Prepared for
Victorian Planning Authority
ABN: 58 651 383 439

Integrated Transport Assessment

Melton East Precinct Structure Plan

04-Feb-2025

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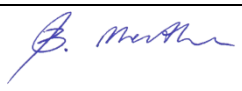
5	17-Jan-2025	Final	Benjamin Mentha Principal Traffic and Transport Engineer	
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Glossary

Table 1 Glossary

Acronym	Definition
AADT	Average Annual Daily Traffic Volume
CBD	Central Business District
DTP	Department of Transport and Planning
EDCM	Engineering Design and Construction Manual
ha	Hectares
ICP	Infrastructure Contributions Plan
ITA	Integrated Transport Assessment
km	Kilometres
km/h	Kilometres per hour
LXRP	Level Crossing Removal Project
m	Metres
M+P	Movement and Place
OMR	Outer Metropolitan Ring
PAO	Public Acquisition Overlay
PIP	Precinct Infrastructure Plan
POS	Pedestrian Operated Signals
PPF	Planning Policy Framework
PPTN	Principal Public Transport Network
PSP	Precinct Structure Plan
PTV	Public Transport Victoria
RCZ	Rural Conservation Zone
UFZ	Urban Floodway Zone
UGB	Urban Growth Boundary
UGZ	Urban Growth Zone
V/C ratio	Volume to Capacity ratio
VITM	Victorian Integrated Transport Model
VPA	Victorian Planning Authority
vpd	Vehicles per day

References

The following documents have been reviewed during the preparation of this report:

- Draft Melton East Precinct Structure Plan prepared by the VPA (Agency Validation – March 2024)
- Updated Melton East Place Based Plan, Movement Network Plan and Precinct Infrastructure Plan prepared by VPA (22 October 2024)
- Melton East PSP – Strategic Transport Modelling prepared by AECOM (Rev. D, 19 August 2024)
- Warrensbrook PSP – Strategic Transport Modelling prepared by AECOM (Rev. C, 19 August 2024)
- Precinct Structure Planning Guidelines: New Communities in Victoria prepared by the VPA (October 2021)
- Engineering Design and Construction Manual for Subdivision in Growth Areas (December 2019)
- Guidance for Planning Road Networks in Growth Areas prepared by VicRoads (now DTP) (Working Document, November 2015)
- VPA Standard Cross-Sections
- PSP Notes – Our Roads: Connecting People
- Clause 56.06 of the Melton Planning Scheme

1.0 Introduction

AECOM has been engaged by the Victorian Planning Authority (VPA) to prepare an Integrated Transport Assessment (ITA) for the Melton East Precinct Structure Plan (PSP).

The Melton East PSP is located within Melbourne's West Growth Corridor approximately 35km north-west of Melbourne's CBD and to the east of the existing Melton township. It is bounded by Kororoit Creek to the north-east, Western Freeway to the south, Leakes Road to the east and the Melton Highway to the north and west.

The location of the Melton East PSP within the West Growth Corridor is presented in Figure 1.

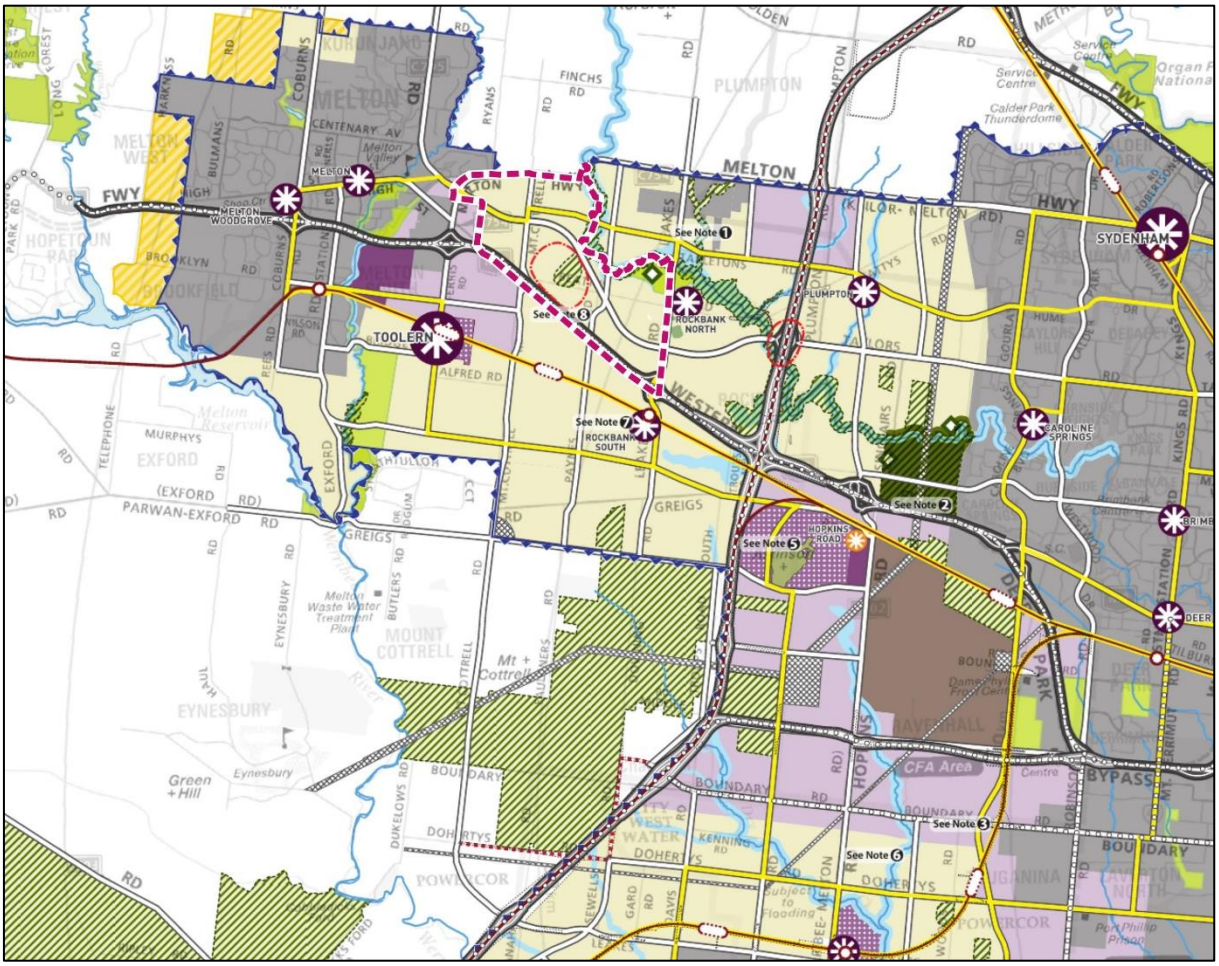

Figure 1 Melton East PSP within the West Growth Corridor

2.0 Melton East PSP

2.1 Land Use

The Melton East PSP covers an area of 1,005 ha, which includes a net developable area of 493 ha.

It is expected to yield in the order of:

- 12,000-14,000 dwellings
- 38,000-43,000 residents
- 2,000 jobs.

In addition, the PSP is planning for 6 primary schools (4 government and 2 private), 2 local town centres, 2 local convenience centres, 4 local community facilities, 4 sports reserves and approximately 17 ha of local parks.

The Place Based Plan for the PSP is presented in Figure 2.

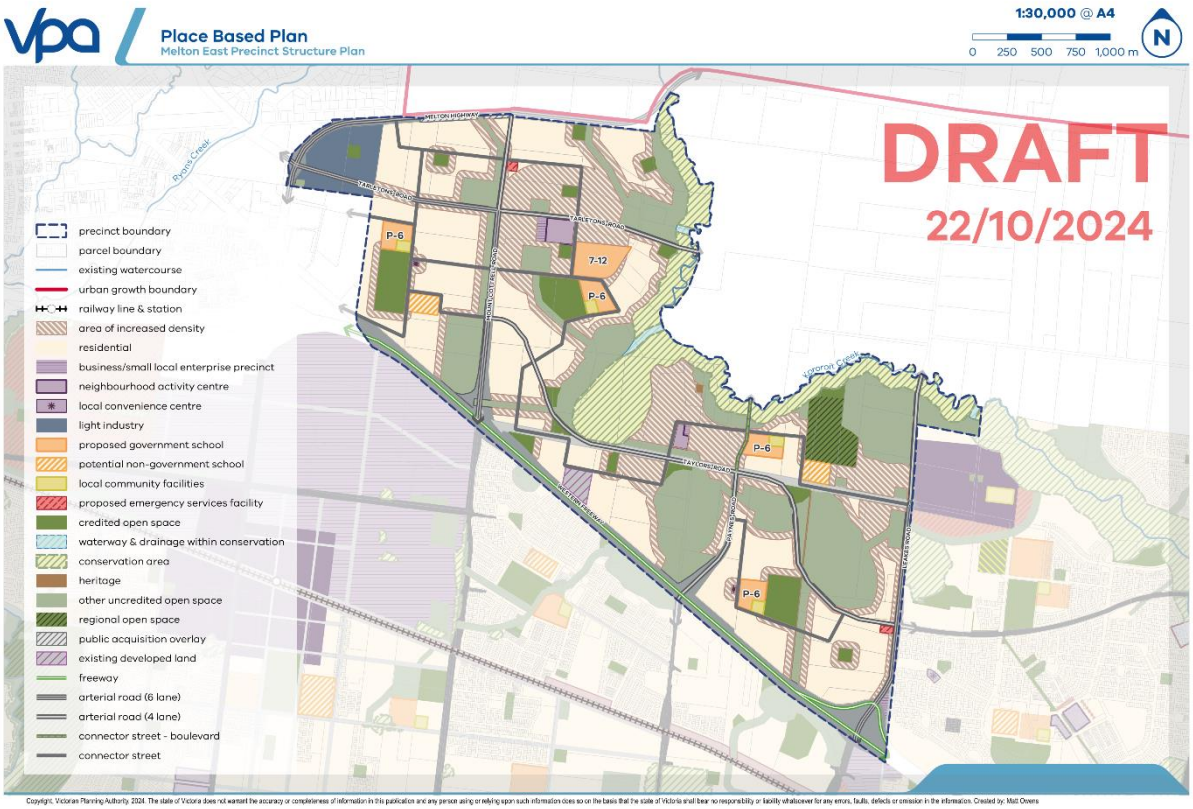

Figure 2 Draft Melton East PSP – Place Based Plan

2.2 Movement Networks

The PSP sets out the future transport network, including arterial roads, connector streets, off-road shared paths and bike paths, and bus capable roads.

2.2.1 Road Network

The arterial road network is comprised of:

- Melton Highway – identified as a future 6-lane primary arterial that runs along the western and northern boundaries of the PSP and connects to the Western Freeway via an existing diamond interchange where it continues south as Ferris Road. It will also connect to the future OMR via a diamond interchange.
- Tarletons Road – identified as a future 6-lane primary arterial between Melton Highway and Mount Cottrell Road, and a future 4-lane secondary arterial between Mount Cottrell Road and Kororoit Creek. It will ultimately be extended across the Kororoit Creek through the adjacent Warrensbrook PSP and over the OMR and continue through the neighbouring Plumpton PSP to connect to Hume Drive.
- Taylors Road – identified as a future 4-lane primary arterial within the PSP between Mount Cottrell Road and Leakes Road. It will ultimately extend through the neighbouring Rockbank North, Kororoit and Plumpton PSPs as a 6-lane primary arterial.
- Mount Cottrell Road – identified as a future 6-lane primary arterial between the Western Freeway and Tarletons Road, and a future 4-lane primary arterial between Tarletons Road and Melton Highway. It will ultimately connect to the Western Freeway with a half-diamond interchange (City-side ramps) and continue south as a 6-lane primary arterial through the neighbouring Toolern and Paynes Road PSPs.
- Paynes Road – identified as a future 4-lane secondary arterial between the Western Freeway and Taylors Road, and as a boulevard connector street from Taylors Road to the Kororoit Creek. It will ultimately extend south across the Western Freeway via an overpass and continue as a 4-lane secondary arterial through the Paynes Road, Toolern and Rockbank PSPs.
- Leakes Road – identified as a future 6-lane primary arterial road south of Beattys Road and a future 4-lane primary arterial north of Beattys Road that connects to the Western Freeway via an existing diamond interchange and extends north to the Kororoit Creek within the PSP. South of the freeway, Leakes Road continues through the neighbouring Rockbank PSP as a 6-lane primary arterial.

In addition to the arterial road network, the PSP features a network of connector streets that will provide access to residential areas, as well as schools, local town centres, community facilities, sports reserves and local parks.

2.2.2 Public Transport Network

All arterial roads and connector streets are identified as bus capable roads, with Leakes Road and Tarletons Road identified as being part of the Principal Public Transport Network (PPTN).

It is noted that the provision of bus routes and services will be subject to future planning by DTP/PTV.

2.2.3 Active Transport Network

The active travel network in the PSP is comprised of off-road shared paths and off-road bike paths that are provided along arterial roads, connector streets and along open space corridors.

Off-road shared paths will be provided along both sides of the arterial roads, whilst connector streets will be provided with an off-road bike along one side in addition to footpaths along both sides.

Three pedestrian bridges are proposed across the Kororoit Creek. Additionally, the three road bridges at Tarletons Road, Paynes Road and Leakes Road will also facilitate pedestrian and cycle movements into the future Warrensbrook PSP.

The Movement and Network Plan for the PSP is presented in Figure 3.

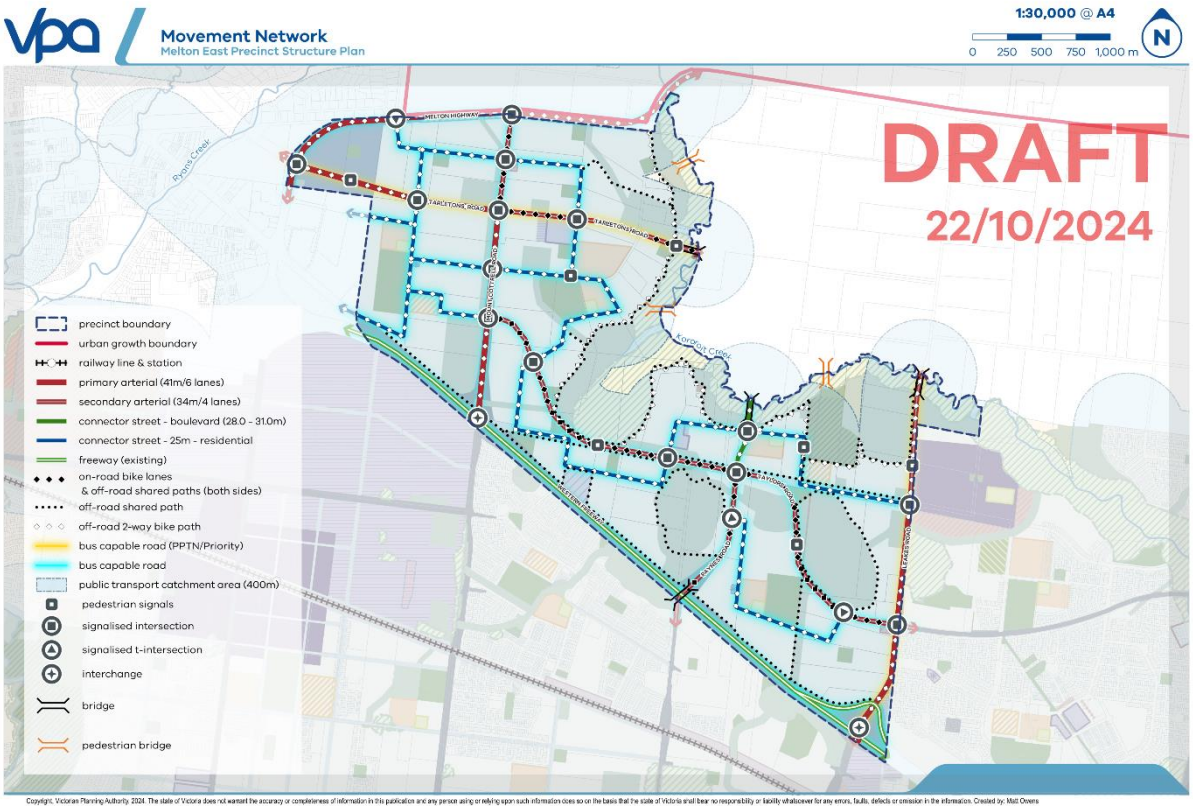

Figure 3 Draft Melton East PSP – Movement and Network Plan

3.0 Strategic Planning Context

3.1 Melton Planning Scheme

The Melton Planning Scheme is a statutory document that sets out policies and provisions relating to the use and development of land within the City of Melton.

The Planning Scheme includes the Planning Policy Framework (PPF), which provides overarching policy to guide land use, subdivision and development. Clause 18 of the PPF sets out the transport policies and includes policy frameworks for land use and transport and movement networks.

At the completion of the planning process, the Melton East PSP is expected to be incorporated into the Melton Planning Scheme as an Incorporated Document via a Planning Scheme Amendment.

3.2 West Growth Corridor Plan

The West Growth Corridor Plan is a high-level integrated land use and transport plan to guide the delivery of housing, employment and transport infrastructure in Melbourne's new suburbs within the growth corridor. It is identified as a background document in the Melton Planning Scheme.

Within the PSP, it identifies key arterial roads, including Melton Highway, Tarletons Road and Taylors Road traveling in an east-west direction, as well as Mount Cottrell Road, Paynes Road and Leakes Road travelling in a north-south direction. Notably, it also identifies Leakes Road and Tarletons Road as being part of the Principal Public Transport Network (PPTN).

Outside of the PSP, it identifies a Principal Town Centre at Toolern located to the south-west of the PSP, as well as a Major Town Centre at Rockbank North just east of the PSP. It also identifies potential future railway stations on the Ballarat Railway Line to the south.

