



City of Greater Dandenong,  
Green Wedge Management Plan  
Technical Report: Access & Movement

transportation planning, design and delivery

# City of Greater Dandenong, Green Wedge Management Plan

## Technical Report: Access & Movement


Issue: A 15/07/13

Client: City of Greater Dandenong

Reference: 13M1260000

GTA Consultants Office: VIC

### Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
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# Executive Summary

## Preamble

This transport technical report seeks to provide a high level assessment of the existing and future transport conditions within the Dandenong Green Wedge, and provide an overview of likely future pressures on the transport system.

The Dandenong Green Wedge is a large area with diverse land uses and several distinct precincts, separated by major natural and man-made barriers. As such, a high level assessment of transport issues for the whole area is by its nature generic. It is acknowledged that some areas within the green wedge may require more detailed consideration in future, particularly in response to any planned land use changes or significant intensification. In this regard, the transport technical paper assumes incremental change within the study area, and seeks to understand and mitigate future external pressures (including the requirement for recreation opportunities).

## Existing Conditions

The study area is characterised by:

- High speed, high volume arterial roads on the edges of the study area, as well as through it (Dandenong Frankston Rd). Some of these roads currently experience congestion during peak periods.
- The Eastlink tollway bisects the study area, with relatively few opportunities to cross the freeway corridor.
- Four bus routes that offer varying standards of service (with two high frequency SmartBus routes), but limited ability to provide a genuine alternative form of transport due to the dispersed nature of land use in the area.
- A discontinuous local road network that primarily services destinations within the study area, consisting of a varying standard of road construction and state of repairs.
- Limited and discontinuous bicycle and pedestrian facilities, with the exception of the Eastlink Trail which follows the Patterson River.

These conditions mean that the green wedge area does not form a coherent whole, but rather a series of distinct precincts that effectively operate in isolation from each other. However, it does not necessarily follow that increasing car-based connectivity between precincts will result in improved amenity or land use outcomes. This is discussed further below.

## Future Travel Patterns

The Victorian Integrated Transport Model (VITM) was used to determine future traffic growth on roads within and surrounding the study area. The model shows that:

- In general, traffic growth on internal local roads will be incremental rather than significant. Some arterial roads will experience more significant growth.
- The model implies that arterial roads will require upgrading to accommodate future traffic growth. In the absence of upgrades, the area may be subject to intrusion of larger volumes of through traffic onto the local road network.
- In the longer term (post 2021), some local roads may experience more significant traffic growth, and may require upgrades. This is likely to be partly dependent upon the level of land use change and intensification of use within the green wedge.

- There is an opportunity to increase the use of the area by local residents and other visitors through the development of a more coherent and connected trail system, and take advantage of the significant natural assets within the area.

## Response

Due to the incremental nature of change within green wedges, the majority of the transport pressures on the Dandenong Green Wedge area come from external land use change and associated increases to traffic on arterial road networks. In addition, the area has the potential to provide for a range of recreational, residential and employment uses, which may require upgrades to the existing transport networks. Having regard to this, the key recommendations from this report are summarised in the following table.

**Table ES.1: Summary of Recommendations**

Recommendation	Responsibility
Plan and commence implementation of a network of off-road shared paths to complete the PBN and take advantage of natural opportunities such as levee banks, and connect the study area to surrounding residential areas and activity centres.	Council / VicRoads
The existing road network hierarchy as identified in this report is considered to be appropriate. Future development should be assessed for its consistency with this hierarchy and potential impacts identified and, where appropriate, mitigated.	Council
Continue to monitor the performance of the arterial road network, and advocate for upgrades to cater for increases in traffic, and minimise impacts to local roads.	Council / VicRoads
Monitor the performance of local roads to understand and mitigate any 'rat running' through the study area.	Council
Advocate for improved public transport services (frequency and coverage) to service existing and new land uses within the precinct.	Council / PTV
There are significant environmental and drainage constraints within the study area that may impact the feasibility of constructing, widening and maintaining roads and paths.	Council
In response to the issues identified above, and consistent with other broad level planning issues under consideration as part of the overall Green Wedge Management Plan, the following points could be considered for inclusion in a revised Clause 22.02: <ul style="list-style-type: none"> <li>• Develop a network of pedestrian and bicycle trails to connect the existing recreational spaces in the area with surrounding residential areas and other attractors (with reference to any pedestrian / cyclist strategy prepared for the area).</li> <li>• Ensure that future development addresses the potential for increased intrusion of through traffic onto local roads.</li> </ul> Note that these changes are examples only. Further consideration would need to be given to any changes to the clause that would be undertaken as part of the planning scheme amendment.	Council

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# 1. Introduction

## 1.1 Preamble

The City of Greater Dandenong is currently in the process of developing a Green Wedge Management Plan for the portion of the South East Green Wedge that lies within their municipality.

As part of this, GTA Consultants has been engaged by Planisphere on behalf of Council to prepare a transport technical paper to support the Green Wedge Management Plan.

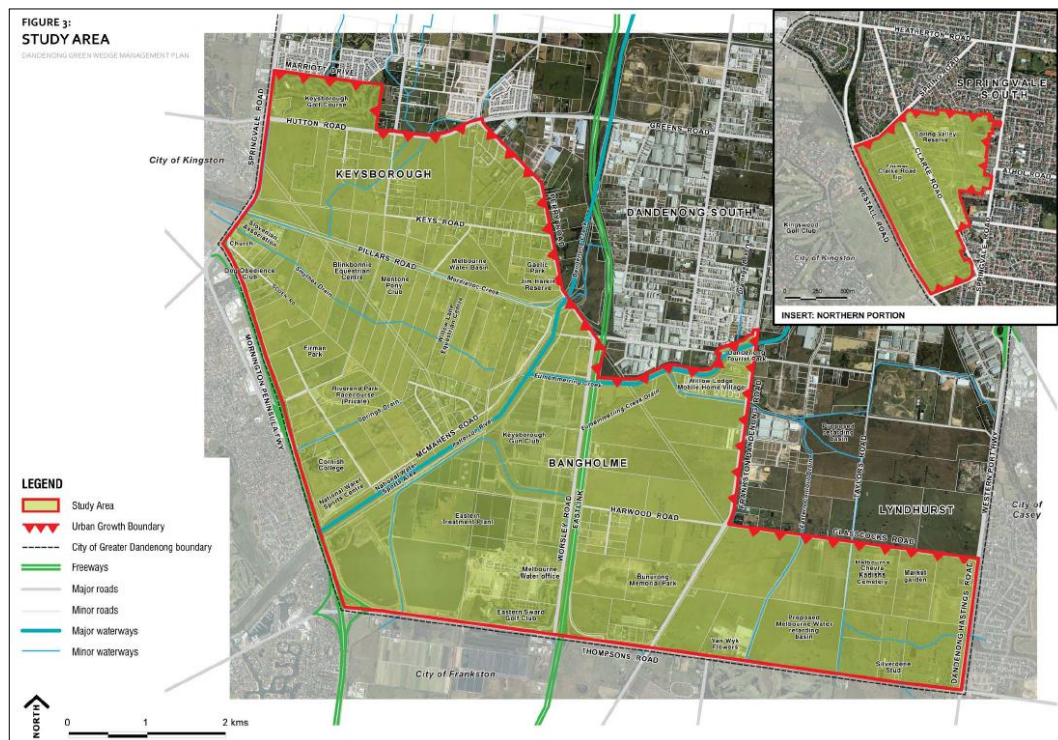
## 1.2 South East Green Wedge

The green wedge area is located in the southern part of the City of Greater Dandenong and generally forms the central part of the broader South East Green Wedge. It covers approximately 3,740 hectares and currently accommodates the following major sites and activities:

- the Eastern Treatment Plant (including buffers, basins and wetlands)
- infrastructure networks (such as road, power, water and sewer systems)
- waterways, including the Patterson River, Mordialloc Creek, Dandenong Creek and Eumemmerring Creek, and east-west drainage contours and wetlands
- agriculture (particularly grazing and small hobby farming activity)
- cemeteries / memorial park
- sports recreational fields and facilities (including the National Water Sports Centre, Mentone Pony Club, Riverend Park Racecourse (private), Serbian Sports Centre, Keysborough Golf Course and Eastern Sward Golf Course)
- animal boarding and facilities (including dog obedience club, kennels and equestrian facilities)
- school and church facilities
- residential and tourist accommodation (including rural residential living, a mobile home village and caravan park).

