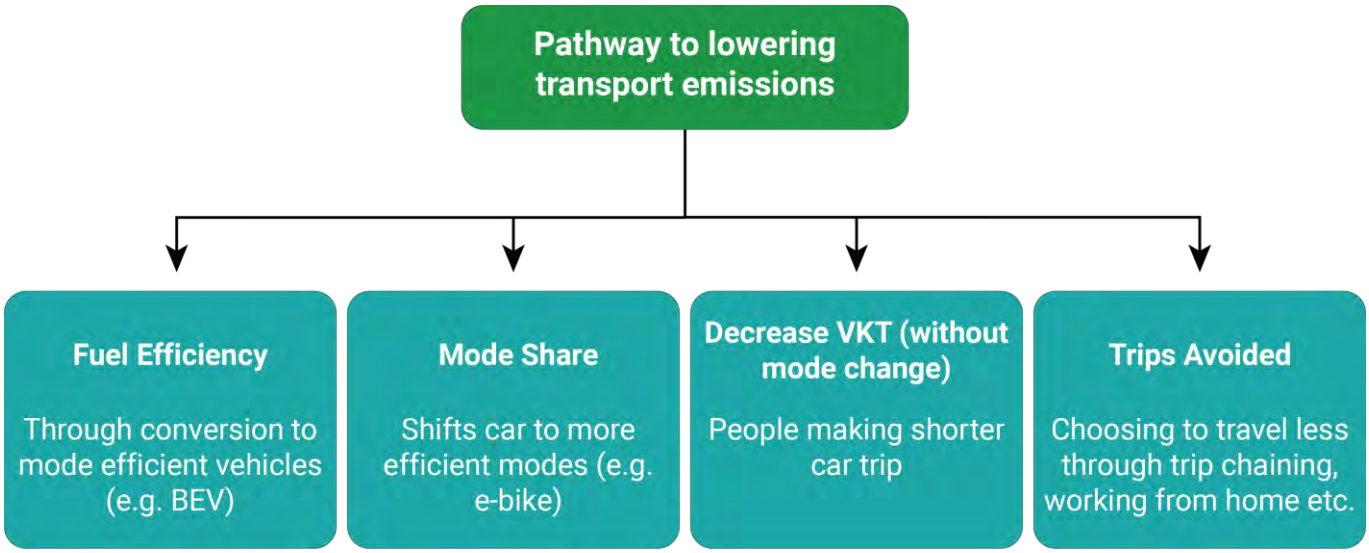
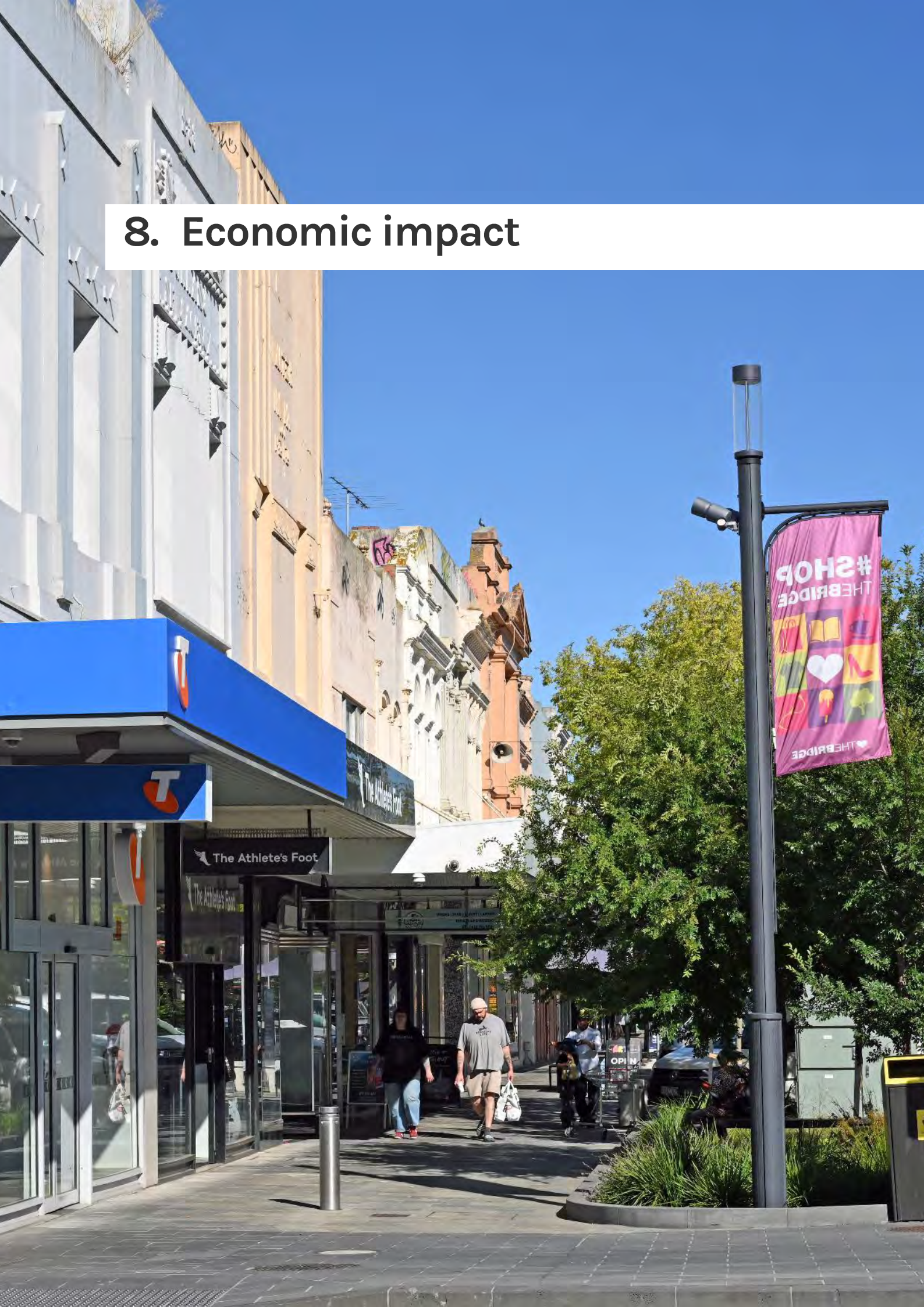


Figure 45 Pathways to lowering transport emissions

Source: Institute for Sensible Transport

Note: VKT means vehicle kilometres travelled.

