# Western Port Highway (North) Upgrade

# Transport Infrastructure Assessment

Final Report – July 2014

keeping victorians connected

Victoria
The Place To Be

# TABLE OF CONTENTS

# EXECUTIVE SUMMARY

VicRoads has undertaken a planning study of Western Port Highway (WPH) between South Gippsland Freeway and south of Cranbourne-Frankston Road to identify a preferred option for upgrading WPH to freeway conditions.

Road network modelling shows that a freeway will be required along WPH to accommodate long term traffic demands associated with surrounding urban development, and to avoid undesirably high traffic volumes being experienced on parallel roads.

The upgrade of WPH to a freeway represents a logical extension of South Gippsland Freeway, immediately north of WPH, and is consistent with the function of WPH as a Preferred Traffic Route and Principal Freight Route.

Development of the project has had regard to the *Transport Integration Act 2010*, which focuses on developing an integrated and sustainable transport system that contributes to an inclusive, prosperous and environmentally responsible State.

The project has been integrated with existing and proposed land use, and avoids direct impact to existing urban development and the Langwarrin Bushland Reserve. Road cross-section, alignment and interchange proposals have been based on minimising land acquisition requirements and associated social and environmental impacts.

The project includes provisions for all road users, including general traffic, commercial vehicles, buses, cyclists and pedestrians. The project also includes sufficient land to allow for the possible future provision of a rail line to the Port of Hastings, consistent with the *State Planning Policy Framework, Plan Melbourne* and *Victoria – The Freight State*.

The *Road Management Act 2004* gives VicRoads the power to prohibit access between freeways and adjoining land, and to make decisions in relation to the location, form and use of access to controlled access roads such as WPH. VicRoads' decision-making is primarily guided by its road and access management policies and practices, which aim to optimise the safe and efficient movement of people and goods.

The conversion of WPH to freeway conditions limits access to WPH to grade separated interchanges at selected arterial roads. Full movement interchanges will be provided at Glasscocks Road, Thompsons Road, Hall Road and Cranbourne-Frankston Road and a northerly movement interchange will be provided at Wedge Road. An overpass without ramps of WPH will be provided at Ballarto Road, as there is no compelling economic or accessibility justification for the provision of interchange ramps.

All other roads intersecting with WPH will be closed, including Monash Drive, Northey Road, Bayliss Road, Moreton Bay Boulevard, Carbine Way, Pandora Drive and Carrboyd Road. All driveways along WPH and some driveways on east-west cross roads affected by WPH interchange and overpass proposals will also require closure.

Most of the above road proposals are consistent with relevant structure plans and development plans, including the *Dandenong South Industrial Area Extension Structure Plan* and the *Cranbourne West Precinct Structure Plan*. However, the closures of Monash Drive, Northey Road and Moreton Bay Boulevard are not consistent with previous permits and development plans, including the *Lynbrook and Lyndhurst Development Plan*.

Businesses currently make some use of the Monash Drive and Northey Road accesses to WPH. However, adequate alternative routes are available for these businesses (except a service station as discussed below) via Abbotts Road or South Gippsland Highway. The Moreton Bay Boulevard access to WPH is generally used by the residential area, rather than businesses, with limited alternative routes available.

Most road closures are expected to have negligible impact on the operation of the surrounding road network, as adequate alternative routes exist. The most significant impacts relate to the closure of access to/from WPH at Moreton Bay Boulevard and Ballarto Road. The Glasscocks Road/Aylmer Road, Ballarto Road/Potts Road and Hall Road/McCormicks Road intersections will be upgraded to accommodate traffic diverted by these closures.

A total of 71 properties are affected by driveway closures. The project includes new sealed access roads adjacent to the WPH reservation at several locations, connecting with east-west roads interchanging with and/or crossing WPH, to restore access to affected properties. The access restoration proposals were developed on the basis of providing safe and convenient alternative access routes, and minimising social, business and environmental impacts.

Access will be restored to all properties affected by driveway closures except two service stations abutting the east side of WPH (near Northey Road and Moreton Boulevard). These service stations largely rely on passing trade from WPH, and it is not safe to maintain access to/from WPH due to the close proximity to adjacent interchanges. Access to the service station south of Northey Road will be limited to Northey Road and likely result in a significant loss of business. It is not possible to provide an alternative access to the service station north of Moreton Bay Boulevard due to surrounding development.

The development of access restoration proposals has involved consideration of the access needs of directly and indirectly affected properties, with a view to developing proposals that minimise impacts where appropriate and possible. Other than the impacts to the above service stations and the possible impact to another business partly reliant on passing trade, the access changes should have minimal impact on the operation and viability of affected businesses along WPH.

# 1. INTRODUCTION

VicRoads has undertaken a planning study of Western Port Highway (WPH) between South Gippsland Freeway and south of Cranbourne-Frankston Road to identify a preferred option for upgrading WPH to freeway conditions.

WPH is currently a four lane, divided arterial road with at-grade intersections and direct property access. Upgrade of WPH to freeway conditions is required to accommodate long-term traffic demands associated with urban growth and development.

Conversion of WPH to freeway conditions requires the provision of interchanges and overpasses at strategic locations and the closure of numerous local roads. It also requires the closure of all driveways that currently have direct access to WPH and some driveways on east-west cross roads affected by WPH interchange and overpass proposals. Alternative driveways locations are generally proposed to restore access to affected properties.

The upgrade to freeway conditions allows for the future provision of a railway line to the Port of Hastings without conflict and crossings with roads and traffic.

This report assesses transport infrastructure options for the project and provides justification for the proposed road cross-section, alignment, interchange and access restoration treatments. It also considers the impacts of the access changes on the broader road network and affected properties, and identifies any required mitigation measures.

The report includes the followings sections:

- Section 2 - Existing conditions
- Section 3 - Strategic planning and policy context
- Section 4 - Traffic demands
- Section 5 - Interchange proposals
- Section 6 - Road impacts and mitigation measures
- Section 7 - Access restoration proposals and impacts
- Section 8 - Other transport proposals
- Section 9 - Conclusions

Some of the above sections are based on VicRoads' *Access Restoration Report (December 2011)* which is superseded by this report.

# 2. EXISTING CONDITIONS

## 2.1 Locality

WPH is a north-south arterial road starting 35km south-east of Melbourne's CBD, and extending south from South Gippsland Freeway to Frankston Flinders Road as shown in Figure 1. WPH is approximately 27km in length, with the project covering the 12.2km length northern section.

WPH forms part of the arterial/freeway network servicing the south-eastern suburbs of Melbourne and passes through Dandenong South, Lyndhurst, Cranbourne West, Langwarrin, Somerville, Tyabb, Hastings and other suburbs. Most of the section of WPH within the project area is within or abuts the urban area, whereas most of the section to the south is outside the urban area.

Land within the northern part of the project area, in parts of Dandenong South, Lynbrook and Lyndhurst is largely developed and comprises business and residential uses. Land to the south is either proposed for development or within a rural zone.

## 2.2 Road Network

The *Road Management Act 2004* provides the statutory framework for management of the road network, including the roles and powers of road authorities such as VicRoads. The Act gives VicRoads the power to make declarations in respect of roads.

Roads are classified according to their movement and access function within the network. Roads of State or regional significance that provide the principle route for the movement of people and goods are typically declared as freeways or arterials roads.

The declared freeway and arterial road network is shown in Figure 2 and includes WPH, which is classified as an Arterial Highway, and South Gippsland Freeway, which is an extension of WPH to the north and is classified as a Freeway.

North-south roads of similar or higher significance to the South Gippsland Freeway - WPH route include East Link and South Gippsland Highway. These three roads generally serve different catchments within the south-eastern metropolitan area.

The section of WPH within the project area is currently a four lane divided road with at grade intersections and direct property access. It carries around 45,000 veh/day at its northern end, decreasing to around 25,000 veh/day north of Cranbourne-Frankston Road. Traffic experiences considerable congestion at the intersections of WPH with Thompsons Road and Hall Road.

Declared roads intersecting with WPH within the project area include Thompsons Road, Ballarto Road (west of WPH) and Cranbourne-Frankston Road. Roundabouts are provided at each of these three intersections.

Municipal roads intersecting with WPH include Monash Drive, Northey Road, Bayliss Road, Moreton Bay Boulevard, Glasscocks Road, Wedge Road, Pandora Drive, Hall Road and Carrboyd Road. Traffic signals are provided at the Moreton Bay Boulevard intersection and roundabouts are provided at the Glasscocks Road and Hall Road intersections.

*Figure 1 Locality Plan*

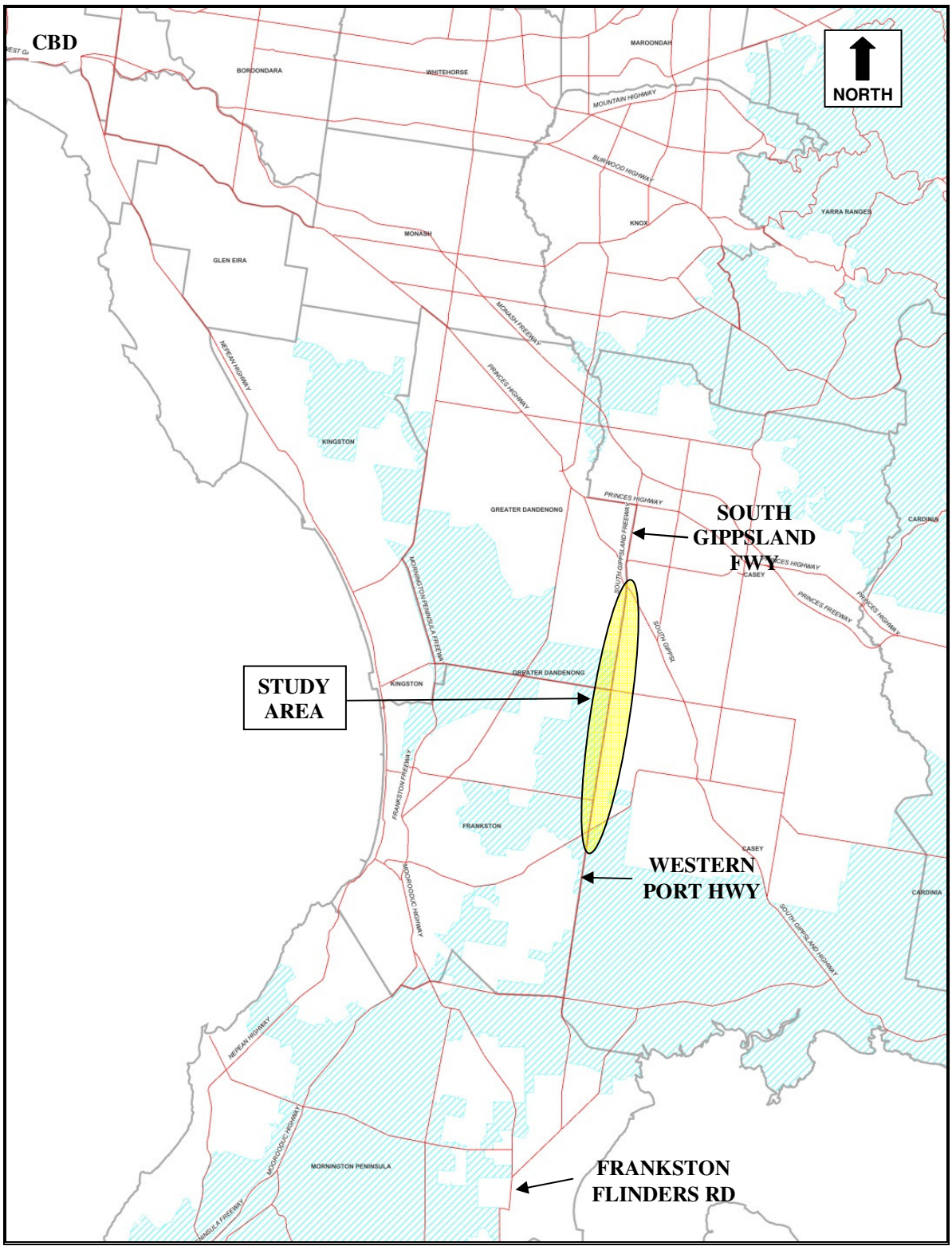


***Figure 2 Declared Road Network***

## 2.3 Public Transport

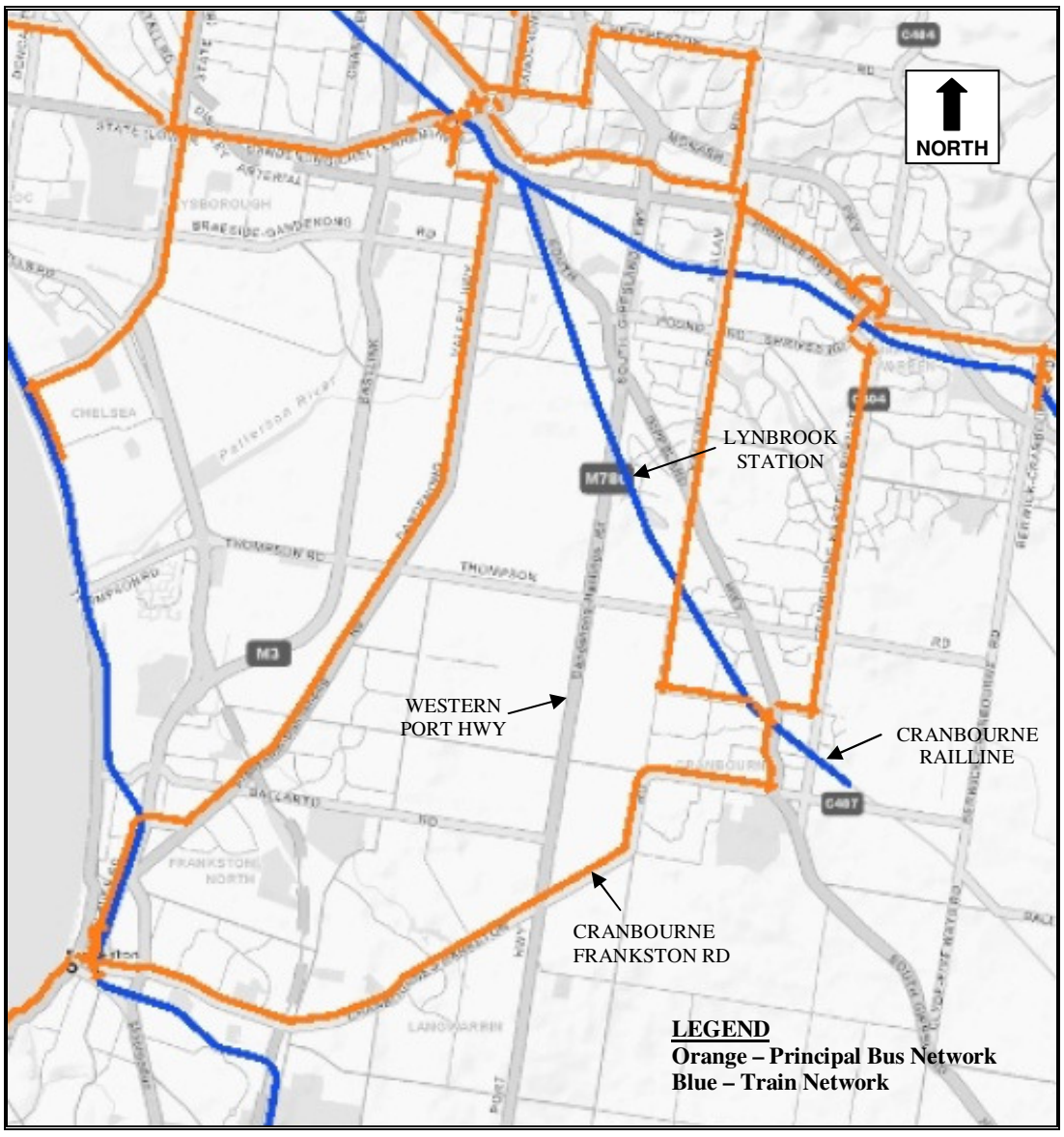
The Principal Public Transport Network (PPTN) is a network of existing road and rail based public transport links that connect activity areas. The PPTN within the vicinity of the project is shown in Figure 3.

WPH is not part of the Principal Bus Network and buses currently do not travel along WPH. Cranbourne-Frankston Road is the only road crossing WPH that is part of the Principal Bus Network.

The rail network is shown in Figure 3 and includes the Cranbourne Rail Line, which crosses WPH 1.4km south of South Gippsland Highway. Other rail lines servicing the south-eastern suburbs include the Frankston – Stony Point Rail Line (which provides access to the Port of Hastings) and the Pakenham Rail Line.

The closest railway station to the WPH is Lynbrook, located 0.5km east of WPH and adjacent to Moreton Bay Boulevard.

***Figure 3 Principal Public Transport Network***



## 2.4 Pedestrian and Cyclist Network

The Principal Bicycle Network (PBN) is a network of existing and proposed cycle routes that connect major destinations and facilitate cycling for transport purposes.

The PBN within the vicinity of the project is shown in Figure 4, and includes WPH, Glasscocks Road, Thompsons Road, Hall Road and Cranbourne-Frankston Road.

A shared pedestrian/cyclist path exists along the east side of WPH between Moreton Bay Boulevard and north of Thompsons Road. Cyclists are also able to ride along the shoulders along WPH.

A signalised pedestrian crossing of WPH exists at Moreton Bay Boulevard. Controlled crossings of WPH are not provided at any other locations.

***Figure 4 Principal Bicycle Network***

# 3. STRATEGIC PLANNING AND POLICY CONTEXT

## *3.1 Legislation*

### 3.1.1 Transport Integration Act 2010

The *Transport Integration Act 2010* provides the framework for the provision of an integrated and sustainable transport system that contributes to an inclusive, prosperous and environmentally responsible State.

The WPH project is consistent with the transport system objectives and decision-making principles specified in the Act because it:

- Is an outcome of an integrated decision making process involving VicRoads, Department of Transport, Planning and Local Infrastructure, other Government agencies and relevant Councils.
- Includes road capacity, safety and other provisions that address the needs of existing and future generations and all transport system users.
- Contributes to social and economic prosperity by providing for efficient, reliable and safe movement of persons and goods, and improving access to places of employment, business and service.
- Contributes to environmental sustainability and health and wellbeing by including provisions for public transport, cyclists and pedestrians.

### 3.1.2 Road Management Act 2004

The *Road Management Act 2004* details various statutory requirements in relation to the management of the road network, including the role, function and powers of road authorities.

VicRoads is the coordinating and responsible road authority for freeways (whole of road reserve) and the coordinating road authority for arterial roads. For arterial roads in urban areas, VicRoads is the responsible road authority for the part of the roadway used by through traffic and the relevant municipal council is the responsible authority for the remainder of the road reserve (eg. pathways).

VicRoads' powers include the following:

- Make declarations in respect of roads (Section 14 of Act).
- Declare freeways or arterial roads as controlled access roads (Section 42 of Act).
- Make decisions in relation to access to controlled access roads, including the locations in which access is permitted and the restrictions on the use of such locations (Schedule 2 of Act).

WPH is currently declared as an arterial road and controlled access road.

VicRoads' powers under the Act allow it to declare WPH as a freeway, and once WPH is declared as a freeway to prohibit existing and proposed access between WPH and adjoining land.

VicRoads' powers to prohibit access only apply to freeways. Section 9 of the Act gives land owners "as of right" access between a road and adjoining land, subject to various restrictions, limitations and conditions. Hence adjoining land owners should generally be allowed direct access to WPH whilst it remains an arterial road.

According to Section 127 of the Act, compensation for denial of existing access to land is not payable if adequate alternative access exists or is provided by VicRoads.

## *3.2 State and Local Planning Policy*

### 3.2.1 State Planning Policy Framework

The *State Planning Policy Framework* seeks to ensure that the objectives of planning in Victoria (as set out in the *Planning and Environment Act 1987)* are fostered through appropriate land use and development planning policies and practices which integrate relevant environmental, social and economic factors in the interests of net community benefit and sustainable development.

The framework contains strategic issues and policies of State significance which apply to all land in Victoria. It is structured around nine themes, which include the following policies of particular relevance to the transport infrastructure for the WPH project:

- Transport - Planning should ensure an integrated and sustainable transport system that provides access to social and economic opportunities, facilitates economic prosperity, contributes to environmental sustainability, coordinates reliable movements of people and goods, and is safe.

- Infrastructure - Growth and redevelopment of settlements should be planned in a manner that allows for the logical and efficient provision and maintenance of infrastructure, including the setting aside of land for the construction of future transport routes.

Strategies within the above transport theme of particular relevance to the WPH project include the following:

- Ensure access is provided to developments in accordance with forecast demand, taking advantage of all available modes of transport and to minimise adverse impacts on existing transport networks and the amenity of surrounding areas.

- Reserve land for strategic transport infrastructure.

- Incorporate the provision of public transport and cycling infrastructure in all major new State and local government road projects.

- Encourage the use of walking and cycling by creating environments that are safe and attractive.

- Selectively expand and upgrade the road network to provide for upgrading of key freight routes and ongoing development in outer suburban areas.

- Identify and protect key transport corridors linking ports to the broader transport network.

- Plan the development of the Port of Hastings to handle containerised freight in the medium term to complement the role of the Port of Melbourne.

The preferred option for the WPH project is consistent with the above policies and strategies because it responds to the transport needs of existing and future communities and includes provisions for all transport modes (general traffic, buses, cyclists, pedestrians and road and rail freight).

### 3.2.2 Greater Dandenong Planning Scheme

The WPH project is consistent with the Municipal Strategic Statement for the City of Greater Dandenong which indicates that "the planned upgrade by VicRoads of the Western Port Highway to Freeway standards including replacement of non-conforming access points with designated grade separated interchanges needs to be considered in future land use planning".

The Strategic Transport Framework is shown in Figure 5 and identifies Glasscocks Road as a future strategic road corridor and Thompsons Road as a primary arterial road.

### 3.2.3 Frankston Planning Scheme

The Municipal Strategic Statement (MSS) for the City of Frankston advocates "to have any Port of Hastings rail link located in the Western Port Highway corridor". The WPH project is consistent with this approach as it allows for the railway line.

The Transport Framework specified in the MSS is shown in Figure 6. It identifies WPH, Thompsons Road, Ballarto Road and Cranbourne-Frankston Road as primary arterials. Hall Road, McCormicks Road and McClelland Drive are identified as secondary arterials and Wedge Road, Taylors Road, Potts Road, Centre Road and North Road are identified as collector roads.

### 3.2.4 Casey Planning Scheme

WPH is identified in the Municipal Strategic Statement (MSS) for the City of Casey as one of four highways linking the City of Casey to neighbouring municipalities. The WPH project is not mentioned in the MSS.

The Ultimate Transport Network specified in the MSS is shown in Figure 7. It identifies WPH as a high quality access controlled road and South Gippsland Highway, Glasscocks Road, Thompsons Road, Hall Road and Cranbourne-Frankston Road as divided roads.

Ballarto Road is identified as a future east-west road subject to the outcome of an EES. (NB. The outcome was that extension of Ballarto Road through the Royal Botanic Gardens Cranbourne is not possible due to adverse environmental impacts).

