Integrated Transport Assessment Report

Version B

Victorian Planning Authority

Casey Fields South (Employment) and Devon Meadows Precinct Structure Plan

March 2025

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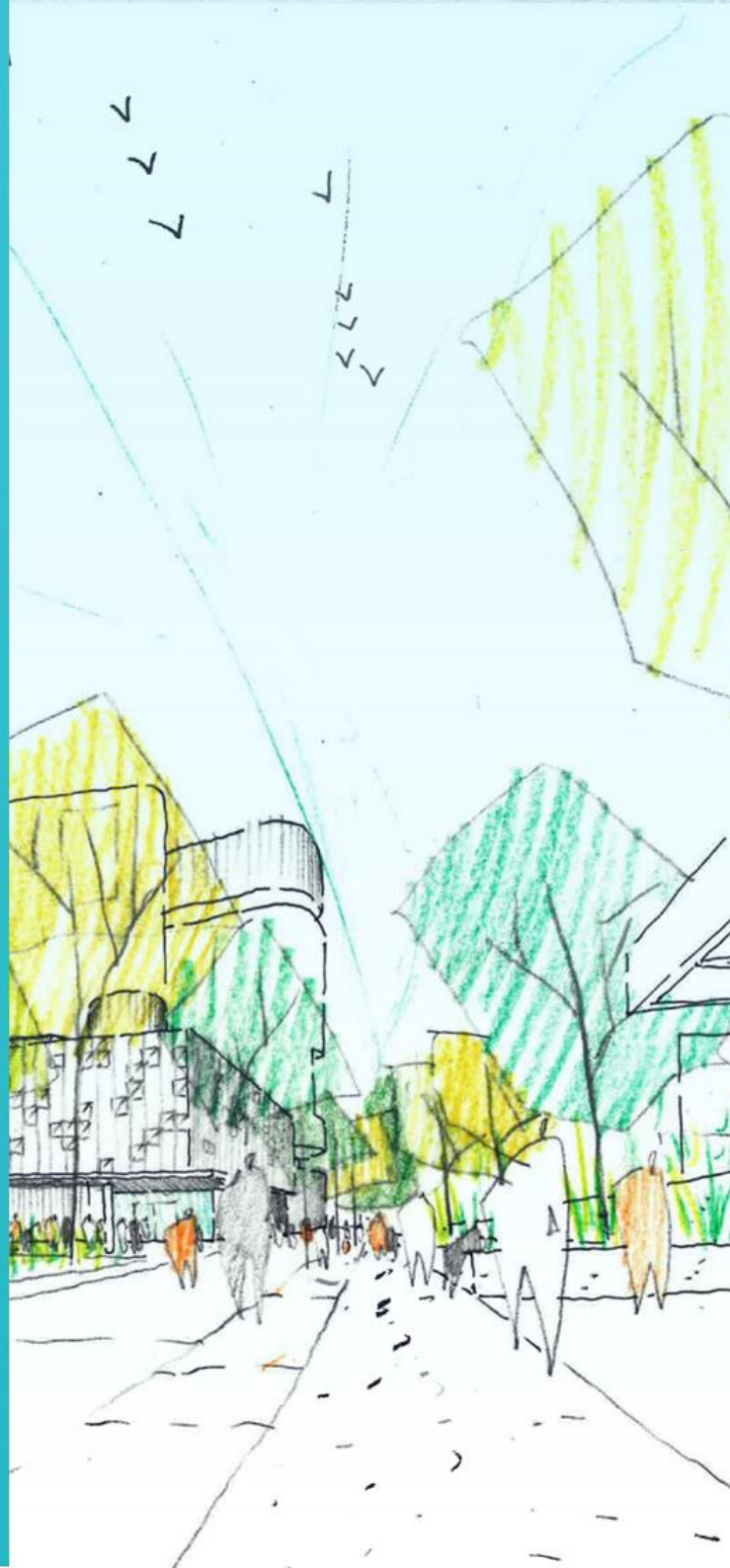

Casey Fields South (Employment) and Devon Meadows Integrated Transport Assessment Report

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Executive summary

This Integrated Transport Assessment Report (ITAR) evaluates the proposed transport network for the Casey Fields South (Employment) and Devon Meadows Precinct Structure Plan (PSP) within Melbourne's South East Growth Corridor. Commissioned by the Victorian Planning Authority (VPA), this assessment analyses the proposed Casey Fields South (Employment) and Devon Meadows PSP against relevant state and local policies. The Casey Fields South (Employment) and Devon Meadows PSP, designated for primarily industrial use in the Casey Fields South (Employment) precinct and residential in the Devon Meadows precinct, present 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, and cycling.
- **Public Transport Enhancement:** Potential Cranbourne Line extension to Clyde could significantly improve public transport access.
- **Land Use/Transport Integration:** PSP process enables integrated planning, promoting 20-minute neighbourhoods.
- **Strategic Industrial Precinct:** The Casey Fields South (Employment) precinct can attract local jobs, reducing out-of-area commutes.
- **Active Travel Promotion:** Developing off-road cycling/pedestrian infrastructure can encourage active travel.
- **Leverage Cranbourne Line Upgrades:** Enhanced bus connections can capitalise on recent Cranbourne Line improvements.

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 adjacent Clyde South PSP network requires review. Consider a more direct Botanic Ridge-Cranbourne East connection (via Protea/Bardicoot).
- **Public Transport:** Arterial roads /connector streets are bus capable. Detailed planning for routes, frequencies, stops, and regional integration is crucial, potentially with bus priority. Address accessibility for people with disabilities. Consider park-and-ride facilities at strategic locations, particularly near major transport interchanges and undertaking a catchment analysis to identify any areas that may be beyond a reasonable walking distance to a bus capable route.
- **Active Transport:** Off-road bicycle paths are proposed along all arterial roads (besides South Gippsland Highway), connector streets, local access streets and along drainage corridors. All residents are generally within 300m of dedicated cycling infrastructure. Signalised pedestrian crossings are generally proposed at key intersections along, Ballarto Road, South Gippsland Highway, and Clyde Five Ways Road, with an approximate spacing of 800m. However, notable gaps exist, particularly at the southern end of Clyde Five Ways Road. Consideration should be given for an additional pedestrian and cyclist crossing along Clyde Five Ways Road, south of Moores Road. Consideration should also be given to undertake a detailed assessment to identify locations of additional pedestrian crossings along waterways and accessibility barriers to ensure that a pedestrian and cyclist crossing is provided every 400-800m.
- **Cross Sections/Intersections:** Cross-sections include street trees, parking, and nature strips. Detailed intersection designs are required for safe pedestrian/cyclist crossings. Check intersection capacity, particularly intersections along South Gippsland Highway and Clyde Five Ways Road.

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 Casey Fields South (Employment) and Devon Meadows 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 Casey Fields South (Employment) and Devon Meadows PSP and provides recommendations to guide the effective integration of the proposed with the existing and planned transport network. The ITAR is an iterative process working alongside the development of the PSP. A draft PSP, outlining proposed land uses, infrastructure, and other key precinct elements, is assessed by the ITAR, which identifies transport-related issues and opportunities. ITAR findings inform PSP revisions, leading to a refined plan.

The Casey Fields South (Employment) and Devon Meadows precincts are undeveloped parcels of land located within the City of Casey, within the South East Growth Corridor of Melbourne, approximately 50 km south east of Melbourne CBD. The Devon Meadows precinct has been identified for primarily residential land use and Casey Fields South (Employment) precinct has been identified for primarily industrial land use adjacent to the existing South Gippsland Highway. The Casey Fields South (Employment) precinct is considered a regionally significant industrial precinct which will provide approximately 5,400 job opportunities for emerging residents from surrounding precincts to live and work locally. By 2051, the population of the Devon Meadows precinct is projected to be 11,980, with 3,967 dwellings.

1.2 Overview

The project involves preparing an ITAR to provide recommendations for the Casey Fields South (Employment) and Devon Meadows 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 VITM 2018 Base Year model, modelling of the VITM 2051 Reference Case, and development of a future (2051) Project-specific model. The STMA outputs are summarised in Section 5 of this report, with further detail provided in the *Strategic Transport Modelling Assessment Report (Jacobs 2024).*

1.3 Study area and wider assessment area

Based on discussions with VPA, the agreed study area is shown in green in Figure 1-1, along with a wider assessment area in pink. Model updates and validation concentrated on the study area, with impacts reported on for the assessment within the wider assessment area.

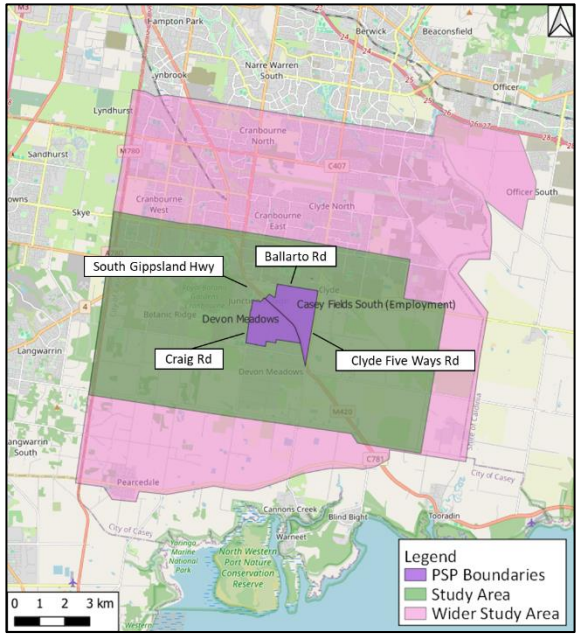


Figure 1-1: Project study area (in green) and wider assessment area (in pink)

2. Policy review

This chapter summarises the policy framework guiding the ITAR. 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 this assessment.

2.1 State

2.1.1 Plan Victoria (2025, under development)

Key takeaways:

Plan Victoria is currently being developed, with a new plan anticipated for release in early 2025. This new plan will guide housing growth and development across the state, and its policies will be highly relevant to this ITAR. While the specific policies are not yet finalised, key themes emerging from the development process indicate a likely focus on:

- **Housing Proximity to Key Services:** Creating more homes near transport, jobs, and essential services.
- **Liveability and Sustainability:** Developing vibrant, liveable, and sustainable suburbs, towns, and regions.
- **Regional Housing Targets:** Setting specific housing targets for local government areas across Victoria.

This ITAR acknowledges the ongoing development of Plan Victoria and will be consistent with the finalised policies once they are released. This assessment considers the likely direction of the new plan, particularly regarding the integration of housing with transport, access to services, and the promotion of sustainable communities.

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.

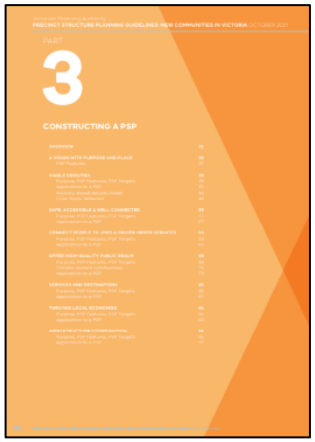
2.1.3 Victoria's Housing Statement (2024-2034)

Key Takeaways:

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

- **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.

2.1.4 Precinct Structure Planning Guidelines: New Communities in Victoria (2021)

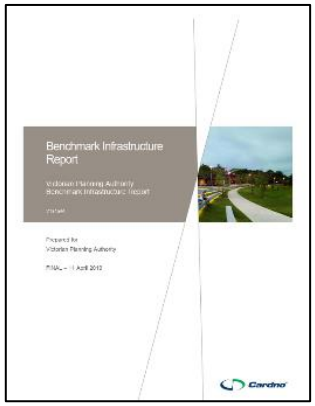


Key Takeaways:

This document sets the overall direction for PSP development in Victoria, prioritising the creation of sustainable and well-connected communities. For the ITA, 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: Ensuring easy access to community infrastructure via sustainable transport.
- Safe Streets: Design of safe and inviting streets for all users.

2.1.5 Victorian Planning Authority Benchmark Infrastructure Report, (2019)



Key Takeaways:

This report establishes benchmarks for infrastructure provision in new communities, including transport infrastructure. The ITAR needs to consider:

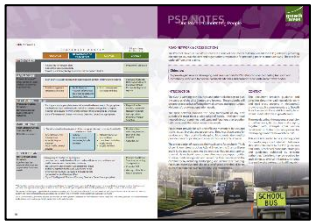
- Road Standards: Benchmarks for road widths, pavement, and intersections.
- Public Transport: Guidance on bus stops and other public transport infrastructure.
- Active Transport: Standards for bicycle paths, shared paths, and pedestrian crossings.
- Community Infrastructure: Benchmarks for parking and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

2.1.6 Plan Melbourne (2017-2050)

Key Takeaways:

- Future planning for 2050 is based on the following growth predictions:
  - Melbourne's population is expected to growth from 4.5 million to 8 million in 2050. Victoria's population is expected to reach 10 million by 2051.
  - The economy will need to support an additional 1.5 million jobs and the change in technology impacting the workforce.
  - An anticipated 1.6 million homes will be required.
  - An increase of more than 80 per cent of work trips (10 million more/daily)
  - Extreme weather changes including extreme heart, droughts, increased risks of bushfires and flooding.
- The strategy includes:
  - 9 principles – To guide policies and actions.
  - 7 outcomes – to state the ambitions of the plan.
  - 32 directions – to outline how the outcomes will be achieved.
  - 90 policies – to detail how directions will be turned into actions.

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

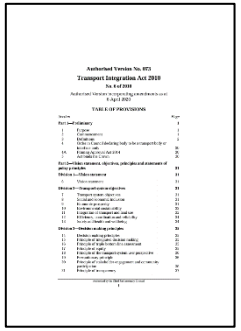


Key Takeaways:

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

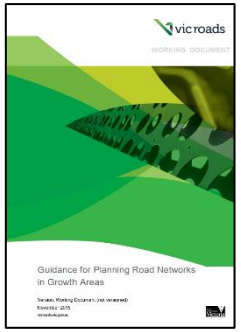
2.1.8 Transport Integration Act (2010)



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.

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



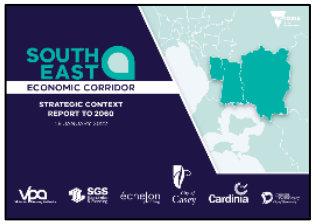
Key Takeaways:

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 growth areas.

2.2 Regional

2.2.1 South East Economic Corridor Strategic Context Report to 2060 (2022)

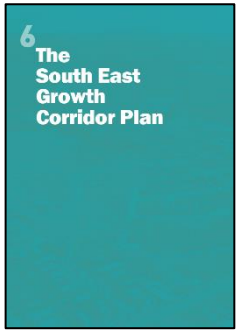


Key takeaways:

The Soth East Economic Corridor (SEEC) framework guides employment and activity centre planning. Key features include:

- **Key Features:** Two Metropolitan Activity Centres; 12 major activity centres; two State-significant Industrial Precincts; six employment PSPs (2,500 hectares)
- **40-Year Vision (to 2060):** Near-full SEEC development; mixed commercial/industrial uses; support for moer than one million residents; more than 560,000 jobs; Casey Fields South (Employment) evolution.
- **Three-Horizon:** Consolidate/support (current planning); reinforce/augment (future infrastructure); transform (long-term vision).

2.2.2 South East Growth Corridor Plan (2012)



Key Takeaways:

- Located on the outer edge of this broader economic region and is reliant on established urban areas for jobs and services.
- This area will eventually accommodate a population of 230,000 people and provide for at least 86,000 jobs.
- A key objective of this plan is to improve the local self containment of jobs in the South East Growth Corridor.
- The existing area will be enhanced through the design of the precincts, enabling residents to easily access waterways, biodiversity corridors and open spaces, town centres, local services, and job opportunities.

2.3 Local

2.3.1 Casey Fields South & Devon Meadows Vision & Purpose (2022)

Key takeaways:

The Casey Fields South and Devon Meadows vision is to create a vibrant, inclusive 20-minute neighbourhood combining a thriving economy with a superb lifestyle and recreation setting. Key themes emerging from early stakeholder engagement include:

- Land, water, and vegetation
- Activity and community
- Connection and transportation
- Employment
- Neighbourhood character

Regarding connection and transportation, the PSP aims to:

- Effectively integrate the transport network with existing and planned land uses and networks.
- Ensure a safe and efficient physical transport network for all anticipated users.
- Encourage and support active and public transport modes, reducing reliance on private vehicles.

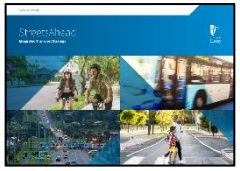
2.3.2 Walk and Ride in Casey Strategy (2019 -2041)

Key Takeaways:

The City of Casey's vision for integrated infrastructure is a city connected by quality infrastructure that supports walking and cycling. Strategic objectives:

- **Linked Path Network to Local Services:** A connected path network enabling safe walking and cycling access to local services. Priority is given to missing paths within a 1.5km walkable catchment of major activity centres, train stations, and schools, including the Clyde Major Town Centre and potential future Clyde Station.
- **Connected Green City:** A trail network connecting district and regional parks and reserves, including the Shared Path Along the Rail Corridor and the Great Casey Trail.

2.3.3 Casey's Streets Ahead Integrated Transport Strategy (2017)



Key Takeaways:

- Transport conditions in Casey:
  - Casey has the highest rate of car ownership in Victoria (over 60 per cent of households own >=2 cars).
  - Households average 10 trips/day.
  - 83 per cent of trips are made by car.
- Integrated transport is to be achieved through the following objectives:
  - Establish 20-minute neighbourhoods.
  - Support and enhance sustainable modes of transport.
  - Create an efficient and reliable network.
  - Adopt a 'smart city' approach to transport planning.