8. Economic impact



This section provides a high-level discussion of the benefits and costs associated with the creation of a more people-focused CBD, with greater opportunity for access by sustainable transport.

There are a number of important limitations to this assessment that need to be highlighted at the outset. The focus of this work is the CBD, but most trips originate from *outside* the study area. This prevents a more specific quantification of the economic impacts of the interventions identified in this project. Separately, the lack of detailed baseline data on current foot traffic, retail spend by mode, and breakdown of CBD shopping patterns and spending profile prevent a more detailed economic assessment.

8.1 A brief history of how mobility has changed

The central drivers of a thriving CBD economy have changed significantly over the past century. In the 1920s and 1930s, car ownership was rare, and almost all trips were walked, cycled or taken by public transport, especially tram. Ballarat's CBD, like other regional cities in the pre-WWII era, was built around the needs of the pedestrian, the tram passenger, and horse-drawn travel. The speeds of these vehicles were generally between 5km/h and 25km/h. This concentrated economic activity within the core of Ballarat. There was little competition from businesses beyond the CBD, due to the extent of the tram network and the walkable catchment.

The possibility of social and economic interaction is what has attracted humans to cities and towns for ~12,000 years.

Travel time budgets influence the amount of time people are willing to travel per day. Across the period in which humans have lived in permanent settlements, the amount of time spent travelling is likely to have remained roughly the same. This is known as the *Marchetti Constant*. Whether travelling by foot or car, the most commonly reported travel time is around 30 minutes each way.

As Ballarat has become more car-oriented over the decades since the 1920s, average travel speed has increased but the amount of *time* spent travelled is likely to have remained roughly the same. This has resulted in each person travelling *further* on average, per day. Rather than unique to Ballarat, this is a global phenomenon and has become known as *hypermobility*.[10] Car-based hypermobility has led to more dispersed land use patterns, which has only increased the appeal of the car, resulting in a self-reinforcing cycle. This pattern is well recognised and is summed up well by Ivan Illich in the quote below.

'Beyond a certain speed, motorised vehicles create remoteness which they alone can shrink. They create distances for all and shrink them for only a few.'

Ivan Illich

As car ownership grew following the removal of petrol rationing in the 1950s, city streets became more car-oriented, with road volume increasing and land converted to car parking. This created a self-reinforcing cycle that facilitated further growth in car use. This adaptation of the public realm to facilitate higher levels of car use limited the convenience and safety of other modes of transport. At the same time, more development, both residential and commercial, beyond the historical centre of Ballarat, exacerbated Ballarat's dependence on the car.

8.2 Opportunity cost

Over the last 60 years, the Ballarat CBD has sought to compete with businesses that offer plentiful car parking on the suburban and regional fringe. This

[10] The Social Consequences of Hypermobility

approach has been successful in creating sufficient car parking, but has inadvertently resulted in a loss of *public realm*, *vibrancy* and *conviviality* that attract people to central city areas.[11] Figure 46 offers an example of one of the many at grade, large off street parking facilities offered within Ballarat's CBD. MIT Professor of Landscape Architecture and Urban Planning *Dr Eran Ben-Joseph* has illustrated how these structures reinforce low density car dependence and come at significant cost.[12] This includes the *opportunity cost* of what other, potentially more productive use of the land could have occurred.



Figure 46 At grade off street parking, Ballarat CBD
Source: Institute for Sensible Transport

> ***'Cars don't shop, people do'***
>
> **Janette Sadik-Khan**
> **NYC Transportation Commissioner**

In an effort to compete with areas that were more favourable to the needs of the car, changes to streetscape and land use have negatively impacted on the economic performance of the CBD. The United Nations[13] has found that cities with car-dominated streets and public realm have suffered economically, due to:

- Diminished people-focused places, with a loss of human-scale design and placemaking.
- Reduced diversity of land uses, destinations and places of interest.
- Reduced opportunities for incidental interaction, as fewer people travel by foot, bicycle or public transport.

8.3 Perception versus reality

A key theme to emerge from the research on local economies and transport is the perception among traders of the importance of car parking to the success of their business. There are a number of studies that have compared the perceived level of importance of cars/parking to shop and café owners to the actual level of importance, when asking shoppers directly. For example, in a Brisbane study, researchers asked business owners how they think their customers travel and then asked shoppers what mode of transport they actually used. The results, which were broadly consistent with other studies on the same topic, indicated an overestimate of driving (52%) compared to an actual rate of 18%.

Table 7 provides the results of a number of studies comparing how business owners think their customers arrive, and how customers actually travel.

Business owners overestimate the proportion of customers that rely on a car to visit their business.

It is also useful to examine revenue differences across the various modes of travel. In a study in inner Brisbane, researchers again found a significant difference between perceived and actual economic contribution.[14] The results of this study showed that restaurateurs overestimate car-based revenue (59% vs. 19% actual) and underestimate walking (12% vs. 25% actual) and public transport (19% vs. 41% actual) contributions.