3.3 Plan Melbourne 2017-2050

Plan Melbourne is a metropolitan planning strategy that integrates long-term land use, infrastructure and transport planning to define the future shape of Melbourne and Victoria.

The Plan's vision is guided by 9 Principles, including a principle for the creation of 20-minute neighbourhoods to provide accessible, safe and attractive local areas where people can access most of their everyday needs within a 20-minute walk, cycle or local public transport trip.

The Plan sets 7 outcomes to support the principles, which includes an outcome for an integrated transport system that connects people to jobs and services and goods to market.

The Plan identifies the future Toolern Activity Centre located to the south-west of the PSP as one of just nine existing and two future Metropolitan Activity Centres across Melbourne signifying the strategic importance of this activity centre to the broader West Growth Corridor.

The Plan also affirms Melbourne's Urban Growth Boundary (UGB), which is located along the northern boundary of the PSP (Melton Highway) as the outer limit for growth for Metropolitan Melbourne.

3.4 Other PSPs

The Melton East PSP is surrounded by a number of completed PSPs to the south and east that are currently under development. These include:

- Toolern PSP, Paynes Road PSP and Rockbank PSP to the south.
- Rockbank North PSP, Plumpton PSP, Kororoit PSP to the east.

The development of these PSPs will result in new and upgraded arterial roads and connector streets, new active travel paths and new bus capable routes that will connect into the future transport network of the Melton East PSP.

It is noted that the Warrensbrook PSP that abuts the north-east boundary of the Melton East PSP is currently unprogrammed.

3.5 Moving Melton – Integrated Transport Strategy

Melton City Council adopted the Melton Integrated Transport Strategy (known as Moving Melton) in December 2015.

The Strategy provides short, medium and long- term actions for Council and the State Government to improve all modes of transport including walking, cycling, buses, trains, cars, and freight.

It recommends actions that Council can take to improve the transport systems that it owns and manages (such as footpaths, bicycle infrastructure and local roads), and recommends the advocacy actions that Council should take to request improvements to the parts of the transport system that the State Government owns and manages (such as major roads, highways, freeways, bus and train services).

In 2022, Council created the Transport Prospectus to accompany the Integrated Transport Strategy, which is a digital platform that identifies priority transport infrastructure projects.

Projects identified in the Transport Prospectus include:

- Melton Highway – duplication and upgrade to an urban standard
- Melton Highway Active Transport Corridor – providing an off-road shared path along Melton Highway
- Ferris Road / Melton Highway Interchange – upgrade of the existing freeway interchange
- Mount Cottrell Road Interchange - construction of a half diamond interchange with the Western Freeway
- Paynes Road Overpass - construction of an overpass across the Western Freeway
- Western Freeway – additional lanes and interchange upgrades

3.6 Outer Metropolitan Ring (OMR)

The Outer Metropolitan Ring and E6 Transport Corridor was reserved via a Public Acquisition Overlay (PAO) in 2010 by VicRoads (now DTP).

The OMR will connect the Princes Freeway near Werribee in the west to the Hume Freeway near Beveridge in Melbourne's north and includes both a proposed multi-lane freeway, and a reservation for up to four rail tracks.

The OMR Corridor is expected to be delivered and expanded in multiple stages over a 30 to 50-year plus period to support the ongoing growth and development of Melbourne’s west and north.

It is located approximately 2.5km east of the eastern boundary of the PSP (Leakes Road) and features a freeway interchange with the Western Freeway as well as a diamond interchange with Melton Highway.

An interchange is also expected to be provided at Taylors Road, whilst a grade separated overpass is expected to be provided at Tarletons Road.

3.7 Melton Railway Line Upgrades

The Level Crossing Removal Project (LXRP) are currently planning to remove four level crossings on the Ballarat Railway Line in the vicinity of the PSP at the following locations:

- Coburns Road, Melton
- Exford Road, Melton
- Ferris Road, Melton
- Hopkins Road, Truganina

The existing Melton Station will be upgraded and modernised as part of the works. It is expected that construction will be completed by 2026.

4.0 Existing Conditions

4.1 Land Use

Land within the PSP is generally rural in nature with a small number of dwellings.

It is predominantly zoned Urban Growth Zone (UGZ), with the exception of land adjacent to the Kororoit Creek which is zoned Rural Conservation Zone (RCZ) and Urban Floodway Zone (UFZ).

4.2 Road Network

The existing road network in the vicinity of the PSP is presented in Figure 4.

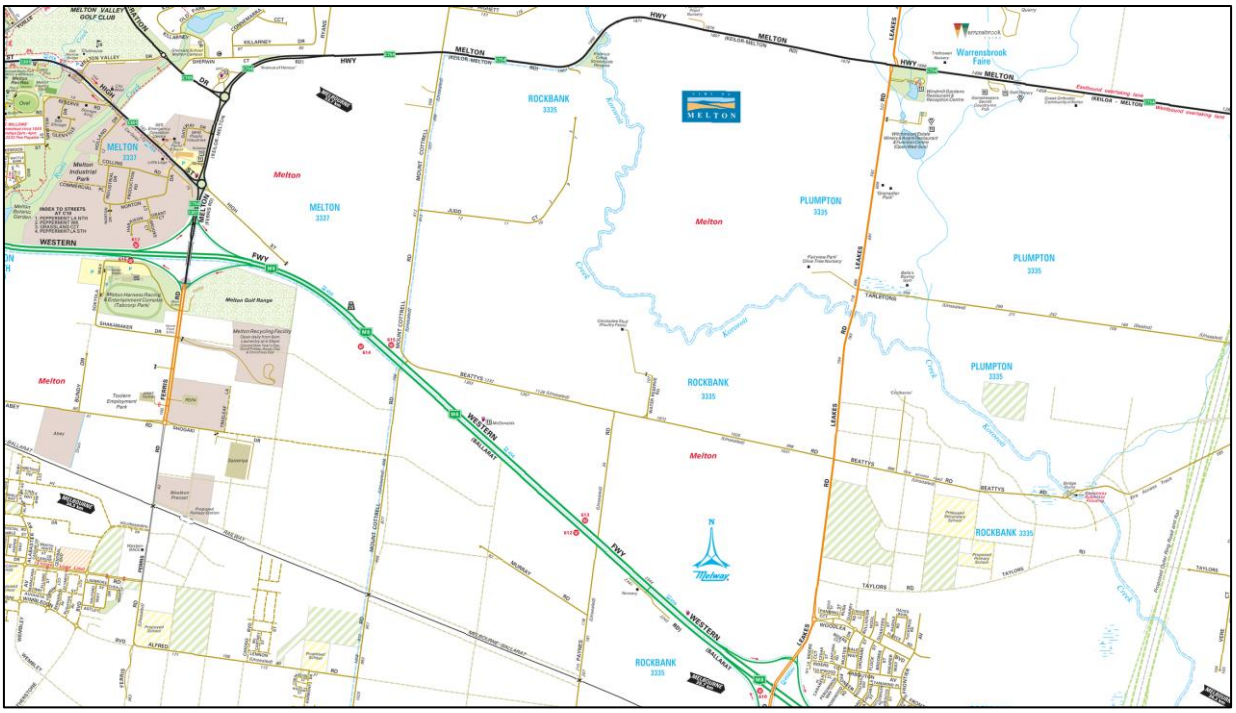

Figure 4 Existing Road Network (source: Melways Online)

The key characteristics of the existing road network within the PSP are set out in Table 2.

Table 2 Existing Road Characteristics

Road Name	Classification	Carriageway Configuration	Road Reserve Width	Speed Zone	Daily Volume (AADT)*
Western Freeway	Freeway	2 lanes each direction, divided	92m	90 km/h / 110 km/h	60,000 vpd
Melton Highway	Arterial	7.0m sealed, 2 lanes	Varies, 20m-60m	70 km/h / 80 km/h	20,000 vpd
Mount Cottrell Road	Local	Unsealed	20m	Rural default (100 km/h)	N/A
Paynes Road	Local	Unsealed	20m	Rural default (100 km/h)	N/A
Leakes Road	Local	7.0m sealed, 2 lanes	20m	80 km/h	550 vpd

Road Name	Classification	Carriageway Configuration	Road Reserve Width	Speed Zone	Daily Volume (AADT)*
Beattys Road	Local	6.0m sealed, 2 lanes	60m	80 km/h	N/A
Judd Court	Local	5.6m sealed	20m	Rural default (100 km/h)	N/A
Water Reserve Road	Local	Unsealed	22m	Rural default (100 km/h)	N/A

** Annual Average Daily Traffic (AADT) volumes have been sourced from DTP's Traffic Volumes for Freeways and Arterial Roads data set (https://vicroadsopendata-vicroadsmaps.opendata.arcgis.com/datasets/traffic-volume)*

The reservations for Tarletons Road and Taylors Road (excluding the section that will make use of the existing Beattys Road reservation) do not currently exist within the PSP area and consequently the road reserves for these future arterial roads will need to be created as part of the development of land within the PSP. The existing Paynes Road reservation will be realigned to avoid future drainage infrastructure.

4.3 Public Transport Network

The Ballarat Railway Line is located to the south of the PSP.

Rockbank Station (located adjacent Leakes Road) and Cobblebank Station (located adjacent to Ferris Road) provide access to V/Line services that travel between Melbourne and Ballarat via Melton.

A potential new station, known as Thornhill Park Station, is also identified in the Paynes Road PSP (located between Mount Cottrell Road and Paynes Road). Construction of this new station will be dependent on State Government funding.

Watergardens Station is located approximately 10km east of the PSP on the Sunbury Railway Line.

The existing public transport network in the vicinity of the PSP is presented in Figure 5.

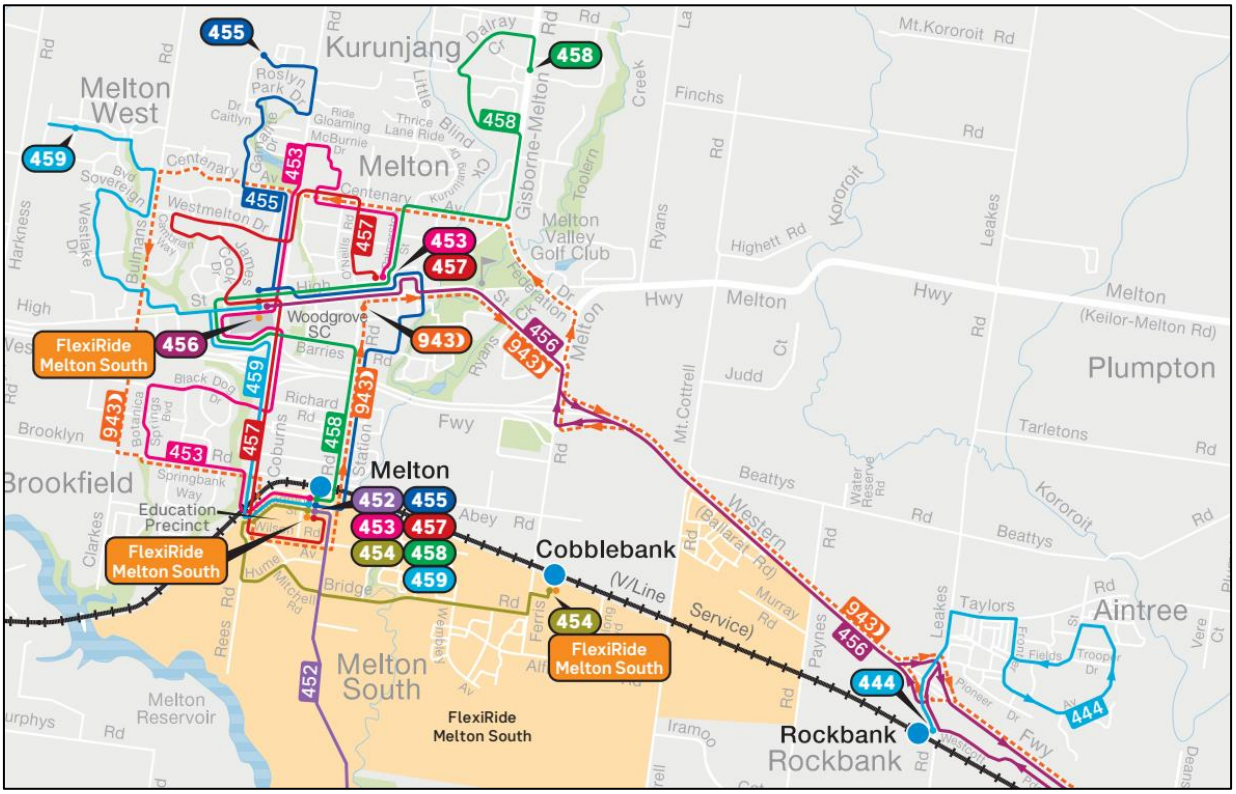

Figure 5 Existing Public Transport Network

4.4 Active Transport Network

No active transport infrastructure is currently located within the PSP, however, on-road bicycle lanes are provided on both Leakes Road and Taylors Road at their intersection.

5.0 Strategic Transport Modelling

5.1 Introduction

In conjunction with our engagement to prepare an Integrated Transport Assessment, AECOM was also engaged to prepare strategic transport modelling using the Victorian Integrated Transport Model (VITM) for the Melton East and Warrensbrook PSPs.

Full details of the modelling inputs and results can be found in the respective strategic transport modelling reports for each PSP.

5.2 Model Refinement

AECOM received a copy of the VITM from DTP (ver. VITM_v2_04) for the purpose of preparing a strategic transport model of the Melton East PSP.

The version of VITM maintained by DTP includes a number of 'reference cases' at 5-year intervals (aligned with Census years) that make assumptions about the future transport network upgrades, land uses and population forecasts for each reference case year.

Our 'base case' model for the Melton East PSP adopted the ultimate year (2051) reference case and refined the model to reflect the proposed road network (arterials and connectors) outlined in the draft PSP, as well as a refined disaggregated zone system within the PSP area with land use forecasts (population, employment and enrolments) for each zone based on information received from the VPA.

5.3 Scenarios

The following scenarios were tested in the model:

- Base Case representing the draft PSP land use assumptions (note: Taylors Road, Leakes Road and Mount Cottrell Road were modelled with 6 lanes along their overall length in the base case)
- Scenario 1 – truncation of Paynes Road at the Kororoit Creek, as well as a minor realignment of a connector street west of Mount Cottrell Road
- Scenario 2 – reduction in the number of lanes from 6 lanes to 4 lanes on Taylors Road (from Mount Cottrell Road to Leakes Road), Leakes Road (from Melton Highway to Taylors Road) and Mount Cottrell Road (from Melton Highway to Tarletons Road)
- Scenario 3 – realignment of Taylors Road at Leakes Road to create a dog-legged intersection by using the existing Beattys Road reserve west of Leakes Road as the arterial reserve, along with a reduction in the number of lanes from 6 lanes to 4 lanes on Leakes Road (from Melton Highway to Taylors Road West).

The draft PSP is broadly consistent with Scenario 2 of the VITM modelling. The following exceptions are noted:

- Leakes Road changes from 6-lanes to 4-lanes at Beattys Road in the draft PSP, whereas the Scenario 2 model makes this change at Taylors Road.
- Paynes Road changes from 4-lanes to 2-lanes at Taylors Road in the draft PSP, whereas the Scenario 2 model provides 4-lanes for entire length of Paynes Road.
- The western end of Beattys Road does not connect to Taylors Road in the draft PSP, whereas the Scenario 2 model includes this connection.

The above differences between the draft PSP and the Scenario 2 model are not expected to have a material effect on the predicted traffic volumes. In particular, the difference in the network configuration at the western end of Beattys Road is not expected to adversely impact the predicated volumes on Taylors Road (albeit some minor redistribution may occur) as each road is performing a different function in the network; i.e. Beattys Road provides local access to the Rockbank North Activity Centre as opposed to Taylors Road that provides a continuous arterial route that also accesses the Western Freeway via Leakes Road.

5.4 Daily Volumes

Compared to the Base Case, the network changes made in each scenario had the following effects on daily volumes:

- Scenario 1: increase in daily traffic volumes on Leakes Road between Taylors Road and Tarletons Road (~5,800 vpd), reduction in volumes on Paynes Road south of Taylors Road (~2,450 vpd) and a slight increase in volumes on other arterials within the PSP.
- Scenario 2: broadly consistent daily traffic volumes on all arterials, with some sections having slight increases or decreases in volumes.
- Scenario 3: increase in daily traffic volumes on Taylors Road west of Leakes Road (~9,350 vpd), increase in volumes of Paynes Road south of Taylors Road (~6,150 vpd), increase in volumes on Leakes Road (~11,400 vpd north of Taylors Road, ~4,400 vpd north of Beattys Road and ~1,450 vpd north of Tarletons Road.

The daily volumes for the Base Case and Scenarios 1, 2 and 3 are presented in Figures 6 to 9. Further discussion and interpretation of the results for each arterial road is provided in Section 7.1.