The study area and the major sites and roads are shown in Figure 1.1.

Figure 1.1: Dandenong Green Wedge Study Area



Source: Planisphere

### 1.3 Purpose of this Report

This report seeks to:

- i Provide a high level review of the existing transport facilities within and connecting the South East Green Wedge.
- ii Identify future transport pressures, issues and opportunities including:
  - adequacy of existing facilities to support existing land use
  - future increases to traffic on the network within and surrounding the Green Wedge.
- iii Develop transport objectives to assist in the ongoing management of the South East Green Wedge.
- iv Recommend potential changes to the Municipal Strategic Statement to reflect the transport objectives.

### 1.4 References

In preparing this report, a number of references have been made, including:

- Greater Dandenong Planning Scheme
- City of Greater Dandenong, Green Wedge Management Plan, Preliminary Scoping Paper, Final – April 2013
- South East Green Wedge, Background Report and Issues Paper, Part 1 – Issues Paper, Final – 9 October 2008
- an inspection of the site and its surrounds
- other documents as nominated.



## 2. Background Transport Policy

### 2.1 Introduction

There are a number of state and local policies applicable to the subject land, which provide guidance on the existing and future transport network. Those which are most relevant in the context of the South East Green Wedge are as follows:

- Victoria Planning Provisions
- SmartRoads Policy
- South East Transport Strategy
- City of Greater Dandenong Integrated Transport Strategy
- City of Greater Dandenong Bicycle Strategy
- Greater Dandenong Road Management Plan
- Public Transport Needs and Priorities
- Green Wedge Management Plan - Preliminary Scoping Paper

These documents are discussed in more detail as follows.

### 2.2 State Policy

#### 2.2.1 Victoria Planning Provisions

Clause 18 of the Planning Scheme reflects the intent of State Government guidance and contains objectives and strategies in relation to Transport which are relevant to the green wedge area, including:

- Create a safe and sustainable transport system by integrating land-use and transport.
- Plan or regulate new uses or development of land near an existing or proposed transport route to avoid detriment to, and where possible enhance the service, safety and amenity desirable for that transport route in the short and long terms.
- Encourage higher land use densities and mixed use developments near railway stations, major bus terminals, transport interchanges, tramways and principal bus routes.
- Pedestrian and cyclists access to public transport should be facilitated and safeguarded.
- Promote the use of sustainable personal transport.
- Integrate planning for cycling with land use and development planning and encourage as alternative modes of travel.
- Achieve greater use of public transport by increasing densities, maximising the use of existing infrastructure and improving the viability of the public transport operation.

#### 2.2.2 SmartRoads Policy

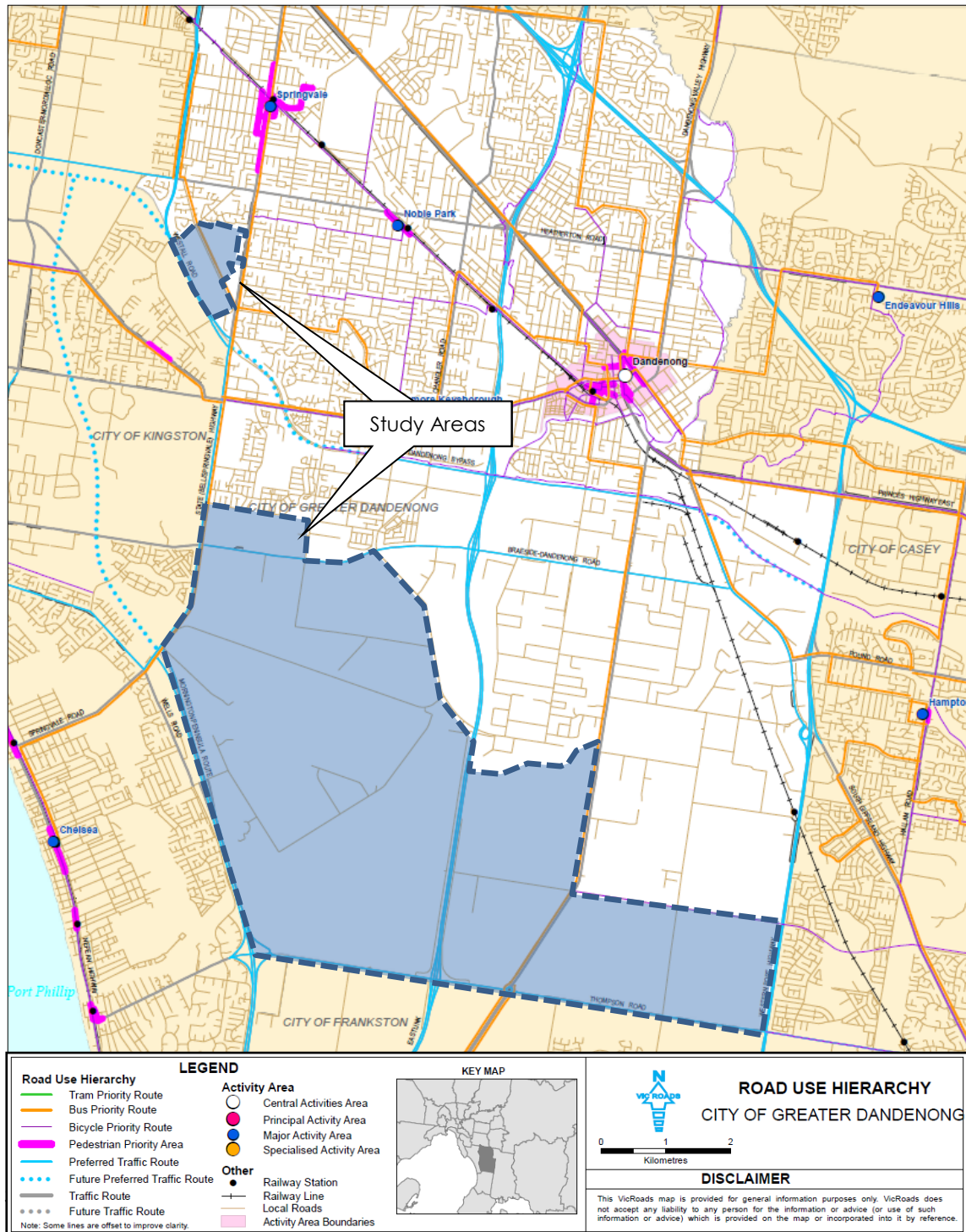
SmartRoads is a VicRoads policy which sets 'modal' priorities on the road network and underpins many of the strategies significant to the Victorian Transport Plan surrounding the issue of public transport prioritisation.

*"SmartRoads is an approach that manages competing interests for limited road space by giving priority use of the road to different transport modes at particular times of the day."*

All road users will continue to have access to all roads. However, certain routes will be managed to work better for cars while others will be managed for public transport, cyclists and pedestrians.”<sup>1</sup>

The VicRoads SmartRoads Network Operating Plan for the area surrounding the subject site has been reproduced in Figure 2.1.

**Figure 2.1: City of Greater Dandenong SmartRoads Network Operating Plan**



<sup>1</sup> Sourced from VicRoads

Based on VicRoads' website, road use priority routes (for buses and trams) have been identified to ensure:

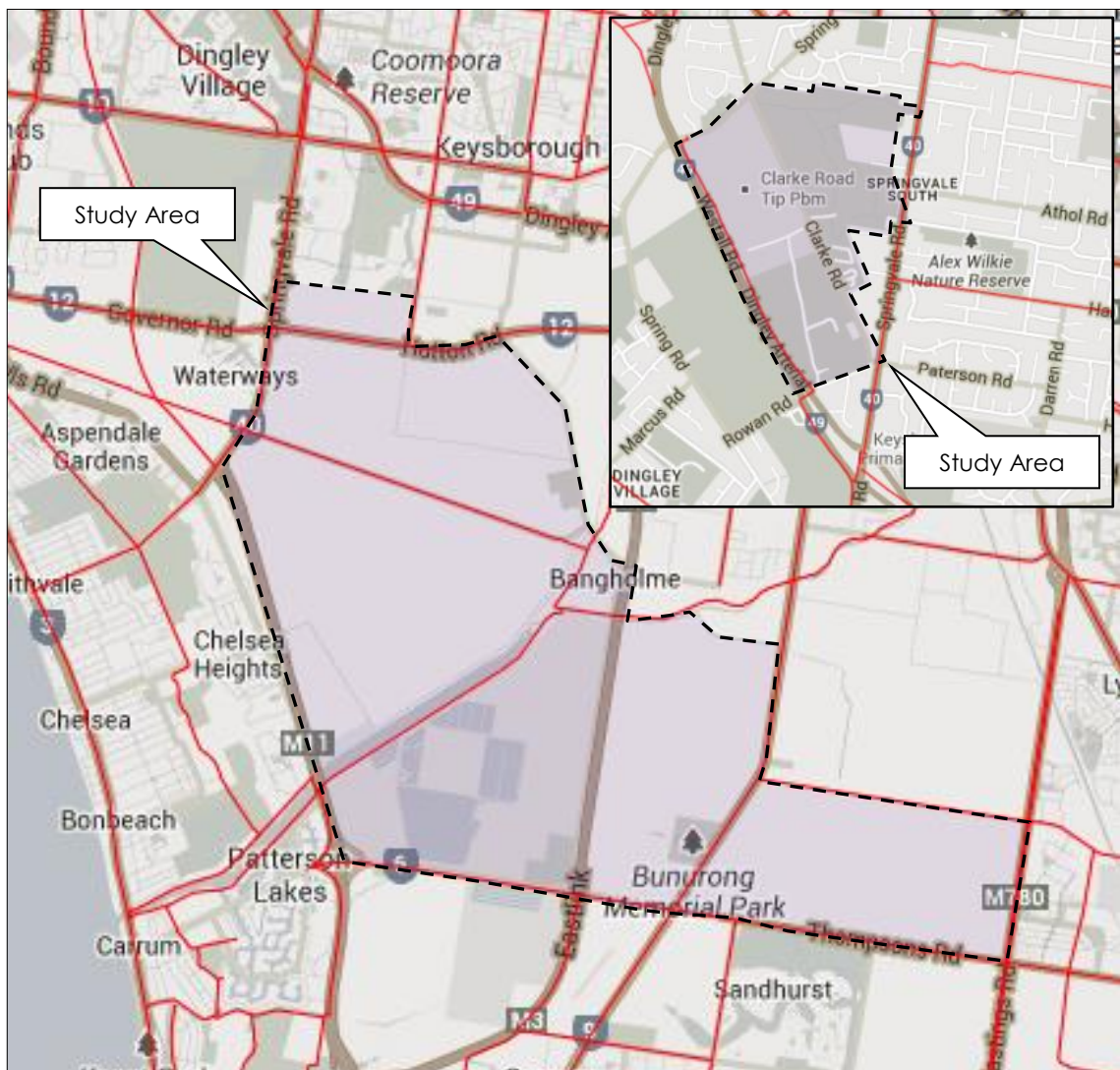
*"Trams and buses are given priority on key public transport routes that link activity centres during morning and afternoon peak periods."*

### 2.3 VicRoads Principal Bicycle Network (PBN)

The Principal Bicycle Network (PBN) outlines the existing and proposed arterial cycling routes in metropolitan Melbourne. The PBN forms part of the VicRoads SmartRoads program that identifies the priority mode(s) of transport for a given road corridor. Furthermore, it does not indicate the type of facility (i.e. on / off-road and segregated facilities) along each of the routes. Rather, it is expected that they will be provided in line with current VicRoads and Austroads bicycle facility guidelines, which determines the level of separation required from traffic speed and volume.

The solid red lines in Figure 2.2 indicate the PBN in the vicinity of the Green Wedge area.

Figure 2.2: VicRoads Principal Bicycle Network (solid red lines)



(Reproduced from VicRoads Website)

Based on Figure 2.2, the PBN in the area consists of the majority of the arterial roads (except the Eastlink Toll Road), waterways and a number of collector and local roads to provide a fairly consistently spaced network. However, only a small number of the routes currently have bicycle facilities along them. As such, there is considered to be opportunity to provide suitable bicycle facilities within and connecting the study area. Further, the facilities are likely to be able to be shared with pedestrians given that most facilities will need to be off-road due to the high traffic volumes and speeds on the associated carriageways or they are along waterways and through wetlands.

## 2.4 Local Policy

### 2.4.1 Local Planning Provisions

There are a number of local planning policies that relate to the South East Green Wedge within Greater Dandenong, as follows:

#### Clause 21.06-3 – Open Space and Natural Environment - Non Urban (Inclusive of Green Wedge)

Clause 21.06-3 of the Greater Dandenong Planning Scheme sets out the policy basis, objectives, and strategic vision for all open space and natural environment within Greater Dandenong.

The policy sets out specific objectives, including:

- *“To ensure use and development protect and reinforce the existing rural landscape typology*
- *To protect and restore the ecological functions and values of the non-urban area*
- *To ensure that the design, appearance and construction of all development responds positively to the existing rural landscape and typology*

#### Clause 22.02 – Green Wedge Local Planning Policy

Clause 22.02 of the Greater Dandenong Planning Scheme sets out the policy basis, objectives, and strategic vision for all land of the South-East Non-Urban Area within Greater Dandenong.

The policy sets out specific objectives, including:

- *“To further the “Green Space” vision for Greater Dandenong’s green wedge area, as defined in the MSS at clause 21.06-3.*
- *To give effect to and clarify Council’s vision with respect to various strategic studies undertaken of the wider non-urban area and its components within Greater Dandenong.*
- *To recognise and implement the Memorandum of Understanding signed with adjacent municipalities containing the South East Non-Urban Area.*
- *To encourage sustainable land use practices and provide optimal long term planning solutions for the use and development of land.*
- *To give effect to the objectives and strategies in the MSS at Clause 21.04-4 at a more detailed level.*
- *To recognise the particular functions, characteristics and contributions of the various precincts identified within the area and provide for appropriate development within each precinct.*
- *To provide guidance to stakeholders with regard to appropriate uses and forms of development which respond to the function and characteristics of each precinct.*
- *To provide a purpose and certainty to the uses of the land within identified precincts.*



- *To give effect to and clarify Council's vision with respect to various strategic studies undertaken of the wider non-urban area and its components within Greater Dandenong.*
- *To encourage sustainable land use and development practices within the policy area."*

### 2.4.2 South Eastern Transport Strategy

The South Eastern Transport Strategy was prepared for the South Eastern Integrated Transport Group, who represents the Councils of Yarra Ranges, Greater Dandenong, Kingston, Casey, Cardinia, Frankston, Mornington Peninsula and Bass Coast. The strategy was prepared in response to the suite of policy and infrastructure initiatives that have recently been released in the area, such as the following:

- *Develop Ringwood, Dandenong and Frankston as Central Activities Districts, to provide similar services and functions to central Melbourne, such as commercial, retail, highly specialised personal services, entertainment, education, government and tourism, significant employment concentrations, and high quality, well designed, living and working urban environments*
- *Complete missing links in the freeway network, including the orbital road network and links to the Mornington Peninsula*
- *Deliver public transport improvements to continue building bus service levels across the network, to address congestion on the rail system, and to supply public transport in growth areas*
- *Plan improvements to critical freight linkages, including further stages of the Dingley Arterial*
- *Formalise strategic transport networks, including designated freight networks for the first time*
- *Develop the Port of Hastings over the next 30 years, focusing on cargoes displaced from the Port of Melbourne as trade grows.*

The strategy sets out a number of strategic responses, actions and how they will be implemented to benefit the most from the above policy and infrastructure initiatives.