[11] Richard Florida's 10 rules for a city's
[12] ReThinking a Lot - The Design and Culture of Parking
[13] Streets as Public Spaces and Drivers of Urban Prosperity
[14] Parking isn't as important for restaurants as the owners think it is

Table 7 Perception and reality, mode share of shoppers

City	Perceived Mode Share	Actual Mode Share	Source
Graz, Austria	• Foot 25% • Bike 5% • Bus 12% • Car 58%	• Foot 44% • Bike 8% • Bus 16% • Car 32%	Sustrans (2003) cited in Fleming et al. (2013)
Bristol, England	• Foot 42% • Bike 6% • Bus 11% • Car 41%	• Foot 55% • Bike 10% • Bus 13% • Car 22%	Sustrans (2003) cited in Fleming et al. (2013)
Auckland, New Zealand	• Foot 29% • Bike 2% • PT 9% • Other 2% • Car 58%	• Foot 22% • Bike 2% • PT 11% • Other 2% • Car 66%	Fleming et al. (2013)
Grafton Street, Dublin	• Foot 11% • Bike 4% • Bus 31% • Tram 29% • Train 13% • Car 13%	• Foot 20% • Bike 9% • Bus 35% • Tram 13% • Train 13% • Car 10%	O'Connor et al. (2011)
Henry Street, Dublin	• Foot 6% • Bike 3% • Bus 40% • Tram 19% • Train 9% • Car 19%	• Foot 19% • Bike 3% • Bus 49% • Tram 10% • Train 10% • Car 19%	O'Connor et al. (2011)
Brisbane	• Foot 27% • Bike 2% • Bus 11% • Train 2% • Taxi 4% • Ferry 2% • Car 52% • Motorbike 0%	• Foot 23% • Bike 7% • Bus 19% • Train 17% • Taxi 6% • Ferry 5% • Car 18% • Motorbike 4%	Burke et al. (2015)

Source: Institute for Sensible Transport, 2018

8.4 Creating a thriving CBD economy

Enhancing the CBD economy is central to the future success of Ballarat. This report has identified *place making* and *transport* interventions (see Section 6) for assisting the CBD accommodate a growing population in a manner that supports more vibrant streets and access to a more diverse set of attractive transport choices. Importantly, the implementation of actions designed to stimulate a people-focused CBD with safe and convenient options for active travel has been found to contribute to the economic performance of a city.[10]

Transport for London, in their work quantifying the economic impacts of streetscape improvements[15] found significant benefit to everyday users, business owners and landholders. These effects, when compared to similar areas that did not implement streetscape improvements, are summarised below:

- Increase in office rental values (+4%) and retail rentals (+7.5%)
- Decline in retail vacancy (-17%)
- Growth in the street being used for leisure, including a 96% increase in activation (people on the street) and a 93% increase in active travel
- A three-fold (216%) increase in leisure based static activities (e.g. on street café dining, sitting on a bench etc).

In addition to these impacts, the study also found a large improvement in the *perception* of the street, by everyday street users, as well as business owners. These perceptions related to the improved:

- Street character
- Walkability
- Ease of crossing
- General street vibrancy.

Each of the above impacts align with the vision and objectives described in Section 4 and the recommended actions described in Section 10.

[15] Street Appeal - The value of street improvements

8.4.1 The visitor economy

Attracting visitors from outside the immediate Ballarat area is critical to the economic success of the CBD. Visitors help to support a wide range of businesses, including accommodation providers, hospitality and tourism venues.[16]

The typical CBD of 2026 is in strong competition from the internet and outer suburban box big retail.

The typical CBD of 2026 is in strong competition from the internet and outer suburban box big retail. To offer a compelling value proposition to visitors, CBDs must offer something that cannot be found on the internet, or in a big box retail precinct.

CBDs must offer something that cannot be found on the internet, or in a big box retail precinct.

8.4.1.1 What are the implications for Ballarat?

The United Nations World Tourism Organisation and the OECD have identified a number of key actions cities can take to grow the visitor economy. These are consistent with the analysis conducted for Transport for London cited earlier, and include the creation of:

- Interesting, unique experiences, such as unexpected encounters (e.g. public piano playing, see Figure 47)
- Diverse range of activities (food, drink, arts and culture, unique destinations), all within close proximity
- Celebrating heritage, the built environment and people-focused activation
- Walkability.



Figure 47 Public piano playing, The Netherlands

Table 8 presents the number of day and overnight trips to Ballarat, according to the *National Visitor Survey*.[17] These data serve to highlight that enticing more people to visit Ballarat will support the CBD economy. This will be amplified by creating a public realm and streetscape that encourages people to stay overnight. An overnight visitor spends almost three times as much money as a day visitor.

Two transport-related interventions included as opportunities in this report that may strengthen Ballarat's appeal for overnight visitation include:

- More convenient rail services from Melbourne. The majority of visitors are likely to begin their journey from Melbourne. Better rail connections will encourage more people to visit Ballarat, and visitors without a car will be more likely to choose destinations close to the railway station.
- Better public transport and active transport network within the CBD and to key tourism sites. This will help to increase the quality of experience and improve accessibility to key destinations
- More people-focused public places and unique city experiences. As highlighted earlier in the Transport for London, Professor Richard Florida and UN research, the creation of more people-

[16] Downtowns Rebound - The data driven path to recovery
[17] National Visitor Survey results

focused places serves to enhance the experience of the visitors

An overnight visitor spends almost three times as much money as a day visitor.

Table 8 Visitors to Ballarat

	Day trips	Overnight trips
Trips (1,000s) – 2023	2,097	904
Trips (1,000s) – 2024	2,184	1,056
Visitor nights (1,000s) – 2023		2,022
Visitor nights (1,000s) – 2024		2,001
Ave spend per trip – 2023	$180	$509
Ave spend per trip – 2024	NA	$411
Ave spend per night – 2023		$227
Ave spend per night – 2024		$217
Ave spend per night (commercial accommodation) – 2023		$322
Ave spend per night (commercial accommodation) – 2024		$293

Source: Australian Trade and Investment Commission National Visitor Survey Results[17]

8.5 Economic impact of active travel infrastructure

The key objective of this project is to enhance the diversity of transport options in the Ballarat CBD and this includes a more people and bicycle friendly street network. This project has recommended a number of actions to enhance the pedestrian environment and create more options for people to cycle.