*Figure 5 Strategic Transport Framework for Greater Dandenong*

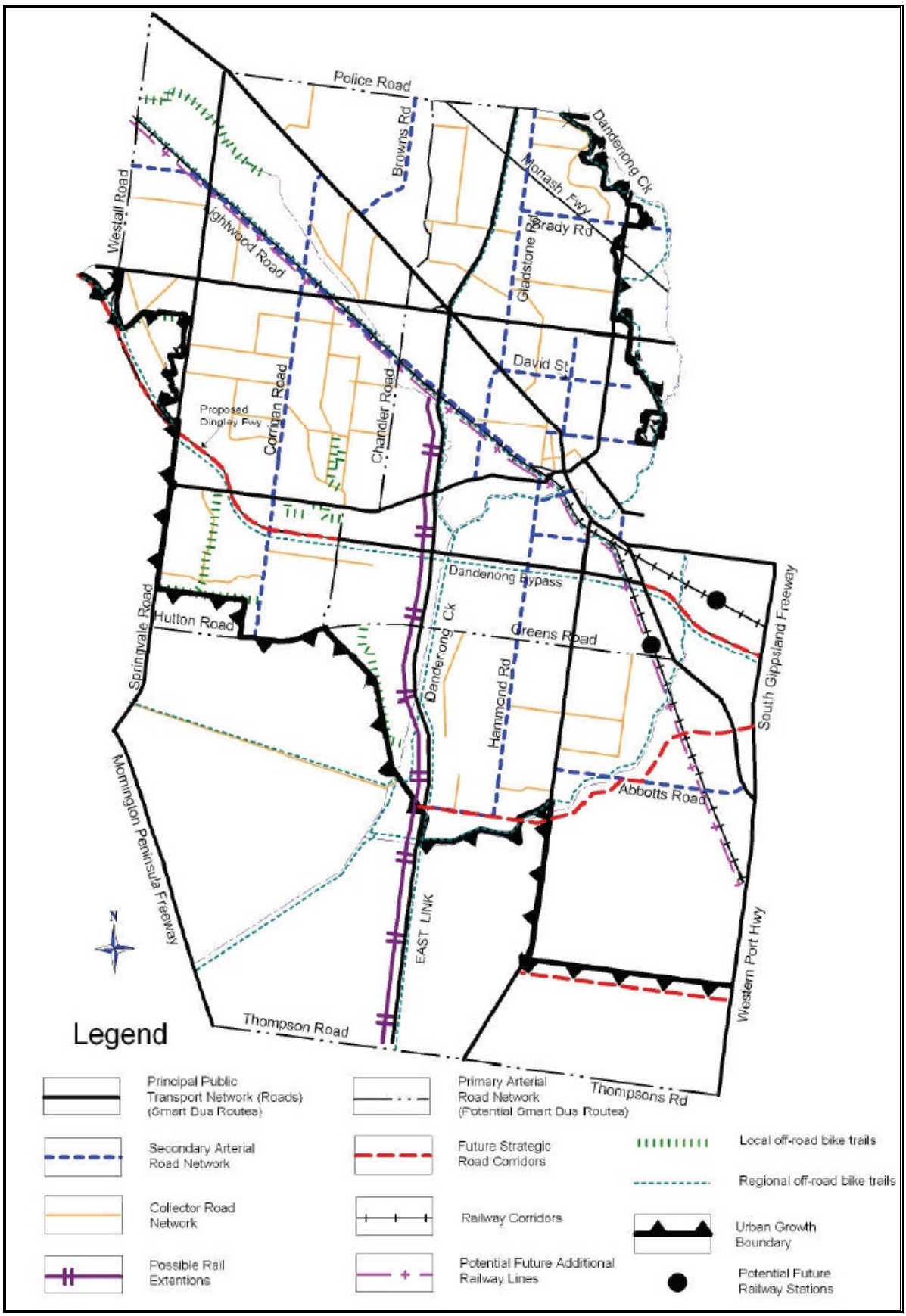


***Figure 6 Transport Framework for Frankston***

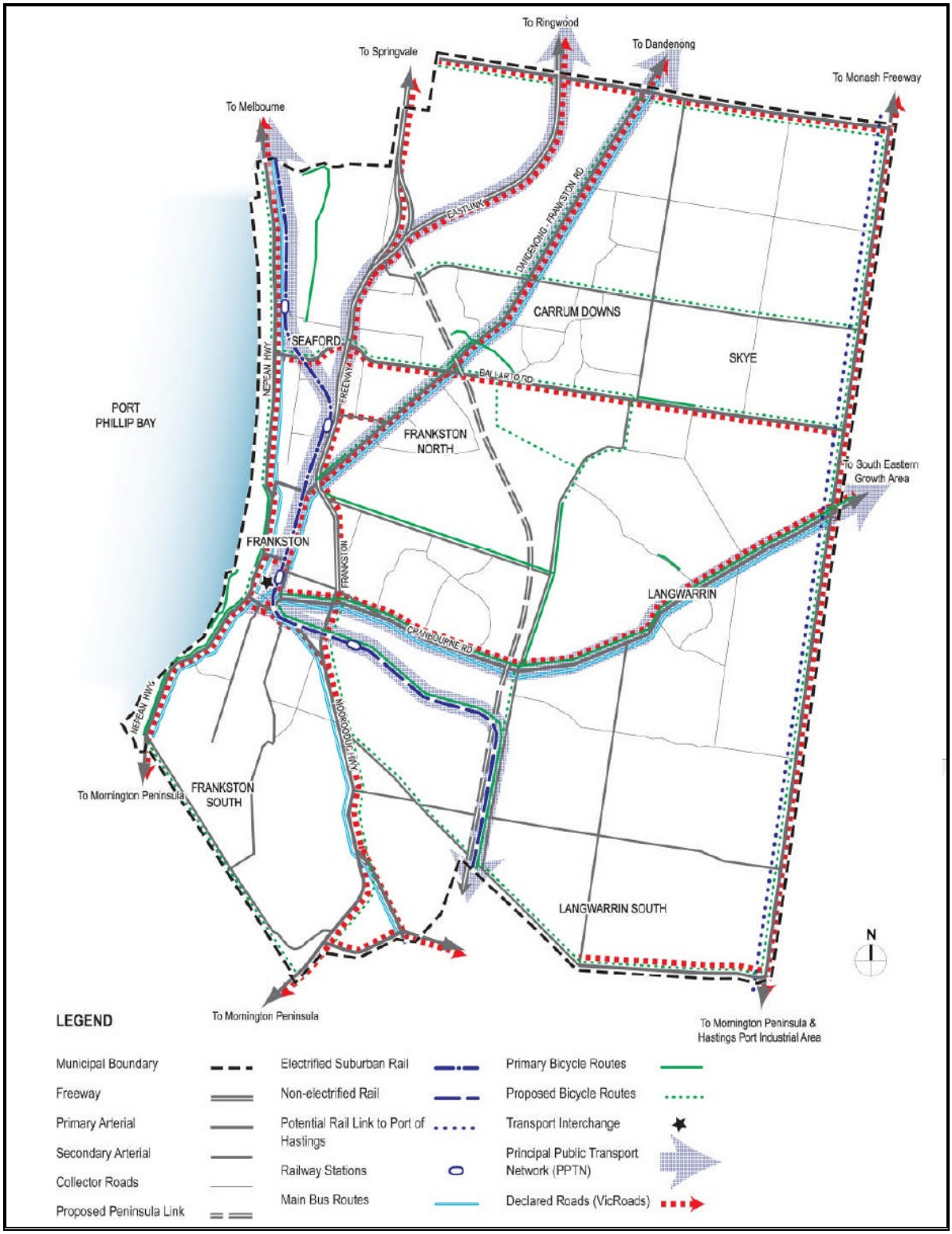
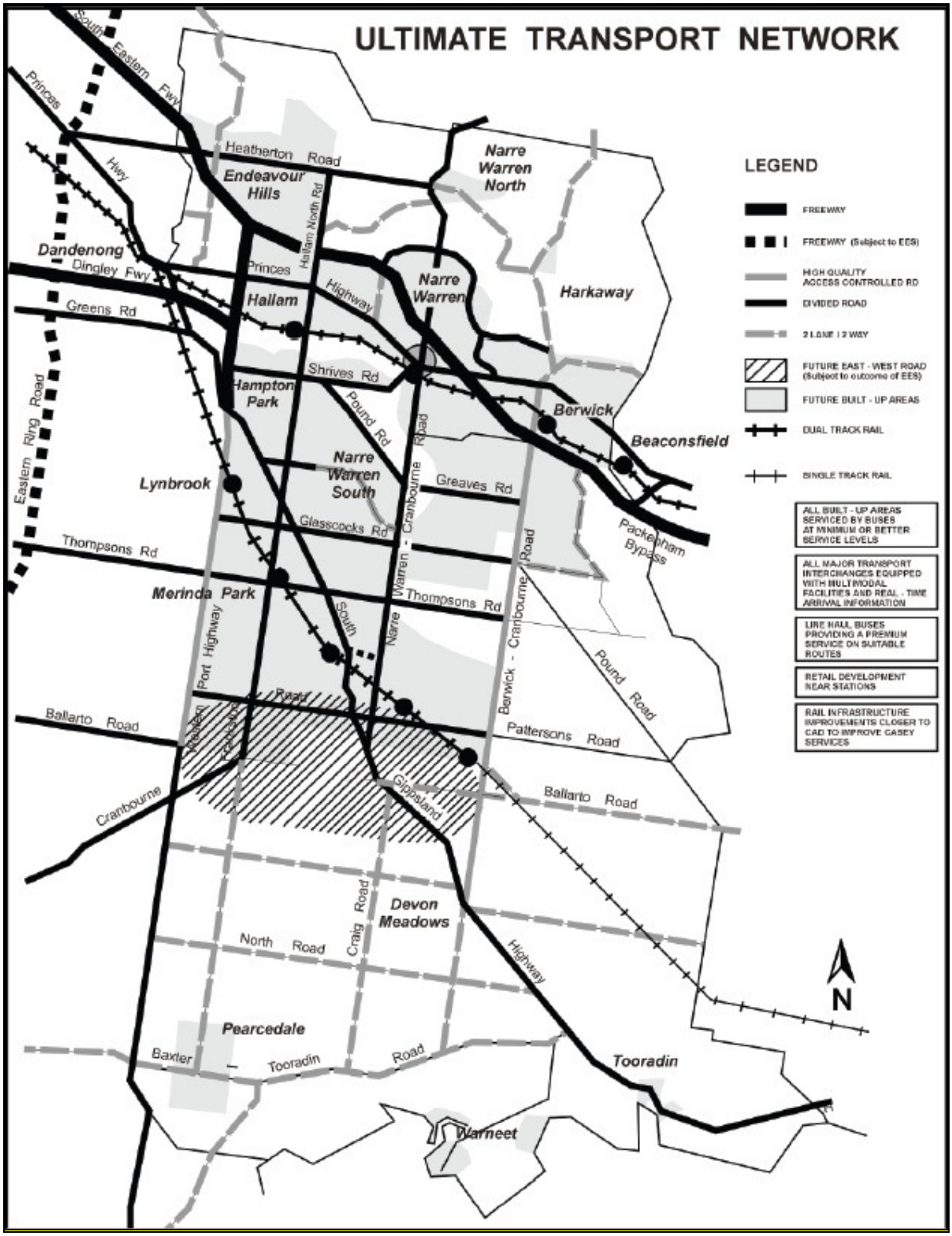


*Figure 7 Ultimate Transport Network for Casey*



## 3.3 State Land Use and Transport Strategies

### 3.3.1 Plan Melbourne

*Plan Melbourne (2014)* is the Victorian Government's vision for Melbourne to 2050. It addresses Melbourne's infrastructure, housing, employment and environmental challenges with an integrated approach to planning and development that includes land use, transport, social and community infrastructure.

*Plan Melbourne* highlights the future importance of the Port of Hastings to Victoria's economy, and the need to develop this port to supplement the capacity of the Port of Melbourne by the mid-2020's. The plan includes a short term initiative to accelerate the planning and development for the Port of Hastings.

The WPH project is consistent with *Plan Melbourne,* which identifies WPH as the primary road and rail connection to the Port of Hastings. The plan includes a short term initiative to preserve a transport corridor along the WPH for enhanced road and rail connections to the port. The progressive conversion of WPH to freeway standard along its entire length is proposed in the medium to long term.

The above initiatives are consistent with *Plan Melbourne's* objective to provide an integrated transport system connecting people to jobs and services, and goods to market. Such connections improve the efficiency and productivity of Melbourne and ensure that Victoria maintains its competitive advantage in freight and logistics.

### 3.3.2 Growth Corridor Plans

The *Growth Corridor Plans (2012)* are high level integrated land use and transport plans that provide a strategy for the development of Melbourne's four growth corridors over the coming decades.

The South East Growth Corridor is within the Cities of Casey and Cardinia and is abutted by WPH at its western edge. It seeks to achieve greater local job self-containment and proposes various employment areas, including an industrial area east of WPH between Thompsons Road and Hall Road.

The WPH project is consistent with the *South East Growth Corridor Plan*, which identifies WPH as a freeway as shown in Figure 8. It also identifies South Gippsland Highway, Glasscocks Road, Thompsons Road, Wedge Road, Hall Road, Ballarto Road and Cranbourne-Frankston Road as arterial roads. WPH and Thompsons Road are identified as key freight links and Cranbourne-Frankston Road is identified as a Principal Public Transport Route.

*Figure 8 South East Growth Corridor Plan*

### 3.3.3 Victoria – The Freight State

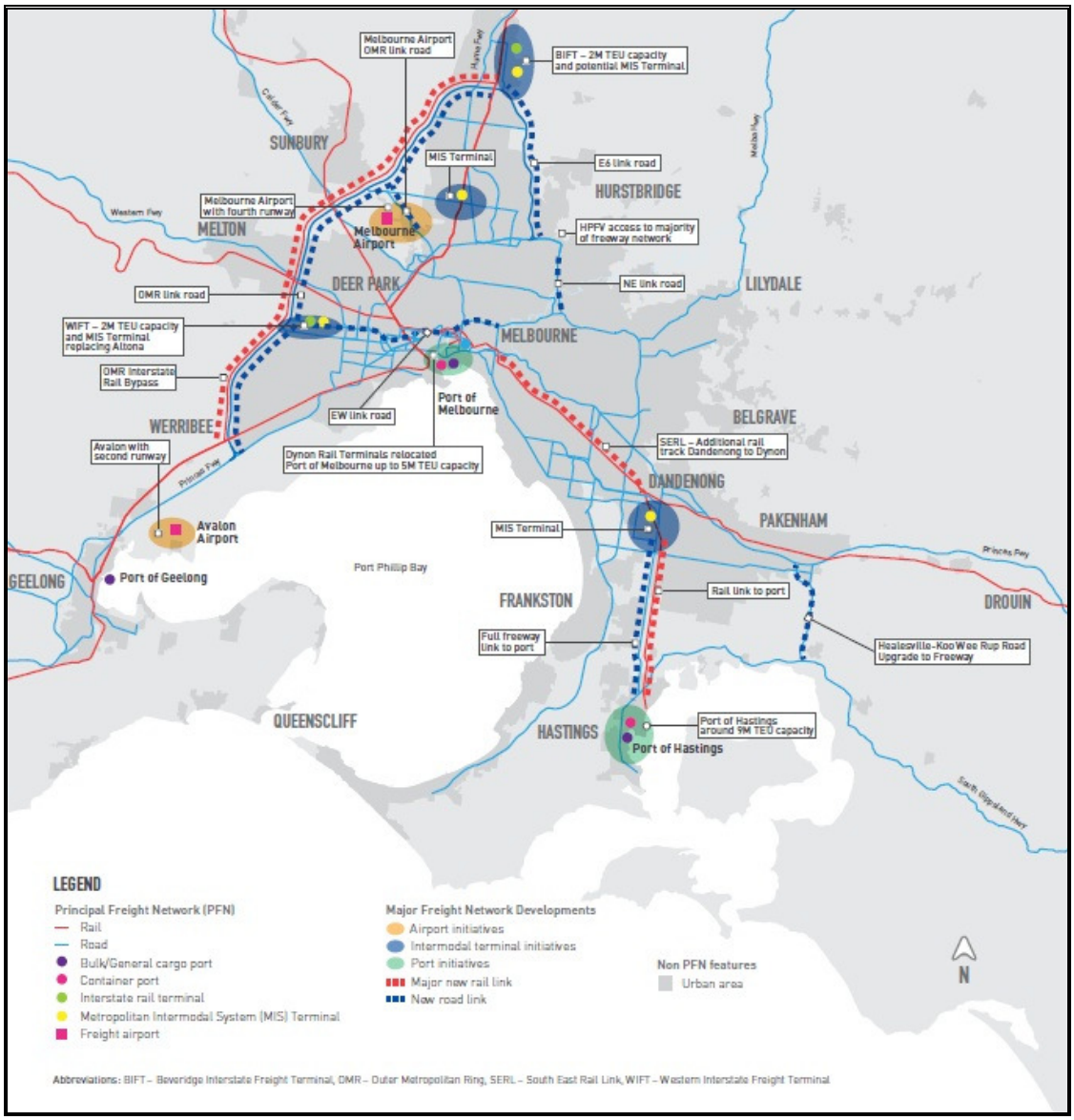
*Victoria - The Freight State (2013)* outlines the Government's long term strategy to improve freight efficiency, grow productivity and better connect Victorian businesses with their local, national and international markets.

The WPH project is consistent with the plan, including its long term freight network vision that includes the following components as shown in Figure 9:

- Port of Hastings is Victoria's main container port, with a capacity of nine million twenty foot equivalent units (TEU).
- WPH is upgraded to a freeway and includes a rail line to connect the Port of Hastings to the freeway and rail line networks.

Figure 9 also identifies WPH and Thompsons Road as part of the Principal Freight Network.

***Figure 9 Long Term Freight Network Vision***



## 3.4 Local Plans and Permits

The following Structure Plans, Development Plans and Planning Permits apply to land zoned for urban development, on the west side of WPH between South Gippsland Highway and Glasscocks Road and on the east side of WPH between South Gippsland Highway and Cranbourne-Frankston Road.

The discussion below only covers the more significant developments. Planning Permits for small developments, such as the service stations along WPH, are not discussed.

### 3.4.1 M1 Industry Park

VCAT Consent Order P3398/2002 (2002) applies to the subdivision of land west of WPH between South Gippsland Highway and the railway line and previously described as 15 Dandenong-Hasting Road.

The land is part of the M1 Industry Park and comprises various industrial and commercial developments including Blue Scope Lyasaght and NYK Logistics.

The VCAT Consent Order requires the following permit conditions:

- Access to be allowed between WPH and Monash Drive.
- No direct vehicle access between WPH and any allotment.

The above allowed intersection of WPH and Monash Drive is not consistent with the proposed conversion of WPH to freeway conditions.

VicRoads originally objected to the granting of a planning permit for the subdivision and the provision of access between WPH and Monash Drive. However, VicRoads had limited powers to restrict access, as WPH was not a freeway and access could be provided in a safe manner.

### 3.4.2 Dandenong South Industrial Area Extension

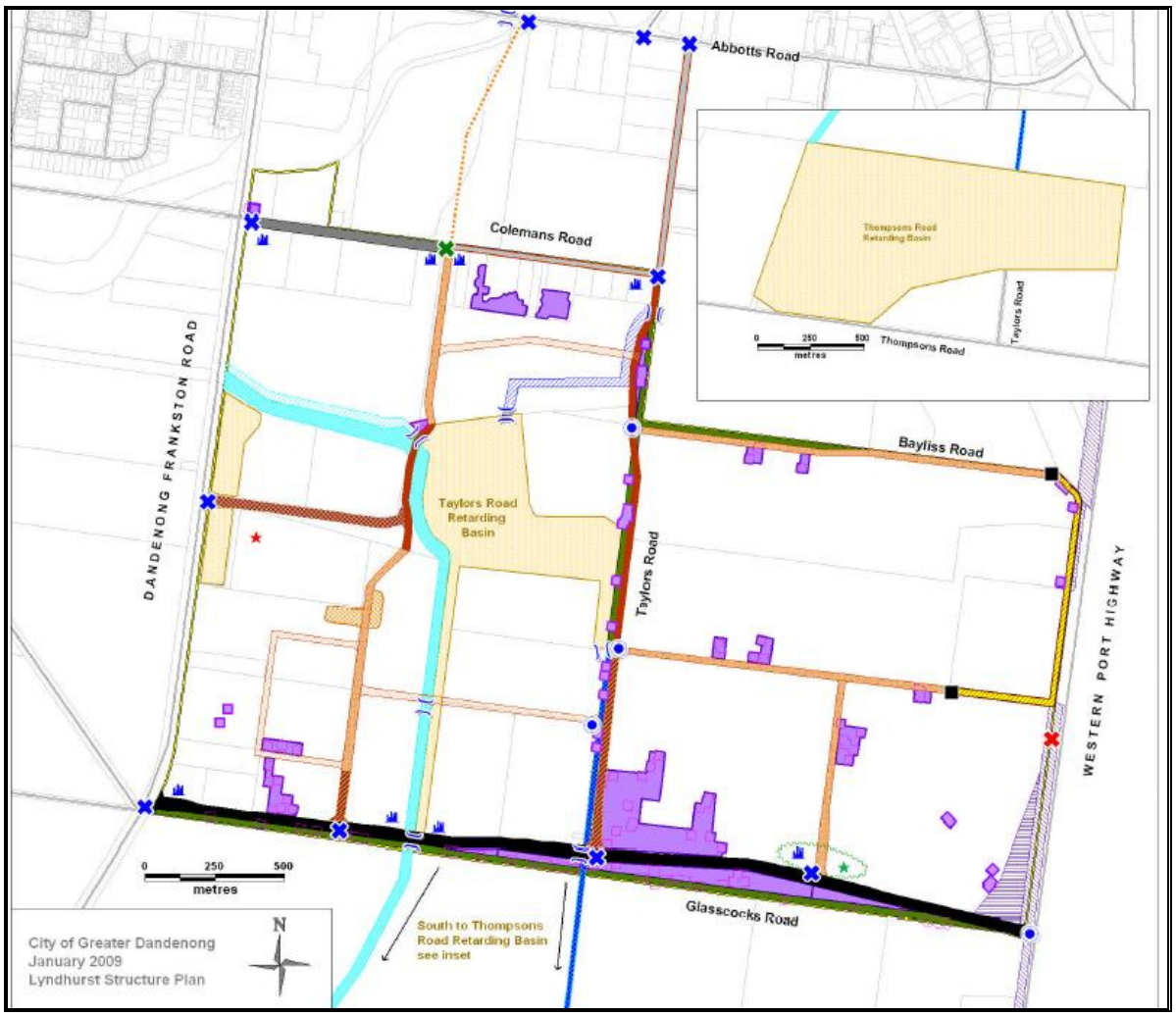
The *Dandenong South Industrial Area Extension Structure Plan (January 2009)* applies to land west of WPH between Bayliss Road and Glasscocks Road as shown in Figure 10. The land is proposed to comprise industrial development.

The Structure Plan was prepared on the basis of the following:

- WPH being upgraded to a freeway, with a grade separated interchange at Glasscocks Road.
- Closure of Bayliss Road at WPH.
- Temporary access between the land and WPH at Moreton Bay Boulevard.
- Construction (as part of development) of Glasscocks Road between Dandenong-Frankston Road and WPH as an interim two lane road.

The above proposals are consistent with the WPH project.

*Figure 10 Dandenong South Industrial Area Extension - Lyndhurst*




## 3.4.3 Lynbrook Business Park

Planning Permit P764/00 (2000) applies to the subdivision of land east of WPH between South Gippsland Highway and approximately 100m north of Northey Road and previously described as 550 South Gippsland Highway.

The land is part of the Lynbrook Business Park and comprises various light industrial and commercial developments. The Planning Permit requires the following:

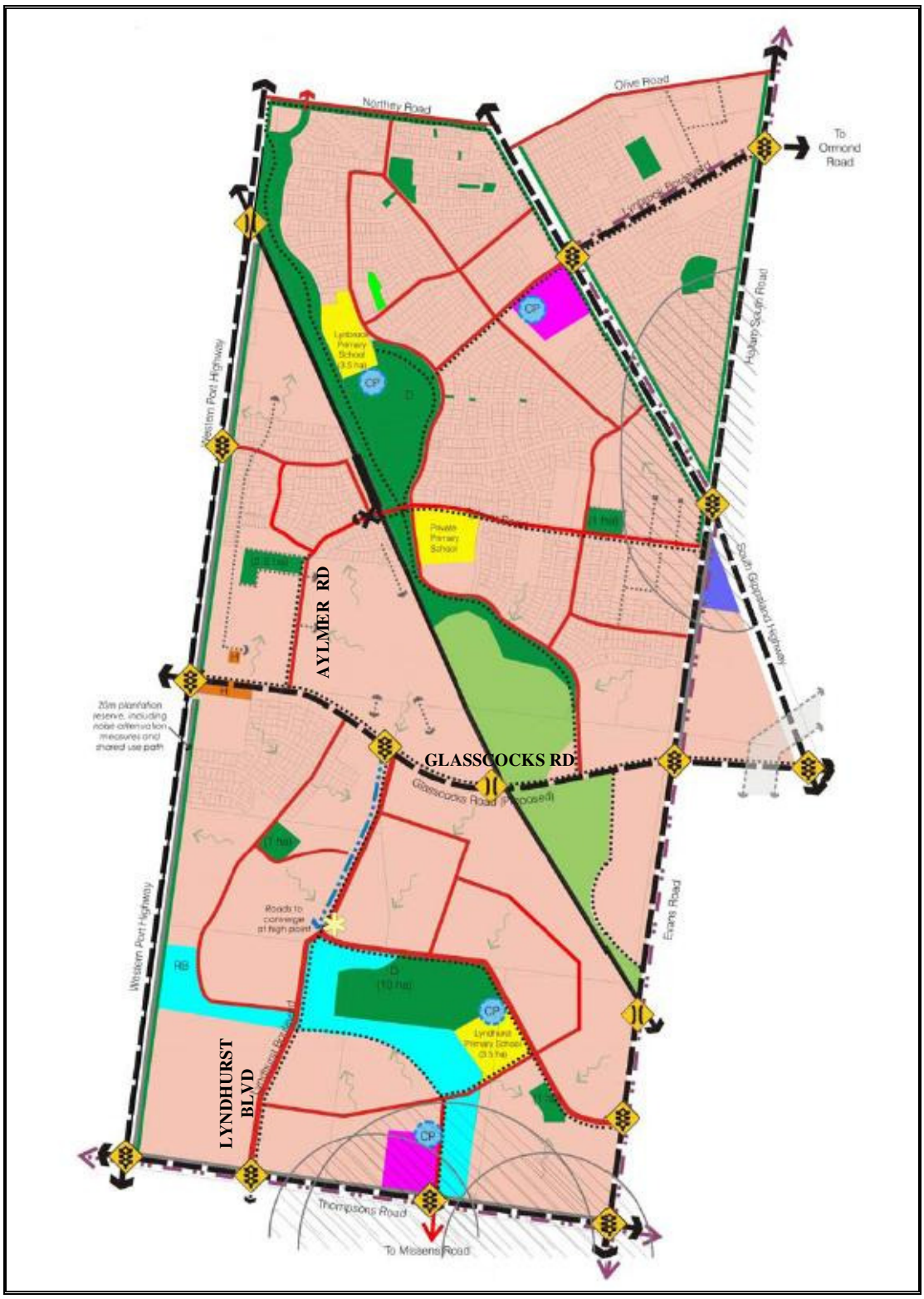
- No vehicular access across tree/plantation reserves (which are continuous along the east side of WPH).
- Construction of a signalised access to the subdivision at South Gippsland Highway (SGH)/Commercial Drive/McDowall Road.