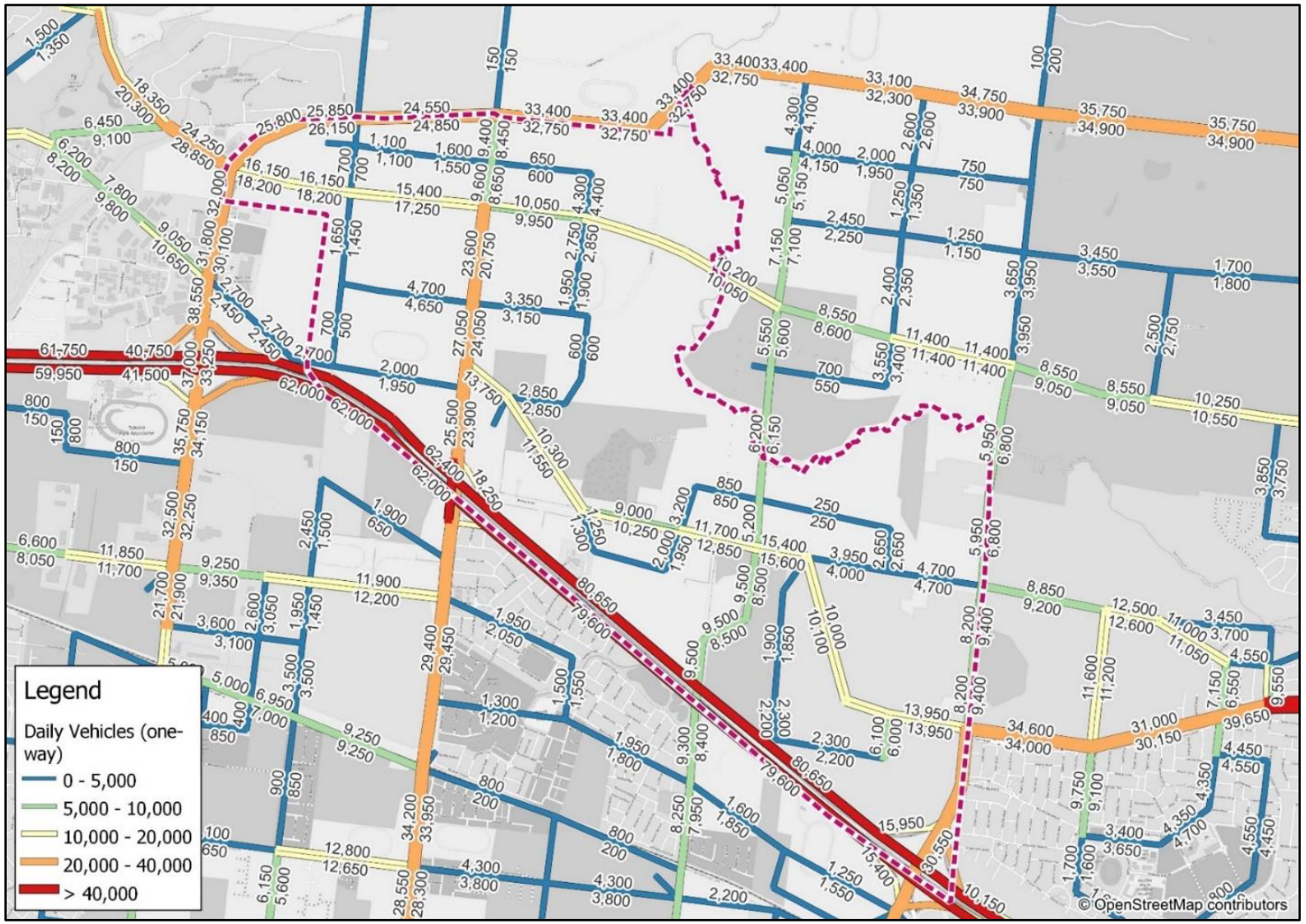

Figure 6 Base Case – Daily Volumes

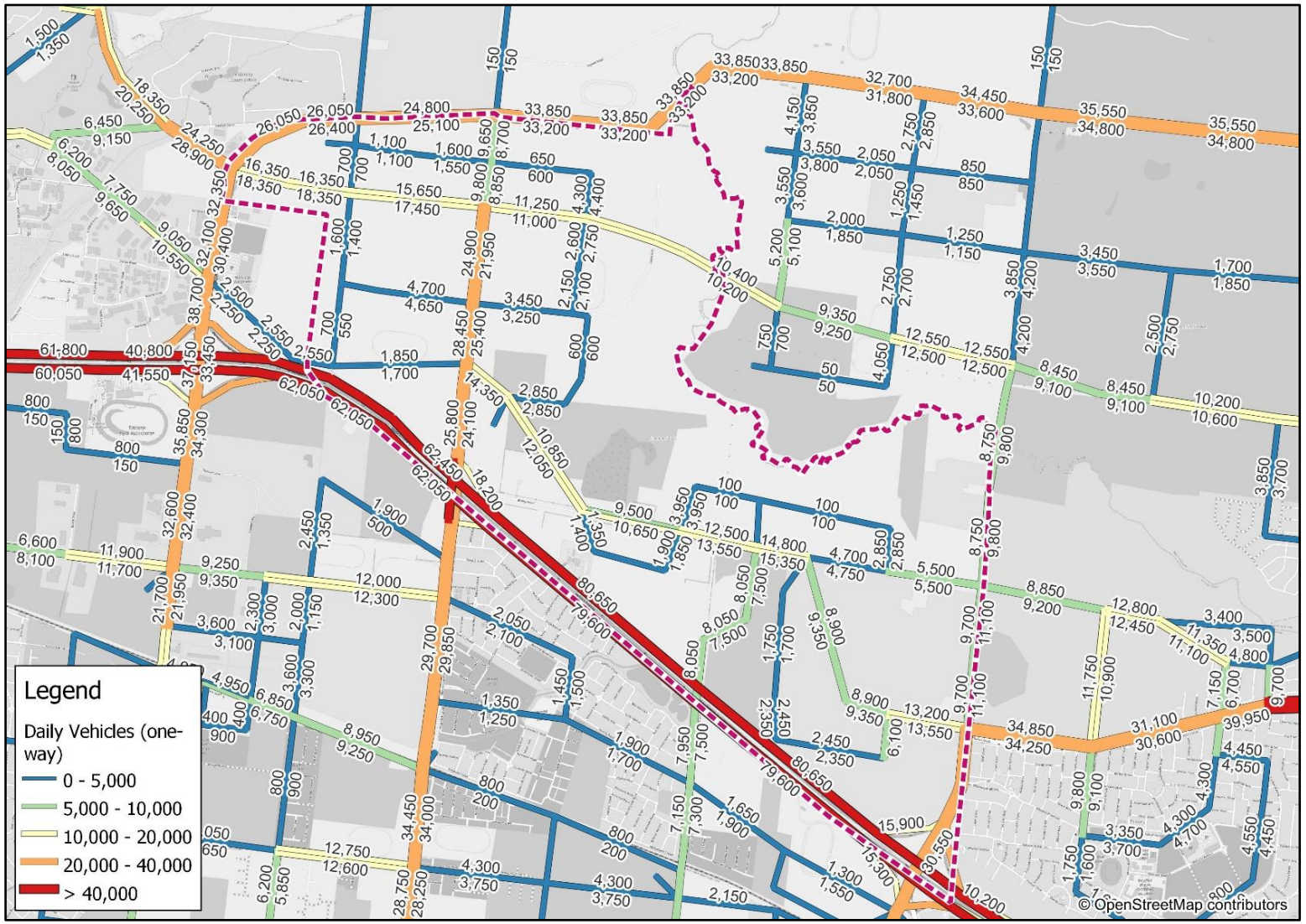

Figure 7 Scenario 1 – Daily Volumes

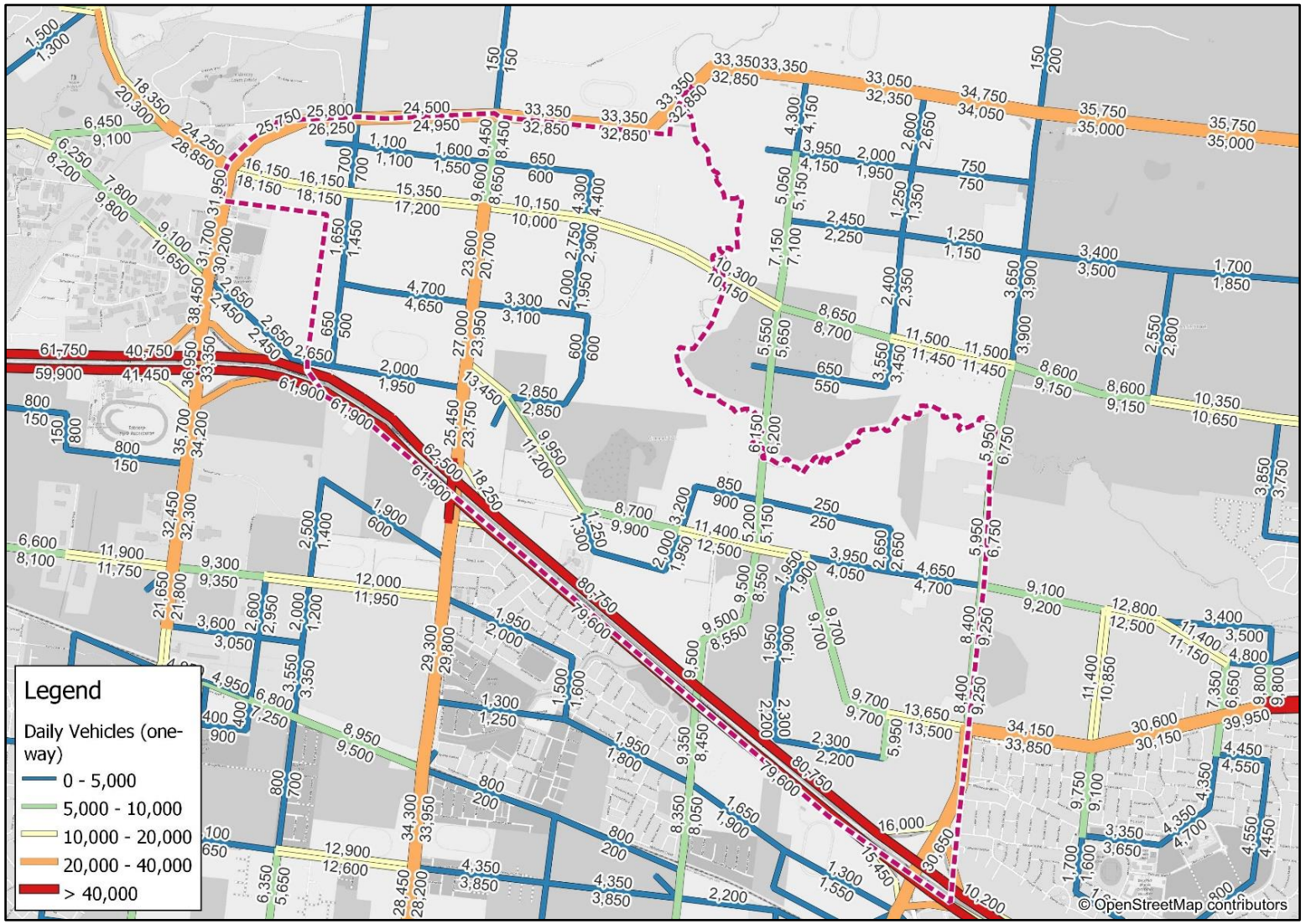

Figure 8 Scenario 2 – Daily Volumes

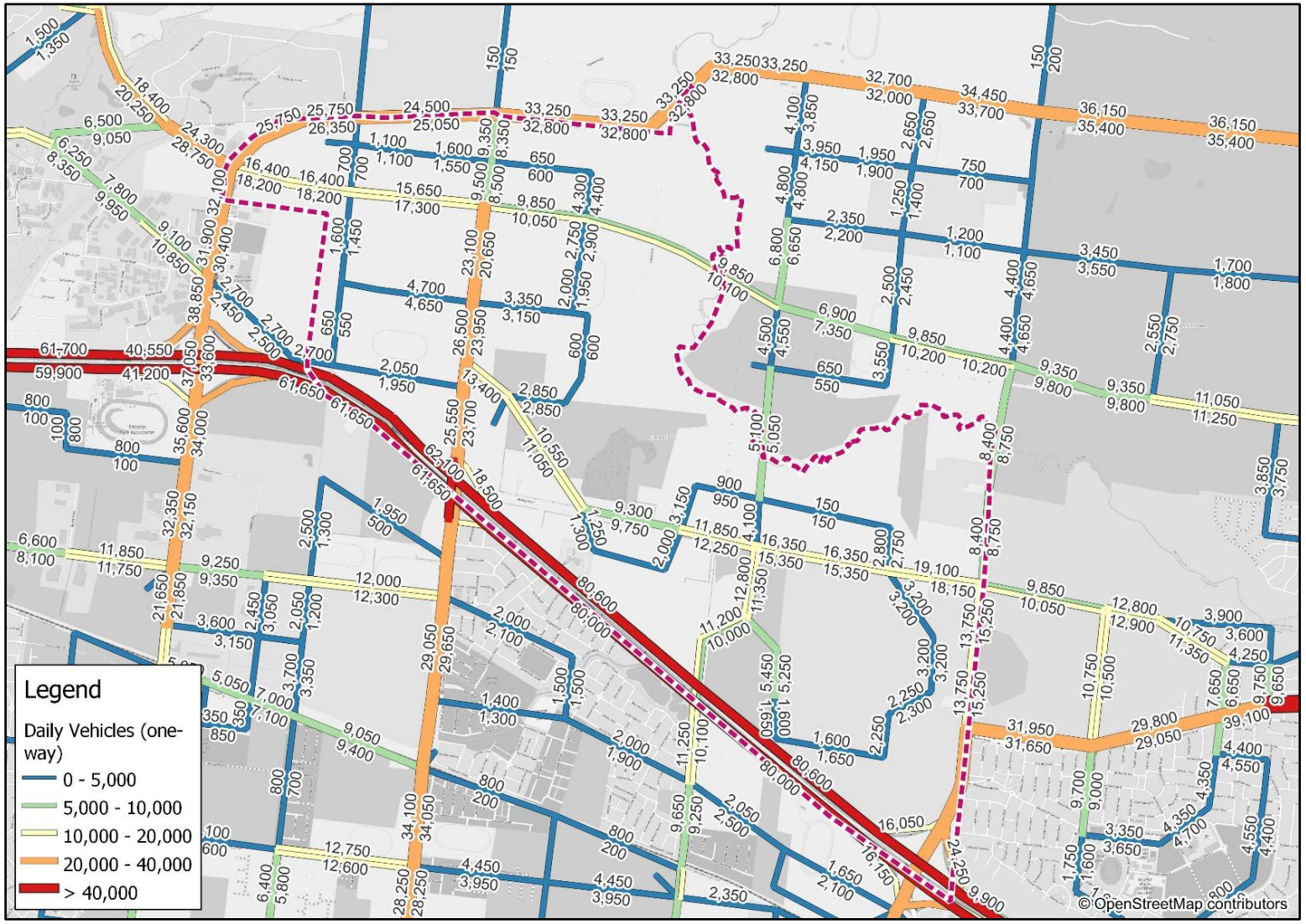

Figure 9 Scenario 3 – Daily Volumes

5.5 Volume-to-Capacity (V/C) Ratios

The Volume-to-Capacity (V/C) ratio is a measure of the capacity of a road link.

VITM calculates the V/C ratio during the trip assignment process based on the demand volume divided by the theoretical capacity of each road link across a given time frame.

A V/C ratio of 1.0 or greater indicates that a road link has reached theoretical capacity and excessive delays and queues are likely to occur due to traffic flow breakdown.

Conversely a low V/C ratio indicates that a road link is under-utilised in the model and its role within the network could potentially be downgraded (e.g. reduction in the number of lanes or hierarchy) or potentially removed.

The V/C ratio results for both peak periods for the Base Case show that road links generally experience a higher V/C ratio during the PM peak, however, the V/C ratio is generally below 0.8 in both peak periods across the PSP road network.

Melton Highway, Mount Cottrell Road and Leakes Road in the vicinity of their respective interchanges with the Western Freeway, as well as Melton Highway east of Mount Cottrell Road experience a V/C ratio between 0.8 and 1.0 indicating that these links are approaching practical capacity in the ultimate year (2051).

The city-bound on-ramp at the Leakes Road interchange and a short link at the Mount Cottrell Road interchange have a V/C ratio above 1.0 in the AM and PM peak periods respectively, however, this is not unexpected given the role these links perform in the regional network.

The V/C results for Scenarios 1, 2 and 3 are broadly similar to the Base Case results indicating the changes made to the network and the consequent increase in volumes on some road links for both of these scenarios has not adversely impacted the operation of the network during the peak periods. A moderate increase in the V/C ratio for Scenario 2 during the PM peak period on Taylors Road was also observed reflecting the reduced capacity of this road link (i.e. a reduction from 6 lanes to 4 lanes), however, the V/C ratio remained below 0.8.

The V/C ratios for the AM and PM peak periods for the Base Case and Scenarios 1, 2 and 3 are presented in Figures 10 to 17.