3. Existing conditions

3.1 Regional context

3.1.1 City of Casey

The PSP is located within the City of Casey, approximately 50 kilometres south east of Melbourne CBD and forms part of the South East Growth Corridor. The City of Casey covers approximately 400 square kilometres and is one of the fastest growing regions in Australia with population expected to rise by approximately 180,000 from around 392,000 residents in 2023 to around 574,000 by 2046[1].

The Casey local government area (LGA) contains a mix of land use as shown in Figure 3-1. Established residential areas are in the north, with activity centres such as Cranbourne, Narre Warren, Endeavour Hills, Berwick, and Hampton Park and Clyde (future). Surrounding these activity centres are established residential and commercial zones. The central area is expecting significant amounts of urban growth around Clyde and Clyde North, including the PSP study area at Casey Fields South (Employment) and Devon Meadows. The southern region of the council is mostly rural land used for agricultural land use and hobby farms.

The Cranbourne Line, Pakenham line, Monash Freeway (M1), the South Gippsland Freeway, and the Western Port Highway / South Gippsland Freeway form the major movement corridors in the region. It is also noted that the Growth Corridor Plan plans for the extension of the Cranbourne Line to Clyde. These movement corridors provide important radial links into Melbourne central business district (CBD), the inner metropolitan suburbs, and between key employment and education precincts such as the Dandenong and Monash National Employment and Innovation Clusters (NEIC) which serve as major hubs for jobs, industry, and the community. Further growth in Casey will see emerging hubs provide significant future employment opportunities.

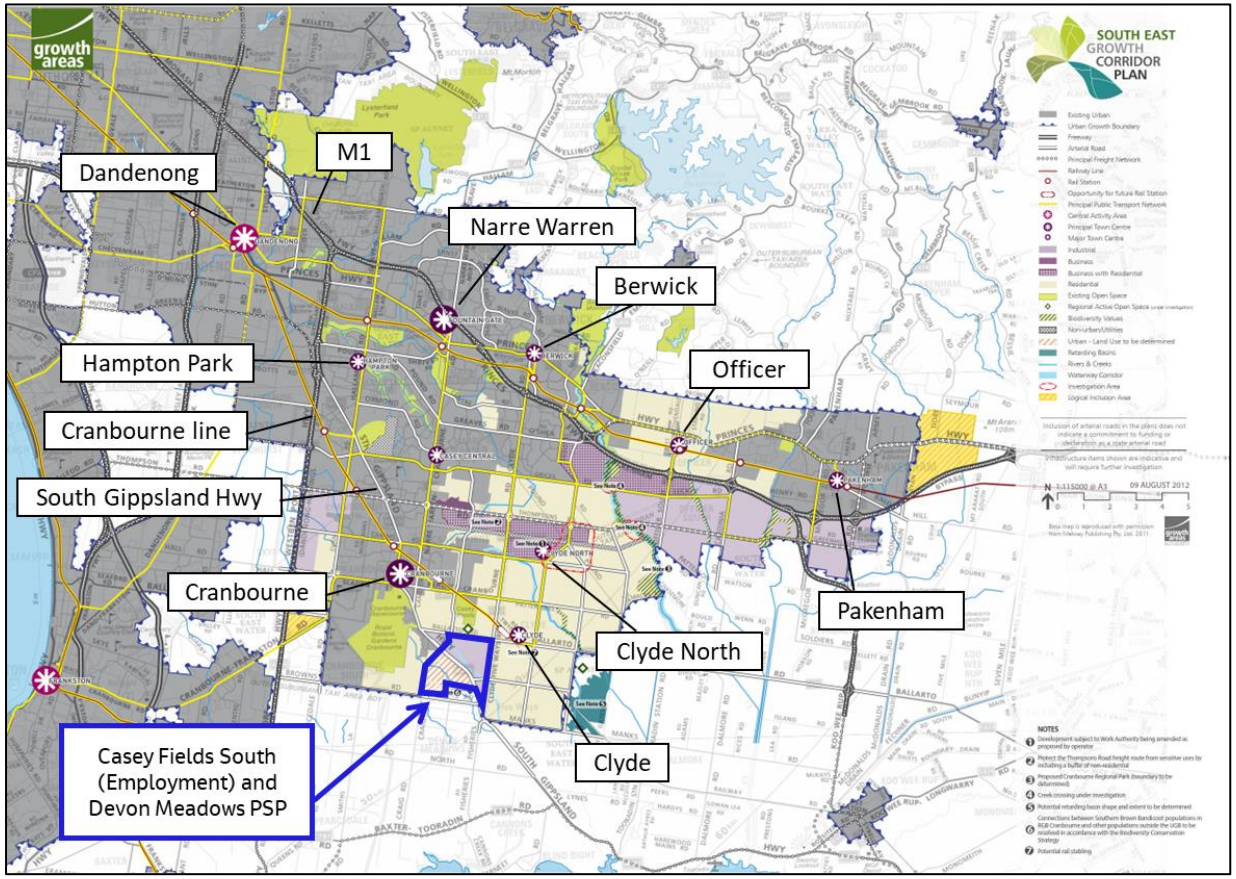


Figure 3-1. South East Growth Corridor Plan (Source: VPA)

[1] https://forecast.id.com.au/casey

3.1.2 Casey Fields South (Employment) and Devon Meadows PSP

To plan for the liveability of the region, there are four remaining PSPs to be planned in the City of Casey. These include Croskell, Clyde South, Casey Fields South (Employment), and Devon Meadows, as shown in Figure 3-2. Both Casey Fields South (Employment) and Devon Meadows are located on the periphery of the Urban Growth Boundary, with the South Gippsland Highway acting as a barrier between the two precincts.

The Casey Fields South (Employment) precinct has been identified as a regionally significant industrial precinct and will provide 4,200 jobs[2], in proximity to several of the surrounding councils emerging residential communities. This will reduce the need to travel out of Casey or Cardinia for work, making a critical contribution to the overall sustainability of the south east region's growth areas. The precinct will provide connections to the future Clyde Major Activity Centre and train station, and several regionally significant open space and recreation destinations, such as the Royal Botanic Gardens. The Devon Meadows precinct has been identified for primarily residential land use. Activity centres planned at either end of a new connector street which is an extension of Devon Road, serve as the focal points for community life.,

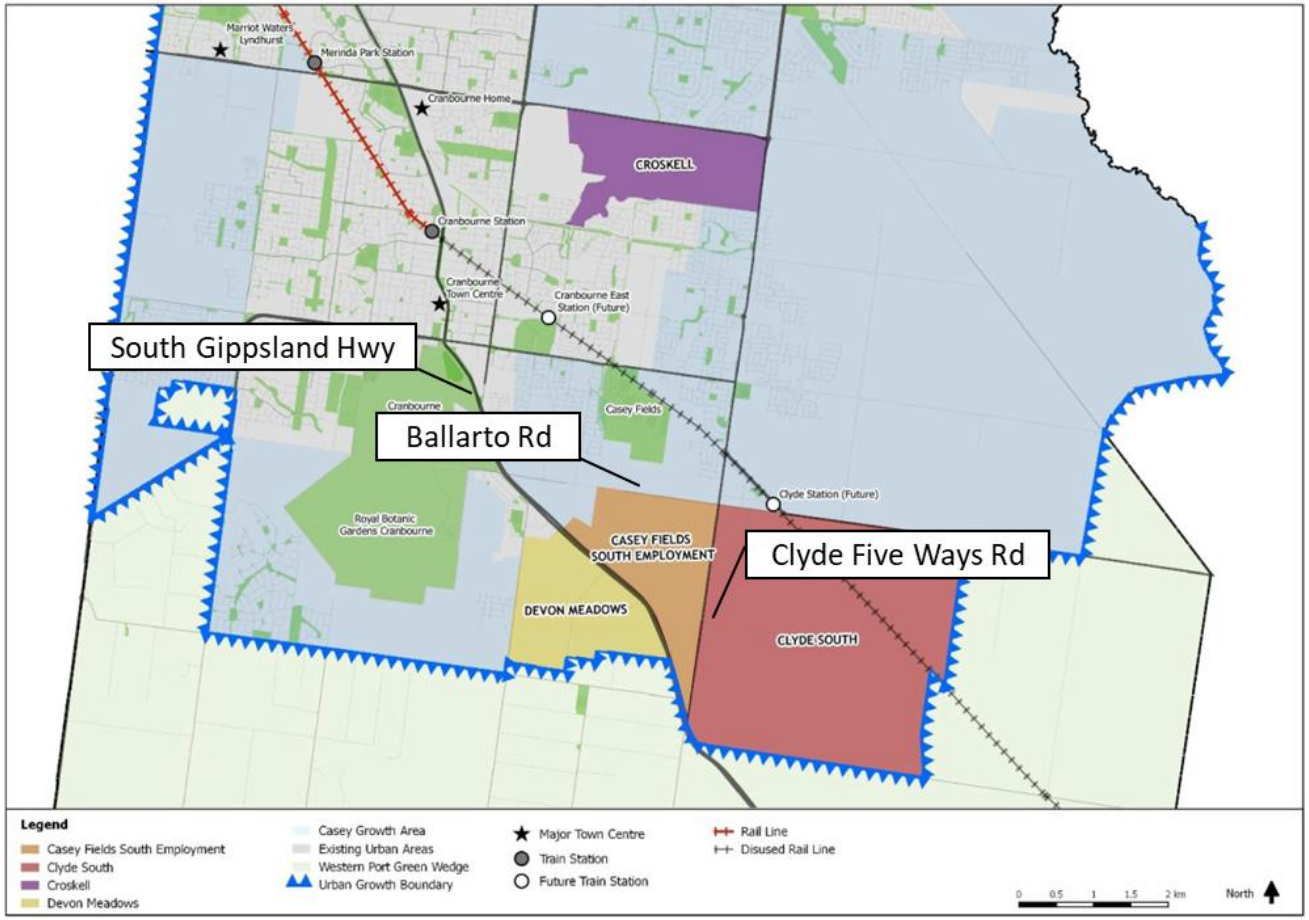


Figure 3-2. Vision for remaining growth areas[2] (Source: VPA)

[2] Vision for Remaining Growth Areas 2019.pdf
Note that the PSP boundaries have shifted since the release of this figure.

3.2 Travel behaviour

The method of travel to work from those living in the surrounding area[4] was analysed using ABS 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:

- In 2016, vehicles (private vehicles and ride share) account for 79% of all trips (89% excluding working from home).
- By 2021, while still the primary mode, vehicle use decreased to 69% (93% 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:

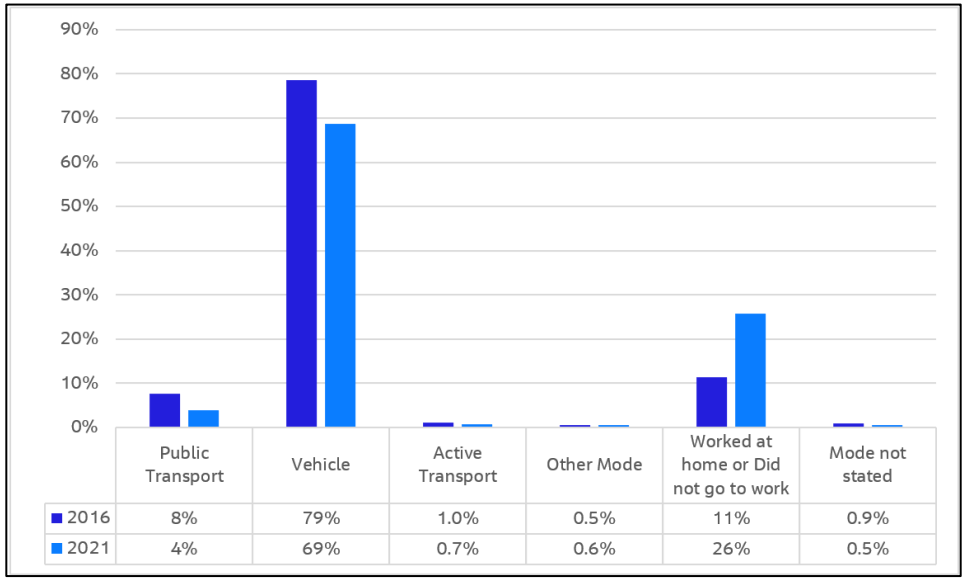
- Active transport (cycling and walking) accounted for only 1% of trips in 2016.
- This slightly decreased to 0.7% in 2021. These low levels indicate a need to significantly improve infrastructure and promote active transport, especially considering the surrounding area's lower active transport mode share compared to the Greater Melbourne average of 2.7%[3].

Increase in Working from Home:

- The percentage of people working from home was 11% in 2016.
- This proportion significantly increased to 26% 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 service is required to change this.

However, the long-term effects 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	8%	79%	1.0%	0.5%	11%	0.9%
2021	4%	69%	0.7%	0.6%	26%	0.5%

Figure 3-3. Method of travel to work from place of usual residence in surrounding area[4]

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

[4] 2016/2021 ABS Census data. 2016 SA2 areas include: Cranbourne, Cranbourne East, Cranbourne South, Cranbourne West. 2021 SA2 areas include: Cranbourne, Cranbourne South, Cranbourne West, Clyde North – South, Cranbourne East – North, Clyde North - North

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. Four arterial roads define the boundaries of the two PSP areas, separated diagonally by South Gippsland Highway. Ballarto Road, forming the northern boundary of Casey Fields South (Employment) precinct, is currently an unsealed dirt road under construction to a sealed arterial road. The internal network will include additional collector roads and local streets. Major road corridors near the study area include the Monash Freeway, Princes Highway, Western Port Highway and Berwick-Cranbourne Road. (see Section 1.1).

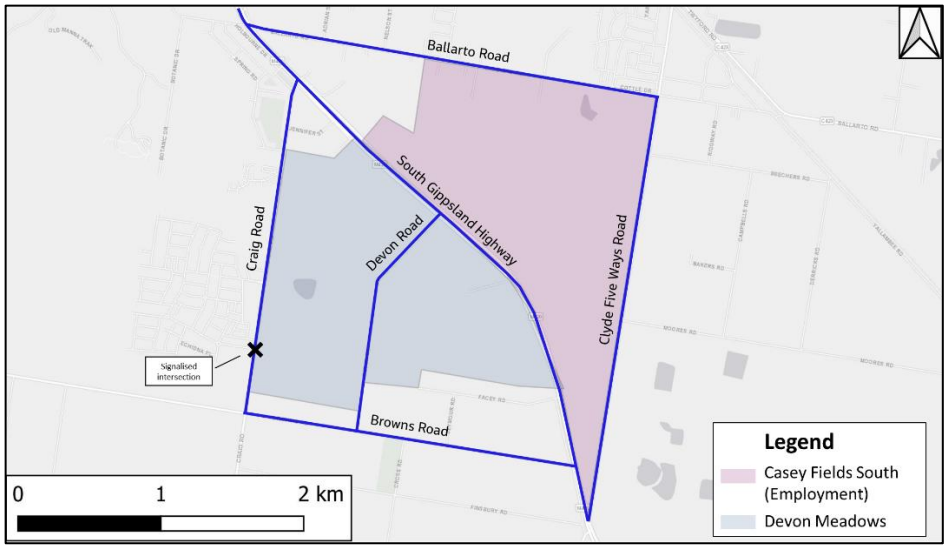


Figure 3-4. Key road infrastructure within the PSPs

Table 3-1. Existing road infrastructure characteristics

Road	Bounds	Road type	Condition	Speed limit (km/h)	Lanes (one-way)	Planned upgrades
South Gippsland Highway	Craig Road to Clyde Five Ways Road	Highway (state road)	Sealed	80	2	
Clyde Five Ways Road	Ballarto Road to South Gippsland Highway	Arterial (state road)	Sealed	80	1	2 lanes (one-way) sealed, as part of the Clyde Creek and Casey Fields South (Employment) Residential PSP
Browns Road	Craig Road to South Gippsland Highway	Secondary arterial	Sealed	60	1	
Ballarto Road	South Gippsland Highway to Clyde Five Ways Road	Secondary arterial	Dirt road / under construction	80	1	2 lanes each way (sealed)
Craig Road	South Gippsland Highway to Browns Road	Secondary arterial	Sealed	60-80	1	
Devon Road	South Gippsland Highway to Browns Road	Collector	Sealed	80	1	

The Casey Fields South (Employment) and Devon Meadows PSP will utilise the existing road network infrastructure. Key arterial roads including Clyde Five Ways Road, Ballarto Road, and the South Gippsland Highway will be retained and form the foundation for the future transport network. Several existing local streets, such as Craig Road, and Devon Road, should also be retained and integrated into the PSP internal road network, providing important local connections.

3.3.2 Freight network

No roads within the PSP area are identified within the Principal Freight Network (PFN), a Victorian network of identified and protected freight corridors. The closest roads with this designation are Thompsons Road to the north, South Gippsland Highway to the south and Western Port Highway to the west. A map of the PFN surrounding the study area is shown in Figure 3-5.