Thus development was on the basis of access to SGH, rather than WPH.

### 3.4.4 Lynbrook and Lyndhurst

The *Lynbrook and Lyndhurst Development Plan (September 2013)* applies to land east of WPH between Northey Road and Thompsons Road (refer Figure 11). The land generally comprises existing and proposed residential development.

***Figure 11 Lynbrook and Lyndhurst Development Plan***



The Development Plan includes the following road network proposals:

- Upgrade of WPH to a six lane divided road.
- Uncontrolled intersection on WPH at Northey Road.
- Controlled intersections on WPH at Moreton Bay Boulevard, Glasscocks Road and Thompsons Road.

The above intersections of WPH with Northey Road and Moreton Bay Boulevard are not consistent with the proposed conversion of WPH to freeway conditions.

### 3.4.5 Cranbourne West Precinct

The *Cranbourne West Precinct Structure Plan (January 2010)* applies to land east of WPH between Thompsons Road and Ballarto Road (refer Figure 12).

The land is generally proposed to comprise industrial development north of Hall Road and residential development south of Hall Road. The primary arterial roads servicing the area are Western Port Highway, Thompsons Road, Hall Road, Evans Road and Cranbourne-Frankston Road.

The Structure Plan was prepared on the basis of the following:

- WPH being upgraded to a freeway, with access limited to grade separated interchanges at Thompsons Road, Wedge Road (northerly half diamond only) and Hall Road and an overpass of WPH at Ballarto Road.
- Investigation areas for future freeway interchanges and overpasses at Wedge Road, Hall Road and Ballarto Road being set aside to the satisfaction of VicRoads unless otherwise advised by VicRoads.
- Temporary access to WPH at Wedge Road and Ballarto Road and other locations as agreed by VicRoads.
- New north-south industrial/connector road, located approximately 300m to 400m east of WPH, to provide access to properties abutting WPH.

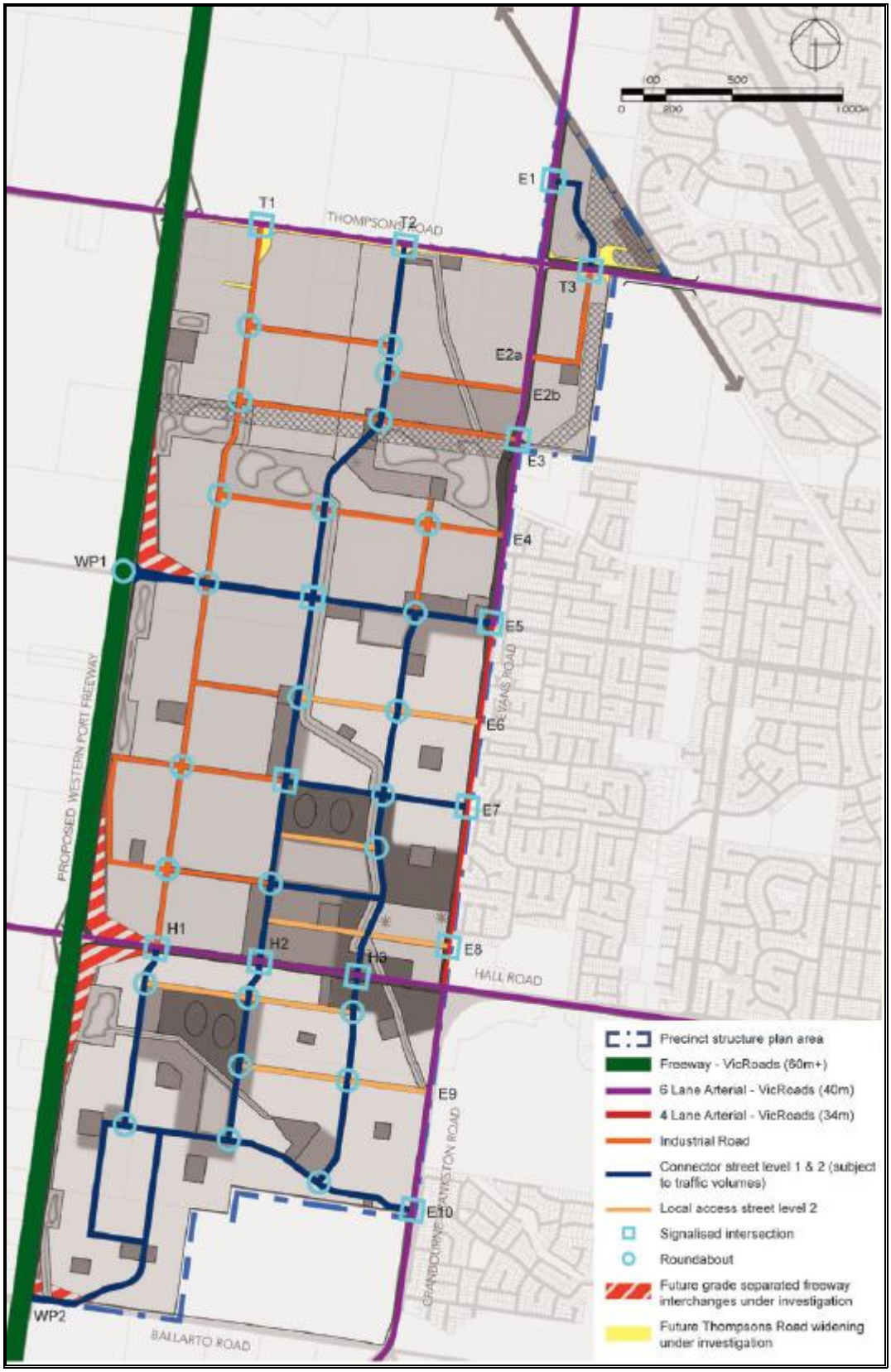
The above proposals are consistent with the WPH project. VicRoads has advised different land requirements at Wedge Road, Hall Road and Ballarto Road to the investigation areas.

### 3.4.6 Brompton Lodge Precinct

Land east of WPH between Ballarto Road and Cranbourne-Frankston Road was recently rezoned as Urban Growth Zone. A Precinct Structure Plan is currently being prepared to guide future development of the land for residential purposes.

VicRoads will require the structure plan to be consistent with the WPH project and its land requirements. Access to the development is proposed via a north-south road parallel to WPH and connecting with Ballarto Road and Cranbourne-Frankston Road at a suitable distance east of the WPH and its associated overpasses and/or interchanges.

***Figure 12 Cranbourne West Precinct Structure Plan***



## 3.5 VicRoads Guidelines

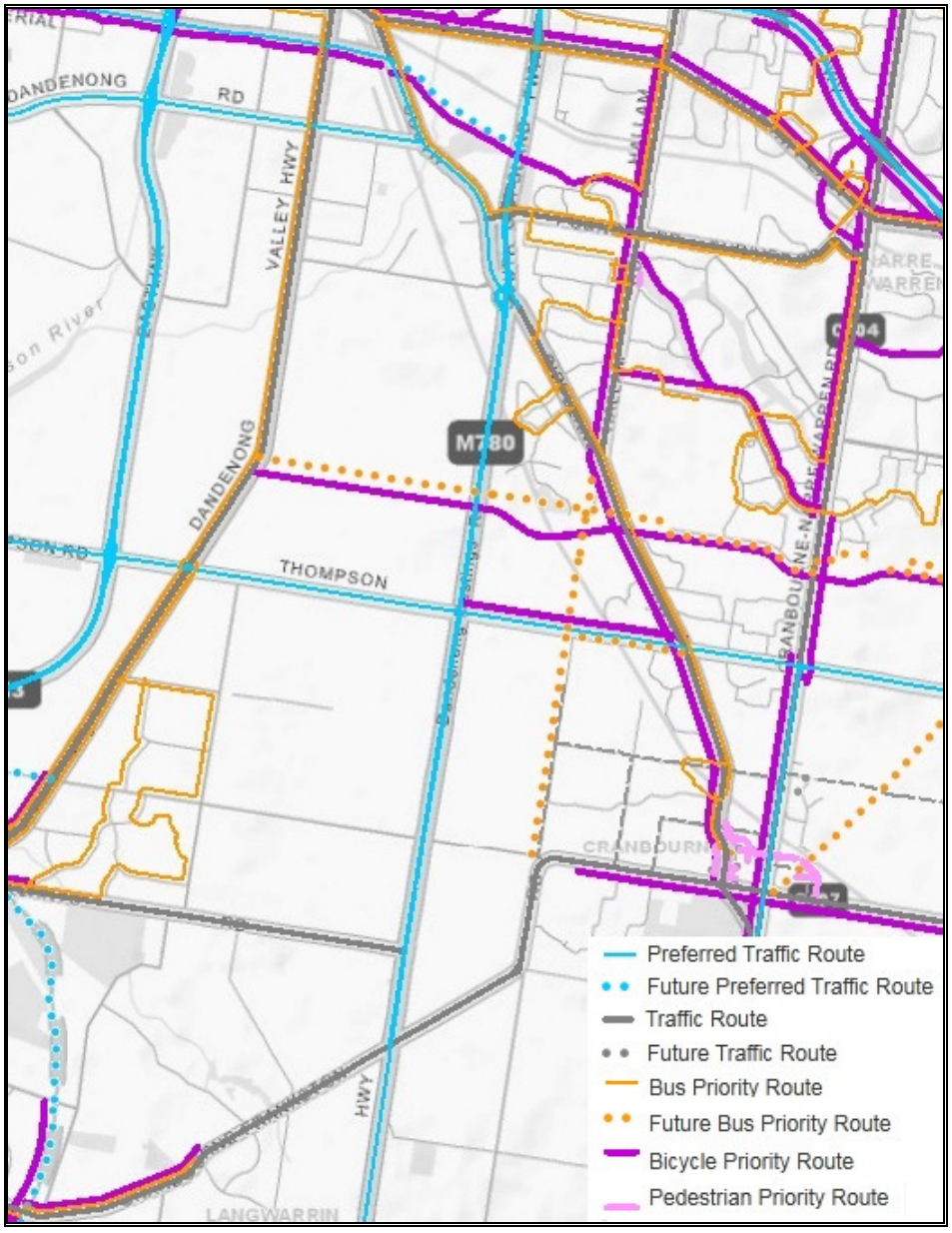
### 3.5.1 SmartRoads

VicRoads uses the SmartRoads approach to manage competing interests for limited road space by giving priority use of the declared road network to different transport modes at particular times of the day.

The SmartRoads Road Use Hierarchy designates WPH and Thompsons Road as Preferred Traffic Routes and Ballarto Road and Cranbourne-Frankston Road as Traffic Routes, as shown in Figure 13. The map will need to be amended to identify Hall Road as a Future Traffic Route, consistent with VicRoads' proposal to declare Hall Road as an arterial road in the future.

Glasscocks Road and Evans Road are identified as Future Bus Priority Routes.

***Figure 13 SmartRoads Road Use Hierarchy***



### 3.5.2 Access Management Policies

*VicRoads'* access management policies provide a framework for decision-making in relation to access to controlled access roads such as WPH.

Six Model Access Management Policies (AMP) apply different access objectives depending on the type and function of the controlled access road.

AMP1 applies to restricted access roads (such as freeways) and includes the following requirements:

- Intersections are generally grade separated (ramp interchanges) and limited in number.

- Direct access from adjacent land is incompatible with the key function of the road and will only be allowed in exceptional circumstances.

AMP1 indicates that consideration should be given to the following when determining whether access is warranted or desirable:

- Road safety.
- Operational efficiency of the road.
- Traffic generated by surrounding land uses.
- Proximity of other access points.

Other Model Access Management Polices of relevance to the project are as follows:

- AMP2 - Provides for safe and efficient movement of through traffic on higher speed and/or higher volume arterials roads in urban areas (such as Glasscocks Road, Thompsons Road, Hall Road and Cranbourne-Frankston Road).

- AMP4 – Provides for safe and efficient movement of through traffic on medium to higher speed and/or medium to higher volume arterials roads in urban or rural areas (such as Wedge Road and Ballarto Road).

AMP2 and AMP4 are relevant to the arterial roads crossing WPH and limit:

- Full movement access to side roads (intersecting with these arterial roads) to signalised or roundabout controlled intersections at a minimum spacing of 800m.

- Access to other side roads to T-intersections, located a minimum of 200m from adjacent intersections and accommodating no more than left and right turn entry (via dedicated lanes) to the side road and left turn exit from the side road (ie. right turn exit from the side road not permitted).

- Access to properties to service roads or left in/left out driveways, located a minimum of 200m from adjacent intersections.

### 3.5.3 Freeway Service Centre Guidelines

As discussed in Section 3.5.2, VicRoads only allows access between freeways and adjacent land in exceptional circumstances. In the past, such circumstances have included freeway service centres.

Proposals for the development of freeway service centres are subject to the same planning processes and requirements as other commercial developments. Councils are responsible for the planning aspects, including assessing development applications and granting development permits. VicRoads as a referral authority is responsible for granting access to and from the freeway.

Clause 52.30 (Freeway Service Centre) of the Victorian Planning Provisions discusses the requirements to be met for freeway service centres and the basis upon which development applications should be assessed. It identifies the services and facilities that must be, and must not be, provided at a freeway service centre and highlights that access must be designed in accordance with the requirements of VicRoads.

Guidelines of relevance to the assessment of development applications include:

- Department of Infrastructure, Freeway Service Centres Guidelines, May 1997.
- Department of Infrastructure, Metropolitan Freeway Service Centres, August 2000.
- VicRoads, Victoria Rest Area Strategy, 2010.

The above guidelines highlight the following matters of relevance to the assessment of development applications for freeway service centres:

- There should be an identifiable need for the services and facilities that will be provided by the service centre.
- Exemption from the general prohibition to freeway access is justified if the service centre improves road safety by encouraging drivers to stop and rest.
- Service centres should be provided at appropriate intervals within the network.
- Presence of the service centre must not affect the safe operation of the freeway.
- Service centres must have an entrance from and an exit to the freeway.
- Entry and exit ramps to service centres must satisfy current freeway design guidelines, including spacing between ramps.
- Service centres should be located so that drivers are aware of their presence in advance, and advance advisory signs should not be confusing.
- Access to and from service centres via freeway interchanges may be considered where alternatives are not available.

Existing service stations affected by the upgrade of a road to a freeway are subject to assessment by VicRoads as to whether access will be allowed. These cases are assessed on a case by case basis, considering the above guidelines and any other relevant matters.

## 3.6 Project Objectives

The following objectives have been developed for the WPH project, considering the discussion in Section 3.

*Transport*

- Provide a transport facility that can safely and efficiently accommodate the long term north-south and east-west traffic demands of the region.
- Allow for the provision of a rail line in the WPH median.
- Promote sustainable transport modes by integrating, connecting and facilitating the expansion of existing and proposed pedestrian, cyclist and bus networks.
- Mitigate local accessibility impacts by ensuring that safe and convenient alternative access routes are available to properties abutting or near WPH.
- Ensure that construction can be undertaken in a manner that minimises traffic impacts.

*Economic*

- Be economically viable and provide a net community benefit.
- Support population growth and economic development in the region, particularly associated with the Casey-Cardinia Growth Area, Dandenong South Industrial Area and Port of Hastings.

*Social*

- Complement, support and integrate with existing and proposed land use.
- Minimise impact to existing residences and businesses along WPH.
- Minimise the extent of land acquisition, particularly in developed urban areas and urban growth areas.
- Maintain landscape and scenic values in rural areas.
- Avoid or minimise impact to cultural heritage sites, particularly sites of high significance.

*Environment*

- Avoid, minimise or offset impact to native flora and fauna, particularly the habitats of threatened or endangered species.
- Incorporate measures to mitigate traffic noise and air quality impacts in accordance with relevant policies.

# 4. TRAFFIC DEMANDS

Various traffic modelling was undertaken during 2010 to 2012 as described below to determine future traffic volumes along WPH and its cross roads and the road and interchange forms required to accommodate such volumes. The project scope was based on the outcomes of this modelling.

## *4.1 Initial Network Modelling*

Ashton Traffic Services (ATS) undertook network modelling in 2010, using a model based on the former Department of Infrastructure's metropolitan model, to determine weekday traffic volumes in 2035 and/or beyond. The network modelling provided the basis for the initial development of the project, with further modelling undertaken as discussed in Section 4.3 to confirm project proposals.

ATS' traffic model:

- Assumed full development of the land within the urban growth boundary assumed at that time.
- Considered various road network options for WPH, including arterial road and freeway scenarios and various interchange location scenarios.
- Considered two trade scenarios for development of the Port Hastings, based on previous rather than current planning for the port, as follows:
  - 2035 high growth trade scenario detailed in the *Port of Hastings Land Use and Transport Strategy (Port of Hastings Corporation, August 2009)*, including 2.5 million TEU (twenty foot equivalent unit) of international container trade.
  - Possible ultimate long term trade scenario, including 7.0 million TEU of international container trade (which may occur beyond 2035).
- Manually adjusted the volume forecasts from the model to account for trucks generated by the Port of Hastings, including allowance for 80% of containers by road (20% by rail) and consideration of three truck distribution scenarios.

ATS's conclusions from the modelling were as follows:

- WPH should be a freeway rather than an arterial road to avoid undesirably high volumes being experienced on the parallel Evans Road.
- The freeway should comprise six lanes rather than four lanes to avoid excessive congestion being experienced on WPH.

The forecast weekday volumes for the WPH project and the ultimate long term trade scenario at the Port of Hastings are shown in Figure 14 and highlight that WPH is expected to carry 80,000 to 115,000 veh/day between South Gippsland Freeway and Cranbourne-Frankston Road and less than 60,000 veh/day south of Cranbourne-Frankston Road. The volumes shown include 8,000 port trucks/day (two-way) along WPH, assuming 20% of containers by rail, 60% of Port trucks along WPH and 40% of Port trucks along Peninsula Link and other roads.

The peak hour volumes shown in Figure 14 are based on volumes in the peak and counter peak directions being 9% and 6% respectively of the daily volumes.

## 4.2 Initial Traffic Analyses

AECOM undertook capacity and level of service analyses in 2010 to determine design peak hour volumes for 2035 (and beyond) and the road and interchange forms required to accommodate such volumes.

The design volumes for WPH were based on the weekday traffic volume forecasts from the ATS traffic model discussed in Section 4.1. Various factors were used to convert the weekday volumes into peak hour car and truck volumes and peak hour passenger car units.

A design level of service of D, corresponding to traffic operation close to the limit of stable flow and severely restricted, was adopted to determine the number of traffic lanes required on WPH and its cross roads.

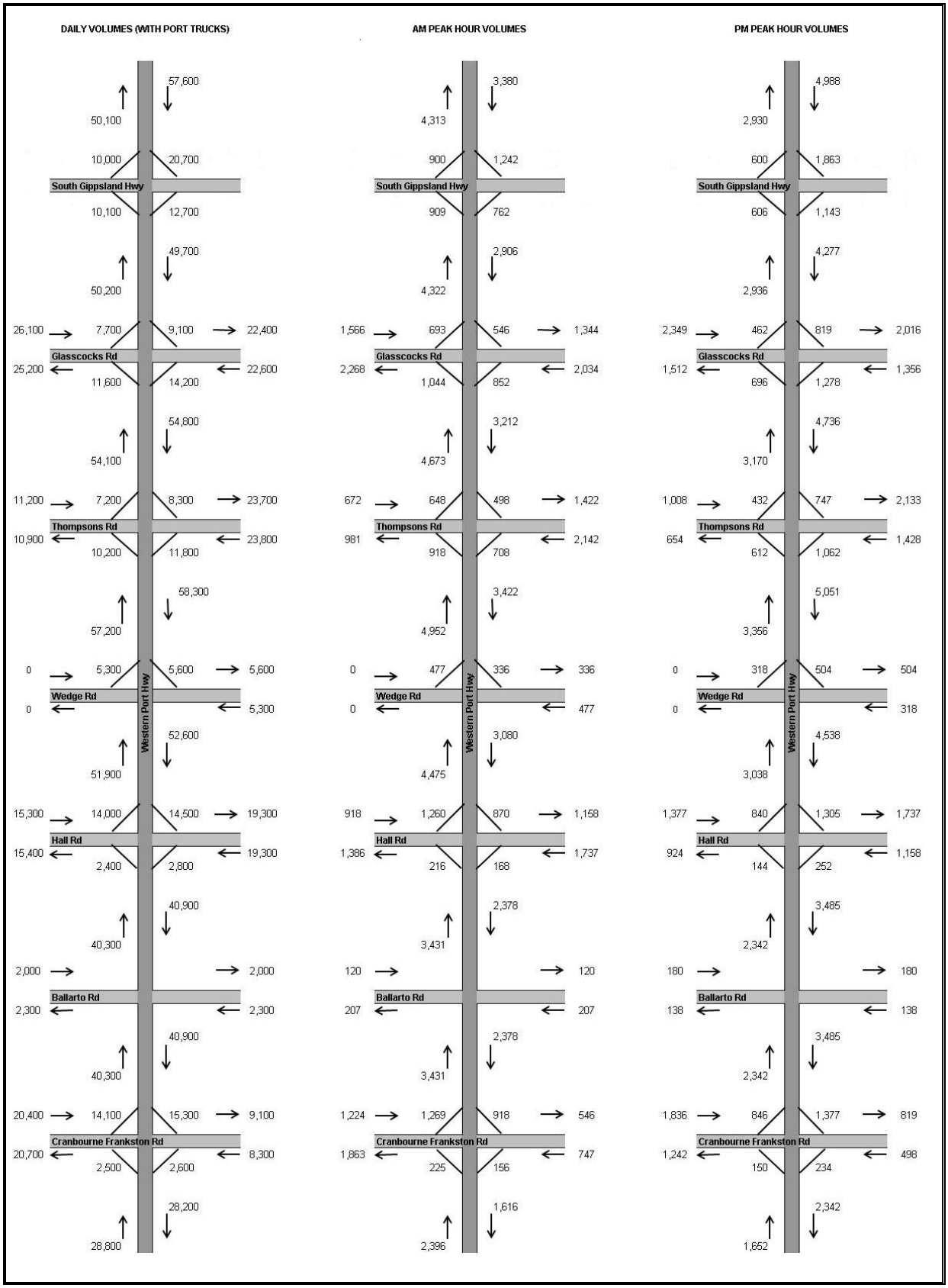
AECOM concluded that the following road and interchanges forms were required to accommodate ultimate traffic demands:

- Freeway conditions along WPH between South Gippsland Freeway and Cranbourne-Frankston Road, with three lanes in each direction to accommodate midblock demands plus one auxiliary lane in each direction at critical locations to accommodate ramp merge/diverge demands.
- Three lanes in each direction on Glasscocks Road, Hall Road and Cranbourne-Frankston Road.
- Two lanes in each direction on Wedge Road and Ballarto Road (at WPH).
- Single point interchanges at Glasscocks Road, Hall Road and Cranbourne-Frankston Road and a northerly half diamond at Wedge Road.

AECOM highlighted the following:

- Failure to upgrade WPH to freeway conditions results in undesirably high volumes on secondary arterial roads such as Evans Road.
- Southerly ramps are not justified at Wedge Road, considering the very low traffic volumes forecast by ATS.
- Provision of an overpass at Ballarto Road (preferred option) does not significantly affect traffic volumes and operation at adjacent interchanges, compared to the option of providing a northerly half diamond interchange at Ballarto Road.