The economic impact of active travel is complex but increasingly well documented. This area of analysis is complex for the following reasons:

- Baseline (existing) levels of walking and cycling are often poorly understood. Without knowing how much walking and cycling (in minutes or kilometres travelled) is undertaken, it is difficult to determine what impact an intervention may have.
- Calculation of the benefits is directly related to uptake, and specifically the *change* in active travel participation that has occurred as a consequence of the intervention. Uptake levels are dependent on a variety of factors including density, trip distance, demographic factors, ease of other modes, etc.

Figure 48 offers an example of how laneway activation in Melbourne's CBD has created a convivial, human-scale environment that attracts people, leading to greater economic and social exchange.



Figure 48 Human scale, pedestrianised spaces intensify economic and social exchange

Source: Victoria Walks

The complexities summarised above are not insurmountable and it is increasingly common to conduct cost benefit analysis on specific active transport projects. In general, these result in a *cost benefit ratio*, which essentially compares the *cost* of the project with the *benefits* that occur through its use. A $ per kilometre walked or cycled is applied to the quantum of activity forecast to occur as a consequence of the project.

The NSW Government guidelines for the monetised benefit for the *health impact* of additional walking

and cycling is $5.24 and $2.97 respectively.[18] Health is generally recognised as the largest single benefit category, comprising around 60 – 70% of the total monetised benefit.[19] These numbers can be used as part of a method for estimating the economic benefit from initiatives intended to grow levels of walking and cycling.

8.6 Economic contribution of people walking and cycling

There is a growing body of evidence on the economic contribution made by people who walk or cycle to CBD and other inner city destinations. A common theme within this research is that people visiting by foot or bicycle generally visit more frequently than those arriving by car. As people arriving by foot or bicycle do not require a car parking space, their economic contribution, on a $ per m^2 basis is greater than those travelling by car.

Key findings from the research include:

- People visiting by foot or bicycle generally spend less per visit, but visit more frequently than those arriving by car.
- On a monthly basis, people walking and cycling outspend those arriving by car
- The economic contribution of active travellers, on a *$ per m*^{2} basis is greater than those travelling by car, as they do not require space consumptive car parking.
- Installing bike lanes and bike parking, even when requiring the removal of on-street car parking has either neutral or increased economic return for traders.

In a well-known study, Lee and March[20] found that replacing some car parking with bike parking on Melbourne's Lygon Street is economically beneficial, as bike parking generates $31 per square metre per hour, compared to $6 for cars. This shows that bikes provide higher economic value per space in high-demand, urban areas. It should be noted, however, that the same results are unlikely to be replicated in the Ballarat CBD, as the bicycle network is not as well developed, currently limiting the appeal of riding.

The development of protected bicycle lanes in many cities has led to a number of studies examining their economic impact. While the overall cost benefit ratios of these projects are generally between 1:2 – 1:6 (i.e. for every $1 spent, somewhere between $2 and $6 are returned), it is also useful to look at the turnover for local businesses.

A study in San Francisco[21] interviewed local businesses four and a half years after bicycle lanes were added to a local shopping strip. Two-thirds of local traders said the bike lanes had a generally positive impact on their business/sales and would support additional traffic calming measures on the street. Only 4% of local traders reported an overall negative impact from the bike lanes.

8.7 Summary

A vibrant, people-focused CBD is crucial for Ballarat's economic success. By prioritising walking, cycling, public transport, and high-quality place-making, the CBD will be in a stronger position to attract visitors and locals, helping to bolster the economy.

[18] NSW Active Transport Health Model Reference Outcome Values
[19] Australian Transport Assessment and Planning - M4 Active Travel
[20] Recognising the economic role of bikes: sharing parking in Lygon Street, Carlton
[21] Economic Effects of Traffic Calming on Urban Small Businesses

9. Monitoring and evaluation



Monitoring and evaluation are critical components of any *Urban Design Framework and Structure Plan*. It allows Council to track progress towards achieving the goals and objectives and to adjust the approach as needed. A monitoring and evaluation framework is provided below.

9.1 Key indicators

This monitoring and evaluation framework translates the *strategic objectives* set out in Section 4.3 into a set of indicators that Council can track over time. This identifies key measures that reflect system-wide outcomes supported by available or collectible data. It recognises that certain components of the transport network will evolve over time, including the public transport and arterial road network, which operate outside of Council's direct control.

It also recognises that interventions within the CBD have less influence on broader travel patterns across Ballarat, given that a significant proportion of trips originate and end outside the CBD. Large-scale system-wide targets are not appropriate at a localised CBD scale; however, Table 9 provides a set of priority indicators to be monitored and track system-wide outcomes. The data sources are discussed in Section 9.2.

Table 9 Monitoring and evaluation key indicators

Guiding Principle	Key indicator
People first approach	• **Safety,** the number and rate of serious road injuries and fatalities in the CBD (all modes, with a particular focus on crashes involving vulnerable modes) • **Streets with safe speeds** as a proportion of the CBD road network. • **Heavy vehicle volumes** on high place value streets • **Economic** and visitation levels in the CBD
Fully integrated and reliable transport network & Advocacy and partnership	• **Frequency:** Public transport service frequency on key CBD corridors (headways during peak and off-peak periods) • **Coverage:** Proportion of CBD areas within a 200-400m walkable catchment of frequent public transport services
Universal accessibility	• **DDA footpaths:** Proportion of CBD pedestrian network meeting DDA compliance including crossings • **Accessibility of public transport** stop/station accessibility within CBD (proportion meeting DDA/DSAPT standards) • **Cyclable streets:** Proportion of CBD streets providing low-stress cycling conditions (all ages and abilities friendly) • **Pedestrian crossing priority** and wait times at intersections on PPN routes
Better use of parking spaces	• **Car parking occupancy** rates across the CBD (peak and average) • **Ratio of accessible parking** spaces to total parking supply. • **EV Charging stations** are installed in line with *Public Electric Vehicle Charging Framework* and *Implementation Plan*.
Sustainable and diversified travel options	• **Active transport investment** is at least $50 per resident per year • **Mode share** by walking, cycling, public transport and private vehicle use (all trips and journey to work) • **Walking and cycling volumes** on key PPN and BBN routes in the CBD • **Transport-related greenhouse gas emissions** (CBD or LGA trends)

Note: These indicators include measures that reflect both Council-delivered actions and outcomes dependent on external agencies such as public transport provision.

