Transport Assessment Memo

Version B

Victorian Planning Authority

Greater Avalon Employment Precinct

November 2025

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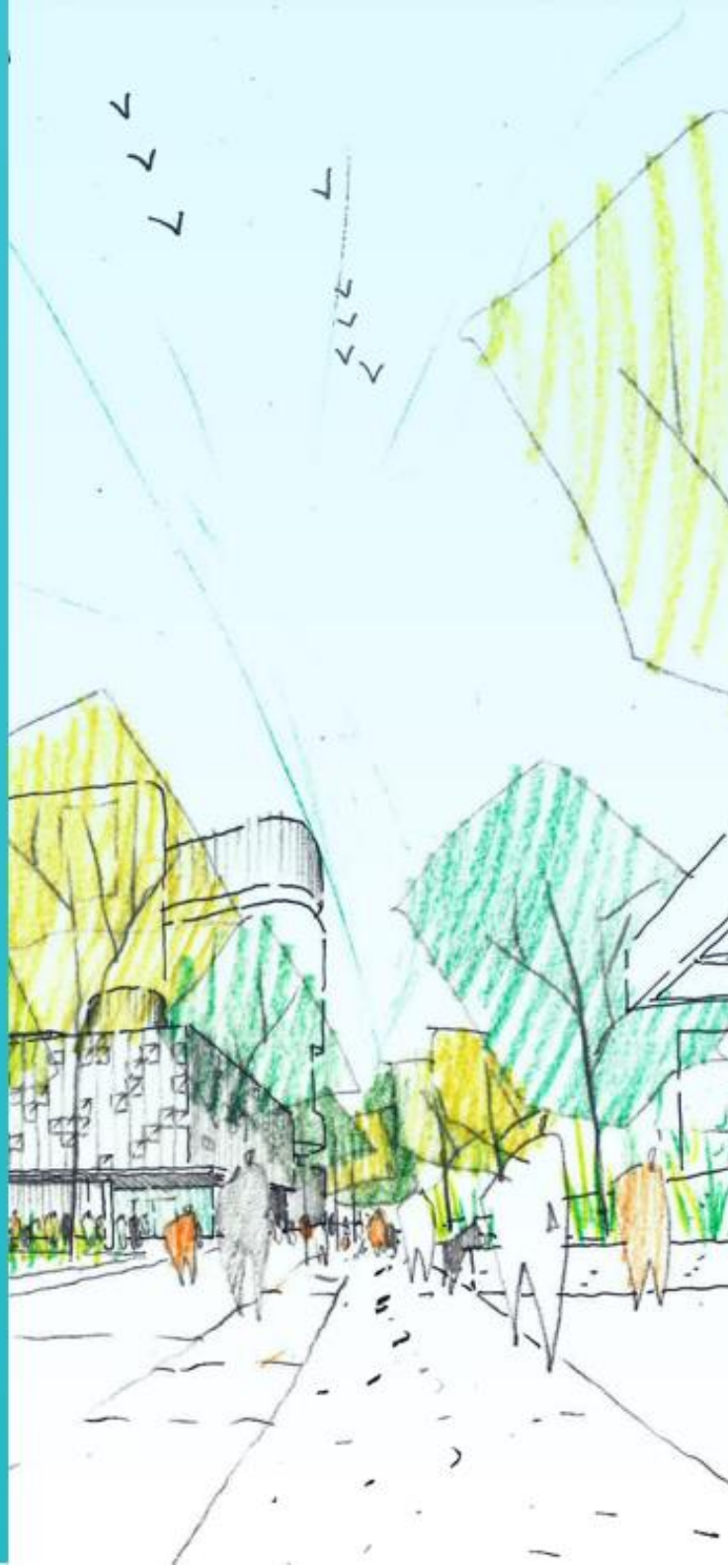

Greater Avalon Employment Precinct Transport Planning Memo

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Contents

Contents ii
Glossary 4
1. Introduction 5
1.1 Background 5
1.2 Overview 5
2. Policy review 6
2.1 State 6
2.1.1 Plan for Victoria (2025) 6
2.1.2 Department of Transport Strategic Plan (2024-2028) 6
2.1.3 Victoria's Housing Statement (2024-2034) 7
2.1.4 Precinct Structure Planning Guidelines: New Communities in Victoria (2021) 7
2.1.5 Victorian Road Safety Strategy (2021-2030) 8
2.1.6 Victorian Planning Authority Precinct Structure Planning Guidelines – Precinct Structure Planning Note – Our Roads: Connecting People (2021) 8
2.1.7 Victorian Planning Authority Benchmark Infrastructure Report (2019) 9
2.1.8 DTP's Movement and Place Framework (2019) 9
2.1.9 Victorian Cycling Strategy (2018-2028) 9
2.1.10 Guidance for Planning Road Networks in Growth Areas (2015, currently under review) 10
2.1.11 Transport Integration Act (2010) 10
2.1.12 Public Transport Guidelines for Land Use and Development (2008) 10
2.1.13 Economic Growth Statement (2024) 10
2.1.14 Victorian Freight Plan 2025-30 11
2.2 Regional and local 11
2.2.1 G21 Integrated Transport Strategy (2022) 11
2.2.2 G21 Region Plan 2050 (2023) 11
2.2.3 Greater Geelong Economic Development Plan (2024) 12
2.2.4 Avalon Corridor Strategy (2022) 12
2.2.5 Wyndham Transport Strategy (2023) 12
2.2.6 Avalon Airport Masterplan transport plan (2015), currently being updated 13
2.2.7 Greater Geelong Integrated Comprehensive Transport Plan (2015) 13
3. Existing conditions 14
3.1 Regional context 14
3.2 Travel behaviour 15
3.3 General traffic and freight 16
3.3.1 Existing road infrastructure 16
3.3.2 Freight network 17
3.3.3 Traffic volumes 17
3.4 Public transport 18
3.4.1 Rail network 18
3.4.2 Bus network 19
3.5 Active transport 19
3.6 Road safety 20
4. Key existing issues and future development opportunities 21
4.1 Issues 21
4.2 Opportunities 22

5. Proposed transport and land use plans 23
5.1 Urban structure 23
5.2 Movement network 24
5.2.1 Street hierarchy 24
5.2.2 Traffic demand projections 25
6. Conclusion 26

Glossary

Abbreviation	Definition
ABS	Australian Bureau of Statistics
AADT	Average Annual Daily Traffic
AVV	Avalon Airport
CBD	Central Business District
DPO	Development Plan Overlay
DTP	Department of Transport and Planning (Victorian)
GAEP	Greater Avalon Employment Precinct
GAEP-N	Greater Avalon Employment Precinct North
GAEP-W	Greater Avalon Employment Precinct West
HPFV	High Productivity Freight Vehicles
PAO	Planning Acquisition Overlay
PBN	Principal Bicycle Networks
PFN	Principal Freight Network
PSP	Precinct Structure Plan
SCC	Strategic Cycling Corridors
STMA	Strategic Transport Modelling Assessment
VITM	Victorian Integrated Transport Model
VPA	Victorian Planning Authority
VPP	Victorian Planning Provision

1. Introduction

1.1 Background

The Victorian Planning Authority (VPA) is working with the City of Greater Geelong to prepare a plan for a state-significant employment precinct in Avalon. The Greater Avalon Employment Precinct (GAEP) is identified in the Avalon Corridor Strategy[1] and will use its proximity to the airport to establish an airport precinct that will feature significant industrial and commercial opportunities.

This Transport Assessment Memo reviews the background policy and existing conditions of the GAEP and provides recommendations to guide the effective integration of the proposed development with the existing and planned transport network. The Transport Assessment Memo is an iterative process working alongside the Development Plan Overlay (DPO) of the GAEP, which identifies transport-related issues and opportunities.

Post gazettal of the DPO and prior to the approval of planning permits, developers must enter into section 173 agreements with the City of Greater Geelong and Head, Transport for Victoria for the delivery of State Significant Transport Infrastructure.

1.2 Overview

The project is located approximately 20 kilometres (km) north-east from the regional city of Geelong and 55km south-west of the Melbourne central business district (CBD) and features the Avalon International Airport as a key land use adjoining the precinct.

The GAEP includes two parts, GAEP-North and GAEP-West as shown in Figure 1.1.

The project involves preparing a Transport Assessment Memo to provide recommendations for the GAEP 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 of GAEP.

