Integrated Transport Assessment Report

Version A2
Victorian Planning Authority
Ballarat North
Precinct Structure Plan
August 2025

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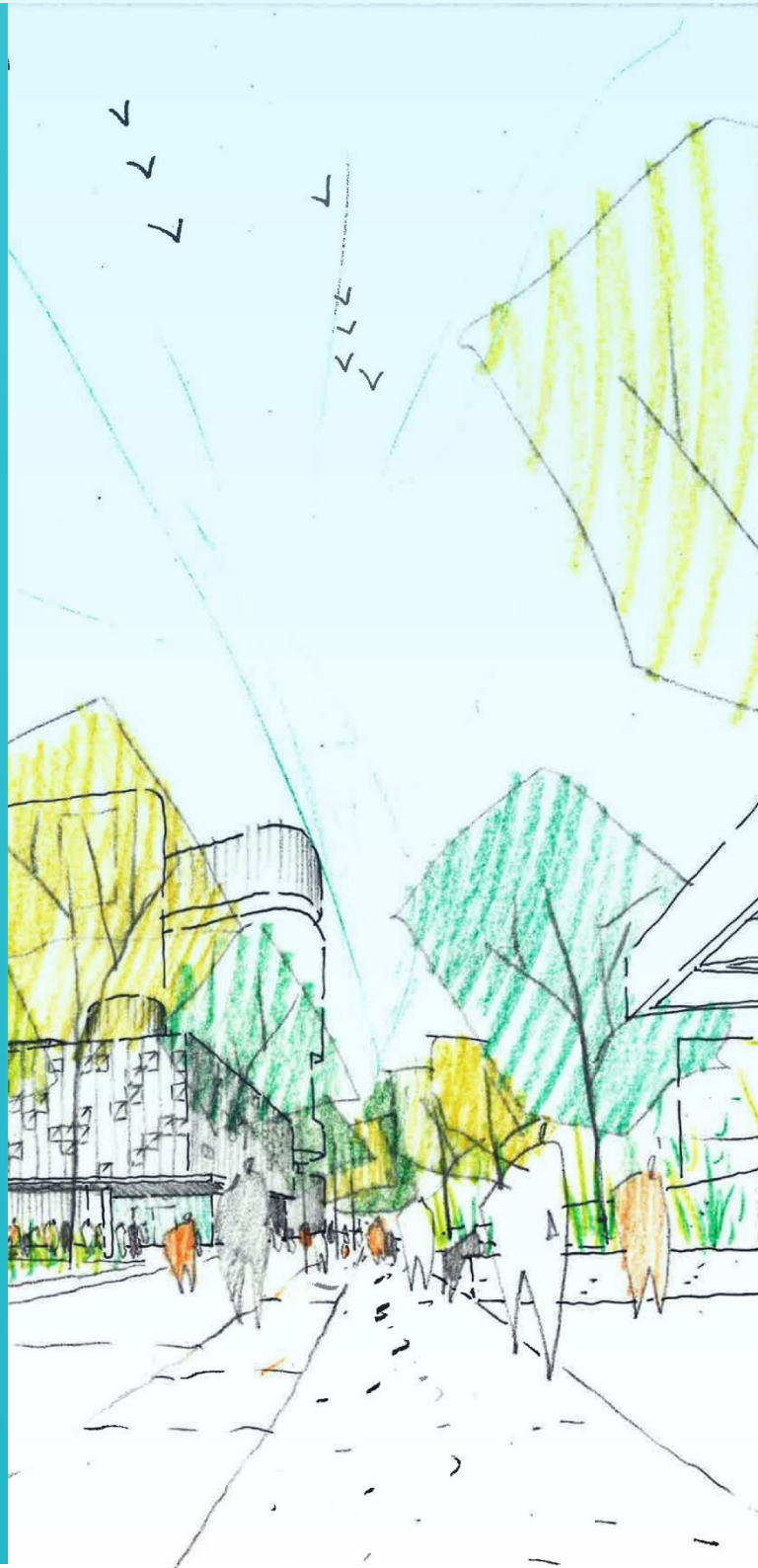

Ballarat North Precinct Structure Plan
Integrated Transport Assessment Report

Client name:	Victorian Planning Authority	**Project name:**	Ballarat North Precinct Structure Plan
Version:	A2	**Project no:**	IS520000
Date:	20/08/25	**Project manager:**	Christina Emmitt
Document status:	Draft	**File name:**	Integrated Transport Assessment Report

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Document history and status

Version	Date	Description	Author	Checked	Reviewed	Approved
A	20/03/25	Draft Existing Conditions	JQ/ML	CE/JH	TB	JR
A1	06/08/25	Draft	GF/OL	CE	JH	JR
A2	20/08/25	Draft	JH	CE	JR	JR

Distribution of copies

Version	Issue approved	Date issued	Issued to	Comments
A1	Draft	06/08/25	VPA	For comment
A2	Draft	20/08/25	VPA	For comment

Contents

Executive summary

This Integrated Transport Assessment Report (ITAR) evaluates the proposed transport network for the Ballarat North Precinct Structure Plan (PSP). Commissioned by the Victorian Planning Authority (VPA), this assessment analyses the proposed Ballarat North PSP against relevant state and local policies. The Ballarat North PSP, designated for primarily residential land use north of the Western Freeway in Ballarat, presents both challenges and opportunities for creating a sustainable and integrated transport system. This summary presents findings from an assessment of the proposal against the PSP Guidelines.

Key opportunities:

- **Greenfield Advantage:** Offers a clean slate for sustainable transport network planning and implementation.
- **Mode Shift:** Opportunity to incentivise a shift from car dependency to public transport, walking, cycling and micromobility.
- **Public Transport Enhancement:** Potential bus routes to Wendouree Station and Ballarat Station could significantly improve public transport access.
- **Active Travel Promotion:** Developing off-road cycling/pedestrian infrastructure can encourage active travel.
- **Land Use/Transport Integration:** The PSP process enables integrated planning, promoting 20-minute neighbourhoods.
- **Inclusion of Education and Open Spaces:** The residential developments within the PSP can be supported by local schools, open spaces, community facilities and a neighbourhood activity centre.
- **Proximity to Strategic Industrial Precinct:** The Ballarat West Employment Zone provides an opportunity for Ballarat North residents to work locally, reducing out-of-area commutes.

Proposed transport infrastructure and key findings:

The following findings are based on an assessment of the proposed PSP against the PSP Guidelines.

- **Road Network:** The proposed hierarchical network is sufficient to accommodate anticipated traffic volumes. The expanded PSP area will require a similar review when that PSP is developed, due to a current lack of details for the internal road network. However, it is worth noting that this Ballarat North PSP has identified potential future-proofing that should be considered to allow for the development of the expanded PSP.
- **Public Transport:** Arterial roads and connector streets are bus-capable. Detailed planning for routes, frequencies, stops, and regional integration is crucial, particularly with the Ballarat West Employment Zone, Wendouree Station and Ballarat Station and nearby schools (both within and near the PSP area).
- **Active Transport:**

  Off-road bicycle paths are proposed along all arterial roads and connector streets. All residents are generally within 400m of dedicated cycling infrastructure, further encouraging active transport modes within the precinct.

  Signalised pedestrian crossings are generally proposed at key intersections along Gillies Road and the Midland Highway, with an approximate spacing of 800m, although consideration should be given for additional pedestrian and cyclist crossings.

  To further enhance active transport opportunities, multiple crossings should be included across barriers such as the Western Freeway and Burrumbeet Creek approximately at Forest Street, Gillies Road, Waterford Drive and Cummins Road. These active transport crossings would significantly improve the permeability for Ballarat North PSP residents, as well for Miners Rest residents wishing to access the Ballarat North PSP schools and activity centre.
- **Cross Sections/Intersections:** Cross-sections include street trees, parking, and nature strips. Detailed intersection designs are required for safe pedestrian/cyclist crossings.

Glossary

Abbreviation	Definition
ABS	Australian Bureau of Statistics
AADT	Average Annual Daily Traffic
CBD	Central Business District
DTP	Department of Transport and Planning (Victorian)
ITAR	Integrated Transport Assessment Report
LGA	Local Government Area
NEIC	National Employment and Innovation Cluster
NHVR	National Heavy Vehicle Register
PAO	Planning Acquisition Overlay
PSP	Precinct Structure Plan
STMA	Strategic Transport Modelling Assessment
V/C Ratio	Volume to Capacity Ratio
VPA	Victorian Planning Authority
VITM	Victorian Integrated Transport Model

1. Introduction

1.1 Background

The Victorian Planning Authority (VPA) is currently developing the Ballarat North Precinct Structure Plan (PSP). A crucial step in this process is the preparation of an Integrated Transport Assessment Report (ITAR). The ITAR is a technical study that assesses the transport implications of the draft Ballarat North PSP and provides recommendations to guide the effective integration of the proposed land use with the existing and planned transport network. The ITAR is an iterative process working alongside the development of the PSP. The PSP outlines proposed land uses, infrastructure, and other key precinct elements, and is assessed by the ITAR which identifies transport-related issues and opportunities. ITAR findings inform PSP revisions, leading to a refined plan.

The Ballarat North PSP area has been rezoned to the Urban Growth Zone (UGZ). However, no immediate urban development can take place until a PSP and Developer Contribution Plan have been finalised and implemented into the Ballarat Planning Scheme. An area to the north of the PSP (north of Cummins Road), will remain in the farming zone until additional greenfield land is needed at which time a PSP will be prepared. To determine if the appropriate infrastructure and services are provided for the entire northern growth area, it is noted that some technical work prepared for the Ballarat North PSP has considered the additional area to enable it to be 'future-proofed'. The area contained within the PSP is referred to as 'Core Only', and the scenario with the additional area to the north is the 'Core + Expanded'.

1.2 Overview

The project involves preparing an ITAR to provide recommendations for the Ballarat North PSP to support the development of a fully developed, integrated multi-modal precinct. This will involve a detailed background review and understanding of the existing conditions and draft PSP.

The development of the recommendations for public transport, active travel and road networks within the study area were informed by the Strategic Transport Modelling Assessment (STMA) that was undertaken. The STMA examined traffic impacts of the proposed development of the draft PSP to understand future transport planning requirements. The STMA included a review and validation of the Victorian Integrated Transport Model (VITM), the starting version was the same model that was developed for the Ballarat Link Road study. This was then used as the basis to model future (2051) Project-specific scenarios. The STMA outputs are summarised in Section 5 of this report, with further detail provided in the *Strategic Transport Modelling Assessment Report (Jacobs 2025).*

1.3 Study area and wider assessment area

Based on discussions with VPA, the core study area is shown Figure 1-1, along with an expanded area in green area.

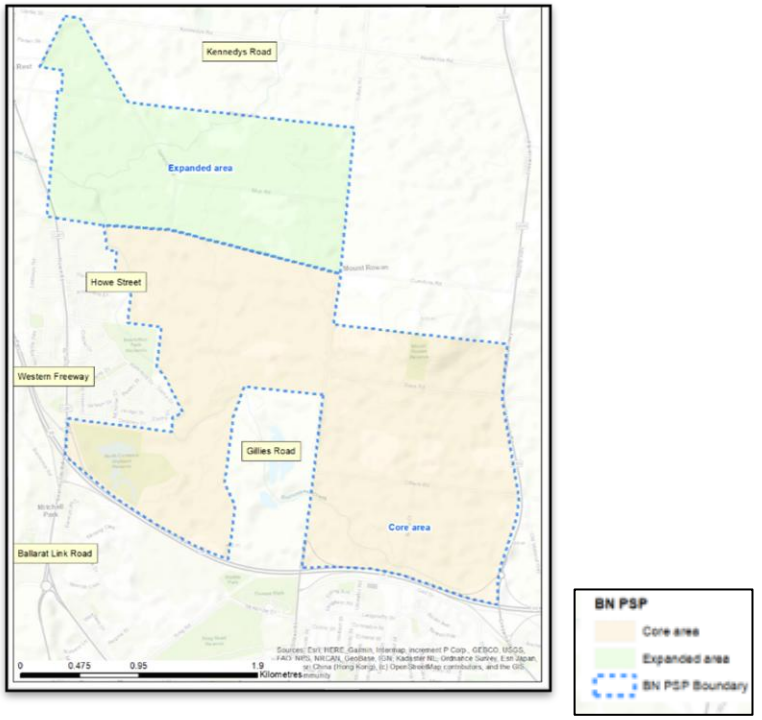


Figure 1-1. Core study area (in orange) and expanded area (in green)

2. Policy review

This chapter summarises the policy framework guiding the Ballarat North precinct growth area. The ITAR aligns with the overarching principles and requirements set by local and state regulations. A comprehensive review of pertinent policies, strategies, and documents has been undertaken to inform and shape the outcomes in this ITAR.

Further detail on the policy review is provided in Appendix A.

2.1 State and regional

The **Transport Integration Act 2010** provides the overarching legislative framework for transport planning in Victoria. It mandates an integrated approach that balances economic, social, and environmental outcomes, and promotes principles such as equity, sustainability, and stakeholder engagement. This Act underpins all transport-related decision-making in the PSP.

The **Plan for Victoria (2025**) sets the strategic direction for growth across the state, with a strong emphasis on aligning housing, employment, and transport. It supports the development of regionally significant employment precincts and prioritises sustainable transport options to reduce car dependency, which are principles that are central to the Ballarat North PSP.

The **Department of Transport Strategic Plan 2024–2028** reinforces the need for integrated, inclusive, and safe transport networks. It highlights the importance of connecting people to jobs and services, particularly in growth areas, and supports investment in public and active transport infrastructure.

The **Victorian Housing Statement 2024–2034** calls for increased housing supply in growth areas, supported by early delivery of infrastructure. It emphasises the integration of transport and land use to support 20-minute neighbourhoods and reduce reliance on private vehicles.

The **Precinct Structure Planning Guidelines (2021)** and associated PSP Notes (e.g. "Our Roads: Connecting People") provide detailed guidance on the design of transport networks in greenfield areas. These documents promote the Movement and Place framework, encourage walkable neighbourhoods, and require the provision of safe, accessible, and connected active and public transport infrastructure.

The **City of Ballarat Growth Areas Framework Plan (2024)** provides a strategic vision for the development of Ballarat's northern and western growth areas. It identifies Ballarat North as a key residential growth area and emphasises the need for integrated transport and land use planning.

The **Regional Network Development Plan (2016)** outlines priorities for improving regional public transport, including increased train frequencies, better bus services, and enhanced interchanges. These priorities support the PSP's goal of improving access to Wendouree and Ballarat stations.

Other relevant strategies include:

- Victoria's Bus Plan (2021) – supports simplified, frequent, and zero-emission bus services in growth areas.
- Victorian Cycling Strategy (2018–2028) – prioritises investment in Strategic Cycling Corridors (SCCs) and inclusive cycling infrastructure.
- Victorian Freight Plan (2018–2050) – identifies the Principal Freight Network (PFN) and the need to protect freight corridors.
- Victorian Road Safety Strategy (2021–2030) – targets safer roads and prioritises vulnerable road users.
- Victorian Climate Change Strategy (2021) – promotes mode shift and zero-emission transport to meet net-zero targets.
- Victoria's Draft 30-Year Infrastructure Strategy (2025) – supports compact urban growth, active transport, and improved regional connectivity.

2.2 Local

The **Ballarat Strategy (2040)** sets out a vision for a "10 Minute City" where residents can access daily needs within a short walk, cycle, or public transport trip. It promotes compact urban form, integrated transport networks, and balanced greenfield and infill development.

The **Ballarat Integrated Transport Action Plan (towards 2050)** supports this vision by advocating for multimodal transport, improved public transport services, and enhanced active transport infrastructure. It also addresses freight movement and the need for safe, inclusive streets.

Supporting local strategies include:

- Ballarat Cycling Action Plan (2017–2025) – establishes the Ballarat Bicycle Network and prioritises safe, connected cycling routes.
- Draft Principal Pedestrian Network (2024) – identifies key pedestrian corridors for investment.
- Ballarat Housing Strategy (2041) – supports higher-density housing near transport nodes and reinforces the need for integrated planning.
- Ballarat Net Zero Emissions Plan (2022) – targets transport emissions reduction through mode shift.
- Health and Wellbeing Plan (2021–2031) and Active Ballarat Strategy (2019) – promote active lifestyles and inclusive access to transport and recreation.
- Ageing Well in Ballarat Strategy (2022–2026) – supports walkable neighbourhoods and accessible transport for older residents.
- Miners Rest Township Plan (2019) – identifies Howe Street as a key corridor requiring pedestrian and cyclist upgrades.

3. Existing conditions

3.1 Regional context

3.1.1 City of Ballarat

The PSP is located within the City of Ballarat, a local government area (LGA) approximately 110 kilometres west of Melbourne CBD. The City of Ballarat covers approximately 739 square kilometres and is one of the fastest growing regions in Australia with an estimated population of 124,543 (2025)[1] and a forecast of 160,000-170,000 expected to by 2041[2].

The Ballarat LGA contains a mix of land uses including residential, industrial, commercial and rural. Established residential areas are predominantly in the central and eastern parts of the Ballarat LGA, with activity centres such as Ballarat Central, Wendouree, Sebastopol, and Alfredton. Surrounding these activity centres are established commercial and public recreation zones. The western and northern areas are experiencing significant urban growth, particularly around Delacombe, Lucas, and Miners Rest. The outer regions of the council area are mostly rural land used for agricultural purposes and hobby farms.

The Ballarat Railway Line, the Western Freeway (M8), and the Midland Highway form the major movement corridors in the region as shown in Figure 3-1. These transport links provide important connections to Melbourne, and to regional centres including Ararat, Maryborough, and Daylesford as well as between key employment and education precincts within Ballarat.

The Ballarat West Employment Zone (BWEZ) shown in Figure 3-1 and the health and education precinct around Ballarat Base Hospital and Federation University serve as major hubs for jobs, industry, and the community. Further growth in Ballarat will see emerging hubs provide significant future employment opportunities, particularly in sectors such as healthcare, education, and advanced manufacturing.

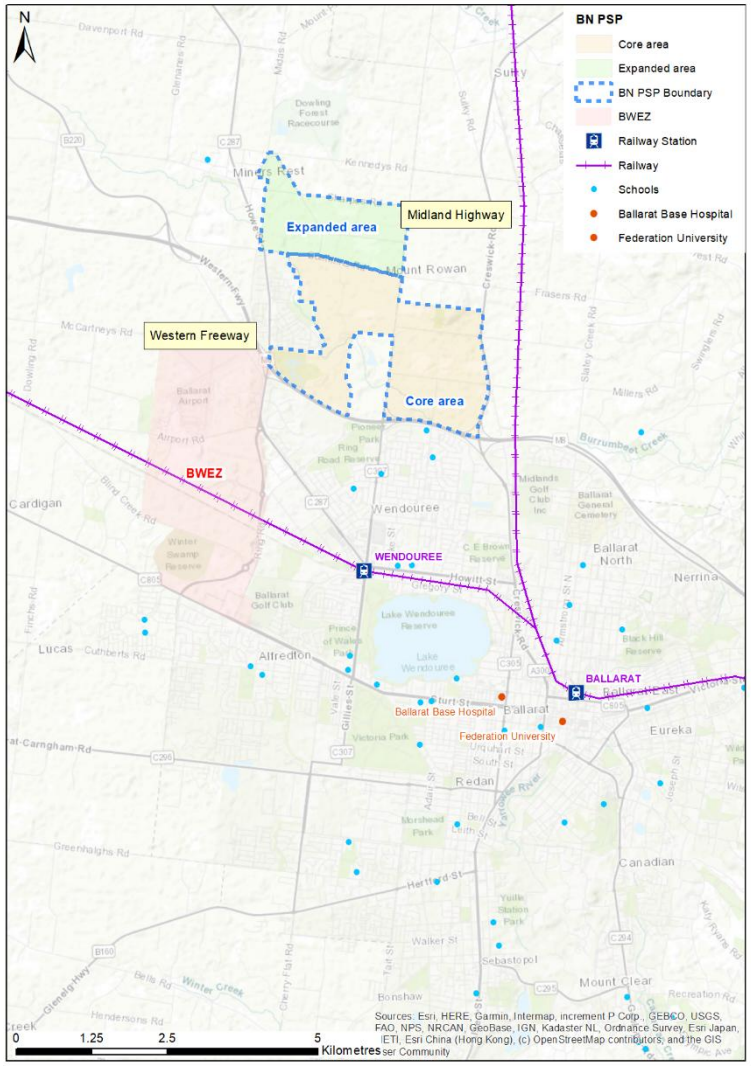


Figure 3-1. Existing Ballarat land use

[1] https://forecast.id.com.au/ballarat (Note that the City of Ballarat forecasts are aligned with VITM forecasts used to model the PSP area.)

[2] www.ballarat.vic.gov.au/property/ballarat-growth-areas

3.1.2 Ballarat North PSP

Ballarat North PSP is located approximately 8km north of the Ballarat Central Business District, within the suburbs of Mount Rowan and Miners Rest. Currently, it is mainly rural land use zones with sparse residential and agricultural properties. It has been identified as one of Ballarat's future greenfield growth areas, along with the North Western and Western Growth Areas, capable of accommodating Ballarat's expected growth and housing demand beyond 2041, as shown in Figure 3-2.