***Figure 14 2035+ Volumes (Ultimate Port) – Ashton Traffic Services***




***Notes: 1. Volumes shown in vehicles/day or vehicles/hour***

***2. Volumes assume ultimate development of the Port of Hastings in 2035, which is optimistic***

AECOM also undertook SIDRA analyses to determine the number of turn lanes required at each interchange.

AECOM's concept design plans for the WPH project have been based on the above analyses and the additional analyses discussed in Section 4.3.

## 4.3 Supplementary Modelling and Analyses

VicRoads undertook additional network modelling and traffic analyses in 2011 and 2012 to confirm the road and interchange forms required along WPH to accommodate future traffic volumes in 2031 and 2046. The network modelling was based on the Melbourne Integrated Transport Model (MITM), which was the best available model at the time.

### *a) 2046 Modelling and Analysis*

VicRoads' network model provided two hour volumes in the AM peak period for 2046. AM peak hour volumes and weekday volumes were assumed to be 0.5 and 7.0 times the AM two hour volumes obtained from the model.

The model was based on assumptions at the time in relation to full development of the land within the urban growth boundary and ultimate development of the Port of Hastings. It was assumed that the port would handle approximately 7.5 million TEU of container trade. The 2046 timeframe adopted by VicRoads for ultimate development of the Port Hastings was more realistic than the 2035 timeframe adopted by ATS, however, it is still likely to be optimistic. Also a higher container trade may now be likely.

The forecast weekday volumes for 2046 for the WPH project are shown in Figure 15 and highlight that WPH is expected to carry 105,000 to 120,000 veh/day between South Gippsland Freeway and Hall Road, around 95,000 veh/day between Hall Road and Cranbourne-Frankston Road and less than 70,000 veh/day south of Cranbourne-Frankston Road.

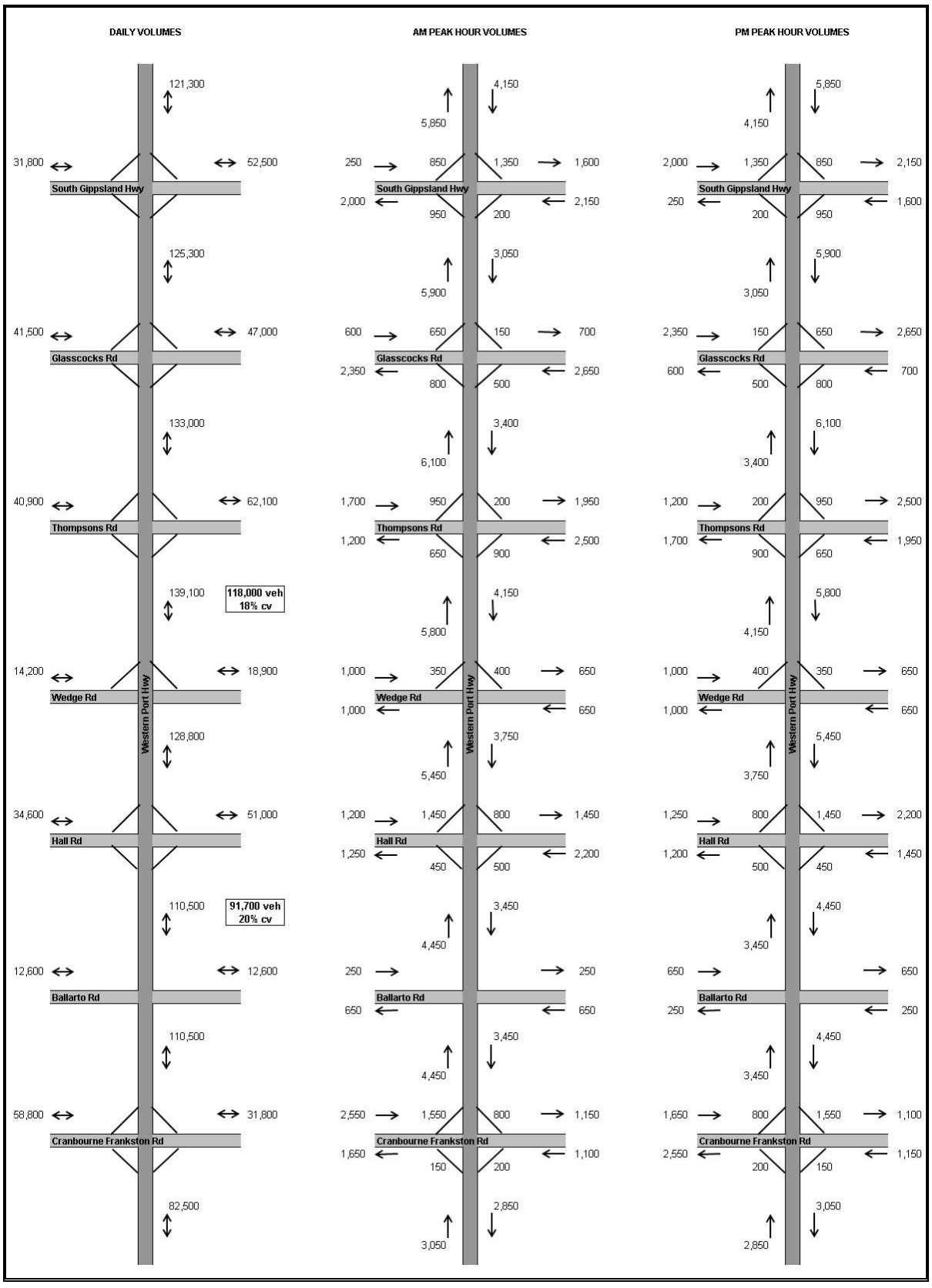
ATS' and VicRoads' models are based on different inputs and assumptions and cannot be readily compared. Despite the differences between the models there is reasonable correlation between the forecast volumes for WPH in each model. Higher volumes are forecast at the southern end of WPH in VicRoads' model, as VicRoads assumed a freeway south of Cranbourne-Frankston Road and ATS assumed an arterial road. The models also assumed different road networks along Wedge Road and Ballarto Road.

There are some differences in the forecast volumes on the interchange ramps in each model. Both models show that the northerly ramps at Hall Road and northerly ramps at Cranbourne-Frankston Road carry the highest volumes.

Level of service analyses for freeway midblock sections and interchange ramps indicate the following:

- Four freeway lanes are generally required in each direction along WPH between South Gippsland Highway and Cranbourne-Frankston Road to provide adequate through capacity and ramp merge/diverge capacity, particularly due to high ramp volumes and/or close interchange spacing.

## *Figure 15 2046 Volumes (Ultimate Port) – VicRoads*




***NB. Volumes shown in passenger car units/day or hour (unless otherwise shown), which are 5% to 20% greater than the same demand expressed in vehicles/day or hour (percentage amount varies for each road)***

- Three lanes are required in each direction on WPH south of Cranbourne-Frankston Road to provide adequate capacity under freeway or arterial road conditions.

It is estimated that the above quoted volumes on WPH would be reduced by around 10,000 veh/day if the port development did not proceed. Whilst the volume reduction would provide some improvement in traffic operation, the volumes along WPH would still be very high and warrant the provision of a freeway.

The network modelling shows that the traffic demands of the southern eastern suburbs and Mornington Peninsula justify freeway conditions along both WPH (between South Gippsland Freeway and Cranbourne-Frankston Road) and East Link – Peninsula Link (EL-PL). The two roads largely service different catchments, with WPH attracting more traffic from Hastings and the urban growth area east of WPH, and EL-PL attracting more traffic from Mornington Peninsula.

Provision of a six to eight lane freeway on WPH does not necessarily require a significant (and unattainable) increase in capacity on Monash Freeway. The network modelling shows that a significant volume of traffic uses the Princes Highway southerly ramps and proposed Dingley Arterial southerly ramps, rather than Monash Freeway. Hence six lanes may be adequate on South Gippsland Freeway immediately south of Monash Freeway and ten lanes may be adequate on Monash Freeway west of South Gippsland Freeway, which can both be accommodated by widening of the existing cross-sections within the available road reserve.

### *b) 2031 Modelling*

Network modelling was also undertaken for 2031, to determine volumes at the possible time of completion of both the WPH project and the first stage development of the Port of Hastings. The 2031 timeframe is generally consistent with current development proposals for the port.

The modelling shows that the existing road network cannot accommodate north-south demands in 2031 and that WPH and several parallel north-south arterial roads experience volume/capacity ratios in excess of 1.0 and in some cases in excess of 1.2 as shown in Figure 16. The upgrade of WPH to freeway conditions better accommodates north-south demands and relieves parallel roads.

As shown in Figure 17 and Table 1, the WPH project attracts an additional 25,000 to 45,000 veh/day to the WPH compared to the "without project" option. WPH is forecast to carry around 70,000 to 95,000 veh/day in 2031 following its upgrade to a freeway.

Comparison of traffic volumes across the network, as shown in Table 1, indicates that the WPH project is expected to have the following impacts on other roads:

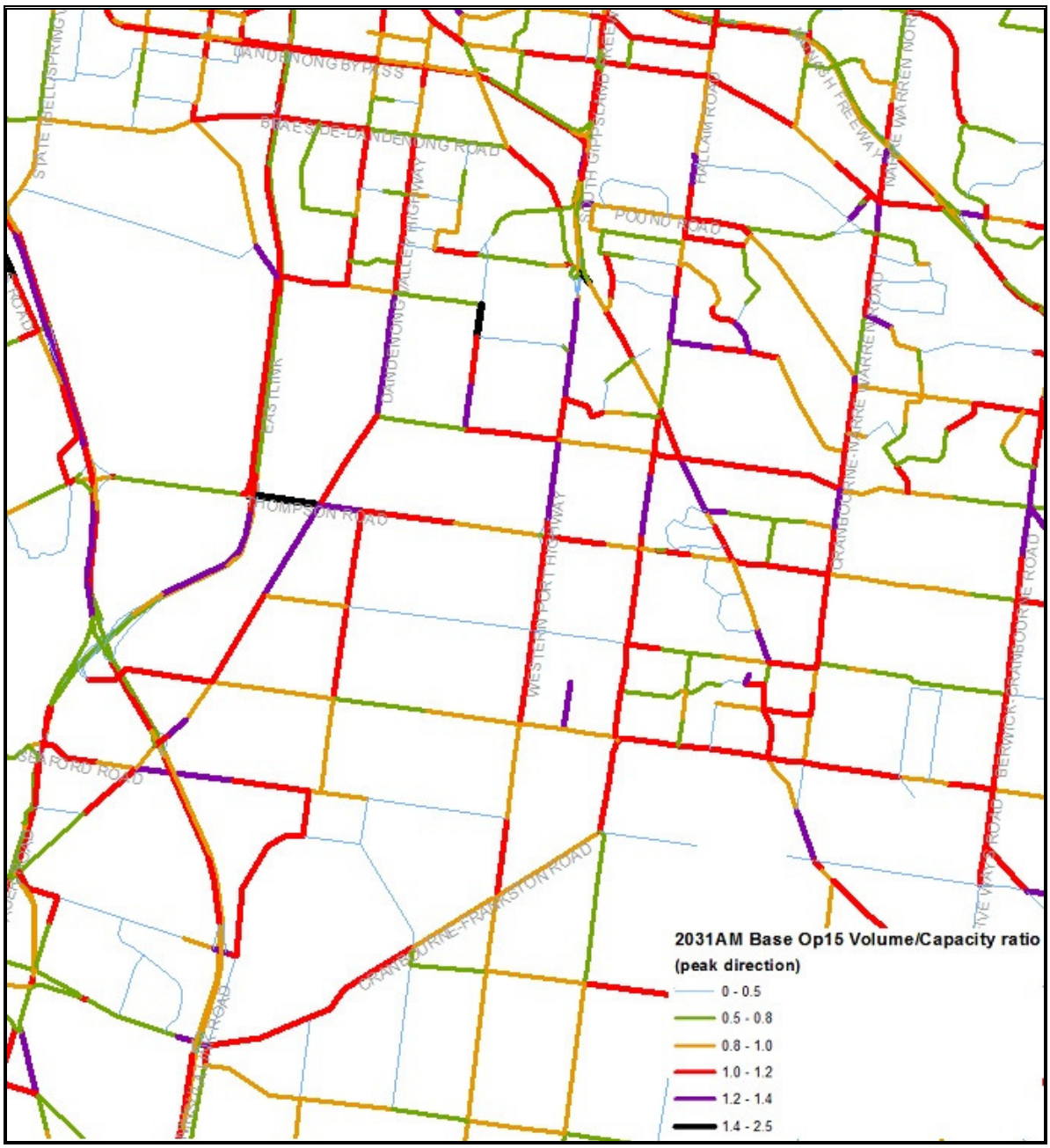
- Reduce volumes on parallel arterial roads, including East Link, Dandenong-Frankston Road, Evans Road, South Gippsland Highway and the northern part of McCormicks Road.

- Increase volumes on some arterial roads that cross and interchange with WPH (NB. Interchange design has allowed for the upgrade of these roads as necessary to accommodate future volumes).

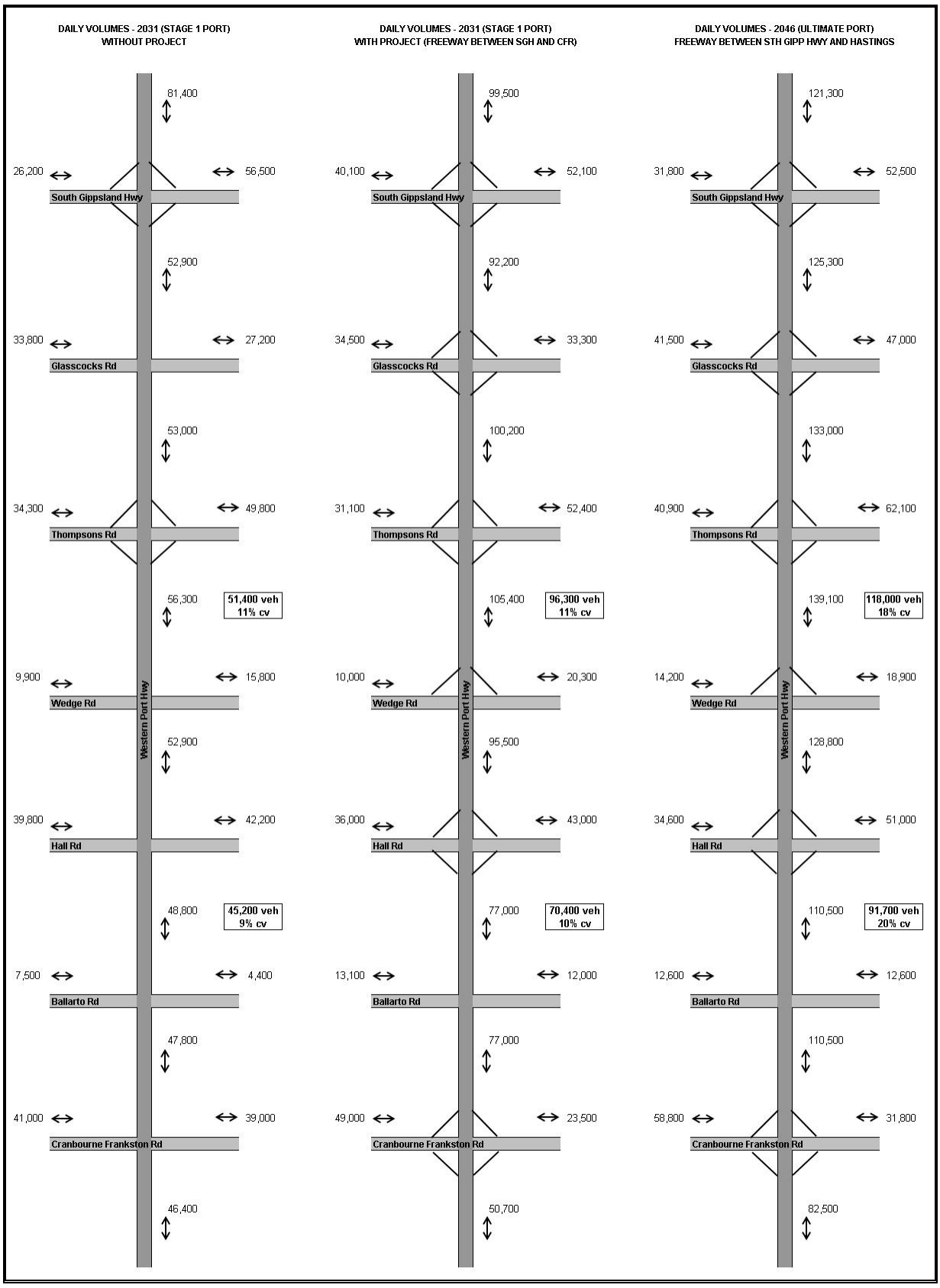
- No increase in volume on undeclared roads parallel to WPH affected by the closure of access between WPH and Ballarto Road, including McCormicks Road, McClelland Drive and Potts Road.

- Negligible increase in volume on arterial roads near the Frankston Activity Centre.

***Figure 16 2031 Volume Capacity Ratio***



## *Figure 17 2031 vs 2046 Volumes – VicRoads*




***NB. Volumes shown in passenger car units/day (unless otherwise shown), which are 5% to 20% greater than the same demand expressed in vehicles/day or hour (percentage amount varies for each road)***

***Table 1 2031 Volume Changes due to WPH Project***

| Road | 2031 Daily Volume | | |
|---|---|---|---|
| | **Without Project** | **With Project** | **Difference** |
| ***North-South Roads*** | | | |
| South of Thompsons Rd | | | |
| • WPH | 56,300 | 105,400 | + 49,100 |
| • Nepean Hwy | 52,200 | 49,800 | - 2,400 |
| • Mornington Peninsula Fwy | 127,500 | 123,600 | - 3,900 |
| • East Link | 114,200 | 107,500 | - 6,700 |
| • Dandenong-Frankston Rd | 46,700 | 40,400 | - 6,300 |
| • McCormicks Rd | 20,300 | 14,100 | - 6,200 |
| • Evans Rd | 22,000 | 21,100 | - 900 |
| • South Gippsland Hwy | 57,600 | 52,000 | - 5,600 |
| South of Hall Rd | | | |
| • McCormicks Rd | 13,700 | 11,400 | - 2,300 |
| South of Ballarto Rd | | | |
| • McClelland Dve | 21,200 | 19,500 | - 1,700 |
| • Potts Rd | 4,900 | 2,000 | - 2,900 |
| ***East-West Roads*** | | | |
| West of WPH | | | |
| • Glasscocks Rd | 33,800 | 34,500 | + 700 |
| • Thompson Rd | 34,300 | 31,100 | - 3,200 |
| • Wedge Rd | 3,400 | 3,500 | + 100 |
| • Hall Rd | 39,800 | 36,000 | - 3,800 |
| • Ballarto Rd | 7,500 without Ballarto Rd extension between WPH and CFR | 13,100 with Ballarto Rd extension between WPH and CFR | + 5,600 increase due to Ballarto Rd extension not WPH project |
| • Cranbourne-Frankston Rd | 41,000 | 49,000 | + 8,000 |
| East of WPH | | | |
| • Wedge Rd | 15,800 | 21,300 | + 5,500 |
| East of East Link | | | |
| • Thompson Rd | 53,600 | 48,900 | - 4,700 |
| East of Frankston Fwy | | | |
| • Dandenong-Frankston Rd | 33,800 | 33,700 | - 100 |
| • Cranbourne-Frankston Rd | 32,800 | 33,100 | + 300 |

## 4.4 WPH Cross-Section and Alignment Options

Various options for the WPH cross-section have been identified and assessed as shown in Table 2. The options range from an arterial road with at-grade intersections and no allowance for a rail line, to a freeway with an urban cross-section and allowance for a rail line.

As discussed in Sections 3.2, 3.3.1 and 3.3.3, the *State Planning Policy Framework, Plan Melbourne* and *Victoria – The Freight State* require planning to allow for the development of the Port of Hastings and the protection of the WPH corridor to link the Port to the broader road and rail network. The preferred cross-section option for the WPH project is consistent with these requirements and comprises the following:

- Freeway along WPH, with eight lanes north of Cranbourne-Frankston Road and six lanes south of Cranbourne-Frankston Road to accommodate forecast traffic demands as discussed in Section 4.3.

- Allowance for a rail line generally in the WPH median, with an urban (narrow) rather than rural (wide) freeway cross-section adopted to minimise property and environmental impacts.

The adopted cross-section for WPH is consistent with current design standards, and includes 3.5m wide traffic lanes and 3m wide shoulders. The additional 15m width provided for the rail line accommodates two pairs of tracks, a refuge zone for rail staff and adequate clearance to any overpass piers in the median.

Various options for the horizontal and vertical alignment of WPH and its cross roads have been identified and assessed, primarily in the context of the interchange proposals as discussed in Section 5. The preferred option comprises the following:

- Realignment of WPH to the west as necessary to avoid impact to existing urban development east of WPH between South Gippsland Highway and Thompsons Road.

- Generally straight alignment along WPH south of Thompsons Road to provide best traffic operation, with greater acquisition of land to the west between Thompsons Road and Ballarto Road to minimise impact to the urban growth area, and greater acquisition of land to the east between Ballarto Road and Cranbourne-Frankston Road to avoid impact to the Langwarrin Bushland Reserve.

- WPH generally at grade to maximise traffic efficiency along WPH and minimise construction impacts, except at the Glasscocks Road interchange where WPH is over Glasscocks Road to avoid impact to existing urban development east of WPH.