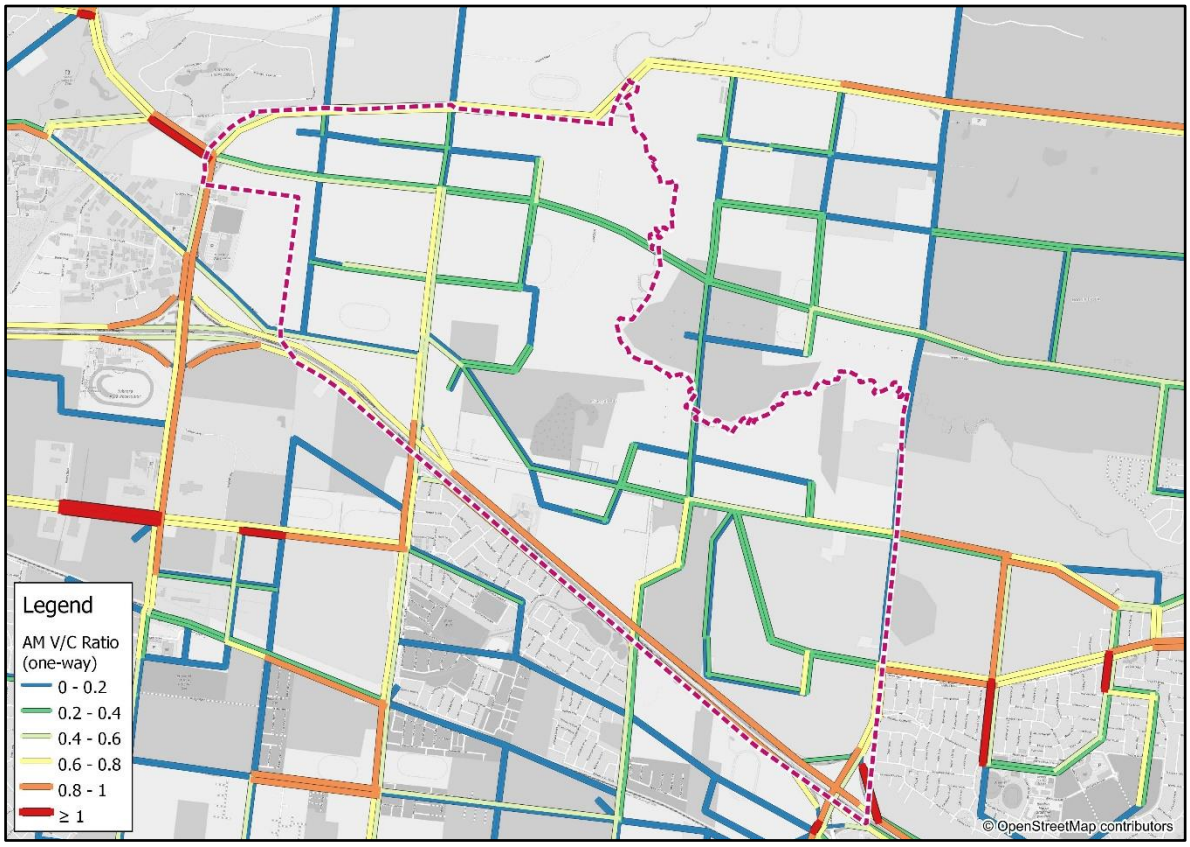

Figure 10 Base Case – AM Peak Period V/C Ratios

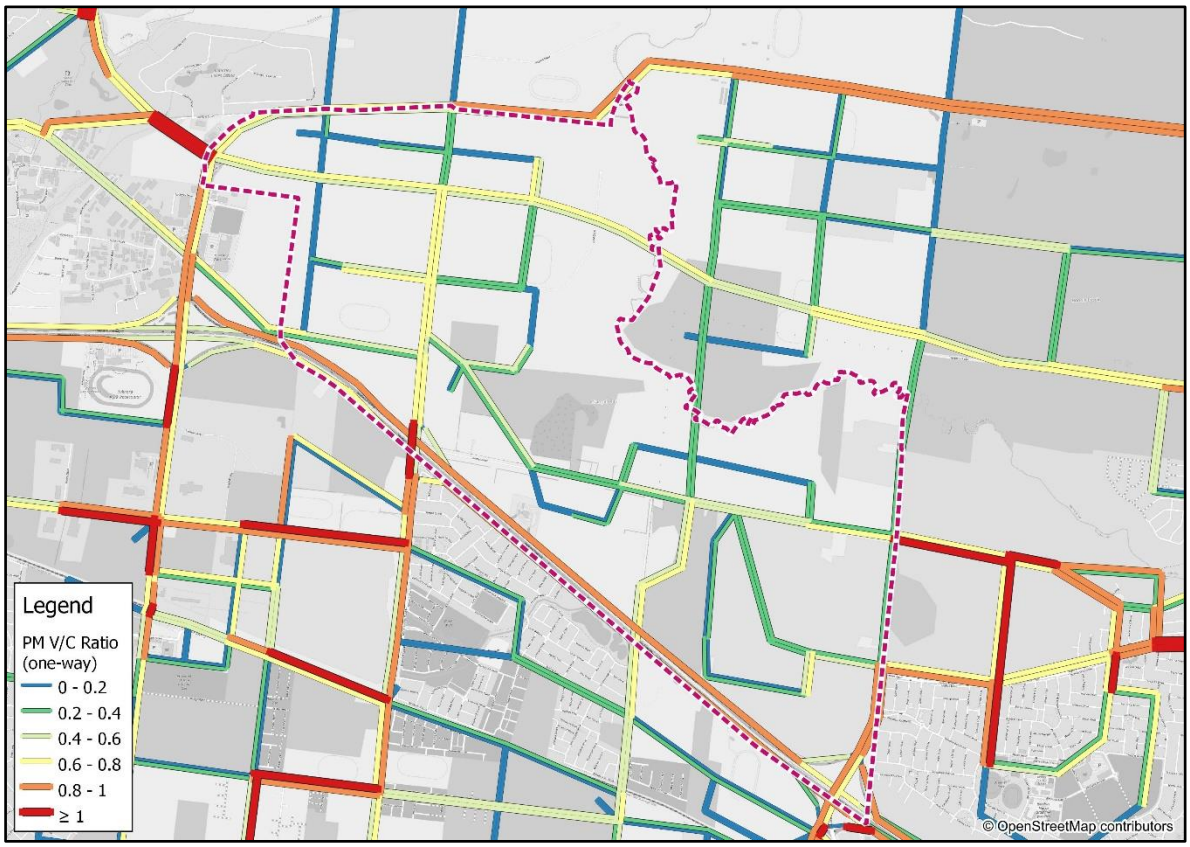

Figure 11 Base Case – PM Peak Period V/C Ratios

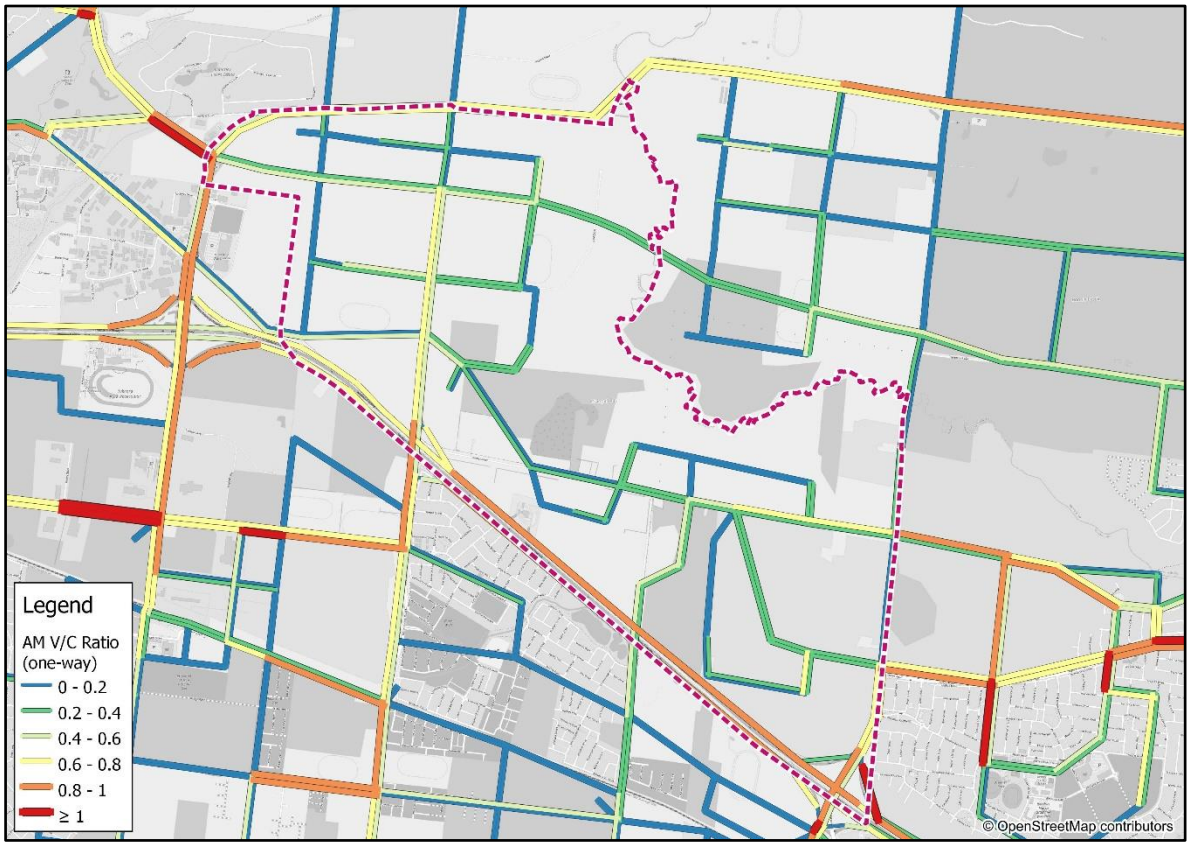

Figure 12 Scenario 1 – AM Peak Period V/C Ratios

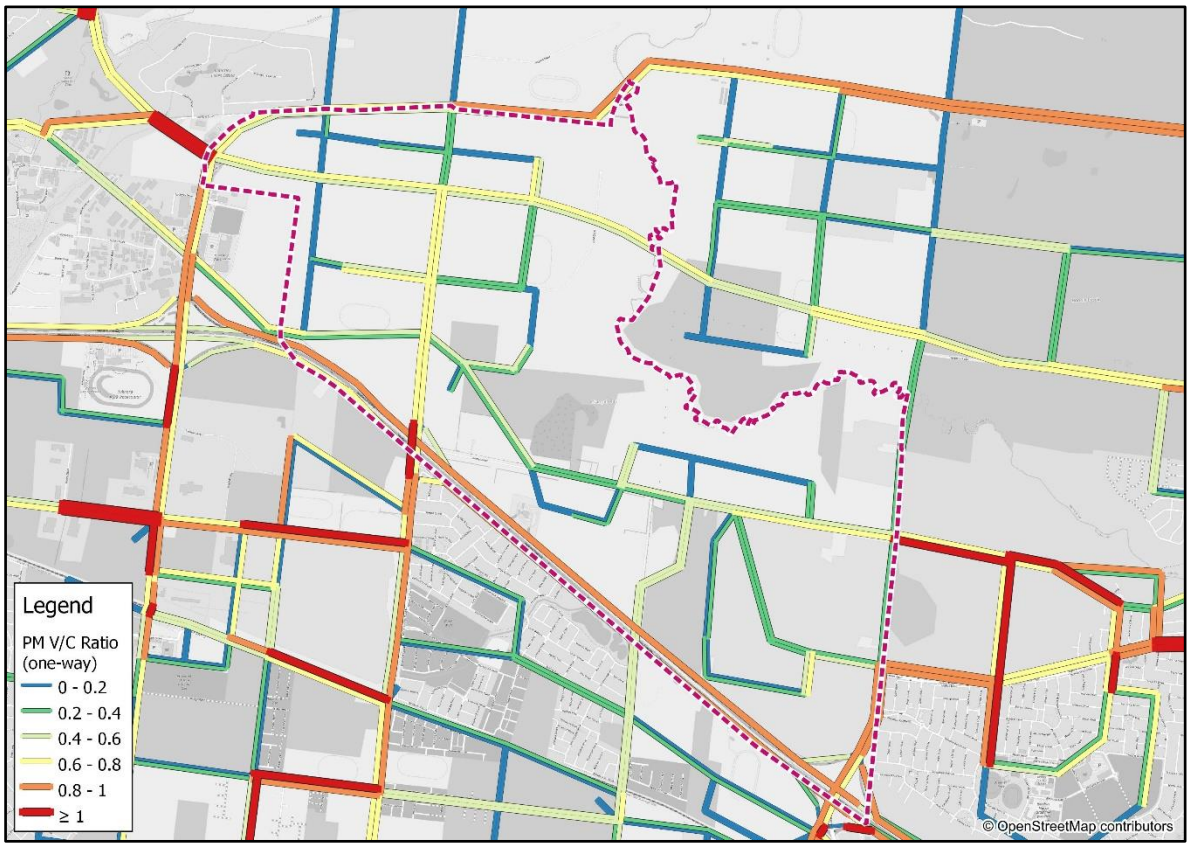

Figure 13 Scenario 1 – PM Peak Period V/C Ratios

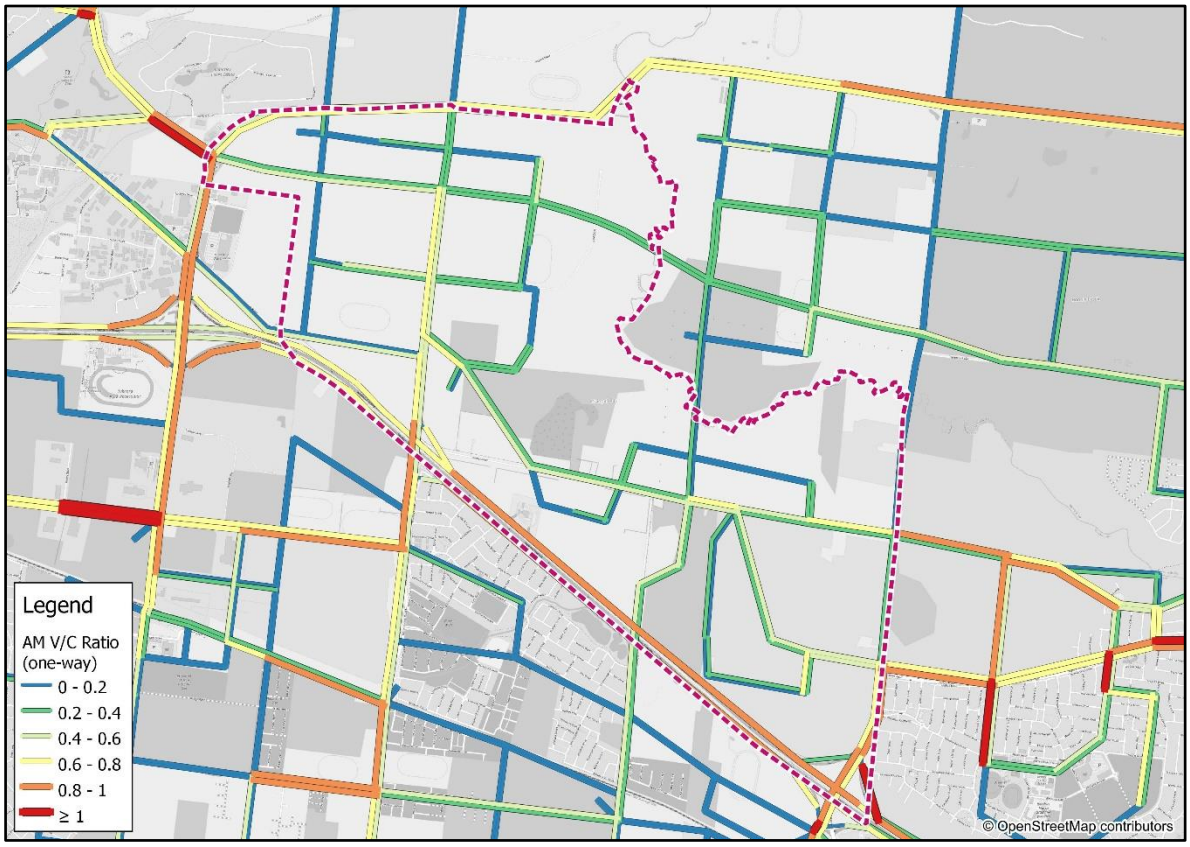

Figure 14 Scenario 2 – AM Peak Period V/C Ratios

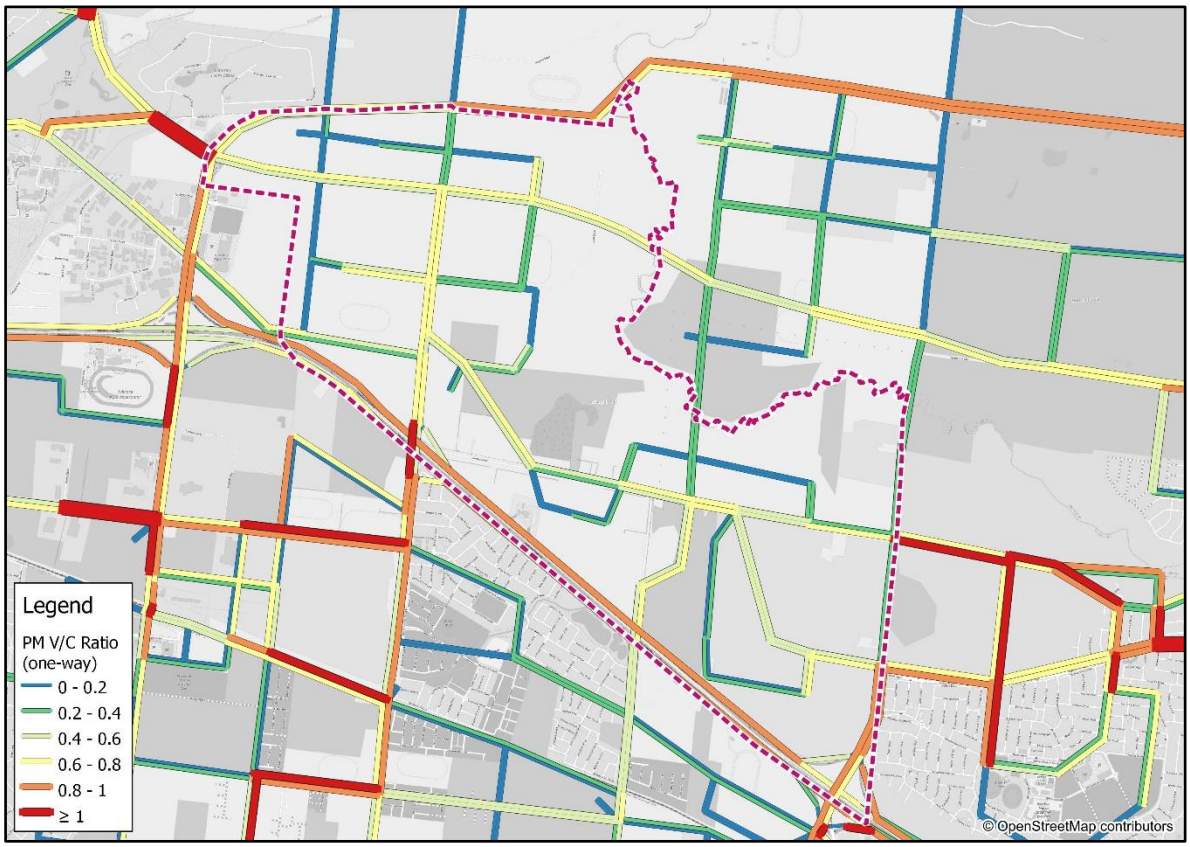

Figure 15 Scenario 2 – PM Peak Period V/C Ratios

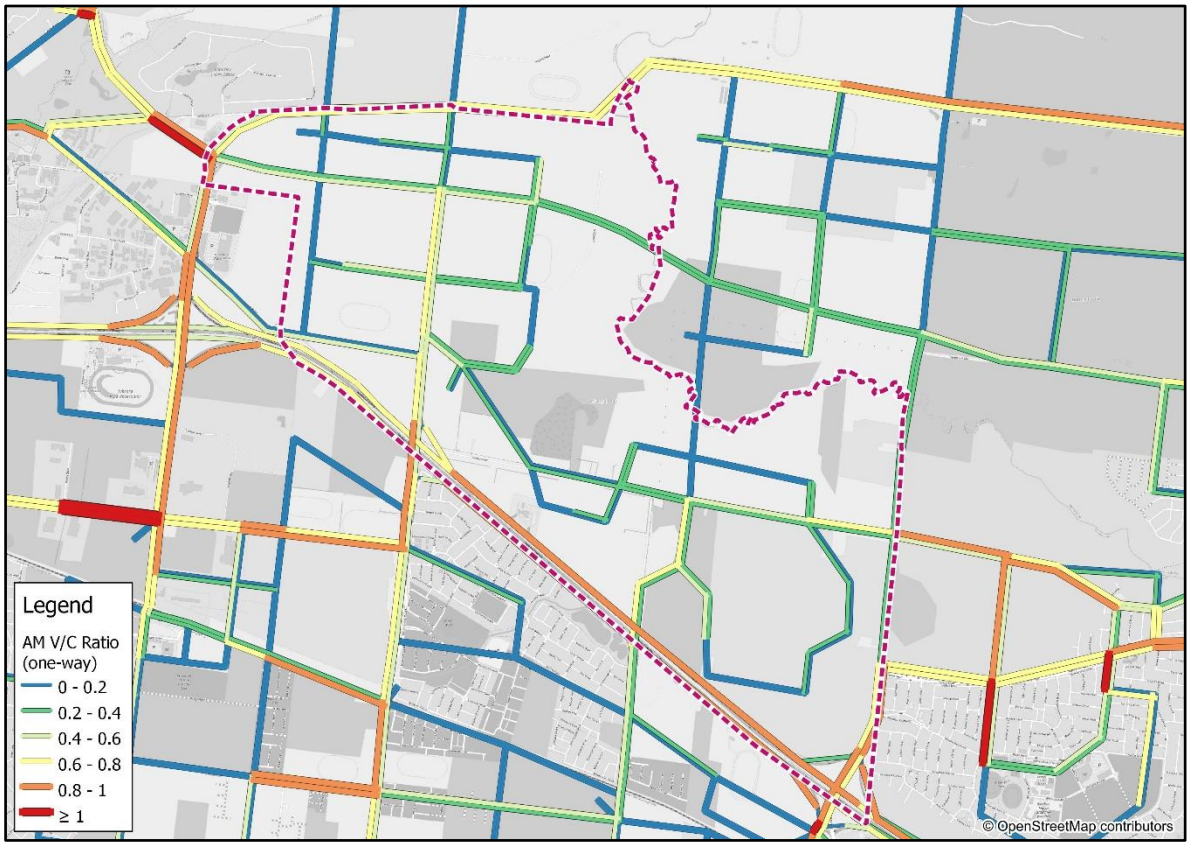

Figure 16 Scenario 3 – AM Peak Period V/C Ratios

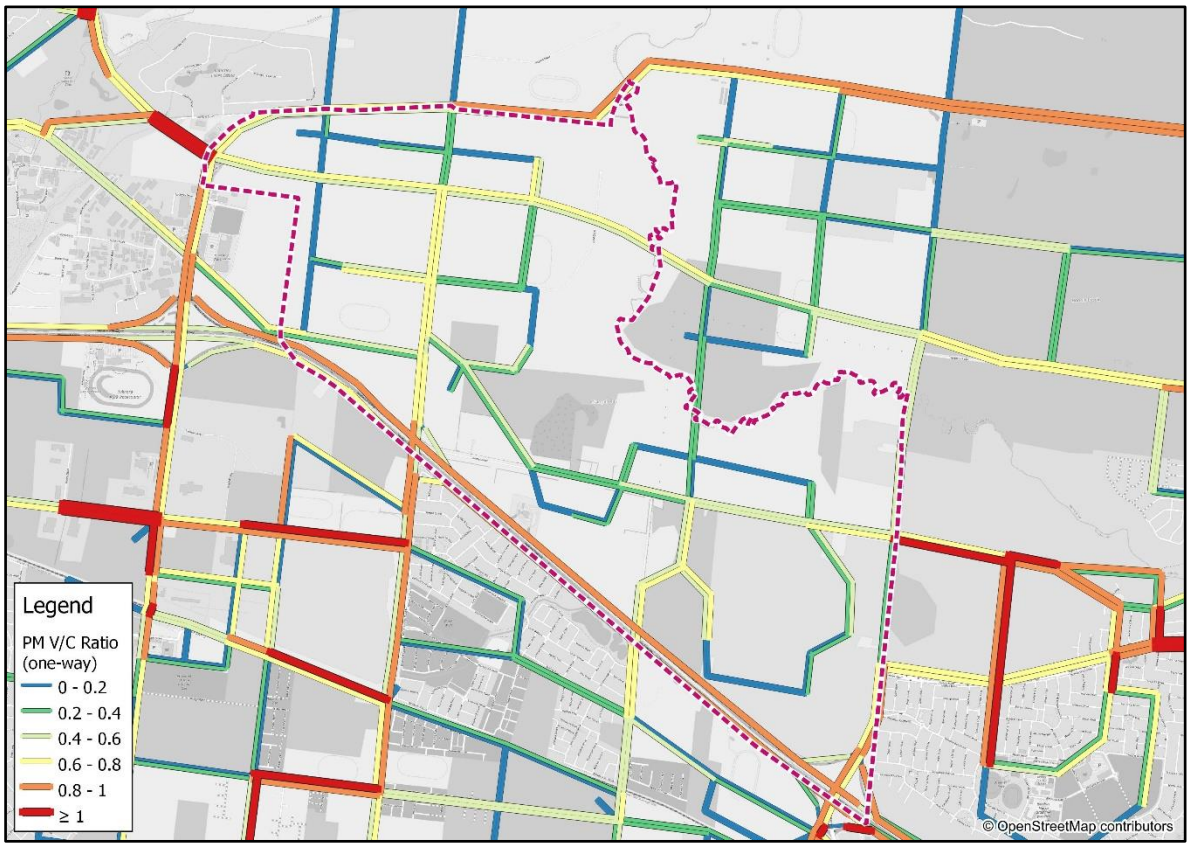

Figure 17 Scenario 3 – PM Peak Period V/C Ratios

6.0 Movement and Place assessment

Movement and Place (M+P) is a framework developed by DTP to balance the competing demands for road space and function along a transport corridor. Fundamental to this approach is recognising that transport corridors perform multiple functions – they not only move people from A to B across a range of transport modes, but they also serve as key places and destinations in their own right. Therefore, the framework ensures that during network planning and development, the needs of movement across all modes, place, environment and safety outcomes are being considered simultaneously.

The classification of Movement and Place is considered on a five-point scale, with 1 being more significant (and generally of state or national importance) and 5 being less significant (of local importance).

A review of the M+P classifications has been completed for place and across several transport modes for the Melton East PSP.

It is noted that the classifications included in DTP's current M+P mapping do not always include the planned network in Melton East and thus needs to be updated to reflect changes in the PSP as there are several discrepancies between the two. These changes include:

- Truncation of Taylors Road at Mount Cottrell Road
- Tarletons Road connecting through fully east-west.

6.1 Movement

The movement classifications represent the mix of transport links that are required to support the overall demand for movement across a network and are determined by examining the overall mix and function of the different modes on each link. The movement classifications and definitions are shown in Table 3.

Table 3 Movement classifications and definitions

Movement classification	Definitions
M1	Mass movement of people and/or good on routes with a state or national-level movement function or provides primary access to state-level places.
M2	Significant movement of people and/or goods on routes connecting across multiple municipalities or provides primary access to regional-level places.