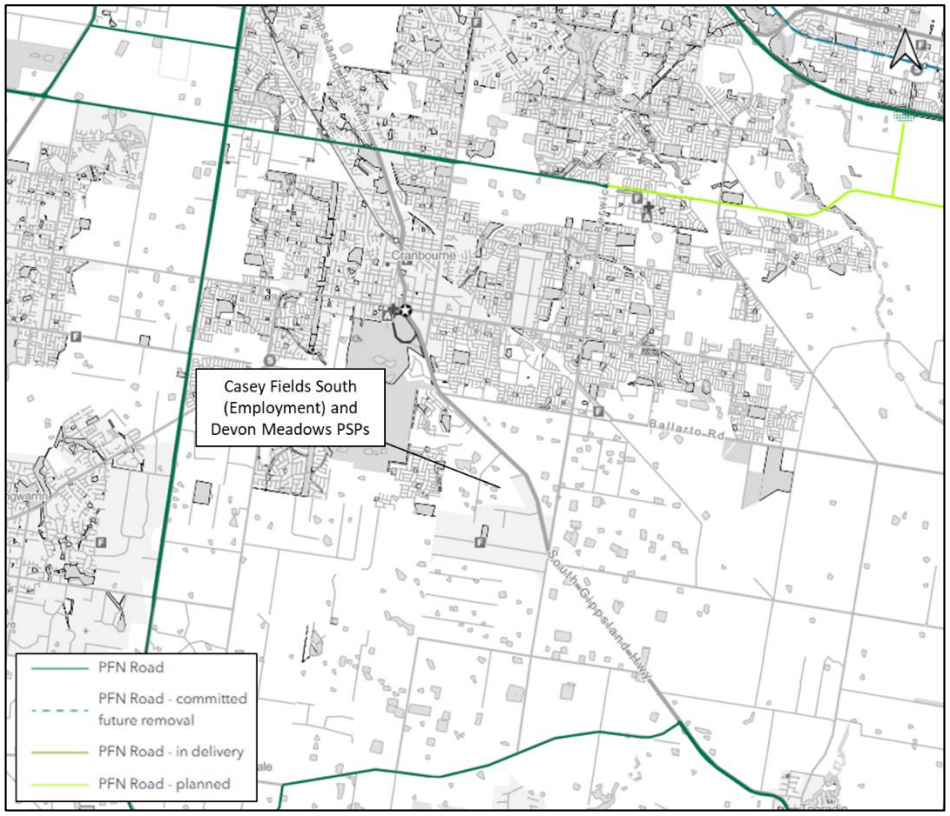


Figure 3-5. Principle Freight Network (Source: DTP)

Additionally, the National Heavy Vehicle Register (NHVR) has identified some locations within the study area with council vehicle load limits, as presented in Figure 3-6. Browns Road, Craig Road, and Ballarto Road all have sections that are limited to 8-tonne mass vehicles.

Figure 3-6. Freight network (Source: NHVR)

3.3.3 Traffic volumes

Traffic volume data for both DTP state roads and council roads have been summarised in Table 3-2 and Table 3-3, respectively.

Key Observations:

Major Arterial Roads: South Gippsland Highway, Clyde Five Ways Road, and Craig Road (north and south) are the dominant roads in the area, carrying significant traffic volumes. South Gippsland Highway exhibits the highest traffic volume, indicative of its role as a major regional road.

Heavy Vehicle Presence: Commercial vehicles, including trucks, constitute a notable portion (11-12%) of the traffic on South Gippsland Highway and Clyde Five Ways Road, reflecting the importance of these routes for freight movement. Craig Road, Browns Road and Ballarto Road also carries a substantial number of commercial vehicles.

Ballarto Road Conditions: Ballarto Road, currently an unsealed road, carry significantly lower traffic volumes compared to the other arterials. This is consistent with its current condition, which likely discourages higher traffic volumes. The planned upgrade of Ballarto Road to a sealed road is expected to significantly alter traffic patterns in the area.

Browns Road Usage: Browns Road, while carrying moderate traffic volumes, shows the highest percentage (16.7%) of heavy commercial vehicles among the roads analysed. This suggests that Browns Road serves as a key route for local industrial or commercial traffic.

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

Road	Bounds	Two-way AADT	Two-way AADT Trucks	Heavy vehicle %
South Gippsland Highway	Craig Road to Clyde Five Ways Road	14,000 – 17,000	1,500-1,900	11-12%
Clyde Five Ways	Ballarto Road to South Gippsland Highway	8,100	1,500	11%

Table 3-3. Council traffic volume data

Road	Location	24 hour volume [1]	Peak hour volume %[2]	% Commercial vehicles[3]	85th percentile speed[4]	Speed limit (km/h)
Ballarto Road	Near Nelson Street	1,000	13%	10%	70	80
Craig Road (north)	Near Sherwood Road	8,200	9%	8%	68	60-80
Craig Road (south)	Near Hummingbird Drive	8,800	10%	5%	73	80
Browns Road	Near Devon Road	3,293	12%	17%	70	60
Devon Road	Near Browns Road	655	96%[5]	10%	76	80

Note: data has been averaged across multiple sites in close proximity with outliers removed
[1] Average traffic volume over a 24 hour period
[2] The percentage of vehicles which travelled during the busiest one hour period of the day in relation to the overall traffic volumes for that day
[3] The percentage of commercial vehicles which travelled during the busiest one hour period of the day in relation to the overall traffic volumes
[4] The speed (in km/hr) at which 85 per cent of all recorded vehicles during the traffic count were travelling at or under
[5] Peak hour volume percentage for Devon Road may be incorrect or an outlier

3.4 Public transport

3.4.1 Rail network

The wider study area rail network is shown in Figure 3-7. The closest existing rail station is Cranbourne which is around 5.5 kilometres away from Casey Fields South (Employment) and Devon Meadows. Travelling to Cranbourne Station from the Devon Road / South Gippsland Highway bus stop takes approximately 12 minutes via route 795[5].

From Cranbourne Station, passengers can access the Cranbourne Line, which connects to the wider Melbourne rail network. Typical journey times to Dandenong Station are approximately 15 minutes and to the Melbourne CBD are approximately 1 hour during peak periods from Cranbourne Station. At Dandenong Station, passengers can interchange with the Pakenham Line, providing further connections across Melbourne.

Recent rail upgrade projects, such as the Metro Tunnel Project, level crossing removals, and the Cranbourne Line duplication, have improved service frequency and reliability on the Cranbourne and Pakenham Lines. Trains on the Cranbourne line typically depart every 20 minutes. However, the peak period headways drop to between 8-15 minutes.

A potential future extension of the Cranbourne Line to Clyde has been discussed, with a new station at Cranbourne East, Casey Fields, and Clyde. Although no commitment or funding has been announced. This would provide a closer connection to the rail network of around 2.2 kilometres from the centre of the PSP area, reducing travel times.

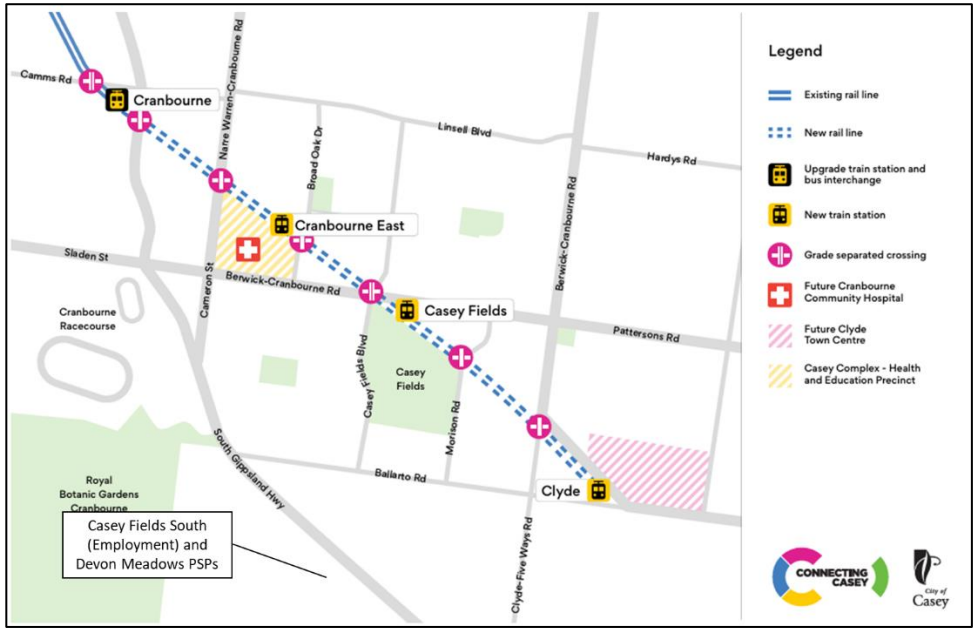


Figure 3-7. Rail network (Source: City of Casey)

[5] https://www.google.com.au/maps/preview

3.4.2 Bus network

Only two bus routes currently operate within the study area, as shown in Figure 3-8:

- Bus route 795: Warneet – Cranbourne Station (5 services / day).
- Bus route 796: Cranbourne Station – Clyde (9 services / day).

Both bus services operate on very low frequencies and do not provide a high-quality public transport option to the PSP areas. Bus stops along major roads, including South Gippsland Highway, Craig Road, and Clyde Five Ways Road, are sparsely spaced, often exceeding 1 kilometre apart. This spacing discourages bus use, especially for shorter trips. Existing bus stop 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. Accessibility for people with disabilities is a further concern, as many stops do not meet DDA compliance standards. No bus priority infrastructure (bus lanes, queue jump lanes) is present in the study area.

Figure 3-8. Bus network (Source: PTV)

**Note that route 795 operates via Devon Meadows for some peak period services only*

3.4.3 Active transport

There is currently no existing dedicated on or off-road cycling infrastructure within the PSP area, however, there is existing or planned infrastructure in the surrounding PSP. The Principal Bicycle Network shown in Figure 3-9 does identify proposed on-road cycling routes along South Gippsland Highway and Clyde-Five Ways Road, although it is recommended that any new cycling infrastructure in the PSP be off-road. A Strategic Cycling Corridor has been identified along Craig Road which connects to Ballarto Road via a future cycle path that crosses South Gippsland Highway.

Two proposed recreational trails in proximity to the study area are the 'Shared Path Along the Rail Corridor' and the 'Great Casey Trail' which traverse through Clyde. Both are identified in the *Walk and Ride in Casey*[6] strategy shown in Figure 3-9.

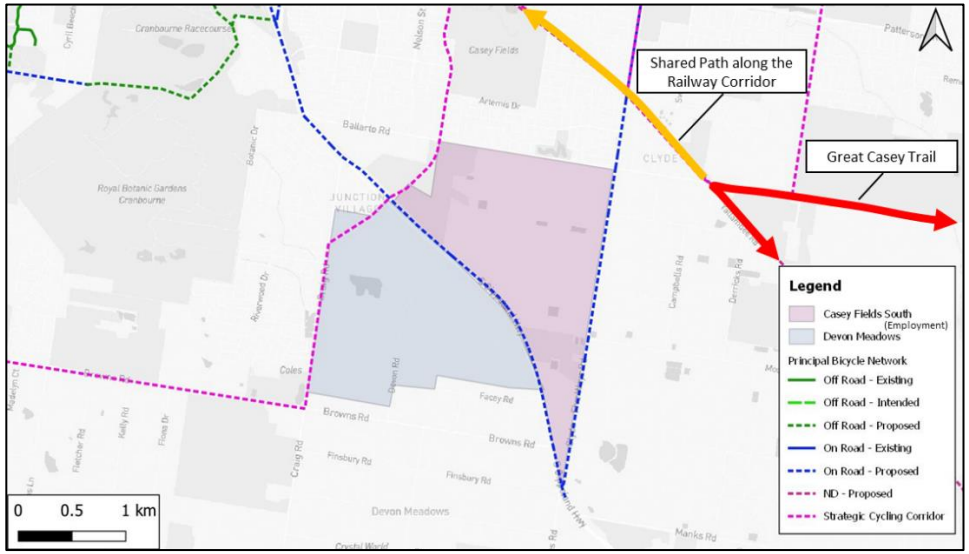


Figure 3-9. Principal Bicycle Network and Strategic Cycling Corridors (Source: DTP)

[6] Walk and Ride in Casey (2019 -2041)

3.4.4 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 2023, as shown in Figure 3-10.

There were 121 crashes recorded in the study area, primarily on arterial roads. This relatively high number of crashes, particularly for an area that is currently largely undeveloped, raises concerns about existing road safety conditions. It also highlights the potential for increased risks as the area develops and traffic volumes grow.

Figure 3-10. Location and severity of crashes

Four fatal crashes occurred on South Gippsland Highway, highlighting this road as a high-risk location. These crashes reveal several potential safety issues:

- **Intersection Issues:** Two fatal collisions occurred at the Devon Road intersection during night time, suggesting potential issues with intersection design, poor lighting, or driver behaviour. One fatal collision at the Clyde Five Ways Road intersection may indicate problems with sight lines or intersection layout.
- **Vulnerable Road Users:** One fatal crash involved a pedestrian near Facey Road, where no safe walking infrastructure exists. This underscores the need for safe pedestrian facilities, especially as the area transitions from rural to urban and pedestrian activity increases.
- **High-Speed Environment:** The rural arterial roads, including South Gippsland Highway, encourage high speeds, which can contribute to the severity of crashes.

It is recommended that road safety be investigated further when the precinct is being developed given the change from a rural to urban area, increased traffic volumes, modified intersections, and increase in pedestrians, cyclists and buses.

4. Key existing issues and future development opportunities

This chapter summarises the key issues and opportunities of the Casey Fields South (Employment) and Devon Meadows Precinct Structure Plan (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 ensure successful planning and implementation. The primary issues identified include the following:

- **Dominant Car Dependence:** Data from the surrounding area shows a high reliance on private vehicles for commuting (around 93% for those that travelled to work in 2021), with car ownership exceeding two vehicles per household in many cases. This high car dependency is a major obstacle to promoting sustainable transport modes.
- **Inadequate Public Transport:** Current public transport provision is limited. The nearest train station (Cranbourne) is approximately 5.5km away, requiring a 12-minute bus journey. Existing bus routes (795 and 796) operate with extremely low frequencies (5-9 services per day), making them an unattractive alternative to car travel. Furthermore, the accessibility of existing bus services is hampered by not only low frequency but also stop spacing and location, requiring many residents to walk considerable distances to access a bus. This lack of reliable and frequent public transport restricts accessibility and limits travel choices.
- **Deficient Active Transport Infrastructure:** Dedicated cycling infrastructure is virtually non-existent within the PSP area. While some future on-road routes and a strategic cycling corridor are proposed, the current lack of safe, segregated and convenient cycling facilities discourages cycling as a mode of transport. Similarly, pedestrian infrastructure appears limited, with many areas lacking footpaths entirely. Where footpaths do exist, they are often narrow and poorly maintained. This lack of safe and convenient pedestrian and cycling infrastructure discourages active travel and contributes to safety concerns, especially given the crash data.
- **Road Safety Concerns:** Crash data from 2012-2023 reveals 121 collisions in the study area, including four fatalities on the South Gippsland Highway. These incidents, some involving pedestrians and occurring at night, point to road safety deficiencies, particularly at intersections and areas lacking adequate lighting or pedestrian facilities.
- **Freight Network Limitations:** Sections of Browns Road, Craig Road, and Ballarto Road are subject to 8-tonne mass limits, restricting freight movement. This poses a potential constraint to the future industrial development planned for the Casey Fields South (Employment) precinct, which is designated as a regionally significant industrial precinct.
- **South Gippsland Highway as a Barrier:** The South Gippsland Highway bifurcates the study area, physically separating the Casey Fields South (Employment) and Devon Meadows precincts. This presents a significant challenge for creating an integrated and accessible transport network, requiring careful planning of safe and efficient crossings for all modes of transport.
- **Existing Road Network:** While the PSP offer a greenfield opportunity, connections to the existing road network are essential. The condition and capacity of surrounding roads and functional road hierarchy, including the South Gippsland Highway, will influence the design of internal roads and transport infrastructure.

4.2 Opportunities

Despite the existing challenges, the development of the Casey Fields South (Employment) and Devon Meadows PSP presents several key opportunities to create a more sustainable and integrated transport system. These opportunities, outlined below, offer the potential to transform how people move within and around the precincts.

- **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 encourage a shift away from car dependency towards public transport, walking, and cycling. This could include prioritising public transport in investment and priority access measures, creating dedicated active transport corridors, and implementing traffic calming measures.
- **Potential Public Transport Enhancements:** The potential future extension of the Cranbourne Line to Clyde, while not yet funded, offers a significant opportunity to improve public transport accessibility for the PSP areas. Advocating for and planning around this potential future infrastructure is crucial for increasing public transport mode share and providing a viable alternative to car travel.
- **Integrating Land Use and Transport:** 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 20-minute neighbourhoods should be central to this.
- **Strategic Industrial Precinct:** Casey Fields South (Employment), as a regionally significant industrial precinct, offers an opportunity to attract businesses and jobs locally, reducing the need for residents to travel outside the area for work, thus promoting self-containment within the South East Growth Corridor.
- **Active Travel Promotion:** The development of off-road (segregated) cycling and pedestrian infrastructure within the PSP, connecting to the wider network, can encourage active travel. This, in turn, can contribute to a more sustainable transport network and reduced traffic congestion.
- **Leveraging Recent Cranbourne Line Upgrades:** The proposed public transport network has the potential to leverage recent Cranbourne Line upgrades (duplication, level crossing removals, rolling stock, and Metro Tunnel) through enhanced bus connections to Cranbourne.