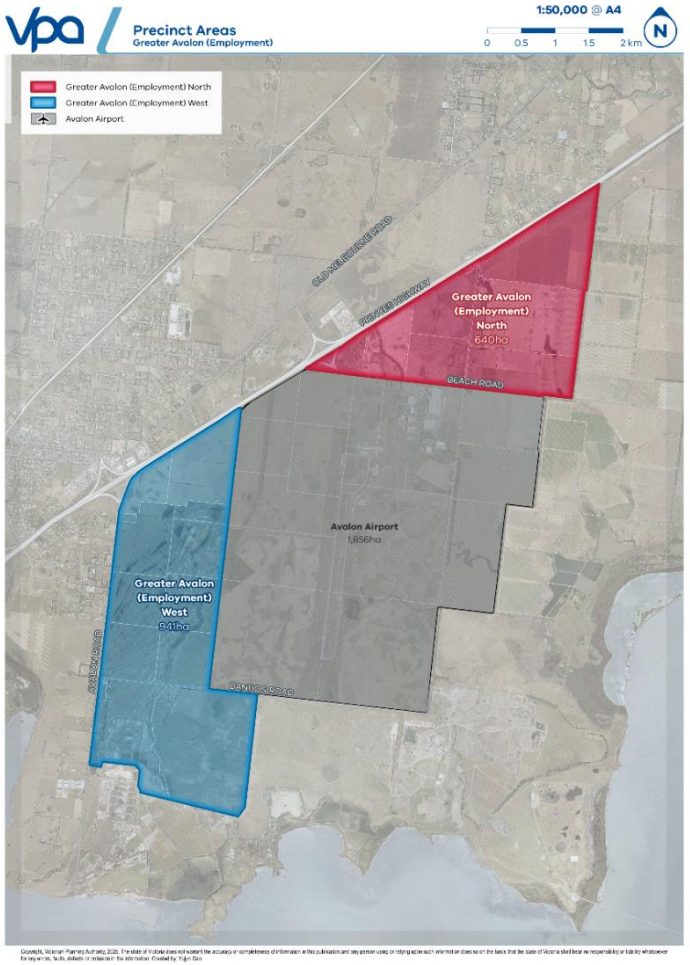


Figure 1-1. Greater Avalon Employment Precinct study area (Source: VPA)

[1] https://www.geelongaustralia.com.au/acs/documents/item/8d3fcb2c1d547d6.aspx

2. Policy review

This chapter summarises the policy framework guiding the Transport Assessment Memo. The memo 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 this assessment.

2.1 State

2.1.1 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 memo. 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. Plan for Victoria also identifies GAEP as a key strategic employment centre.
- **Sustainable Transport:** Promoting active and public transport to reduce private vehicle reliance, ensuring efficient multi-modal solutions.
- **Regional Growth:** Aligning with regional planning for sustainable employment area growth in Ballarat, Bendigo and Geelong.

This memo considers the direction of the new plan, particularly regarding the employment proximity of job opportunities within GAEP to the growing populations of the City of Greater Geelong and the City of Wyndham.

2.1.2 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.

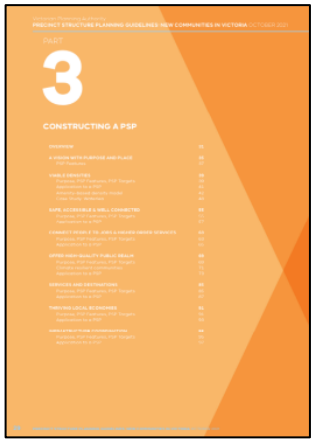
2.1.3 Victoria's Housing Statement (2024-2034)

Key Takeaways:

GAEP is identified as a priority precinct for industrial land under Victoria's Housing Statement (2024-2035). The Housing Statement aims to boost housing supply and affordability. Its key themes are relevant to this memo by influencing:

- **Integrated Planning:** Emphasises delivering homes in growth areas, requiring integrated planning of housing and transport infrastructure crucial for workforce accessibility to key projects such as the GAEP.
- **Travel Patterns:** Measures to improve affordability and planning reforms impact housing location, density, and urban form, directly influencing transport demand and mode choice for those commuting to and from the precinct.
- **Infrastructure Funding:** Addresses infrastructure contributions, potentially affecting funding for transport infrastructure that supports new developments and connections to the employment precinct.
- **Regional & Local Connectivity:** Focus on regional housing growth and design standards for apartments can influence inter-regional transport connectivity and micromobility, impacting how workers access the GAEP.

2.1.4 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 memo, the most critical elements are:

- **Integrated Planning:** Strong emphasis on integrating land use and transport from the initial stages of planning.
- **Movement and 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:** Ensuring easy access to community infrastructure via sustainable transport.
- **Safe Streets:** Design of safe and inviting streets for all users.

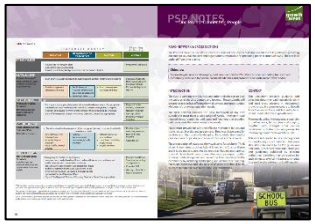
While the amendment does not include a PSP, the guidelines have been used to prepare the DPO schedule to ensure an appropriate level of detail will be provided in the development plan(s).

2.1.5 Victorian Road Safety Strategy (2021-2030)

Key Takeaways:

- This strategy sets an ambitious vision to halve road deaths and reduce serious injuries by 2030, with the goal of eliminating road deaths by 2050 (Vision Zero).
- It prioritises creating a safe road environment and empowering road users to make safe choices through a Safe System approach.
- Safe System Pillars: The strategy is built on four pillars:
  - Safe Roads and Roadsides: Designing infrastructure that is forgiving of human error.
  - Safe Speeds: Implementing appropriate speed limits for different road environments.
  - Safe Vehicles: Encouraging the use of safer vehicle technologies.
  - Safe Road Users: Promoting safer behaviours among all road users.
- The strategy emphasises partnerships across government, industry, and the community to deliver evidence-based interventions.

2.1.6 Victorian Planning Authority Precinct Structure Planning Guidelines – Precinct Structure Planning Note – Our Roads: Connecting People (2021)



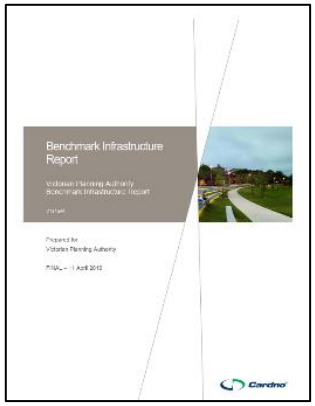
Key Takeaways:

This document provides more specific guidance on road network design within PSPs. The memo should consider:

- **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.

While the amendment does not include a PSP, the guidelines have been used to prepare the DPO schedule to ensure an appropriate level of detail will be provided in the development plan(s).

2.1.7 Victorian Planning Authority Benchmark Infrastructure Report (2019)

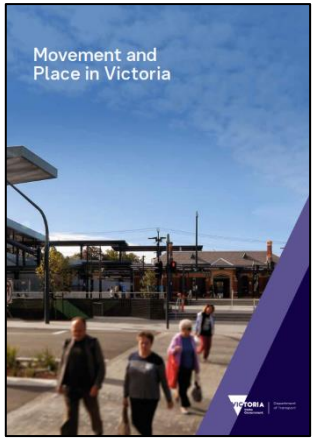


Key Takeaways:

This report establishes benchmarks for infrastructure provision in new communities, including transport infrastructure. The memo needs to 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 bicycle paths, shared paths, and pedestrian crossings.
- **Community Infrastructure:** Benchmarks for parking and bicycle parking at community facilities.

2.1.8 DTP's Movement and Place Framework (2019)



Key Takeaways:

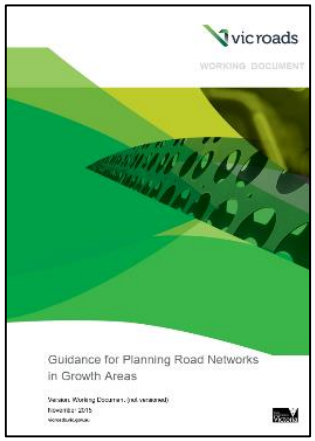
- This framework guides transport planning in Victoria, integrating "movement" (efficient flow) and "place" (liveability/amenity) functions.
- It ensures consistent language for planning, designing, operating, and managing transport infrastructure across all modes and jurisdictions.
- Key principles include defining network roles, managing demand for sustainable choices, cross-agency collaboration, and a triple bottom line approach.
- For GAEP, this framework is fundamental for planning an integrated, safe, and sustainable multi-modal transport network that balances efficient movement (freight, workers) with the precinct's place.

2.1.9 Victorian Cycling Strategy (2018-2028)

Key Takeaways:

- This strategy outlines Victoria's vision to increase cycling for transport, recreation, and tourism, aiming for more people cycling more often and safely, leading to improved health and environmental outcomes.
- Strategic Investment & Connectivity: It prioritises strategic investments in cycling infrastructure and creating connected cycling networks, including Principal Bicycle Networks (PBN) and Strategic Cycling Corridors (SCCs), which are crucial for linking key destinations, activity centres, and employment clusters like the GAEP.
- Safety: A core focus is on enhancing cycling safety through improved design, infrastructure, education, and enforcement.
- Encouragement & Integration: The strategy aims to encourage cycling as a viable transport mode and integrate it seamlessly with public transport and broader land use planning.
- Policy Alignment: It advocates for embedding cycling considerations into all levels of land use and transport planning.

2.1.10 Guidance for Planning Road Networks in Growth Areas (2015, currently under review)

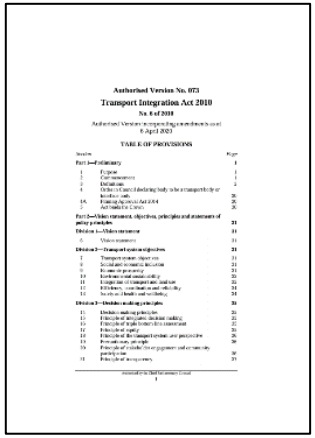


Key Takeaways:

This VicRoads document offers technical guidance on road network planning in growth areas. Even though it is 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 growth areas.