9.2 Data Sources

Data must be collected to measure success in meeting goals and objectives. Data should come from multiple sources, including through Council collected data and from other organisations. Table 10 outlines the key indicators and data sources to track overall progress.

Table 10 Data sources for measuring key indicators

Key indicator	Data source
Safety	• Victorian Government Road Safety – Crash Statistics: – Number of crashes, injuries and fatalities for all modes in the CBD – Number of crashes, injuries and fatalities involving pedestrians and people riding in the CBD
Streets with safe speeds	• Department of Transport and Planning and Council register of street speed limits
Car parking occupancy	• Council audit of car parking occupancy using either PODs (Parking Overstay Detectors) or physical audit
Heavy vehicle volumes	• Department of Transport and Planning count data • Temporary tube counters/video counters
Economic	• Third party consumer spending analysis service • Tourism Research Australia – tourism statistics
Public transport frequency	• Department of Transport and Planning GTFS and service data: – Service frequency and headways
Public transport coverage	• Department of Transport and Planning GTFS and service data: – Service coverage (requires GIS analysis)
DDA footpaths	• Council audit of footpaths and crossings
Accessibility of public transport	• Council audit of public transport stops and station access
Accessibility of parking	• Council audit of on-street and off-street parking bays.
Cyclable streets	• Council audit of streets and crossings
Pedestrian crossing priority	• Department of Transport and Planning signal diagram analysis
Active transport investment	• Council Budget includes active transport investment of at least $50 per resident per year
Mode share	• Australian Bureau of Statistics – Census: – Number and percentage of journeys to work by public transport, walked and by bicycle (residents in the CBD) – Number and percentage of journeys to work walked and by public transport, walked and by bicycle (people working in the CBD) • Victorian Integrated Survey of Travel and Activity (VISTA): – Number and percentage of trips (all purpose) by public transport, walking and by bicycle
Walking and cycling volumes	• Walking and riding counts (new): – Permanent counters installed along key PPN and BBN routes – Complete Bicycle Network Super Tuesday and Super Sunday counts. • Temporary counters: – Between one and six months before installation of infrastructure with a cost over $500,000 – for at least one week – In the same month the following year after completion – for at least one week.
Transport-related greenhouse gas emissions	• Council greenhouse gas emission accounting
EV Charging stations	• Number of installed EV Charging stations is in line with *Public Electric Vehicle Charging Framework* and *Implementation Plan*.

9.2.1 Council data collection

9.2.1.1 Community Satisfaction Survey

Council participates in the Victorian Local Government *Community Satisfaction Survey*, coordinated by the Department of Government Services. The survey gathers feedback on Council performance across a range of service areas and responsibilities. It includes a series of core, optional and tailored questions. While the core questions enable benchmarking against other Victorian councils, tailored questions provide an opportunity to gather feedback on issues of local importance and track changes in community perceptions over time.

The *Community Satisfaction Survey* provides an opportunity for Council to monitor a number of key indicators identified in this monitoring and evaluation framework. Current questions relevant to the objectives of this report included in the most recent *Community Satisfaction Survey* include:

- Ballarat has good local shopping (Likert scale)
- Ballarat is a safe place to live (Likert scale)
- Ballarat is easy to cycle and walk around in (Likert scale)
- Sealed local roads of concern (Multiple choice)
- Ways to improve customer service (Multiple choice)

Additional tailored questions could be considered in future surveys to gather information relevant to CBD performance and transport outcomes including:

- How often do you visit the Ballarat CBD? (Multiple choice)
- How do you usually travel to the Ballarat CBD? (Multiple choice)
- How satisfied are you with walking and cycling facilities within the Ballarat CBD? (Likert scale)
- How satisfied are you with public transport access to the Ballarat CBD? (Likert scale)
- How satisfied are you with the availability of car parking in the Ballarat CBD? (Likert scale)
- How satisfied are you with the range of businesses, services and activities available in the Ballarat CBD? (Likert scale)
- How safe do you feel travelling within the Ballarat CBD? (Likert scale).

9.3 Output evaluation

Outputs should be measured on an annual basis of:

- Expenditure on sustainable transport including walking, cycling and public transport:
  - Total spending and per person spending
- Infrastructure delivered:
  - Km of new and renewed footpaths
  - Km of new and renewed cycleways
  - Number of new bicycle parking fixtures
  - Number of new walking/cycling crossings and upgraded crossings
- Non-infrastructure items delivered (e.g., policies/strategies developed/implemented).

9.4 Outcome evaluation

Success in meeting outcomes should be measured on a periodic basis, including assessment of riding participation and satisfaction, covering:

- Travel patterns – total number or proportion of trips done by walking, cycling and public transport.
- Progress towards the target of supporting a mode share vision for the Ballarat LGA over the next 10-20 years of:
  - Walking and cycling: 15-20% of trips
  - Micromobility and shared modes: 5%+ of trips
  - Public transport: 10-15% of trips (dependent on improved bus frequency, reliability and connectivity – see Section 6.7)
  - Private vehicle: reducing to below 70% of trips.
- Crashes – total and by exposure (i.e., crashes per 100,000 km travelled by people walking or riding).
- Satisfaction with businesses and service offerings in the CBD (types of services).
- Economic activity and visitation to Ballarat CBD.