5. Traffic demand projections

VPA requested a transport model to be developed which estimates daily (2-way) traffic volume forecasts for the ultimate design year conditions. The road network adopted for modelling is detailed in the STMA and represented the proposed PSP road network and the south-east growth corridor arterial road network at the time of the modelling investigations (September 2024).

The STMA modelling outputs informed further refinement of the internal PSP and surrounding arterial road network.The strategic transport modelling assessment of the PSP, undertaken using the Victorian Integrated Transport Model (VITM) shows that traffic volumes noticeably increase in the Project Case (2051) as compared to the Reference Case (2051) across the entire local network surrounded by the PSP.

The Project Case considers an overall increase of 15,000 residents, 38,300 jobs and 2,700 school enrolments across the PSP in the study area (Devon Meadows, Casey Fields South (Employment) Employment/Residential, Botanic Ridge, Clyde South, Cranbourne East, Clyde Creek, Officer South Employment, Croskell) when compared to the Reference Case, as shown in Table 5-1.

Key infrastructure changes between the 2051 reference case and 2018 base model include:

- Clyde Rail Extension, with new stations at Cranbourne East, Casey Fields and Clyde
- Monash Freeway Widening: 6 lane motorway from Clyde Road, Berwick, to South Gippsland Highway
- Koo Wee Rup Road Upgrade: Conversion to motorway (4 lanes) from Princes Freeway, Pakenham, to South Gippsland Highway, Koo Wee Rup
- Thompsons Road Widening: 6 lanes from Dandenong Valley Highway to Berwick-Cranbourne Road
- Clyde-Five Ways Road Widening: 4 lanes from South Gippsland Highway to Thompsons Road
- Ballarto Road Widening: 4 lanes from South Gippsland Highway to Clyde-Five Ways Road
- Berwick-Cranbourne Road Widening: 4 lanes from Cameron Street to Clyde-Five Ways Road (some sections are six lanes)
- Bells Road/Soldiers Road New Route: 6 lanes from O'Shea Road to Thompsons Road
- Western Port Highway Duplication: 4 lanes from North Road to Baxter Tooradin Road

The Reference Case was updated with the proposed transport network within the Casey Fields South (Employment) and Devon Meadows PSP to model the Project Case. The main comparative observations between the Reference Case and Project Case are detailed in Table 5-2. For further detail on the strategic modelling assessment, refer to the *Strategic Modelling Assessment Report (Jacobs 2024)*. A comparison of the proposed road network and modelled Project Case volumes demonstrates that the proposed road classifications are generally appropriate for the expected traffic volumes in the Casey Fields South (Employment) (Employment) and Devon Meadows PSP.

Although the strategic modelling indicated that Moores Road should be considered as a four-lane arterial, there may be capacity available in the connector street to the north, subject to detailed modelling. The daily vehicle volume along Moores Road, east and west of Clyde Five Ways Road is approximately 22,000 and 20,000 respectively in the 2051 project case. This raises concerns about potential future traffic congestion, particularly given the proximity of the Moores Road/South Gippsland Highway and Moores Road/Clyde Five Ways Road intersections. As outlined in section 7.8, SIDRA analysis should be undertaken for the intersections along South Gippsland Highway and Clyde Five Ways Road to confirm the functional layouts of the intersections.

In addition, further consideration should be given to Clyde Five Ways Road having four lanes rather than six lanes, given the projected volumes in 2051. The realignment of Clyde Five Ways Road and the intersection with the South Gippsland Highway will be partially delivered through the Casey Fields South (Employment) and Devon Meadows PSP. This realignment will facilitate a strategic arterial network providing direct access for trips from Pakenham and Clyde to the Westernport Highway via an extension to Bells Road and Browns Road.

Table 5-1. Reference Case vs Project Case demographics – 2051

PSP	Population		Employment		Primary		Secondary	
	Ref	Proj	Ref	Proj	Ref	Proj	Ref	Proj
Devon Meadows	4,991	11,980	360	300	9	1,275	-	707
Casey Fields South (Employment)	1,699	-	317	9,100	436	600	288	415
Casey Fields South (Residential)	3,802	4,526	409	130	0	0	-	-
Botanic Ridge	12,921	12,921	1,125	936	1,119	1,119	613	613
Clyde South	18,251	38,822	839	1,667	574	574	873	873
Cranbourne East	33,565	20,484	3,106	2,862	996	996	1,498	1,498
Clyde Creek	46,965	47,999	2,428	6,850	5,162	5,162	1,736	1,736
Officer South	2,285	5,012	2,672	22,013	39	366	10	-
Croskell	5,121	2,905	1,023	6,532	-	-	-	-
Total	129,601	144,649	12,078	50,390	8,334	10,091	5,019	5,843

*Southern half of zone is in Clyde South, northern half in Clyde Creek
** Croskell zone 924 contains part of the PSP + an already established area.

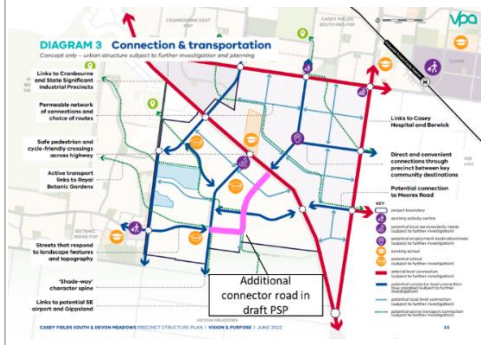
It is noted that several of the proposed roads in the Clyde South PSP are approaching capacity, this road network will need to be reviewed as that PSP evolves. With more than 40,000 residents the network shown may not be sufficient.

Based on a review of the Volume to Capacity (V/C) ratios in the PSP, consideration should be taken to undertake SIDRA modelling for intersections along South Gippsland Highway and Clyde Five Ways Road (V/C >0.6).

The proposed transport network, shown in section 6 remains largely consistent with the network used in the strategic modelling. Minor adjustments have been made, most notably the inclusion of an additional connector street (as shown in Table 5-2) that enhances connectivity between the Casey Fields South (Employment) and Devon Meadows PSP by crossing the South Gippsland Highway.

Table 5-2 Summary of observed changes between 2051 Reference Case and 2051 Project Case

Proposed Road Network

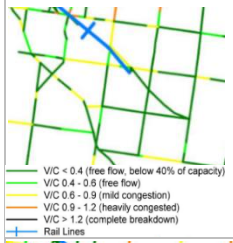


The transport network in the Casey Fields South (Employment) and Devon Meadows PSP that was modelled. A key difference between the network that was modelled and the proposed transport network in the draft PSP is the additional connector street.

Project Case Volumes

The South Gippsland Highway, Clyde-Five Ways and some connector level roads are approaching capacity. The road network in the Clyde South PSP may require an alternate layout and hierarchy.

AM V/C Ratios – Reference Case



V/C ratios show mild congestion (V/C 0.6-0.9) on the South Gippsland Highway and surrounding arterial roads, however, capacity has not been exceeded.

AM V/C Ratios – Project Case

The expanded road network accommodates the increased traffic volumes, with the network operating within capacity.

PM V/C Ratios – Reference Case

V/C ratios show patches of increased congestion on Ballarto Road and the South Gippsland Highway, compared to the AM peak.

PM V/C Ratios – Project Case

Congestion is higher than the AM peak. Capacity is nearing capacity on some road sections in the Clyde South PSP. There is some relief to Ballarto Road with additional east-west roads compared to the Reference Case.

6. Proposed transport and land use 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 Casey Fields South (Employment) and Devon Meadows PSP. It illustrates a planned integration of residential, industrial, and community spaces, connected by a network of arterial, connector and local streets.

The Casey Fields South (Employment) precinct is primarily designated for industrial activity and mixed business. A large portion is allocated to mixed business and industry, which will support industrial and commercial activities. The overall focus of Casey Fields South (Employment) precinct is on employment and economic activity, with a strong emphasis on industrial land use.

In contrast, the Devon Meadows precinct is predominantly planned for residential development, with provision of local hubs for community services and mixed land use. Given the contrasting land uses, a need for efficient transport connections to facilitate movement between the two area is critical.

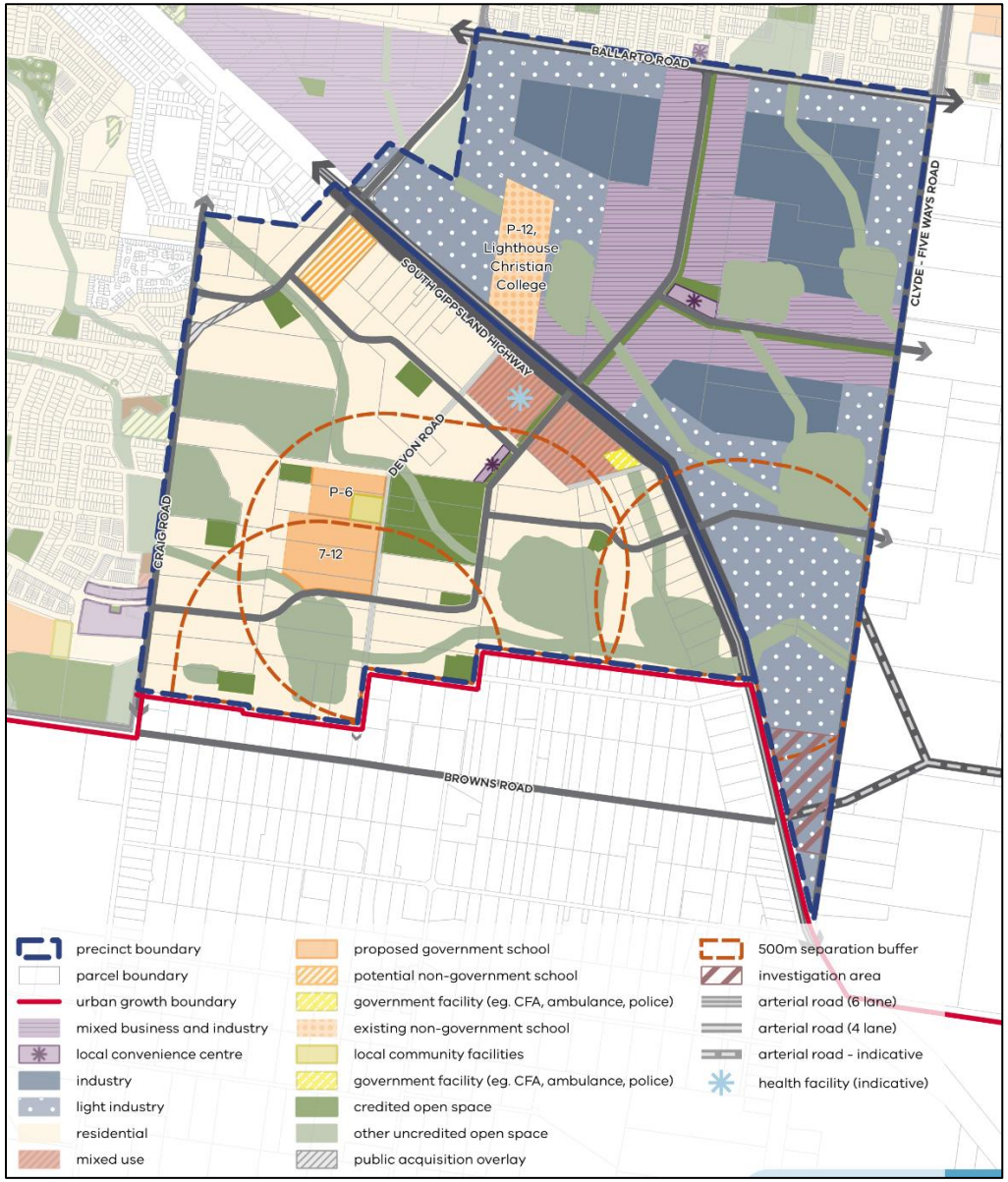


Figure 6-1. Urban structure (Source: VPA)

6.2 Movement network

6.2.1 Street hierarchy

As shown in Figure 6-2, the proposed street network for the Casey Fields South (Employment) and Devon Meadows PSP has a clearly defined and differentiated hierarchy. Connector streets form the primary structure of the network, providing direct and efficient connections between key community destinations.

The arterial roads, including Clyde Five Ways Road, South Gippsland Highway and Ballarto Road provide efficient regional connectivity and accommodate higher traffic volumes. These arterials are designed to connect the precincts to surrounding areas and key destinations, including employment centres, major retail areas, and regional transport hubs.

The connector street network connects the Casey Fields South (Employment) and Devon Meadows PSP to the arterial road network and are suitable to accommodate buses. Local streets within the precincts 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.

Consideration should be given to whether the connection from Botanic Ridge to Cranbourne East via Casey Fields Boulevard should be more direct via Protea Street or Bardicoot Boulevard rather than a staggered approach. However, it is noted that this connection has already been planned and should be discussed further with Council.

The VPA Movement Network plan shown in Figure 6-2 was provided at the time of this report and public exhibition. We are advised by VPA that further minor modifications will be made post PSP exhibition.

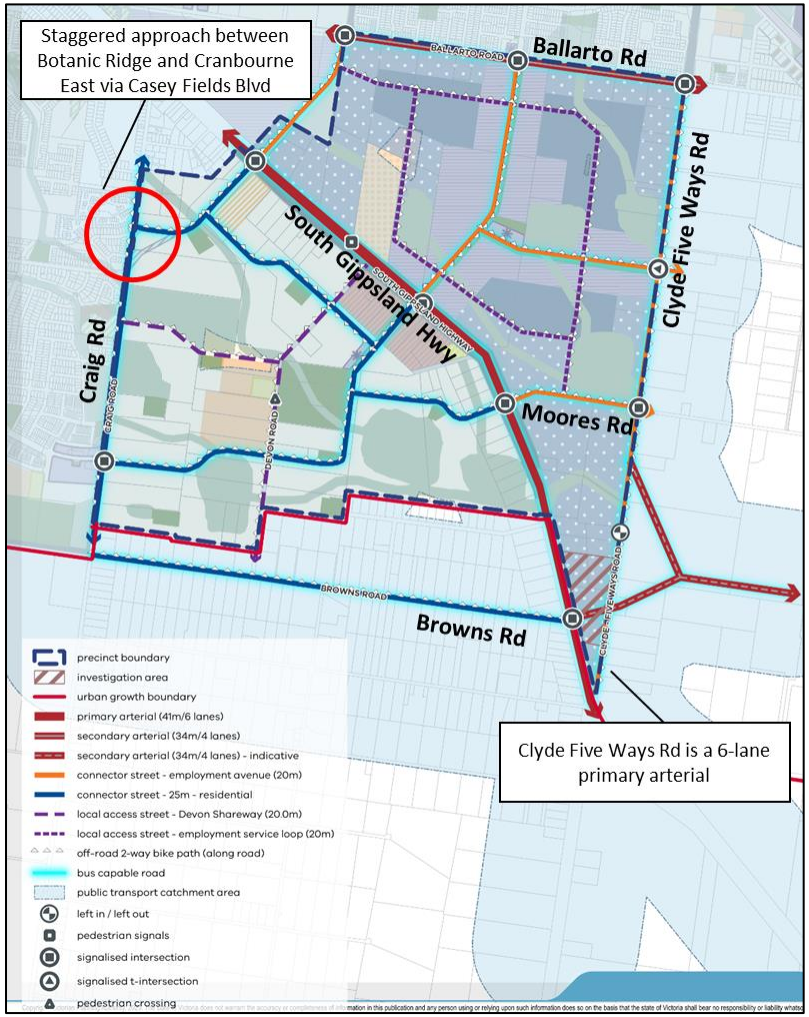


Figure 6-2. Movement network (Source: VPA)

6.2.2 Street typologies

As shown in Figure 6-2, the Casey Fields South (Employment) and Devon Meadows PSP incorporate a diverse range of street typologies, designed to serve specific functions and cater to varying traffic volumes and user needs.

Primary arterials (six lanes) are designated along Clyde Five Ways Road and South Gippsland Highway. In 2051, Clyde Five Ways Road and South Gippsland Highway are expected to carry approximately 40,000 and 75,000 vehicles respectively (both directions) daily. Consideration should be given to Clyde Five Ways Road having four lanes rather than six lanes, given the projected volumes in 2051. However, it is noted that Clyde Five Ways Road will be upgraded as part of the Clyde South PSP via a Planning Acquisition Overlay (PAO) on the eastern side of the road in favour of DTP. Ballarto Road is anticipated to carry approximately 15,000 vehicles in 2051 (both directions).

The connector and local streets in the Casey Fields South (Employment) precinct prioritise access to employment areas and industrial parks, designed to accommodate both employee commutes and potential freight traffic. Connector streets and local streets in the Devon Meadows precinct prioritise safe and convenient movement within residential neighbourhoods and employment areas. All the proposed connector and local streets are appropriate for the projected traffic volumes in 2051. Casey Fields Boulevard and Craig Road will be designated as “Limited Access Connector Streets”, which reflects the existing typologies of those roads outside of the PSP. These roads have been planned as potential Council four lane roads and constructed as limited access connectors.

Although the strategic modelling indicated that Moores Road should be considered as a four lane arterial, there may be capacity available in the connector street to the north, subject to detailed modelling. The daily vehicle volume along Moores Road, east and west of Clyde Five Ways Road is approximately 22,000 and 20,000 respectively in the 2051 project case. This raises concerns about potential future traffic congestion, particularly given the proximity of the Moores Road/South Gippsland Highway and Moores Road/Clyde Five Ways Road intersections. As outlined in section 7.8, SIDRA analysis should be undertaken for the intersections along South Gippsland Highway and Clyde Five Ways Road to confirm the functional layouts of the intersections.