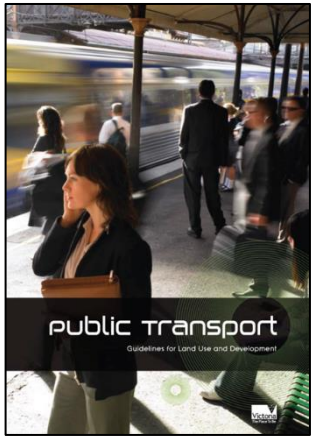
2.1.11 Transport Integration Act (2010)



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 should consider the triple bottom line assessment; equity, transport system user perspectives, precautionary principles and stakeholder/community engagement.

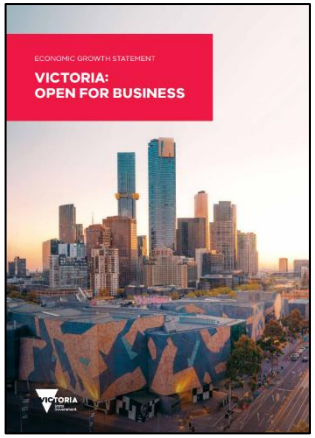
2.1.12 Public Transport Guidelines for Land Use and Development (2008)



Key Takeaways:

- These guidelines are vital for integrating public transport into land use planning for sustainable and equitable outcomes.
- They provide design parameters and process guidance for effective public transport provision.
- For the GAEP, the Transport Assessment Memo must demonstrate how land use and transport design facilitate and integrate public transport, ensuring connectivity and accessibility to support sustainable travel for the precinct.
- Relevant to GAEP due to proximity to freight corridors and the need to future-proof freight access and connectivity.

2.1.13 Economic Growth Statement (2024)

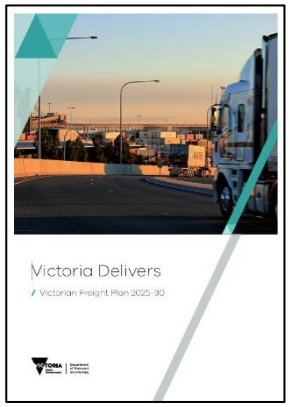


Key Takeaways:

- The statement sets out Victoria's strategic direction for economic growth and resilience.
- Highlights commitment to boosting regional economies, such as in the Avalon, to distribute economic growth across Victoria.
- Avalon Airport is identified as a part of a broader network of economic opportunities.

2.1.14 Victorian Freight Plan 2025-30

Key takeaways:



- Establishes a long-term vision for a safe, efficient, and sustainable freight network across Victoria.
- Supports Avalon Airport's growth as a freight hub, with potential for expanded air freight and logistics operations.
- 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 industrial precincts, including the GAEP.
- Emphasises the importance of rail freight, port access, and last-mile delivery improvements.

2.2 Regional and local

2.2.1 G21 Integrated Transport Strategy (2022)

Key Takeaways:

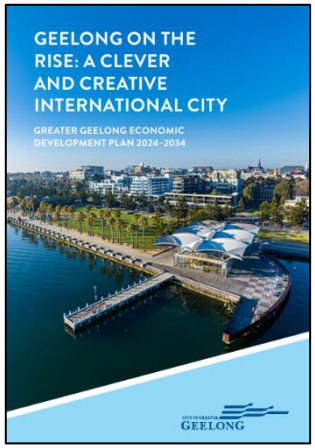
- The strategy is guided by a vision for a sustainable transport system.
- It recommends developing efficient active and public transport travel both locally and between town centres, aiming to reduce private vehicle dependency.
- The memo must integrate these findings as they offer a representation of values from various communities and identify the desire for greater wellbeing, economic activity and liveability.

2.2.2 G21 Region Plan 2050 (2023)

Key Takeaways:

- Summarises a plan across the five municipalities of Greater Geelong, Colac Otway, Golden Plains, Queenscliff and Surf Coast.
- Includes aspirations and programs of work for shaping the development of the region towards 2050.
- The memo must consider the G21 goals and activities to align with the needs of the various communities involved.

2.2.3 Greater Geelong Economic Development Plan (2024)



Key Takeaways:

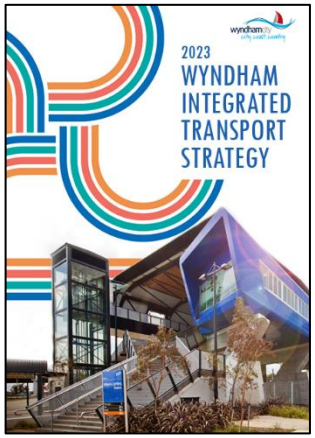
- This plan outlines the City of Greater Geelong's vision for economic growth, aiming for a "clever and creative international city."
- Growth Projections: It projects significant growth in population (to 400,000 by 2041) and jobs (to 190,000 by 2041), underpinning the need for supporting infrastructure.
- Strategic Focus: The plan identifies competitive advantages, growth opportunities, and emphasises the importance of "Planning and Advocacy" for economic development.
- Economic Drivers: It serves as a framework for the city's economic future, with employment precincts like Greater Avalon being key contributors.

2.2.4 Avalon Corridor Strategy (2022)

Key Takeaways:

- This strategy guides land use and planning for the Avalon Corridor, encompassing the GAEP.
- It applies Victoria Planning Provisions (VPPs) for integrated transport and land use, focusing on industry, employment, freight, and multi-modal movement.
- The memo must align with this strategy, ensuring the precinct's transport planning supports the corridor's vision and VPP applications.

2.2.5 Wyndham Transport Strategy (2023)



Key Takeaways:

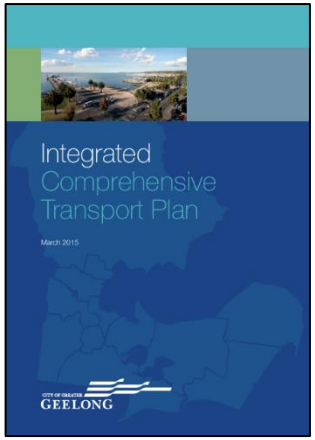
- This adopted strategy outlines Wyndham City Council's comprehensive vision and guiding principles for transport planning through to 2040.
- Land Use and Transport Integration: A core focus is the seamless integration of land use and transport planning, which is highly relevant for the GAEP.
- Multi-Modal Emphasis: The strategy provides clear directions for developing active transport (walking and cycling), public transport, and efficient freight movement networks within the municipality.
- Council Expectations for Major Projects: It includes specific requirements from new government transport projects, emphasising early engagement, comprehensive consideration of all transport modes, integration with the wider network, and timely infrastructure provision in line with growth.
- A significant portion of the workforce at the GAEP is expected to come from Wyndham.

2.2.6 Avalon Airport Masterplan transport plan (2015), currently being updated

Key Takeaways:

- This Master Plan guides Avalon Airport's development, outlining its regional importance and land uses (including industrial/commercial zones).
- It details airport transport infrastructure and forecasts for freight and passenger movements.
- For the GAEP Transport Assessment Memo, this plan is crucial for coordinating transport planning due to the precinct's adjacency and interdependence with the airport.
- Whilst this document is in the public domain, it is acknowledged that VPA are also engaging with Avalon Airport to understand the latest plans for the Airport precinct.

2.2.7 Greater Geelong Integrated Comprehensive Transport Plan (2015)



Key Takeaways:

- This plan serves as the overarching transport and land use planning framework for the City of Greater Geelong.
- Core Principle: It strongly emphasises the integration of transport and land use planning.
- Multi-Modal Focus: The plan outlines strategies for active transport, public transport (aiming for faster, more frequent services), and efficient freight movement, including prioritising dedicated freight routes.
- Avalon Airport & Gateways: Critically, it highlights the enhancement of "Gateways to Geelong (Ports and Airports)" to accommodate growth, specifically mentioning "realising the opportunity for growth at Avalon Airport."

3. Existing conditions

3.1 Regional context

The Greater Avalon Employment Precinct is situated within the City of Greater Geelong, a significant regional centre in Victoria. The City of Greater Geelong has a clear strategic vision for economic growth, aiming to become a "clever and creative international city." This vision is supported by ambitious growth projections, targeting a population of 400,000 and 190,000 jobs by 2041, increasing from 280,000 and 135,000 respectively in 2022[2]. These significant projected increases in population and employment underscore the critical need for robust and integrated transport infrastructure to support and enable this growth.

The Greater Geelong Economic Development Plan identifies key competitive advantages and growth opportunities for the region, with a strong emphasis on strategic planning and advocacy to foster economic development. Employment precincts, such as the Greater Avalon Employment Precinct, are recognised as crucial contributors to the city's economic future and are expected to play a vital role in achieving these targets.

The Greater Geelong Integrated Comprehensive Transport Plan strongly advocates for the integration of transport and land use planning. It focuses on a multi-modal approach, encompassing active transport, public transport (with aims for faster, more frequent services), and efficient freight movement, including the prioritisation of dedicated freight routes. Critically for this assessment, the plan highlights the enhancement of "Gateways to Geelong (Ports and Airports)" to accommodate growth, specifically recognising the opportunity for growth at Avalon Airport, which currently hosts the Avalon Australian International Airshow every two years. This strategic alignment positions the Greater Avalon Employment Precinct at the heart of Geelong's broader transport and economic aspirations.