M3	Moderate movement of people and/or goods on routes connecting municipalities or provides primary access to municipal-level places.
M4	Movement of people and/or goods within a municipality.
M5	Local movement.

The following modes have been considered as part of this M+P assessment of the Melton East PSP - walking, cycling, bus, general traffic and freight.

6.1.1 Walking

A classification of W3 is proposed for a 400m radius around schools and activity centres where there is expected to be a greater volume of pedestrians.

It is proposed that all other parts of the network are given a classification of W5.

Additionally, the shared use paths that runs alongside the Western Freeway and Kororoit Creek have been given a classification of W4 due to the sub-regional significance through the PSP and surrounding PSPs. It is noted that the meandering nature of the Kororoit Creek path may ultimately result in it being reclassified as recreational walking route (WR).

Figure 18 shows the walking classification for the Melton East PSP.

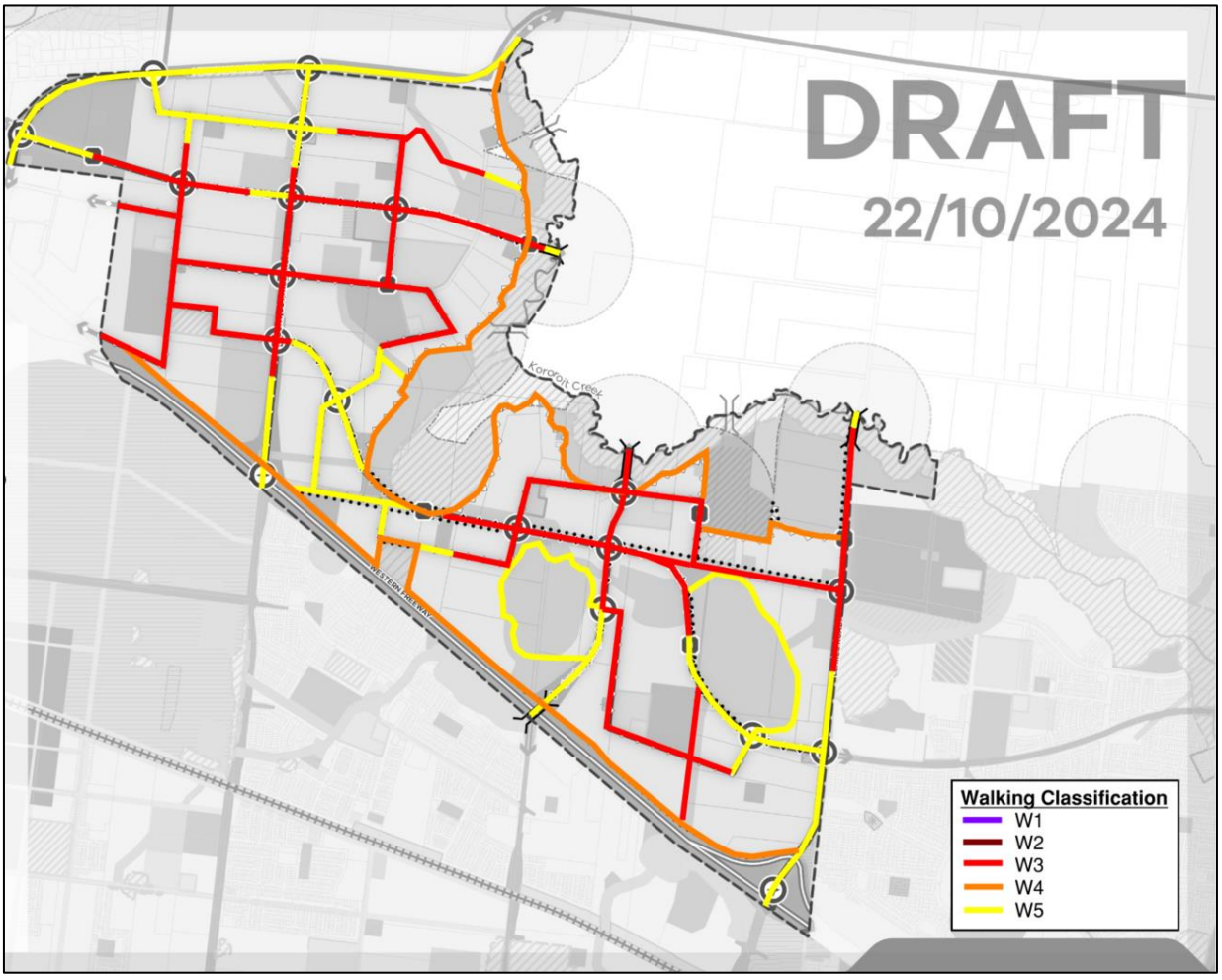

Figure 18 Walking classification for Melton East PSP

6.1.2 Cycling

Western Freeway, Leakes Road, and parts of Tarletons Road, Mount Cottrell Road and Melton Highway are classified as C2 as they are identified as part of DTP's Strategic Cycling Corridors network.

A classification of C3 is proposed to other arterial roads of Taylors Road, Paynes Road and Mount Cottrell Road as off-road shared paths will be provided along these roads and therefore it is expected that these would serve as cycling connections between surrounding precincts.

The bicycle path that runs along Beattys Road has also been classified as C3 in recognition of its role connecting to the Rockbank North Activity Centre. Similarly, the bicycle path that runs along Paynes Road, north of Taylors Road, has been classified as C3 due to its role connecting to the future Warrensbrook PSP.

Additionally, the shared use path that runs alongside the Kororoit Creek is proposed as C3 due to the significance as a cycling link through the PSP and surrounding PSPs. It is noted that the meandering route of this path may ultimately result in it being reclassified as a recreational cycle route (CR).

All connector streets (aside from Beattys Road and Paynes Road north of Taylors Road) have a proposed classification of C4 due to local significance.

Figure 19 shows the cycling classification for the Melton East PSP.

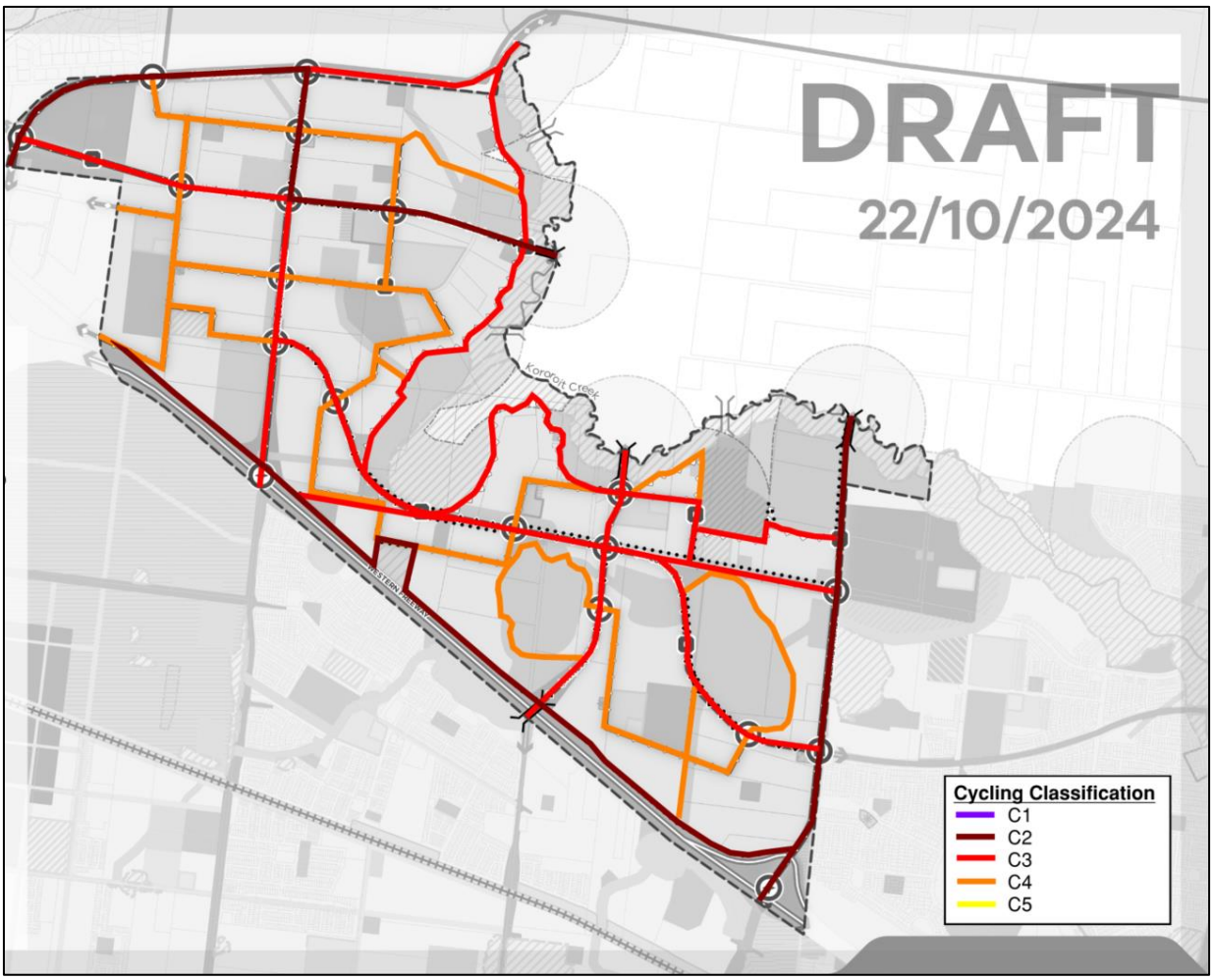

Figure 19 Cycling classification for Melton East PSP

6.1.3 Bus

Leakes Road and the Western Freeway have been classified as B2 to reflect DTP's endorsed bus reform classifications.