6.2.3 Public transport

As shown in Figure 6-2, the Casey Fields South (Employment) and Devon Meadows PSP propose a comprehensive network of bus capable roads designed to facilitate efficient and accessible public transportation. Recognising the importance of providing viable alternatives to private vehicles and promoting sustainable travel, the plan designates all arterial and connector streets as bus capable. This approach ensures that bus services can effectively reach key destinations and serve the diverse needs of the community. Critically, the bus capable network will also facilitate connections between the residential areas of the Devon Meadows precinct and the regionally significant industrial precinct in Casey Fields South (Employment), providing crucial transport options for the workforce and supporting the goal of local self-containment within the South East Growth Corridor.

Integration with the surrounding network is another key consideration. The bus capable network aligns with existing and planned regional transport infrastructure, including potential future extensions of the Cranbourne Line and associated stations, as well as connections to existing and future bus services outside the PSP area. This integration ensures seamless transfers between different modes of transport and expands the reach of the public transport network, providing residents with access to employment, education, and other opportunities across the wider region. The future Clyde station represents a significant opportunity for integration, potentially serving as a key transit hub for the area.

This comprehensive coverage of bus capable roads aims to maximise accessibility to public transport for residents and support sustainable travel choices. However, to ensure that all potential gaps in service are identified and addressed, a detailed catchment analysis, considering a 400m walk-up distance to bus stops, will be undertaken. This analysis will help identify any areas that may be beyond a reasonable walking distance and inform potential adjustments to the bus network or the provision of additional pedestrian infrastructure. In addition, consideration of bus priority lanes, queue jump lanes or bus lights to improve access, travel and reliability of the bus network.

6.2.4 Active transport

As shown in Figure 6-2, the Casey Fields South (Employment) and Devon Meadows PSP prioritise 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 designed for both commuting and recreational purposes. This network is carefully planned to connect key destinations within the precincts and integrate seamlessly with the surrounding environment.

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 employment areas. The proposed network of off-road bicycle paths also aims to connect the residential areas of the Devon Meadows precinct with the significant employment hub in the Casey Fields South (Employment) precinct, offering a healthy and sustainable commuting alternative to driving.

It is noted that following cross section analysis and associated investigations beyond the scope of this assessment, the paths may be constructed as either off-road bicycle paths or off-road shared paths, depending on road reserve availability.

The Casey Fields South (Employment) and Devon Meadows PSP proposes off-road bicycle paths along Ballarto Road, however it is noted that as part of the Casey Fields South Residential PSP, on-road bicycle lanes along Ballarto Road were proposed, as shown in Figure 6-3. Consideration should be given to only building off-road bicycle paths along Ballarto Road, instead of building both on road bicycle lanes and off-road bicycle, lanes to minimise potential conflicts between cyclists and vehicles on this busy arterial road and prioritise road safety.

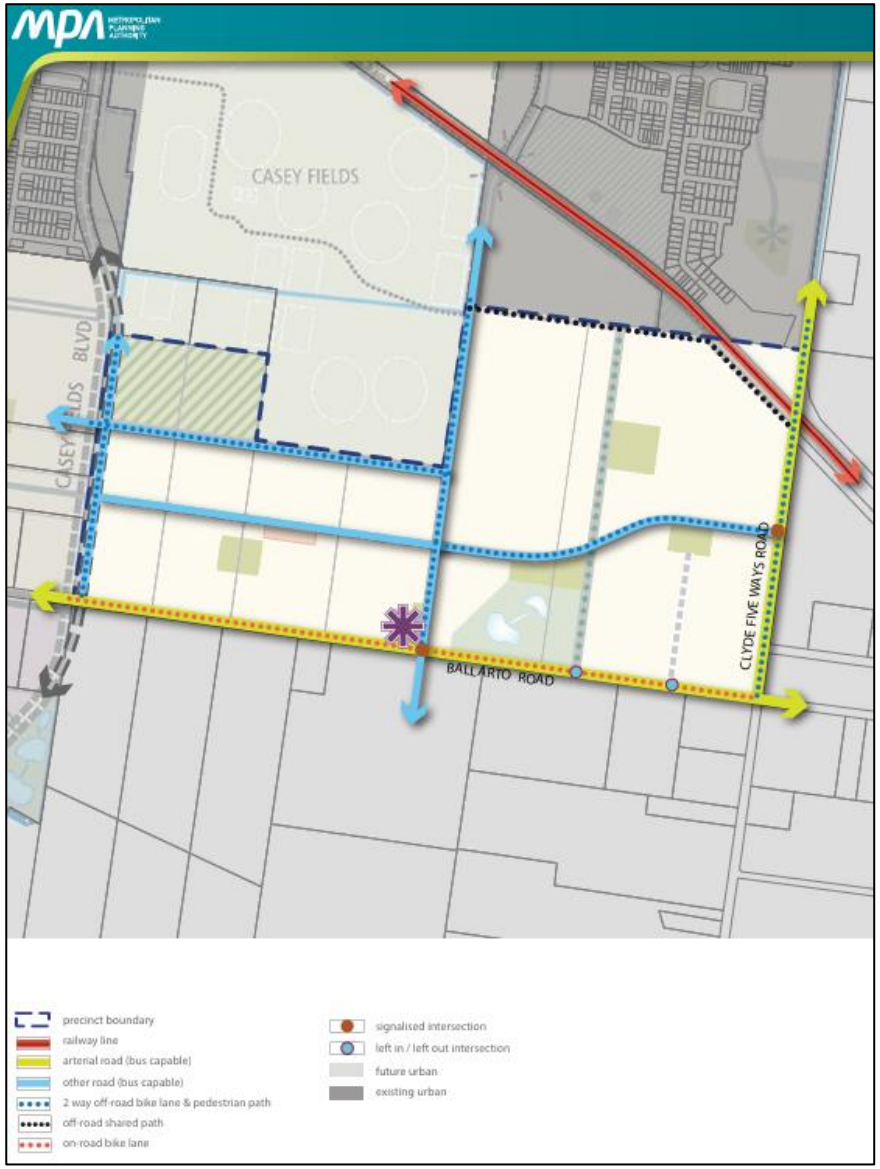


Figure 6-3. Active transport network – Casey Fields South Residential PSP (Source: VPA)

6.3 Cross sections and intersection layouts

6.3.1 Arterial

6.3.1.1 Primary arterial

The proposed cross-section for the 6-lane primary arterial (Clyde Five Ways Road and South Gippsland Highway), shown in Figure 6-4 balances high traffic capacity with multi-modal accessibility and pedestrian amenity. A six-lane carriageway (three lanes in each direction) with a central median ensures efficient vehicle flow and pedestrian refuge. Dedicated off-road segregated bicycle paths on either side provide safe cycling infrastructure, while wide, accessible footpaths, lined with street trees, enhance the pedestrian experience.

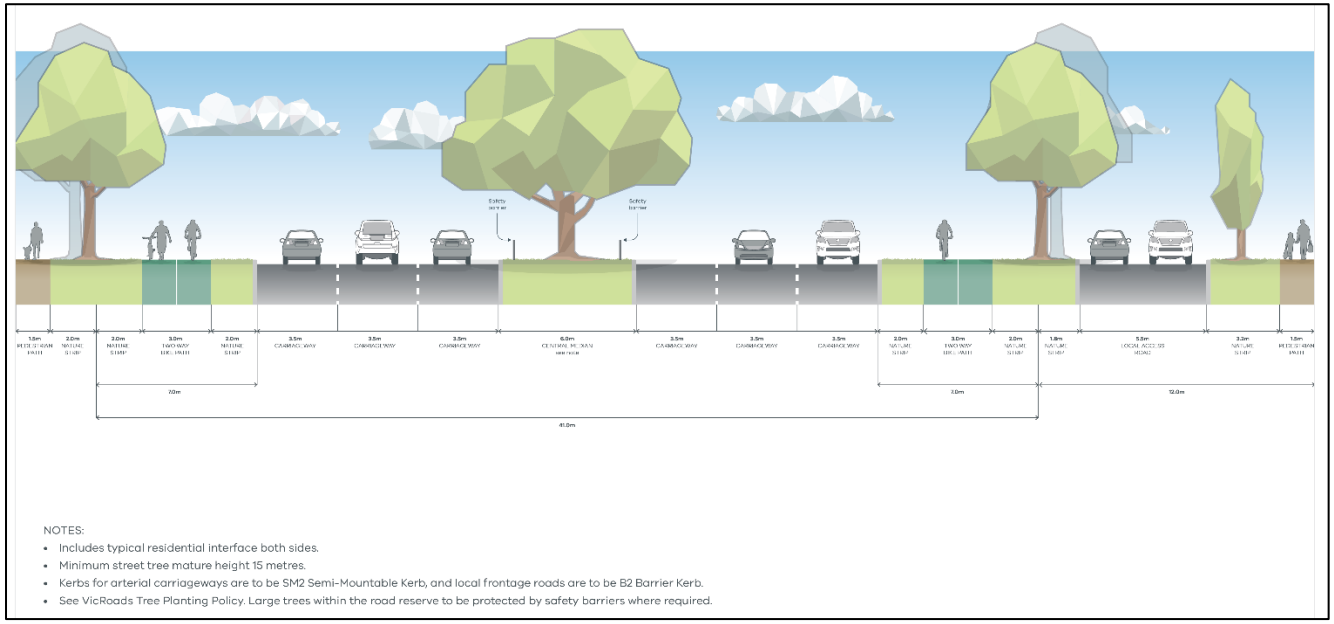


Figure 6-4. Primary arterial cross section - six lane 41m (Source: VPA)

6.3.1.2 Secondary arterial

The proposed cross-section for the 4-lane secondary arterial (Ballarto Road), as shown in Figure 6-5, balances traffic capacity with multi-modal accessibility and pedestrian amenity. A four-lane carriageway (two lanes in each direction) with a central median ensures efficient vehicle flow and pedestrian refuge. Dedicated off-road bicycle lanes on either side provide safe cycling infrastructure, while wide, accessible footpaths, lined with street trees, enhance the pedestrian experience. In addition, there is also a local access road providing local street access.

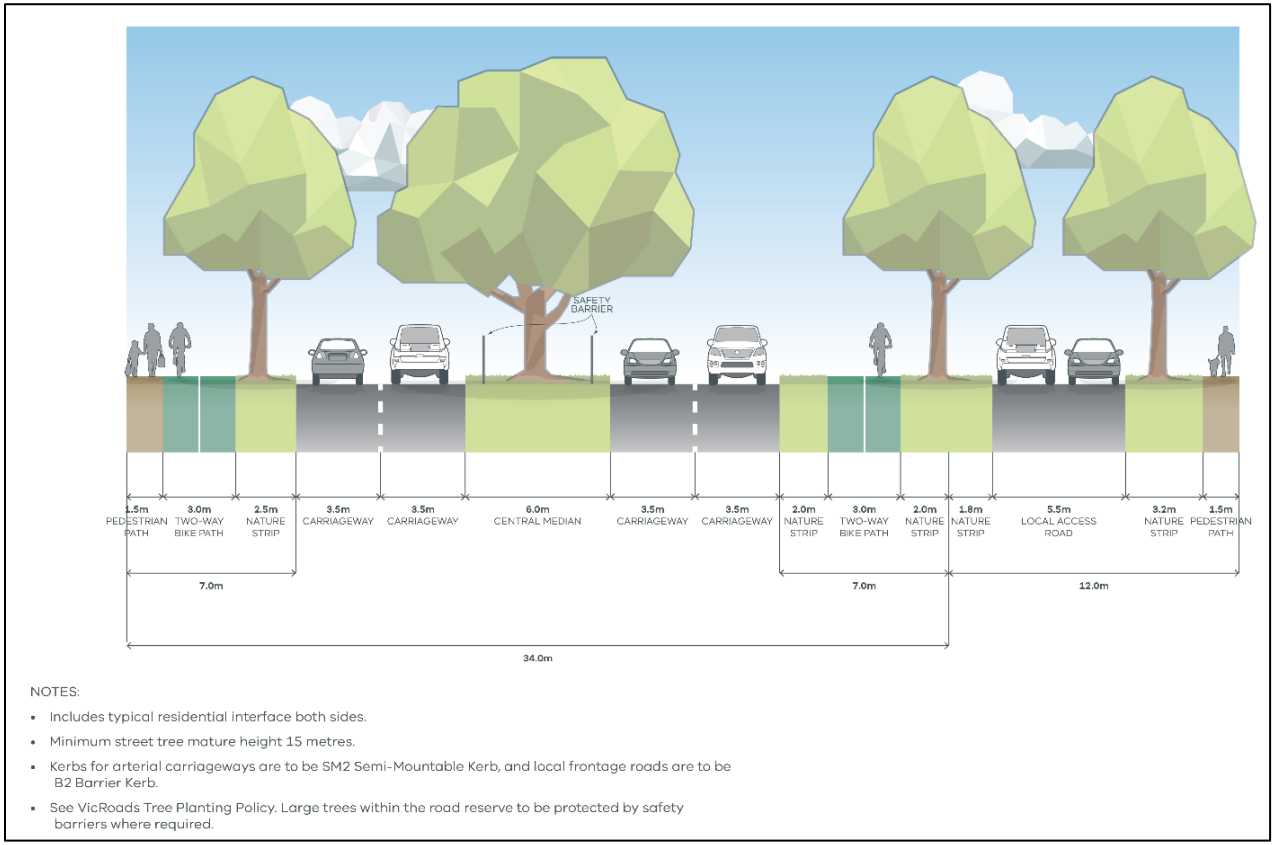


Figure 6-5. Secondary arterial cross section - four lane 34m (Source: VPA)

6.3.2 Connector

6.3.2.1 Connector street

The connector street cross-section (Figure 6-6) prioritises a balanced approach, integrating various transport modes while emphasising green infrastructure and pedestrian amenity. 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 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.

Casey Fields Boulevard and Craig Road will be designated as "Limited Access Connector Street", which reflects the existing typologies of those roads. These roads have been planned as potential Council four lane roads and constructed as limited access connectors, outside of the PSP. Since these roads have limited access, Casey Fields Boulevard and Craig Road will not have parking lanes either side of the carriageway.

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.

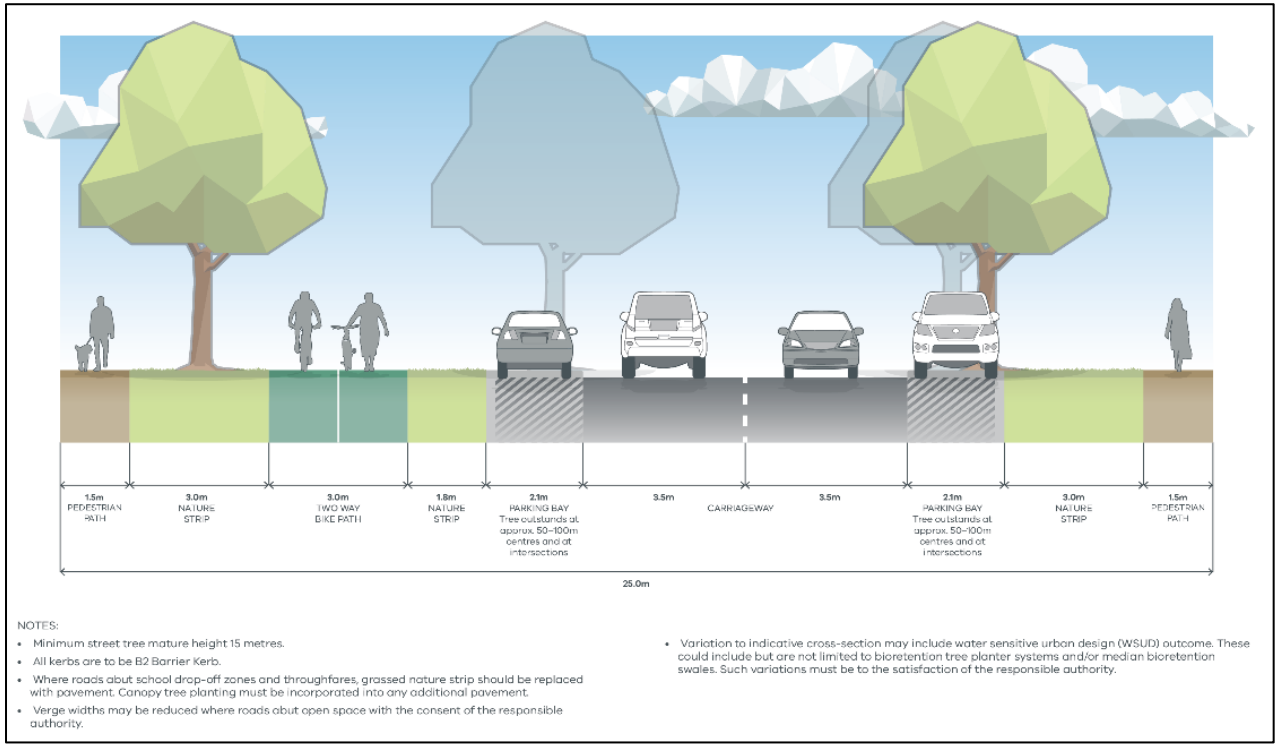


Figure 6-6. Connector street cross section - 25m (Source: VPA)

6.3.2.2 Connector street employment avenue

The Employment Avenue connector street cross-section (Figure 6-7) is designed as a primary movement corridor, prioritising public transport, pedestrians, and cyclists within the employment precinct. There are planted nature strips incorporating bus stops/parking either side of a single carriageway. There is a two way bicycle path on one side of the carriageway, and pedestrian paths on either side of the road. The design adjoins a 15-meter linear park, providing additional planting, pedestrian movement, and seating.