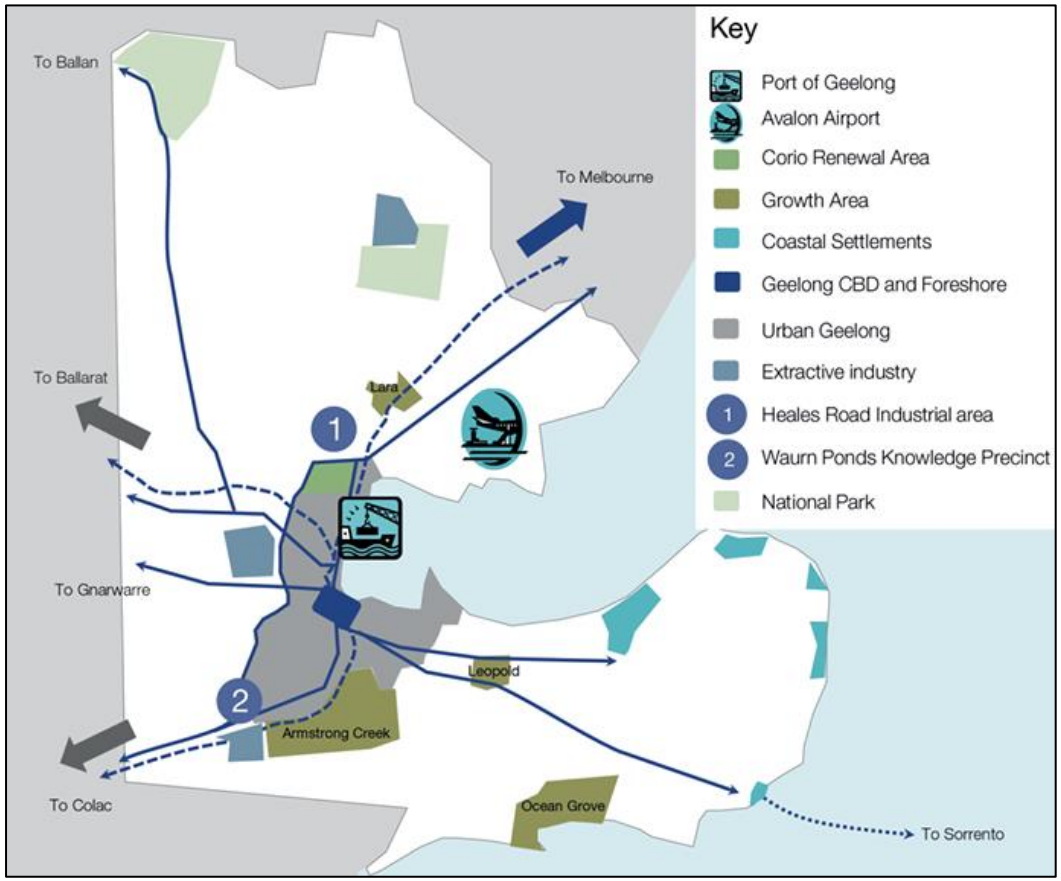


Figure 3-1. City of Greater Geelong strategic context (Source: Greater Geelong Integrated Comprehensive Transport Plan 2015)

[2] Greater Geelong Economic Development Plan (2024)

3.2 Travel behaviour

In 2021, approximately 82% of workers in Greater Geelong also lived in the area, with the remaining 18% travelling from elsewhere[3]. The method of travel to work from those living in areas surrounding Avalon was analysed using ABS data, as shown in Figure 3-2. Both 2016 and 2021 was used to capture any unusual trends due to the COVID-19 pandemic.

Vehicle Dependence:

- In 2016, vehicles (private vehicles and ride share) account for 75% of all trips (87% excluding working from home).
- By 2021, while still the primary mode, vehicle use decreased to 64% (91% excluding working from home). This reduction likely reflects the increase in working from home due to the COVID-19 pandemic.

Public Transport Decline:

- Public transport usage was at 8% in 2016.
- This share halved to 4% in 2021, which can be attributed to the pandemic's impact on travel patterns.

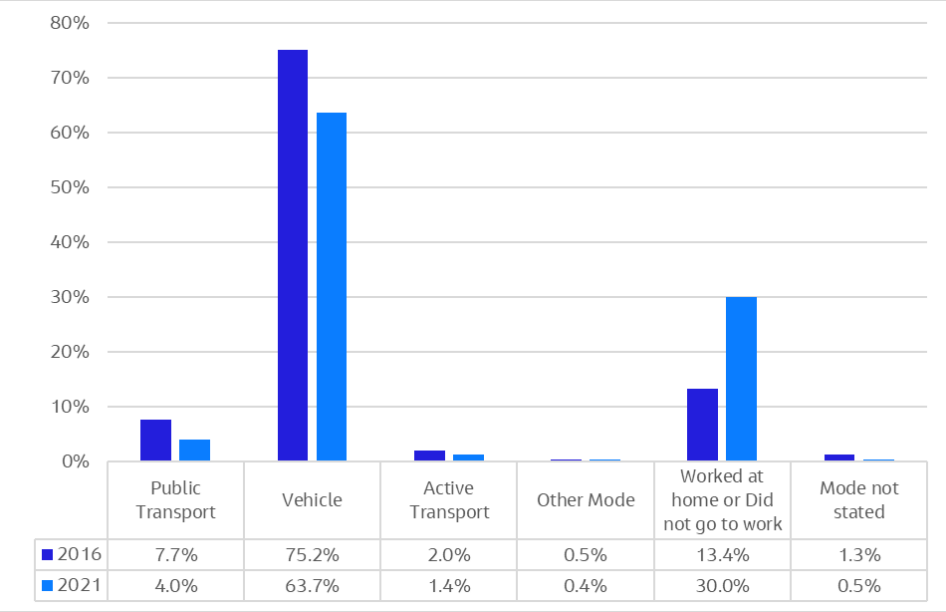
Low Active Transport Usage:

- Active transport (cycling and walking) accounted for only 2% of trips in 2016.
- This slightly decreased to 1.4% in 2021. These low levels indicate a need to significantly improve infrastructure and promote active transport, especially considering the surrounding area's lower active transport mode share compared to the Greater Melbourne average of 2.7%[4].

Increase in Working from Home:

- The percentage of people working from home was 13% in 2016.
- This proportion significantly increased to 30% in 2021. This surge is directly attributable to the COVID-19 pandemic and associated work-from-home mandates.

The COVID-19 pandemic has significantly impacted travel behaviour in the short term. Regardless of the long-term impacts from the pandemic, there is still a heavy reliance on private vehicles in the surrounding area and a significant investment in active transport and public transport infrastructure and services is required to change this. However, the long-term effects of travel behaviours remain uncertain. 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.



	Public Transport	Vehicle	Active Transport	Other Mode	Worked at home or Did not go to work	Mode not stated
2016	7.7%	75.2%	2.0%	0.5%	13.4%	1.3%
2021	4.0%	63.7%	1.4%	0.4%	30.0%	0.5%

Figure 3-2. Method of travel to work from place of usual residence in surrounding area[5]

[3] https://profile.id.com.au/geelong/workers

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

[5] 2016/2021 ABS Census data. 2016 SA2 areas Lara, Werribee South, Werribee West, Corio - Norlane. 2021 SA2 areas include: Lara, Werribee South, Werribee West, Corio -Lovely Banks

3.3 General traffic and freight

3.3.1 Existing road infrastructure

The road infrastructure in the precinct areas has been summarised and presented in Figure 3-3 and Table 3-1. The Greater Avalon Employment Precinct will primarily build off the existing road network infrastructure. Key roads including Princes Freeway, Avalon Road, Paper Road, Dandos Road, Pousties Road, and Beach Road are critical to the precinct's connectivity. Paper Road, currently planned but unbuilt, will be a significant addition once completed. The internal network will include additional collector roads and local streets to facilitate movement within the precinct.