All other arterials have been classified as B3 due to their significance through the Precinct and surrounding PSPs.

It is noted that Tarletons Road forms part of the future PPTN outlined in the West Growth Corridor Plan, where it provides an east-west route between the Melton and Sydenham Activity Centres, as well as connecting to Leakes Road which also forms part of the PPTN. As such, the classification of Tarletons Road could potentially be upgraded to B2 as part of future reviews to DTP's bus reform classifications.

A B4 classification is proposed for a connector street off Tarletons Road which services two schools as well as a local town centre. It is also proposed for the boulevard connector section of Paynes Road where it will provide a connection to the adjacent Warrensbrook PSP, as well as Beattys Road due to the role it serves connecting to the Rockbank North Activity Centre.

Figure 20 shows the bus classification for the Melton East PSP.

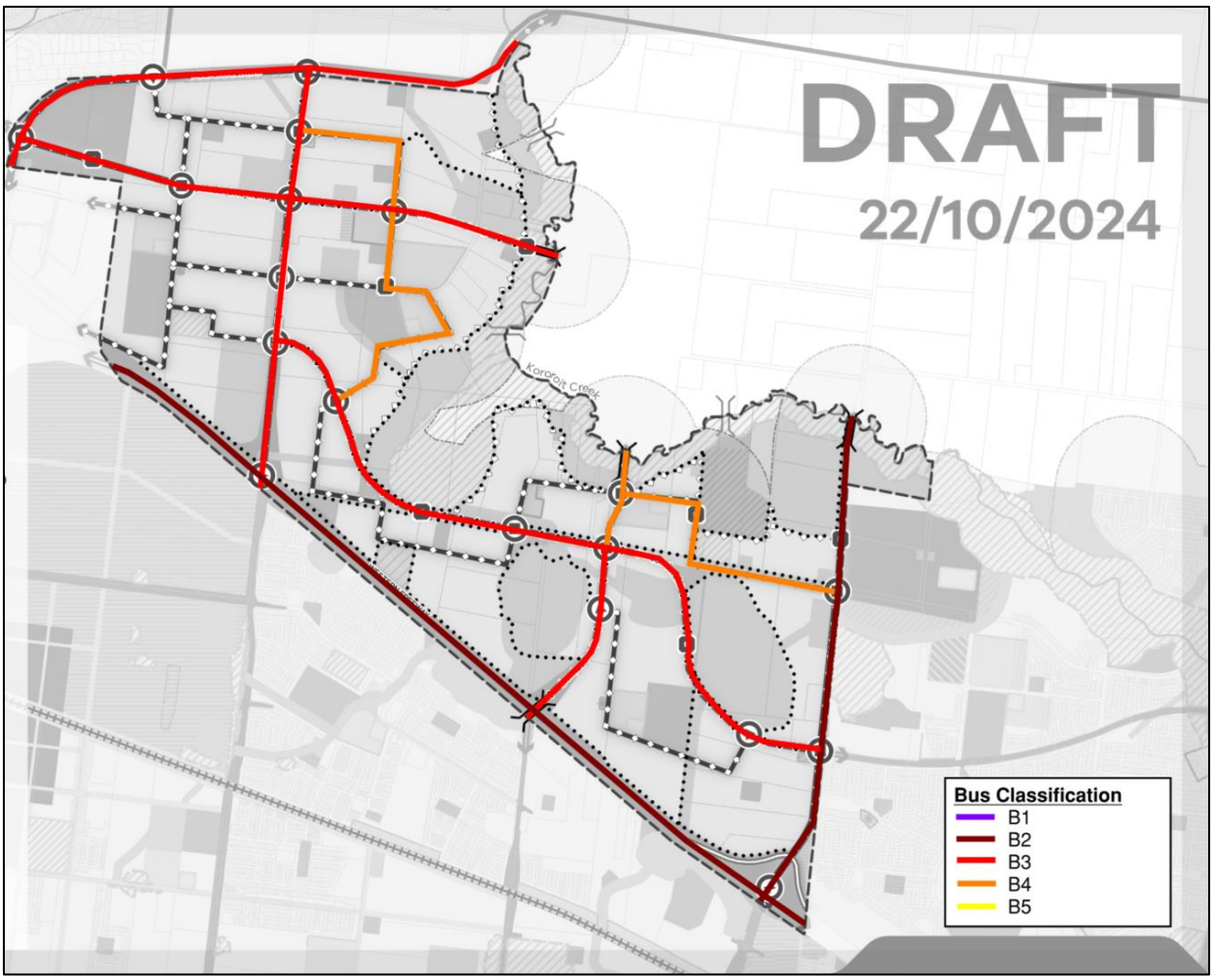

Figure 20 Bus classification for Melton East PSP

6.1.4 General Traffic

Western Freeway has been classified as GT1 as it is services mass movement of people by private vehicles.

Primary arterials (both 4-lane and 6-lane) have been classified as GT2 as they facilitate significant and higher speed movement of vehicles between municipalities.

Secondary arterials have been classified as GT3 in recognition of their role as part of the arterial network.

All local connector streets have been classified as GT4, with local streets (not shown on the Place Based Plan) to be classified as GT5.

Figure 21 shows the general traffic classification for the Melton East PSP.

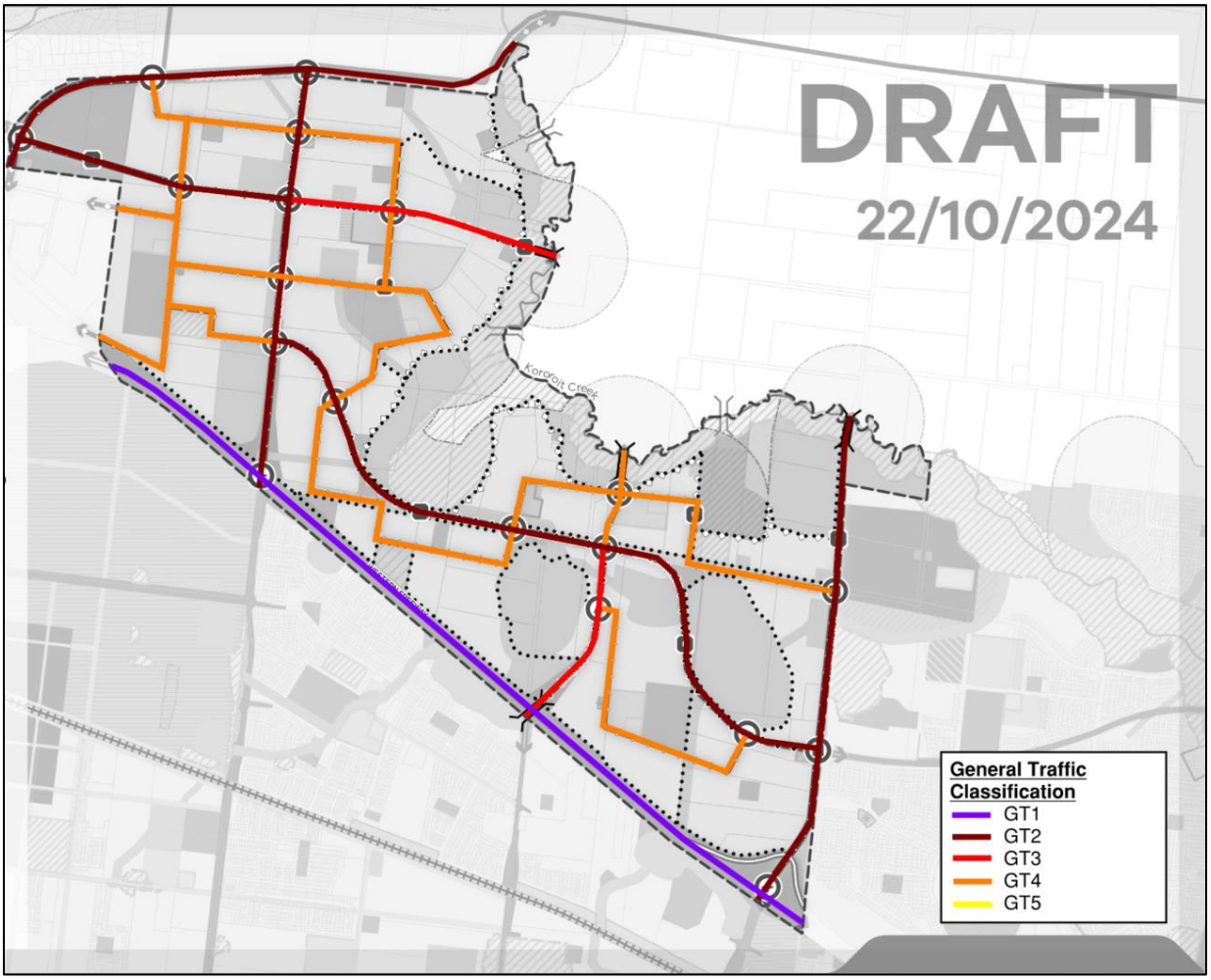

Figure 21 General Traffic classification for Melton East PSP

6.1.5 Freight

The Western Freeway has been classified as F1 in recognition of its role as part of the Principal Freight Network (PFN) supporting the mass movement of goods at high speed.

All other arterials in the PSP have been classified as F3 as they are not part of the PFN and in recognition that the movement of freight is important, but not a priority movement on these roads.

All local connector streets were not considered to have any significance for freight as they are likely to predominantly serve as local routes for residents and be separated from freight for safety and efficiency reasons.

Figure 22 shows the freight classification for the Melton East PSP.

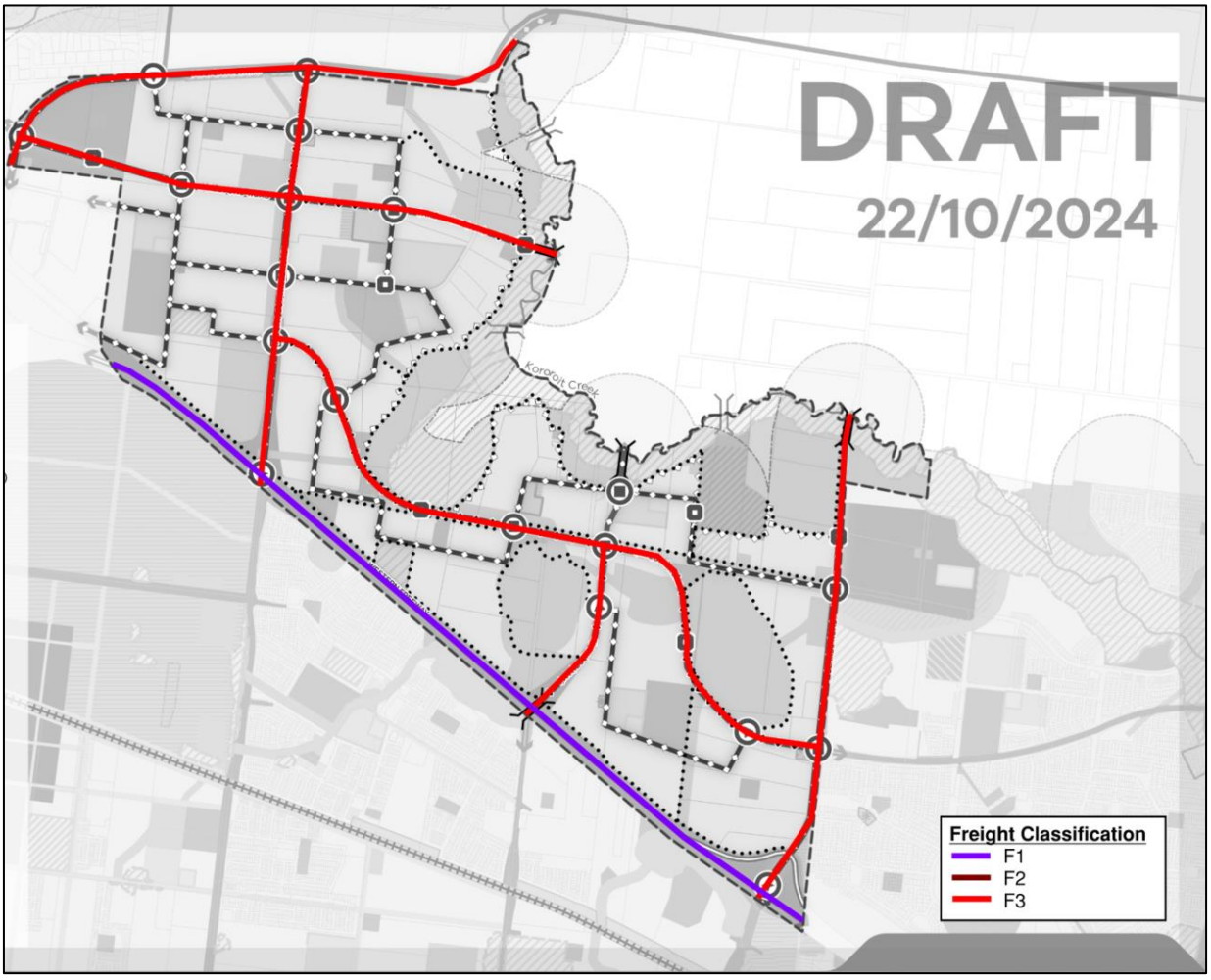

Figure 22 Freight classification for Melton East PSP

6.2 Place

The place classifications are defined as either places of activity (street-based or off-street) or places of landscape and culture, and takes into account their spatial significance and impact on movement. The place classifications and definitions are shown in Table 6-4.

Table 6-4 Place classifications and definitions

Place classification	Definitions
P1	Place of state or national significance
P2	Place of regional significance
P3	Place of municipal significance
P4	Place of neighbourhood significance
P5	Place of local significance

Within the Melton East PSP, it is proposed that there are a total of six places of significance.

The places of neighbourhood significance (P4) within the PSP are as follows:

- Two neighbourhood activity centres, one located on Tarletons Road and the other located on a connector street off Taylors Road
- Business / small local enterprise precincts located adjacent to both neighbourhood activity centres
- Two local convenience centres located on connector streets
- Four government primary schools, one secondary government school and two potential non-government schools.
- One large regional open space located on a connector street between Paynes Road and Leakes Road

All other areas within the PSP (e.g. residential streets and dwellings) are classified as P5, however, for simplicity these have not been shown below.

Outside of the PSP, the Rockbank North Activity Centre has been classified as P3 and the Cobblebank Activity Centre as P2 in recognition of their hierarchy as major and metropolitan activity centres respectively in Plan Melbourne 2017-2050.

Figure 23 shows the proposed place classifications for the Melton East PSP.

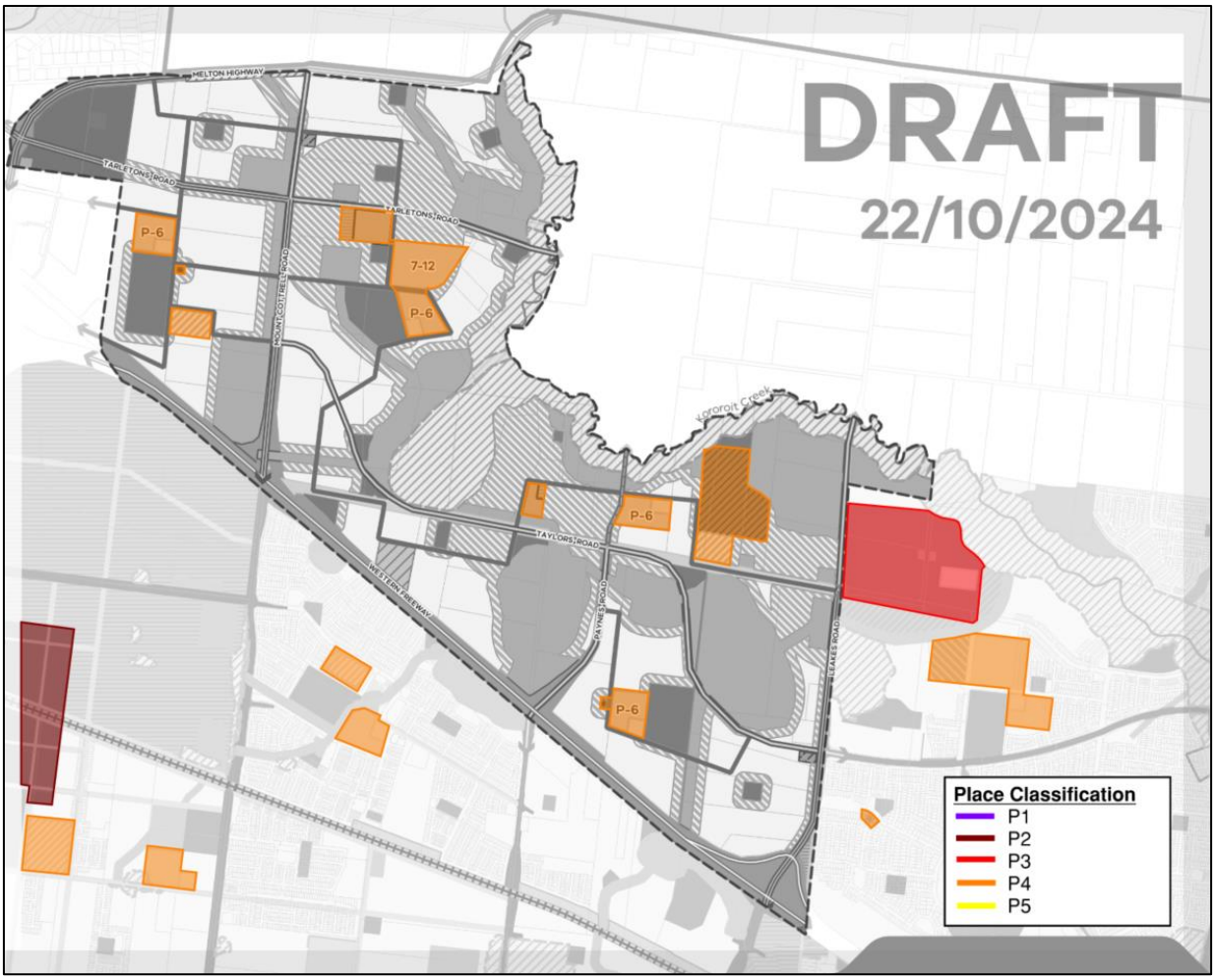

Figure 23 Place classification for Melton East PSP

7.0 Assessment of the PSP

7.1 Road Network

7.1.1 Road network classifications

The road network within the draft PSP is classified into arterial and connector streets. The future development of the Melton East PSP will also include local access streets, places and laneways.