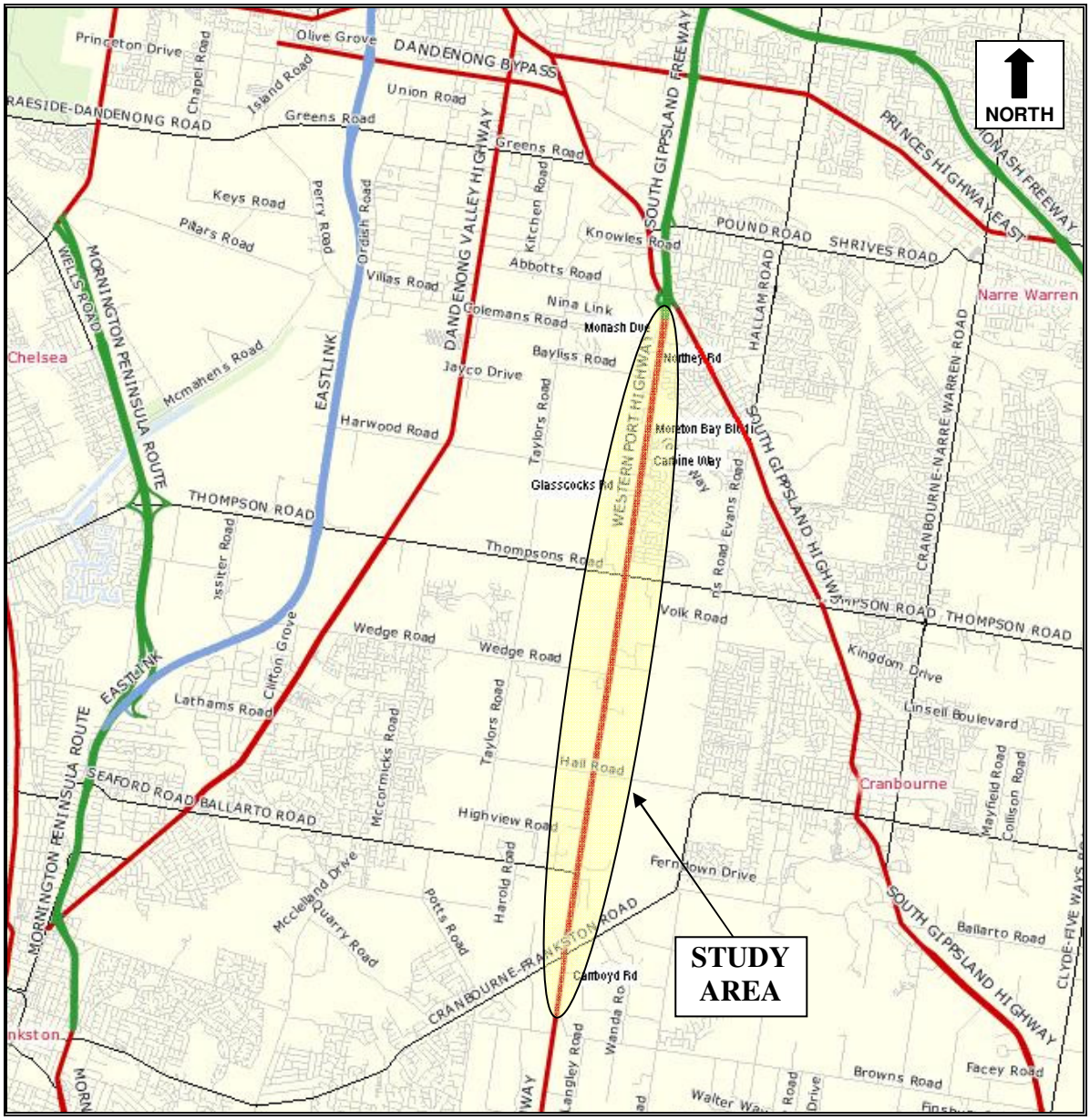
## *Table 2 Options Assessment – WPH Cross Section*

| Option | Cross-Section Features | Impact Assessment | | | | Conclusion |
|---|---|---|---|---|---|---|
| | | Transport Operation | Social (incl. Property) | Environmental | Economic | |
| Arterial road with at grade intersections and without allowance for rail | 60m wide reservation (existing ROW and existing PAO only).<br>8m wide median if provide narrow median shoulders. | Does not accommodate future traffic demands.<br>Does not allow for possible future rail line within WPH corridor.<br>Less safe than freeway options.<br>Less efficient for freight than freeway options. | Least impact on properties along WPH of all options.<br>Does not address broader community needs, and results in undesirably high traffic volumes on other roads. | Least impact on land along WPH of all options. | Least project cost of all options.<br>Economic disbenefit to broader community and businesses due to greater travel times and lower level of safety. | Rejected – does not accommodate future traffic demands and adversely impacts broader community. |
| Freeway with urban cross-section and without allowance for rail | 70m wide midblock freeway reservation.<br>1m wide median (for new jersey barrier). | Accommodates future traffic demands.<br>Does not allow for possible future rail line within WPH corridor. | Least impact on properties along WPH of three freeway options.<br>Provides no certainty to property owners of possible worst case land requirements (associated with rail along WPH). | Least impact on land along WPH of three freeway options. | Least cost for WPH project of three freeway options. | Rejected – not consistent with strategic desire to allow for possible rail line. |
| Freeway with rural cross-section and without allowance for rail | 80m wide midblock freeway reservation.<br>10m wide median (grassed with wire rope safety barrier). | Accommodates future traffic demands.<br>Does not allow for possible future rail line within WPH corridor.<br>Wide median with wire road safety barrier slightly safer for traffic than other freeway options. | Greater impact to properties along WPH than other "without rail" options, as requires acquisition of extra 10m wide strip of land.<br>Grassed median along WPH provides more visually appealing treatment than other options.<br>Provides no certainty to property owners of possible worst case land requirements. | Greater environmental impact than other "without rail" option, as impacts extra 10m wide strip of land. | Greater project cost than other "without rail" option. | Rejected – greater impact than other "without rail" option for minimal benefit. |
| Freeway with urban cross-section and with allowance for rail | 85m wide midblock freeway reservation.<br>17m wide median (for rail and containment barriers). | Accommodates future traffic demands.<br>Allows for possible future rail line within WPH corridor. | Greater impact to properties along WPH than all other options, as requires acquisition of extra land, most of which is rural rather than urban (NB. Acquisition area up to 18% greater than other freeway options).<br>Provides certainty to property owners of possible worst case land requirements. | Greater environmental impact than all other options, as impacts extra land. (NB. Area to be cleared up to 5% greater than other freeway options). | Greatest project cost of three freeway options, as requires most land and longest bridges.<br>However, allows for cheapest rail line option (use of alternative corridor more expensive). | **PREFERRED** – best meets strategic transport objectives and provides certainty of possible worst case land requirements to property owners. |

# 5. INTERCHANGE PROPOSALS

WPH currently intersects with several roads as shown in Figure 18. Various changes to the existing access arrangements are required as part of the conversion of WPH between South Gippsland Freeway and Cranbourne-Frankston Road to freeway conditions and to be consistent with VicRoads' access management policies (refer Section 3.5.2). These changes include the conversion of a limited number of roads to grade separated interchanges and the closure of all other road access to WPH. The basis for these changes is discussed below.

***Figure 18 Study Area***



## 5.1 Future Arterial Road Network

Roads are classified in terms of the movement and access function of the road within the network, with a typical classification system comprising freeway, primary arterial, secondary arterial, collector road and local street.

Table 3 shows the existing and possible future classifications of roads currently intersecting WPH. Roads of limited length and serving a local function only are classified as a collector road or local street.

The classification of roads as future arterial roads in Table 3 has been based on the features and lengths of the roads, as shown in Table 4, in addition to the following strategies and plans discussed in Section 3:

- The *Growth Corridor Plans (2012)* for land abutting the east side of WPH identifies South Gippsland Highway, Glasscocks Road, Thompsons Road, Wedge Road, Hall Road, Ballarto Road and Cranbourne-Frankston Road as arterial roads.

- The *Municipal Strategic Statement* for the City of Greater Dandenong (west of WPH) identifies Thompsons Road as a primary arterial road and Glasscocks Road as a future strategic road.

- The *Municipal Strategic Statement* for the City of Frankston (west of WPH) identifies Thompsons Road, Ballarto Road and Cranbourne-Frankston Road as primary arterials, Hall Road as a secondary arterial and Wedge Road as a collector road.

- The *Municipal Strategic Statement* for the City of Casey (east of WPH) identifies South Gippsland Highway, Glasscocks Road, Thompsons Road, Hall Road and Cranbourne-Frankston Road as divided roads.

- The *Cranbourne West Precinct Structure Plan (January 2010)* identifies Thompsons Road and Hall Road as primary arterial roads and Wedge Road as a connector street. Ballarto Road is identified as a connector street just east of WPH, and is not shown extending east to Cranbourne-Frankston Road.

The above strategies and plans are consistent in the identification of South Gippsland Highway, Glasscocks Road, Thompsons Road, Hall Road and Cranbourne-Frankston Road as arterial roads. Also the features and lengths of these roads are consistent with an arterial road function.

There is some inconsistency in the above strategies and plans in relation to Wedge Road and Ballarto Road, due largely to the different functions the roads have in the different municipalities. For example, the whole of the existing Seaford Road – Ballarto Road route (9.5km in length) is within the City of Frankston, whereas only the short proposed section east of WPH is within the City of Casey.

*Table 3 Road Access to Western Port Highway*

| Road | Chainage (Approx) | Existing Classification | Possible Future Classification | 2046 Traffic Volumes (vpd) | Existing Access to Western Port Hwy | Proposed Access to Western Port Hwy |
|---|---|---|---|---|---|---|
| South Gippsland Hwy | 0 | Primary Arterial | | 30,000 to 50,000 | Interchange (All Movement) | Maintain Existing Interchange |
| Monash Dve | 900 | Local Street | | 1,000 to 2,000 | Left In / Left Out | Road Closure |
| Northey Rd | 950 | Local Street | | 3,000 to 5,000 | Left In / Left Out | Road Closure |
| Bayliss Rd | 2000 | Local Street | | 1,000 to 2,000 | Left In / Left Out / Right Out | Road Closure |
| Moreton Bay Blvd | 2250 | Collector Road | | 3,000 to 5,000 | Traffic Signals (All Movements) | Road Closure |
| Carbine Way | 2650 | Local Street | | 1,000 | Left In | Road Closure |
| Glasscocks Rd | 2950 | Collector Road | Primary Arterial | 30,000 to 50,000 | Roundabout (All Movements) | Interchange (All Movements) |
| Thompsons Rd | 4600 | Primary Arterial | | 35,000 to 55,000 | Roundabout (All Movements) | Interchange (All Movements) |
| Wedge Rd | 6250 | Local Street (to west) Proposed Road (to east) | Secondary Arterial | 15,000 to 25,000 | All Movements | Interchange (Northerly Ramps Only) |
| Hall Rd | 8000 | Secondary Arterial | Primary Arterial | 30,000 to 50,000 | Roundabout (All Movements) | Interchange (All Movements) |
| Pandora Dve | 8700 | Local Street | | 1,000 | Left In / Left Out (to be closed soon as part of permit condition) | Road Closure |
| Ballarto Rd | 9650 | Secondary Arterial (to west) Proposed Road (to east) | Secondary Arterial (to west) Secondary Arterial or Collector Road (to east) | 10,000 to 20,000 | Roundabout (All Movements) | Overpass |
| Cranbourne-Frankston Rd | 10900 | Primary Arterial | | 25,000 to 55,000 | Roundabout (All Movements) | Interchange (All Movements) |
| Carrboyd Rd | 11250 | Local Street | | 1,000 | Left In / Left Out | Road Closure |

*Table 4 Arterial Roads – Features*

| Route | Possible Maximum Extent | Length | Approximate Reservation Width (including any PAO) | Freeway Interchange Locations |
|---|---|---|---|---|
| **Glasscocks Rd** – Grices Rd – Leckey Rd | Dandenong Frankston Rd (DFR) to Cardinia Rd | 20km | 20m to 40m (opportunity to widen some sections as part of growth area planning) | Nil |
| McLeod Rd - **Thompsons Rd** – Greenhills Road | Nepean Hwy to Koo Wee Rup Rd | 33km | 20m west of MPF<br>40m MPF to BCR<br>0m to 20m east of BCR (to be widened as part of growth area planning) | Mornington Peninsula Fwy (MPF), East Link<br>Koo Wee Rup Freeway (proposed future) |
| **Wedge Rd** – Central Pkw - Camms Rd – Linsell Blvd – Hardys Rd | Dandenong Frankston Rd to Muddy Gates La extension | 18km | 20m to 36m generally | Nil |
| Rutherford Rd - Lathams Rd - **Hall Rd** – Sladen St – Berwick Cranbourne Rd (BCR) – Pattersons Rd | East Link to Muddy Gates La extension | 21km | 40m generally west of BCR<br>20m east of BCR (to be widened as part of growth area planning) | East Link |
| Seaford Rd - **Ballarto Rd** | Nepean Hwy to Cranbourne Frankston Rd | 11km | 20m to 26m Nepean Hwy to DFR<br>33m to 40m DFR to WPH<br>30m WPH to CFR | Frankston Fwy |
| Cranbourne Rd – **Cranbourne Frankston Rd** (CFR) | Davey St to Sladen St (and then joins with above Hall Rd route) | 14km | 40m generally | Peninsula Link |

## 5.2 Interchange Locations

*Guide to Traffic Management, Part 6: Intersections, Interchanges and Crossings (Austroads, 2013)* provides guidance on locating freeway interchanges. It highlights that a numerical warrant for the provision of an interchange or grade separation is difficult to specify and that a decision to build an interchange should be based on the assessment of various factors.

The guide indicates that interchanges must be provided where the intersecting road is a freeway or major arterial road. On this basis interchanges are required (and are proposed as part of the project) at South Gippsland Highway, Glasscocks Road, Thompsons Road, Hall Road and Cranbourne-Frankston Road. These roads are existing and/or proposed primary arterial roads and forecast to carry high volumes, as shown in Table 3. The roads are also forecast to carry high ramp volumes, as shown in Table 5.

***Table 5 Forecast Ramp Volumes - 2046***

| Interchange | Northerly Ramps (veh/day/ramp) | Southerly Ramps (veh/day/ramp) |
|---|---|---|
| Primary Arterial Roads<br>South Gippsland Hwy | 15,000 to 20,000 | 8,000 to 12,000 |
| Glasscocks Rd | 6,000 to 9,000 | 10,000 to 14,000 |
| Thompsons Rd | 7,000 to 10,000 | 10,000 to 12,000 |
| Hall Rd | 14,000 to 17,000 | 3,000 to 7,000 |
| Cranbourne Frankston Rd | 14,000 to 17,000 | 2,000 to 3,000 |
| Secondary Arterial Roads<br>Wedge Rd | 5,000 to 7,000 | 2,000 to 3,000 |
| Ballarto Rd | 5,000 to 7,000 | 2,000 to 3,000 |

*NB. Volumes provided as a range to reflect the outcomes of different modelling analyses in Section 4.*

The above Austroads guide indicates that the absolute minimum spacing between successive urban freeway interchanges is 1.5km to 2.0km. The desirable minimum spacing depends on ramp lengths, ramp lane numbers and freeway lane numbers, and seeks to minimise the disturbance that ramp traffic causes to freeway through traffic. A desirable minimum spacing of 2.5km applies to a freeway with four lanes in each direction (as proposed at some locations along WPH) with standard one lane entry/exit ramps. Greater spacing is required for two lane entry/exit ramps (as proposed at some locations along WPH).

The above primary arterial roads shown in Table 5 are spaced at 3.0km, 1.6km, 3.4km and 2.9km, which is consistent with absolute minimum spacing requirements (and in some cases desirable minimum spacing requirements) and reinforces the appropriateness of providing interchanges at these locations.

The guide indicates that a maximum interchange spacing of 4km is typical in urban areas. The interchanges proposed at primary arterial roads are closer than 4km and hence additional interchanges are not necessarily required along WPH, subject to accessibility and service needs.

The guide indicates that interchanges may be provided in response to traffic operation, safety, access and traffic demand requirements. Wedge Road and Ballarto Road are the only other roads that could be considered as possible interchange locations, based on the future secondary arterial road classification and forecast volumes on these roads. Any interchanges at Wedge Road and/or Ballarto Road would reduce interchange spacings to absolute minimum requirements, and cause additional disturbance to freeway through traffic.

Table 5 highlights that the ramp volumes at Wedge Road and Ballarto Road are much less than the other interchange locations. The southerly ramp volumes for both roads are particularly low (2,000 to 3,000 veh/day/ramp) and do not justify southerly ramps. The northerly ramp volumes for both roads are moderate (5,000 to 7,000 veh/day/ramp).

## *5.3 Options Assessment*

Various options for the interchanges of WPH with the cross roads have been identified and assessed as shown in Table 6. The preferred options comprise the following:

- Glasscocks Road - Single point interchange (which provides best traffic operation and least land take), with WPH realigned to the west and over Glasscocks Road to avoid existing residential development and minimise construction related traffic impacts.

- Thompsons Road - Full movement diamond interchange with WPH realigned to the west and over Thompsons Road, as determined as part of planning for the separate future Thompsons Road duplication project.

- Wedge Road - Northerly half diamond interchange, with Wedge Road realigned to the north to minimise property impacts and construction related traffic impacts, and Wedge Road over WPH to provide best traffic operation.

- Hall Road - Single point interchange (which provides best traffic operation and least land take), with WPH aligned to the east to avoid the service station on the south-west corner and Hall Road realigned to the north to minimise property impacts and construction related traffic impacts.

- Ballarto Road - Overpass without any interchange ramps, with allowance for a construction side track to the south to minimise property impacts.

- Cranbourne-Frankston Road - Single point interchange (which provides best traffic operation and least land take), with Cranbourne-Frankston Road realigned north to minimise property impacts and construction related traffic impacts.

The three affected Councils support the above options at Glasscocks Road, Thompsons Road, Hall Road and Cranbourne-Frankston Road. Frankston City Council has expressed some concern with the proposals for Wedge Road and Ballarto Road and further discussion of the above proposals at these two roads is provided in Sections 5.4 and 5.5. Options for Wedge Road are independent of options for Ballarto Road, and vice versa, because the two roads are separated by Hall Road and do not have competing functions.

## *Table 6 Options Assessment – WPH Alignment and Interchanges*

| Location | Option | | | | Assessment (shading = not assessed) | | | | Conclusion |
|---|---|---|---|---|---|---|---|---|---|
| | Horizontal Alignment | | Vertical Alignment | Interchange | Road/Traffic Operation | Social (incl. Property) Impact | Environmental Impact | Economic Considerations | |
| | WPH | Side Road | | | | | | | |
| Glasscocks Rd | Realigned east | | | | | Very significant impact to residential area east of WPH – realignment to west preferred. | | | Rejected – very significant social and property impacts. |
| | Straight | | | | | | | | |
| | Realigned west | East of WPH - straight to match existing road.<br>West of WPH - realigned north to match proposed road and minimise impact to trees south of Glasscocks Rd. | WPH at grade | | Better accommodates freight demands than WPH under/over options.<br>More difficult to construct Glasscocks Rd overpass (requires side track) than realigned WPH overpass. | Significant impact to houses east of WPH (due to Glasscocks Rd overpass embankment).<br>Requires more land west of WPH than WPH under/over options. | Greater impact to trees west of WPH than WPH under/over options. | Greater land acquisition cost than WPH under/over options.<br>Possibly requires extra land from Dandenong South Industrial Area Extension (including impact to Developer Contributions Plan). | Rejected – very significant property impacts and some environmental impacts. |
| | | | WPH under side road | | More difficult to construct WPH underpass under traffic than WPH overpass. | Less visual impact than overpass. | Possible groundwater impacts. | | Rejected – adversely impacts traffic during construction and potential groundwater impacts. |
| | | | WPH over side road (and side road slightly lowered) | Full diamond | Forecast high right turn demand from west to south not accommodated. Other forecast demands met.<br>Full diamond option readily accommodates north-south bus movements via ramps. | Full diamond interchange locates ramps closer to residential area and hence has slightly greater social impact.<br>Full diamond option requires slightly more land than single point option.<br>Both options require acquisition of approx. 50% of dog kennel/cattery property south west of interchange – full diamond option requires slightly more land. | Full diamond option impacts slightly more trees than single point option. | Full diamond option slightly less expensive than single point option.<br>Single point interchange provides slightly better access to Dandenong Industrial Area, which is of potential economic benefit. | Rejected – worse traffic operation and greater property impact than preferred option. |
| | | | | Single point | Option accommodates all forecast traffic demands.<br>Modification to typical single point interchange layout required to accommodate north-south bus movements. | | | | PREFERRED – best accommodates traffic demands and minimises property and environmental impacts. |
| Thompsons Rd | Realigned west | Assessed as part of future Thompsons Road Duplication Project | | | | | | | |

| Location | Option | | | | Assessment (shading = not assessed) | | | | Conclusion |
|---|---|---|---|---|---|---|---|---|---|
| | Horizontal Alignment | | Vertical Alignment | Interchange | Road/Traffic Operation | Social (incl. Property) Impact | Environmental Impact | Economic Considerations | |
| | WPH | Side Road | | | | | | | |
| Wedge Rd | Realigned east | | | | Multiple realignments of WPH undesirable – straight alignment preferred for optimum traffic operation. | Adversely impacts Cranbourne West Precinct (not consistent with planning for precinct). | All options – limited impact. | | Rejected – very significant impact to Cranbourne West Precinct. |
| | Realigned west | | | | | Avoids impact to Cranbourne West Precinct (but planning for precinct allows for straight alignment).<br>Impacts Dog Victoria. | | | Rejected – straight alignment provides better traffic operation and minimises impact to Dogs Victoria. |
| | Straight | Realigned north | WPH under or over side road | | Difficult to construct WPH structure under traffic - significant traffic impacts.<br>Freight demands better met by WPH at grade option. | | | | Rejected - adversely impacts traffic during construction and freight movements. |
| | | | WPH at grade | Full diamond | Traffic demands for southerly ramps very low.<br>Southerly ramps may adversely impact operation of WPH due to close proximity to Hall Rd two lane ramps. | Adversely impacts Cranbourne West Precinct (planning for precinct does not allow for southerly ramps).<br>Adversely impacts Dogs Victoria. | | Southerly ramps not likely to be attractive to industrial area, as most traffic to/from the north. | Rejected – traffic demands do not justify southerly ramps and adversely impacts Cranbourne West Precinct and Dogs Victoria. |
| | | | | Overpass | Requires local traffic to use other less convenient interchanges.<br>Increases traffic volumes and delays at high volume Thompsons Rd interchange. | Minimises impact to Cranbourne West Precinct (but planning for precinct allows for northerly ramps). | | | Rejected – traffic demands of precinct better accommodated by northerly half diamond. |
| | | | | Northerly half diamond | Layout adequately accommodates traffic demands.<br>Ramps relieve high volume Thompsons Rd interchange.<br>Realignment of Wedge Rd to north minimises traffic impacts during construction. | Land take generally consistent with Cranbourne West PSP.<br>Realignment of Wedge Rd to the north minimises impact to Dogs Victoria. | | Ramps provide good access to an industrial/ employment area and hence provide economic benefits. | PREFERRED – traffic demands accommodated and social impacts not significant. |
| | | Realigned south | | | Difficult to construct ramps under traffic. | Greater impact to Dogs Victoria than Wedge Rd northerly realignment option. | | | Rejected – greater adverse impact to traffic during construction and Dogs Victoria than preferred option. |
| | | Straight | | | Requires Wedge Rd construction side track to the south to enable ramps to be constructed clear of traffic. | Wedge Rd construction side track to south would adversely impact Cranbourne West Precinct and Dogs Victoria. | | | Rejected – adverse impact to Cranbourne West Precinct and Dogs Victoria. |

| Location | Option | | | | Assessment (shading = not assessed) | | | | Conclusion |
|---|---|---|---|---|---|---|---|---|---|
| | Horizontal Alignment | | Vertical Alignment | Interchange | Road/Traffic Operation | Social (incl. Property) Impact | Environmental Impact | Economic Considerations | |
| | WPH | Side Road | | | | | | | |
| Hall Rd | Realigned west | | | | Multiple realignments of WPH undesirable – straight alignment preferred for optimum traffic operation. | Avoids impact to Cranbourne West (but planning for precinct allows for straight alignment).<br>Requires acquisition of SW service station – undesirable as no nearby alternative facility along WPH northbound. | All options – limited impact | Saving in land acquisition costs (land less expensive to west) likely to be offset by cost of service station acquisition. | Rejected - requires multiple curves in WPH alignment. |
| | Straight | | WPH under or over side road | | Difficult to construct WPH structure under traffic - significant traffic impacts.<br>Freight demands better met by WPH at grade option. | | | | Rejected - adversely impacts traffic during construction and freight movements. |
| | | Realigned south | WPH at grade | Closed diamond | Traffic demands on northerly ramps not met due to closely spaced ramp terminals. | | | | Rejected - traffic demands not adequately accommodated |
| | | | | Single point | Single point options best accommodate traffic demands.<br>Adversely impacts high volume northerly movements during construction. | Requires acquisition of SE and SW service stations (desirable to retain SW service station as no nearby alternative facility along WPH northbound). | | Cost of acquiring service stations significant. | Rejected - adversely impacts traffic during construction and requires acquisition of SW service station. |
| | | Straight (and side track to north during construction to avoid SW service station) | | Part single point with N/B off ramp to west (to allow retention of SW service station) | Option adequately accommodates traffic demands.<br>Adversely impacts high volume northerly movements during construction. | Locates access road further from interchange than other options.<br>Very significant impact to residential/farming property in SW corner. | | Spread diamond structure may be slightly cheaper than single point structure. But land acquisition costs for spread diamond greater. | Rejected - adversely impacts traffic during construction and involves significant social/property impacts. |
| | | | | Part spread diamond with loop ramp (to allow retention of SW service station) | Greater potential for conflict between service station and ramp traffic than other options.<br>Adversely impacts high volume northerly movements during construction. | Requires more land than other options.<br>Impacts residential/farming property in SW corner. | | | Rejected - adversely impacts traffic during construction and involves significant social/property impacts. |
| | | Realigned north (to minimise construction related traffic impacts) | | Single point | Single point options best accommodate traffic demands.<br>Realigning Hall Rd to north minimises construction related traffic impacts (ie. impacts low volume southerly movements rather than high volume northerly movements). | Requires acquisition of SE and SW service stations.<br>Minimises impact to SW residential/farming property. | | Greater impact to Cranbourne West industrial area than other options. | Rejected – greater cost and less community benefit than preferred option. |
| | Realigned slightly east (to avoid SW service station) | | | | | Retains SW service station and allows for provision of truck rest area adjacent to service station.<br>Fairly significant land take, particularly west of WPH. | | Option that retains SW service station expected to be less expensive. | PREFERRED – option provides best traffic operation during and after construction and least social impact. |