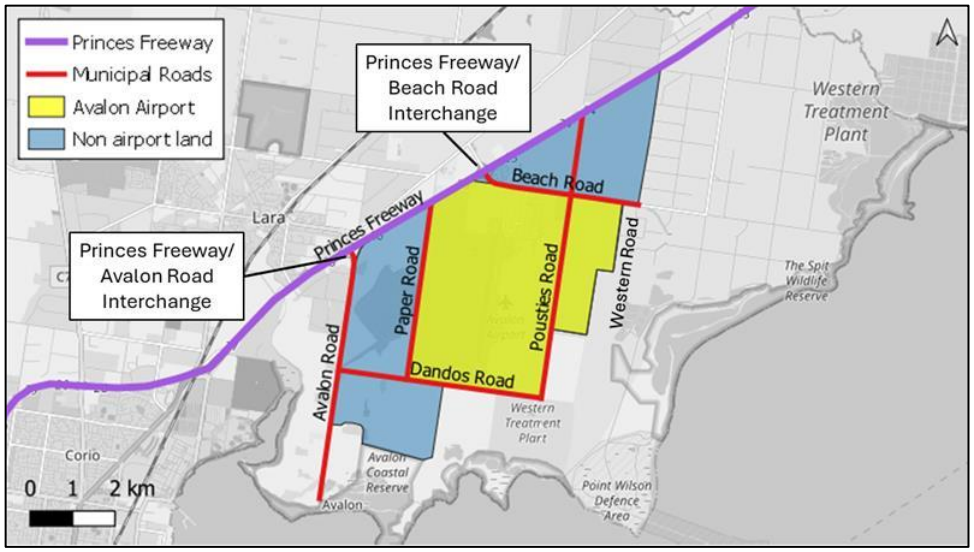


Figure 3-3. Key road infrastructure within the precinct

Table 3-1. Existing road infrastructure characteristics

Road	Bounds	Road type	Condition	Speed limit (km/h)	Lanes (one-way)
Princes Freeway	Avalon Road to Western Road	Freeway	Sealed	100	3
Avalon Road	South of Princes Freeway	Local	Sealed	80	1
Paper Road[6]	Princes Freeway to Dandos Road	Local	Planned road (unbuilt)	NA	NA
Dandos Road	Avalon Road to Pousties Road	Local	Sealed	100	1
Pousties Road	Dandos Road to Princes Freeway	Local	Sealed south of Beach Road, unsealed north of Beach Road	100	1
Beach Road	Princes Freeway to Western Road	Local	Sealed	80	1

[6] Also referred to as Gillets Road

3.3.2 Freight network

The Greater Avalon Employment Precinct benefits from a strong connection to the Principal Freight Network (PFN). The Princes Freeway is a key PFN Road and Avalon Airport is a designated PFN Place, offering air freight capabilities. The precinct's proximity to the Port of Geelong, also a PFN Place, enables efficient sea freight operations. Future enhancements include a planned PFN road along the Outer Metropolitan Ring, which is a road and rail corridor. This PFN will interchange with the Princes Freeway, providing critical access to the Western Interstate Freight Terminal. A map of the PFN surrounding the study area is shown in Figure 3-4.

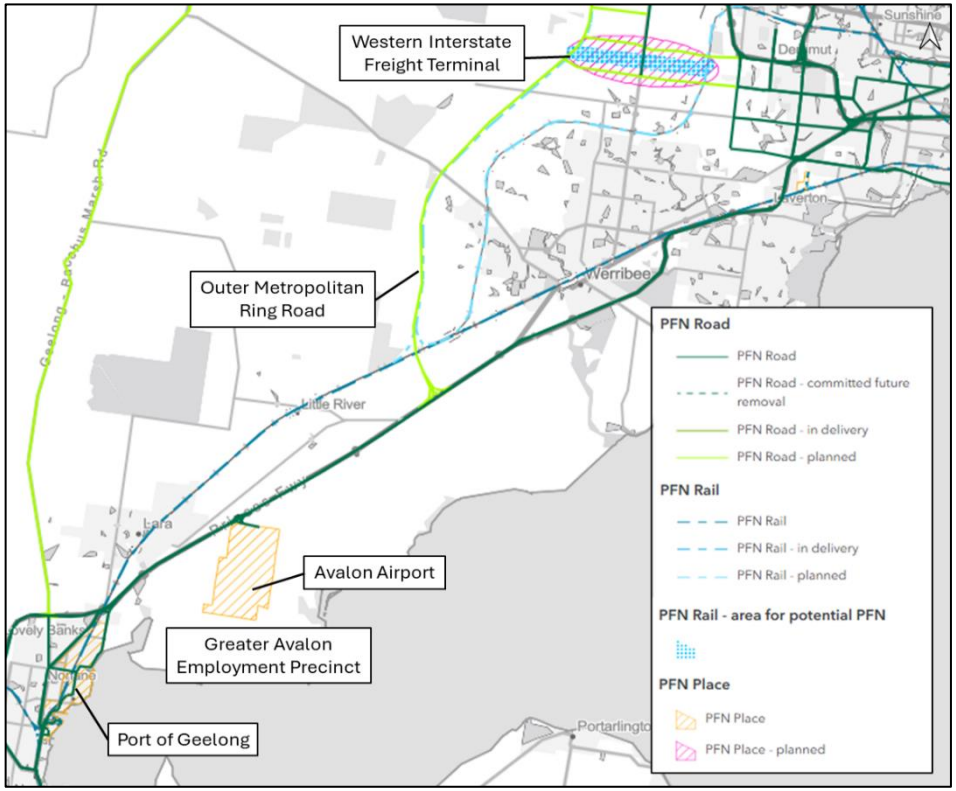


Figure 3-4. Principle Freight Network (Source: DTP)

3.3.3 Traffic volumes

An assessment of existing traffic volumes provides insight into the current demand on the road network serving the Greater Avalon Employment Precinct. Given that the Princes Freeway is the primary state road in the immediate vicinity, traffic data is predominantly focused on this key corridor.

Table 3-2 presents the available traffic volume data for the Princes Freeway. This data indicates a significant volume of traffic, with a two-way Average Annual Daily Traffic (AADT) of 75,000 vehicles. Of this, 6,300 vehicles are two-way AADT trucks, representing approximately 8% of the total traffic. This highlights the substantial freight movement occurring on the Princes Freeway, underscoring its critical role in regional and interstate logistics.

While the Princes Freeway data offers a snapshot of a major arterial, it is important to acknowledge the limited availability of comprehensive traffic volume data for other roads within and directly adjacent to the precinct. This limited data availability for the broader network necessitates reliance on VITM to understand the overall traffic impact and demand patterns.

Table 3-2. DTP traffic volume data (Source: DTP open data 2023)

Road	Two-way AADT Total	Two-way AADT Trucks	Heavy vehicle %
Princes Freeway (Avalon Road to Western Road)	75,000	6,300	8%

3.4 Public transport

3.4.1 Rail network

The wider study area rail network is shown in Figure 3-5. The Greater Avalon Employment Precinct benefits from its proximity to regional rail stations. The closest regional stations, Lara, Little River, and Corio are approximately 2km, 3.5km, and 4km away from the nearest precinct boundaries, respectively. These stations provide connections to the regional rail network via V/Line services.

While primarily serving regional passenger movements, these V/Line services offer indirect connections to the wider Melbourne metropolitan train network. Passengers can typically interchange with metropolitan train services at key hubs such as Sunshine Station, Footscray Station or Southern Cross Station in Melbourne's CBD. This allows for access to various parts of metropolitan Melbourne, facilitating commuting options for employees and visitors to the Greater Avalon Employment Precinct.

There are currently no direct metropolitan train links to Avalon Airport or within the Greater Avalon Employment Precinct. However, the existing regional stations offer a foundational level of public transport connectivity, which could be further explored for future enhancements to support the precinct's growth and accessibility.

It is anticipated that the Wyndham Vale Line will be extended to Black Forest Road and electrified, improving rail services in the west.

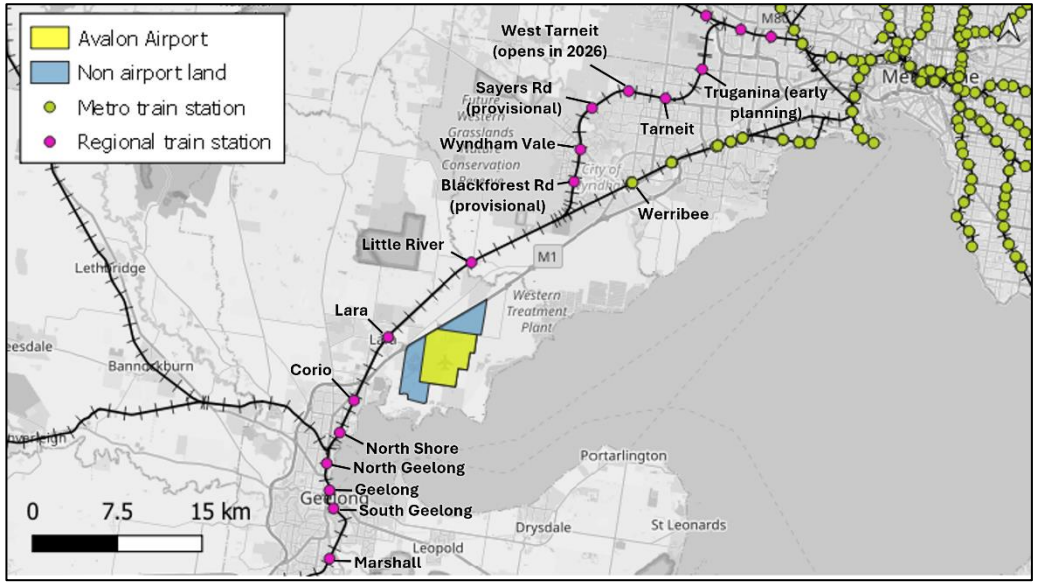


Figure 3-5. Rail network (Source: DTP)

3.4.2 Bus network

The existing bus network serving the Greater Avalon Employment Precinct is limited. Skybus is the only direct bus route operating within the precinct, providing a connection to Werribee and the Melbourne CBD (14 services/ day). Additionally, three regional bus routes operate near the precinct as shown in Figure 3-6, north of the Princes Freeway near Lara Station. These include:

- Bus route 10: Corio Village Shopping Centre via Lara South (21 services/ day).
- Bus route 11: Lara Station – Lara East via Rennie Street and Lara Lifestyle Village (17 services/ day).
- Bus route 12: Lara Station – Lara West (26 services/ day).
- Bus route 18: Lara Station – Avalon Airport (New seven-day a week service expected to commence in early 2026)

While these routes offer some local connectivity to Lara Station, they provide limited direct public transport access to the Greater Avalon Employment Precinct itself or broader connections to Geelong or metropolitan Melbourne. Public transport connectivity to these areas is primarily facilitated via V/Line rail services from nearby regional stations, as discussed in Section 3.4.1.