### 2.4.3 City of Greater Dandenong Integrated Transport Strategy

Greater Dandenong's Integrated Transport Strategy sets out council's strategic plan for achieving its long-term transport vision of a well-planned transport system that provides safe and equitable access to all members of the community in an integrated and sustainable manner. The Integrated Transport Strategy has identified six strategic directions that council will follow to achieve its transport vision:

- Integrate Transport and Land-Use
- Enhance Freight Efficiency
- Enhance Local Accessibility
- Upgrade Road Safety
- Improve Public Transport
- Promote Alternative Travel Behaviour

The Dandenong Green Wedge has been identified in the strategy as an area that requires greater accessibility for a number of users. Most notably, the following is stated as part of Strategic Direction 1 (Integrate Transport and Land Use):

*"Southern areas of the municipality form significant part of the South Eastern Green Wedge. In this area, council is committed to protecting and enhancing the existing rural environment and other sensitive land uses (e.g. the Eastern Treatment Plant at Bangholme), while ensuring that movement through the area is developed and managed in a way that caters for regional transport requirements."*

Also within Strategic Direction 3 (Enhance Local Network Accessibility):

*"Different design standards are likely to be required for each of the municipality's five district land use forms (Activity centres, residential, commercial and industrial, green wedge and open space) in order to recognise the various users, and the diverse user needs, that exist in each of these areas."*

#### 2.4.4 City of Greater Dandenong Bicycle Strategy

The 2002 bicycle strategy reviewed the previous strategy in 1996 and looked to build on what has already been implemented and address a number of other issues identified in consultation with relevant stakeholders. The major recommended actions have been grouped as follows:

- Council Planning
- Intra Council Co-ordination
- Policies, Briefs and Standards for Bicycles
- Education
- Bike and Ride Stations
- Bicycle Safe Suburbs
- End of Journey Facilities
- Signage System
- Activities and Information
- Maintenance Standards
- Monitoring and Review
- Principle Bicycle Network
- Local On Road Routes
- The Stations Trails and Routes
- Freeway Trails
- Local Trail Links
- Foot Path Network
- Dandenong CBD Cycling
- Intersection Treatments

#### 2.4.5 Greater Dandenong Road Management Plan

The Road Management Plan outlines what are Council road assets within the road reserves, their management of these assets, set intervention levels, inspection and response standards and maintenance and repair standards. This is a requirement of the Road Management Act 2004 and this plan outlines how they achieve their responsibilities under the act. In the absence of significant new land uses or traffic growth, the plan is focussed on maintaining the roads at their current standard, with some limited upgrades (for example longer term sealing of roads).

#### 2.4.6 Green Wedge Management Plan - Preliminary Scoping Paper

As part of developing a Green Wedge Management Plan a Preliminary Scoping Paper has been prepared by Planisphere. The paper sets out the background and initial thinking on issues and opportunities for the Green Wedge Management Plan, including an Access & Movement theme. The Paper includes an existing conditions analysis, which is shown in Figure 2.3 below.

Figure 2.3: Access &amp; Movement - Existing Conditions Analysis



Source: Planisphere

The Preliminary Scoping Paper also outlines a number of access and movement issues as follows:

- **“Limited public access and connectivity/ physical barriers:** Despite being a Green Wedge, large parts of the area do not enable public access or use. In general, there is a lack of pedestrian and cyclist paths within the Dandenong Green Wedge. There are significant physical barriers to access and movement throughout the Green Wedge including the Eastern Treatment Plant, freeways such as Eastlink and the Mornington Peninsula Freeway, and the Patterson River.
- **Increased pressure on existing road infrastructure:** The Dandenong South industrial node is one of the State’s most significant industrial concentrations. It is likely that pressure to expand industrial land in the area will continue over time, thus putting increased pressure on existing road infrastructure.
- **Impact of new road infrastructure on the environment:** The construction of new roads within the Green Wedge will have both positive and negative effects on the environment. It is important that local access needs and the needs of the wider transport system are accommodated, whilst maintaining adequate protection and enhancement of the environmental qualities and rural character of the Green Wedge.
- **Roads in poor condition:** The conditions of roads vary throughout the Green Wedge, with many lacking in basic infrastructure such as footpaths, concrete kerb and channel and lighting. This can give the impression of neglect, and lead to issues of rubbish dumping and vandalism. Of particular concern is the poor condition of Riverend Road in Bangholme, which is in part due to the low-lying nature of the road.
- **Flooding constraints and levee banks:** can constrain the establishment of future pedestrian/ bicycle paths, roads, bridges, and revegetation works.

- **Connectivity to surrounding areas:** such as the rest of the South East Green Wedge, adjoining municipalities, and surrounding residential areas is lacking, mostly due to road infrastructure that creates physical and visual barriers.
- **Impact of existing/ proposed infrastructure on Council's maintenance and capital works budget:** The ongoing maintenance and management requirements of existing and proposed infrastructure is a key consideration that needs to be taken into account."

These issues are addressed in Section 4 and 5 of this report.



### 3. Existing Transport Conditions

#### 3.1 Introduction

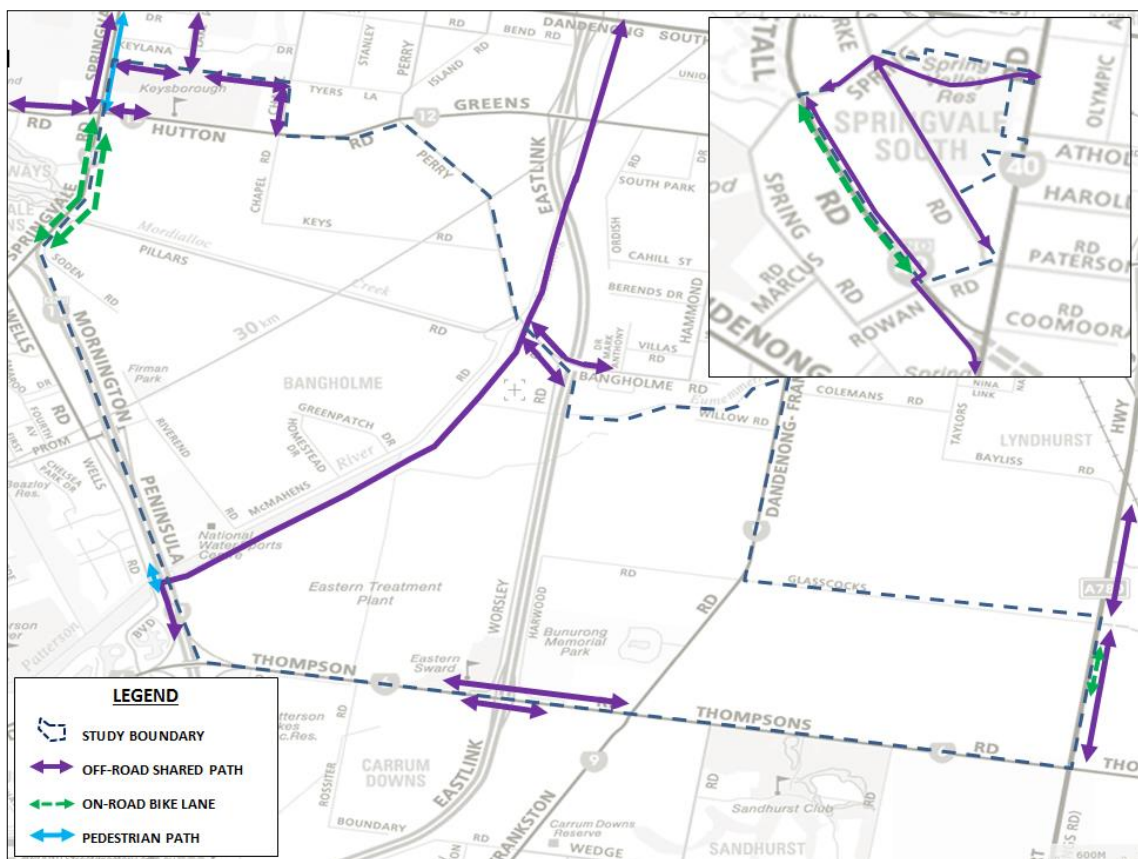
The study area is currently characterised by high traffic volume and speed arterial roads that boarder and travel through the area with a number of local rural roads providing access within the study area. There are also a number of waterways and wetlands, particularly in the western part of the area.

A summary of the existing transport facilities and their indicative level of service is provided in this section of the report.

#### 3.2 Pedestrian and Bicycle Infrastructure

Figure 3.1 shows the subject site in relation to existing pedestrian and bicycle facilities.

Figure 3.1: Pedestrian and Bicycle Infrastructure



Melways Base Map

Figure 3.1 indicates that there are only limited pedestrian and bicycle facilities within and accessing the study area. Furthermore, the existing facilities are generally discontinuous and/or provided along the high traffic speed and volume arterial roads. As such, these facilities generally provide a low level of service, as they do not provide access between trip generators / destinations and many do not support newer or less confident riders (i.e. the on-road bicycle lanes on Springvale Road).