The Ballarat Link Corridor provides an important connection between these three growth areas. Ballarat North PSP has been divided into two primary sections:

- Core Area: This portion has been rezoned to the Urban Growth Zone (UGZ). It is estimated to accommodate up to 6,000[3] dwellings with a population capacity of 18,000-19,000[4].
- Expanded Area: The area north of Cummins Road will remain as a farming zone until additional greenfield and urban land is required, in which the PSP boundary will be extended[5]. The estimated population capacity is estimated between 7,300-9,800.

Ballarat Town Common exists on the southwestern corner of the core area of the PSP, while Creswick Regional National Park is 7km away. The PSP also is adjacent to the Ballarat North Wastewater Treatment Plant & Water Reclamation Plant on the northern side of the freeway.

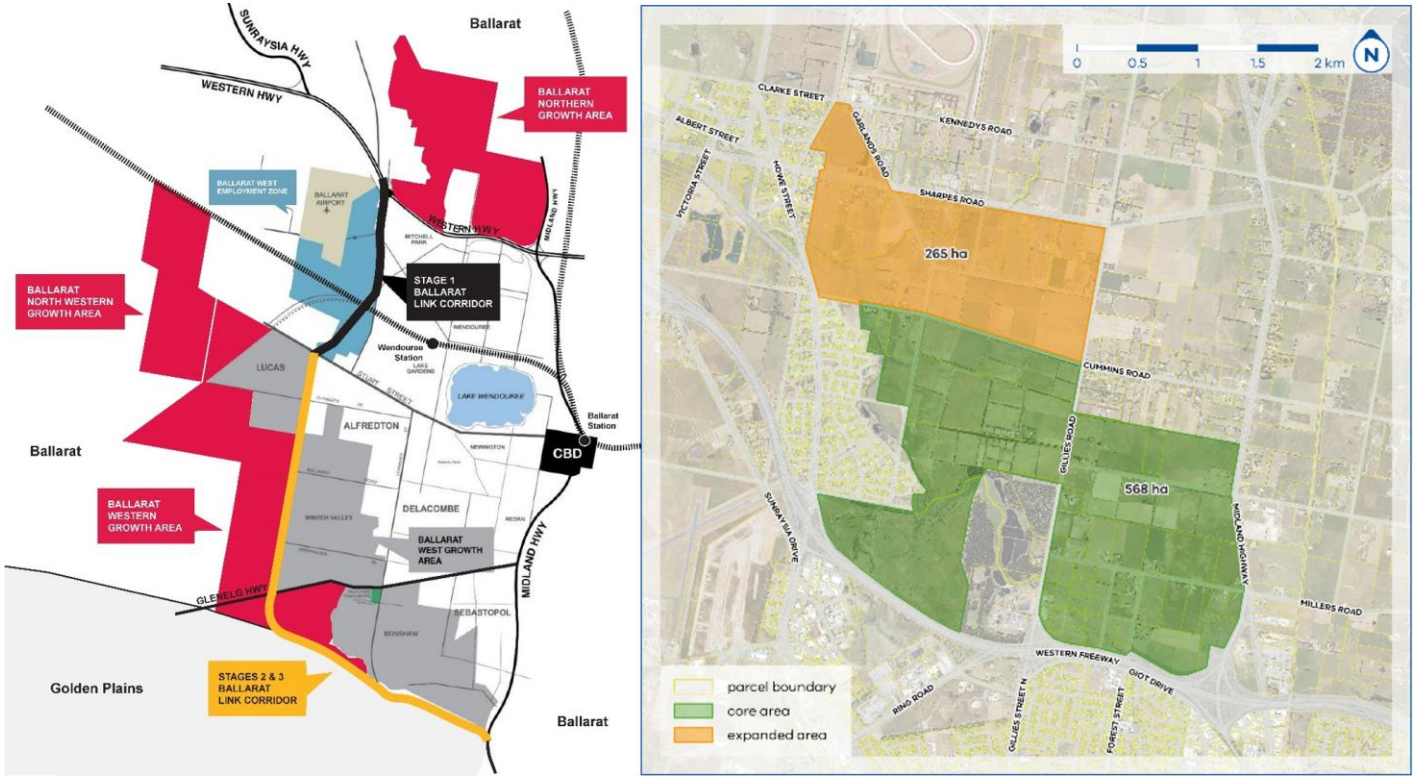


Figure 3-2. LEFT: Ballarat Future Growth Areas (Source: City of Ballarat), RIGHT: Ballarat North PSP (Source: VPA)

[3] https://www.ballarat.vic.gov.au/property/ballarat-growth-areas/ballarats-future-growth-areas

[4] https://vpa-web.s3.amazonaws.com/wp-content/uploads/2024/07/Ballarat-North-PSP-Economic-Retail-Assessments-Urbis-June-2024.pdf

[5] https://vpa.vic.gov.au/project/ballarat-north/

3.2 Travel behaviour

The method of travel to work from those living in the Ballarat LGA and the Wendouree – Miners Rest SA2 was analysed using ABS Census data, as shown in Figure 3-3. Both 2016 and 2021 was used to capture any unusual trends due to the COVID-19 pandemic.

Vehicle Dependence[6]:

- In 2016, vehicles (private vehicles and ride share) accounted for 92.3% of all trips in the Ballarat LGA.
- In 2021, the share of vehicle used slightly increased to 93.2%. However, this was offset by an increase in people not working from home, due to the COVID-19 pandemic.
- In Wendouree – Miners Rest, the vehicle trip proportion was slightly lower at 87.7% in 2016. This percentage decreased to 86.3% in 2021 during the COVID-19 pandemic.

Public Transport Decline:

- Public transport usage in the Ballarat LGA was at 3.5% in 2016.
- This share decreased to 2.0% in 2021, which can be attributed to the pandemic's impact on travel patterns. However, public transport patronage overall (beyond travelling to work) has been steadily rising since the pandemic[7] where:
  - Regional trains patronage has surpassed pre-pandemic levels.
  - Regional coach and bus patronage has returned to pre-pandemic levels.
- In Wendouree – Miners Rest, the public transport uptake was higher than the Ballarat LGA at 5.4% in 2016, however, decreased to 2.5% during the pandemic in 2021.

High Relative Active Transport Usage:

- Active transport (cycling and walking) accounted for 4.2% of Ballarat LGA trips in 2016.
- This increased to 4.8% in 2021. This is higher compared to the average Greater Melbourne rate of 2.7%[8].
- Importantly, the active transport mode share in Wendouree – Miners Rest is higher than the Ballarat LGA level and has shown a strong upwards trend over recent years. Specifically, active transport accounted for 6.9% of trips in 2016 and increased to 11.2% in 2021.

Increase in Working from Home:

- The percentage of people working from home was 20.0% in 2016.
- This proportion increased to 29.0% in 2021. This surge can be attributable to the COVID-19 pandemic and associated work-from-home measures introduced as a result.

The COVID-19 pandemic significantly impacted travel behaviour in the short term including the movement of people away from Melbourne to regional Victoria due to possibility of for work-from-home opportunities.

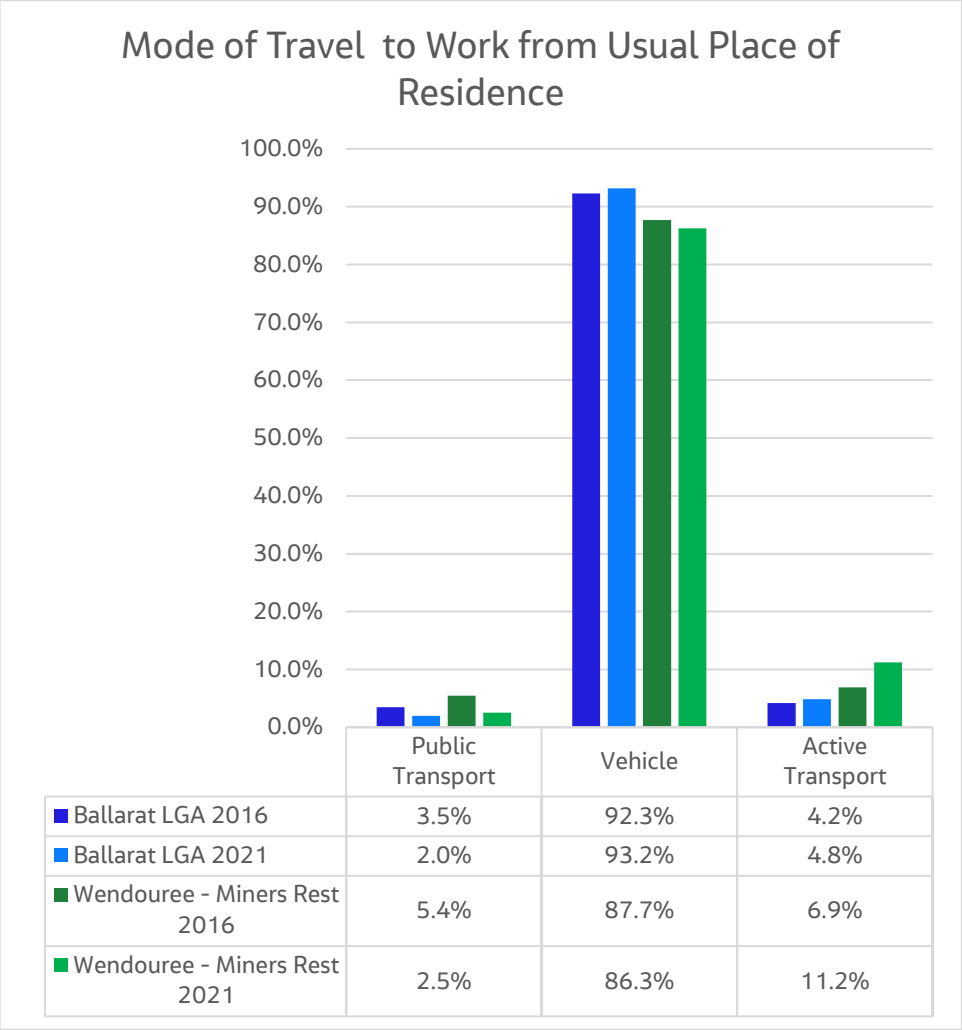
The long-term effects remain uncertain and it is unclear whether the observed shifts, such as the increase in working from home and the decline in public transport use, will persist or if travel patterns will revert to pre-pandemic norms.

Regardless of the long-term impacts from the pandemic, there is still a heavy reliance on private vehicles in the surrounding area. A significant investment in active and public transport infrastructure and services is required to shift this pattern.

[6] People who were worked from home/did not go to work were not included for the calculation of trip mode share percentages.

[7] https://discover.data.vic.gov.au/dataset/monthly-public-transport-patronage-by-mode

[8] https://profile.id.com.au/australia/travel-to-work?WebID=270&BMID=270



	Public Transport	Vehicle	Active Transport
Ballarat LGA 2016	3.5%	92.3%	4.2%
Ballarat LGA 2021	2.0%	93.2%	4.8%
Wendouree - Miners Rest 2016	5.4%	87.7%	6.9%
Wendouree - Miners Rest 2021	2.5%	86.3%	11.2%

Figure 3-3. Method of travel to work from place of usual residence in surrounding area[9]

3.3 General traffic and freight

3.3.1 Existing road infrastructure

The road infrastructure in the PSP areas has been summarised and presented in Figure 3-4 and Table 3-1. It is broadly bounded by Cummins Road to the north, the Burrumbeet Creek Corridor / Howe Street to the west, the Western Freeway to the south and the Midland Highway to the east. The core area of the PSP is separated by Gillies Road while the expanded area is north of Cummins Road. The internal network will include additional collector roads and local streets (to be determined as part of the PSP planning process).

[9] 2016/2021 ABS Census data. 2016 SA2 areas include: Avoca, Creswick – Clunes, Beaufort, Wendouree – Miner's Rest, Ballarat – North, Alfredton, Ballarat, Ballarat – South, Delacombe, Buninyong, Gordon (Vic.). 2021 SA2 areas include: Avoca, Creswick – Clunes, Beaufort, Ballarat North – Invermay, Alfredton, Ballarat East – Warrenhelp, Delacombe, Sebastopol – Redan, Canadian – Mount Clear, Buninyong, Godon (Vic.)

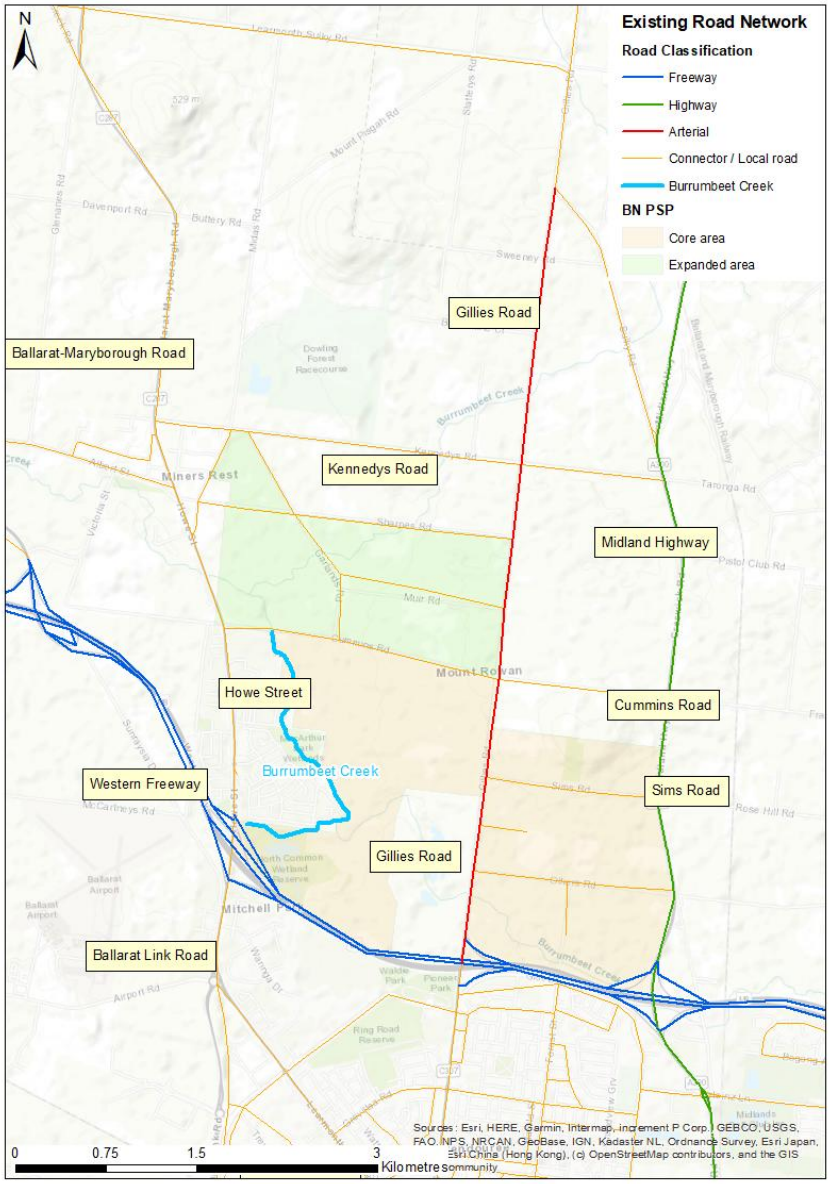


Figure 3-4. Key road infrastructure in and around the Ballarat North PSP

Table 3-1. Existing road infrastructure characteristics

Road	Bounds	Road type	Condition	Speed limit (km/h)	Lanes (one-way)
Western Freeway (M8)	Midland Highway to Howe Street	National highway (managed by state)	Sealed	100	2
Midland Highway (A300)	Western Freeway (M8) to Cummins	Highway (state road)	Sealed	80	1
Howe Street (C287)	Western Freeway (M8) to Raglan Street	Arterial (state road)	Sealed	80	1
Gillies Road	Western Freeway (M8) to Sharpes Road	Secondary arterial	Sealed	80	1
Cummins Road	Western Freeway (M8) to Midland Highway (A300)	Collector	Sealed	80	1
Kennedys Road	Raglan Street to Midland highway (A300)	Collector	Sealed	80 (60 400m from Raglan Street)	1
Sharpes Road	Raglan Street to Gillies Road	Collector	Sealed	100	1
Raglan Street	Howe Street (C287) to Kennedys Road	Local	Sealed	60	1

The Ballarat North PSP utilises the existing road network infrastructure. Key roads including Gillies Road, Cummins Road, Kennedys Road and Sharpes Road will be retained and form the foundation for the future transport network. Several existing local streets, such as Raglan Street, Garlands Road, Olliers Road, Sims Road and Muir Road should also be retained and integrated into the PSP internal road network, providing important local connections.

3.3.2 Freight network

Western Highway (M8) and Howe Street (C287) are on the Principal Freight Network (PFN), a Victorian network of identified and protected freight corridors. In addition, the Yelta Rail Line is on the PFN Rail network and is in close proximity to the eastern boundary of the PSP. No roads within the PSP area are identified on the freight network. A map of the PFN surrounding the PSP area is shown in Figure 3-5.

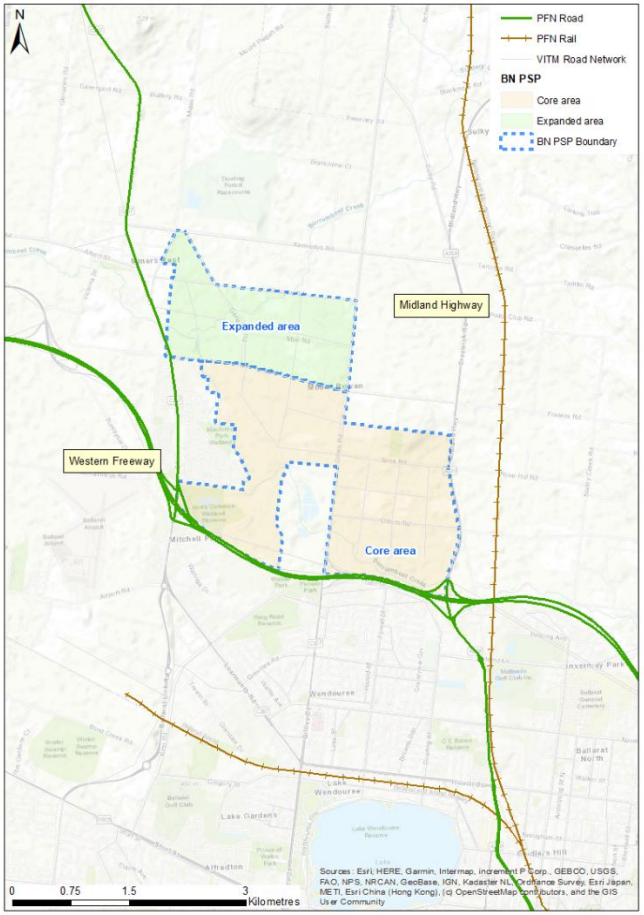


Figure 3-5. Principal Freight Network (Source: DTP)

3.3.3 Traffic volumes

An assessment of existing traffic volumes provides insight into the current demand on the road network serving the Ballarat North precinct. Traffic volume data (from 2020 and 2023) for both DTP state roads and council roads have been summarised in Table 3-2. The Western Freeway (M8), Midland Highway (A300), Howe Street (C287) and Gillies Road are the dominant roads in the area, carrying significant traffic volumes. Notably, traffic volumes in 2020 are quite similar to 2023, with minimal growth. This is likely due to this increase in people working from home since COVID-19.

The Western Freeway (M8) exhibits the highest traffic volumes with a two-way Average Annual Daily Traffic (AADT) of approximately 16,200 vehicles (in 2023), indicative of its role as a major regional freeway. Of these, 3,200 vehicles are two-way AADT trucks, representing approximately 6% of the total traffic. This highlights the substantial freight movement occurring on the Western Freeway (M8), underscoring its critical role in regional logistics.

Gillies Road had the next highest traffic volumes with approximately 9,600 vehicles, higher than both Midland Highway and Howe Street, which are higher order roads. Gillies Road, Midland Highway and Howe Street have approximately 25,000 vehicles travelling north south in total, indicating the important link these roads provide to connect to regional towns like Castlemaine, Maryborough and Creswick.

Table 3-2. DTP traffic volume data (Source: DTP Open Data)

Road	2020 Open Data	2023 Open Data		
	Two-way AADT Total	Two-way AADT Total	Two-way AADT Trucks	Heavy vehicle %
Western Freeway (M8)	15,800	16,200	3,200	6%
Midland Highway (A300)	8,100	8,600	680	1%
Howe Street (C287)	6,900	7,300	550	1%
Gillies Road	9,600	TBC	TBC	TBC

3.4 Public transport

3.4.1 Rail and coach network

The surrounding rail and coach network is shown in Figure 3-6. The closest existing railway stations are Wendouree Station and Ballarat Station which are around 2.6 km and 5.5 kilometres away respectively from the PSP.