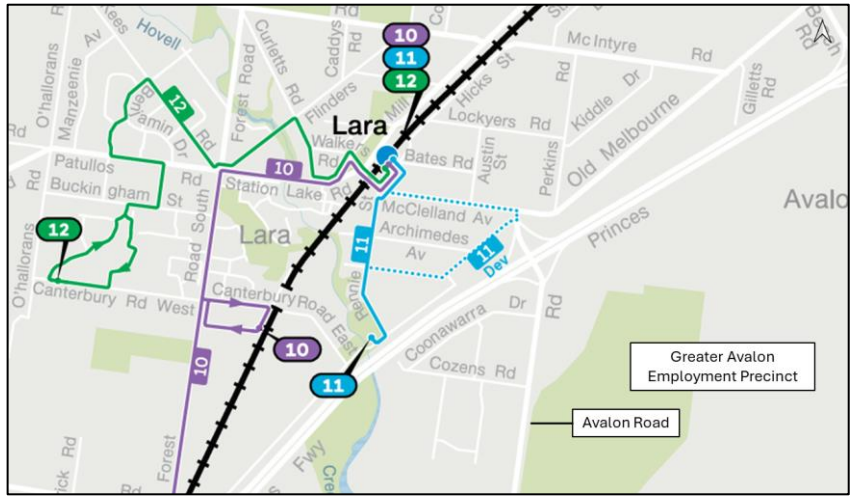


Figure 3-6. Bus network (Source: PTV)

3.5 Active transport

Current active transport infrastructure within the Greater Avalon Employment Precinct is limited. There is no existing dedicated on or off-road cycling infrastructure directly within the precinct area.

While cyclists can currently utilise the shoulder along the Princes Freeway (north of the precinct) for on-road cycling, this is considered informal infrastructure and is not dedicated. For safety and usability, it is recommended that any existing or proposed cycling infrastructure within the precinct be off-road.

The Princes Freeway, nevertheless, forms a connection to a wider network of existing and proposed cycling infrastructure to the west, particularly near Lara, Corio, and Norlane. Significantly, a Strategic Cycling Corridor (SCC) has been identified within the precinct, which is planned to connect to Lara via Avalon Road, crossing the Princes Freeway. The SCC along with the broader Principal Bicycle Network (PBN), is illustrated in Figure 3-7.

Outside Avalon Airport land, there are currently no footpaths or pedestrian infrastructure.

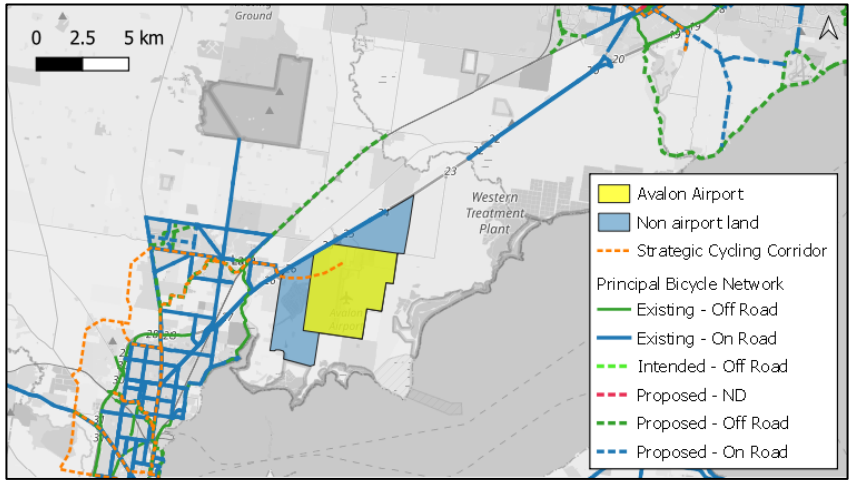


Figure 3-7. Principal Bicycle Network and Strategic Cycling Corridors (Source: DTP, noting this this figure is a point in time and may be updated by DTP)

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 for the past 10 years, covering the period from 1 October 2014 to 30 September 2024. The spatial distribution of these crashes is illustrated in Figure 3-8.

During this ten-year period, a total of 57 crashes were recorded within the study area. Looking at the years individually, the minimum recorded for a year was two crashes, and the maximum was nine. A significant majority of these incidents, 46 crashes (81%), occurred along the Princes Freeway, highlighting this arterial as a primary area of concern for road safety. Of these crashes, three occurred at each of the Princes Freeway interchanges with Avalon Road and Beach Road. There were no fatality crashes recorded within the study period. However, a considerable proportion of the crashes resulted in serious injuries, with 35 of the 57 total crashes (61%) classified as serious injury accidents.

Beyond the Princes Freeway, the remaining crashes were primarily distributed along Avalon Road and Beach Road, with a single incident recorded on Pousties Road.

Analysis of crash types reveal that almost half of all incidents, 49%, involved collisions from vehicles travelling in the same direction. Additionally, 28% of crashes involved vehicles veering off the road while travelling on a straight section of road, potentially indicating factors such as driver distraction, fatigue, or considerations regarding road alignment on high-speed sections. Additionally, 61% of crashes occurred during the daytime. These crash typologies suggest specific safety concerns that warrant further investigation and potential mitigation strategies within the study area, particularly with the potential for increased vehicle trips resulting from the Greater Avalon Employment Precinct.

It is recommended that road safety be investigated further when the precinct is being developed given the change in land use, increased traffic volumes and modified intersections.

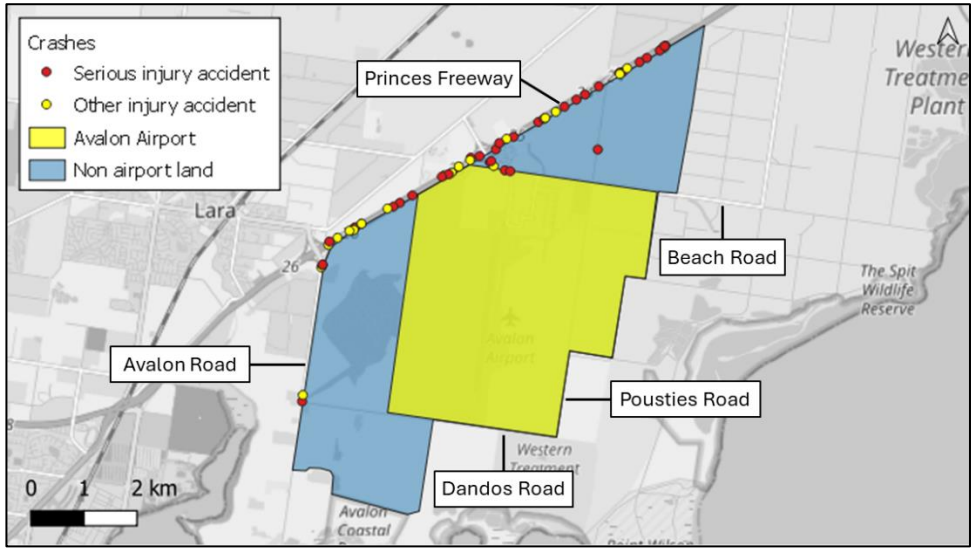


Figure 3-8. Location and severity of crashes

4. Key existing issues and future development opportunities

This chapter summarises the key existing transport issues and future development opportunities specific to the Greater Avalon Employment Precinct.