Functional information relating to each of the road classifications nominated in the draft PSP is set out in Table 5, which is based upon the following reference material:

- PSP Notes – Our Roads: Connecting People
- Clause 56.06 of the Melton Planning Scheme
- VPA Standard Cross-Sections
- Engineering Design and Construction Manual (EDCM)

Table 5 Road Network Classifications

Hierarchy	No. of Lanes	Road Reserve	Volume*	Speed	Parking
Primary Arterial	Typ. 6 (2x 3-lanes with median)	41m	>30,000 vpd	70-80 km/h	None
Secondary Arterial	Typ. 4 (2x 2-lanes with median)	34m	12,000 – 40,000 vpd	60-70 km/h	None
Boulevard Connector	2 (2x 1-lane with median)	28m	7,000 – 12,000 vpd	60 km/h	2.1m lane both sides
Connector	2	25m	3,000 – 7,000 vpd	50 km/h	2.1m lane both sides

** It is noted that the volumes for connector and boulevard connector streets are not capacities, but instead 'target' volumes that also consider environmental and amenity aspects.*

A 2-lane arterial road can typically carry in the order of 18,000 to 22,000 vpd before requiring duplication, with this range affected by a number of factors, including the proportion of heavy vehicles, capacity constraints during peak times (e.g. number of traffic signals interrupting flow) as well as the peak hour to daily volume ratio.

Similarly, a 4-lane arterial road can typically carry in the order of 40,000 vpd and a 6-lane arterial in the order of 60,000 vpd.

7.1.2 Arterial road network performance

The road network performance within the PSP has been assessed by using 'screen lines' to collectively review the overall demand and capacity of east-west and north-south arterials.

The following screen lines have been chosen:

- East-west arterials:
  - West of Mount Cottrell Road
  - West of Paynes Road
  - West of Leakes Road
- North-south arterials:
  - South of Taylors Road
  - South of Tarletons Road

- South of Melton Highway

The daily volumes from Scenario 2 were adopted for the screen line assessment.

It is noted that the Scenario 2 (as well as the Base Case and other scenarios) assumes full development of both the network and land uses within the PSP and surrounding growth area.

It is also noted that daily volumes for the Base Case and the scenarios that were tested are broadly consistent and would not affect the findings of this assessment.

The number of lanes (and associated indicative daily capacity) for arterial roads is based on the road network set out in the draft PSP.

For the purpose of this assessment, we have adopted an indicative daily capacity of 10,000 vehicles per lane. We note the actual capacity varies based on constraints to traffic flow at peak times (e.g. traffic signals, side roads, etc.) and the peak to daily traffic ratio.

In situations where there are minimal interruptions to the traffic flow and/or peak spreading occurs (i.e. the peak period extends for 2-3 hours instead of a single hour), the actual capacity can exceed the indicative value that we've adopted for this assessment.

The screen lines for the east-west arterials are set out in Table 6.

Table 6 East-West Arterials - Overall Daily Demand and Capacity (Scenario 2)

	West of Mount Cottrell Road	West of Paynes Road	West of Leakes Road
Melton Highway	49,450 vpd	66,200 vpd	68,800 vpd
Tarletons Road	32,550 vpd	20,450 vpd	22,950 vpd
Taylors Road	N/A	23,900 vpd	27,150 vpd
Total Daily Volume	**82,000 vpd**	**110,550 vpd**	**118,900 vpd**
Number of Lanes	12 lanes	14 lanes	14 lanes
Indicative daily capacity	**~120,000 vpd**	**~140,000 vpd**	**~140,000 vpd**
Indicative V/C Ratio	**0.68**	**0.79**	**0.85**

The indicative Volume-to-Capacity (V/C) ratio for the east-west arterials indicates that collectively they are appropriately sized to cater for the ultimate traffic volumes. The identified V/C ratios (0.68-0.85) ensure that there is sufficient capacity on the network to operate acceptably during peak times, whilst not providing excessive spare capacity.

The screen lines for the north-south arterials are set out in Table 7.

Table 7 North-South Arterials - Overall Daily Demand and Capacity (Scenario 2)

	South of Taylors Road	North of Taylors Road	South of Tarletons Road	South of Melton Highway
Mount Cottrell Road	49,200 vpd	50,950 vpd	44,300 vpd	17,900 vpd
Paynes Road	18,050 vpd	10,350 vpd	11,200 vpd	8,450 vpd
Leakes Road	73,700 vpd	17,650 vpd	12,700 vpd	7,550 vpd
Total Daily Volume	**140,950 vpd**	78,950 vpd	**68,200 vpd**	**33,900 vpd**
Number of Lanes	16 lanes	12 lanes	12 lanes	10 lanes
Indicative daily capacity	**~160,000 vpd**	**~120,000 vpd**	**~120,000 vpd**	**~100,000 vpd**
Indicative V/C Ratio	**0.88**	**0.66**	**0.57**	**0.34**

The indicative V/C ratio of 0.88 for the north-south arterials south of Taylors Road indicates a high level of demand on this part of the network, which is to be expected given it provides access to the Mount Cottrell Road and Leakes Road interchanges and the Paynes Road overpass with the Western Freeway.

The screen line north of Taylors Road (i.e. south of Beattys Road) demonstrates the reduction of capacity of Leakes Road reducing from 6-lanes to 4-lanes and Paynes Road from 4-lanes to 2-lanes is appropriate having regard to the reduction in demand on the respective north-south arterials north of Taylors Road, resulting in an indicative V/C ratio of 0.72.

The screen lines south of Tarletons Road and south of the Melton Highway indicate that the expected demand is significantly less than available capacity (assuming Leakes Road will continue as a 4-lane arterial through the adjacent Warrensbrook PSP). This is not surprising as Urban Growth Boundary (UGB) runs along Melton Highway meaning that the land to the north of Melton Highway will remain rural with very low population forecasts in the VITM model meaning the northern sections of Paynes Road and Leakes Road are performing a relatively local access function.

The results of the screen lines (based on daily volumes) have been compared to the V/C ratio plots (based on peak period volumes) presented in Section 5.5 to ensure that there are no road segments within the PSP that are operating with V/C ratios above desirable conditions.

The majority of the road segments in the internal network have a V/C below 0.8 during the peak periods, with the exception of Leakes Road (south of Taylors Road), Mount Cottrell Road (at the freeway interchange) and parts of Melton Highway. Given the role these road segments play in the regional road network it is not unusual for them to be operating with V/C ratios in the 0.8 – 1.0 range, especially considering the model is based upon full development of the PSP and surrounding growth corridor.

7.1.3 Melton Highway

The PSP nominates the Melton Highway as ultimately being a primary arterial providing 6 lanes in a 41m road reservation.

This hierarchy and lane classification is consistent with the VITM modelling undertaken by AECOM, with the daily two-way volumes summarised in Table 8.

Table 8 Melton Highway - Summary of Two-Way Daily Volumes

Scenario	Melton Highway, west of Ryans Lane	Melton Highway, at Kororoit Creek
Base Case	52,000 vpd	66,150 vpd
Scenario 1	52,450 vpd	67,050 vpd
Scenario 2	52,050 vpd	66,200 vpd
Scenario 3	52,100 vpd	66,050 vpd

The daily volumes recorded for all scenarios are consistent with the provision of a 6-lane arterial cross-section. It is noted that the daily volumes at the Kororoit Creek are at the upper end of the range considered suitable for this cross-section, which is reflected in the V/C ratio being in the 0.8-1.0 range (i.e. approaching practical capacity) during the PM peak period for each scenario.

The Urban Growth Boundary (UGB) runs along Melton Highway between Ryans Lane and the Kororoit Creek, with land to the north likely to remain undeveloped. As such, it would be appropriate to consider an alternative cross-section for this section of Melton Highway with a modified northern verge (potentially replacing the separate footpath and dedicated bike path arrangement with a single shared path) to reflect the ongoing rural nature of land to the north, however, any alternative cross-section should be consistent with the cross-sections applied in the Plumpton PSP and future Warrensbrook PSP.

The typical primary 6-lane arterial cross-section should still be applied for the urban section of the Melton Highway west of Ryans Lane.

7.1.4 Tarletons Road

The PSP nominates Tarletons Road as a primary 6-lane arterial between the Melton Highway and Mount Cottrell Road and as a secondary 4-lane arterial east of Mount Cottrell Road. It is also identified as part of the PPTN.

This is consistent with the VITM modelling, with the daily two-way volumes summarised in Table 9.

Table 9 Tarletons Road - Summary of Two-Way Daily Volumes

Scenario	Tarletons Road, east of Melton Highway	Tarletons Road, at Kororoit Creek
Base Case	34,350 vpd	20,250 vpd
Scenario 1	34,700 vpd	20,600 vpd
Scenario 2	34,300 vpd	20,450 vpd
Scenario 3	34,600 vpd	19,950 vpd

The daily volumes recorded on Tarletons Road between Melton Highway and Mount Cottrell Road for all scenarios are well below the capacity limit of a 6-lane cross-section and could be accommodated by a 4-lane cross-section when considering the traffic volumes in isolation (albeit likely with a high V/C ratio in the peak periods).

Similarly, the daily volumes recorded between Mount Cottrell Road and the Kororoit Creek are well below the capacity limit of a 4-lane arterial cross-section, with the interim 2-lane cross-section potentially able to carry the ultimate volumes without the mid-block sections of this part of Tarletons Road needing to be duplicated (albeit it would likely be approaching practical capacity during the peak periods).

However, having regard to the role of Tarletons Road as part of the PPTN, where higher frequency bus services would be expected, the additional lanes would lower the V/C ratio and associated congestion enabling bus services to operate without undue delays. Alternatively, the additional lanes could potentially be used as exclusive bus priority lanes (subject to future road management decisions by DTP).

On balance, the provision of a 6-lane arterial west of Mount Cottrell Road and a 4-lane arterial west of Mount Cottrell Road is considered appropriate having regard to the role of Tarletons Road as part of the PPTN.

7.1.5 Taylors Road

The PSP nominates Taylors Road as a primary 4-lane arterial within the Precinct (between Mount Cottrell Road and Leakes Road).

The VITM modelling modelled Taylors Road as a 6-lane arterial for the Base Case, Scenario 1 and Scenario 3, with a 4-lane arterial modelled in Scenario 2.

Scenario 3 also included changes to the road network configuration to realign Taylors Road west of Leakes Road to follow the existing Beattys Road reservation creating a ‘dog-leg’ configuration between the east and west sections of Taylors Road at Leakes Road.

The daily two-way volumes are summarised in Table 10.

Table 10 Taylors Road - Summary of Two-Way Daily Volumes

Scenario	Taylors Road, east of Mount Cottrell Road	Taylors Road, east of Paynes Road	Taylors Road, west of Leakes Road
Base Case	21,850 vpd	31,000 vpd	27,900 vpd
Scenario 1	22,900 vpd	30,150 vpd	26,750 vpd
Scenario 2	21,150 vpd	30,200 vpd	27,150 vpd
Scenario 3	21,600 vpd	31,700 vpd	37,250 vpd

Daily volumes on Taylors Road were recorded to be higher between Paynes Road and Leakes Road in all scenarios, with a lesser daily volume recorded between Mount Cottrell Road and Paynes Road.

A noticeable increase in daily volumes between Paynes Road and Leakes Road was recorded in Scenario 3, with this increase likely to be attributable to the consolidation of Taylors Road and the connector street that uses the Beattys Road reservation in the other scenarios meaning that there is one fewer intersection with Leakes Road.

West of Paynes Road, the model is configured to provide a direct connection for Beattys Road, whereas the draft PSP provides this connection via Paynes road a short distance north of Taylors Road. This difference in network configuration at the western end of Beattys Road is not expected to significantly impact the predicated volumes on Taylors Road (albeit some minor redistribution may occur) as each road is performing a different function in the network; i.e. Beattys Road provides local access to the Rockbank North Activity Centre as opposed to Taylors Road that provides a continuous arterial route that also accesses the Western Freeway via Leakes Road.

The modelled daily volumes for all scenarios are consistent with the provision of a 4-lane arterial indicating the lower strategic importance of this section of Taylors Road compared to the pre-existing section east of Leakes Road.

It is noted that there is a notable drop-off in traffic volumes west of Paynes Road, even in Scenario 1 where Paynes Road is truncated at the Kororoit Creek. The ultimate volumes between Mount Cottrell Road and Paynes Road just reach the threshold for duplication, indicating that the interim 2-lane mid-block carriageway will be able to adequately cater for the development of most of the Precinct.

7.1.6 Mount Cottrell Road

The PSP nominates Mount Cottrell Road as a primary 6-lane arterial between the Western Freeway and Tarletons Road and as a primary 4-lane arterial between Tarletons Road and the Melton Highway.

The VITM model configured Mount Cottrell Road as a 6-lane arterial for the Base Case, Scenario 1 and Scenario 3, with Scenario 2 modified to configure the section between Tarletons Road and the Melton Highway as a 4-lane arterial.

The daily two-way volumes are summarised in Table 11.

Table 11 Mount Cottrell Road - Summary of Two-Way Daily Volumes

Scenario	Mount Cottrell Road, north of Western Freeway	Mount Cottrell Road, north of Taylors Road	Mount Cottrell Road, north of Tarletons Road
Base Case	49,400 vpd	51,100 vpd	18,250 vpd
Scenario 1	49,900 vpd	53,850 vpd	18,650 vpd
Scenario 2	49,200 vpd	50,950 vpd	18,250 vpd
Scenario 3	49,250 vpd	50,450 vpd	18,000 vpd

The modelled daily volumes on the section of Mount Cottrell Road between the Western Freeway and Tarletons Road are consistent with the provision of a primary 6-lane arterial cross-section.

The ultimate daily volumes on the section of Mount Cottrell Road north of Tarletons Road are low for a 4-lane cross-section and would be able to be accommodated by the interim 2-lane mid-block cross-section. However, the transition from a 6-lane to a 2-lane cross-section over a relatively short distance is likely to present road design issues having regard to the horizontal geometry required for lane transitions and intersection flaring.

Accordingly, it would be appropriate to provide a 4-lane arterial cross-section as shown in the PSP.

7.1.7 Paynes Road

The PSP nominates Paynes Road as a secondary 4-lane arterial between the Western Freeway overpass and Taylors Road and as a boulevard connector street north of Taylors Road.

The VITM model configured Paynes Road as a 4-lane arterial for all scenarios, with Scenario 1 modified to truncate Paynes Road at the Kororoit Creek by removing the section between Tarletons Road and Taylors Road.

The daily two-way volumes are summarised in Table 12.

Table 12 Paynes Road - Summary of Two-Way Daily Volumes

Scenario	Paynes Road, south of Taylors Road	Paynes Road, at Kororoit Creek
Base Case	18,000 vpd	12,350 vpd
Scenario 1	15,550 vpd	n/a (truncated)
Scenario 2	18,050 vpd	12,350 vpd
Scenario 3	24,150 vpd	10,150 vpd

The ultimate daily volumes between Taylors Road and the Western Freeway overpass fall below the threshold for duplication in the Base Case, Scenario 1 and Scenario 2. However, noticeably higher volumes are observed in Scenario 3 most likely due to the consolidation of Taylors Road and the connector street that runs along Beattys Road into a single road link in the model reducing the number of intersections on Leakes Road meaning the model has likely rerouted some north-south traffic onto Paynes Road compared to the other scenarios.

Given the strategic north-south connection that Paynes Road provides across the Western Freeway connecting the Precinct to key destinations to the south including railway stations and the Toolern Metropolitan Activity Centre, the classification of Paynes Road as a 4-lane secondary arterial in the PSP is considered appropriate.

The volumes north of Taylors Road are high for a standard connector street indicating that the provision of a boulevard connector street cross-section (which is intended to carry higher volumes) is an appropriate cross-section for this section of Paynes Road.

7.1.8 Leakes Road

The PSP nominates Leakes Road as a primary 6-lane arterial between the Western Freeway and Beattys Road and as a primary 4-lane arterial north of Beattys Road.

The VITM model configured Leakes Road as a 6-lane arterial for the Base Case and Scenario 1, whereas Scenario 2 and Scenario 3 were configured as a 6-lane arterial from the Western Freeway to Taylors Road, and a 4-lane arterial north of Taylors Road.

The daily two-way volumes are summarised in Table 13.

Table 13 Leakes Road - Summary of Two-Way Daily Volumes

Scenario	Leakes Road, north of Taylors Road	Leakes Road, north of Beattys Road	Leakes Road, north of Tarletons Road
Base Case	17,600 vpd	12,750 vpd	7,600 vpd
Scenario 1	20,800 vpd	18,550 vpd	8,050 vpd
Scenario 2	17,650 vpd	12,700 vpd	7,550 vpd
Scenario 3	29,000 vpd	17,150 vpd	9,050 vpd

The ultimate daily volumes between Taylors Road and Tarletons Road generally fall below the threshold for duplication, with the exception of Scenario 3 where the section between Taylors Road and Beattys Road experiences higher volumes due to the realignment of Taylors Road along Beattys Road

on the west side of Leakes Road. Nonetheless, the provision of a 4-lane arterial is appropriate for this section given the predicted volumes are approaching practical capacity for a 2-lane arterial road.