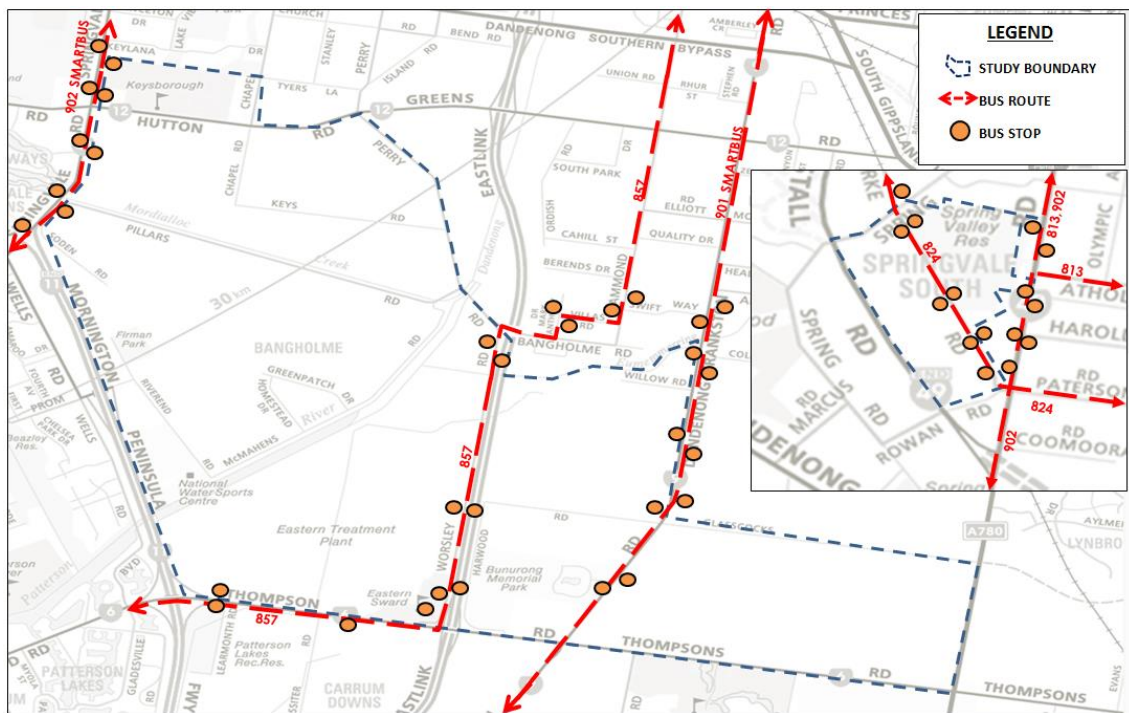
While it is acknowledged that there are currently minimal land uses which would be expected to generate walking and bicycle trips within the study area, pedestrian and bicycle amenity for the study area as a whole is relatively poor. As such, it does not encourage use of the area for recreational bicycle or pedestrian users.

The exceptions to the above include the off-road shared trail that extends along the southeast side of the Patterson River. Given that the facility connects between Patterson Lakes in the southwest and Dandenong to the north, it provides access for recreational users (including horse riders). There are also numerous walking trails throughout Spring Valley Reserve to the northeast of Clarke Road.

### 3.3 Public Transport

Figure 3.2 shows the subject site in relation to existing public transport routes within its vicinity whilst Table 3.1 summarises the road based routes and major destinations that can be reached using these services.

Figure 3.2: Public Transport Map



Melways Base Map

Figure 3.2 demonstrates that there is one bus route (857) that travels north-south through the study area on Worsley Road, and one bus route (824) which travels through the northern Green Wedge along Clarke Rd. SmartBus routes (901 and 902) also travel in a north-south direction along Springvale Road and Dandenong-Frankston Road which border the study area to the east and west respectively. The associated bus stops on each of the bordering routes are located at reasonable spacing, and are aligned with large developments along the route through the study area.

In terms of bus stop catchment areas, stops typically service users within approximately 400m walking distance. Given the size of the properties proximate to the bus stops (especially proximate to the industrial land uses), bus stop locations can only be expected to service the one or two adjacent properties.

Table 3.1 below indicates shows the frequency, span of hours and major destinations of the bus routes servicing the area. There are two SmartBus services through the study area, which provide a high level of accessibility to the areas that they service, and link to nearby attractors such as shopping centres and railway stations. The other two services (route 857 and 824) provide lower levels of service, and are unlikely to provide an attractive alternative form of transport for workers or visitors to the area.

It is considered likely that the green wedge area is unlikely to have sufficient density of land use attractors for it to justify upgrades to public transport within the study area. In this regard, it is likely that future changes to public transport will be driven by external land use changes.

**Table 3.1: Public Transport Services**

Service	Route	Route Description	Major Destinations on Route	Service Span First/Last Service			Frequency (Peak)		
				Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Bus	857	Chelsea – Dandenong via Patterson Lakes	Chelsea RS, Patterson Lakes PS, Dandenong RS	5:23am /6:20pm	9:33am /12:33pm	-	30 mins	60 mins	-
	901	Frankston – Melbourne Airport (SMARTBUS Service)	Frankston RS, Dandenong South PS, Knox City Shopping Centre Interchange, Broadmeadows RS, Melbourne Airport	4:46am /12:19am	5:41am /12:19am	6:45am /9:17pm	15 mins	30 mins	30 mins
	902	Chelsea – Airport West (SMARTBUS Service)	Chelsea RS, Nunawading RS, Westfield Doncaster, Broadmeadows RS, Airport West Shoppingtown	5:08am /12:08am	6:00am /12:08am	7:00am /9:04pm	15 mins	30 mins	30 mins
	824	Moorabbin – Keysborough via Clayton and Westall	Parkmore Shopping Centre, Spring Valley Reserve, Westall RS, Clayton RS, Clarinda Shopping Centre	5:59am /10:06pm	7:38am /10:12pm	9:35am /9:55pm	40 mins	60 mins	60 mins

## 3.4 Road Network

### 3.4.1 Road Hierarchy

The road hierarchy within the study area consists of:

- Major roads and freeways, which are all VicRoads / LMA controlled. These are the primary means for through traffic and freight to traverse the study area.
- Major local roads, which provide local access for freight and general traffic, and may play a limited through traffic role
- Minor local roads, which service end destinations, and should not be encouraged to accommodate through traffic.

The roads within the study area are described within this framework below.

### 3.4.2 Major Roads

- The EastLink Tollway bisects the study area in a north-south direction, and is configured with three-lane carriageway in each direction, separated by a central median. It is accessible via a full diamond interchange at the intersection of Thompsons Road at the southern end of the study area, and passes underneath Perry Road at the northern end of the study area.
- The Mornington Peninsula Freeway borders the study area to the southwest. It is a two-way road generally aligned in a north-south direction and configured with dual two-lane carriageways separated by a central median. Kerbside parking is not permitted.
- Springvale Road borders the study area to the northwest and functions as a primary arterial road. It is a two-way road generally aligned in a north-south direction and configured with dual two-lane carriageways separated by a central median. Kerbside parking is not permitted.
- Thompsons Road borders the study area to the south and functions as a primary arterial road. It is a two-way road aligned in an east-west direction and configured with dual two-lane carriageways separated by a central median. Kerbside parking is not permitted.
- Dandenong-Frankston Road borders the study area to the east and functions as a primary arterial road. It is a two-way road generally aligned in a north-south direction and configured with dual two-lane carriageways separated by a central median. Kerbside parking is not permitted.
- Westall road borders the isolated section of the study area to the southwest, and functions as a primary arterial road. It is a two-way road generally aligned in a northwest-southeast direction and configured with dual two-lane carriageways separated by a central median. Kerbside parking is not permitted.

### 3.4.3 Local Roads

There are four major local roads that either are within, or lie on the border of the study area. All of these roads are two way, two lane carriageways with all except for Clarke Road having a rural type cross section (i.e. without kerb and channel or footpaths). These include the following:

- Worsley Road - aligned in a north-south direction and accessible via Perry Rd to the north and Thompsons Road to the south, provides access to the Eastern Treatment Plant and Eastern Sward Golf Club.
- Pillars Road – aligned in a northwest-southeast direction, Pillars Road is accessible from Springvale Road to the west and Perry Road to the east, and provides access to a small number of abutting properties as well as residential properties at the northeast corner of the study area. The pavement surface is currently in a poor state with long cracks in the seal.
- Perry Road – aligned generally in a northwest-southeast direction, Perry Road borders the northeast of the study area and provided access to Keys Road (collector road) and the residential land uses at the northeast corner of the study area.
- Clarke Road – aligned in a northwest-southeast direction, Clarke Road runs through the northernmost study area providing access to a small number of commercial and residential properties mostly clustered about the southeast end.