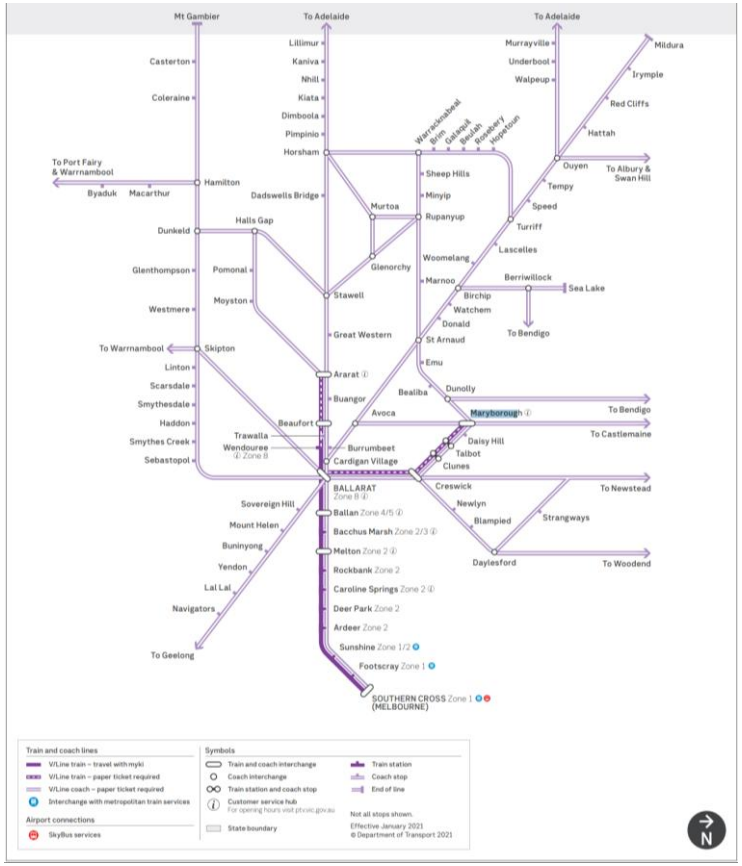


Figure 3-6. Western Victoria train and coach network (Source: Public Transport Victoria)

From Ballarat Station or Wendouree Station, passengers can access a variety of destinations across Victoria. Typical destinations and journey times accessible are summarised in Table 3-3.

Table 3-3. Destinations accessible by rail (Source: Public Transport Victoria)

Destination	Station	Vline Route	Typical Weekday Journey Time(s) (minutes)
Melbourne CBD (Southern Cross Station)	Wendouree or Ballarat	Maryborough-Melbourne Ararat-Melbourne	79 - 93
Sunshine Station	Wendouree or Ballarat	Ararat-Melbourne	63 – 77
Melton Station	Wendouree or Ballarat	Ararat-Melbourne	44 - 52
Maryborough Station	Ballarat	Maryborough -Melbourne	62
Ararat Station	Wendouree or Ballarat	Melbourne-Ararat	51 -58

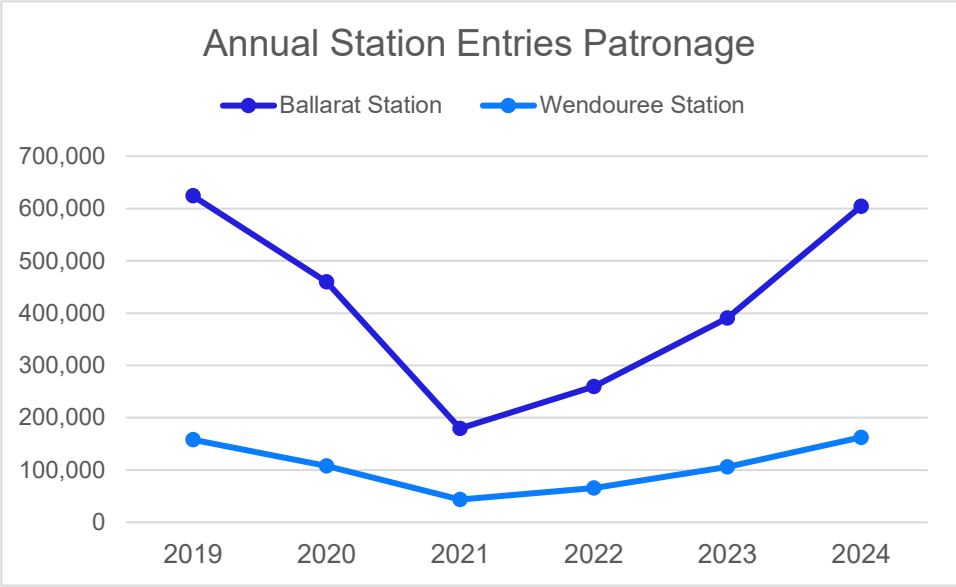
Sunshine station is a key station in Melbourne's west as it allows for transfer from VLine to the Sunbury Railway Line (and soon will connect with the Pakenham / Cranbourne Railway Lines via the Metro Tunnel), which connects to the Melbourne Metropolitan train network. At Southern Cross Station, passengers can interchange with the other lines, providing further connections across Melbourne.

The weekday VLine services that exist within the vicinity of Ballarat North and travel via either Wendouree or Ballarat station are included within Table 3-4.

Table 3-4. Rail and coach services summary

Line	Stops at Ballarat	Stops at Wendouree	Daily Services (Monday to Friday)
Wendouree to Melbourne	✓	✓	36
Ararat to Melbourne	✓	✓	5
Maryborough to Melbourne	✓	×	2
Ararat to Warrnambool	✓	×	1
Warrnambool to Ararat	✓	×	1
Halls Gap to Melbourne (via Stawell, Ararat and Ballarat)	✓	×	1
Maryborough to Melbourne (via Ballarat and Castlemaine)	✓	×	3
Mildura to Ballarat	✓	×	2
Mildura to Melbourne (via Donald, Maryborough and Ballarat)	✓	×	2
Mount Gambier to Melbourne (via Casterton, Hamilton and Ballarat)	✓	×	2
Nhill to Melbourne	✓	×	3
Ouyen to Melbourne	✓	×	1
Wendouree to Melbourne (via Ballarat)	✓	✓	1
	✓	×	1
Daylesford to Melbourne (via Ballarat and Woodend)	✓	×	1 – 2
Mildura to Geelong (via Ballarat)	✓	×	1 – 2
Geelong to Bendigo (via Ballarat)	✓	×	2

Figure 3-7 shows the annual station entry patronage at Ballarat Station and Wendouree Station between 2019 and 2024. The data indicates a clear recovery in the use of rail as a transport mode, with recent patronage numbers returning to pre-COVID levels. Specifically, Ballarat Station and Wendouree Station respectively recorded over 600,000 and 160,000 patron entries in the most recent year of 2024.



*Displayed data is by financial year e.g. 2019 refers to July 2018 – June 2019

Figure 3-7. Annual Station Entries Patronage (Source: Open Data - Transport Victoria)

The average normal weekday boardings and alightings for Ballarat Station and Wendouree Station in May 2018 is outlined in Table 3-5.

Table 3-5. Average 'Normal Weekday' boardings and alightings by station (Source: DTP Transport Insights – Data & Digital)

Station	Average Boardings	Average Alightings
Ballarat	1,851	1,552
Wendouree	492	469

3.4.2 Bus network

The public bus network is shown in Figure 3-8.

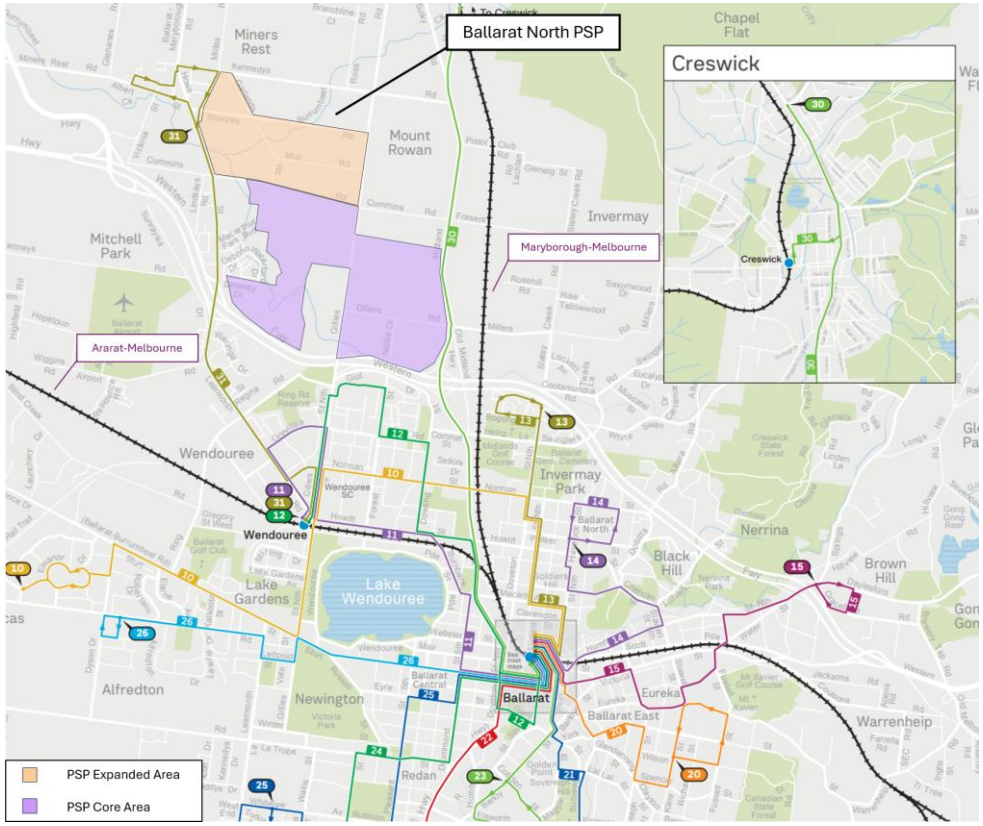


Figure 3-8. Ballarat public bus network (Source: Public Transport Victoria)

There are two bus routes that currently run on the periphery of the PSP, as shown in Figure 3-8:

- Bus route 31 (Howe Street): Wendouree Station – Miners Rest (15 services / day).
- Bus route 30 (Midland Highway): Ballarat Station - Creswick (16 services / day).

Travel time from the PSP on the Route 31 bus takes approximately 12-16 minutes to Wendouree Station whereas Route 30 takes approximately 15-18 minutes to reach Ballarat Station depending on the time of day and origin along the PSP.

While bus stops are adequately spaced along Midland Highway and Howe Street, infrastructure is generally poor, lacking basic amenities such as shelters, seating, and adequate lighting.

Pedestrian access to many stops is also problematic, with missing footpath connections on Midland Highway. Accessibility for people with disabilities is a further concern, as some stops do not meet minimum DDA compliance standards. While there are on-road bus stop bays, no bus priority infrastructure (bus lanes, queue jump lanes) is present.

The upgraded southbound bus stop on the Midland Highway near Sims Road (Figure 3-9) provides an example of improved bus stop infrastructure, including a shelter, seating, and accessible paths. This shelter is linked to the northbound bus stop on the other side of the Midland Highway via pedestrian pathways and an island within the road median.

In addition, both bus services operate on very low frequencies (refer to Table 3-6) and do not provide a high-quality public transport option to the PSP areas. Furthermore, there are no bus services that run within the centre of PSP area or in an east-west direction.

Table 3-6. Bus service frequencies (Source: PTV)

Route	Weekday	Saturday	Sunday
Route 30: Ballarat Station - Creswick	16 daily services. Services every ~1 hour.	21 daily services. Services every ~40 minutes.	3 daily services. Services every ~3 hours and 20 minutes.
Route 31: Wendouree Station – Miners Rest	15 daily services. Services every ~45 minutes to 1 hour 15 minutes.	21 daily services. Services every ~40 minutes.	N/A

Figure 3-9: Midland Highway southbound bus stop at Sims Road

3.5 Active transport

3.5.1 Pedestrians and cycling

There is no dedicated pedestrian infrastructure within the PSP area. It is recommended that pedestrian-friendly features and infrastructure are included within the PSP to emphasise comfort, safety and connectivity. The residential area in Miners Rest (between Howe Street and Burrumbeet Creek) to the west of the Ballarat PSP area includes existing footpaths, which will provide an important link to existing services, such buses, childcare centres and playgrounds.

The Strategic Cycling Corridor (SCC) shown in Figure 3-10 identifies C2 Strategic Cycling routes along Howe Street and Forest Street west and south of the PSP, respectively. There is no other dedicated cycling infrastructure or routes on the road network within the PSP. It is recommended that any new cycling infrastructure in the PSP be off-road and segregated from traffic and parking as it enhances safety by reducing risk of collisions and improves traffic flow by minimising disruptions between different modes of transportation.

The Ballarat Cycling Action Plan, 2017-2025[10] establishes the Ballarat Bicycle Network that focuses investment in linking destinations and providing continuous and safe cycling routes. The latest proposed cycling network is shown in Figure 3-11, which includes cycling infrastructure on a mixture of state and locally operated roads including Howe Street, Ballarat Link Road, Gillies Street North, Forest Street, and Dowling Street.

[10] Ballarat Cycling Action Plan (2017)

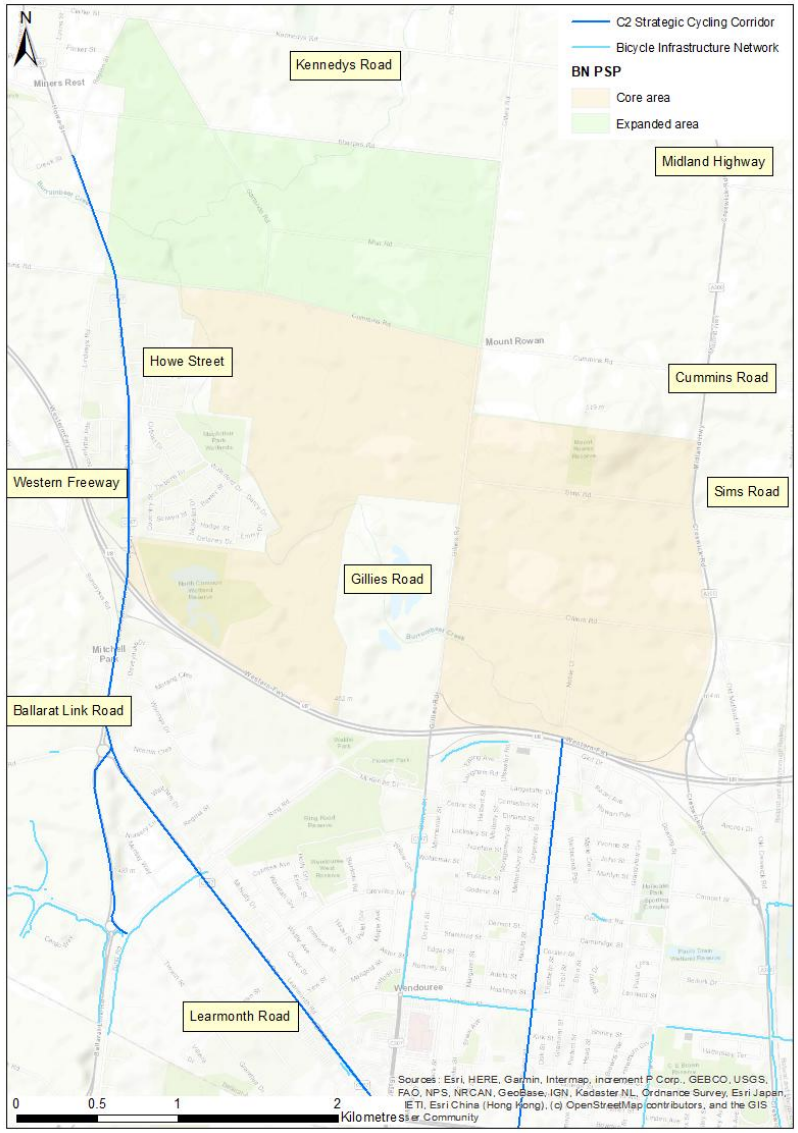


Figure 3-10. Strategic Cycling Corridor and Bicycle Infrastructure Network (Source: DTP)

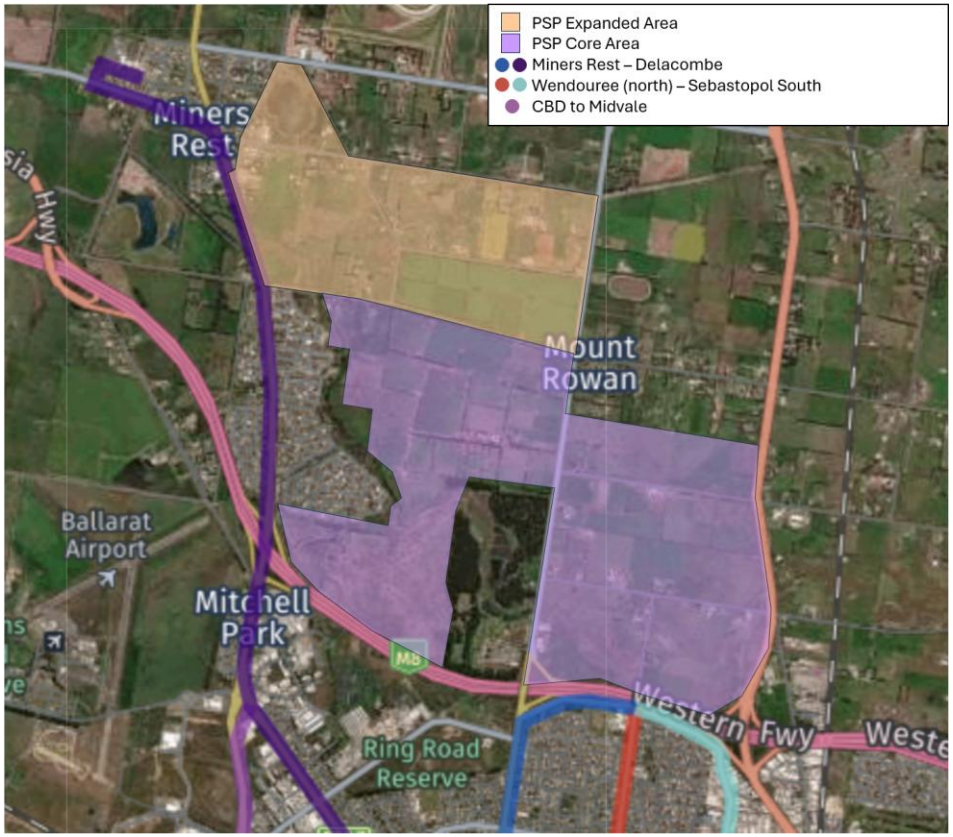


Figure 3-11. Ballarat Cycling Network (Adapted from City of Ballarat)

3.5.2 Micromobility

In 2021, the City of Ballarat was included as one of the local government areas in the Victorian State Government's electric scooter trial. The trial ended in 2024 and allowed e-scooters on bicycle lanes, bicycle paths, separated and shared paths and local roads that have a speed limit of up to 60km/h, traveling at maximum speeds of 20 km/h'. Surveys conducted by share scheme operators revealed that over 350,000[11] trips were conducted in this time period and that up to 40% of trips in Ballarat replaced a vehicle (private car or rideshare vehicle) trip[12].

As of April 2025, the e-scooter scheme in the City of Ballarat continues operating, with significant use in the western growth areas (Lucas and Alfredton) and potential for growth to complement the transport system in the northern new areas. The scheme is currently being evaluated and a report will be prepared for Council to consider next steps for shared e-scooters in Ballarat. This has been an important initiative in the active transport space for the regional hub. Figure 3-12 displays the permitted riding areas, the Ballarat North PSP is currently not within the boundaries of the area.

Figure 3-12. E-scooter permitted riding areas (Source: City of Ballarat)

[11] Neuron report (Feb 2025)

3.6 Road safety

A crash analysis has been undertaken for the study area to identify crash hotspots and potential road safety issues. Crash data was extracted from the Victorian Road Crash Data Hub from 2012 to 2024, as shown in Figure 3-13. There were 42 crashes recorded in the PSP, primarily on arterial roads and freeways. This relatively high number of crashes, particularly for an area that is currently largely rural and undeveloped, raises concerns about existing road safety conditions. It also highlights the potential for increased risks as the area develops and traffic volumes grow. The crashes in this area reveal several potential safety issues:

- **Major roads:** Most crashes occurred on Western Freeway and Midland Highway, potentially due to high volumes of traffic and high speeds. Crashes on Western Highway have an instance of 'OFF-CARRIAGEWAY', suggesting potential issues with sight distance, road design or driver behaviour.
- **Intersection Issues:** 11 crashes occurred at intersections along Midland Highway, most during daytime suggesting potential issues with intersection design or driver behaviour. 5 crashes occurred at the Midland Highway roundabout with Western Freeway with one fatal vehicle to vehicle T-bone collision, which may indicate problems with sight lines or intersection layout.
- **Vulnerable Road Users:** One crash involved a pedestrian on Howe Street. There is currently a lack of pedestrian and cyclist infrastructure in this area and as the area transitions from rural to urban and active transport activity increases, this emphasises the need for safe facilities.
- **High-Speed Environment:** 8 crashes occurred on Gillies Road. Rural arterial roads encourage high speeds, which can contribute to the severity of crashes.

Road safety should be investigated further as the precinct develops, given the change from rural to urban, increased traffic volumes, modified intersections, and increase in pedestrians, cyclists and buses. This outcome would align with Victoria's draft recommendation 14 in Victoria's draft 30-year infrastructure strategy 2025-2055.