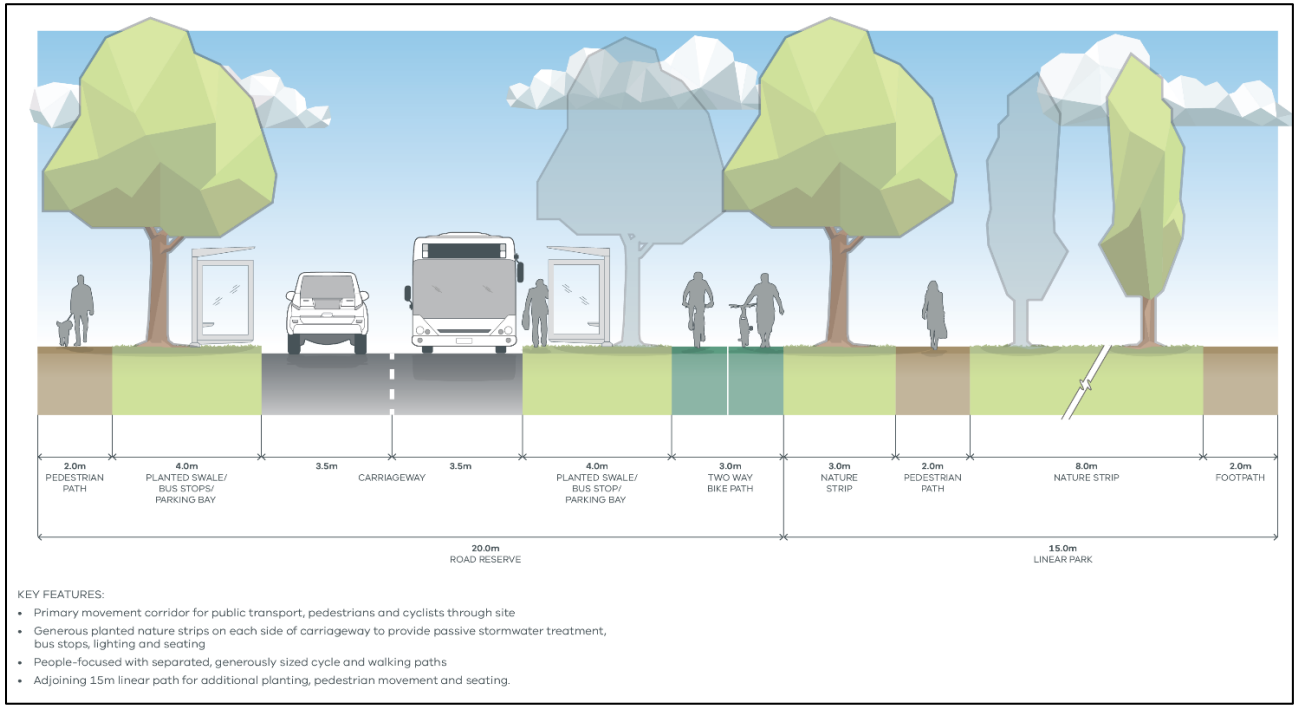


Figure 6-7. Connector street employment avenue cross section - 20m (Source: VPA)

6.3.3 Local

6.3.3.1 Local access street (level 1)

The local access (level 1) streets (Figure 6-8) 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 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.

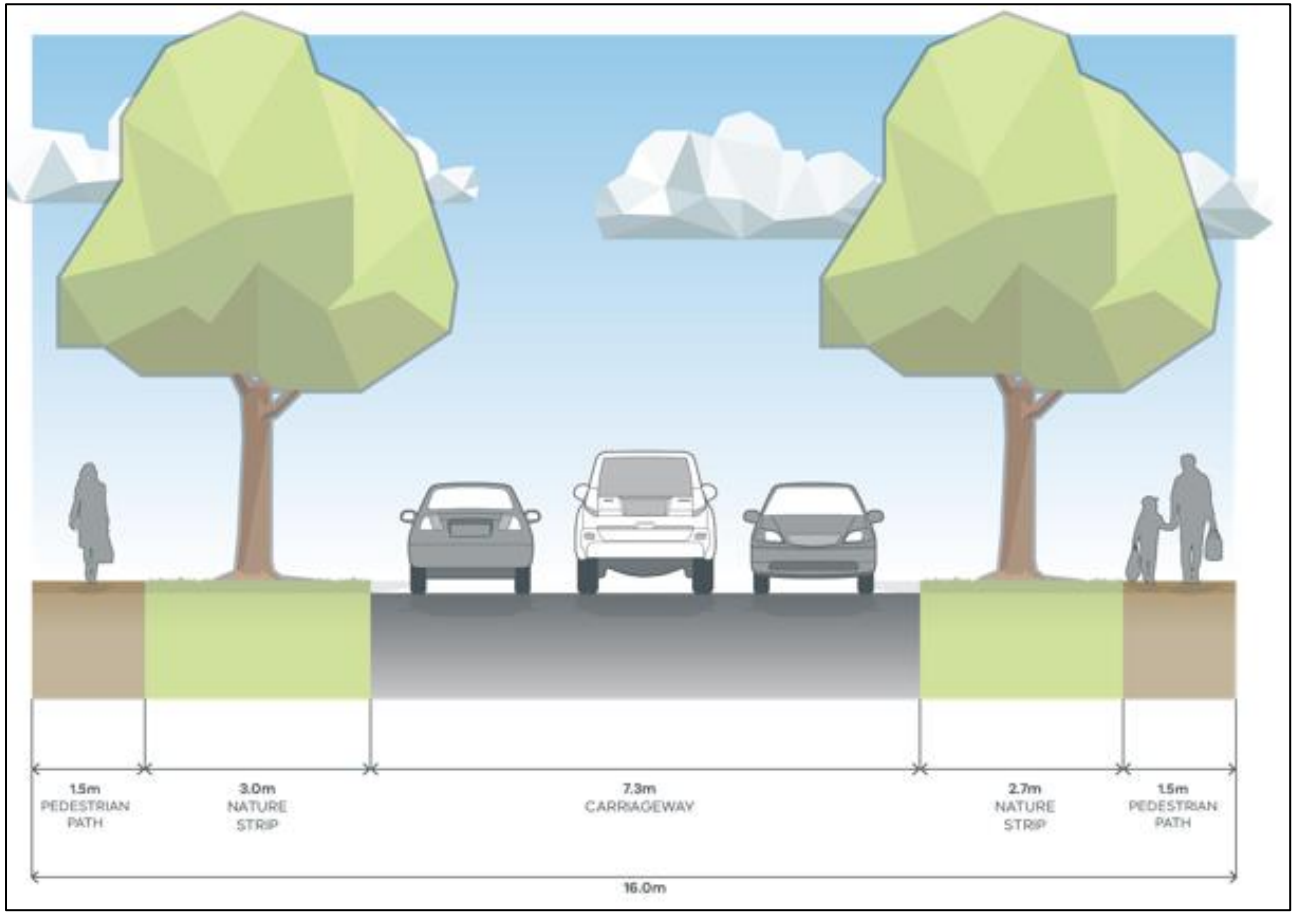


Figure 6-8. Local access street (level 1) cross section - 16m (Source: VPA)

6.3.3.2 Local access street (level 2)

The local access (level 2) streets (Figure 6-9) features a 20-meter design prioritising local traffic and pedestrian amenity within residential areas. A 6-meter carriageway facilitates two-way vehicle movement, complemented by 2.3-meter-wide parking bays on either side to accommodate on-street parking needs. Generous 3.2-meter nature strips, designed to incorporate street trees with a minimum mature height of 12 meters, separate the parking bays from 1.5-meter-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.

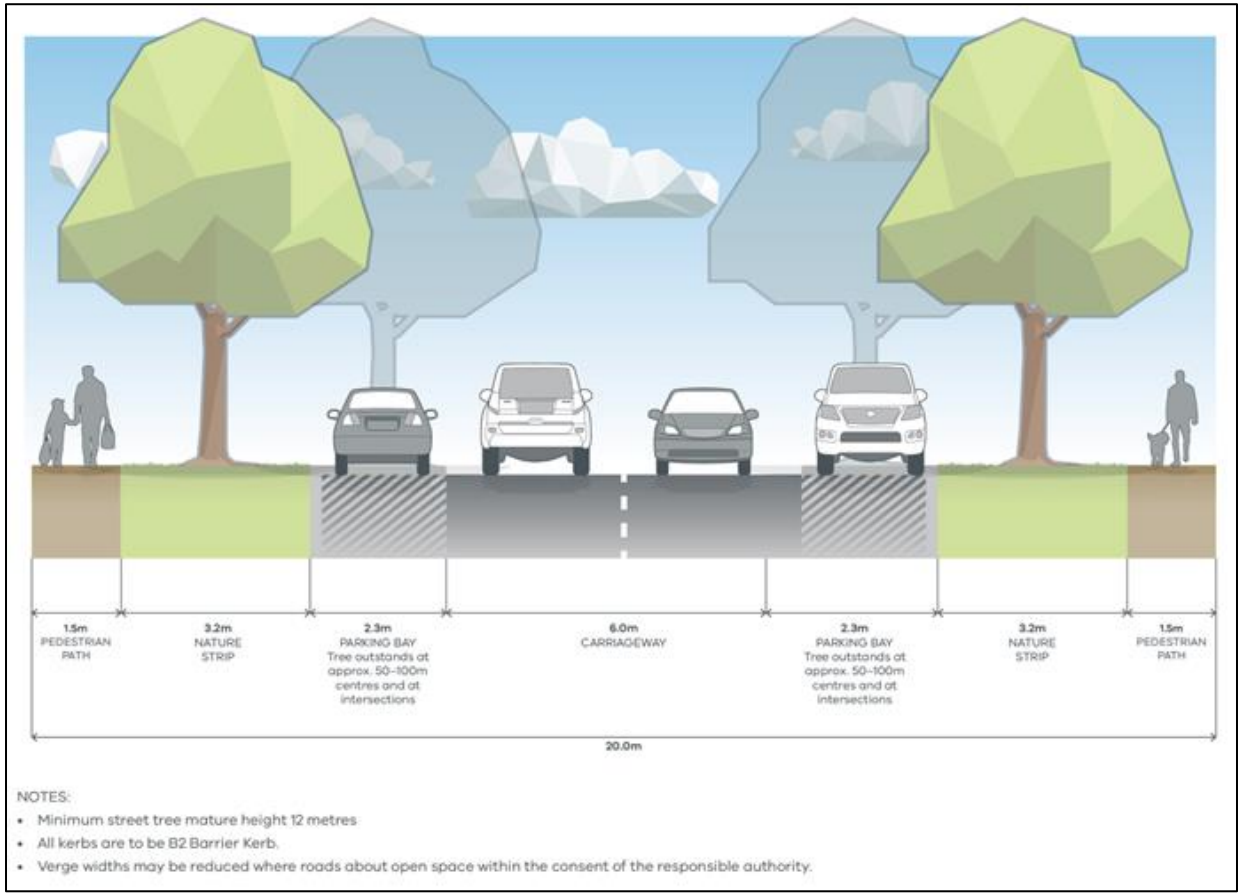


Figure 6-9. Local access street (level 2) cross section - 20m (Source: VPA)

6.3.3.3 Local access – Devon share way

The Devon Shareway (Figure 6-10) is envisioned as a slow-speed street, designed to connect community facilities and residential neighbourhoods to key connector street routes.

A shared path on one side of the street provides pedestrians and cyclists with a safe and convenient link to the primary movement routes, while a wide footpath on the other side offers a comfortable and protected pedestrian environment.

Narrow carriageways, potentially without road markings and featuring kerb-less edges, will encourage slow vehicle speeds, prioritising the safety and comfort of pedestrians and cyclists. To accommodate visitor parking demands, clusters of increased parking may be strategically located near high-demand areas such as schools and active recreation facilities.

Consideration should be given to providing footpaths on both sides of these routes in addition to shared path, in alignment with Target 7 of the PSP Guidelines.

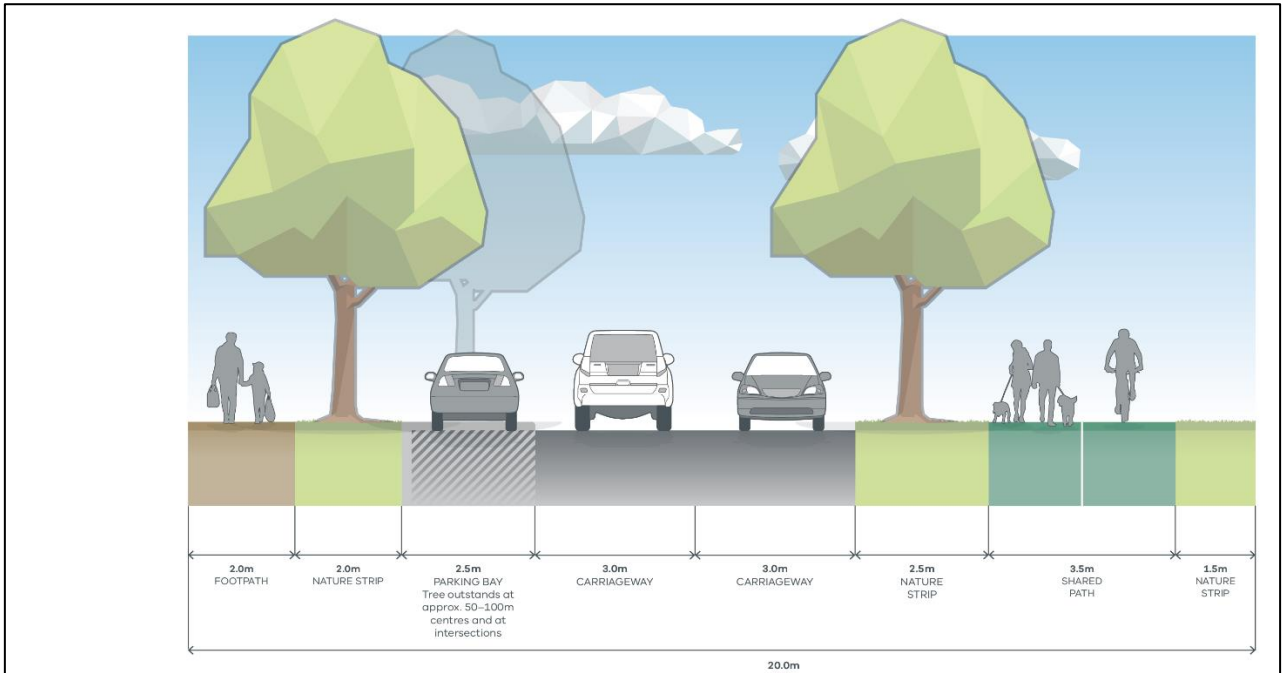


Figure 6-10. Local access – Devon shareway cross section - 20m (Source: VPA)

6.3.3.4 Local access – employment service loop

Local access – employment service loop is designed as a primary movement corridor for heavy vehicle traffic, prioritising efficient servicing of employment lots within the industrial precinct. This movement-focused street features a generous vehicle carriageway to accommodate large trucks and freight vehicles. Despite its industrial function, the street incorporates generous planted nature strips on each side of the carriageway, providing passive stormwater treatment, designated parking areas, street lighting for safety and visibility, and strategically placed seating.

A shared path on one side of the street provides pedestrians and cyclists with a safe and convenient link to the primary movement routes, while a wide footpath on the other side offers a comfortable and protected pedestrian environment.

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.