| Location | Option | | | | Assessment (shading = not assessed) | | | | Conclusion |
|---|---|---|---|---|---|---|---|---|---|
| | Horizontal Alignment | | Vertical Alignment | Interchange | Road/Traffic Operation | Social (incl. Property) Impact | Environmental Impact | Economic Considerations | |
| | WPH | Side Road | | | | | | | |
| Ballarto Rd | | | | Full diamond | Traffic demands for southerly ramps expected to be very low.<br>Diagonal southerly ramps not feasible due to close proximity to CFR. Loop ramps required to provide adequate separation to two lane CFR ramps. | Loop ramps adversely impact Cranbourne West Precinct (not consistent with structure planning for precinct). | | | Rejected – traffic demands do not justify southerly ramps and option not consistent with planning for Cranbourne West Precinct. |
| | | | | Northerly half diamond | Traffic demands only moderate, and do not justify ramps so close to Hall Rd and CFR interchanges.<br>Ramps would have a local rather than regional function.<br>Adequate alternative routes and interchanges available if ramps not provided. | Adversely impacts Cranbourne West Precinct (not consistent with structure planning for precinct).<br>Provides better access to local area (incl. Skye Sands Quarries) than overpass, and minimises use of McCormicks Rd by local trucks. | | Ramps largely service a residential area and have limited economic benefit. | Rejected – traffic demands do not justify northerly ramps and the option is not consistent with planning for Cranbourne West Precinct. |
| | Straight | Straight | WPH under or over side road | Overpass | Difficult to construct WPH structure under traffic - significant traffic impacts.<br>Freight demands better met by WPH at grade option. | | | | Rejected - adversely impacts traffic during construction and freight movements. |
| | | | WPH at grade | | Straight alignment preferred along Ballarto Rd for best traffic operation and safety.<br>Requires side track to south to accommodate Ballarto Rd traffic during construction. | Impacts Cranbourne West Precinct (but land take consistent with Structure Plan).<br>Likely to avoid existing house NW of intersection. | Impacts remnant native vegetation and scattered trees south of Ballarto Rd. | Expected to be the lowest cost option. | PREFERRED – best road alignments for traffic operation/safety and lowest property impact and cost. |
| | | Realigned south | | | Allows existing Ballarto Rd to remain open during construction. | Avoids Cranbourne West Precinct and existing house NW of intersection.<br>Greater land take and greater impact to properties to the south than straight option. | Greater impacts to native vegetation and trees than straight option. | May be slightly more expensive than straight overpass option due to longer length of new road required. | Rejected – greater land take and environmental impact than preferred option. |
| | | Realigned north | | | | Adversely impacts Cranbourne West Precinct (not consistent with structure planning for precinct)<br>Impacts existing house NW of intersection.<br>Greater land take than straight option. | Avoids remnant native vegetation and scattered trees south of Ballarto Rd. | Expected to be most expensive overpass option due to higher land acquisition cost and length of new road. | Rejected – greater property impact and cost than preferred option. |

| Location | Option | | | | Assessment (shading = not assessed) | | | | Conclusion |
|---|---|---|---|---|---|---|---|---|---|
| | Horizontal Alignment | | Vertical Alignment | Interchange | Road/Traffic Operation | Social (incl. Property) Impact | Environmental Impact | Economic Considerations | |
| | WPH | Side Road | | | | | | | |
| Cranbourne – Frankston Rd (CFR) | Straight | Straight | | | Significant disruption to high volume northerly movements during construction (assuming CFR side track to north). | Significant impact to houses south of CFR – realignment to north preferred. | | | Rejected – adversely impacts traffic during construction and significant property impacts. |
| | | Realigned north (to minimise impact to rural residential area to south and minimise construction related traffic impacts) | WPH under or over side road | | Difficult to construct WPH structure under traffic - significant traffic impacts.<br>Freight demands better met by WPH at grade option. | | | | Rejected - adversely impacts traffic during construction. |
| | | | WPH at grade | Full diamond | North to west traffic demands not accommodated, and long queues expected on WPH southbound. | Impacts several houses south of CFR, particularly west of WPH. | | | Rejected - traffic demands not adequately accommodated |
| | | | | Part spread diamond and loop ramps to north | | Less impact to properties south of CFR than full diamond and single point options. | | | |
| | | | | Northerly half diamond only | Southerly traffic demands in area not met – excessive distance to next interchanges at Hall Rd and possibly North Rd. | | | | |
| | | | | Single point | Adequately accommodates traffic demands.<br>Not possible to accommodate north-south bus priority movements without causing unacceptably high delays due to skewed CFR. | Impacts several houses, particularly SW of interchange. | Impacts native vegetation east and west of WPH. | Makes best use of existing WPH pavement and likely to be less expensive than other single point options. | PREFERRED – single point options provide best traffic operation and WPH straight option has least property impact and cost of these options. |
| | Realigned east | | | | | Similar net property impacts as preferred option. | May result in slightly less impact to native vegetation than other alignment options. | Likely to be more expensive than other single point option as requires more new pavement along WPH. | Rejected – more costly than preferred option. |
| | Realigned west | | | | | Greater impact to houses south of CFR than other single point options. | Greater impact to native vegetation north of CFR than other single point options. | | Rejected – greater property and environmental impact than preferred option. |

## *5.4 Wedge Road Options*

### 5.4.1 Existing Conditions

Wedge Road currently extends a limited distance west of WPH and is not yet constructed east of WPH. The main users of the WPH/Wedge Road intersection are traffic generated by Dogs Victoria, which could amount to around 2,000 veh/day during major dog events.

### 5.4.2 Local Issues

The *Cranbourne West Precinct Structure Plan* (refer Section 3.4.5) proposes extension of Wedge Road east of WPH to Evans Road as part of development of the precinct. The Structure Plan was prepared on the basis of an interim temporary full movement roundabout and an ultimate northerly ramp interchange at WPH/Wedge Road.

Frankston City Council currently has no future plans to extend Wedge Road west of WPH to Taylors Road, and is concerned that any interchange at Wedge Road may necessitate an upgrade of Wedge Road east of WPH.

### 5.4.3 Options Assessment

Options for Wedge Road were originally considered by VicRoads in 2008/2009 before and as part of the planning scheme amendment for the rezoning of the Cranbourne West Precinct.

A summary of the options assessment for Wedge Road is shown in Table 6.

The preferred option comprises northerly ramps at Wedge Road to provide efficient access to the proposed industrial area east of WPH between Thompsons Road and Hall Road. The northerly ramps would encourage growth and development and provide economic and productivity benefits.

The northerly ramps would also relieve the high volume Thompsons Road interchange, which serves as a key node within the arterial and freight road networks. The Thompsons Road interchange is proposed to be a diamond rather than single point interchange, to accommodate access to the southbound service station, and hence has less capacity than the high capacity single point interchange proposed at Hall Road.

Southerly ramps are not proposed at Wedge Road considering the very low forecast volumes (2,000 to 3,000 veh/day/ramp as discussed in Section 5.2). Southerly demands can be adequately met by the nearby Thompsons Road and Hall Road interchanges.

The *Cranbourne West Precinct Structure Plan* and associated *Development Contributions Plan* allow for northerly ramps at Wedge Road. Any alternative treatment would not be consistent with this statutory policy.

The northerly ramps are not dependent on any upgrade of Wedge Road west of WPH, as the primary purpose of the ramps is to serve land uses to the east. Any upgrade of Wedge Road west of WPH would be at Frankston City Council's discretion, which addresses Council's concern as mentioned in Section 5.4.2.

## *5.5 Ballarto Road Options*

### 5.5.1 Existing Conditions

Ballarto Road (and its westerly extension Seaford Road) is an east-west road, intersecting with Nepean Highway at is western end and Koo Wee Rup - Longwarry Road at is eastern end, as shown in Figure 19. Ballarto Road is discontinuous at the Royal Botanic Gardens Cranbourne.

Due to environmental constraints it is not possible to extend Ballarto Road through the Cranbourne Royal Botanic Gardens to provide a continuous east-west arterial route between Nepean Highway and Koo Wee Rup – Longwarry Road. The two sections of Ballarto Road, east and west of the Cranbourne Royal Botanic Gardens, are therefore considered to be separate routes.

The 9.5km long section of Seaford Road - Ballarto Road between Nepean Highway and WPH is a declared arterial road. VicRoads has recently proposed to Frankston City Council that the declaration of this section be revoked, and that Hall Road be declared as an arterial road as it provides a longer and more effective arterial route within the region.

The section of Seaford Road - Ballarto Road between Nepean Highway and WPH is wholly within the City of Frankston, and has local rather than regional importance. It traverses the suburbs of Seaford, Frankston North, Carrum Downs and Skye and is generally two lanes (two-way), except for the section near the interchange with Frankston Freeway which expands to four lanes (two-way).

The section of Seaford Road - Ballarto Road between Nepean Highway and McCormicks Road carries between 16,000 and 18,000 veh/day. The section between McCormicks Road and WPH carries around 8,000 veh/day, including 10% commercial vehicles.

WPH and Ballarto Road form a roundabout controlled T-intersection that provides access to:

- Local development in Skye, including Skye Sands Quarries, Skye Golf Driving Range, Skye Tennis Club and rural residential land.

- Various urban development in Seaford, Frankston North and Carrum Downs.

Traffic volumes recorded at the WPH/Ballarto Road intersection in April 2009 (by VicRoads) and mid 2013 (by Frankston City Council) are shown in Figures 20 and 21. The counts highlight that the majority of traffic using Ballarto Road travels to/from the north rather than the south.

***Figure 19 Ballarto Road***

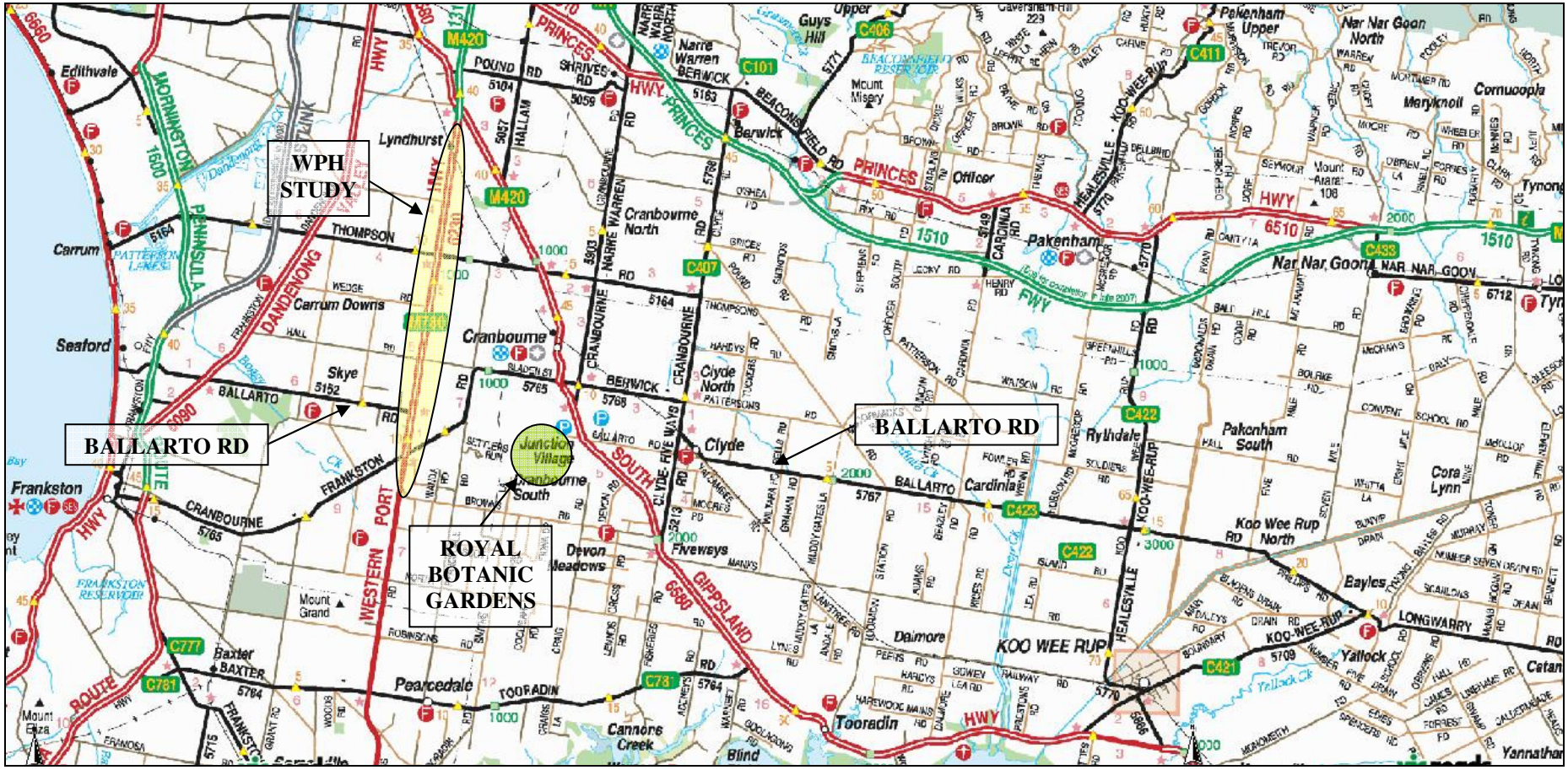


***Figure 20 Peak Hour Traffic Volumes - Wednesday, 1 April 2009***

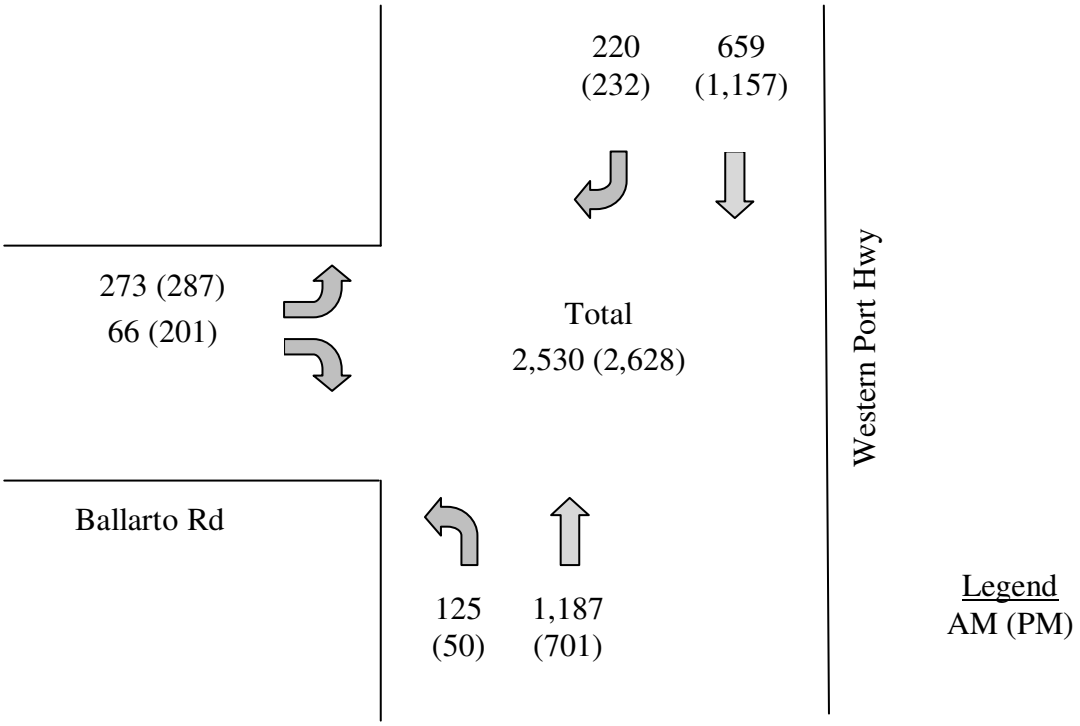
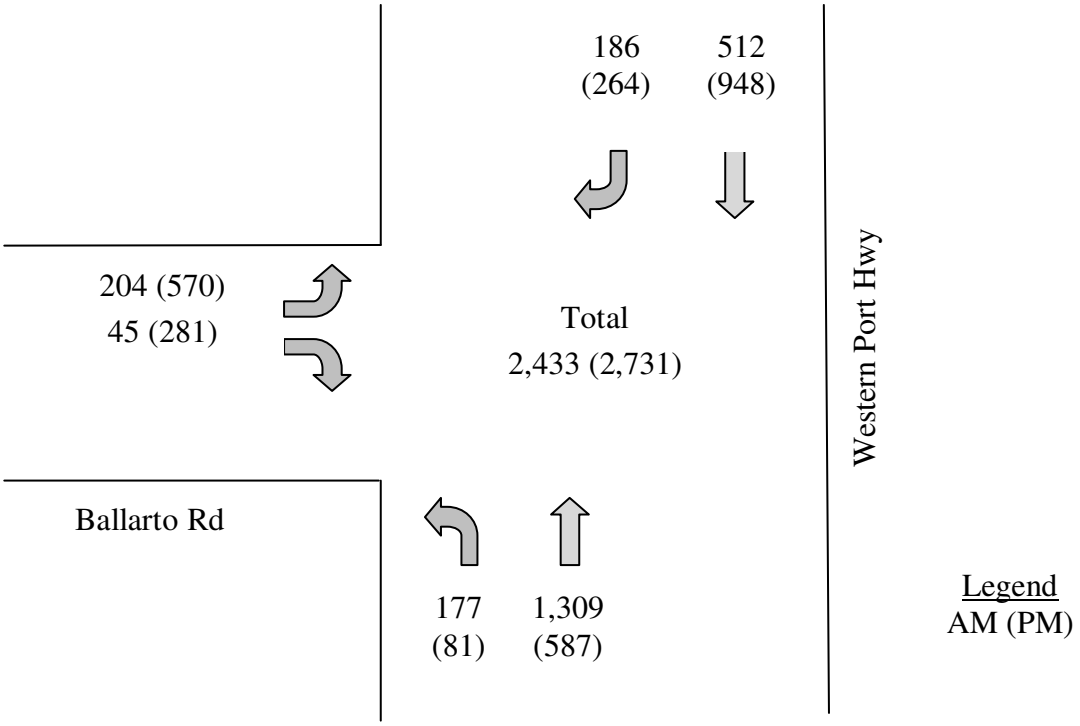



***Figure 21 Peak Hour Traffic Volumes – One day in mid 2013***



### 5.5.2 Local Issues

The existing section of Seaford Road - Ballarto Road west of WPH is within the City of Frankston, and the adjacent unbuilt section between WPH and Cranbourne-Frankston Road is within the City of Casey.

***a) Frankston***

Most of the land abutting Seaford Road - Ballarto Road between Nepean Highway and west of Potts Road is zoned as residential, except for a concentration of industrial land near Frankston Freeway. The land abutting Ballarto Road between west of Potts Road and WPH is outside the urban growth boundary and is zoned as green wedge, rural conservation, public park and recreation, or special use (which contains the Skye Sands Quarries).

The *Municipal Strategic Statement* (MSS) for the City of Frankston indicates that the existing residential areas along Ballarto Road are unlikely to experience any significant increase in housing densities or population. The industrial area near Ballarto Road/ Frankston Freeway is well established and unlikely to experience any significant growth.

VicRoads is not aware of any proposal to change the urban growth boundary to include the non-urban area west of WPH. The MSS identifies this land as being part of the rural area, and does not suggest any change in its zoning. It seeks to protect extractive sites, potential landfill sites and future open space in this area.

The MSS highlights that sand and stone extraction is a significant rural industry in the City of Frankston. The sand quarries are primarily located in the south-east part of Skye and northern parts of Langwarrin, and make use of McClelland Drive, Quarry Road, Cranbourne-Frankston Road and Ballarto Road to access the broader road network. Some of these quarries, particularly the Skye Sands Quarries, may make use of the WPH/Ballarto Road roundabout.

During community consultation activities for the WPH planning study, quarry and transport operators in the area (including Skye Sands Quarries) objected to the proposed overpass without ramps at Ballarto Road and expressed concern at the impact of quarry trucks travelling through residential areas along alternative routes such as McCormicks Road.

Frankston City Council has reiterated the above concerns and indicated a preference for a full movement interchange to be provided at WPH/Ballarto Road, with northerly ramps as a minimum. Council is also concerned that any loss of access between WPH and Ballarto Road may adversely impact access to the Frankston Activity Centre.

McCormicks Road is classified as a secondary arterial road in the Municipal Strategic Statement and provides a north-south link between Thompsons Road and Ballarto Road parallel to WPH. Frankston City Council's proposal to realign McClelland Drive to connect directly with McCormicks Road reinforces and expands the arterial road function of McCormicks Road.

***b) Casey***

The unbuilt section of Ballarto Road between WPH and Cranbourne-Frankston Road is abutted by land zoned as urban growth and green wedge (Ranfurlie Golf Club).

As discussed in Section 3.4.5 the *Cranbourne West Precinct Structure Plan (January 2010)* for urban growth land north of Ballarto Road was prepared on the basis of an overpass without ramps at Ballarto Road. This proposal was based on analysis and advice provided by VicRoads in 2009. VicRoads is not aware of any objections to this proposal as part of the public exhibition of the planning scheme amendment and associated panel hearing for the Structure Plan in 2008 and 2009.

The land east of WPH between Ballarto Road and Cranbourne-Frankston Road has recently been rezoned from green wedge to urban growth zone and is proposed to primarily comprise residential development. Structure planning for this area may allow for the extension of Ballarto Road east to Cranbourne-Frankston Road. Ultimate access to this development would not need to be via WPH and could be via various other roads, including Cranbourne-Frankston Road.

Casey City Council has advised that is does not support northerly ramps at Ballarto Road. It prefers that an overpass be provided so that traffic volumes are limited and Ballarto Road can potentially be constructed as a two lane boulevard connector road, rather than the arterial road (potentially four lanes) that would be required if ramps were provided.

### 5.5.3 Options Assessment

Various options for Ballarto Road have been identified and assessed against social, environmental and economic criteria as shown in Table 6 and discussed below.

***a) Southerly Ramps***

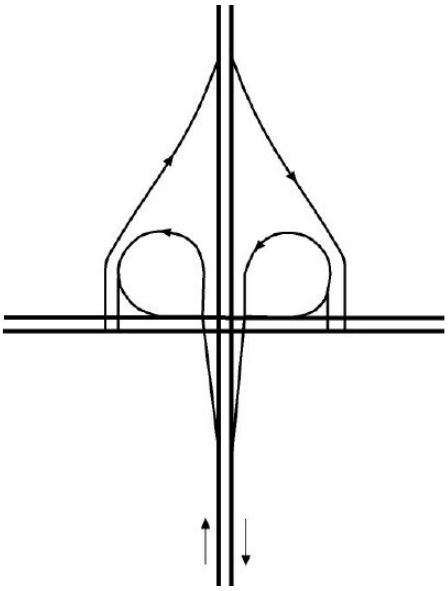
As discussed in Section 5.2 the demand for southerly ramps at Ballarto Road is low, with only 2,000 to 3,000 veh/day/ramp forecast to use the ramps in the long term. This low forecast use is consistent with recent traffic counts which show greater demands to the north than the south.

Users of southerly ramps at Ballarto Road are likely to have origins/destinations close to Ballarto Road, particularly in the urban residential area west of Potts Road and in the proposed urban residential area east of WPH. The ramps would therefore serve a local function.

AECOM undertook a design assessment of options for providing southerly ramps at Ballarto Road, including options involving use of diagonal ramps (located south of Ballarto Road, similar to other interchange locations) and loop ramps (located north of Ballarto Road as shown in Figure 22).

AECOM advised that the provision of diagonal ramps at Ballarto Road is not feasible due to the high safety risk associated with the close proximity to the two lane northerly ramps at Cranbourne-Frankston Road (ie. only 450m and 560m spacing between southbound and northbound ramp noses respectively instead of the absolute minimum spacing of 800m and 770m respectively specified in design guides). Loop ramps provide additional and adequate separation between the Ballarto Road and Cranbourne-Frankston Road ramps.

***Figure 22 Parclo AB Interchange with Loop Ramps***



Inclusion of land for southerly loop ramps (and/or northerly ramps) at Ballarto Road would not be consistent with the *Cranbourne West Precinct Structure Plan (January 2010)* and *Cranbourne West Precinct Development Contributions Plan (January 2010),* which only make allowance for an overpass at Ballarto Road. There would be a substantial reduction in the land available for residential uses if ramps were provided.

If southerly ramps were not provided at Ballarto Road, traffic travelling between Ballarto Road and WPH to the south could use various alternative routes including the following:

*Frankston*

- Potts Road (collector road) – Cranbourne Frankston Road (primary arterial).
- Potts Road – Centre Road – North Road (collector roads).

*Casey (future uses)*

- Hall Road (proposed primary arterial) via proposed north-south collector road through proposed development.
- Cranbourne-Frankston Road (primary arterial) via proposed north-south collector road through proposed development.

The above roads are considered to be appropriate alternative routes for diverted traffic, given the likely low volume of diverted traffic. In particular, the proposed north-south collector roads in the proposed residential area in the City of Casey can be designed to suit such use.

Most diverted traffic within the City of Frankston is likely to use Potts Road, which is a two lane sealed road partially abutted by residential development and providing a convenient connection between Ballarto Road and Cranbourne-Frankston Road. Potts Road is considered to be suitable for such a purpose and is likely to experience negligible increase in volume due to the WPH project.

The Potts Road/Ballarto Road intersection may need to be upgraded to better accommodate right turning traffic to the south, as discussed further in Section 6.7.

Based on the above, southerly ramps are not proposed at Ballarto Road. There is insufficient traffic demand for such ramps and alternative routes are available. Southerly ramps could only be accommodated by loop ramps, which would require significant land acquisition from the proposed residential area in Cranbourne West.