Data should be evaluated across time to see how travel patterns and satisfaction change.

10. Implementation Plan



This section details the implementation plan for the recommendations included in this *Movement and Transport Analysis.*

10.1 Introduction

The recommended actions broadly fall into one of the six categories shown in Figure 49. The vibrancy and amenity of Ballarat's public space is considered in all the recommended actions. A key, overarching priority is the creation of a pedestrian-oriented CBD. While there are some streets in the CBD that are essential for motor vehicle movement, others could be transformed into places that offer better destinations by prioritising *people* over vehicle throughput and speed.

The recommended actions in this section have been designed to support Council's *vision*, and *guiding principles* described in Section 4.

Each category of action has its own table. Each action identifies the implementation timeframe and high-level cost to Council. The implementation timeframes are:

- Short / immediate = 0 - 5 years
- Medium = 5 - 10 years
- Ongoing = continually.

Three categories are considered for the cost to council:

- Low – Negligible: less than $100,000
- Medium: more than $100,000 and less than $1,000,000
- High: more than $1,000,000.

The cost estimates shown in the action tables are high-level only and detailed costings and designs should be conducted prior to implementation.

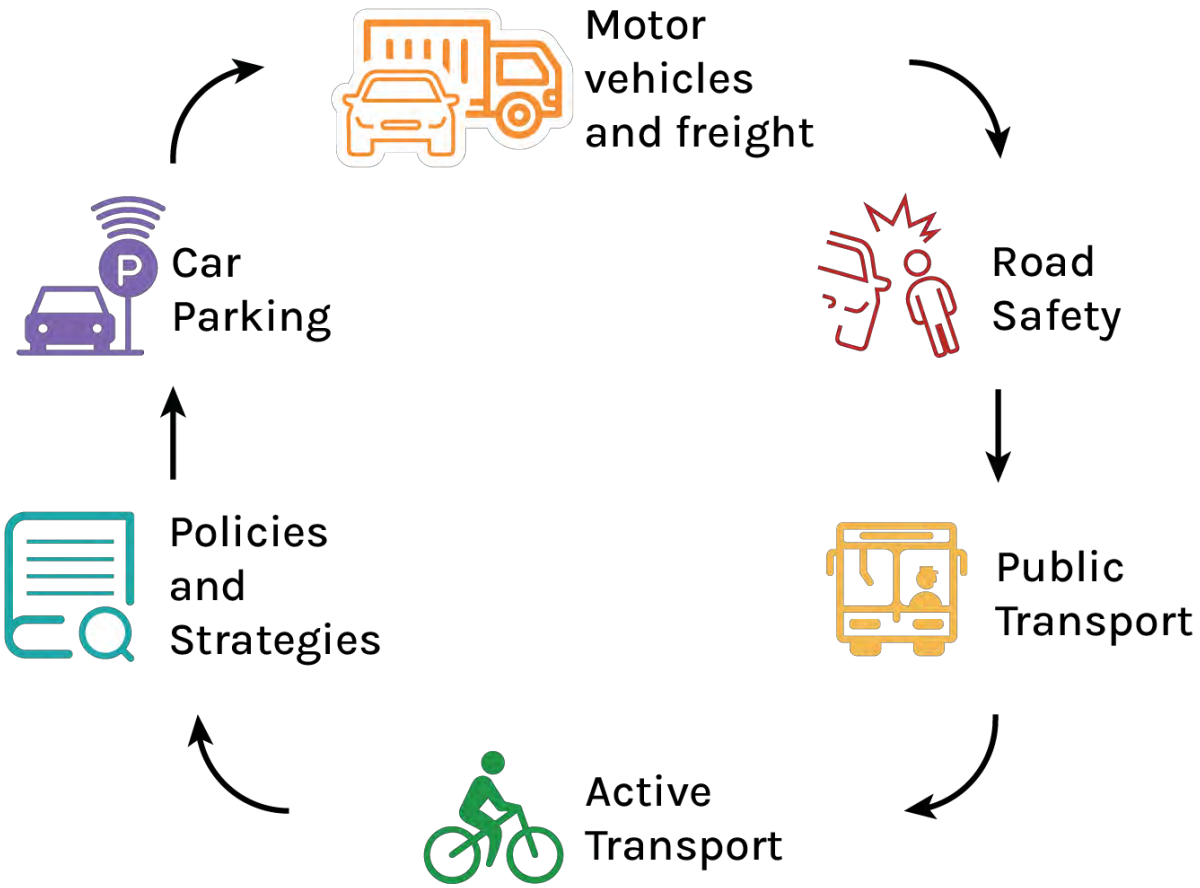


Figure 49 Categories of actions

Source: Institute for Sensible Transport

10.2 Actions

The recommended actions for the Ballarat CBD are outlined in Table 11.

Table 11 Action plan

ID	Guiding principle	Action	Timeframe	Cost	Responsible authority
		Road safety			
RS1	People first approach	Apply the *Safe System Approach* into road design to improve safety for all road users.	Ongoing	Low – Negligible	CoB
RS2	People first approach	Develop and implement an Intersection Upgrade program to ensure intersections identified in Figure 29 provide safe and accessible access for all modes of transport.	Ongoing	High	CoB
RS3	People first approach	Upgrade safety at identified roundabouts to provide access for all users, including pedestrian priority crossings and dedicated bicycle infrastructure. A concept design which can be applied throughout the CBD is provided in Figure 30.	Ongoing	High	CoB
RS4	People first approach	Construct mid-block pedestrian crossings along key roads to improve safety within the CBD and reduce long detours for pedestrian. Potential mid-block crossing locations are identified in Figure 29.	Ongoing	High	CoB
		Motor vehicle and freight			
MV1	People first approach	Review the road hierarchy in the CBD to implement a *Circulation Plan* (Figure 21) consistent with Movement and Place principles. The aim should be to direct vehicle movement onto identified streets to reduce through traffic on others.	Short / immediate	Low – Negligible	CoB
MV2	People first approach	Collaborate with the Victorian Government to introduce safer speed limits on State declared roads where they pass through the Ballarat CBD (e.g. Mair Street, Grant Street).	Ongoing	Low – Negligible	CoB and DTP
MV3	People first approach	Apply a default 30km/h speed limit to activity and shopping strips in the Ballarat CBD.	Short / immediate	Low – Negligible	CoB
MV4	Sustainable and diversified travel options	Adopt and apply the *Road User Hierarchy* (Figure 17) in decisions on road space allocation and transport investment, prioritising sustainable modes over private vehicles where appropriate.	Short / immediate	Low – Negligible	CoB