There are numerous local roads within the study area which generally do not facilitate through traffic movements, and generally serve to provide access to specific land parcels. They are generally all sealed roads, except for Glasscocks Road and Harwood Road, with two lanes of

traffic and drainage swales on each side. No foot paths are provided and the condition of some of the pavements is poor.

Local Roads within the study area include the following:

- McMahens Road
- Homestead Drive
- Greenpatch Drive
- Riverend Road
- Thames Promenade
- Keys Road
- Browman Lane
- Chapel Road
- Soden Road
- Willow Road
- Harwood Road
- Clarke Road

### 3.4.4 Surrounding Intersections

Key intersections in the vicinity of the site include:

- Mornington Peninsula Freeway/Thompsons Road (full diamond interchange)
- EastLink Tollway/Thompsons Road (full diamond interchange)
- Thompsons Road/Dandenong Frankston Road (partially signalised roundabout)
- Springvale Road/Hutton Road (signalised X-intersection)
- Thompsons Road/Worsley Road (unsignalised T-intersection)

### 3.4.5 Existing Congestion

Generally the roads within and boarding the study area operate satisfactorily, however, the following locations experience significant levels of congestion, particularly during peak commuter periods:

- Thompson Road, primarily in the eastbound direction in the PM peak period at the partially signalised roundabouts with Dandenong Hastings Road
- Springvale Road at its signalised intersections with Hutton Road and the Mornington Peninsula Freeway

The congestion at these points in the road network has the potential to increase the incidence of 'rat running' through the study area, which may become more of an issue as traffic volumes increase in the future. This is discussed further in Section 4 below.

## 4. Future Travel Patterns

### 4.1 Introduction

In order to understand what the future travel patterns in and around the study area are likely to be, the Victorian Integrated Transport Model (VITM) has been used. VITM is a multi-modal strategic transport model prepared by the Department of Transport (DoT) for the whole of Victoria. It provides AM and PM peak two hour and daily travel data for the years 2011, 2021, 2031 and 2046, which are based on existing (2011) travel and land use data, and expected (2021, 2031 and 2046) mode shifts and development.

### 4.2 Future Traffic Volume Growth

The VITM model has been used to identify the expected level of traffic volume growth on the arterial road network in the area. Figure 4.1 below shows the expected ten year traffic volume growth on roads within and surrounding the study area.

The expected levels of growth are summarised as follows:

- Roads within the area are not expected to see significant traffic growth, with the exception of the north-west part of the study area (driven by the expected land use change in this area).
- Some external or boundary roads will see significant growth. In particular, the projected growth on Thompsons Road will exacerbate the existing congestion and may cause further pressure on internal roads (for example Glasscocks Road), in the absence of any upgrade to Thompsons Road.

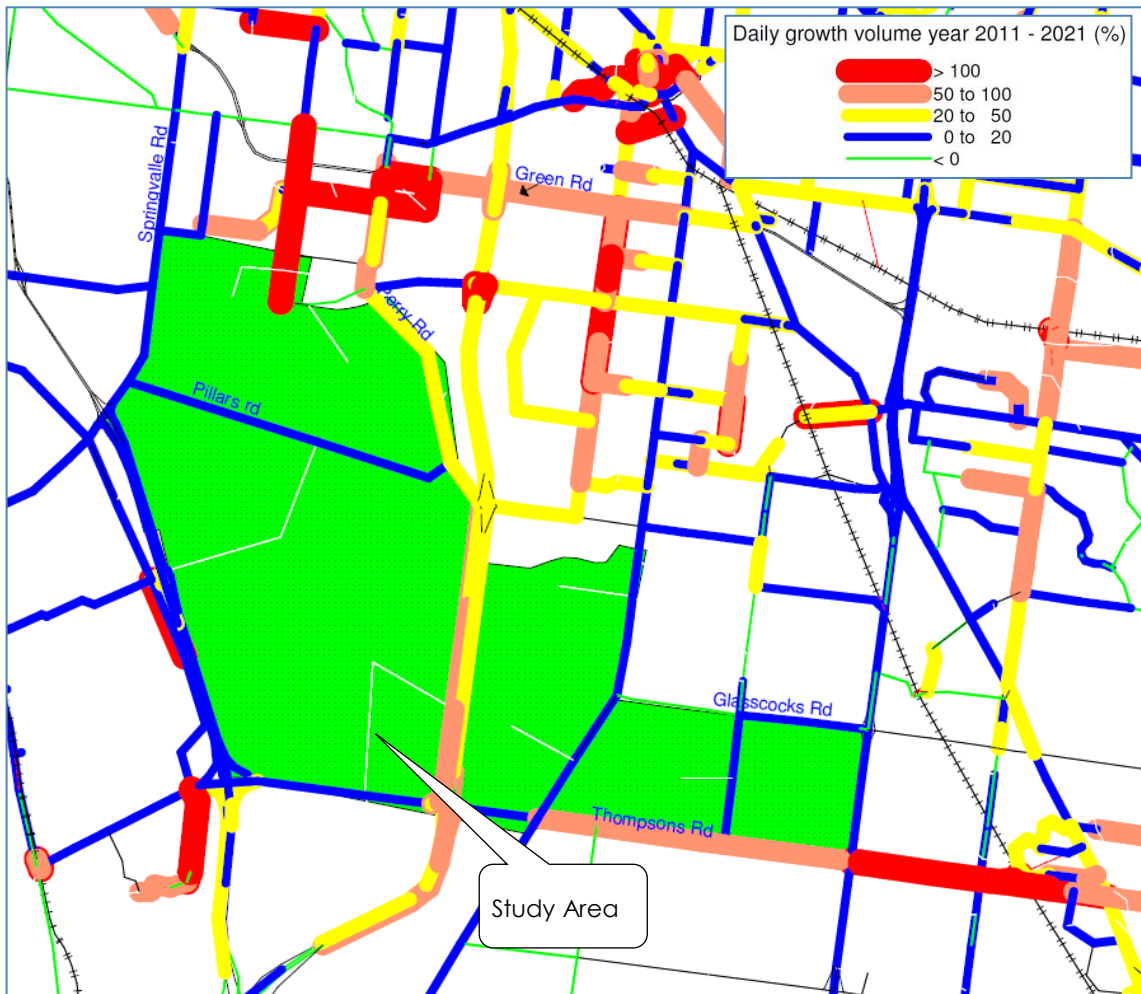
Given the above, it is not considered likely that roads within the study area will require upgrading to cater for increased traffic volumes over the next ten years, if the required upgrades to the arterial road network occur.

In the longer term, changes to land use and travel patterns in the wider area may result in increased traffic through the local roads in the area, as the arterial and freeway network approaches capacity. However, the longer term traffic volume forecasts for the area indicate that the largest changes will occur over the next ten years to 2021.

It is also evident that any major land use changes envisaged within the study area would impact on the findings above.



Figure 4.1: 2011 – 2021 Projected Traffic Growth (Source: VITM)



## 5. Issues and Opportunities

### 5.1 Introduction

Based on the previous discussion and analysis presented in each section of this report, there are considered to be a number of key existing and future transport issues and opportunities for the South East Green Wedge. These are summarised as follows.

### 5.2 Existing Transport Network

With regards to the existing transport network within and accessing the Green Wedge, the following major issues and opportunities exist:

- There are currently limited pedestrian and bicycle facilities within and accessing the study area, and what does exist is general discontinuous and/or is not provided within a supportive environment. The significant physical barriers such as the waterways, major land uses and Eastlink make it difficult to provide a continuous network of facilities throughout the area.
- There is an opportunity to provide shared paths along the many levee banks within and connecting the area, such as along the Mordialloc Creek and Eumemmerring Creek. These banks potentially provide a cost effective way of providing links throughout the precinct.
- Based on the VicRoads PBN, there is potential to provide bicycle facilities along Dandenong Hastings Road / Western Port Highway, Dandenong – Frankston Road, Glasscocks Road, Hutton Road, Springvale Road and Thompson Road. Further, with each of these roads, except for Glasscocks Road, they carry high traffic volumes and speeds, so off-road shared paths would be the most appropriate type of facility.
- There are currently four bus routes that generally travel north-south through the area, but these are not likely to cater for a significant number of trips to the study area, due to the large area to be covered and the types of land uses. Future development should include provision of bus stops where applicable to allow for greater transport choice for workers / residents.
- There is currently significant congestion along Springvale Road and Thompson Road, especially at the partially signalised roundabout between Dandenong Hastings Road and Thompson Road. Upgrades to these roads should be pursued to prevent inappropriate intrusion into the study area's local road network, particularly as traffic volumes increase in future.