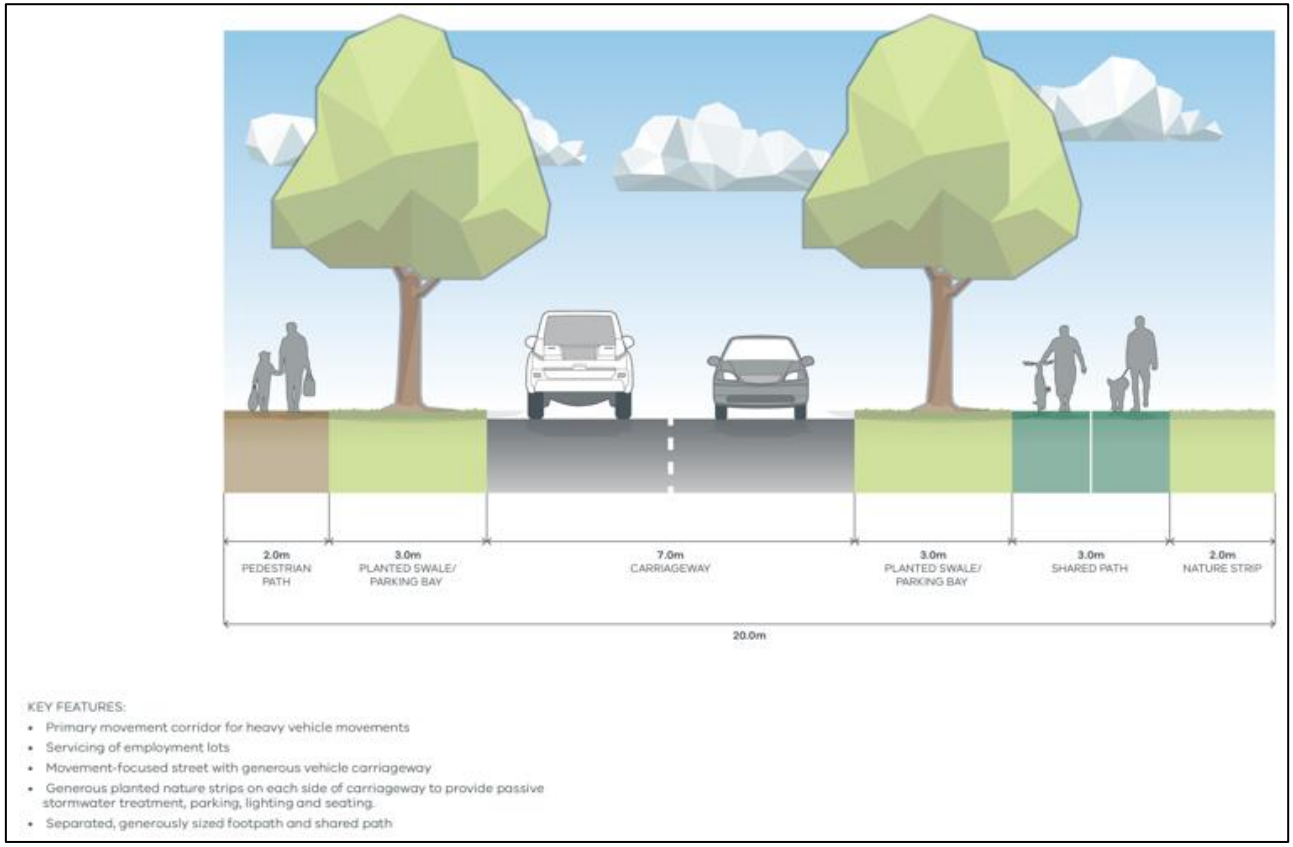


Figure 6-11. Local access – employment service loop cross section - 20m (Source: VPA)

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*). These guidelines establish a framework for creating sustainable, liveable, and well-connected communities within greenfield 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, ensuring they effectively deliver on the vision for creating thriving new communities in Victoria. Key features and targets of the PSP Guidelines related to transport planning are discussed below, including:

- Safe streets and spaces (Feature 4)
- Movement and Place (Feature 5)
- Walkability and safe cycling networks (Feature 6)
- Public transport (Feature 7)
- Well-connected to public transport, jobs & services within the region (Feature 8)
- Local employment opportunities (Feature 9)
- Green streets and spaces (Feature 11)
- Arterial road network (Target 5)
- Off-road bicycle paths (Target 6)
- Footpaths (Target 7)
- Pedestrian and cyclist crossings (Target 8)
- Access to public transport (Target 9)

The assessment also provides additional considerations guided by the PSP requirements and guidelines, as discussed in this section. However, it is noted that some of these considerations will be implemented through the subdivision and permit stage.

7.1 Safe streets and spaces (Feature 4)

Feature 4 encompasses the development of diverse streetscapes and neighbourhoods that appropriately support the desired density and housing preferences of the local area. The Casey Fields South (Employment) and Devon Meadows PSP have been assessed against the relevant transport principles within this feature, as discussed below.

F.4.2 The design of the public realm should ensure these spaces feel safe and are inviting to pedestrians and cyclists.

The Casey Fields South (Employment) and Devon Meadows PSP allow for safe and inviting public spaces for pedestrians and cyclists through several key design elements:

- **Dedicated Active Transport Network:** The proposed network of off-road bicycle paths prioritises safe and convenient active transport options. This separation from vehicular traffic enhances safety and encourages walking and cycling.
- **Street Tree Planting and Landscaping:** The inclusion of street trees and generous nature strips within the cross-sections for various street types contributes to a more inviting and comfortable pedestrian environment. This green infrastructure also provides shade and enhances the overall aesthetic appeal of the public realm.
- **Pedestrian-Friendly Street Typologies:** The design of local access streets, particularly the Devon Shareway, prioritises pedestrian and cyclist safety through narrower carriageways, potential kerb-less edges, and the provision of wide footpaths. The emphasis on slow speeds within these areas creates a more comfortable and inviting atmosphere for walking and cycling.

Additional considerations to ensure the development meets the principles include:

- Detailed intersection designs demonstrating safe and accessible crossings for pedestrians and cyclists.
- Specific lighting strategies for all streets and public spaces, addressing safety and visibility, especially at night.
- Demonstration of accessibility considerations for people with disabilities.

F.4.3 Permeability of the street network for pedestrians and cyclists and direct access routes to services and facilities should be a feature of the street and path network in precincts. Heightened permeability should be considered in areas where a higher intensity and density of land uses are proposed

The proposed street and path network in the Casey Fields South (Employment) and Devon Meadows PSP demonstrates a good level of permeability for pedestrians and cyclists:

- **Dedicated Pedestrian and Cycle Paths:** The provision of off-road bicycle paths along connector streets and local streets creates dedicated routes for active transport, enhancing permeability and providing direct access to key destinations.
- **Connection to Key Destinations:** The active transport network is designed to connect key destinations within the precincts, such as schools, parks, community centers, shops, and employment areas. This focus on connectivity ensures that pedestrians and cyclists have convenient access to services and facilities.
- **Integration with Public Transport:** The planned bus network, with bus-capable roads throughout the precincts, enhances permeability by providing access to public transport options. The potential future Clyde station offers a significant opportunity for further integration and improved regional connectivity.

Additional considerations to ensure the development meets the principles include:

- Specific strategies for addressing the South Gippsland Highway as a barrier to pedestrian and cyclist movement.
- Prioritise pedestrian connectivity and ease of movement within and around higher-order land use zones (e.g., commercial, retail, mixed-use).
- Provide frequent and safe pedestrian crossings, aiming for the 400m spacing target in higher-order land use areas and along arterials.
- Integrate pedestrian crossings with key pedestrian routes, cycling routes and bus stops within the precinct.

7.2 Movement and Place (Feature 5)

Feature 5, "Movement and Place," focuses on creating a transport network that effectively balances the movement of people and goods with the creation of quality places. It recognises streets as integral public spaces and emphasises integrated land use and transport planning.

F.5.1 Adopt a 'movement and place' approach to identifying an arterial and connector street network that provides a supportive context for the proposed type and intensity of land uses

The Casey Fields South (Employment) and Devon Meadows PSP demonstrate an understanding of the "movement and place" principle by proposing a differentiated street hierarchy that responds to the varying land uses and transport functions within the precincts. The arterial roads, including Clyde Five Ways Road and South Gippsland Highway, are designed for higher traffic volumes and regional connectivity, supporting the movement function. Connector streets within the Casey Fields South (Employment) precinct prioritise access to the industrial and mixed-use areas, facilitating the movement of goods and employees. In contrast, connector streets within the Devon Meadows precinct prioritise local connectivity within the residential neighbourhoods, emphasising the "place" function. The local access streets, particularly the Devon Shareway, are designed to prioritise pedestrian and cyclist movement, further reinforcing the "place" aspect. This differentiated approach to street design reflects an attempt to create a network that supports the proposed land uses, although the VPA has not explicitly applied the Movement and Place Framework for street classification.

A high-level evaluation of existing and future infrastructure treatments has been undertaken to suggest potential Movement and Place Framework outcomes. This evaluation has focused on strategically classifying the 'Movement' aspects of the corridors, recognising their function in facilitating the movement of people and goods, rather than focusing on the 'Place' aspects, which relate more to the quality of the public realm and streetscape amenity.

- **Walking:** The current walking classifications are limited, with W3 classifications primarily along roads such as Craig Road, Browns Road, South Gippsland Highway, and Clyde Five Ways Road, and short stretches of W2 on Ballarto Road. W3 routes are municipal walking links that support pedestrian movements to and around activity generators such as activity centres, schools and transport interchanges.
- The proposed development, with its new collector roads and enhanced pedestrian infrastructure (including off-road paths, shared paths, and street trees), offers the opportunity to significantly improve walking amenity and achieve higher walking classifications.
- **Cycling:** The proposed active transport network, with dedicated off-road bicycle paths on all connector streets, provide a strong foundation for higher cycling classifications in the area, as currently cycling classifications are low or missing
- **Bus:** Higher bus classifications are warranted due to the new bus capable road network that extends across all arterial and collector roads in the PSP

F.5.2 Land should be planned and reserved for the future expansion of transport network needs (including other uses such as stabling yards). The minimum appropriate number and width of traffic lanes should be based upon its anticipated level of service and should consider the 'place' role of the network

The PSP considers future transport network needs by reserving land for key infrastructure, including arterial and connector streets. The proposed cross-sections for these roads, with varying lane widths and configurations balances anticipated traffic volumes with the "place" function. For instance, the narrower carriageways on local access streets prioritise pedestrian and cyclist safety over vehicular throughput. However, as noted in the report, several roads in the adjacent Clyde South PSP are approaching capacity, suggesting that further review of the road network and future road reserve widths in that area may be necessary, for example Moores Road which is discussed in further detail in 7.8.

7.3 Walkability and safe cycling networks (Feature 6)

Feature 6, "Walkability and Safe Cycling Networks," emphasises the creation of high-amenity environments that prioritise safe, accessible, direct, and comfortable walking and cycling. It recognises that these modes of transport are essential for creating healthy, sustainable, and connected communities. This feature promotes the development of well-designed pedestrian and cycling infrastructure, integrated with the surrounding urban fabric, to encourage active travel and reduce reliance on private vehicles.

F.6.1 Streets should be carefully and deliberately designed (in terms of their scale, design speeds, configuration and landscaping treatments) to respond to the site context (i.e. topography, natural features), proposed land use context (i.e. future urban form, intensity of activity) and to support early habits for walking and cycling

The Casey Fields South (Employment) and Devon Meadows PSP demonstrate a considered approach to street design, incorporating elements that respond to the site context and promote walking and cycling. The proposed street hierarchy, with varying scales and configurations for arterials, connectors, and local streets, reflects an understanding of the different functional roles these streets play. For instance, the narrower carriageways and shared spaces planned for local access streets, particularly the Devon Shareway, prioritise pedestrian and cyclist comfort and safety, encouraging active travel within residential neighbourhoods. The inclusion of dedicated off-road bicycle paths along connector streets provides 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 the report illustrate how these elements are integrated into the street design, creating a greener and more comfortable public realm. The inclusion of shared paths along waterway corridors is an example of how the active transport network is integrated with the natural environment.

Additional considerations to ensure the development meets the principles include:

- Specific details on how the design and posted speed limits will be managed to support walking and cycling (e.g., traffic calming, intersection design, speed limits).
- Provide frequent and safe pedestrian crossings, aiming for the 400m spacing target in higher-order land use areas and along arterials.
- Consider the growing role of e-scooters and other micromobility options by exploring the provision of designated parking and charging facilities at key destinations and integration with public transport.

7.4 Public transport (Feature 7)

Feature 7, "Public Transport," focuses on providing a comprehensive and efficient public transport network that is well-integrated with land use and connects key destinations and major trip generators. This feature recognises that accessible and reliable public transport is crucial for creating sustainable communities, reducing car dependence, and providing equitable access to opportunities.

F.7.1 The public transport network identifies public transport as the preferred means of transport, when cycling or walking is not possible or practical (i.e. distance or physical mobility).

The Casey Fields South (Employment) and Devon Meadows PSP recognise the importance of public transport as a preferred mode when walking or cycling are not feasible and demonstrate a commitment to enabling effective bus services. Critically, the designation of all arterial and connector streets as bus-capable is a key element of this commitment. By providing a comprehensive network of bus-capable roads, the PSP facilitate convenient access to public transport for residents and employees throughout the precincts.

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 future Clyde Station, Cranbourne East Station and Casey Fields Station, will be critical in realising this goal. Further details regarding planned service frequencies, routes, and integration with regional public transport networks will be crucial to assessing the effectiveness of this approach.

Additional considerations to ensure the development meets the principles include:

- Ensure all public transport infrastructure, including bus stops and associated pedestrian access, is designed to be fully accessible to people with disabilities, older adults, and other users with mobility needs. This includes features like ramps, tactile paving, and accessible waiting areas.
- Detailed plans for bus service frequencies, routes, stops, catchments and integration with regional public transport networks.

F.7.2 Provision and timing of the public transport network should consider the likely development staging of the PSP area; and its role in facilitating higher intensity uses

The PSP recognises the importance of public transport provision and timing in relation to development staging. The proposed bus network, with routes planned along all arterial and connector streets, suggests an intention to provide public transport access as the precincts develop. However, the draft-PSP lacks specific details on the phasing of public transport implementation. It is crucial that public transport services are introduced early in the development process, ideally in conjunction with the first stages of residential and industrial development, to establish travel habits and encourage public transport use from the outset. Furthermore, the PSP should explicitly address how the public transport network will support the higher intensity uses planned for the Casey Fields South (Employment) precinct, particularly the mixed-use zone. Details on planned service frequencies, routes connecting to employment areas, and integration with other transport modes will be essential to ensure that the public transport network can effectively serve the needs of this higher density area. A clear strategy for aligning public transport provision with development staging and its role in supporting higher intensity uses would enhance the assessment.

Additional considerations to ensure the development meets the principles include:

- Flexibility and Adaptability: The PSP area will evolve. Design the public transport network with flexibility in mind. Routes, frequencies, and even modes might need adjustment as development progresses and travel patterns emerge. Consider incorporating "futureproofing" elements like corridors or infrastructure that can accommodate future expansion or changes.
- Integration with Other Modes: Consider how the public transport network will integrate with other modes of transport, such as walking, cycling, and private vehicles.

- Consideration of Different Land Uses: Recognise that different land uses have different public transport needs. Residential areas may require frequent local services, while employment areas may need express connections to regional centres. Tailor the public transport network to the specific needs of each land use zone. For example, industrial areas might require consideration of shift workers and freight movement.
- Bus priority: Consideration of bus priority lanes, queue jump lanes or bus lights to improve access, travel and reliability of the bus network.
- South Gippsland Highway: South Gippsland Highway has a very wide road reserve that connects with Cranbourne Station. This provides an opportunity for an interim solution before the Clyde Rail Extension is delivered.

7.5 Well-connected to public transport, jobs & services within the region (Feature 8)

Feature 8, "Well-connected to public transport, jobs & services within the region," focuses on ensuring that new communities are not isolated but rather integrated into the broader regional economy. This includes providing convenient access to diverse employment opportunities, key services, and regional activity centres, thereby supporting economic growth and investment within regionally, state, and nationally significant areas.

F.8.4 Protect existing and future priority freight routes from conflicting land uses.

While the Casey Fields South (Employment) and Devon Meadows PSP does not include exclusively dedicated internal industrial connector routes, the existing network of connector streets within the Casey Fields South (Employment) precinct has been designed with sufficient width and capacity to accommodate industrial vehicles, including heavy freight traffic. This design consideration effectively aligns with the principle of protecting existing and future priority freight routes from conflicting land uses.

The connector streets, by their design, provide a functional network for freight movement, linking the South Gippsland Highway with Ballarto Road and Clyde Five Ways Road. This planned internal freight network, utilising the existing connector street infrastructure, demonstrates a practical approach to providing dedicated routes for freight movement within the precinct, aligning with the principle of protecting priority freight routes

However, the existing 8-tonne mass limits on sections of the surrounding roads (Browns Road, Craig Road, and Ballarto Road) suggest a potential conflict that needs further consideration to ensure the long-term viability of freight movement within the precinct.

Additional considerations to ensure the development meets the principles include:

- Heavy Vehicle Parking and Loading Facilities: Provide adequate on-site parking and loading facilities for heavy vehicles within the industrial precinct to avoid on-street parking and congestion. Design these facilities to be safe and efficient.
- Intersection Design and Management: Design intersections between the industrial connector streets and the surrounding arterial network to safely and efficiently accommodate heavy vehicle movements, minimising congestion and conflicts with other traffic.

7.6 Local employment opportunities (Feature 9)

Feature 9, "Local employment opportunities," focuses on fostering local economic activity and providing diverse employment opportunities close to where people live. This principle recognises the importance of reducing commute times, promoting self-containment within communities, and creating vibrant local e

F.9.1 Locate and design mixed-use residential and employment areas to ensure residents and employees have access to public and active transport, local community and retail services, and open space

The Casey Fields South (Employment) and Devon Meadows PSP demonstrate a commitment to providing local employment opportunities and fostering self-containment within the community. The Casey Fields area, designated as a regionally significant industrial and mixed business hub, is central to this strategy. With a primary focus on industrial and commercial activities, it intends to attract businesses and generate jobs within the local area. The designation of "mixed business and industry" within the Casey Fields area facilitates a blend of industrial and commercial development, creating a vibrant employment centre.

Crucially, the planned integration of these employment areas with the proposed public and active transport networks, including bus-capable roads and dedicated bicycle paths, is crucial for ensuring accessibility for both residents and employees. However, the success of this approach will depend on the specific mix of businesses attracted to the industrial and mixed business area, and the actual uptake of public and active transport options.

Additional considerations to ensure the development meets the principles include:

- Public Transport Accessibility: Ensure frequent and reliable public transport services connect the employment areas with residential areas within the PSP and the wider region. Prioritise convenient access to bus stops and other public transport facilities.
- Active Transport Promotion: Encourage walking and cycling as modes of transport to and from work by providing safe and convenient active transport infrastructure, including end-of-trip facilities such as bicycle parking and showers.

7.7 Green streets and spaces (Feature 11)

Feature 11, "Green streets and spaces," focuses on the design and treatment of the public realm, including public infrastructure, to create safe, comfortable, high-amenity, and resilient environments for all.