4.1 Issues

As a greenfield development site, the Greater Avalon Employment Precinct inherently presents a baseline of limited existing transport infrastructure. Several transport issues currently present challenges to the effective functioning and future development of the precinct. Addressing these challenges is crucial for successful planning and implementation of transport infrastructure. The primary issues identified include:

- **Dominant Car Dependence:** Data from the surrounding area indicates a high reliance on private vehicles for commuting (around 87% for those that travelled to work in 2021). This high car dependency is a major obstacle to promoting sustainable transport modes.
- **Inadequate Rail Connectivity:** Rail connectivity to Melbourne is currently indirect, requiring interchanges at regional stations. This lack of reliable and frequent rail transport restricts accessibility and limits travel choices for employees and visitors.
- **Inadequate Bus Connectivity:** The existing bus network is limited, with Skybus being the only direct bus route operating within the precinct, providing a connection to Werribee and the Melbourne CBD. While regional bus routes operate in proximity to Lara Station, they offer limited direct public transport access to the Greater Avalon Employment Precinct or broader connections to Geelong or metropolitan Melbourne.
- **Deficient Active Transport Infrastructure:** Dedicated on or off-road cycling infrastructure is virtually non-existent directly within the precinct area. While the Princes Freeway shoulder is used informally, safe and dedicated off-road facilities are recommended. Similarly, outside Avalon Airport land, there are no footpaths or pedestrian infrastructure. This deficiency discourages walking and cycling as viable transport options and raises safety concerns.
- **Existing Road Safety Concerns:** Crash analysis for the past 10 years (2014-2024) reveals 57 crashes within the study area, with a significant majority (81%) occurring along the Princes Freeway. Of these, 61% resulted in serious injuries. Additionally, 11% of the crashes occurred at the Princes Freeway interchanges with Avalon Road and Beach Road. While no fatalities were recorded in the study period, these incidents highlight existing road safety deficiencies, particularly at intersections and high-speed sections, which will need to be proactively addressed with increased traffic volumes.
- **Pressure on Existing Road Network Capacity:** Key existing roads, including Princes Freeway, Avalon Road, Dandos Road, and Pousties Road, are critical for the precinct's connectivity. As the precinct grows and generates additional traffic, there will be increased pressure on the capacity and operational efficiency of these surrounding roads, necessitating careful planning for upgrades and network management.

4.2 Opportunities

Despite the existing challenges, the development of the Greater Avalon Employment Precinct presents several significant opportunities to create a more sustainable, integrated, and efficient transport system that supports its economic growth. These opportunities include:

- **Strategic Location and Economic Growth:** The precinct's position within the City of Greater Geelong, a major regional centre with ambitious population (400,000 by 2041) and job (190,000 by 2041) growth targets, provides a strong strategic impetus for integrated transport planning. The precinct itself is projected to generate approximately 26,000 new local jobs, underscoring the vital need for robust transport infrastructure to enable this growth.
- **Opportunity for Greenfield Transport Planning:** The development of the precinct, including the planning for new internal collector roads, offers a significant opportunity to design and implement a sustainable, multi-modal transport network from the ground up. This allows for the integration of best practices in transport planning and urban design, rather than retrofitting existing infrastructure.
- **Promoting Mode Shift through Targeted Investment:** The current high car dependency and low public/active transport usage present a clear opportunity to implement strategies that encourage a significant shift away from private vehicle reliance. This includes prioritising investments in public transport improvements and creating dedicated, safe, and convenient active transport corridors, such as the identified Strategic Cycling Corridor (SCC) that is planned to connect to Lara via Avalon Road.
- **Leveraging Airport and Port Connectivity for Multimodal Freight:** The precinct's proximity to Avalon Airport and the Port of Geelong, both designated Principal Freight Network (PFN) Places, provides a robust foundation for multimodal freight operations. Future enhancements, including the planned PFN road along the Outer Metropolitan Ring Road and its interchange with the Princes Freeway, offer critical opportunities for improved access to the Western Interstate Freight Terminal, further enhancing the precinct's strategic freight capabilities.
- **Integration with Broader Strategic Frameworks:** The development of the precinct is guided by the Avalon Corridor Strategy, which explicitly focuses on integrated transport and land use, supporting industry, employment, freight, and multi-modal movement. This strong policy alignment provides a clear framework for transport planning that can seamlessly integrate with the corridor's overarching vision.
- **Proactive Road Safety Enhancements:** The identified crash hotspots on the Princes Freeway and other key roads present an opportunity to proactively design and implement road safety improvements within the precinct and at key intersections. This includes considering road design, signage, and traffic management measures to mitigate risks associated with increased traffic volumes and changes in land use.

5. Proposed transport and land use plans

This section outlines the proposed land use and transport infrastructure included in the Transport Assessment Memo.

5.1 Urban structure

Figure 5-1 outlines the proposed urban structure for the GAEP. The overall focus of the precinct is to unlock a strategically located industrial and employment zone, featuring Avalon Airport, with land primarily designated for industrial and commercial developments. The precinct will be supported by a network of arterial, connector, and local roads, enabling efficient access and movement for workers, freight, and residents.

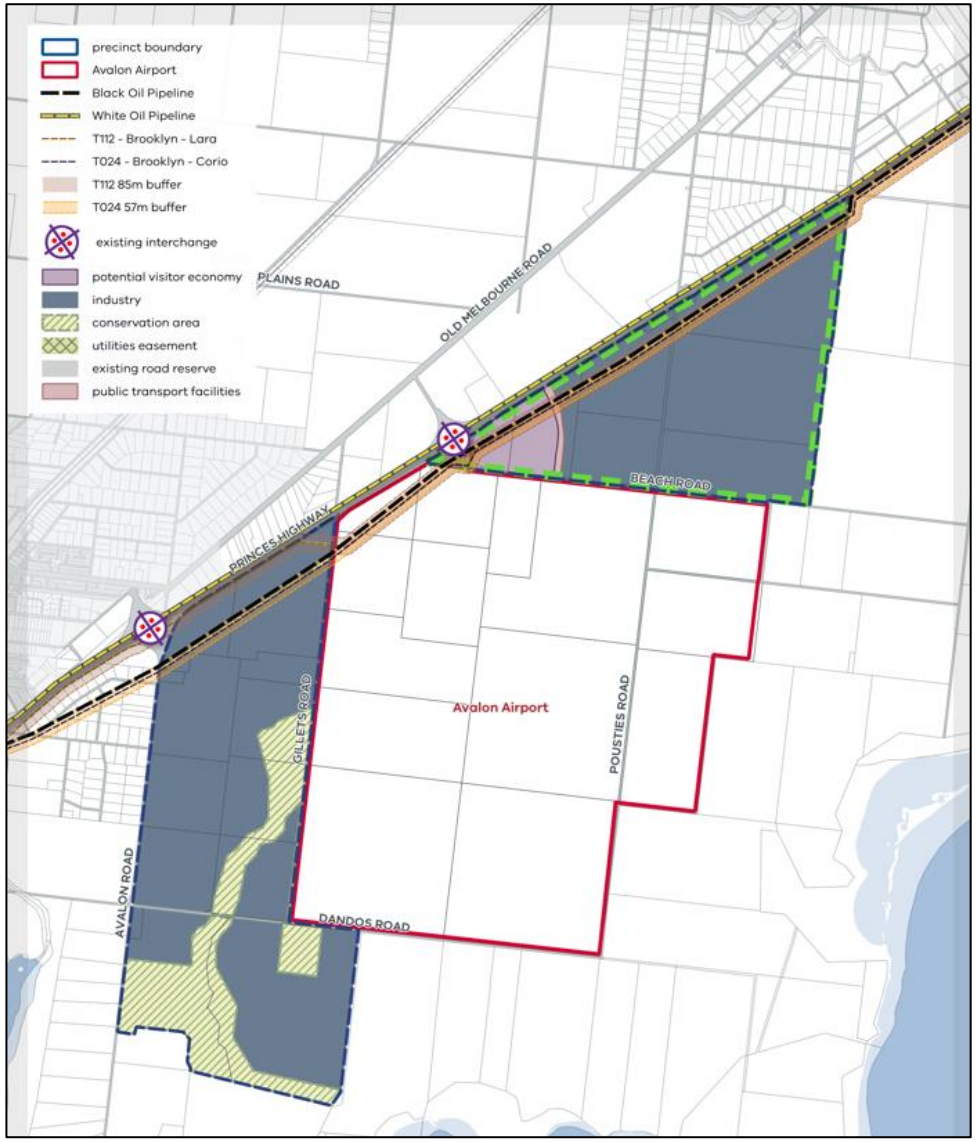


Figure 5-1. Urban structure (Source: VPA)

5.2 Movement network

5.2.1 Street hierarchy

As shown in Figure 5-2, the proposed movement network for the GAEP has been structured to provide clear connectivity and efficient circulation for all road users. The street hierarchy helps define how different streets function within the broader network to balance the needs of through movements and local access. It should be noted that this section details Option 1 for the Movement Network Plan. Option 2 only differs to Option 1 in that it does not include the GAEP-North (GAEP-N) road network.

At the highest level, arterial roads including Avalon Road and Beach Road, form the primary spines through the GAEP. Strategic transport modelling outputs indicate that Avalon Road (between the freeway interchange and first connector street) requires duplication, and there is a strong need for duplicating Beach Road (between the freeway interchange and the airport entry) as well. This would enable both roads to accommodate higher traffic volumes and strengthen strategic connections to key destinations, such as the Avalon Airport. As the arterial roads also connect into the Princes Freeway, they function as strategic links to support longer distance travel and provide access for commuters or travellers to and from the precinct.

Collector roads serve as the intermediate links, distributing traffic between the arterial and local roads. They are intended to support moderate vehicle volumes and integration with active and public transport corridors.

Local streets within the precinct will prioritise internal movements, designed as low speed and traffic volume environments. As such, these streets are more suited for walking and cycling with a greater emphasis on pedestrian safety and amenity. These streets will also provide direct access to properties and smaller scale industrial areas.

Overall, the proposed street hierarchy is designed to match movement functions with the appropriate street classification, thereby reducing conflicts between through and local traffic. This tiered structure further provides flexibility for future transport planning to facilitate sustainable transport modes.