ID	Guiding principle	Action	Timeframe	Cost	Responsible authority
MV5	People first approach	Implement traffic calming measures, such as modal filters and road closures, to support people-focused outcomes on streets that prioritise place over movement, including Armstrong Street, Camp Street and Albert Street.	Medium	Medium	CoB and DTP
MV6	People first approach	Collaborate with the Victorian Government to improve pedestrian amenity and streetscape design on declared roads. Opportunities could include improved pedestrian environment in areas such as Doveton Street.	Medium	Medium	CoB and DTP
		Public transport			
PT1	Fully integrated and reliable transport network	Council has responsibility for the provision and management of bus stop infrastructure, including shelters, seats, and connecting footpaths. Council should develop and implement a *Bus Stop Upgrade Program* that ensure all bus stops within the CBD are Disability Discrimination Act (DDA) compliant and meet the needs of people of all ages and abilities.	Medium	Medium	CoB
PT2	Fully integrated and reliable transport network	Upgrade bus stop amenity based on the level of service at each stop using the *Matrix of amenities* (Table 2). Amenity should be reviewed on an ongoing basis to ensure it remains aligned with future network upgrades.	Ongoing	Low – Negligible	CoB
PT3	Advocacy and partnership	Collaborate with the Victorian Government and local bus operators for bike racks to be installed on all buses in Ballarat. This will help to support regional connections.	Ongoing	Low – Negligible	CoB and DTP
PT4	Advocacy and partnership	Collaborate with the State Government to undertake a bus network review. The review should prioritise a more frequent, direct and accessible bus network and incorporate considerations outlined in the City of Ballarat's *Submission to the Ballarat Bus Network Review.*	Ongoing	Low – Negligible	CoB and DTP
PT5	Advocacy and partnership	Collaborate with the State Government to improve the frequency, reliability and speed of V/Line rail and coach services between Melbourne and Ballarat. This includes advocating for more frequent all-day services and improved service across weekdays and weekends. Regional network improvements should be considered through ongoing strategic transport planning work (e.g. BRTA).	Ongoing	Low – Negligible	CoB and DTP
PT6	Advocacy and partnership	Collaborate with the State Government for more frequent rail services on the Ararat and Maryborough railway lines to give people more flexibility when visiting the Ballarat CBD	Ongoing	Low – Negligible	CoB and DTP

ID	Guiding principle	Action	Timeframe	Cost	Responsible authority
PT7	Advocacy and partnership	Collaborate with the State Government to investigate the suitability of relocating the V/Line coach departure bays from the station forecourt to the Ballarat bus interchange, ensuring any changes support improved sustainable transport outcomes.	Ongoing	Low – Negligible	CoB and DTP
PT8	Fully integrated and reliable transport network	Use the *Road User Hierarchy* to guide the implementation of bus priority measures on roads with excess vehicle capacity, ensuring that available space is allocated to improve public transport efficiency.	Ongoing	Medium	CoB and DTP
		Active transport			
AT1	Sustainable and diversified travel options	Review and update the *Ballarat Cycling Action Plan 2017-2025* to align with contemporary best practice and prioritise the delivery of a high-quality, connected cycling network within the CBD.	Short / immediate	Medium	CoB
AT2	Sustainable and diversified travel options	Increase the availability of on-street bicycle parking across the CBD by installing: • A minimum of two bike hoops every 100 metres on each side of the street in high pedestrian activity areas • A minimum of two bike hoops outside community facilities • A minimum of four bike hoops at major tourism destinations All installations should prioritise user convenience and bicycle security.	Short / immediate	Low – Negligible	CoB
AT3	Sustainable and diversified travel options	Increase the availability of off-street bicycle parking in new developments by setting minimum requirements including: • Multi-unit residential developments to provide one bicycle parking space per bedroom and one visitor space per ten dwellings • New commercial developments to provide one bicycle parking space per 150m^2 of floor space and one visitor space per 400m^2. • Visitor accommodation developments to include one bicycle parking space per two guest rooms. Ensure that no more than 20% of bicycle parking in new developments is to be vertical (on a wall), with at least 80% horizontal (on the ground).	Ongoing	Low – Negligible	CoB

ID	Guiding principle	Action	Timeframe	Cost	Responsible authority
AT4	Universal accessibility	Undertake an audit of all pedestrian crossing points and intersections to ensure they are Disability Discrimination Act (DDA) compliant and meet the needs of people of all abilities, with priority given to the Principal Pedestrian Network (PPN) Primary Network where higher levels of pedestrian activity are expected.	Ongoing	Medium	CoB
AT5	Universal accessibility	Adopt and apply the *walkability checklist* (Figure 50) to ensure both new and existing developments incorporate design characteristics that support high levels of walking for both transport and recreation. The checklist should be prioritised for application along the Principal Pedestrian Network (PPN), particularly the Primary Network, to support a consistently high-quality pedestrian environment.	Short / immediate	Low – Negligible	CoB
AT6	Universal accessibility	Improve pedestrian permeability in the Ballarat CBD by requiring new developments to provide: • A new through-block pedestrian connection where the average urban block length is greater than 100 metres. Where possible pedestrian connections should be located less than 70 metres from the next intersection or pedestrian connection. • More frequent pedestrian connections within 200 metres of a rail station and the Primary Network on the PPN. • Connections between streets and laneways where this improves walkability, including extensions of existing or proposed connections. • A maintained and/or improved outcome for pedestrian connections and arcades. • Consolidated vehicle entries and loading bays on secondary streets, avoiding main streets and traffic conflict frontages. The location and width of car park entries should minimise the impacts on the pedestrian network.	Ongoing	Low – Negligible	CoB
AT7	Universal accessibility	Collaborate with the State Government to reduce wait times for pedestrians at high-priority pedestrian crossings.	Ongoing	Medium	CoB and DTP
AT8	Universal accessibility	Use the public realm and spaces hierarchy (Figure 32) to guide the prioritisation of streetscape improvements within the CBD.	Medium	Low – Negligible	CoB
		Car parking			
CP1	People first approach	Develop a new *Ballarat CBD Car Parking Plan* to achieve equitable and sustainable car parking outcomes for the community.	Short / immediate	Medium	CoB