[12] Premier.vic.gov.au/making-e-scooters-safer

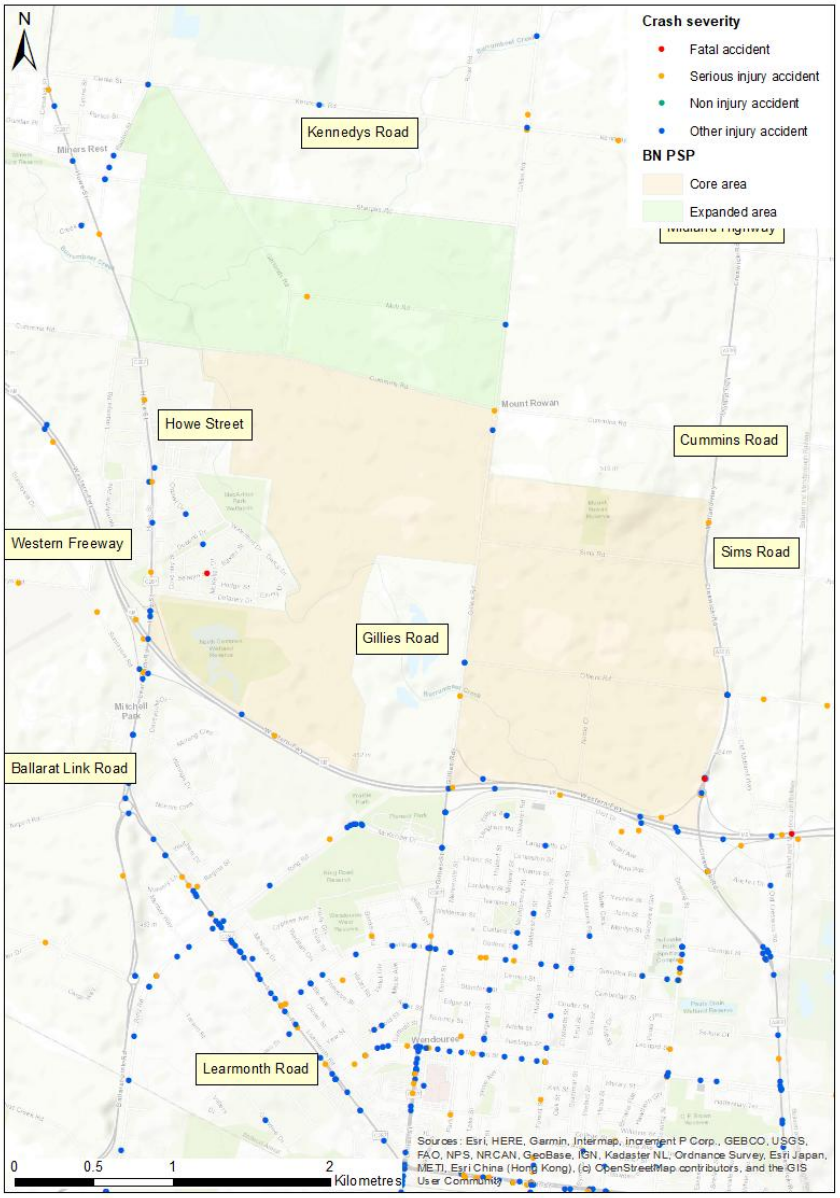


Figure 3-13. Location and severity of crashes (2012-2024)

4. Key existing issues and future development opportunities

This chapter summarises the key issues and opportunities of the Ballarat North PSP.

4.1 Issues

Several transport issues present significant challenges to the development and future functionality of the precinct. These challenges encompass a range of factors that are recommended to be addressed to support successful planning and implementation. The primary issues identified include the following:

- **High Vehicle Dependence:** ABS Census data indicates a significant reliance on private vehicles, with 92.1% of trips (excluding working from home) made by car in 2021. This presents a challenge to shifting towards sustainable transport modes within the Ballarat North PSP.
- **Inadequate Bus Service and Infrastructure:** Current public transport provision is limited. Existing bus routes (30 and 31) along the PSP's periphery operate with low frequencies of 15-16 services per day and lack essential infrastructure such as shelters, seating, and lighting. Pedestrian access to bus stops along Midland Highway is problematic due to missing footpath connections. Furthermore, there is a lack of bus services within the internal PSP area, and no east-west bus connectivity.
- **Limited Active Transport Infrastructure:** The SCC and the Ballarat Cycling Network identifies routes outside the PSP, with no dedicated cycling or pedestrian infrastructure within the development area itself. However, the PSP proposes the inclusion of active transport infrastructure along arterial roads, such as off-road cycleways, and consideration will need to be given on how to integrate the active transport network with the surrounding land use and minimise interaction with arterial road vehicular traffic.
- **Limited Micromobility Infrastructure:** The PSP is currently outside of the permitted E-scooter area, which covers most existing suburbs within Ballarat. Consideration will need to be given to expanding the E-scooter area into the Ballarat North PSP.
- **Road Safety Concerns:** Crash analysis from 2012 to 2024 reveals 42 crashes in the PSP area, primarily on arterial roads such as the Western Freeway, Midland Highway and on Gillies Street and intersections within the PSP. This relatively high number of crashes, particularly for an area that is currently largely rural and undeveloped, raises concerns about existing road safety conditions. It also highlights the potential for increased risks as the area develops and active transport (people movement) and traffic volumes grow.
- **Existing Road Network:** While the PSP offers a greenfield opportunity, connections to the existing road network are essential. The condition and capacity of surrounding roads and functional road hierarchy of roads such as the Midland Highway, Gillies Road and Howe Street will influence the design of internal roads and transport infrastructure. Note that Gillies Road currently carries the highest volume for north south traffic and consideration will be needed to be downgrade Gillies Road and shift traffic to an upgraded Midland Highway. Additionally, the number of new intersections on these roads with the PSP should be spaces according to PSP Guidelines to limit impacts on the existing network.
- **Western Freeway as a Barrier:** The Western Freeway acts as a significant physical barrier, effectively separating the Ballarat North PSP from established suburbs to the south, including Wendouree, Ballarat North, and Ballarat. This barrier impedes direct connectivity for pedestrians, cyclists, and public transport users, limiting access to employment, services, and recreational opportunities in these areas.
- **Distance to Existing Railway Network:** The closest stations from the Ballarat North PSP are Wendouree Station and Ballarat Station, with are approximately 2.6km and 5.5km away, respectively. This distance creates a barrier to convenient rail access for future residents, potentially limiting the attractiveness of public transport options and contributing to increased reliance on private vehicles.

4.2 Opportunities

Despite the existing challenges, the development of the Ballarat North PSP presents several key opportunities to create a more sustainable and integrated transport system. These opportunities, which could be delivered by either the State Government, Council or the PSP, offer the potential to transform how people move within and around the PSP.

- **Align with Ballarat's Strategic Vision:** Design the PSP's transport network to support the "10 Minute City" concept and promote active and public transport use. Incorporate the principles of the Ballarat Integrated Transport Action Plan, focusing on multimodal transport and sustainable development.
- **Greenfield Development Advantage:** The relatively undeveloped nature of the PSP areas offers a relatively clean slate to plan and implement a sustainable transport network from the ground up, rather than trying to retrofit existing infrastructure. This allows for the integration of best practices in transport planning and urban design and implementing desirable design standards.
- **Promoting Mode Shift:** The PSP development provides an opportunity to implement strategies that actively challenge high vehicle dependency and encourage a shift away from car dependency by embedding public transport, walking, and cycling. This could include prioritising public transport, walking and cycling from the outset. This could include focussing on sustainable transport use, prioritising sustainable modes, prioritising public transport investment and priority access measures, creating dedicated active transport corridors, and implementing traffic calming measures.
- **Integrating Land Use and Transport:** Regulatory frameworks (presented in Section 2), enabled by the PSP process allows for the integrated planning of land use and transport, so that residential areas are located close to employment centres, shops, and community facilities, reducing the need for long car journeys. The focus on 10-minute neighbourhoods should be central to this.
- **Develop Active Transport Infrastructure:** Create comprehensive, cohesive, and dedicated walking and paths within the PSP, integrated with the SCC, with predominantly off-road paths. Dedicated walking and cycling infrastructure can create the overarching framework for other transport initiatives, like micromobility networks, which Council can implement as the PSP develops. This network must connect homes to key destinations, such as parks, schools, activity centres and railway stations. The wide cross-sections of current and future arterial roads necessitate careful consideration of pedestrian crossing distances to support safety.
- **Consider the expansion of the permitted E-scooter area to include the PSP:** Integrate the internal active transport network of the PSP with the existing SCC along Howe Street and Forest Street, as well as the proposed networks within the Ballarat Cycling Network.
- **Enhance Public Transport Services:** Increase bus service frequency and improve infrastructure, including shelters, seating, and accessible stops, along routes 30 and 31. Introduce new bus routes to provide internal and east-west connectivity within the PSP. New bus routes should also connect with existing railway stations in Wendouree and Ballarat. This would provide attractive public transport options, helping reduce high private vehicle dependency in the PSP.
- **Consider Micromobility and Mobility Hubs:** The PSP can enhance connectivity and promote sustainable transport by setting the framework for bus capable roads and active transport infrastructure. Council can leverage off these sustainable transport options to develop a framework for micromobility and mobility hubs. These hubs can link to public transport, including existing railway stations to improve first-and-last-kilometre access and reduce car reliance. Mobility hubs can also include shared e-scooters and e-bikes, through expansion of the permitted e-scooter area.
- **Utilise Existing Road Infrastructure:** Plan to utilise and upgrade the existing roads such as Gillies Road, Cummins Road, Kennedys Road, and Sharpes Road, as well as the local streets such as Raglan Street, Garlands Road, Olliers Road, Sims Road, and Muir Road. Upgrades may include increase in capacity, intersection signalisation, improvements to safety, and redesign of the cross section to prioritise active transport and public transport.

5. Traffic demand projections

VPA requested an assessment of the proposed future transport network for the Ballarat North PSP. The road network adopted for modelling is detailed in the *Strategic Modelling Assessment Report* (Jacobs 2025) and represented the proposed PSP road network at the time of the modelling investigations.

The STMA modelling outputs informed further refinement of the internal PSP and surrounding arterial road network. The STMA of the PSP, undertaken using the Victorian Integrated Transport Model (VITM), shows that traffic volumes noticeably increase with the project compared to the Base across the local network. The Base with no development has been represented in the 2051 future year. The project has been assessed for the 2051 future year as the Core Only (the Ballarat North PSP core area), and the Core + Expanded (the Core Only with the addition of an expanded area to the north). The Base was updated with the proposed transport network within the Ballarat North PSP to model the Core Only and Core + Expanded cases. For further detail on the strategic modelling assessment, refer to the STMA.

The Core Only considers an overall increase of approximately 9,000 residents, 500 jobs and 2,000 school enrolments across the PSP in the study area when compared to the Base (2051), as shown in Table 5-1. The additional development area in the Core + Expanded provides a further increase of almost 10,000 residents, over 350 jobs, and 900 school enrolments.

Table 5-1. Base vs project demographics

PSP	Population	Employment	Primary	Secondary
Base (2051)	0	0	0	0
Core Only (2051)	18,726	644	1,800	2,000
Core + Expanded (2051)	28,516	980	2,700	2,000

Key infrastructure changes between the 2051 Base and 2018 Base include:

- Midland Highway duplication (to 4 lanes divided) from Howitt Street to the Western Freeway (north side of interchange)
- Ballarat Link Road:
  - 2 lanes from Learmonth Road to the Railway line
  - 4 lanes from the Railway line to Cuthberts Road
  - 2 lanes from Cuthberts Road to Ross Creek Road
  - 2 lanes from Ross Creek Road to Midland Highway
- New East-West Connector (2 lanes) from Ballarat Link Road to Gillies Street (between Ballarat-Carngham Road and Cuthberts Road)
- Ballarat-Carngham Road (4 lanes) from Ballarat Link Road to Midland Highway
- Glenelg Highway - Cherry Flat Road to Midland Highway (4 lanes)

The STMA shows that the proposed road network and classifications will be appropriate for the traffic volumes forecast in 2051 in the Ballarat North PSP. A summary of the 2051 daily vehicle volumes at key locations is provided in Table 5-2. The share of traffic on each road that can be attributed to the PSP is also provided.

Table 5-2. Daily volumes on selected links in 2051

Road	Direction	2051 daily volumes (vehicles per day)			PSP share of traffic	
		Base	Core Only	Core + Expanded	Core Only	Core + Expanded
Midland Highway (between Western Fwy and Olliers Rd)	Northbound	6,440	12,330	13,120	48%	51%
	Southbound	6,430	13,690	14,640	53%	56%
Gillies Road (between Western Fwy and Olliers Rd)	Northbound	450[13]	8,420	10,070	95%	96%
	Southbound	450	7,610	9,350	94%	95%
Howe Street (between Western Fwy and Normlyttle Pde)	Northbound	5,560	6,240	8,770	11%	37%
	Southbound	4,870	5,190	8,010	6%	39%
Cummins Road (Burrumbeet Creek Bridge)	Eastbound	40	2,310	4,170	98%	99%
	Westbound	40	1,870	3,670	98%	99%
Sims Road (between Midland Hwy and Gillies Rd)	Eastbound	0	4,220	5,160	100%	100%
	Westbound	0	3,070	3,800	100%	100%

As shown in Table 5-2, the Core Only is expected to increase traffic volumes on roads within the study area compared to the Base. These increases are primarily on Gillies Road, Cummins Road and Sims Road due to the PSP development. In the Core + Expanded, these volumes are expected to increase even further due to additional developments north of Cummins Road.

AM and PM peak volumes highlight that there is no observed congestion on the internal PSP road network. Surrounding the study area, the Western Freeway crossings at Howe Street, Gillies Road and the Midland Highway are approaching capacity.

The internal road network modelled included duplications of Cummins Road, Gillies Road (between Cummins Road the Western Freeway), and the Midland Highway (between Sims Road and the Western Freeway). This enabled modelling of a relatively unconstrained network, such that roads would not become heavily congested and impact on route choice. Reviewing the model outputs suggest that:

- **Cummins Road:** there is no long-term need for duplication, as Core + Expanded two-way daily traffic volumes are only 7,800 vehicles per day in 2051. Close to 100% of the future traffic on Cummins Road is attributed to the PSP in both the Core Only and Core + Expanded cases.
- **Midland Highway:** there is a strong need for duplication between Sims Road and the Western Freeway. In the peaks, a single lane in the Base (no development) would be approaching capacity and, without duplication, the Midland Highway would be over capacity in both the Core and Core + Expanded cases. Approximately 50% of the future traffic on the Midland Highway (immediately north of the Western Freeway) is attributed to the PSP in both the Core Only and Core + Expanded cases.
- **Gillies Road:** provided that the Midland Highway is duplicated, there is not a strong case for the duplication of Gillies Road even in the additional area in the Core + Expanded case. However, the expanded area does trigger the need for future proofing the ability to duplicate between Sims Road and the Western Freeway, this would be prudent planning to accommodate for future growth[14]. The cross section in Section 6.3.1.2 indicates Gillies Road has a reservation of 30m to 36m, which is wide enough to accommodate a four lane secondary arterial, with modifications.

  Alternatively, if Gillies Road is not duplicated in the future, this may increase traffic demand on east west roads (such as Cummins Road) to access the Midland Highway. When developing the expanded area PSP, consideration

[13] Gillies Road traffic is lower than currently observed, as the 2051 Base downgrades posted speeds from 80-100km/h to 60km/h which diverts most traffic back onto the Midland Highway. This provides a better reflection of the share of future traffic attributed to the PSP.

[14] It would also need widening of Gillies Road over and south of the Western Freeway, potentially to Ballarat Link Road

should be given to prioritising active travel and public transport movements to avoid any unnecessary duplications and minimise the traffic impacts on the external road network.

Around 95% of the future traffic on Gillies Road is attributed to the PSP, and most of the traffic that used the road prior to the PSP now seek alternate routes (such as the Midland Highway) as Gillies Road is no longer an 80km/h-100km/h rural arterial with limited intersections.

The STMA shows that the proposed road network within the PSP will be appropriate for the projected traffic volumes for both the Core Only and Core + Expanded scenarios. In addition, bus routes have been considered which provide connectivity through the PSP and connect to the two closest rail stations at Wendouree and Ballarat. Whilst minimal testing of bus routes was completed, some bus demand was still achieved. Further testing could help to optimise routes to the rail stations, encouraging public transport mode share.

The modelling results highlight that the main concern is external to the Ballarat North PSP at the three crossings of the Western Freeway at Howe Street, Gillies Road and the Midland Highway. Each of these is one-lane per direction with varying interchange configurations, and the most congested section of each interchange is the traffic crossing over the Western Freeway. These crossings are forecast to be at or approaching capacity during the AM and PM peak periods, which will ultimately lead to traffic delays.

The main comparative observations between the Base, Core Only and Core + Expanded are shown in Figure 5-1 to Figure 5-9, including daily volumes and volume to capacity (V/C) ratios. Table 5-3 provides a summary of the V/C ratio descriptions.

Table 5-3. Summary of V/C ratio descriptions

V/C ratio		Description
	< 0.4	Free flow, below 40% of capacity
	0.4 – 0.6	Free flow
	0.6 – 0.9	Mild congestion
	0.9 – 1.2	Heavily congested
	> 1.2	Complete breakdown

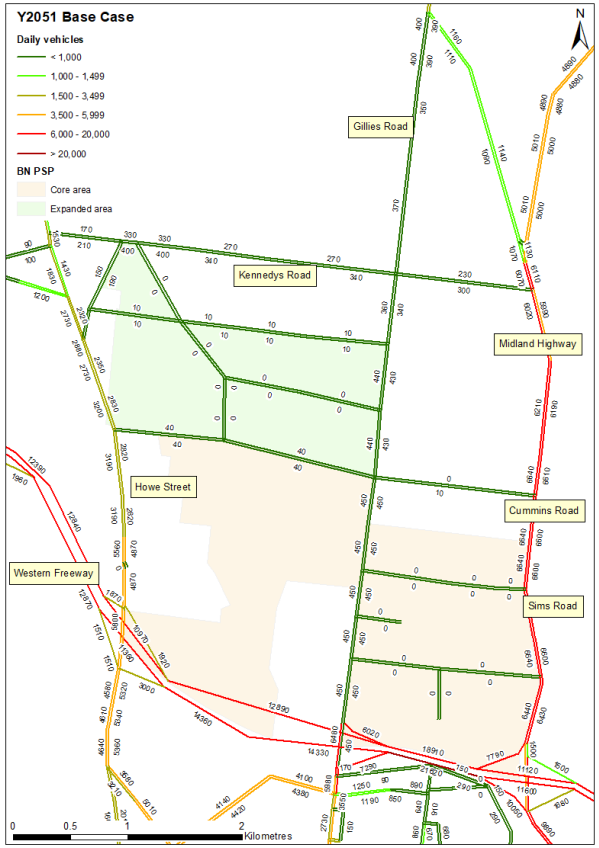


Figure 5-1. 2051 daily volumes – Base

The modelled Base transport network in the Ballarat North PSP.

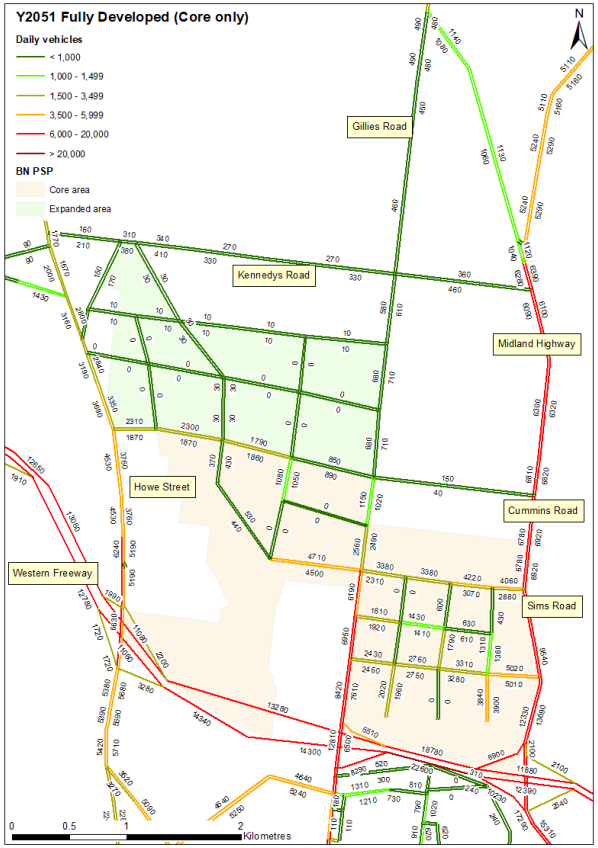


Figure 5-2. 2051 daily volumes – Core Only

The crossings of the Western Freeway (Howe Street, Gillies Road and the Midland Highway) are likely to be heavily congested by 2051.