### 5.3 Future Travel patterns

Based on the expected future growth on the arterial road network within and proximate to the study area the following has been identified:

- Future intensification of land uses (particularly residential) around the study area will result in increased demand for recreational activities and facilities. The green wedge area provides potential avenues to cater for this demand, but unless a comprehensive network of bicycle and walking facilities are implemented, this is likely to be primarily car-based.



- Significant traffic growth along Thompson Road could result in motorists travelling through the study area on local roads to avoid the partially signalised roundabout between Dandenong Hastings Road and Thompson Road. As mentioned above, additional capacity should be investigated to cater for this growth.
- The design, layout and intersection treatments of Pillars Road, Worsley Road and Glasscocks Road will dictate their use into the future, especially with the surrounding traffic growth pressures. It is important that future upgrades to these roads maintain a low speed and volume traffic environment, to prevent them from becoming de facto arterial roads.
- Changes to land use in the study area may necessitate the creation of new road links. In general terms, any new links to support such changes are assumed to be incremental in nature, and would not have a significant impact on the overall traffic levels in the area.
- Any such new road link should be prepared to be complementary to the overall walking and cycling network objectives for the study area.
- Future traffic growth projections for the area assume that the arterial road network will be upgraded to cater for growth. In the absence of upgrades, pressure will be placed on internal roads and increased 'rat running' and associated amenity impacts will occur.

## 6. Future Transport Directions

### 6.1 Introduction

This section provides high level recommendations for the study area including the following:

- identification of a preferred movement hierarchy for roads within the study area
- high level approach for the use and implementation of a wayfinding strategy to support walking and cycling in the area
- indicate a potential off-road shared path network for the study area
- identification of potential short, medium and longer term transport infrastructure projects for the area, noting that these are aimed at maintaining the 'status quo' rather than facilitating extensive land use change within the study area
- identification of potential funding mechanisms for transport infrastructure projects
- recommendations for the revised Clause 22.02.

### 6.2 Preferred Movement Hierarchy

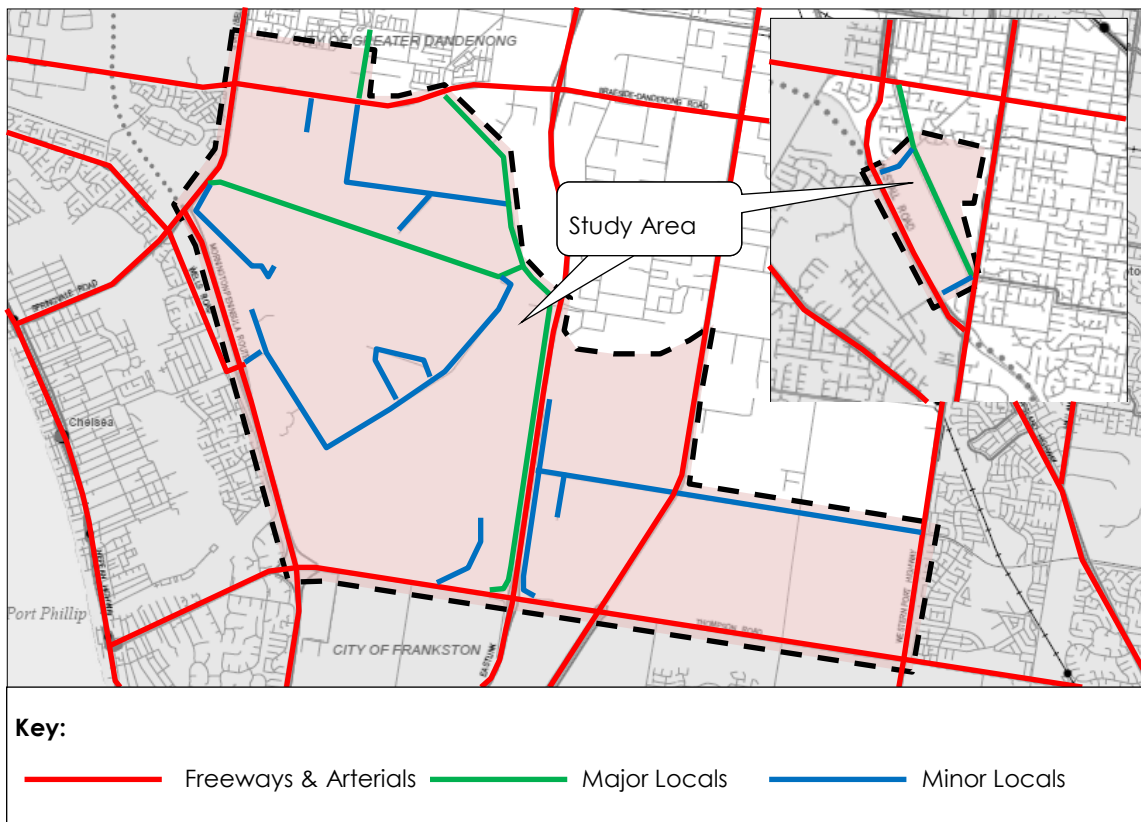
In general, the preferred modal hierarchy is taken from the VicRoads Network Operating Plan, discussed in Section 2.

Within the study area, there are a number of types of roads that have different movement requirements and modal hierarchies. These are summarised as follows and illustrated in Figure 6.1:

- **Freeway and arterial road network.** These have the highest priority for freight and general through traffic, and public transport priority along public transport routes. It is also possible to provide high quality pedestrian and bicycle facilities along arterial roads, as the high speed environment means that fully separated facilities are required. Care should be taken at intersections and public transport stops to provide an appropriate level of safety and access.
- **Major local road network.** On major local roads in the study area, local destination traffic and some local area through traffic should be accommodated. Appropriate design and management measures should be implemented to ensure that traffic speeds are kept low and pedestrian and bicycle safety can be achieved, particularly at intersections or other places where pedestrians and cyclists are potentially in conflict with vehicles.
- **Minor local roads.** The minor local road network provides access to many of the land uses within the study area. As such, through traffic should be discouraged from using these roads. Speeds and traffic volumes are generally low enough to provide a high standard of pedestrian and bicycle facilities.

It is noted that there are no activity centres within the study area, and as such 'pedestrian priority' areas are not deemed to be appropriate. However, for certain land use attractors, such as sporting and recreational facilities, a higher level of pedestrian priority may be necessary.

Figure 6.1: Preferred Movement Hierarchy

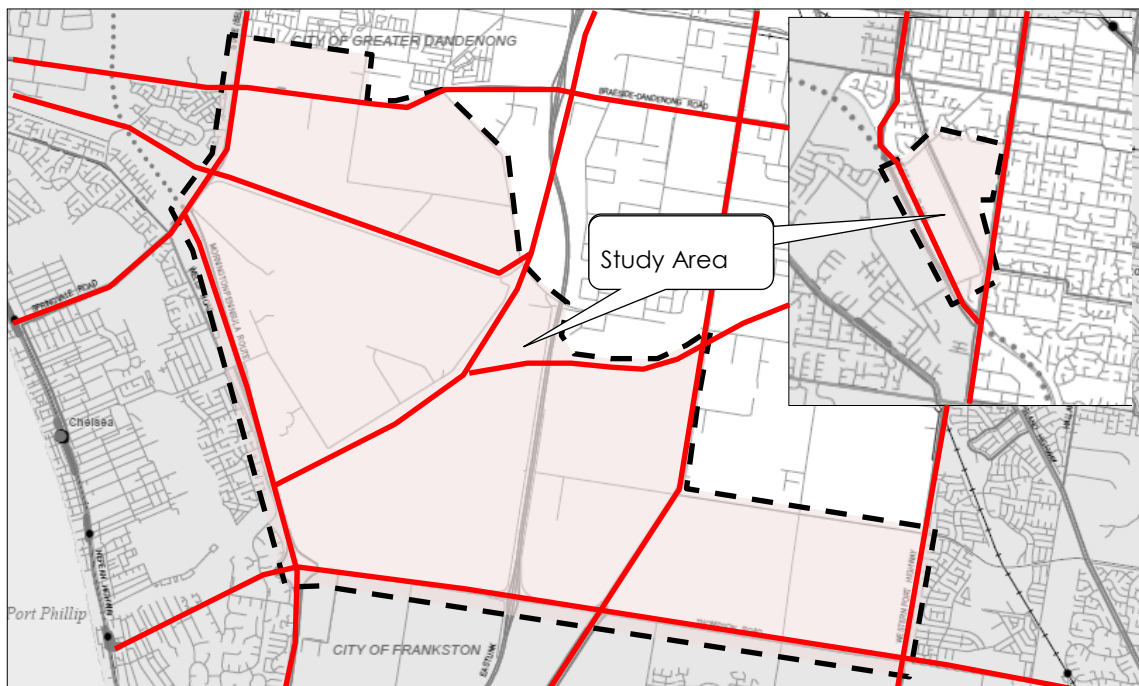


### 6.3 Off Road Shared Path Network

It has been identified that there is an ability to implement an off-road network of shared paths within the study area. It is recommended that the network be generally consistent with the PBN (as indicated in Figure 2.2) and the bank levees to connect with the surrounding residential areas and activity centres.