### *b) Northerly Ramps*

AECOM's design assessment indicates that northerly ramps can be feasibly and safely provided at Ballarto Road, as both the Hall Road southerly ramps and Ballarto Road northerly ramps are proposed to be standard one lane ramps. The Hall Road and Ballarto Road interchanges would have a spacing between cross-roads of 1.6km, which corresponds to absolute minimum spacing requirements.

As discussed in Section 5.2 the demand for northerly ramps at Ballarto Road is moderate, with approximately 5,000 to 7,000 veh/day/ramp likely to use each ramp in the long term.

Select link analysis (from Ashton Traffic Services' network model and shown in Figure 23) indicates that the northerly ramps serve a local rather than regional function. The main users of the northerly ramps have local origins/destinations along and south of Ballarto Road in Carrum Downs, Skye, Frankston, Langwarrin and Cranbourne South (mostly in the City of Frankston rather than the City of Casey).

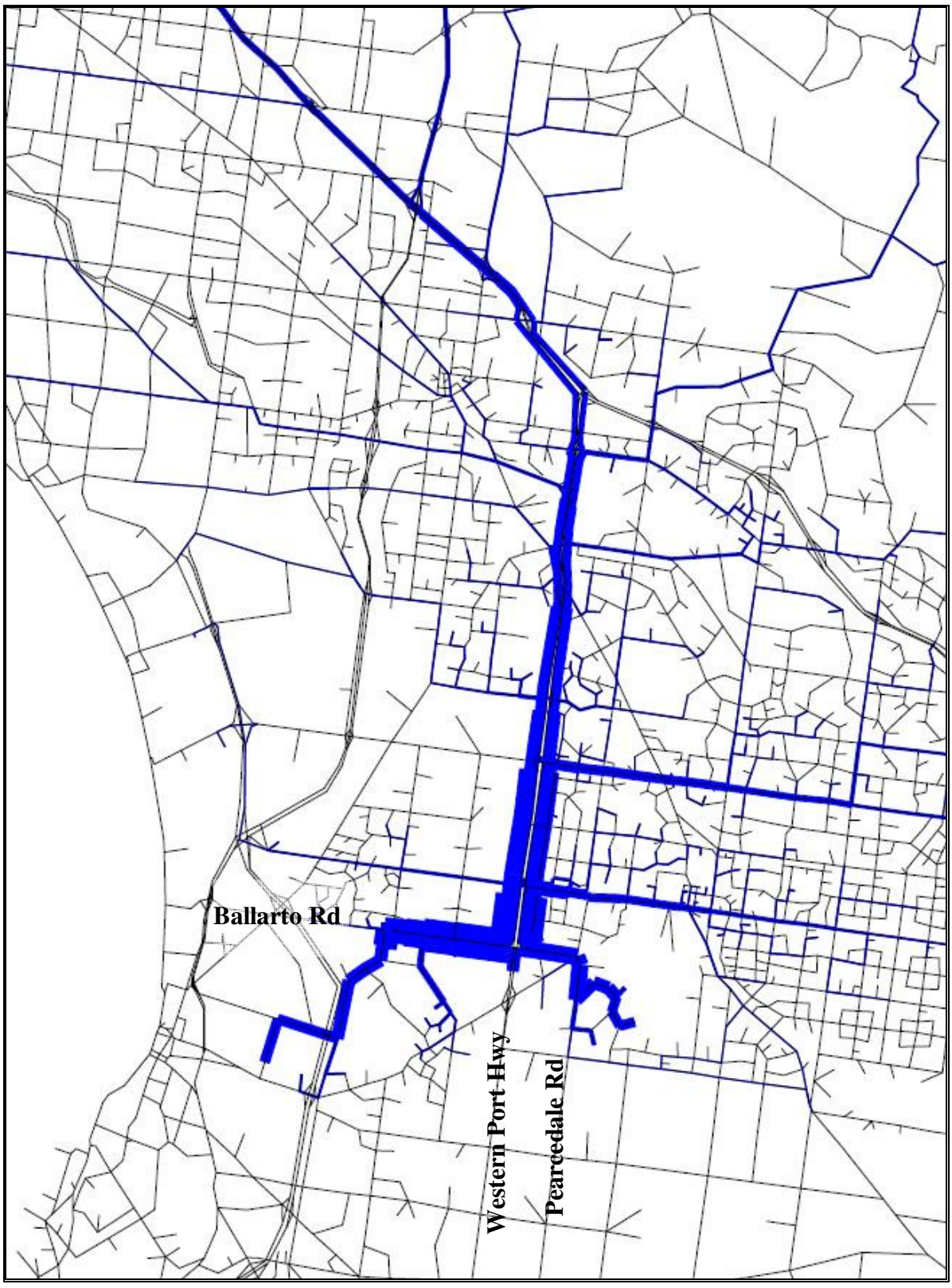
Frankston City Council undertook peak period surveys in mid 2013 to understand the origins and destinations of vehicles using Ballarto Road immediately west of WPH. The surveys showed that more than 60% of vehicles travelled along the entire length of Ballarto Road between Dandenong-Frankston Road and WPH, suggesting slightly broader use of the ramps than shown in Figure 23.

The local areas that would be served by northerly ramps largely comprise existing residential areas in the City of Frankston and proposed residential areas in the City of Casey. Local quarry and transport operators in the City of Frankston may also use the ramps. The ramps would not provide access to any areas of economic significance or major employment, and hence would provide limited economic benefit.

The modelling undertaken by Ashton Traffic Services for various road network options for forecast conditions in 2035 and/or beyond indicates that the inclusion of northerly ramps at Ballarto Road would cause:

- Negligible impact on volume on roads remote from WPH compared to the project option (ie. without ramps), highlighting the local use of the ramps.
- Negligible impact on volumes on Thompsons Road and Cranbourne-Frankston Road (which provide the main access routes to the Frankston Activity Centre via WPH) compared to the project option, highlighting that the ramps do not provide improved access to the Frankston Activity Centre.

*Figure 23 Select Link Analysis – Ballarto Road Northerly Ramps*



Northerly ramps at Ballarto Road would provide some relief to the Hall Road northerly ramps, which are forecast to carry very high traffic volumes. However, a high capacity single point interchange is proposed at Hall Road to accommodate forecast traffic volumes, with this interchange design adequately accommodating northerly ramp demands within the surrounding area even if northerly ramps are not provided at Ballarto Road.

Northerly ramps at Ballarto Road would cause additional disturbance to freeway through traffic, with weaving and merging traffic movements. This is undesirable considering the purpose of a freeway is to maximise mobility rather than access, and in particular to provide for the safe and efficient movement of regional and inter-regional through traffic (including people and freight).

The *Cranbourne West Precinct Structure Plan* was prepared on the basis of no access being provided between WPH and Ballarto Road at the time of conversion to freeway conditions. Inclusion of land for northerly ramps at Ballarto Road would be inconsistent with this plan and the associated *Cranbourne West Precinct Development Contributions Plan.*

If northerly ramps were not provided at Ballarto Road, traffic travelling between Ballarto Road and WPH to the north could use the following alternative routes:

*Frankston*

- McCormicks Road (secondary arterial) - Hall Road (proposed primary arterial).
- Dandenong-Frankston Road (primary arterial) - Hall Road (proposed primary arterial).

*Casey (future uses)*

- Hall Road (proposed primary arterial) via proposed north-south collector road for traffic to/from Cranbourne West.
- Hall Road (proposed primary arterial) via Cranbourne-Frankston Road (primary arterial) for traffic to/from land uses along Pearcedale Road.

The above roads provide convenient access to WPH via the Hall Road interchange (which is located 1.6km north of Ballarto Road), with most diverted traffic unlikely to experience any significant increase in travel distance and time using these roads. The classification and function of the roads (generally primary and secondary arterials) is consistent with use by through traffic, although some concern has been expressed by Frankston City Council at the use of McCormicks Road (secondary arterial).

McCormicks Road has an approximate 20m wide road reservation and passes through a residential area. It currently carries around 7,000 veh/day north of Ballarto Road. Traffic volume forecasts show volumes on McCormicks Roads of approximately 15,000 veh/day in the long term (if no ramps are provided at Ballarto Road), which is consistent with the current cross-section of the road and its classification by Frankston City Council as a secondary arterial road.

The modelling for the project option (ie. without any ramps at Ballarto Road) discussed in Section 4 shows no increase in traffic volumes on McCormicks Road due to the project. Any increase in volume on this road due to the loss of access at Ballarto Road is expected to be offset by the reduction in traffic volume on McCormicks Road due to the extra capacity provided along WPH. Hence no mitigating works would be required on McCormicks Road as a consequence of the project, with the exception of the Hall Road intersection to accommodate increased turning volumes as discussed further in Section 6.7.

The origin-destination surveys undertaken by Council in mid 2013 suggest that the majority of diverted traffic may be attracted to Dandenong-Frankston Road rather than McCormicks Road to travel north. Hence the network modelling may be over-estimating the attraction of McCormicks Road to diverted traffic.

Frankston City Council has expressed concern at the possible increase in truck volumes on McCormicks Road due to the project. Any increase in truck use is likely to be limited to local trucks and would be consistent with Council's classification of McCormicks Road as a secondary arterial road.

The quarry operations in the City of Frankston have a limited life (20 to 30 years). Whilst it may be desirable for the WPH to be upgraded to a freeway near Ballarto Road within 20 to 30 years, it is possible due to funding constraints and other priorities that the upgrade may occur after the quarry operations have ceased.

Taylors Road also connects Ballarto Road and Hall Road and could provide an alternative to McCormicks Road. However, Taylors Road is unsealed and not likely to be an attractive alternative route (until it is upgraded and sealed). Frankston City Council has indicated that the upgrade of Taylors Road is a low priority, and it has been assumed that it may not be upgraded before the upgrade of WPH to freeway conditions and associated closure of the WPH/Ballarto Road roundabout.

In summary, it is considered that northerly ramps at Ballarto Road:

- Would accommodate a moderate volume (5,000 to 7,000 veh/day), which in itself does not justify inclusion of the ramps.
- Would largely serve local residential areas along and south of Ballarto Road, rather than areas of economic significance or major employment.
- Are not required to address the accessibility needs of the local area, as convenient and appropriate alternative routes are available (including McCormicks Road which is classified by Council as a secondary arterial road and should have sufficient midblock capacity to accommodate forecast volumes).
- Are not required to address any traffic operation or safety concerns on the road network.
- Would not be consistent with current statutory policy as described in the *Cranbourne West Precinct Structure Plan (January 2010)*.

Northerly ramps are not proposed at Ballarto Road, as there is no compelling need for the ramps. The ramps would provide a local rather than regional function and have limited economic benefit. The ramps would cause additional disturbance to freeway through traffic, including a high percentage of freight vehicles.

***c) Overpass***

It is considered appropriate to provide an overpass at Ballarto Road to connect the eastern and western sides because:

- Traffic demands and road length and function warrant an overpass (rather than no access between east and west).
- It would be consistent with the *Cranbourne West Precinct Structure Plan (January 2010)*.
- It would provide improved east-west connections between various suburbs in the long term (after any extension of Ballarto Road to Cranbourne-Frankston Road).

As shown in Table 6 various overpass alignments have been considered, with the preferred option involving elevation of Ballarto Road over WPH along its existing road alignment.

# 6. ROAD IMPACTS AND MITIGATION MEASURES

The impacts to the surrounding road network of closing some intersections along WPH and the possible mitigation measures are discussed below. Consideration has also been given to the impacts of the closures on local businesses.

## *6.1 Monash Drive*

The WPH/Monash Drive intersection (located north of the railway line) accommodates left turn entry and left turn exit movements only. Entering vehicles from the north can perform a U-turn at Moreton Bay Boulevard to access the left turn entry to Monash Drive.

Monash Drive provides access to the M1 Industry Park, west of WPH. Development of the industry park has proceeded on the basis of access being available between WPH and Monash Drive. WPH/Monash Drive provides a secondary access to the development, with the main access via Abbotts Road/Monash Drive.

Monash Drive near WPH is expected to carry in the order of 1,000 veh/day. This volume is likely to increase as further development occurs in the M1 Industry Park.

Closure of Monash Drive at WPH will restrict all access to the Abbotts Road/Monash Drive signalised intersection. Abbotts Road connects with South Gippsland Highway via a high capacity signalised intersection, which in turn connects with WPH via a full movement grade separated interchange. Hence adequate alternative access is available to and from WPH.

Current users of the WPH/Monash Drive intersection may experience longer travel times as a result of the closure. Such increases are expected to be longer for exiting vehicles rather than entering vehicles, particularly in the PM peak period when traffic using Abbotts Road experiences some congestion.

The Pound Road Upgrade Project, completed in late 2011 and including the upgrade of Pound Road near South Gippsland Freeway and the upgrade of South Gippsland Highway between South Gippsland Freeway and Abbotts Road, has improved traffic conditions on Abbotts Road. The possible future extension of Remington Drive to Pound Road West would further improve traffic conditions on Abbotts Road.

The effects of the WPH/Monash Drive closure on the surrounding road network are expected to be minimal, as a low traffic volume is affected and adequate alternative access is available via Abbotts Road. No mitigating works are considered necessary on the surrounding road network as a result of the closure.

The impacts of the WPH/Monash Drive closure on businesses in Monash Drive are expected to be minimal. The businesses do not appear to be reliant on passing trade from WPH and adequate alternative access is available via Abbotts Road.

## 6.2 Northey Road

Access between WPH and Northey Road (located north of the railway line) is currently provided via a short service road that accommodates left turn entry and left turn exit movements only. Exiting vehicles can perform a U-turn at Moreton Bay Boulevard to travel northbound.

The Northey Road service road currently provides access to the following properties east of WPH:

- Various light industrial and commercial developments north of Northey Road.
- United service station abutting WPH and south of Northey Road.
- Residential development south of Northey Road.

The above developments have proceeded on the basis of access being available between WPH and Northey Road. However, Northey Road is one of many roads providing access to the area. The Northey Road service road is estimated to carry around 3,000 to 5,000 veh/day. Around half of this volume is expected to be associated with the service station.

Closure of Northey Road at WPH will require traffic to use existing alternative access routes, including South Gippsland Highway which has an interchange with WPH and connects with various local access roads (eg. Commercial Drive, Northey Road, Lawson Drive and Lynbrook Boulevard).

The effects of the Northey Road closure on the surrounding road network are expected to negligible. Traffic is likely to divert to various alternative roads, with no single road expected to experience any significant traffic volume increases. Good access is available between the affected area and South Gippsland Highway via signalised intersections at Commercial Drive and Lynbrook Boulevard.

No mitigating works are considered necessary on the surrounding road network, as a result of the closure. The existing roads and intersections are expected to have adequate capacity to accommodate the minor increase in traffic volume.

Current users of the Northey Road service road may experience longer travel times as a result of the closure. Such increases are expected to be minimal given the availability of convenient access via South Gippsland Highway.

Closure of the Northey Road access potentially affects businesses abutting and north of Northey Road. The impacts to these businesses, with the exception of the United service station, are expected to be minimal as adequate alternative access routes are available to South Gippsland Highway and the businesses would not likely be reliant on passing trade from WPH.

The closure is expected to have a significant impact on the viability of the United service station, which presumably relies on passing trade from WPH. The service station has alternate access available via Northey Road, however, the level of passing trade generated by Northey Road would likely be much less than generated by WPH. This service station is further discussed in Section 7.2.1.

## 6.3 Bayliss Road

The WPH/Bayliss Road intersection (located just south of the railway line) currently accommodates left turn entry and left and right turn exit movements. Vehicles from the north cannot turn right into Bayliss Road from WPH, but can access Bayliss Road by performing a U-turn at Moreton Bay Boulevard.

Bayliss Road currently provides access to Waste Convertors Recycling and Blue Southern Cement and lot under development at 155 WPH. These properties are expected to generate a very low traffic volume, in the order of 200 to 300 veh/day.

Bayliss Road currently connects with Taylors Road to the west, which provides access to the Lyndhurst Landfill and M2 Industry Park. However, traffic generated by these uses is not expected to make much use of Bayliss Road as more convenient routes are available via Abbotts Road.

Bayliss Road is proposed to be closed at the Blue Circle Southern Cement access in 2014, as part of development of the property at 155 WPH. This closure will limit access to the WPH via Bayliss Road to Waste Convertors Recycling (185 WPH) only.

Closure of Bayliss Road at WPH is consistent with the *Dandenong South Industrial Area Extension Structure Plan*, as discussed in Section 3.4.2. Road network proposals for the Dandenong South Industrial Area Extension were developed on the basis of closure of Bayliss Road and include new and upgraded roads to accommodate the traffic demands of the area.

Closure of Bayliss Road at WPH will require traffic generated by Waste Convertors Recycling to use roads constructed as part of development in the Dandenong South Industrial Area Extension.

No mitigating works are considered necessary on the surrounding road network as a result of the closure of Bayliss Road. Negligible traffic volume increases are expected on the alternative access routes and the closure is consistent with the *Dandenong South Industrial Area Extension Structure Plan.*

The impacts of the closure on businesses in Bayliss Road are expected to be minimal. The businesses do not appear to be reliant on passing trade from WPH and alternative access is available via roads proposed as part of land use development.

## 6.4 Moreton Bay Boulevard

WPH/Moreton Bay Boulevard is a signalised full movement intersection providing access to residential development east of WPH and south of the railway line. The residential development has proceeded on the basis of the intersection being available, as per the *Lynbrook and Lyndhurst Development Plan* (refer Section 3.4.4).

The *Dandenong South Industrial Area Extension Structure Plan* (refer Section 3.4.2) proposes a future temporary connection to WPH/Moreton Bay Boulevard to provide access to industrial development west of WPH. The impacts on this development of closing the WPH/Moreton Bay Boulevard intersection have not been considered in this report, as the Structure Plan proposes temporary access only and includes adequate alternative access routes.

Moreton Bay Boulevard currently carries around 2,000 veh/day immediately east of WPH, with around 85% travelling to and from the north. The volume is likely to increase as further residential development occurs in the area, particularly on land north of Moreton Bay Boulevard.

Closure of Moreton Bay Boulevard at WPH will require traffic to use various alternative routes, including Glasscocks Road which is proposed to have a full movement interchange with WPH. Most of the diverted traffic is expected to use Aylmer Road to travel to and from Glasscocks Road.

Aylmer Road is a local road abutted by residential development, with an uncontrolled intersection on Glasscocks Road. Traffic volumes on Aylmer Road are currently relatively low and are expected to increase significantly as a result of the closure of the WPH/Moreton Bay Boulevard intersection. Traffic turning from Aylmer Road onto Glasscocks Road in the AM peak is likely to experience unacceptably long delays without a signalised intersection.

The WPH project includes signalisation of the Glasscocks Road/Aylmer Road intersection to mitigate the impacts of the closure of the WPH/Moreton Bay Boulevard intersection and accommodate access to and from the local residential area. Reductions in access between Glasscocks Road and other local streets may necessary, such as Sunline Way, to accommodate the proposed future duplication of Glasscocks Road. Casey City Council supports the signalisation of the Glasscocks Road/Aylmer Road intersection.

## 6.5 Carbine Way

The WPH/Carbine Way intersection currently accommodates left turn entry to a residential development east of WPH and north of Glasscocks Road, and is expected to carry a very low traffic volume.

The Planning Permit for the residential development indicates that access between WPH and Carbine Way is granted on a temporary basis only, and that the access is to be closed when the WPH/Glasscocks Road intersection is signalised.

Closure of Carbine Way is consistent with the Planning Permit for the development and the *Lynbrook and Lyndhurst Development Plan* (refer Section 3.4.4). There are adequate alternative routes available and the closure should have a negligible impact on the surrounding road network.

## 6.6 Wedge Road

WPH/Wedge Road is currently a full movement uncontrolled intersection. Use of the intersection is largely limited to traffic generated by Dogs Victoria, as Wedge Road only extends a limited distance west of WPH and is not yet constructed east of WPH.

Dogs Victoria generates up to 2,000 veh/day at the WPH/Wedge Road intersection during events, which are mainly held on weekends. During weekdays less than 100 veh/day are expected to use the intersection.

The *Cranbourne West Precinct Structure Plan* (refer Section 3.4.5) proposes extension of Wedge Road east of WPH to Evans Road as part of development of the precinct. The Structure Plan was prepared on the basis of an interim temporary full movement roundabout and an ultimate northerly ramp interchange at WPH/Wedge Road. The impacts on future development east of WPH of closing access to and from the south at Wedge Road have not been considered in this report, as the Structure Plan was prepared on the basis of such a proposal.

Frankston City Council has no future plans to extend Wedge Road west of WPH to Taylors Road. Hence the impacts of any changes to WPH/Wedge Road to properties west of WPH are likely to be limited to Dogs Victoria.

Following the conversion of WPH/Wedge Road to freeway conditions, access to Dogs Victoria is proposed to be provided via a driveway in Wedge Road and a new access road from the southern boundary of the property to Hall Road (refer Section 7.1). These proposals provide convenient, safe and appropriate access to Dogs Victoria and should adequately mitigate the impacts of the changes to WPH/Wedge Road.

No additional mitigating works are considered necessary on the surrounding road network as a result of the closure of access to and from the south at WPH/Wedge Road.

## 6.7 Pandora Drive

The WPH/Pandora Drive intersection currently accommodates left turn entry and left turn exist movements to a residential development east of WPH and south of Hall Road, and is expected to carry a very low traffic volume.

The Planning Permit for the residential development indicates that access between WPH and Pandora Drive is granted on a temporary basis only, and that the access is to be closed when an alternative access to the development is available via Hall Road. The access is expected to be closed in the short term and well before the upgrade of WPH to a freeway.

## 6.8 Ballarto Road

WPH/Ballarto Road is a roundabout controlled T-intersection providing access to:

- Local development in Skye, including Skye Sands Quarry, Skye Golf Driving Range, Skye Tennis Club and rural residential.
- Sub-regional areas such as Carrum Downs, Seaford and Frankston North.

Ballarto Road currently carries around 8,000 west of WPH. Approximately 70% travel to and from the north at WPH and approximately 30% travel to and from the south.

As discussed in Section 5.5.3 provision of an overpass of WPH at Ballarto Road (with no interchange ramps) will require traffic to use alternative access routes, particularly Potts Road and McCormicks Road.

Potts Road has a give-way controlled intersection with Ballarto Road and a signalised intersection with Cranbourne-Frankston Road. McCormicks Road has a signalised intersection with Ballarto Road and a roundabout controlled intersection with Hall Road. These intersections, except Potts Road/Ballarto Road, provide an appropriate means of accommodating increased turning traffic.

Upgrade of the Potts Road/Ballarto Road intersection is likely to be required in the future, with a protected right turn lane from Ballarto Road required as a minimum to accommodate any substantial increase in right turn volumes. Such works may already be constructed at the time of closure of the WPH/Ballarto Road roundabout.

Frankston City Council has advised that Hall Road/McCormicks Road is currently operating close to capacity, and that it may need to be upgraded to accommodate diverted local traffic.

Traffic to/from sub-regional areas such as Carrum Downs, Seaford and Frankston North is expected to experience minimal increase in travel distance and travel time as a result of the closure of the WPH/Ballarto Road roundabout. Traffic to/from the local area of Skye is expected to experience more significant increase in travel distance and travel time as a result of the closure. However, the volume of traffic generated by development in Skye is low and does not justify the provision of interchange ramps at WPH/Ballarto Road.

The most significant business in Skye is the Skye Sands Quarry. Quarry trucks are likely to make use of WPH, and may be affected by the closure. As discussed in Section 5.5.3 Frankston City Council is concerned that diverted quarry trucks will use McCormicks Road. This road is a Council secondary arterial road and hence considered appropriate for use by local trucks.

As discussed in Section 5.5.3 the closure of access between Ballarto Road and WPH is expected to cause negligible increase in volume on McCormicks Road and Potts Road and both roads should have adequate midblock capacity. The mitigating works proposed as part of the WPH project are limited to intersection upgrades at Ballarto Road/Potts Road (protected right turn lane) and Hall Road/ McCormicks Road (capacity upgrade).

## *6.9 Carrboyd Road*

The WPH/Carrboyd Road intersection, located south of Cranbourne-Frankston Road, accommodates left turn entry and left turn exit movements only. Carrboyd Road provides access to a rural residential area east of WPH and is expected to carry a very low traffic volume.

Closure of Carrboyd Road at WPH will require traffic to use alternative access routes, including the following:

- Existing Woodlands Road and Cranbourne-Frankston Road.
- Proposed access restoration road connecting CFR and potentially also connecting Browns Road.

The effects of the Carrboyd Road closure on the surrounding road network are expected to negligible. Very minimal traffic will be affected by the closure and adequate alternative routes exist or are proposed.