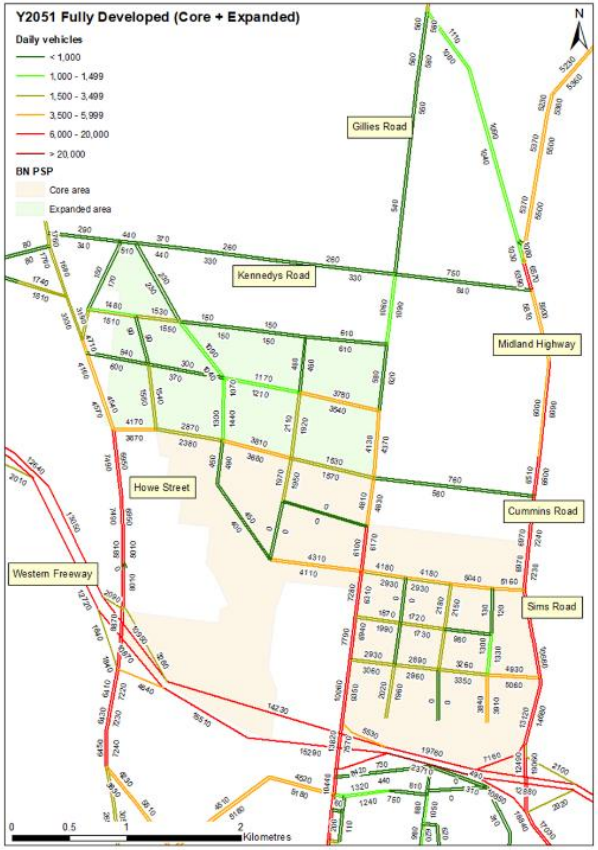


Figure 5-3. 2051 daily volumes – Core + Expanded

The crossings of the Western Freeway (Howe Street, Gillies Road and the Midland Highway) are likely to be heavily congested by 2051 and show higher traffic volumes compared to the Core Only.

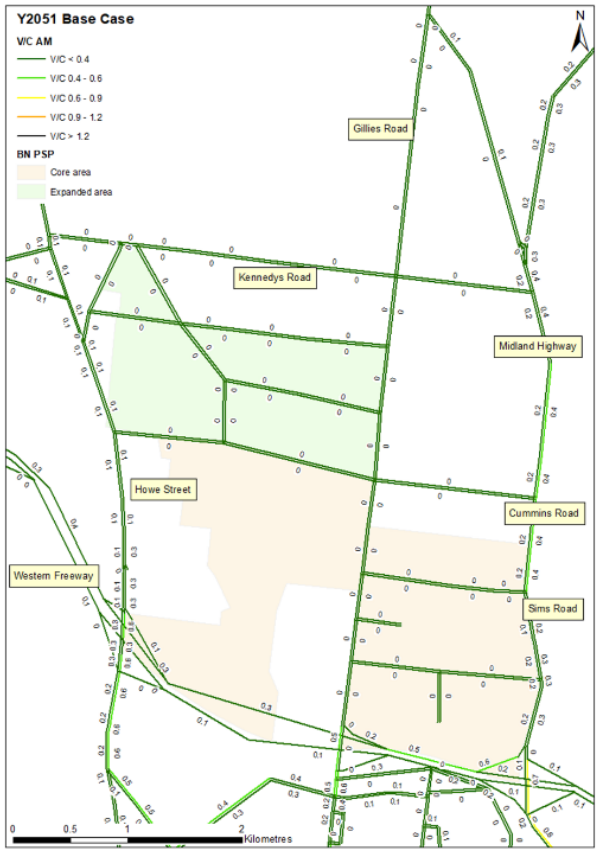


Figure 5-4. 2051 AM V/C ratios – Base

V/C ratios show free flow to mild congestion outside of the PSP network (V/C 0.1-0.7) on the Midland Highway, Gillies Road and Howe Street, however, capacity has not been exceeded.

Figure 5-5. 2051 AM V/C ratios – Core Only

The proposed PSP road network generally accommodates the increased traffic volumes. Outside of the PSP area, Midland Highway and Howe Street operate within capacity. The southbound direction of Gillies Road exceeds capacity and is heavily congested (V/C 1.1).

Figure 5-6. 2051 AM V/C ratios – Core + Expanded

As per the Core Only, the proposed PSP road network generally accommodates the increased traffic volumes, with free flow congestion (V/C 0.1-0.4). The expanded area also experiences free flow congestion (V/C 0.1-0.5). Outside of the PSP area, Howe Street experiences mild congestion, whilst the Midland Highway and Gillies Road are heavily congested. The southbound direction of Gillies Road exceeds capacity (V/C 1.1).

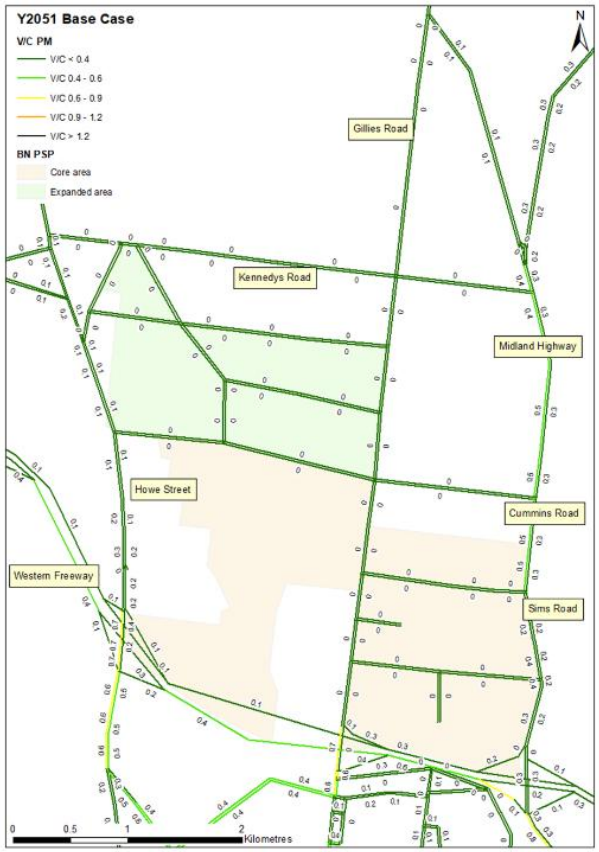


Figure 5-7. 2051 PM V/C ratios – Base

V/C ratios outside of the PSP network generally show patches of increased congestion in the northbound direction compared to the AM peak, although V/C ratios still show free flow to mild congestion (V/C 0.3-0.7).

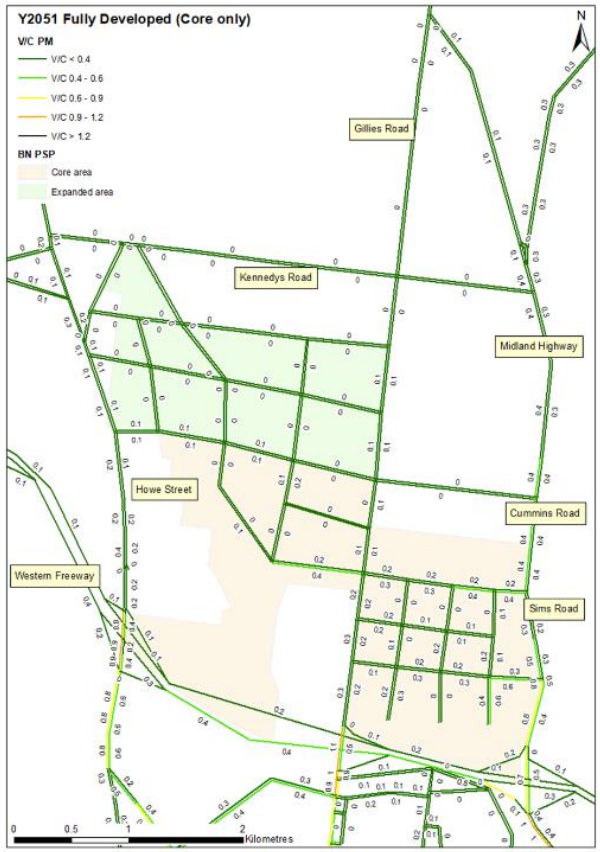


Figure 5-8. 2051 PM V/C ratios – Core Only

Congestion is higher than the AM peak, but V/C ratios within the PSP road network are generally free flow, with some mild congestion (V/C 0.1-0.6). Outside of the PSP network, Gillies Road southbound and Howe Street northbound are nearing capacity, Gillies Road northbound exceeds capacity and is heavily congested (V/C 1.1).

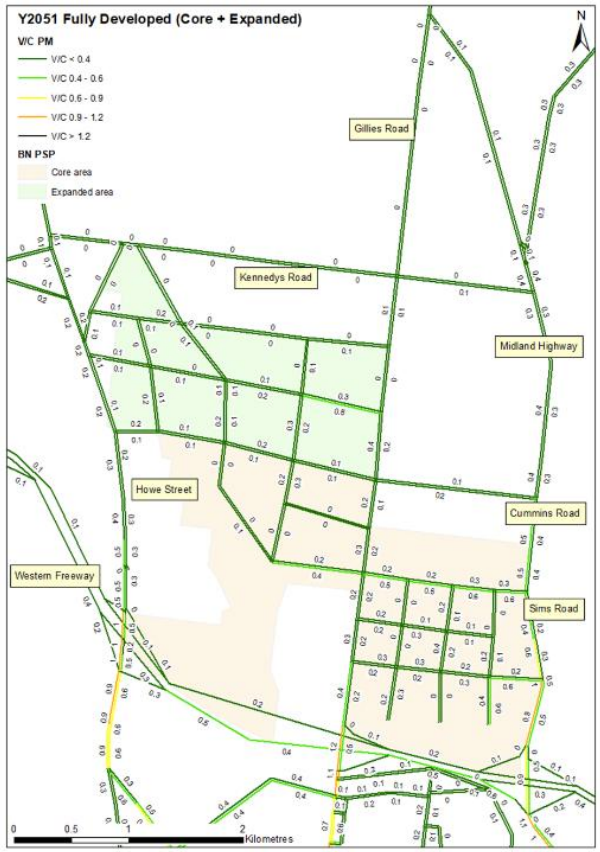


Figure 5-9. 2051 PM V/C ratios – Core + Expanded

Congestion is slightly higher than the Core Only. V/C ratios within the PSP road network are generally free flow, with some mild congestion (V/C 0.1-0.6). The expanded area experiences higher congestion than the AM peak but is still free flow (V/C 0.1-0.5). Outside of the PSP network, Midland Highway, Howe Street and Gillies Road are more heavily congested than the Core Only. Midland Highway northbound is nearing capacity, whilst Howe Street northbound and Gillies Road are at capacity or exceed capacity (V/C 1.0-1.2).

6. Proposed land use and transport plans

This section outlines the proposed land use and transport infrastructure included in the draft PSP.

6.1 Urban structure

Figure 6-1 outlines the proposed urban structure for the Ballarat North PSP. The overall focus of the PSP is to unlock a residential growth area, which is primarily designated for residential developments, open spaces, schools and a neighbourhood activity centre. The area will be linked by a network of arterial, connector and local roads.

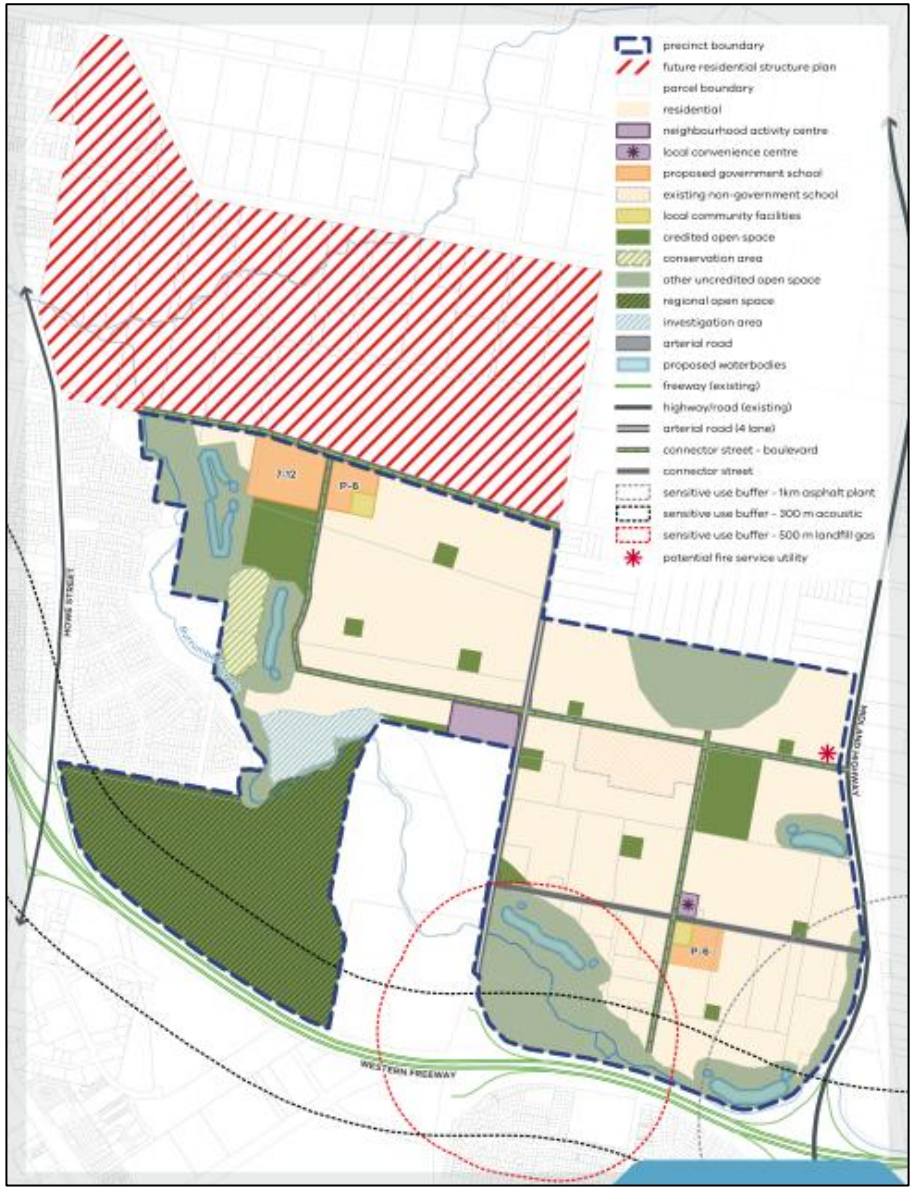


Figure 6-1. Urban structure (Source: VPA)

6.2 Movement network

6.2.1 Street hierarchy

As shown in Figure 6-1 and Figure 6-2, the proposed street network for the Ballarat North PSP area has a clearly defined hierarchy. Connector streets form the primary structure of the network, providing direct and efficient connections between key community destinations.

Arterial roads are designed to connect precincts to surrounding areas and key destinations, including employment centres, major retail areas, and regional transport hubs. Midland Highway and Gillies Road will provide efficient regional connectivity and accommodate higher traffic volumes. As a primary arterial, Midland Highway supports active transport through a separated off-road bicycle path. As a secondary arterial, Gillies Road includes off-road shared paths for both pedestrians and cyclists. Howe Street is also an arterial road, although this is outside of Ballarat North PSP area.

The connector street network links the Ballarat North PSP area to the arterial road network and is suitable to accommodate buses. Connector streets will also support active transport through separated off-road bicycle paths and pedestrian paths.

Local streets within the precinct prioritise internal movement. These streets are designed for lower speeds and volumes, emphasising pedestrian and cyclist comfort and safety.

The design of local streets will incorporate streetscape elements that reflect the desired character of the neighbourhoods, such as landscaping, street trees, and pedestrian-friendly features. This focus on local character will contribute to the creation of distinct and liveable communities within the PSP.

6.2.2 Intersections

The movement network plan shown in Figure 6-2 identifies six signalised intersections at the following locations:

- Howe Street/Cummins Road intersection
- Gillies Road intersections with Olliers Road, Sims Road and Cummins Road
- Midland Highway intersections with Olliers Road and Sims Road.

A high-level review of the modelled 2051 traffic volumes against the *Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management (Austroads 2020)* was completed to determine if signalisation of these intersections is likely to be required.

In the Core Only scenario, it is expected five of the noted intersections would warrant signalisation, with the Gillies Road/Cummins Road intersection likely not requiring this treatment.

However, signalisation of the Gillies Road/Cummins Road intersection may still be included to support future-proofing for the Core + Expanded PSP area, as modelled traffic volumes are high enough to trigger signalisation. Additionally, consideration may also be given to signalising the Cummins Road/Sims Road extension intersection. Whilst modelled traffic volumes for this intersection are relatively low in the Core Only scenario, they are expected to increase with the Core + Expanded scenario and may warrant an upgrade treatment.

6.2.3 Public transport

As per the Movement Network Plan (Figure 6-2), the Ballarat North PSP network is expected to include roads that are capable for bus use and facilitate efficient and accessible public transportation. Recognising the importance of providing viable alternatives to private vehicles and promoting sustainable travel, arterial and connector roads are expected to be bus capable.

Integration with the surrounding network is another key consideration, and the potential bus capable network should align with existing and planned regional transport infrastructure, as well as bus and rail services outside the PSP area such as Wendouree and Ballarat stations. This integration would support seamless transfers between different modes of transport and would help expand the reach of the public transport network, providing residents with access to employment (particularly the Ballarat west employment zone), education, and other opportunities across the wider region.

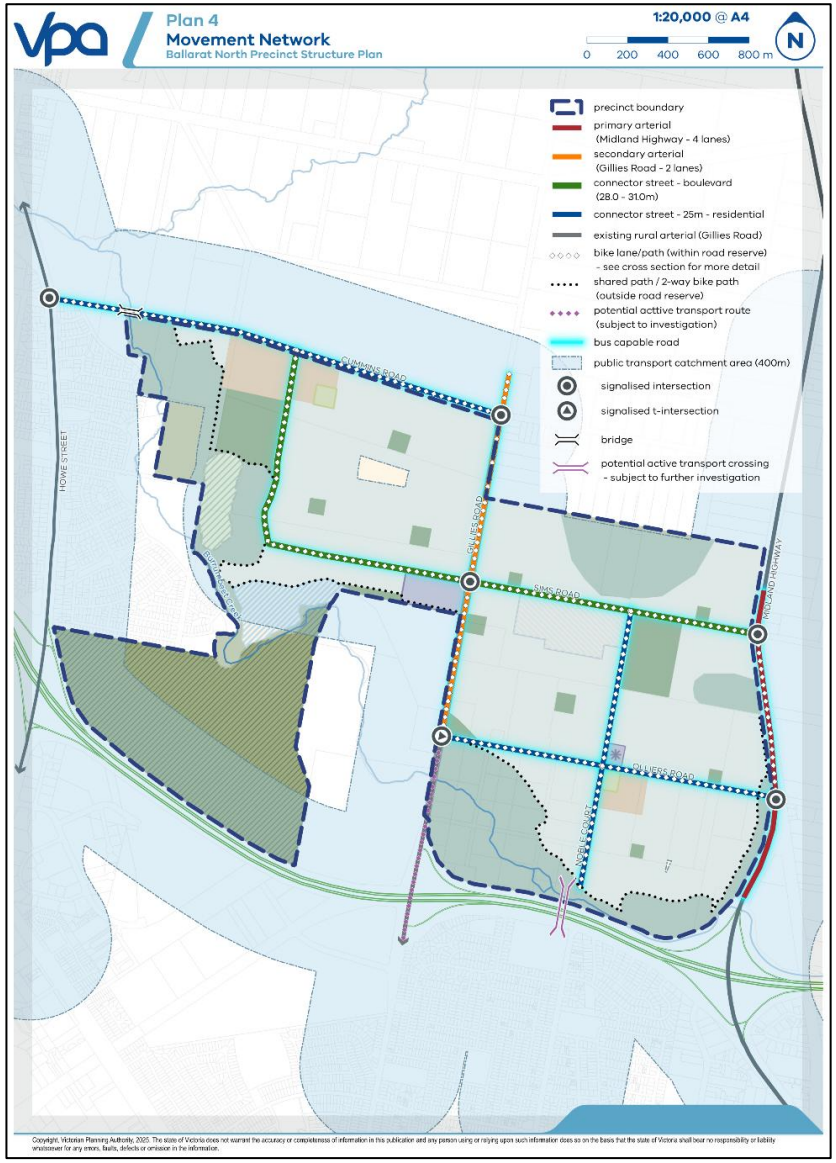


Figure 6-2. Movement Network Plan (Source: VPA) *(PLACEHOLDER)*

6.2.4 Active transport

As shown in Figure 6-2, the Ballarat North PSP prioritises active transport, recognising its crucial role in reducing traffic congestion, and enhancing community connectivity. The proposed active transport network envisions a comprehensive and integrated network of off-road bicycle paths within the road reserve, designed for commuting, education and recreational purposes. This network is carefully planned to connect key destinations within the precinct and integrate seamlessly with the surrounding environment.

Dedicated crossing facilities for pedestrians and cyclists should also be integrated throughout the network, including at intersections with key collector and arterial roads. Additional paths outside of the road reserve may be constructed as either off-road bicycle paths or off-road shared paths, as shown near Burrumbeet Creek in Figure 6-2.

Further investigation into the potential active transport crossings over the Western Freeway and Burrumbeet Creek at Forest Street, Gillies Road, Waterford Drive (Figure 6-3 and Figure 6-4) and Cummins Road. This would connect the active transport network in the precinct to the southern side of the Western Freeway and to the existing developments within Miners Rest (to the west). Providing this connection would further enhance the active transport network within the precinct by providing safe access to other key destinations, in Wendouree and Miners Rest, such as schools, parks, public transport and employment.

These dedicated off-road bicycle paths will form the backbone of the cycling network, providing efficient and protected routes between key community destinations such as schools, parks, community centres, local shops, and other nearby employment areas and activity centres. These proposed bicycle paths would offer a healthy and sustainable commuting alternative to driving and be integrated with the arterial roads and connector streets, including Cummins Road, Gillies Road, Sims Road, Olliers Road, Noble Court, and along part of the Midland Highway.