F.11.1 Design of the public realm, public infrastructure amenity and open space should support climate change adaption, and be designed to encourage passive surveillance by adjoining land uses and activity consider the movement and place function of roads and streets

The Casey Fields South (Employment) and Devon Meadows PSP incorporate several elements that contribute to creating green streets and spaces and support climate change adaptation. The emphasis on street tree planting and generous nature strips within the cross-sections for various street types provides shade, reducing the urban heat island effect, and enhances the aesthetic appeal of the public realm. The inclusion of shared paths along waterway corridors is an example of integrating the active transport network with the natural environment, offering opportunities for recreation and connection with nature.

Additional considerations to ensure the development meets the principles include:

- Electric Vehicle (EV) Charging Infrastructure: Integrate EV charging infrastructure within the public realm, particularly in parking areas and near public transport hubs, to support the transition to electric vehicles.
- Traffic Calming and Pedestrian Safety: Implement traffic calming measures, such as speed humps, raised crossings, and narrowed carriageways, to reduce vehicle speeds and create safer streets for pedestrians and cyclists, particularly along the local street network.
- Wayfinding and Signage: Provide clear and consistent wayfinding signage to guide users to public transport facilities, active transport routes, and other key destinations.

7.8 Arterial road network (Target 5)

The following target was identified within the PSP Guidelines:

T5 The arterial road network should provide a 1.6km road grid with safe and efficient connections, adjusted where necessary to reflect local context.

The Casey Fields South (Employment) and Devon Meadows PSP's proposed arterial road network, while not strictly adhering to the 1.6km grid target, demonstrates a considered approach that balances the "first principles" outcome with the specific local context. The existing triangular configuration of Ballarto Road, Clyde Five Ways Road, and South Gippsland Highway makes a rigid application of the 1.6km grid impractical. Attempting to force such a grid in this situation would likely undermine access to the precincts and potentially create other planning challenges. Instead, the PSP proposes a modified network that responds to the unique circumstances of the area.

This approach acknowledges that the 1.6km grid is a guiding principle rather than an absolute requirement, and that flexibility is necessary to achieve positive "place" outcomes. The proposed network, with its connections to the existing arterial roads, aims to provide safe and efficient movement within and around the precincts.

Although the strategic modelling indicated that Moores Road should be considered as a four-lane arterial, there may be capacity available in the connector street to the north, subject to detailed modelling. The daily vehicle volume along Moores Road, east and west of Clyde Five Ways Road is approximately 22,000 and 20,000 respectively in the 2051 project case. This raises concerns about potential future traffic congestion, particularly given the proximity of the Moores Road/South Gippsland Highway and Moores Road/Clyde Five Ways Road intersections.

While a strict 1.6km grid isn't achievable given the existing conditions, the PSP's design prioritises effective connections and access, demonstrating a practical application of the performance target in the context of the site.

Based on a review of the V/C ratios in the PSP, SIDRA modelling should be undertaken for intersections along South Gippsland Highway and Clyde Five Ways Road to confirm the functional layouts of the intersections.

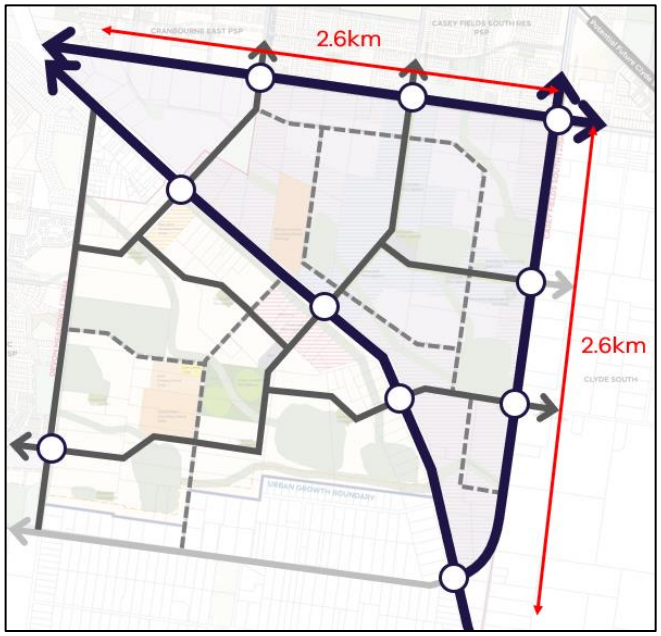


Figure 7-1. Arterial road network (Source: VPA)

7.9 Off-road bicycle paths (Target 6)

The following target was identified within the PSP Guidelines:

T6 Off-road 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 Casey Fields South (Employment) and Devon Meadows PSP demonstrate a strong commitment to active transport by proposing off-road bicycle paths on all local streets, connector streets and arterials (excluding South Gippsland Highway) a positive outcome that will provide safe and convenient cycling routes within the precincts. This element of the plan aligns well with Performance Target T6, which calls for off-road bicycle paths on all connector streets and arterial roads.

However, the PSP falls short of fully meeting this target as the plans do not provide any dedicated cycling infrastructure, whether off-road bicycle paths or shared paths, along South Gippsland Highway, an arterial road. This absence of cycling provision along a major arterial route represents a substantial gap in the planned cycling network and raises concerns about safety and connectivity for cyclists.

It is noted that following further following cross section analysis and associated investigations beyond the scope of this assessment, the paths in the PSP may be constructed as either off-road bicycle paths or off-road shared paths, depending on road reserve availability. However, it is acknowledged that off road shared paths would fall short of meeting Performance Target 6. Off road shared paths, designed for both pedestrians and cyclists, do not offer the same level of dedicated cycling infrastructure as off-road bicycle paths, particularly on busier roads. As per *Austroads Guide to Road Design Part 6A: Paths for Walking and Cycling*, segregated paths are suitable where there are safety or conflict issues such as where there are a high number of pedestrian and/or cyclists, or the desired level of service on a shared path is not being met.

The Casey Fields South (Employment) and Devon Meadows PSP proposes off-road bicycle paths along Ballarto Road, however it is noted that as part of the Casey Fields Residential PSP, on-road bicycle lanes along Ballarto Road were proposed, as shown in Figure 6-3. Consideration should be given to only building off-road bicycle paths along Ballarto Road, instead of building both on road

bicycle lanes and off-road bicycle lanes to minimise potential conflicts between cyclists and vehicles on this busy arterial road and prioritise safety.

Additional considerations to ensure the development meets the target include:

- South Gippsland Highway Cycling Provision: The most critical missing piece is cycling infrastructure along the South Gippsland Highway. Given its wide road reserve and connection and connection with Cranbourne Station, South Gippsland Highway is a key cycling and micromobility link. The PSP intersections should be future proofed and not preclude the inclusion of off-road bicycle paths along South Gippsland Highway.
- Safe Intersections: Design of intersections along the off-road bicycle paths to minimise conflicts between cyclists and vehicles, including considerations for signalised crossings, priority crossings, and other intersection treatments.
- Wayfinding and Signage: Clear wayfinding and signage are essential for guiding cyclists along the off-road bicycle paths and connecting them to key destinations. A signage strategy that ensures cyclists can easily navigate the network.

7.10 Footpaths (Target 7)

The following target was identified within the PSP Guidelines:

T7 All streets should have footpaths on both sides of the reservation.

The Casey Fields South (Employment) and Devon Meadows PSP largely achieve Performance Target T7, which stipulates that all streets should have footpaths on both sides of the reservation. The plans indicate that footpaths are provided on both sides of the road reserve for most road types within the precincts. However, there are two exceptions: the local access Devon Shareway and the local access employment service loop. In these instances, a footpath is provided on one side of the street, while a shared path is provided on the other.

While the shared path offers pedestrian access, it does not strictly adhere to the target's requirement for footpaths on both sides. However, if cyclist volumes are low, this is not expected to be an issue. Overall, while the PSP generally provide pedestrian access on both sides of the street, the use of shared paths in place of footpaths on the Devon Shareway and the employment service loop represents a minor deviation from Performance Target T7.

Additional considerations to ensure the development meets the target include:

- Devon Shareway and Employment Service Loop: While shared paths offer pedestrian access, the PSP should consider footpaths on both sides of the Devon Shareway and the local access employment service loop.
- Lighting: Adequate lighting is essential for pedestrian safety, especially at night. Footpaths should be well-lit to ensure visibility and deter crime

7.11 Pedestrian and cyclist crossings (Target 8)

The following target was identified within the PSP Guidelines:

T8 Pedestrian and cyclist crossings provided every 400-800m, where appropriate, along arterial roads, rail lines, waterways and any other accessibility barriers

Signalised pedestrian crossings are generally proposed at key intersections along, Ballarto Road, South Gippsland Highway, and Clyde Five Ways Road, with an approximate spacing of 800m. However, notable gaps exist, particularly at the southern end of Clyde Five Ways Road. To fully comply with Performance Target 8, which mandates crossings every 400-800m, additional crossings must be strategically placed along waterways and other identified accessibility barriers.

Additional considerations to ensure the development meets the target include:

- Additional Pedestrian and Cyclist Crossing: Provide an additional pedestrian and cyclist crossing along Clyde Five Ways Road, south of Moores Road.
- Identification of additional Pedestrian and Cyclist Crossings: Undertake a detailed assessment to identify locations of additional pedestrian crossings along waterways and accessibility barriers to ensure that a pedestrian and cyclist crossing is provided every 400-800m.

7.12 Access to public transport (Target 9)

The following target was identified within the PSP Guidelines:

T9 95% of dwellings should be located within either of the following walking distances (800m to a train station, 600m to a tram stop; or 400m to a future bus route or bus capable road)

The Casey Fields South (Employment) and Devon Meadows PSP address Performance Target T9, which aims to have 95% of dwellings within specified walking distances of public transport, primarily through their provision of bus-capable roads. Currently, the nearest train station, Cranbourne Station, is approximately 5.5km away, significantly beyond the 800m target for all dwellings. While the potential future Clyde Rail Extension is noted, its proposed location is also more than 800m from a large portion of the proposed residential areas. Therefore, reliance on rail to meet this target is not feasible in the current or reasonably foreseeable planned scenario. The proposed location of the potential future Casey Fields Station is more than 1km away from the Casey Fields and Devon Meadows PSP.

Bus-capable roads are planned to cover a significant portion of the proposed road network within the PSP, including all arterial and connector streets. This comprehensive coverage of bus capable roads aims to maximise accessibility to public transport for residents and support sustainable travel choices. However, to ensure that all potential gaps in service are identified and addressed, a detailed catchment analysis, considering a 400m walk-up distance to bus stops, should be undertaken. This analysis will help identify any areas that may be beyond a reasonable walking distance and inform potential adjustments to the bus network or the provision of additional pedestrian infrastructure. Additional considerations to ensure the development meets the target include:

- Catchment analysis considering a 400m walk-up distance to bus stops should be undertaken to identify any areas that may be beyond a reasonable walking distance and inform potential adjustments to the bus network or the provision of additional pedestrian infrastructure. Given the distance to Cranbourne station, consideration should be given to a higher frequency bus that is within 800m walking distance.

8. Conclusion

This Integrated Transport Assessment (ITA) has provided a comprehensive evaluation of the proposed transport network for the 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 Melbourne 2017-2050, and Casey's Streets Ahead Integrated Transport Strategy*. While the PSP demonstrates several positive features, including a hierarchical road network, provision for bus-capable roads, and a dedicated active transport network, it is recommended that several key areas require further attention to ensure the creation of a truly 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 to promote mode shift through prioritising public transport enhancements, advocating for the timely delivery of the Cranbourne Line extension to Clyde, and ensuring the active transport network is safe, convenient, and well-connected. The South Gippsland Highway's barrier effect necessitates careful planning of safe and efficient crossings for all modes. Furthermore, the existing freight network limitations, particularly vehicle weight restrictions, must be addressed to support the planned industrial development in the Casey Fields South (Employment) precinct.

The PSP offers a unique opportunity to implement best practices in transport planning from the outset. Integrating land use and transport, focusing on the principles of 20-minute neighbourhoods, and leveraging the potential of the Casey Fields South (Employment) precinct as a regionally significant industrial precinct are crucial for achieving local self-containment and reducing reliance on private vehicles.

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, including off-road paths and shared paths, support walkability and cycling. The designation of all arterial and connector streets as bus-capable will allow for improved public transport accessibility. Furthermore, the PSP's consideration of "movement and place" principles, through the differentiation of street typologies, indicates an understanding of the need to balance traffic flow with place-making. 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 most streets aligns with accessibility targets.

Additional considerations guided by the PSP requirements and guidelines are summarised below, however it is noted that some of these considerations will be implemented through the subdivision and permit stage.

Road Network & Traffic Management:

- Road Alignment: Whether the connection from Botanic Ridge to Cranbourne East via Casey Fields Boulevard should be more direct (Protea or Bardicoot) or staggered.
- Moores Road Capacity: Whether Moores Road between Clyde Five Ways Road and South Gippsland Highway should be four lanes, considering existing and projected traffic volumes (subject to detailed modelling).
- Intersection Design: Developing detailed intersection designs demonstrating safe and accessible crossings for pedestrians and cyclists.
- Protected Right Turns & Medians: Providing protected right turn lanes at key junctions and a narrow-painted median on connector streets and local access employment service loop.
- Traffic Calming: Implementing traffic calming measures (speed humps, raised crossings, narrowed carriageways) to reduce vehicle speeds and improve pedestrian and cyclist safety.
- Intersection Modelling: Conducting SIDRA modelling for intersections along South Gippsland Highway and Clyde Five Ways Road based on V/C ratios.
- Heavy Vehicle Considerations:
  - Adequate on-site parking and loading facilities for heavy vehicles within the industrial precinct.
  - Intersection design and management to safely accommodate heavy vehicle movements.

Public Transport:

- Catchment Analysis: Detailed catchment analysis (400m walk-up distance to bus stops) to inform bus network adjustments and pedestrian infrastructure. Given the distance to Cranbourne station, consideration should be given to a higher frequency bus that is within 800m walking distance.
- Bus Service Planning: Developing detailed plans for bus service frequencies, routes, stops, catchments, and integration with regional networks.
- Bus Priority: Consideration of bus priority lanes, queue jump lanes, or bus lights.
- Flexibility and Adaptability: Designing the public transport network with flexibility for future adjustments.
- Integration with Other Modes: Considering integration with walking, cycling, and private vehicles.
- Land Use Considerations: Tailoring the public transport network to the specific needs of each land use zone (residential, employment, industrial).
- Public Transport Accessibility: Ensuring all public transport infrastructure is accessible to people with disabilities, older adults, and other users with mobility needs.
- South Gippsland Highway: South Gippsland Highway has a very wide road reserve that connects with Cranbourne Station. This provides an opportunity for an interim public transport solution before the Clyde Rail Extension is delivered.

Active Transport (Walking & Cycling):

- Pedestrian Connectivity: Prioritising pedestrian connectivity and ease of movement within higher-order land use zones.
- Ballarto Road off-road bicycle lanes: Consideration should be given to only building off-road bicycle paths along Ballarto Road, instead of building both on road bicycle lanes and off-road bicycle, lanes to minimise potential conflicts between cyclists and vehicles on this busy arterial road and prioritise safety.
- Pedestrian Crossings: Providing frequent and safe pedestrian crossings (aiming for 400m spacing) in higher-order land use areas and along arterials.
- Crossing Integration: Integrating pedestrian crossings with key pedestrian, cycling, and bus routes.
- Speed Management: Strategies on how design and posted speed limits will support walking and cycling.
- Micromobility: Exploring designated parking and charging facilities for e-scooters and other micromobility options.
- South Gippsland Highway Cycling: Including dedicated off-road bicycle paths along South Gippsland Highway.
- Safe Intersections (Cycling): Designing intersections along off-road bicycle paths to minimise conflicts between cyclists and vehicles.
- Cycling Wayfinding: A signage strategy that ensures cyclists can easily navigate the network.
- Active Transport Promotion: Encouraging walking and cycling through safe and convenient infrastructure, including end-of-trip facilities.
- Safe Intersections: The design of intersections along the off-road bicycle paths is crucial for cyclist safety. The PSP should include details on how intersections will be designed to minimise conflicts between cyclists and vehicles, including considerations for signalised crossings, priority crossings, and other intersection treatments.
- Wayfinding and Signage: Clear wayfinding and signage are essential for guiding cyclists along the off-road bicycle paths and connecting them to key

destinations. A signage strategy that ensures cyclists can easily navigate the network.

- Devon Shareway and Employment Service Loop: While shared paths offer pedestrian access, the PSP should consider footpaths on both sides of the Devon Shareway and the local access employment service loop.
- Lighting: Adequate lighting is essential for pedestrian safety, especially at night. Footpaths should be well-lit to ensure visibility and deter crime.
- Additional Pedestrian and Cyclist Crossing: Provide an additional pedestrian and cyclist crossing along Clyde Five Ways Road, south of Moores Road.
- Identification of additional Pedestrian and Cyclist Crossings: Undertake a detailed assessment to identify locations of additional pedestrian crossings along waterways and accessibility barriers to ensure that a pedestrian and cyclist crossing is provided every 400-800m.

Other Infrastructure & Design:

- Lighting: Developing specific lighting strategies for all streets and public spaces, addressing safety and visibility.
- South Gippsland Highway Barrier: Developing strategies for addressing the South Gippsland Highway as a barrier to pedestrian and cyclist movement.
- Wayfinding and Signage: Providing clear and consistent wayfinding signage.
- Electric Vehicle (EV) Charging: Integrating EV charging infrastructure within the public realm.