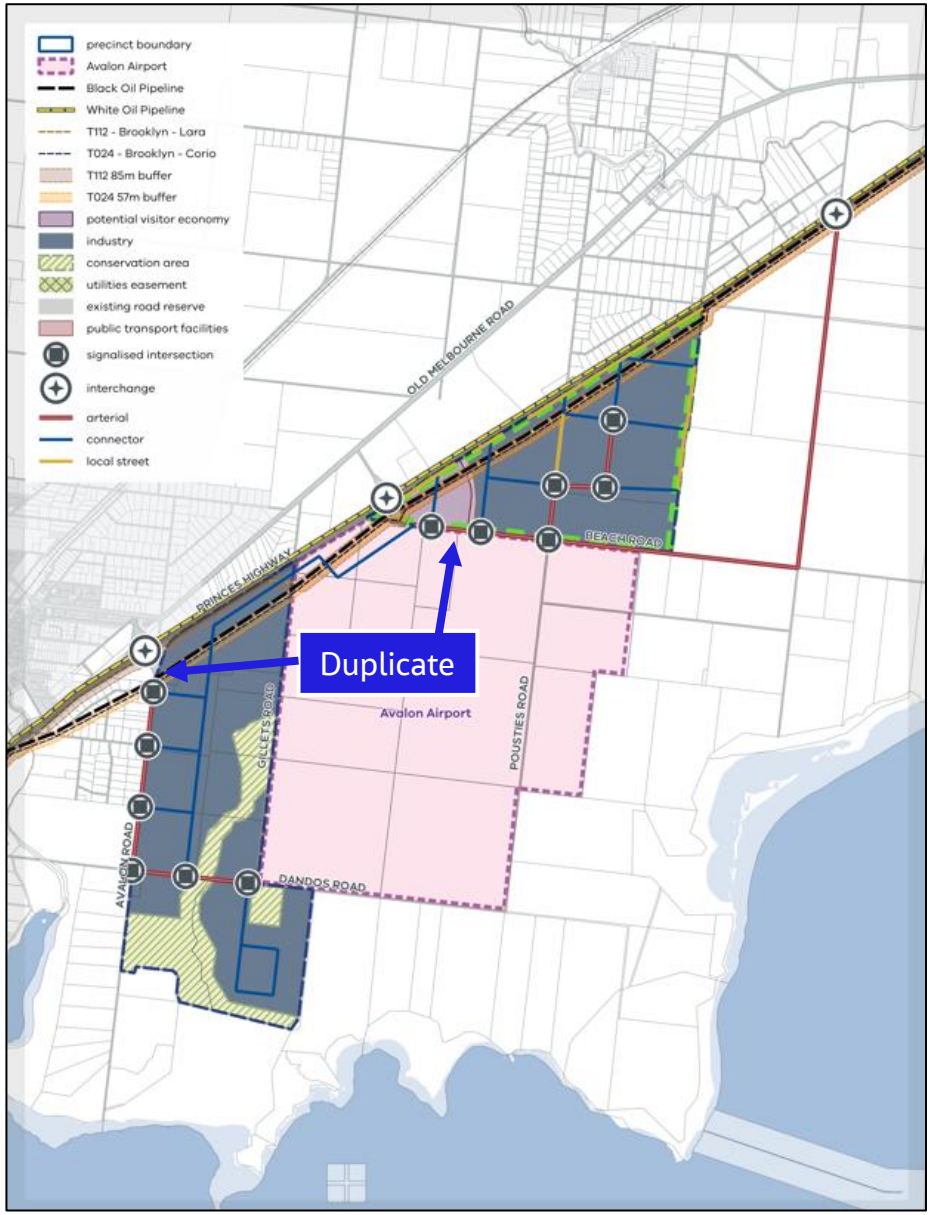


Figure 5-2. Movement Network Plan Option 1 (Source: VPA)

5.2.2 Traffic demand projections

The daily vehicle volumes for the 2056 base scenario are shown in Table 5-1. The traffic demand options are defined as follows:

- **2056 Base:** no precinct development scenario, Airport at 100% of Avalon Airport (AVV) air passenger forecasts
- **2056 Option 1A**: GAEP-N and GAEP-W, Airport at 50% of AVV air passenger forecasts
- **2056 Option 1B:** GAEP-N and GAEP-W, Airport at 100% of AVV air passenger forecasts
- **2056 Option 2A:** GAEP-W only, Airport at 50% of AVV air passenger forecasts
- **2056 Option 2B:** GAEP-W only, Airport at 100% of AVV air passenger forecasts

For complete traffic demand projection details, refer to the *Strategic Transport Modelling Assessment Report (2025)*.

Table 5-1. Select link volumes (2056 scenarios)

Road Section	Direction	2056 Daily Volumes (vpd[1])					
		2018	2056 BC	Option 1A	Option 1B	Option 2A	Option 2B
Airport Passengers	IN	2,100	12,300	6,200	12,300	6,200	12,300
	OUT	2,000	11,800	5,900	11,800	5,900	11,800
	TOTAL	**4,100**	**24,100**	**12,100**	**24,100**	**12,100**	**24,100**
Avalon Rd - South of Fwy Interchange	Southbound	< 100	1,000	8,800	9,900	8,600	8,800
	Northbound	< 100	1,100	8,600	9,200	8,300	8,700
	TOTAL	**< 200**	**2,100**	**17,400**	**19,100**	**16,900**	**17,500**
Beach Rd - East of Fwy Interchange	Westbound	2,600	16,600	18,300	22,600	11,200	16,800
	Eastbound	2,700	16,100	17,700	19,800	11,600	15,900
	TOTAL	**5,300**	**32,700**	**36,000**	**42,400**	**22,800**	**32,700**
Dog Leg Connector (north-east end)	Westbound	N/A	N/A	2,300	2,700	2,500	2,400
	Eastbound	N/A	N/A	2,200	1,900	2,400	2,100
	TOTAL	N/A	N/A	**4,500**	**4,600**	**4,900**	**4,500**
Point Wilson Rd	Southbound	< 100	700	2,900	4,500	400	500
	Northbound	< 100	2,200	4,300	7,100	400	2,100
	TOTAL	**< 200**	**2,900**	**7,200**	**11,600**	**800**	**2,600**
Princes Fwy - East of Beach Rd	Westbound	35,900	70,200	69,800	69,000	70,600	71,300
	Eastbound	35,600	73,400	72,900	73,300	72,500	74,400
	TOTAL	**71,500**	**143,600**	**142,700**	**142,300**	**143,100**	**145,700**
Princes Fwy - East of Point Wilson Rd	Westbound	35,900	72,300	74,100	76,100	71,000	73,400
	Eastbound	35,600	74,100	75,900	77,800	72,900	75,000
	TOTAL	**71,500**	**146,400**	**150,000**	**153,900**	**143,900**	**148,400**
Princes Fwy - West of Avalon Rd	Westbound	34,100	68,100	69,100	69,900	68,100	69,000
	Eastbound	34,000	68,800	71,000	71,900	69,500	70,500
	TOTAL	**68,100**	**136,900**	**140,100**	**141,800**	**137,600**	**139,500**

[1] = vehicles per day

6. Conclusion

This memo evaluates the proposed transport network for the Greater Avalon Employment Precinct (GAEP). Commissioned by the Victorian Planning Authority (VPA), this memo is aligned with relevant state and local policies. The GAEP, which features the Avalon International Airport and industrial land use to the north-east of Geelong presents both challenges and opportunities for creating a sustainable and integrated transport system.

As a greenfield site, the GAEP faces several existing transport challenges to the future development of the site. This includes a heavy reliance on private vehicles, limited and indirect transport options, and a lack of safe and dedicated active transport infrastructure. Existing road safety issues and growing pressure on key corridors are additional challenges that need to be considered. As such, there is a need for proactive, integrated transport planning to create safe and sustainable outcomes as development progresses. Key opportunities for the GAEP include:

Key opportunities

- **Strategic Growth Catalyst:** The City of Greater Geelong has ambitious growth targets including a population of 400,000 and provision of 190,000 jobs by 2041, with the GAEP projected to generate 26,000 jobs alone.
- **Greenfield Transport Planning Advantage:** Opportunities to design and implement a sustainable, multi-modal transport network for the precinct.
- **Mode Shift Potential**: Opportunity to invest in public and active transport to drive behavioural changes away from a highly car dependent precinct.
- **Airport and Port Connectivity for Freight**: Proximity to Avalon Airport and Port of Geelong enables strategic multi-modal freight integration.
- **Integration with Broader Strategic Frameworks:** Strong alignment with the Avalon Corridor Strategy ensures transport planning supports broader land use and economic goals.
- **Road Safety Enhancements**: Identified crash hotspots allow for proactive safety upgrades to support future road safety and expected traffic growth.

Proposed transport road network infrastructure and key findings:

The proposed street hierarchical network is designed to support the precinct's role as an industrial and employment hub by balancing efficient freight and worker access with safe and comfortable internal movements. The network is composed primarily of arterial and collector roads, facilitating more regional movements with access between the Princes Freeway to industrial zones or the International Avalon Airport.