The PSP also provides an opportunity to facilitate a framework for micromobility and mobility hubs throughout the active transport network, such as to support e-bikes and e-scooters.

Figure 6-3. Burrumbeet Creek near Waterford Drive

Figure 6-4. Existing path between Waterford Drive and Burrumbeet Creek

6.2.5 Mobility hubs

Mobility hubs are next generation transport hubs where both public and private transport mode parking can be co-located, providing efficient interchange, accessibility, and visibility of sustainable mobility options. They aim to improve utilisation of sustainable modes and reduce car ownership within communities. Mobility hubs typically contain three core functions as presented in Figure 6-5.

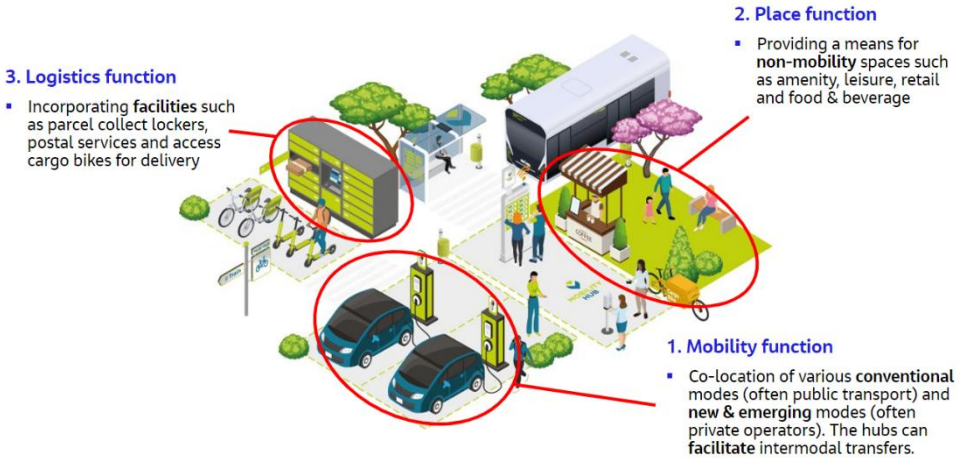


Figure 6-5. Mobility Hub Functions (Source: CoMo UK)

Mobility hubs are most effective when they operate as part of a network of hubs providing shared mobility options. This allows users to begin their journey at one hub and trust that they can end their journey at another. Mobility hubs serve different purposes for their community respective of their location and surrounding land use.

Mobility hubs are located close to residential homes within suburban areas or at community facilities. These are intended to help users access regularly scheduled public transport services and shared mobility options to encourage a reduction in car ownership and usage. Shared micromobility options facilitate local trips and first and last mile access to stations, by offering an alternative to limited local public transport. Car share schemes offer an alternative to private car usage for longer trips outside of the precinct.

The provision of transport modes can be flexible depending on the needs of the area and the surrounding infrastructure. If well-connected cycle paths are in vicinity of the proposed location, the provision of shared bikes/e-scooters would be recommended, which could occur through Council expanding the e-scooter riding area into the Ballarat North PSP after the PSP has been gazetted. Further investigation into the potential upgrades of cycling infrastructure outside of the PSP is recommended to provide a well-connected network. Alternatively, the hub could place more of an emphasis on car share facilities.

The sites do not need significant space or many amenities to accommodate crowds or wait-times, but they should include amenities and design features that make the hub attractive and compelling to encourage longer-term mode shift. Mobility hubs have the potential to be incorporated into community facilities or an activity centre. A list of recommended mobility hub components include:

- Bike share
- E-scooter share
- Electric vehicle charging
- Car share
- Linked with proposed open space and community facilities within the PSP.

An example of a mobility hub is presented in Figure 6-6.

Figure 6-6. Example Mobil.Punkt Hub in Bremen (left) and Mobility Hub near Exeter (right)

6.3 Cross sections and intersection layouts

6.3.1 Arterial

6.3.1.1 Primary arterial (Midland Highway)

The proposed cross-section for Midland Highway is shown in Figure 6-7. As a four-lane primary arterial, it balances high traffic capacity with multi-modal accessibility. A four-lane carriageway (two lanes in each direction) with a central median supports efficient vehicle flow. The central median is expected to include safety barriers on either side. A dedicated off-road segregated bicycle path on one side of the highway (ideally on the western side) provides safe cycling infrastructure. The cross-section also shows nearby local frontages within the PSP on one side of the highway, which would include 1.5m-wide pedestrian paths. Nature strips are designed to incorporate street trees with a minimum mature height of 15m.

Figure 6-7. Primary arterial cross section, Midland Highway – 60m (Source: VPA)

6.3.1.2 Secondary arterial (Gillies Road)

The proposed cross-section for Gillies Road is shown in Figure 6-8. As a two-lane secondary arterial, it balances traffic capacity with multi-modal accessibility. A two-lane carriageway (one lane in each direction) supports efficient vehicle flow. Wide 3m off-road shared paths are included on either side of the road. The cross-section also shows nearby local frontages within the PSP on both sides of the road, which would include additional 1.5m-wide pedestrian paths. Nature strips are designed to incorporate street trees with a minimum mature height of 15m.

The shared path north of the Olliers Road intersection is on the PSP development side of the road as a minimum. South of the Olliers Road intersection, this is only included on the west side of Gillies Road.

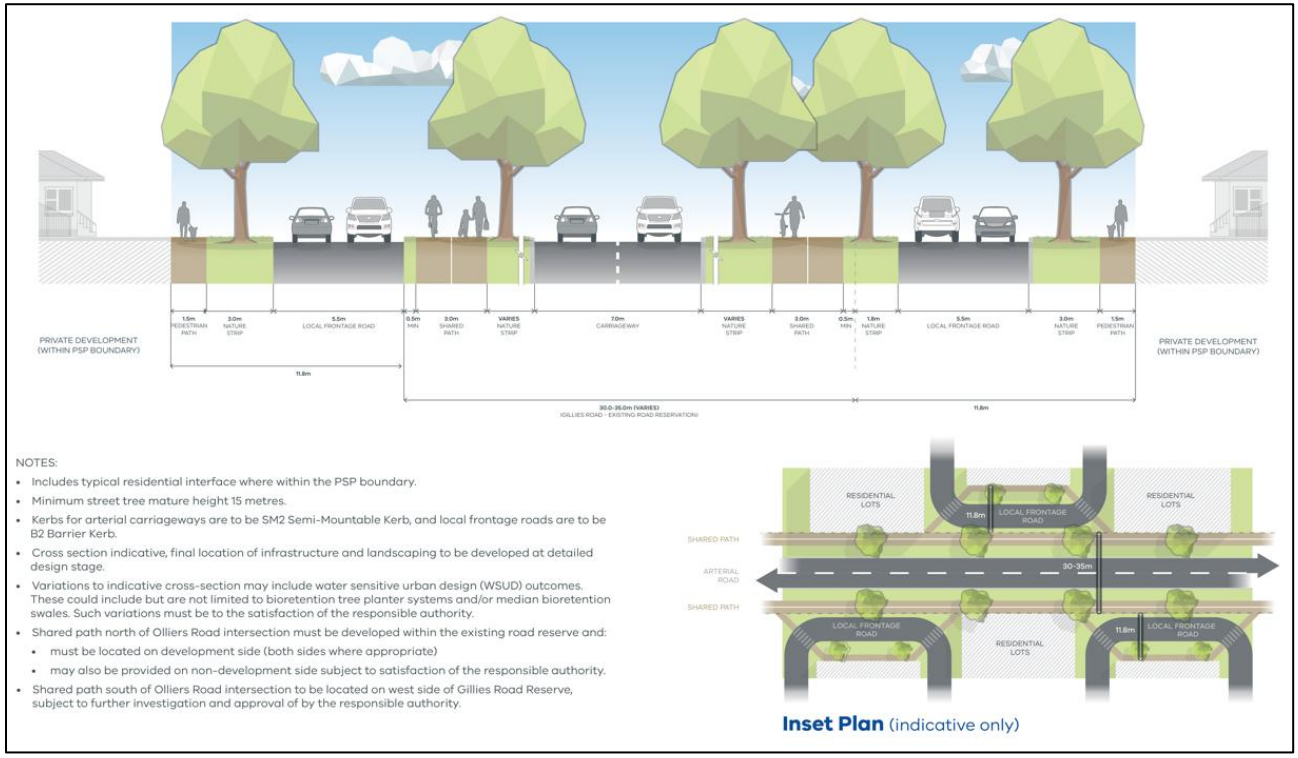


Figure 6-8. Secondary arterial cross section, Gillies Road – 30-35m (Source: VPA)

6.3.2 Connector

6.3.2.1 Connector street

The connector street cross-section (Figure 6-9) prioritises a balanced approach, integrating various transport modes while emphasising green infrastructure and pedestrian amenity. A single carriageway, designed for lower speeds, efficiently manages traffic flow for local vehicles. A separated, off-road bicycle path provides a safe and comfortable cycling environment, encouraging active transport for both commuting (work and education) and recreation. A generous nature strip, planted with street trees, buffers the path and carriageway.

In addition, a 2.1m wide parking lane either side of the carriageway will accommodate on-street parking needs.

Olliers Road, Noble Court, and Cummins Road will be designated as connector streets in the PSP.

Consideration should be given to provide protected right turn lanes at key junctions and a narrow-painted median between opposing lanes to provide greater delineation for opposing traffic.

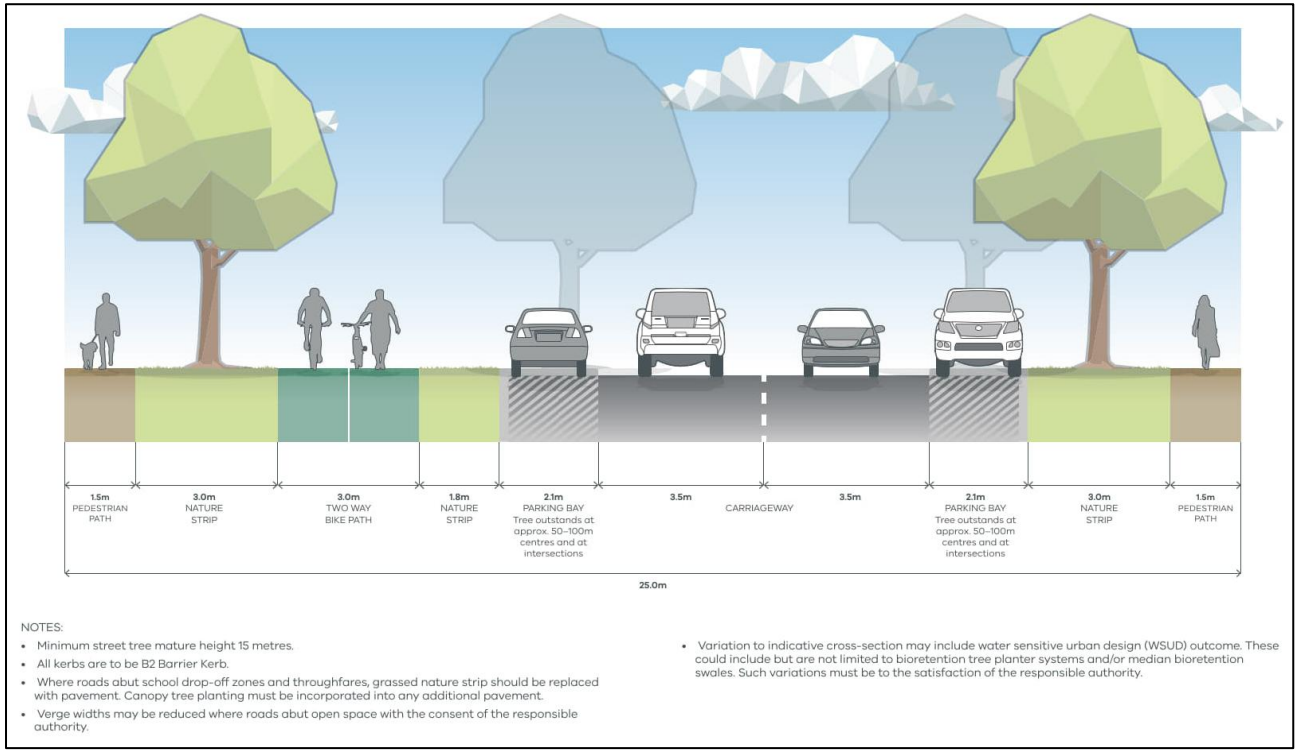


Figure 6-9. Connector street cross section - 25m (Source: VPA)

6.3.2.2 Connector street boulevard

The connector street boulevard cross-section (Figure 6-10) is similar to the connector street shown in Section 6.3.2.1, but with the addition of a 3-6m central median to create a boulevard effect. A single carriageway, designed for lower traffic volumes and speeds, efficiently manages local traffic flow. A separated, off-road bicycle path provides a safe and comfortable cycling environment, encouraging active transport for both commuting (work and education) and recreation. A generous nature strip, planted with street trees, buffers the path and carriageway.

Sims Road will be designated as a connector street boulevard in the PSP.

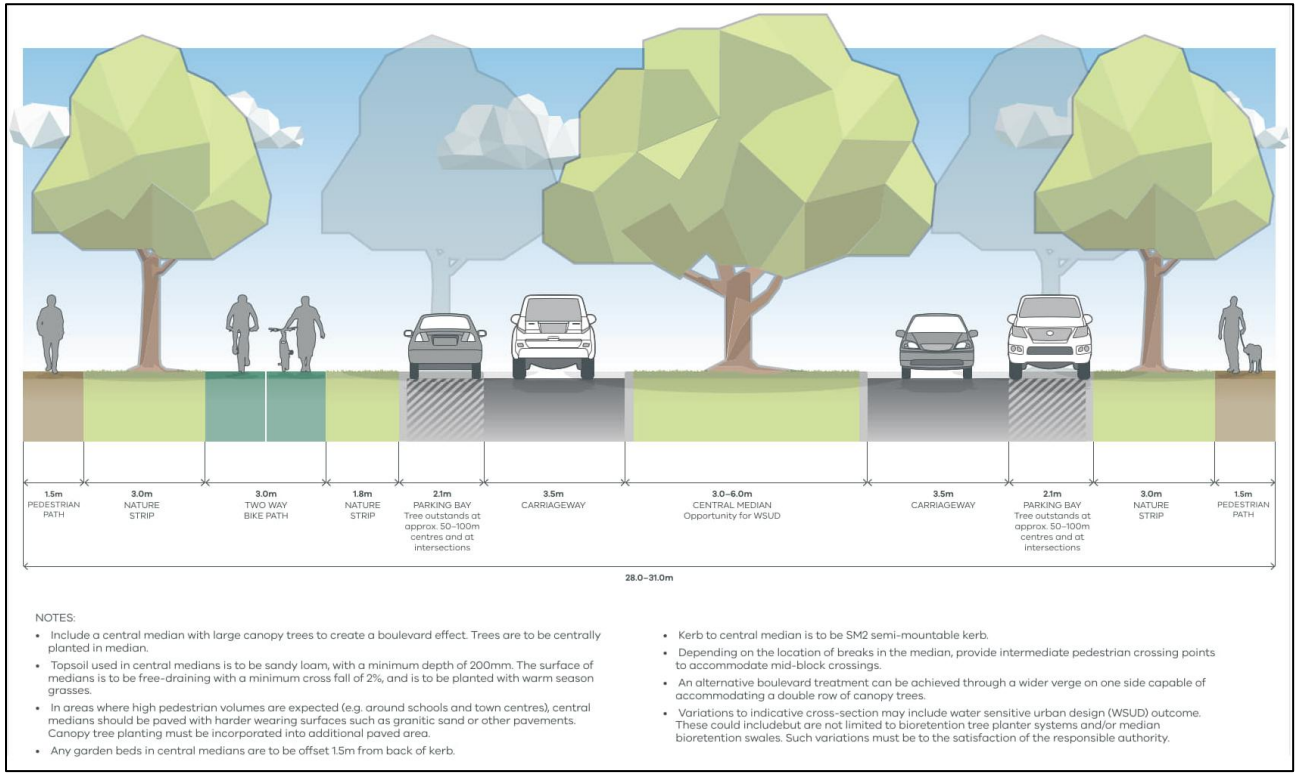


Figure 6-10. Connector street boulevard cross section – 28-31m (Source: VPA)

6.3.3 Local

6.3.3.1 Local access street

The local access street (Figure 6-11) features a 7.6m carriageway designed to facilitate two-way traffic flow while also accommodating on-street parking on both sides. This carriageway width is intentionally dimensioned to be appropriate for the anticipated low traffic volumes typical of local access streets, discouraging higher speeds and prioritising a safe and pedestrian-friendly environment. The narrower carriageway, coupled with the potential for on-street parking, naturally encourages drivers to reduce their speed, creating a more comfortable and safer environment for residents, pedestrians, and cyclists.

This design philosophy recognises that local access streets primarily serve residents and prioritise local circulation rather than high-volume through traffic. Generous 3.7m nature strips, designed to incorporate street trees with a minimum mature height of 12m separate the carriageway from 1.5m-wide pedestrian paths.

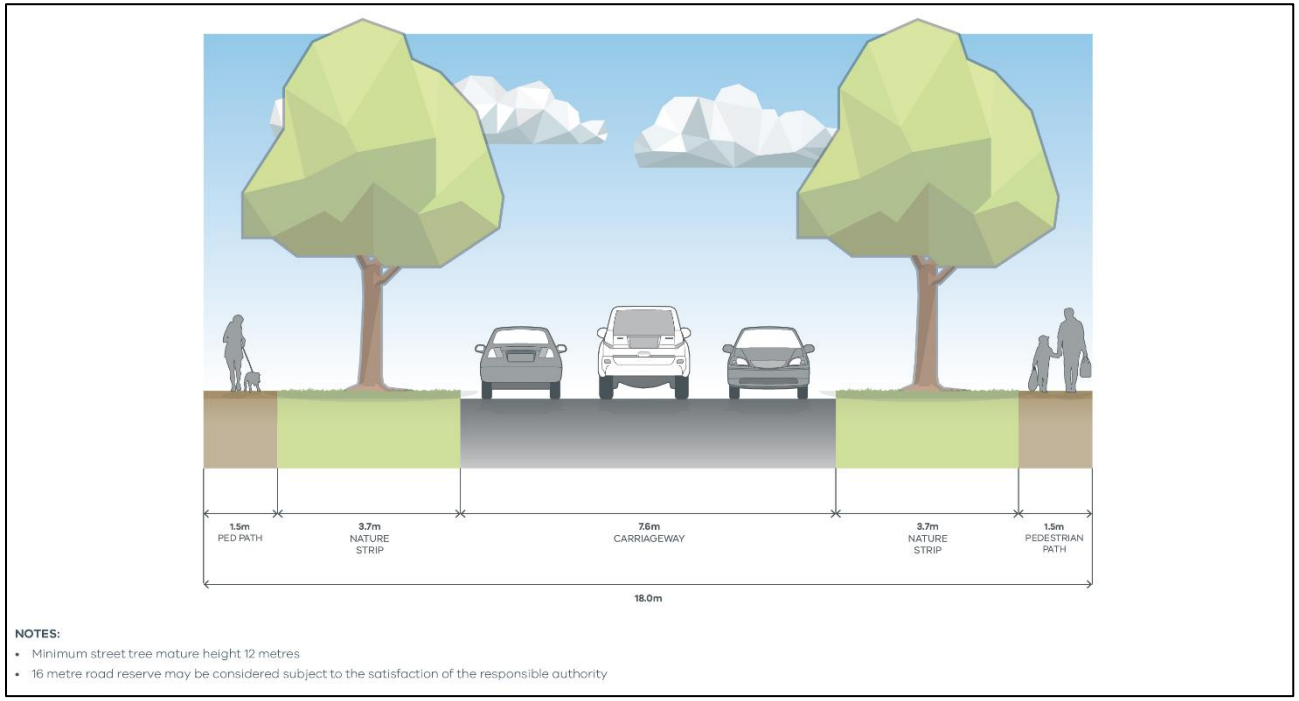


Figure 6-11. Local access street cross section - 18m (Source: VPA)

6.3.3.2 Local access street (level 2)

The local access (level 2) street (Figure 6-12) features a 20m design prioritising local traffic and pedestrian amenity within residential areas. A 6m carriageway facilitates two-way vehicle movements, complemented by 2.3m-wide parking bays on either side to accommodate on-street parking needs. Generous 3.2m nature strips, designed to incorporate street trees with a minimum mature height of 12m separate the parking bays from 1.5m-wide pedestrian paths. All kerbs are specified as B2 Barrier Kerb. The design allows for potential reductions in verge widths where roads abut open space, subject to approval, providing flexibility in site-specific applications.