It is also noted that Leakes Road is part of the PPTN and accordingly it is likely to accommodate higher frequency bus services. The provision of a 4-lane arterial along this section of Leakes Road will ensure that sufficient capacity is provided to ensure that bus services that are not unduly delayed by congestion issues.

Volumes on the section between Tarletons Road and the Melton Highway within the adjacent Warrensbrook PSP are noticeably lower and could potentially be accommodated by a 2-lane arterial or boulevard connector cross-section, noting this will be resolved as part of a separate Planning Scheme Amendment for the Warrensbrook PSP.

7.1.9 Connector Street Network

The Engineering Design and Construction Manual (EDCM) recommends that a standard connector street carry between 3,000 to 7,000 vehicles per day, and that a boulevard connector (also known as a trunk connector) carry between 7,000 to 12,000 vehicle per day.

It is noted that these volumes are not capacities, but instead ‘target’ volumes that have regard to environmental and amenity considerations.

The PSP designates all connector streets as standard connectors with a 25m cross-section, with the exception of Paynes Road north of Taylors Road which is designated as a boulevard connector with a 28m cross-section.

The daily traffic volumes for connector streets within the PSP generally fall within the standard connector street range (i.e. 3,000-7,000 vpd), with the exception of the following:

- Beattys Road (west of Leakes Road) – approx. 9,400 vpd (Base Case)
- East-West Connector (west of Mount Cottrell Road, between Taylors Road and Tarletons Road) – approx. 9,350 vpd (Base Case)
- North-South Connector (north of Tarletons Road, between Mount Cottrell Road and the Kororoit Creek) – approx. 8,700 vpd (Base Case)

With regard to Beattys Road, the VITM model is configured to connect the western end of Beattys Road to Taylors Road, whereas the draft PSP Movement Network shows it connecting to Paynes Road instead. This small change in network configuration may result in a small reduction in the anticipated volumes on Beattys Road bringing them into line with the target range for a standard connector street, however, it is not expected to result in a major redistribution of traffic onto Taylors Road because a reasonable proportion of traffic assigned to Beattys Road in the model is likely to be accessing the Rockbank North Activity Centre on the eastern side of Leakes Road.

With regard to the other two connector streets, the VITM results show adjacent connector street links that have much lower volumes suggesting the higher volumes on these links may be a result of the ‘coarse grain’ nature of VITM. In reality, we would expect volumes to distribute more evenly across the adjacent connector street links and accordingly we are satisfied that a standard connector street cross-section is appropriate for these roads.

It is noted that there are also some sections of connector streets where the daily volumes estimated by the model are less than 3,000 vpd. These volume estimates are most likely a function of the ‘coarse grain’ nature of the VITM model (where relatively large sections of land are represented by a zone that only connects to the network in one location) and are not necessarily an accurate reflection of the likely future volumes. We are of the opinion that no changes to these connector streets is required when considering the role that each of these connector streets provides for the PSP’s road network.

In summary, we are satisfied that the proposed connector street network within the PSP is appropriate and volumes on each standard connector street will fall within the target range for a 25m connector street cross-section.

7.1.10 High Street

The connector street network west of Mount Cottrell Road provides an indirect connection between Taylors Road and High Street, which connects through an industrial area that abuts the western boundary of the PSP and then continues as an arterial road west of the Melton Highway.

The VITM model configured High Street as a 2-lane connector street between the Melton Highway and Mount Cottrell Road and as a 4-lane arterial west of the Melton Highway.

The daily two-way volumes along High Street and the adjacent connector street that links to Mount Cottrell Road and Taylors Road are summarised in Table 14.

Table 14 High Street- Summary of Two-Way Daily Volumes

Scenario	High Street, east of Melton Highway	Connector Street, west of Mount Cottrell Road
Base Case	5,150 vpd	3,950 vpd
Scenario 1	4,750 vpd	3,550 vpd
Scenario 2	5,100 vpd	3,950 vpd
Scenario 3	5,150 vpd	4,000 vpd

The modelled daily volumes indicate that the section of High Street and the adjacent connector street will perform a local access function consistent with a connector street classification. Importantly, the modelling demonstrates that this section will not perform an arterial function between the western end of Taylors Road and the existing arterial section of High Street to the west.

7.2 Cross-Sections

The VPA's standard cross-sections were reviewed alongside the draft PSP.

In general, the standard cross-sections for arterials, connectors and local streets would be suitable for adoption in the Melton East PSP.

Road segments that may require a custom cross-section include:

- Taylors Road – 4-lane primary arterial cross-section
- Mount Cottrell Road (north of Tarletons Road) – 4-lane primary arterial cross-section
- Leakes Road (north of Beattys Road) – 4-lane primary arterial cross-section
- Melton Highway (east of Ryans Lane) – potential to remove or reconfigure path arrangements on the northern side of road given the rural interface.
- Beattys Road (west of Leakes Road) – nominated as a 25m connector street in the draft PSP, however, Beattys Road has an existing 60m (approx.) road reservation. An alternative connector street cross-section should be prepared for this segment showing how the excess road reservation width will be used (e.g. a linear park or greenway).
- Taylors Road (east and west of Paynes Road) – nominated as a 34m primary arterial in the draft PSP. This section sits within the existing 60m reserve of Beattys Road. An alternative primary arterial cross-section should be prepared for this section showing how the excess road reservation width will be used (e.g. local access frontage streets on both sides).

7.3 Transport infrastructure

The Precinct Infrastructure Plan (PIP) attached at Appendix 1 of the draft PSP sets out the transport and community infrastructure that will be funded by the Infrastructure Contributions Plan (ICP).

The PIP includes the following transport infrastructure items:

- 12x arterial road segments for the interim construction and ultimate land reservation associated with Mount Cottrell Road, Tarletons Road, Taylors Road and Leakes Road.
- 17x intersections for the interim construction (generally signalised, with the exception of the connection of Tarletons Road to the existing Melton Highway / Federation Drive roundabout)
- 3 bridge/culverts for the crossings of Tarletons Road, Paynes Road and Leakes Road across the Kororoit Creek.

The PIP plan also shows 3x pedestrian bridge connections across the Kororoit Creek, however, these items are not included in the PIP table. It is recommended that the inclusion or exclusion of these pedestrian bridge items are clarified in the final PSP having regard to the *Ministerial Direction on the Preparation and Content of Infrastructure Contributions Plans*.

The road and intersection projects outlined in the PIP are required to ensure the orderly function of the higher order road network (arterials and connectors) in the PSP.

Consideration could be given to removing the IN-01 signalised T-intersection, which is connection of a connector street to the Melton Highway positioned midway between Tarletons Road and Mount Cottrell Road.

If this signalised intersection were to be removed from the PSP, it should be retained as a left-in / left-out intersection with the Melton Highway, which will reduce volumes on this connector street segment by around 50% (from approx. 3,600 vpd to 1,800 vpd). The displaced volumes would then be expected to use the Tarletons Road and Mount Cottrell Road intersections to make right turns onto and from Melton Highway. Both of these arterials have sufficient capacity to absorb the displaced volumes without affecting their functionality or operation.

It is noted that this connector street is also nominated as a bus capable road in the PSP. The removal of the signalised T-intersection and replacement with a left-in / left-out intersection would also impact on the bus routing in the future. However, having consideration of broader bus capable road network in the PSP, we are satisfied that this connector street can be incorporated into suitable local bus routes within the PSP.

Therefore, it is recommended that this signalised intersection be removed from the PSP.

7.4 Public Transport Network

All arterial roads and connector streets in the PSP are nominated as bus capable roads, with Tarletons Road and Leakes Road nominated as part of the Principal Public Transport Network (PPTN).

The VPA's *Precinct Structure Planning Guidelines: New Communities in Victoria (October 2021)* includes the following public transport target:

- *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 draft PSP outlines that it achieves 100% coverage with regard to these criteria meeting the target set out in the PSP Guidelines.

It is noted that VITM modelling showed that the mode share (i.e. private vehicle use vs. public transport) remained static across all scenarios at approximately 92% private vehicle and 8% public transport indicating that the road network modifications made in each scenario had negligible impact on public transport usage in the model.

7.5 Active Transport Network

The draft PSP shows a network of off-road shared paths and bike paths that typically follow the arterial road and connector street networks, as well as dedicated off-road paths along the Kororoit Creek and the Western Freeway.

It is noted that off-road paths are not shown along some arterial and connector road segments, whereas the typical cross-sections for these roads would normally provide an off-road shared or bike path. Similarly, there is a missing section of the off-road shared path that runs along the Western Freeway on either side of Mount Cottrell Road.

It is unclear whether these omissions in the draft PSP are deliberate or a drafting error. Nonetheless, it is recommended the off-road shared path and bike path network shown in the PSP is reviewed and revised to ensure consistency between the cross-sections and the PSP movement network plan, as well as eliminating any unintended gaps in the off-road path network.

The VPA's *Precinct Structure Planning Guidelines: New Communities in Victoria (October 2021)* includes the following walkability and safe cycling network targets:

- *T6: Off-road bicycle paths should be provided on all connector streets and arterial roads, connecting with the Principal Bicycle Network and Strategic Cycling Corridors where possible.*
- *T7: All streets should have footpaths on both sides of the reservation.*
- *T8: Pedestrian and cyclist crossings provided every 400-800m, where appropriate, along arterial roads, rail lines, waterways and any other accessibility barriers.*

In response to PSP Targets T6 and T7, the VPA's standard cross-sections for arterials, connectors and local streets satisfy these targets.

With regard to Target T8, this requirement has generally been met, however, there are some sections where the distance between formalised crossing points (e.g. traffic signals or bridge crossings) exceeds 800m. There locations include:

- Tarletons Road – approx. 900m between IN-04 and IN-05 (east of Melton Highway)
- Tarletons Road – approx. 900m between IN-07 and BR-01 (west of Kororoit Creek)
- Taylors Road – approx. 1,200m between IN-10 and IN-11 (midway between Mount Cottrell Road and Paynes Road)
- Taylors Road – approx. 1,200m between IN-13 and IN-16 (east of Paynes Road)
- Leakes Road – approx. 900m between IN-14 and IN-17 (between Taylors and Beattys Road)
- Kororoit Creek – approx. 1,000m between PED-02 and BR-02 (west of Paynes Road)

At the western end of Tarletons Road, the ultimate intersection with Melton Highway is identified as a signalised intersection on the draft PSP's Movement and Network plan, which would facilitate the movement of pedestrians via a formalised crossing.

However, the interim treatment identified in the PIP is an additional leg to the roundabout, which presumably does not include formal crossings. Arterial-to-arterial roundabouts typically do not provide favourable conditions for pedestrians and cyclists to cross, particularly during peak times. Given the unknown timing of the ultimate signalised intersection, we recommend that a signalised pedestrian crossing be provided near the roundabout to facilitate the safe movement of pedestrians and cyclists. It is expected that the location of the pedestrian crossing in relation to the roundabout will be resolved as part of the concept design for the intersection prepared for the ICP.

At the eastern end of Tarletons Road, a shared path runs north-south along the Kororoit Creek across Tarletons Road. It would be appropriate to provide a signalised crossing at this location given the hierarchy and predicted volumes on Tarletons Road. Alternatively a grade-separated crossing (i.e. shared path under bridge) could be considered if the topology is favourable to this solution.

On Taylors Road, both segments have large sections of open space located midway along the segment with potential north-south desire lines connecting up to the Kororoit Creek shared path. In our view it

would be appropriate to provide signalised crossings midway along both of these segments of Taylors Road.

At the northern end of Leakes Road, an off-road path is provided along the Kororoit Creek in the adjacent Rockbank North PSP. The continuation of this path (east of Leakes Road) is not shown in the draft PSP.

A signalised intersection is provided in the Rockbank North PSP, located approximately midway between Beattys Road and Kororoit Creek (identified as RD08 in the Rockbank North DCP).

Having regard to the alignment of the shared path west of Leakes Road, as well as to avoid duplicating infrastructure, it is recommended that the RD08 signalised intersection be used as the crossing point for users of the Kororoit Creek shared path.

Therefore, we recommend that the missing section of the Kororoit Creek shared path be shown on the PSP, with the Leakes Road shared path connecting the path to the signalised intersection.

Our recommended additional pedestrian crossing locations are shown in Figure 24.

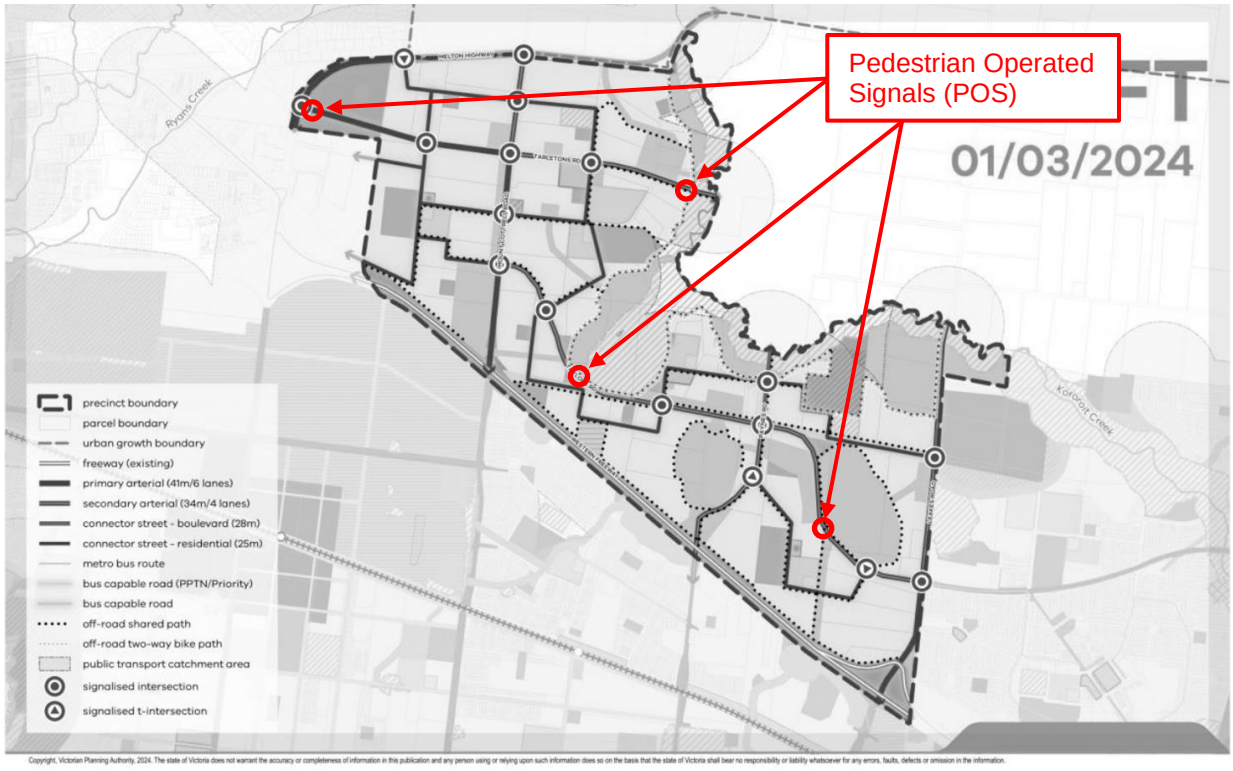

Figure 24 Recommend Pedestrian Operated Signal Locations

8.0 Conclusions

8.1 Summary

Based on the strategic transport modelling and other assessments undertaken, we are of the opinion that:

- The VITM modelling demonstrates that the higher order road network for the Base Case and Scenarios 1, 2 and 3 provides an appropriate level of capacity across the network for the predicted ultimate traffic demands for all scenarios
- The draft PSP is broadly consistent with Scenario 2 of the VITM modelling, which reduced number of lanes on Taylors Road (from Mount Cottrell Road to Leakes Road), Leakes Road (from Melton Highway to Taylors Road) and Mount Cottrell Road (from Melton Highway to Tarletons Road) from 6-lanes to 4-lanes
- The reduced number of lanes did not adversely impact the Volume-to-Capacity (V/C) ratios of the internal road network during the peak periods and minimal reassignment of traffic was observed compared to the Base Case indicating that these roads can function acceptably as 4-lane arterials under ultimate conditions
- The designation of Taylors Road between Mount Cottrell Road and Leakes Road as a primary arterial with a 34m / 4-lane cross-section is appropriate based on the predicted volumes that it will carry.

8.2 Recommendations

The following changes are recommended to the draft PSP's transport network:

- Provision of cross-sections within the PSP, with consideration of custom cross-sections for the following road segments:
  - Melton Highway (between Ryans Lane and the Kororoit Creek) to reflect the rural interface on the north side of the road
  - Beattys Road (west of Leakes Road) to address the availability of an existing 60m road reserve for a connector street
  - Taylors Road (east and west of Paynes Road) to address the availability of an existing 60m road reserve for a 4-lane primary arterial.
- Consideration of the removal of the IN-01 signalised intersection, with the intersection retained as a left-in / left-out access.
- Update the off-road paths shown on the draft PSP to include off-road shared paths and bike paths that will be provided along arterial roads and connector streets, as well as address any gaps in the network (e.g. the shared path along the Western Freeway in the vicinity of Mount Cottrell Road and the shared path along Kororoit Creek east of Leakes Road)
- Provision of four Pedestrian Operated Signals (POS) to improve crossing opportunities on sections of the arterial network where road segments exceeded 800m, as follows:
  - Tarletons Road – adjacent to the roundabout connection to Melton Highway / Federation Drive
  - Tarletons Road – on the west side of the Kororoit Creek (a path under the road bridge could potentially be investigated in lieu of a POS, subject to determining feasibility during detailed design)
  - Taylors Road – midway between IN-10 and IN-11
  - Taylors Road – midway between IN-13 and IN-16