ID	Guiding principle	Action	Timeframe	Cost	Responsible authority
CP2	People first approach	Apply the *Car Parking Action Framework* (Figure 42) to guide transparent, consistent decision-making on car parking management in the CBD.	Ongoing	Low – Negligible	CoB
CP3	People first approach	Investigate the redevelopment of Council-owned at-grade car parks to deliver social or affordable long-term rental housing, while retaining an appropriate level of public car parking where required.	Medium	Medium	CoB
CP4	People first approach	Consolidate car parking to off street locations on the edge of the CBD.	Ongoing	Low – Negligible	CoB
CP5	Sustainable and diversified travel options	Install electric vehicle chargers at parking facilities in and near the Ballarat CBD as identified in the *Central Victorian Greenhouse Alliance Public Electric Vehicle Charging Framework and Implementation Plan.*	Ongoing	Medium	CoB
CP6	People first approach	Investigate the use of technology such as Parking Overstay Detector Systems, occupancy sensors and electronic signage boards to better understand parking demand and utilisation. This includes application within the Bridge Mall shared zone to monitor how the area is being used, including parking activity.	Short / immediate	Low – Negligible	CoB
CP7	People first approach	Increase the provision of accessible and preferential parking bays (e.g., Parents with Prams) by repurposing existing on-street car parking to better meet community needs of those who need to drive.	Short / immediate	Low – Negligible	CoB
		Policy and strategies			
PS1	Sustainable and diversified travel options	Adopt planning frameworks that encourage mixed-use residential development within the CBD.	Ongoing	Medium	CoB
PS2	People first approach	Develop a *Ballarat Wayfinding Strategy*. The provision of timely information on the direction, distance and time between key destinations in Ballarat will assist in more people choosing to walk and ride. All signage needs to be of an appropriate font size and contrast to maximise readability. Interpretative signage can also be included for areas that have significant cultural or natural heritage values.	Medium	Medium	CoB
PS3	People first approach	Update the existing *2013 Street and Park Furniture Guidelines* to reflect contemporary standards to better support amenity, accessibility and high-quality public realm in the Ballarat CBD.	Medium	Medium	CoB

ID	Guiding principle	Action	Timeframe	Cost	Responsible authority
PS4	People first approach	Adopt and apply the *Movement and Place Framework* in the management and design of streets to support developing a stronger sense of place.	Short / immediate	Low – Negligible	CoB
PS5	Sustainable and diversified travel options	Integrate emissions reductions and health impact assessment considerations into all transport project and policies.	Ongoing	Low – Negligible	CoB
PS6	Sustainable and diversified travel options	Develop and implement a Ballarat CBD user study to establish baseline economic and movement data, providing an evidence base specific to the CBD.	Ongoing	Low – Negligible	CoB

Appendix



A.1 Walkability Checklist

Walkability Checklist			Notes
	Does the street network provide high levels of permeability to reduce pedestrian travel distance?	Yes ☐ No ☐ N/A ☐	
	Is there a footpath on one or both sides of the street?	One side ☐ Both sides ☐ None ☐	
	Is the footpath at least 1.2m wide in residential areas, and wider in shopping strips where higher pedestrian numbers is expected?	Yes ☐ No ☐ N/A ☐	
	Is the footpath surface suitable for people using mobility aides (e.g. walking frames and scooters?)	Yes ☐ No ☐ N/A ☐	
	Are there kerb ramps at each crossing opportunity?	Yes ☐ No ☐ N/A ☐	
	Are kerb ramps consistent with DDA requirements?	Yes ☐ No ☐ N/A ☐	
	Are there tactile markings at intersections, in accordance with DDA requirements?	Yes ☐ No ☐ N/A ☐	
	In high activity areas, are there pedestrian priority crossings?	Yes ☐ No ☐ N/A ☐	
	Are there crossing opportunities at mid-block locations within the core of town centres?	Yes ☐ No ☐ N/A ☐	
	Is there a pedestrian refuge at the half way point of a crossing?	Yes ☐ No ☐ N/A ☐	
	Is there appropriate separation between people walking from traffic?	Yes ☐ No ☐ N/A ☐	
	Is there sufficient lighting?	Yes ☐ No ☐ N/A ☐	
	Is there sufficient shade?	Yes ☐ No ☐ N/A ☐	
	Is public seating appropriately located?	Yes ☐ No ☐ N/A ☐	
	Are water fountains appropriately located?	Yes ☐ No ☐ N/A ☐	
	In new commercial areas, are there active street frontages facing the footpath?	Yes ☐ No ☐ N/A ☐	
	Are there wayfinding options in high demand locations, with places of interest, distances and directions?	Yes ☐ No ☐ N/A ☐	
	Does the footpath connect to public transport stops?	Yes ☐ No ☐ N/A ☐	

Institute for Sensible Transport

Figure 50 Walkability checklist

Source: Institute for Sensible Transport

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