Figure 6.2 has been prepared to indicate the potential off-road shared path network for the study area.

Figure 6.2: Proposed Off-Road Shared Path Network (solid red lines)



## 6.4 Wayfinding

Due to both the size of the study area, as well as the significant barriers to movement, wayfinding has been identified as an issue. This mainly relates to the walking and cycling networks.

It is important that a 'whole of route' approach is adopted when implementing wayfinding facilities. Wayfinding facilities do not just consist of signage, but the physical appearance and setting of the associated facility that help identify to a user where they are and where they are going. Further, the facilities must be consistent in design and approach, and only vary to indicate a change in facility, direction and/or location.

As such, the following key elements underpin successful wayfinding facilities:

- wayfinding information provided over whole of routes
- consistent destination and route naming methodology
- regular wayfinding information frequency to confirm routes, yet limiting superfluous information that can lead to clutter, and potential confusion
- appropriate wayfinding information placement, noting that 80% of a pedestrians field of vision is below their eye height and there is typically limited lighting provided at night
- maintaining standard designs for all facilities to ensure consistency throughout the network
- undertaking regular maintenance to ensure facilities are kept free of graffiti and their directional integrity is maintained.

As the wayfinding facilities are delivered and the routes are expanded it is recommended that suitable maps be developed to promote and document the routes. Maps assist users to plan the route prior to their trip and then use the wayfinding information to navigate whilst en route.

Specific to the Green Wedge, there are the following major trip generators / destinations that wayfinding facilities would be suitable for:

- National Water Sports Centre
- Jim Harkin Reserve
- Keysborough Golf Course
- Eastern Sward Gold Coarse
- Mentone Pony Club and Adult Riding Club

In addition, it would be considered to be beneficial to potential users accessing the area to have guidance to adjacent major trip generators / destinations, such as Dandenong, Mordialloc and Carrum.

## 6.5 Transport Infrastructure Improvements

Over the short-term (0-5 years) the following transport improvements are recommended in the area:

- Plan and commence implementation of a network of off-road shared paths to complete the PBN and take advantage of natural opportunities such as levee banks, and connect the study area to surrounding residential areas and activity centres.
- Advocate for upgrades to the arterial road network, initially focussed on addressing capacity constraints on Thompsons Road in the eastbound direction.
- Advocate for increased services and additional bus stops along existing bus routes to respond to land use change.
- Monitor local roads to understand existing 'rat running' throughout the study area.

Over the medium-term (5-10 years) the following transport improvements are recommended in the area:

- Continue implementation of the off road shared path network and wayfinding signage.
- Implement any necessary traffic management measures to reduce rat running and associated amenity impacts on local roads.
- Advocate for increased services and additional bus stops along existing bus routes to respond to land use change.
- Continue to monitor performance of local roads in the study area.

Over the long-term (over 10 years) the following transport improvements are recommended in the area:

- Continue to advocate for upgrades to the public transport network to support the land uses within the study area.
- Continue to monitor external network pressures (traffic volume changes) and internal land use changes / transport implications.
- Continue implementation of the off road shared path network as development occurs.

There are significant environmental and drainage constraints within the study area. This may impact the feasibility of constructing, widening and maintaining roads and paths. This may ultimately impact the feasibility of improvements to access within the study area.

## 6.6 Future Funding Mechanisms

A number of funding mechanisms are available for improving transport infrastructure. It should be noted that public transport services, the principal bicycle network and the arterial road network are the responsibility of the Victorian Government, and as such the role of Council is one of advocacy. However, Council is the lead agency responsible for local road infrastructure,

pedestrian infrastructure and local bicycle routes. In this regard, the following recommendations are made:

- The overall planning and design of the shared path (pedestrian and bicycle networks), and local road network improvements should be undertaken by Council. These studies will identify funding opportunities in detail, however the following sources of funding are likely to be applicable:
  - Victorian Government bicycle infrastructure funding – for PBN projects, VicRoads may allocate funds for priority projects. It should be noted that contributions from third parties (council or developers) often improve the overall 'business case' from VicRoads' point of view.
  - Council funded projects. For pedestrian and bicycle improvements where there is no nexus with a proposed development, Council may need to fund improvements through its capital works program.
  - Developer funded projects. Through Integrated Transport Plans and / or Development Contributions Plans, Council can access funding to assist in delivering projects. It is important to note that any projects proposed to be implemented by a statutory mechanism (such as a DCP) would need to demonstrate the principles of need, nexus and equity.
  - Other funding sources. A number of other sources may be applicable to projects, including:
    - Sport and recreation / health grants – a number of government departments at both state and commonwealth level may provide assistance for recreational projects, particularly those with a demonstrated health benefit.
    - Federal black spot funding program.

## 6.7 Clause 22.02 Recommendations

The current Clause 22.02 contains a limited amount of transport specific guidance. As such, in response to the issues identified above, and consistent with other broad level planning issues under consideration, the following points could be considered for inclusion in a revised Clause 22.02:

- Develop a network of pedestrian and bicycle trails to connect the existing recreational spaces in the area with surrounding residential areas and other attractors (with reference to any pedestrian / cyclist strategy prepared for the area).
- Ensure that future development addresses the potential for increased intrusion of through traffic onto local roads.

Note that these changes are examples only. Further consideration would need to be given to any working to any changes to the clause that could be undertaken as part of the planning scheme amendment.

## 7. Summary and Recommendations

Due to the incremental nature of change within green wedges, the majority of the transport pressures on the Dandenong Green Wedge area come from external land use change and associated increases to traffic on arterial road networks. In addition, the area has the potential to provide for a range of recreational, residential and employment uses, which may require upgrades to the existing transport networks. Having regard to this, the key recommendations from this report are as follows:

- Plan and commence implementation of a network of off-road shared paths to complete the PBN and take advantage of natural opportunities such as levee banks, and connect the study area to surrounding residential areas and activity centres.
- Ensure that planning for new development reinforces the existing hierarchy of the road network, in particular taking care to mitigate any intrusion of through traffic onto local roads.
- Continue to monitor the performance of the arterial road network, and advocate for upgrades to cater for increases in traffic, and minimise impacts to local roads.
- Monitor the performance of local roads to understand and mitigate any 'rat running' through the study area.
- Advocate for improved public transport services (frequency and coverage) to service existing and new land uses within the precinct, as part of the broader public transport advocacy being undertaken for the municipality by Council.
- There are significant environmental and drainage constraints within the study area that may impact the feasibility of constructing, widening and maintaining roads and paths.

It is also noted that the local planning policy within Clause 22.02 of the Dandenong Planning Scheme applied to the study area. At this time there is only a limited amount of transport specific guidance. As such, in response to the issues identified above, and consistent with other broad level planning issues under consideration as part of the preparation of the Green Wedge Management Plan, the following points could be considered for inclusion in a revised Clause 22.02:

- Develop a network of pedestrian and bicycle trails to connect the existing recreational spaces in the area with surrounding residential areas and other attractors (with reference to any pedestrian / cyclist strategy prepared for the area).
- Ensure that future development addresses the potential for increased intrusion of through traffic onto local roads.

Note that these changes are examples only. Further consideration would need to be given to any working to any changes to the clause that could be undertaken as part of the planning scheme amendment

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