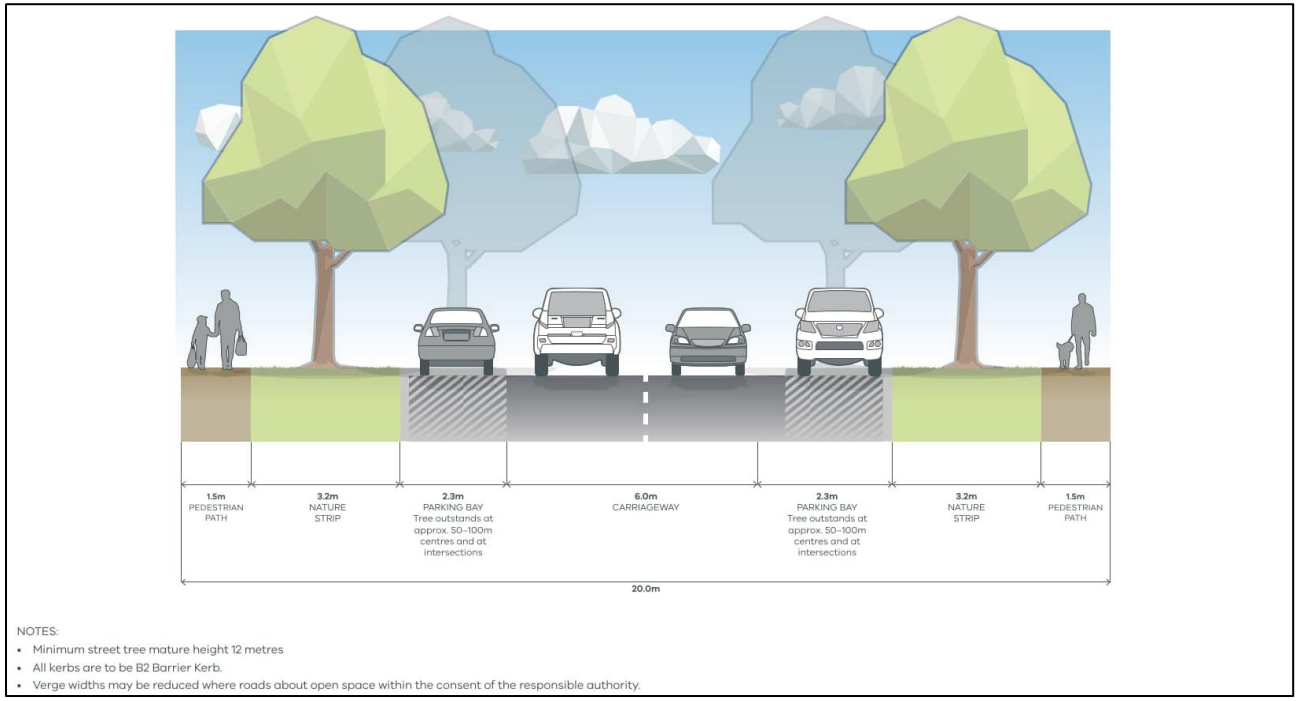


Figure 6-12. Local access street (level 2) cross section - 20m (Source: VPA)

6.3.3.3 Local access street (Burrumbeet Creek Interface)

The local access street interfacing with Burrumbeet Creek (Figure 6-13) features a 7.3m carriageway designed to facilitate two-way traffic flow while also accommodating on-street parking on both sides. This carriageway width is intentionally dimensioned to be appropriate for the anticipated low traffic volumes, typical of local access streets, discouraging higher speeds and prioritising a safe and pedestrian-friendly environment.

The provision of a separated 3m off-road shared path further enhances pedestrian and cyclist safety and encourages active transport as a travel option for both recreation and commuting.

Additionally, there are 2.8m nature strips on both sides of the street, designed to incorporate street trees with a minimum mature height of 12m, and separate the carriageway from the adjacent shared path and pedestrian path. All kerbs are specified as B2 Barrier Kerb.

The interface includes an overall minimum width of 17.4m, and considers a buffer from bushfire hazards along the Burrumbeet Creek corridor.

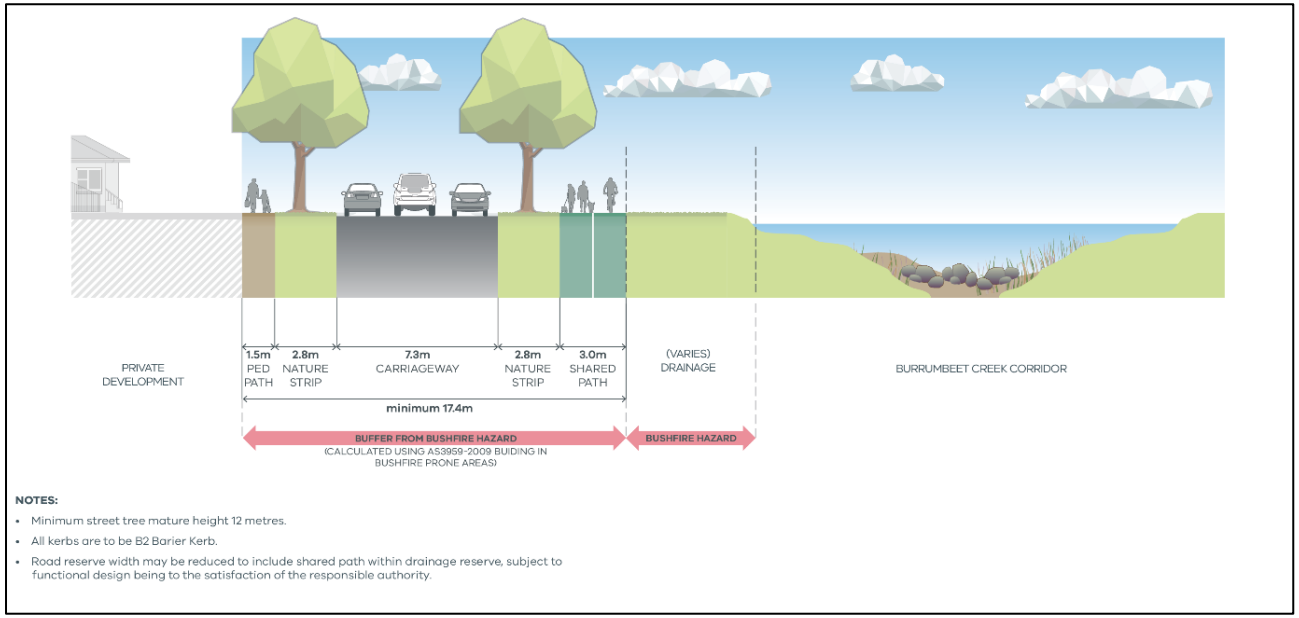


Figure 6-13. Local access street, Burrumbeet Creek Interface – 17.4m (Source: VPA)

7. PSP Guidelines alignment assessment

This chapter provides an assessment of the PSP against the features, principles, and targets outlined in VPA's *Precinct Structure Planning Guidelines: New Communities in Victoria (October 2021*). This has been used in conjunction with VPA's *Guidance note: Applying the PSP Guidelines in regional areas (2021).* Together, the guidelines establish a framework for creating sustainable, liveable, and well-connected communities within growth areas.

This assessment examines how the proposed PSP aligns with the key principles and best practices promoted by the guidelines, focusing on areas such as integrated transport planning, walkable neighbourhoods, activity centres, community facilities, and environmental sustainability. The analysis will identify strengths and opportunities for improvement within the PSP, supporting effective delivery on the vision for creating thriving new communities in Victoria. Key features of the PSP Guidelines related to transport planning are discussed in Table 7-1.

Table 7-1. PSP Guidelines features related to transport planning

Description/inclusion of PSP Guidelines feature in Ballarat North PSP
Safe streets and spaces (Feature 4) As shown in Section 6, the Ballarat North PSP is proposed to include features that support safe spaces and accessible facilities. This will include an integrated active transport network through dedicated pedestrian and cycle paths, street tree planting and landscaping, integration with public transport, and the connection to key destinations.
Movement and Place (Feature 5) The Ballarat North PSP proposes a street hierarchy that responds to the varying land uses and transport functions within the precinct. Arterial roads are designed for higher traffic volumes, regional connectivity, supporting the movement function. Connector streets prioritise access throughout the precinct, facilitating connectivity within the residential neighbourhoods and emphasising the "place" function. Arterial roads and connector streets support some level of active transport utilisation and bus capability. Local streets are designed to support pedestrian activity and cyclist movements, further reinforcing the "place" aspect. The proposed development, with its new collector roads and enhanced pedestrian and cycling infrastructure (including off-road paths, shared paths, and street trees), offers the opportunity to significantly improve active transport amenity. A network of bus capable roads are proposed that extend across all arterial and collector roads in the PSP.
Walkability and safe cycling networks (Feature 6) The Ballarat North PSP incorporates elements that respond to the site context and promote walking and cycling. The proposed street hierarchy (arterials, connectors and local streets) reflects an understanding of the different functional roles these streets play. Dedicated off-road bicycle paths along connector streets provide a safe and efficient cycling network, connecting key destinations and supporting longer journeys by bicycle. The landscaping treatments, including street trees and nature strips, contribute to a more pleasant and inviting pedestrian environment. The cross-sections presented in Section 6 illustrate how these elements are integrated into the street design, creating a greener and more comfortable public realm. The inclusion of shared paths/two-way bicycle paths outside the road reserve near Burrumbeet Creek is an example of how the active transport network is integrated with the natural environment.
Public transport (Feature 7) The Ballarat North PSP recognises the importance of public transport as a preferred mode when walking or cycling are not feasible. The PSP demonstrates this commitment to enabling effective bus services by designating all arterial and connector streets as bus-capable roads, facilitating convenient access to public transport for residents and students. There are existing limitations of public transport in the area, with infrequent bus services and a distant train station. However, the PSP's bus-capable road network presents a significant opportunity to improve public transport options and promote it as a viable alternative to private vehicles, especially for longer trips. The planned bus network, with the potential for connection to the Ballarat and Wendouree rail stations, will be critical in realising this goal.
Well-connected to public transport, jobs & services within the region (Feature 8) The Ballarat North PSP is focused on developing residential and community spaces. The inclusion of bus-capable roads across a significant portion of the proposed road network within the PSP is expected to support access to other key employment and activity centres nearby, particularly to the south.
Local employment opportunities (Feature 9) The Ballarat North PSP does not directly focus on dedicated employment areas, although it provides connectivity to other key activity centres nearby, particularly to the south. Crucially, the planned integration the proposed public and active transport networks within the Ballarat PSP area, including bus-capable roads and dedicated bicycle paths, is crucial for supporting accessibility for residents to employment zones.
Green streets and spaces (Feature 11) The Ballarat North PSP includes the addition of public infrastructure to create safe, comfortable, high-amenity, and resilient environments for all. As shown in Section 6, this includes potential landscaping treatments as well as the addition of infrastructure to support pedestrians and cyclists.

Additionally, key PSP targets relating to transport planning are identified in Table 7-2. As noted in the PSP guidance note, targets may be adapted to address the specific growth direction and development context of the Ballarat North PSP.

Table 7-2. PSP Guidelines targets related to transport planning

PSP Guidelines target	Description/inclusion in Ballarat North PSP
Arterial road network (Target 5) *The arterial road network should provide a 1.6km road grid with safe and efficient connections that is adjusted for the local context.*	The Ballarat North PSP proposed arterial road network, while not strictly adhering to the 1.6km grid target, considers the specific local context. The grid approach will likely be adopted for the main development areas of the Ballarat North PSP on either side of Gillies Road, creating multiple smaller grid areas within the site to achieve the target. Whilst an overall 1.6km grid may not be strictly adhered to, most of the development areas are located within the bounds of arterials such as Gillies Road and the Midland Highway, as well as the Western Freeway and Howe Street. Large areas within this precinct are also identified for open spaces along Burrumbeet Creek, schools and the community centre, and the residential areas are generally close to the arterial roads.
Off-road bicycle paths (Target 6) *Bicycle paths should be provided on all connector streets and arterial roads, connecting where possible with the Principal Bicycle Network and Strategic Cycling Corridors.*	The Ballarat North PSP demonstrates a strong commitment to active transport by proposing off-road bicycle paths on all connector streets and arterials, which is a positive outcome that will provide safe and convenient cycling routes within the precinct.
Footpaths (Target 7) *All streets should have footpaths on both sides of the reservation.*	The Ballarat North PSP achieves this target as the plans indicate that footpaths are provided on both sides of the road reserve for all road types within the precinct.
Pedestrian and cyclist crossings (Target 8) *Pedestrian and cyclist crossings should be provided every 400-800m where appropriate for arterial roads, rail lines, waterways and other accessibility barriers.*	Signalised pedestrian crossings are generally proposed at key intersections along Gillies Road and the Midland Highway, with an approximate spacing of 800m. Whilst the Ballarat North PSP does not identify crossings for local roads, further details on these roads would be identified at the permit stage. To fully comply with this target, additional crossings may be considered with closer spacings.
Access to public transport (Target 9) *95% of dwellings should be located within either:* ▪ *800m to a train station* ▪ *600m to a tram stop* ▪ *400m to a future bus route or bus capable road.*	The Ballarat North PSP addresses this target through the provision of bus-capable roads that are less than 400m from a majority of the precinct. Currently, the nearest rail stations of Ballarat and Wendouree are significantly beyond the 800m target for dwellings. Therefore, reliance on rail to meet this target is not feasible in the current or reasonably foreseeable planned scenario. Bus-capable roads are planned to cover a significant portion of the proposed road network within the PSP, including arterial roads and all connector streets. This comprehensive coverage of bus-capable roads aims to maximise accessibility to public transport for residents and support sustainable travel choices.

8. Conclusion

This Integrated Transport Assessment Report (ITAR) has provided a comprehensive evaluation of the proposed transport network for the Ballarat North Precinct Structure Plan (PSP). The assessment has considered the PSP's alignment with relevant state and local policies, including *Precinct Structure Planning Guidelines: New Communities in Victoria, Plan for Victoria,* and the *City of Ballarat Growth Areas Framework Plan.* The Ballarat North PSP is designated primarily for residential land use to the north of the Western Freeway in Ballarat. While the PSP demonstrates several positive features, including a hierarchical road network, provision for bus-capable roads, and a dedicated active transport network, there are both challenges and opportunities for creating a sustainable and integrated transport system.

The dominant car dependence in the surrounding area, coupled with existing inadequate public transport and deficient active transport infrastructure, presents a significant challenge. Addressing these issues will require a concerted effort (from Council, the State Government and private developers) to promote mode shift through prioritising public transport enhancements and an active transport network that is safe, convenient, and well-connected after the PSP is gazetted and development commences. The Western Freeway to the south of the PSP area necessitates careful planning of safe and efficient crossings for all modes.

The Ballarat North PSP offers a unique opportunity to implement best practices in transport planning from the outset. Key opportunities of the PSP include:

- **Greenfield Advantage:** Offers a clean slate for sustainable transport network planning and implementation.
- **Mode Shift:** Opportunity to incentivise a shift from car dependency to public transport, walking, cycling and micromobility.
- **Public Transport Enhancement:** Potential bus routes to Wendouree Station and Ballarat Station could significantly improve public transport access.
- **Active Travel Promotion:** Developing off-road cycling/pedestrian infrastructure can encourage active travel.
- **Land Use/Transport Integration:** The PSP process enables integrated planning, promoting 20-minute neighbourhoods.
- **Inclusion of education and open spaces:** The residential developments within the PSP can be supported by local schools, open spaces, community facilities and a neighbourhood activity centre.
- **Proximity to strategic industrial precinct:** The Ballarat West Employment Zone provides an opportunity for Ballarat North residents to work locally, reducing out-of-area commutes.

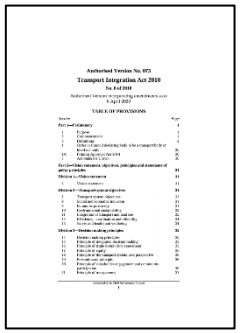
The assessment against the Precinct Structure Planning Guidelines demonstrates that the PSP generally aligns with the key features and targets. The PSP's provisions for active transport support walkability and cycling. The designation of arterial roads and connector streets as bus-capable will allow for improved public transport accessibility. The proposed arterial road network, while not strictly adhering to the 1.6km grid target, reflects a considered approach that responds to the local context. Similarly, the provision of footpaths on both sides of streets aligns with accessibility targets. The following findings are based on an assessment of the proposed PSP against the Precinct Structure Planning Guidelines.

- **Road Network:** The proposed hierarchical network is sufficient to accommodate anticipated traffic volumes. The expanded PSP area will require a review when the PSP is developed, although future-proofing should be considered in the development of the PSP.
- **Public Transport:** Arterial roads and connector streets are bus-capable. Detailed planning for routes, frequencies, stops, and regional integration is crucial, particularly with the Ballarat West Employment Zone, Wendouree and Ballarat stations, and schools both within and near the PSP area.
- **Active Transport:** Off-road bicycle paths are proposed along all arterial roads and connector streets. All residents are generally within 400m of dedicated cycling infrastructure. Signalised pedestrian crossings are generally proposed at key intersections along Gillies Road and the Midland Highway, with an approximate spacing of 800m, although consideration should be given for additional pedestrian and cyclist crossings. An active transport crossing is proposed to the south of the PSP over the Western Freeway.
- **Cross Sections/Intersections:** Cross-sections include street trees, parking, and nature strips. Detailed intersection designs are required for safe pedestrian/cyclist crossings.

Appendix A. Policy review

A.1 State and regional

A.1.1 Transport Integration Act (2010)



Key Takeaways:

The Act providing clear vision statement, objectives, principles and statements of the policy principals regarding transport systems and decision-making principles.

- The Act priorities social and economic inclusions, economic prosperity, sustainability, efficiency and safety within transport system objectives.
- Decision making principles consider the triple bottom line assessment; equity, transport system user perspectives, precautionary principles and stakeholder/community engagement.

A.1.2 Plan for Victoria (2025)

Key takeaways:

Plan for Victoria was released in early 2025. This new plan guides housing growth and development across the state, and its policies are highly relevant to this ITAR. Key themes from the document indicate a focus on:

- **Employment Proximity:** Fostering local job opportunities within a regionally significant industrial precinct, integrated with transport networks.
- **Sustainable Transport:** Promoting active and public transport to reduce private vehicle reliance, leading to efficient multi-modal solutions.
- **Regional Growth:** Aligning with regional planning for sustainable employment area growth in Ballarat, Bendigo and Geelong.

This assessment considers the direction of the new plan, particularly regarding the integration of housing with transport, access to services, and the promotion of sustainable communities.

A.1.3 Department of Transport Strategic Plan (2024-2028)

Key Takeaways:

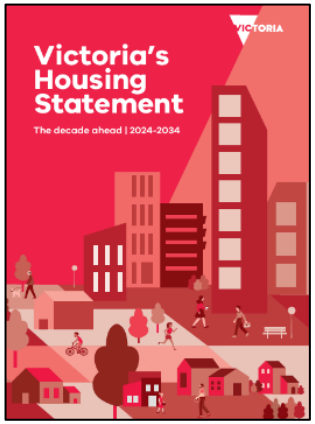
The Department of Transport and Planning (DTP) Strategic Plan 2024-2028 prioritises:

- Integrated transport networks connecting people and opportunities, especially in growth areas.
- Safe, accessible, and inclusive transport for all users.
- Sustainable and efficient travel, promoting public transport and active modes.
- Meeting the needs of a growing state through strategic infrastructure investment.
- Modernising the network with technology and data.
- Partnerships and collaboration for better outcomes.

The development of the Ballarat North PSP and transport connections as detailed within this ITAR contributes to the implementation of the Strategic Plan 2024-28 priorities. The ITAR sets the direction for the growth area including safer, more sustainable, accessible and inclusive transport facilities for all users.

A.1.4 Victoria's Housing Statement (2024-2034)

Key Takeaways:



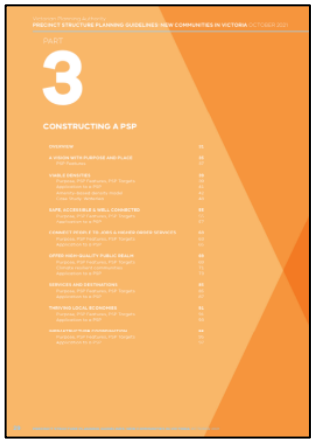
The Victorian Housing Statement 2023-24 emphasises increasing housing supply and affordability, with key themes relevant to this Ballarat North PSP:

- **Supply and Growth Areas:** Focus on delivering more homes, particularly in growth areas, requiring integrated planning of housing and infrastructure, including transport.
- **Affordability:** Aims to improve affordability through various measures, influencing the type and location of housing, and thus travel patterns.
- **Planning Reforms:** Streamlining planning processes and zoning reforms can impact density and urban form, influencing transport demand and mode choice.
- **Infrastructure Contributions:** The statement addresses infrastructure contributions, potentially impacting funding for transport infrastructure in new developments.
- **Social Housing:** Investment in social housing may influence the location and accessibility needs of residents, including their reliance on public transport.
- **Regional Growth:** Focus on regional housing growth necessitates consideration of inter-regional transport connectivity.
- **Building Better Apartments:** Design standards for apartments can affect density and walkability, influencing local transport patterns.

The Ballarat PSP is estimated to accommodate up to 25,000 people in both the core and expanded areas. The area north of Cummins Road will remain as a farming zone until additional greenfield and urban land is required, in which the PSP boundary is extended. The estimated population capacity is 7,300-9,800 within this additional area. The Ballarat PSP directly contributes to the implementation of the Housing Statement 2024-2034.

A.1.5 Precinct Structure Planning Guidelines: New Communities in Victoria (2021)

Key Takeaways:



This document sets the overall direction for PSP development in Victoria, prioritising the creation of sustainable and well-connected communities. For the Ballarat North PSP, the most critical elements are:

- Integrated Planning: Strong emphasis on integrating land use and transport from the initial stages of planning.
- Movement & Place: Application of the Movement and Place framework to balance the movement of all modes of transport (including pedestrians, cyclists, public transport, freight and private vehicles) with street amenity.
- Active Transport: Requirement for safe and convenient walking and cycling networks connecting key destinations.
- Public Transport: Focus on accessible and frequent public transport, integrated with land use and regional networks.
- Community Facilities: Supporting easy access to community infrastructure via sustainable transport.

A.1.6 Victorian Planning Authority Benchmark Infrastructure Report (2019)

Key Takeaways:

This report establishes benchmarks for infrastructure provision in new communities, including transport infrastructure. The Ballarat North PSP should consider:

- Road Standards: Benchmarks for road widths, pavement, and intersections.
- Public Transport: Guidance on bus stops and other public transport infrastructure.
- Active Transport: Standards for bike paths, shared paths, and pedestrian crossings.
- Community Infrastructure: Benchmarks for parking and bicycle parking at community facilities.

A.1.7 Victorian Planning Authority Precinct Structure Planning Guidelines – Precinct Structure Planning (PSP) Note – Our Roads: Connecting People (2021)

Key Takeaways:

This document provides more specific guidance on road network design within PSPs. The ITAR considers:

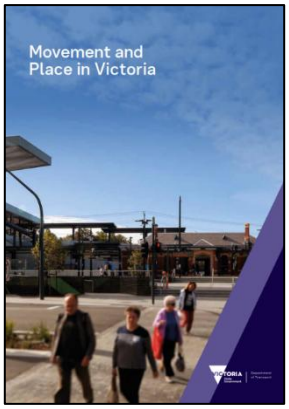
- Road Hierarchy: Principles for establishing a clear and functional road hierarchy.
- Connectivity: Importance of good connectivity within the PSPs and to surrounding areas.
- Street Design: Guidance on street cross-sections and intersection design.
- Mode Integration: How roads should integrate with public transport, active transport, and freight.

A.1.8 Victoria's Bus Plan (2021)

Key Takeaways:

- Victoria's Bus Plan outlines a roadmap for reforming the state's bus network to be simpler, faster, cleaner, and more customer-focused.
- Network Reform: Introduces new route categories (Rapid, Connector, Local, School) to clarify service roles and improve efficiency.
- Zero Emissions Commitment: All new buses from 2025 will be zero-emission, supported by a $20 million trial.
- Customer Experience: Focus on real-time data, all-door boarding, and improved interchanges to enhance usability.
- Growth Area Relevance: Emphasises the role of buses in connecting new communities, such as Ballarat North, to employment, education, and services.
- Integration with Big Build Projects: Aligns bus planning with major infrastructure investments like the Suburban Rail Loop and Metro Tunnel.
- Demand Responsive Transport: Trials in growth areas (e.g. Rowville, Melton South) offer models for flexible services in Ballarat North.

A.1.9 Movement and Place Framework in Victoria (2019)



Key Takeaways:

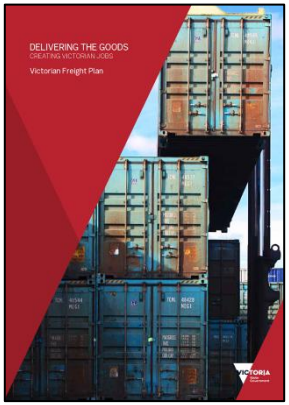
- The Movement and Place Framework provides a strategic tool for balancing transport and land use planning. It recognises that streets serve both as movement corridors and as places for people.
- Integrated Planning: Encourages a shift from traditional road classifications to a dual-function approach, considering both movement (M1–M5) and place (P1–P5) significance.
- Street Typologies: Introduces six street types (e.g. City Hubs, Activity Streets, Local Streets) to guide design and investment.
- Performance-Based Planning: Uses Level of Service (LoS) metrics across movement, place, safety, and environment to assess and prioritise interventions.
- Alignment with Legislation: Supports the Transport Integration Act 2010 and Plan Melbourne by promoting integrated, people-first, and outcome-focused transport planning.
- Application to PSPs: Provides a framework for classifying and designing roads in growth areas like Ballarat North, supporting alignment with broader state objectives.

A.1.10 Victorian Cycling Strategy (2018–2028)

Key Takeaways:

- This strategy aims to increase the number, frequency, and diversity of Victorians cycling for transport.
- Strategic Cycling Corridors (SCCs): Prioritises investment in high-demand corridors that connect key destinations.
- Safe System Approach: Advocates for protected infrastructure and lower-stress cycling environments to reduce crash risk.
- Inclusive Cycling: Focuses on increasing participation among women, children, and older adults.
- Integration with Public Transport: Supports end-of-trip facilities and improved access to train stations.
- Planning Alignment: Encourages updates to planning provisions to support cycling infrastructure in new developments.
- Relevance to Ballarat North PSP: Reinforces the need for off-road cycling paths, integration with public transport, and alignment with 20-minute neighbourhood principles.

A.1.11 Victorian Freight Plan: Delivering the Goods (2018–2050)



Key takeaways:

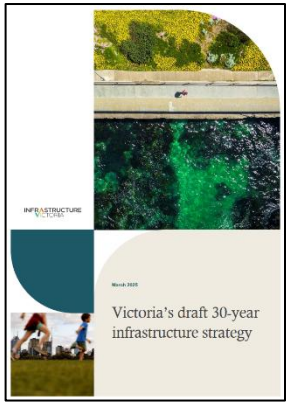
- Establishes a long-term vision for a safe, efficient, and sustainable freight network across Victoria.
- Identifies the Principal Freight Network (PFN) and the need to protect freight corridors from urban encroachment.
- Supports High Productivity Freight Vehicles (HPFV) and investment in intermodal terminals, including the Western Interstate Freight Terminal (WIFT).
- Emphasises the importance of rail freight, port access, and last-mile delivery improvements.
- Relevant to Ballarat North PSP due to proximity to freight corridors and the need to future-proof freight access and connectivity.

A.1.12 Victorian Road Safety Strategy (2021–2030)

Key Takeaways:

- Aims to halve road deaths and reduce serious injuries by 2030, with a vision of zero deaths by 2050.
- Focuses on safer road users, safer vehicles, safer roads, and post-crash care.
- Highlights the need for infrastructure improvements on high-speed rural roads and intersections—relevant to Ballarat North PSP's arterial road upgrades.
- Prioritises vulnerable road users (pedestrians, cyclists, motorcyclists), aligning with the PSP's emphasis on active transport and safe crossings.
- Encourages integration of safety technology and data-driven planning, supporting the ITAR's recommendations for intersection upgrades and safety audits.

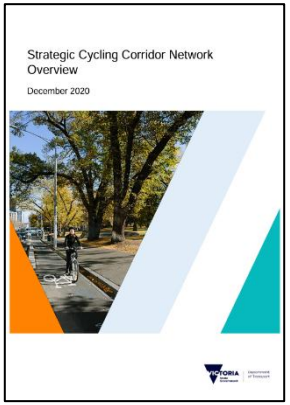
A.1.13 Victoria's Draft 30-Year Infrastructure Strategy (2025)



Key Takeaways:

- Provides a long-term infrastructure vision across housing, transport, energy, health, and environment.
- Recommends expanding public transport, including bus rapid transit and tram extensions, and improving regional bus and coach services.
- Supports compact city development and rezoning near infrastructure—aligns with PSP goals of integrated land use and transport.
- Emphasises active transport, with funding for strategic cycling corridors and safer local streets.
- Advocates for resilient infrastructure and climate adaptation, relevant to PSP planning in flood-prone or high-risk areas.
- Encourages digital innovation, accessibility, and equity in infrastructure delivery.

A.1.14 Strategic Cycling Corridors Overview (2020)



Key Takeaways:

- Defines the Strategic Cycling Corridor (SCC) network as a core, state-significant cycling network linking key destinations such as the Central City, National Employment and Innovation Clusters (NEICs), and Metropolitan Activity Centres (MACs).
- Emphasises low-stress, safe, direct, connected, and integrated cycling infrastructure to encourage uptake, especially among the "Interested but Concerned" demographic.
- Aligns with Plan Melbourne 2017–2050 and Regional Growth Plans, supporting 20-minute neighbourhoods and active transport access to schools, stations, and activity centres.
- Relevant to Ballarat North PSP as Ballarat is identified as a regional city where SCCs should be densified to support cycling for transport.
- Supports the integration of cycling infrastructure with land use planning and public transport, reinforcing the need for connected cycling links in the PSP area.

A.1.15 Victorian Climate Change Strategy (2021)

Key Takeaways:

- Sets a legislated target of net-zero emissions by 2050, with interim targets of 28–33% reduction by 2025 and 45–50% by 2030 (from 2005 levels).
- Emphasises emissions reduction across energy, transport, waste, agriculture, and land use sectors.
- Supports zero-emissions vehicles (ZEVs), with a target of 50% of new light vehicle sales to be ZEVs by 2030, and all new public transport buses to be zero emissions from 2025.
- Promotes active transport, with a goal of 25% of trips by walking or cycling by 2030, and investment in 250 km of new cycling and walking paths.
- Highly relevant to the ITAR's focus on sustainable transport, mode shift, and climate resilience in infrastructure planning for Ballarat North.

A.1.16 Clause 18.01-1S – Land Use and Transport Planning (Ballarat Planning Scheme)

Key Takeaways:

- Objective: To create integrated land use and transport planning that reduces car dependency and supports sustainable transport modes.
- Policy Directions:
  - Promote development that supports walking, cycling, and public transport.
  - Transport infrastructure is planned and provided early in the development process.
  - Encourage higher-density development near activity centres and public transport nodes.
  - Integrate transport and land use planning to improve accessibility and reduce travel demand.
- Relevance to Ballarat North PSP:
  - Reinforces the need for early planning of active and public transport infrastructure.
  - Supports the PSP's goals of creating a walkable, connected neighbourhood with reduced reliance on private vehicles.
  - Aligns with broader state policy to deliver 20-minute neighbourhoods and sustainable urban growth.

A.1.17 Regional Network Development Plan (2016)

Key Takeaways:

- Victoria's first statewide plan for regional public transport, developed through extensive community consultation.
- Aims to modernise the regional network with more trains, better stations, and improved bus and coach services.
- For Ballarat and the Grampians region, key priorities include:
- Ballarat Line Upgrade (track duplication, station upgrades).
- Increased train frequency and reliability.
- Improved bus and coach interchanges and local transport solutions.
- Supports the ITAR's objectives to enhance regional connectivity, improve service integration, and future-proof Ballarat North's transport network.

A.1.18 Guidance for Planning Road Networks in Growth Areas (2015, currently under review)

Key Takeaways:

This VicRoads document offers technical guidance on road network planning in growth areas. Even under review, it provides valuable information on:

- Network Planning: Principles for designing efficient and functional road networks.
- Traffic Management: Guidance on traffic calming and intersection design.
- Road Safety: Considerations for road safety in network planning.
- Freight: Planning for freight movement within the growth areas.

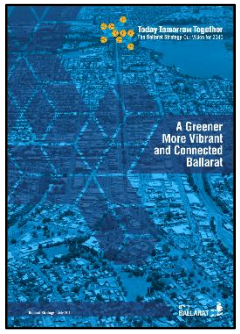
A.1.19 City of Ballarat Growth Areas Framework Plan – Western and North Western Growth Area (2024)

The City of Ballarat Growth Areas Framework Plan provides specific guidance for the development of growth areas in the western and north-western parts of the city. Key aspects relevant to the Ballarat North PSP include:

- Strategic Growth Direction: The plan outlines the strategic direction for growth, including land use zoning and development density guidelines.
- Local Transport Network Planning: It addresses the planning of local transport networks, including roads, public transport, and active transport infrastructure.
- Community Facilities and Open Space: The plan emphasises the provision of community facilities and open space to support new communities.

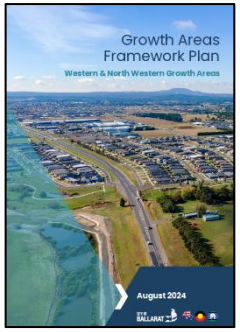
A.2 Local

A.2.1 Ballarat Strategy (2040)

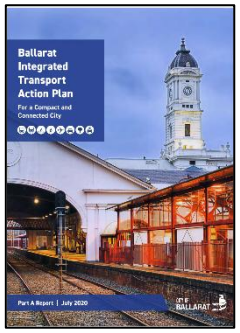


The Ballarat Strategy 2040 outlines a comprehensive plan for the city's development, focusing on creating a greener, more vibrant, and connected community. Key takeaways include:

- '10 Minute City' Concept: Promotes liveable neighbourhoods within a compact city so that residents can access essential services and destinations within a 10-minute journey.
- 'City in the Landscape' Approach: Emphasizes Ballarat's unique physical, cultural, and historical setting, integrating urban development harmoniously with the natural environment.
- Integrated Transport Network: Plans for a connected, sustainable, and adaptable transport system to support the anticipated population growth to 160,000 by 2040.
- Balanced Housing Development: Aims for a 50:50 split between greenfield and infill housing areas, promoting sustainable urban growth.
- Regional Capital Precincts: Identifies and supports key precincts to enhance Ballarat's role as the capital of Western Victoria, fostering economic growth and community development.



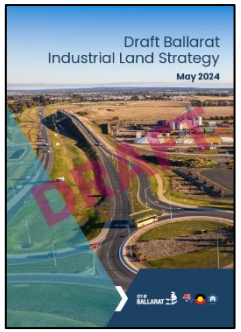
A.2.2 Ballarat Integrated Transport Action Plan (towards 2050)



The Ballarat Integrated Transport Action Plan aims to enhance the city's transport network to support its growing population and foster a more connected, sustainable, and prosperous community.

- Comprehensive Transport Network Improvements: The plan outlines enhancements to footpaths, bicycle paths, local roads, and advocates for state-managed transport systems like major roads, freeways, bus services, and train lines.
- Alignment with the '10 Minute City' Concept': It supports the '10 Minute City' principle from the Ballarat Strategy 2040, aiming to support residents in accessing essential services within a 10-minute journey.
- Advocacy for Enhanced Public Transport: The plan emphasizes the importance of improved public transport services, including increased frequency, diverse routes, and extended operating hours, to reduce reliance on private vehicles.
- Promotion of Active Transport Modes: It encourages walking and cycling as primary modes of transport, aiming to decrease car trips and promote healthier lifestyles.
- Strategic Freight Movement Planning: The plan addresses the need for efficient freight networks to support local businesses, aiming to balance freight movement with community amenity.

A.2.3 Draft Ballarat Industry Land Strategy (2024) (currently under review)



The Draft Ballarat Industry Land Strategy provides a framework for the strategic development of industrial land within the City of Ballarat. Key elements relevant to the Ballarat North PSP include:

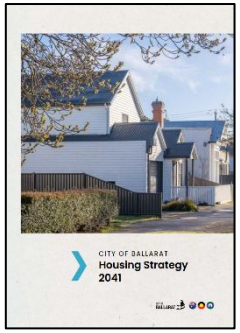
- Employment Land Provision: The strategy outlines areas designated for industrial and employment uses, influencing the integration of employment opportunities within the PSP.
- Strategic Location and Accessibility: It emphasises the importance of strategic location and accessibility for industrial areas, particularly in relation to transport networks.
- Economic Diversification and Growth: The strategy aims to support economic diversification and growth by providing suitable land for a range of industrial activities.
- Infrastructure and Servicing: It addresses the need for appropriate infrastructure and servicing to support industrial development, including transport infrastructure.

A.2.4 Ballarat Cycling Action Plan (2017–2025)

Key Takeaways:

- Establishes the Ballarat Bicycle Network (BBN) to prioritise safe, connected, and legible cycling routes, especially for everyday and novice riders.
- Identifies key strategic cycling corridors (SCCs) including connections from Miners Rest to Wendouree Station and from the CBD to Buninyong.
- Emphasises integration with public transport, end-of-trip facilities, and wayfinding signage.
- Supports Ballarat's transition to a "10-minute city" by encouraging short trips by bike, reducing congestion, and improving health outcomes.
- Highly relevant to the Ballarat North PSP, particularly in planning for safe cycling access to the CBD, Wendouree Station, and key destinations.

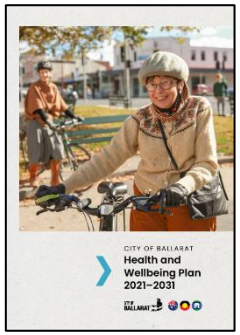
A.2.5 Ballarat Housing Strategy (2041)



Key Takeaways:

- Provides a 15+ year framework for accommodating population and housing growth, with a focus on infill development and compact urban form.
- Identifies areas for substantial, incremental, and minimal change, with emphasis on accessibility to jobs, services, and transport.
- Supports increased housing density in areas with high accessibility, including the CBD, Wendouree Station, and urban renewal precincts.
- Reinforces the need for integrated transport and land use planning, including walkability, cycling infrastructure, and public transport access.
- Relevant to the ITAR in which transport infrastructure supports projected housing growth and aligns with land use planning.

A.2.6 Health and Wellbeing Plan (2021–2031)



Key Takeaways:

- Sets a 10-year vision for a connected, inclusive, and resilient Ballarat community.
- Identifies six health priorities, including increasing active living, improving mental wellbeing, and tackling climate change.
- Emphasises the role of active transport, open space, and recreation in improving health outcomes.
- Supports infrastructure that promotes walking, cycling, and public transport access, especially for vulnerable groups.
- Aligns with the ITAR's goals of promoting sustainable, healthy, and inclusive transport systems.

A.2.7 Active Ballarat Strategy (2019)

Key Takeaways:

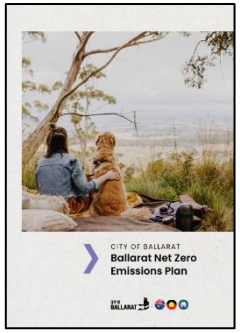
- Aims to create a more vibrant, healthy, and liveable Ballarat through increased participation in sport and active recreation.
- Identifies five strategic pillars, including inclusive participation, active recreation, and system resilience.
- Highlights the importance of walking and cycling infrastructure, safe public spaces, and multi-use precincts.
- Supports investment in active transport and recreation infrastructure to address inactivity and improve community health.
- Directly supports the ITAR's objectives to enhance walkability, connectivity, and access to recreation in Ballarat North.

A.2.8 Ageing Well in Ballarat Strategy (2022–2026)

Key Takeaways:

- Focuses on creating an age-friendly city where residents aged 55+ can live, work, and age well.
- Prioritises accessible transport, housing diversity, and inclusive public spaces.
- Advocates for walkable neighbourhoods, safe streetscapes, and transport options that support independence and mobility.
- Aligns with WHO's Age-Friendly Cities framework and complements the ITAR's emphasis on inclusive, accessible transport planning.
- Reinforces the importance of planning for an ageing population in the design of Ballarat North's transport network.

A.2.9 Ballarat Net Zero Emissions Plan (2022)



Key takeaways:

- Sets an aspirational target for the Ballarat municipality to achieve net zero emissions by 2030.
- Identifies five key outcomes: Net Zero Business, Homes, New Developments, Transport, and Waste.
- Strong emphasis on reducing transport emissions through:
- Increased use of public and active transport.
- Transition to electric vehicles and zero-emission fuels.
- Improved freight logistics and planning for a zero-emissions fuels hub.
- Aligns with the ITAR's goals of promoting sustainable, low-emission transport infrastructure and behaviour change.
- Reinforces the importance of integrated planning between land use, transport, and emissions reduction.

A.2.10 Miners Rest Township Plan (2019)

Key Takeaways:

- A long-term strategic plan guiding development in Miners Rest through to 2040, with a strong focus on connectivity, character, and community infrastructure.
- Identifies Howe Street as a key north–south spine through the township, requiring:
  - Boulevard tree planting to unify the township visually.
  - Pedestrian and cyclist safety upgrades, including shared paths and safe crossing points.
  - Traffic calming measures to manage vehicle speeds and improve safety.
- Recommends detailed design and consultation to convert the service road between Delaney Drive and Cummins Road into a one-way system to accommodate an off-road shared path.
- Supports implementation of the Ballarat Bicycle Network along Howe Street, with complementary off-road shared paths and pedestrian crossings.
- These upgrades directly support ITAR objectives by enhancing pedestrian and cyclist safety, improving local connectivity, and integrating active transport infrastructure into the broader network.

A.2.11 Ballarat Bikepaths and Walking Connections

Key Takeaways:

- Part of the City of Ballarat's Active Transport Program, this initiative aims to improve walking and cycling infrastructure across the municipality.
- Emphasises safe, accessible, and connected infrastructure for walking, cycling, scooting, and pram use.
- Supports ITAR objectives by enhancing active transport options and improving last-mile connectivity to key destinations and public transport nodes.

A.2.12 Draft Principal Pedestrian Network

Key takeaways

- The Draft Ballarat Principal Pedestrian Network (PPN) is a strategic network of pedestrian routes that encourage walking for transport, the key goal of which is to increase walking trips.
- It was developed alongside the Footpath Construction Strategy to help identify the links that are most important to the community, and through the Strategy, channel funding to footpaths with the greatest benefit to the community.
- Directly supports ITAR goals by identifying strategic pedestrian corridors for future investment and integration with broader transport planning.