# 7. ACCESS RESTORATION PROPOSALS AND IMPACTS

## *7.1 Existing and Proposed Access*

Most of the properties abutting WPH have existing driveway access to WPH. As part of the conversion of WPH to freeway conditions and to be consistent with Access Management Policy AMP1 (refer Section 3.5.2), closure of these accesses is required unless exceptional circumstances prevail.

The accesses of some properties abutting Glasscocks Road, Wedge Road, Hall Road, Ballarto Road and Cranbourne-Frankston Road are affected by WPH interchange and overpass proposals and also require alternative access arrangements.

The properties (excluding tree reserves) abutting WPH and/or the adjacent cross-roads are shown in Appendix A. A property is defined as one or more contiguous lots in the same ownership.

AECOM developed an option for restoring access to affected properties in early 2010. This option (Option 1) was presented to property owners in May 2010 as part of AECOM's social impact assessment for the project. VicRoads also met with several property owners to discuss access needs.

In response to feedback from property owners, an alternative access restoration proposal (Option 2) was developed for some sections of WPH to better address community needs.

Option 2 was developed in accordance with VicRoads' access management policies and the requirements of AMP2 or AMP4 as appropriate. The principles adopted in developing the option were as follows:

- Provide a 7m to 9m wide sealed roadway (traffic lanes and shoulders) within a 15m or 18m wide reservation, with the narrower reservation adopted for the lower volumes access roads.
- Locate access roads adjacent to the freeway reservation to avoid severance of properties.
- Generally connect the access roads to arterial roads that have proposed full movement interchanges with WPH (rather than partial or no interchanges) to minimise travel distances and times.
- Generally make access roads discontinuous between arterial roads to minimise potential for rat running by through traffic.
- Locate, where possible, the access road intersections a minimum of 200m from interchange ramp terminals (for safety).
- Generally only provide left in/left out intersections between access roads and arterial roads to minimise impact to traffic operation of the arterial roads and to minimise potential safety impacts to local road users.
- Allow right turn entry to access roads via a median opening and protected right turn lane where it can be provided safely and there is a sufficient justification.

- Ensure that right turn exit from the access roads is not possible, as this movement cannot be safely accommodated and is not consistent with VicRoads' access management policies.

- Generally design access road intersections and access road truncations to accommodate vehicles up to the size of a 12.5m rigid truck and 8.8m service vehicle respectively, subject to consideration of development needs and land impacts.

Table 7 compares the two access restoration options, considering:

- Project objective to *"Mitigate local accessibility impacts by ensuring that safe and convenient alternative access routes are available to properties abutting or near WPH"*.
- Social, environmental and economic factors.

As shown in Table 7, Option 2 is preferred as it generally provides more convenient property access and less property impact than Option 1. Option 2 is also based on a 15m or 18m wide reservation, rather than the 20m wide reservation proposed as part of Option 1, to further minimise property impacts.

Option 2 is consistent with AECOM's concept design plans (refer *Concept Design and Engineering Considerations, June 2014)* for the WPH project.

## *Table 7 Options Assessment – Access Restoration*

| Location | Affected Properties (refer Appendix A) | Option | Impact Assessment | | | Conclusion |
|---|---|---|---|---|---|---|
| | | | Social | Environmental | Economic | |
| West of WPH<br>South Gippsland Hwy to Railway Line | Nil (no existing driveways on WPH) | Close Monash Dve - no upgrade of alternative routes | Minimal business impact - businesses not reliant on passing trade and adequate alternative access available via Abbotts Rd | Insignificant | May increase travel time for businesses in Monash Dve | Option appropriate |
| Railway Line to Glasscocks Rd | 265 WPH<br>(NB. 185 WPH affected by road closure not driveway closure) | Close Bayliss Rd at WPH - no upgrade of alternative routes<br>Restore access to 265 WPH via new roads, constructed by others as part of land use development | Bayliss Rd closure and access restoration proposal consistent with Structure Plan for development of Dandenong South Industrial Area Extension | Insignificant | Insignificant | Option appropriate |
| Glasscocks Rd to Thompsons Rd | 325 & 335 WPH<br>(NB. 875-885 Thompsons Rd affected by Thompsons Rd project) | New access road between Glasscocks Rd (left in/left out) and 325 WPH, and providing access to 335 WPH | Insignificant impact - option satisfactorily and appropriately restores access to affected properties | Some impact to trees along Glasscocks Rd | Business not reliant on passing trade | Option appropriate |
| Thompsons Rd to Wedge Rd | 880 Thompsons Rd/ 565WPH & 605 WPH | Option 1 - New access road between 565 WPH (Grandiflora) and Wedge Rd | Poor access between Grandiflora and south | Insignificant | Option 2 more costly than Option 1, but provides better access to business | Adopt Option 2 as it provides more convenient access |
| | | Option 2 – New access road (left and right in/left out) between Thompsons Rd and 565 WPH, and providing access to 880 Thompsons Rd | Good access between Grandiflora and north<br>Better access between Grandiflora and south than Option 1 | Some impact to trees near Thompsons Rd | | |
| Wedge Rd to Hall Rd | 665, 671, 675, 685, 695, 715 & 735 WPH | Option 1- New access road between Wedge Rd and Hall Rd | Provides good access to properties, but potential for rat-running | Insignificant | Option 1 more costly than Option 2 | Adopt Option 2 as less social impact |
| | | Option 2 - New access road between 665 WPH and Hall Rd (left and right in/left out) | Provides adequate and appropriate access to properties and avoids rat-running<br>Requires less land acquisition than Option 1 | | | |
| Hall Rd to Ballarto Rd | 510 & 550 Hall Rd & 865, 875-905, 925M, 935, 945, 955 & 965 WPH | Option 1 – New access road from 865 WPH to Maraline Rd | East-west section of access road creates new barrier between properties<br>Generates extra traffic in Maraline Rd<br>Provides poor access to WPH for affected properties | All options impact vegetation near Ballarto Rd | Option 1 more costly than Options 2 and 3<br>Option 2 least costly. | Adopt Option 2 as less social impact |

| Location | Affected Properties (refer Appendix A) | Option | Impact Assessment | | | Conclusion |
|---|---|---|---|---|---|---|
| | | | Social | Environmental | Economic | |
| Hall Rd to Ballarto Rd (cont) | NB. Access to 550 Hall Rd (service station) provided via interchange ramps | Option 2 – New access road from Hall Rd (left in/left out) to 965 WPH | Provides better access to WPH than Option 1<br>Less social impact than Options 1 and 3 | Refer above | Refer above | Refer above |
| | | Option 3 - New access road between Hall Rd and Ballarto Rd | Provides good access to affected properties, but potential for rat-running<br>Requires acquisition of two more houses than Option 2 | | | |
| Ballarto Rd to Cranbourne-Frankston Rd (CFR) | 650 Ballarto Rd, 995, 1005N, 1025, 1035, 1045, 1055 & 1075 WPH &<br>525 & 565 CFR | Option 1 - New access road from 1005N WPH to Lyppards Rd | East-west section of access road creates new barrier between properties<br>Generates extra traffic in Lyppards Rd | Both options avoid Langwarrin Bushland Reserve at 1005N WPH<br>Both options impact vegetation along WPH | Option 1 more costly than Option 2<br>Both options impact business at 1075 WPH, which appears to rely on some passing trade | Adopt Option 2 as less social impact |
| | | Option 2 – New access road from 1005N WPH to CFR (left in/left out) | Less social impact than Option 1 | | | |
| CFR to McKays Rd | 530, 540, 544, 550, 560 & 570 CFR & 1145, 1155, 1165, 1171, 1175, 1181, 1185, 1195, 1199M, 1205 & 1207 WPH<br>(NB. 520 CFR unaffected) | Option 1 – New access road from Kelvin Gve to 1205 WPH | East-west section of access road creates new barrier between properties | Both options impact vegetation along WPH | Option 1 more costly than Option 2 | Adopt Option 2 as less social impact |
| | | Option 2 – New access road from CFR (left in/left out) to 1205 WPH | Provides more convenient access to CFR than Option 1 for most properties<br>Requires less land acquisition than Option 1 | | | |
| <u>East of WPH</u><br>South Gippsland Hwy to Railway Line | 110A-110E WPH (service station) | All Options – Close Northey Rd at WPH, with no upgrade of alternative routes | Minimal impact (except for service station as discussed below) - adequate alternative access available via numerous roads intersecting with South Gippsland Hwy | Insignificant | May increase travel time for businesses | Option appropriate |
| | | Option 1 – No access between WPH and service station | Service station experiences significant loss of passing trade | Insignificant | Compensation claim from service station | Adopt Option 1 as provides safest conditions along WPH |
| | | Option 2 – Access between WPH and service station | Users of WPH exposed to unacceptable safety risk due to close ramp spacing | | Insignificant (except for cost of ramps) | |

| Location | Affected Properties (refer Appendix A) | Option | Impact Assessment | | | Conclusion |
|---|---|---|---|---|---|---|
| | | | Social | Environmental | Economic | |
| Railway Line to Glasscocks Rd | 180-190, 180I & 200-210A WPH (service station) | All Options – Close Moreton Bay Blvd and Carbine Way at WPH and provide signals at Glasscocks Rd/Aylmer Rd<br>Restore access to 180-190 and 180I via new roads, constructed by developers as part of land use development | Diverts some additional traffic along Aylmer Rd, which is abutted by residential development<br>Closure of Carbine Way consistent with planning permit | Insignificant | Negligible impact to businesses | Option appropriate |
| | | Option 1 – No access between WPH and service station | Service station experiences significant loss of passing trade | Insignificant | Compensation claim from service station | Adopt Option 1 as provides safest conditions along WPH |
| | | Option 2 – Access between WPH and service station | Users of WPH exposed to unacceptable safety risk due to close ramp spacing | | Insignificant (except for cost of ramps) | |
| Glasscocks Rd to Thompsons Rd | Nil<br>NB. 310-312 WPH being redeveloped with no access via WPH | Option 1 – Access to 310-312 WPH via new driveway in Golden Elm Way | Provides adequate and appropriate access to proposed residential development at property | Insignificant | Insignificant | Adopt Option 1 as provides safest conditions along Glasscocks Rd |
| | | Option 2 – Access to 310-312 WPH via new driveway in Glasscocks Rd | May adversely impact operation of Glasscocks Rd | | | |
| Thompsons Rd to Ballarto Rd | 590, 620, 640W, 690 & 950 WPH & 570S Hall Rd (service station)<br>(NB. 910 Thomp. Rd & 490- 500, 510, 520, 530- 540 WPH affected by Thomp. Rd project) | Restore access to affected properties via new roads, constructed by developers as part of land use development | Access restoration proposal consistent with Structure Plan for development of Cranbourne West Precinct | Insignificant | Insignificant | Option appropriate |
| Ballarto Rd to Cranbourne-Frankston Rd (CFR) | 980-1050 WPH/ 655 CFR (3 lots) | Restore access to affected property via new road, constructed by developers as part of land use development | Provides adequate and appropriate access to property | Insignificant | Insignificant | Option appropriate |

| Location | Affected Properties (refer Appendix A) | Option | Impact Assessment | | | Conclusion |
|---|---|---|---|---|---|---|
| | | | Social | Environmental | Economic | |
| CFR to Browns Rd | 590, 600, 610, 620 & 630 CFR & 1120, 1140, 1150, 1170, 1180 & 1200 WPH & 224R Browns Rd (NB. 540 CFR unaffected) | All Options – Close Carrboyd Rd at WPH | Negligible impact - adequate alternative access available via CFR | Insignificant | Insignificant | Option appropriate |
| | | Option 1- New access road from 640 CFR to Carrboyd Rd and Browns Rd | Provides circuitous access to CFR<br>Generates extra traffic in Carrboyd Rd | All options impact vegetation along WPH | Insignificant | Reserve land for Options 2 and 3 to provide future flexibility |
| | | Option 2 – New access road from CFR (left in/left out) to Browns Rd | Provides more convenient access to CFR than Option 1<br>Potential for rat-running (if freeway extended further south)<br>Requires acquisition of land from two more properties than Option 3 (not significant) | | | |
| | | Option 3 – New access road from CFR (left in/left out) to 1200 WPH and new access road from Browns Rd to 181W WPH | Provides more convenient access to CFR than Option 1 for most properties<br>Does not provide access to Browns Rd (if freeway extended further south) | | | |

## 7.2 Affected Properties

A total of 71 properties are affected by driveway closures associated with the WPH project as shown in Table 7 and in red in Appendix A. These properties comprise service stations and other businesses and numerous rural residential properties.

The above total does not include properties that retain their existing access but are affected by road closures, as discussed in Section 6. It also does not include properties (shown in blue in Appendix A) affected by driveway closures associated with the separate Thompsons Road duplication project.

### 7.2.1 Service Stations

The WPH project affects five existing service stations, with four service stations having access to the WPH southbound carriageway and one service station having access to the WPH northbound carriageway.

The planning for the WPH/Thompsons Road interchange maintains some access between the WPH southbound carriageway and the service station south of Thompsons Road. Access to the service station is also proposed via Thompsons Road as part of the interchange project.

The service station south of Thompsons Road provides an opportunity for southbound drivers to stop and rest. Provision of another service station opportunity along WPH southbound is not considered necessary and would be inconsistent with freeway service centre guidelines (refer Section 3.4.3).

The WPH project provides access between the northbound service station located just south of Hall Road and the northbound interchange ramps at Hall Road. Retention of the service station and its access with WPH is considered desirable, as there are no nearby alterative service stations along WPH or South Gippsland Freeway northbound, and is consistent with freeway service centre guidelines.

The southbound service station located just south of Hall Road is on a large parcel of the land that is proposed to be developed in accordance with the *Cranbourne West Precinct Structure Plan* (refer Section 3.3.5). The WPH project requires acquisition of this service station to accommodate the Hall Road interchange and associated access to the northbound service station.

AECOM undertook a design assessment in its *Concept Design and Engineering Considerations (June 2014)* to assess the feasibility of providing access to the two remaining southbound service stations. The assessment concluded that safe entry and/or exit cannot be provided to the service stations as part of the conversion of WPH to freeway conditions and resultant requirement for higher design standards, as follows:

- Service station south of Northey Road – Safe exit to the service station from WPH cannot be provided due to the close proximity to the South Gippsland Highway southbound entry ramp. The spacing between the noses of these ramps would be 455m (if minimum ramp lengths were provided) or 335m (if desirable ramp lengths were provided), which is much less than the absolute minimum spacing required by design standards.

- Service station north of Moreton Bay Boulevard – Safe entry to WPH from the service station cannot be provided due to the close proximity to the Glasscocks Road southbound exit ramp. The spacing between the noses of these ramps would be approximately 100m, which is much less than the absolute minimum spacing required by design standards. Also sight distance to the exit ramp to the service station would be inadequate due to the WPH overpass of the rail line.

Access between the WPH and the above two service stations will need to be closed as part of the WPH upgrade. The service station near Northey Road has existing alternative access available via Northey Road. However, the service station near Moreton Bay Boulevard has no existing alternative access available.

The service stations are expected to be eligible for compensation for loss of adequate access in accordance with the *Road Management Act 2004*.

### 7.2.2 Other Businesses

The WPH project affects several businesses (in addition to the service stations discussed in Section 7.2.1) that currently have direct access to WPH and/or the cross roads affected by interchange and overpass proposals. The major businesses affected are shown in Table 8. There may be other smaller businesses operating from properties along the WPH, however, these business are not well-signed and do not obviously rely on passing trade.

The development of access restoration proposals has involved consideration of the access needs of the businesses, with a view to developing proposals that minimise impacts to businesses where appropriate and possible. In all cases alternative access is to be provided via new roads or driveways connecting with east-west arterial roads interchanging with and/or crossing WPH. Provision has been made at selected intersections to accommodate large trucks that may be generated by the businesses.

As shown in Table 8, the most significant traffic generators are Dogs Victoria and Grandiflora. Access to these properties is to be restored in the most convenient, safe and practicable method considering property impacts. Access to Dogs Victoria is to be restored via both Wedge Road and Hall Road. Access to Grandiflora is to be restored via Thompsons Road, which provides more convenient access to WPH than a previous proposal involving restoration via Wedge Road.

The businesses that appear most reliant on passing trade are Plantmark and Bushwalk Nursery. Plantmark, which is a leased business and potentially may not exist at the time of construction of the project, may experience a loss in passing trade as its access is to be restored via a new local road connecting with Cranbourne-Frankston Road. It is proposed that Bushwalk Nursery retain its existing access at Cranbourne-Frankston Road and hence the project should have negligible impact on this business.

Most other affected businesses do not appear to be reliant on passing trade and hence the proposed access changes should have minimal impact on the viability of these businesses.

***Table 8 Major Local Businesses (Excluding Service Stations)***

| Address | Business | Description | Access Restoration Proposal |
|---|---|---|---|
| *West of WPH*<br>185 WPH | Waste Convertors Recycling | Limited traffic generation.<br>Some truck traffic. | New access road to western boundary of property, as part of development of 155 WPH. |
| 325 WPH | All Breeds Boarding Kennels & Cattery | Limited traffic generation. Generally small vehicles. | New access road to Glasscocks Rd (left in/left out for vehicles up to 12.5m).<br>Right turns via nearby U-turn facilities in Glasscocks Rd. |
| 565 WPH | Grandiflora | Large wholesale business – distributes Australia wide.<br>Generates approx. 200vpd through its access, including some semi-trailers and B-Doubles. | New access road to Thompsons Rd (left in/right in/left out for vehicles up to B-Double).<br>All movements to/from WPH and East Link accommodated, except right out which is accommodated via a U-turn (suitable for B-Doubles) to the west. |
| 665 WPH | Dogs Victoria | Large business – State wide influence.<br>Generates up to 2,000vpd during events (80% to/from north). | New driveway in Wedge Rd and new access road to Hall Rd.<br>All movements to/from WPH accommodated at access road intersections with Wedge Rd and Hall Rd, except right out at Wedge Rd which is accommodated via a U-turn to the west (if and when Wedge Rd is extended and duplicated). |
| 695 WPH | Chrysco Flowers | Medium sized wholesale business.<br>Some truck traffic. | New access road to Hall Rd (left in/right in/left out for vehicles up to semi-trailers).<br>Hall Rd intersection accommodates all movements to/from WPH. |
| 1075 WPH | Plantmark | Small business – may rely on passing trade.<br>Some truck traffic. | New access road to CFR (left in/left out for vehicles up to 12.5m).<br>Right turns via U-turns in CFR.<br>Loss of convenient customer access. |

| Address | Business | Description | Access Restoration Proposal |
|---|---|---|---|
| 5 Kelvin Gve | Busy Bees Nursery | Small wholesale nursery – limited traffic generation. | No impact – existing driveway in Kelvin Gve to be retained. |
| 1175 WPH | Sunvalley Plants Nursery | Small wholesale nursery – limited traffic generation. | New access road to CFR (left in/left out for vehicles up to 8.8m).<br>Right turns via U-turns in CFR. |
| *East of WPH*<br>620 WPH | Kelly Vegetable Grower | Medium sized vegetable grower – limited traffic generation. | Significant portion of property acquired to accommodate Wedge Road interchange.<br>New access in Wedge Road.<br>Property expected to be redeveloped in accordance with Cranbourne West Precinct Structure Plan prior to project construction. |
| 950 WPH | Anco Turf Farm | Large turf farm – not a retail outlet.<br>Proposed to be redeveloped as residential in short to medium term. | New access in Ballarto Rd.<br>Property expected to be redeveloped in accordance with Cranbourne West Precinct Structure Plan prior to project construction. |
| 1050 WPH | Brompton Lodge Poultry Farm | Medium sized wholesale business. Some truck traffic.<br>Proposed to be redeveloped as residential in short to medium term. | New driveway (left in/left out) in CFR. Right turns via U-turns in CFR.<br>Property expected to be redeveloped in accordance with Precinct Structure Plan prior to project construction. |
| 640 CFR | Bushwalk Nursery | Retail nursery – relies on passing trade. | No impact – existing driveway (left in/left out) in CFR to be retained. |
| 1140 WPH | Premier Plants | Small wholesale nursery – limited traffic generation. | New access road to CFR (left in/left out for vehicles up to 8.8m).<br>Right turns via U-turns in CFR. |

### 7.2.3 Other Properties

The WPH upgrade affects numerous rural residential and farming properties and service reserves that currently have direct access to WPH and/or the east-west cross roads affected by interchange and overpass proposals.

Alternative access is to be provided via new or existing roads and driveways connecting with east-west arterial roads interchanging with and/or crossing WPH. The access restoration works are included in the WPH project, except where the works are provided as part of land use development.

Property owners may experience longer travel times as a result of the access changes.

## *7.3 Road Network Impacts and Mitigation Measures*

Access restoration proposals have been developed to minimise impact to the surrounding road network. Access road intersections have been located clear of adjacent intersections and with appropriate turning provisions.

The access restoration roads are expected to carry relatively low traffic volumes, which can be readily accommodated via the intersection treatments. The only property that generates a significant peak volume is Dogs Victoria. Vehicles entering Dogs Victoria should cause negligible impact to the operation of the road network. Exiting vehicles may experience some queuing within the site, as currently occurs.

The access restoration proposals generally mitigate the impacts of closing direct property access to WPH or its east-west cross roads. No other works are considered necessary on the road network to mitigate property access changes.

# 8. OTHER TRANSPORT PROPOSALS

## 8.1 Buses

As discussed in Section 3.2, the *State Planning Policy Framework* requires all major new road projects to incorporate public transport infrastructure to provide environmental sustainability benefits.

Assessment of existing and future bus networks and discussions with the former Department of Transport indicate that the project should desirably include the following provisions for buses:

- Provision for bus lanes on Cranbourne-Frankston Road (CFR) at its interchange with WPH, as CFR is an existing Bus Priority Route at this location.
- Provision for bus lanes on Glasscocks Road at its interchange with WPH, as Glasscocks Road is a future Bus Priority Route at this location.
- No allowance for bus lanes on Hall Road, Wedge Road and Ballarto Road, as these roads are not existing or proposed future Bus Priority Routes.
- No allowance for bus lanes on WPH, as bus volumes would likely be minimal and not justify the provision of dedicated lanes.
- Provision for bus stops and lanes on the interchange ramps at Glasscocks Road, Hall Road and Cranbourne-Frankston Road, to facilitate the possible use of WPH by express buses and dropping off of passengers at the cross-roads.

The WPH project includes all of the above provisions except at the Cranbourne-Frankston Road interchange ramps. Bus stops and lanes (for WPH express buses) cannot be feasibly provided at these interchange ramps due to traffic operation requirements and the skewed alignment of Cranbourne-Frankston Road. Any buses exiting at Cranbourne-Frankston Road interchange would need to perform a u-turn on Cranbourne-Frankston Road to re-enter WPH.

## 8.2 Pedestrians and Cyclists

As discussed in Section 3.2, the *State Planning Policy Framework* requires all major road projects to incorporate cycling infrastructure to provide environmental sustainability and health and wellbeing benefits.

A shared pedestrian/cyclist path exists along the east side of WPH between Moreton Bay Boulevard and north of Thompsons Road. The *Lynbrook and Lyndhurst Development Plan* and *Cranbourne West Precinct Structure Plan* propose extension of this shared path north and south to provide a continuous path between the Cranbourne Rail Line and Ballarto Road. It is expected that the *Brompton Lodge Precinct Structure Plan* (currently being prepared) for the recently rezoned land east of WPH between Ballarto Road and Cranbourne-Frankston Road will also include a shared path along the east side of WPH.

It is not considered necessary to provide a shared path within the freeway reservation between the Cranbourne Rail Line and Cranbourne-Frankston Road, as the shared path through the adjacent development is considered adequate to accommodate cycling and pedestrian demands.

Assessment of pedestrian and cyclist needs and discussions with the three abutting Councils indicate that the project should include the following:

- Shared path between South Gippsland Highway and the Cranbourne Rail Line and between Cranbourne-Frankston Road and the southern limit of the project (to provide a continuous shared path for the full length of WPH as part of the project or by others).
- Shared path overpass of the Cranbourne Rail Line to provide north-south connectivity.
- Shared path overpass of WPH near the Cranbourne Rail Line to provide east-west connectivity.
- Underpasses or signalised crossings of all cross roads to provide north-south connectivity.
- Cyclist and pedestrian provisions on all cross-roads, including connectivity to existing provisions.
- Signalised pedestrian crossings facilities at all interchanges.

The WPH project includes all of the above proposals, subject to any future budgetary considerations in relation to the shared path overpasses.

## 8.3 Rail Freight

As discussed in Section 4.4, the WPH project includes allowance for a rail line to the Port of Hastings. The rail line is generally located within the freeway median, except at its connection to the existing Cranbourne Rail Line.

Various options for connecting the proposed rail line to the existing Cranbourne Rail Line were considered, including the options discussed in *Concept Design and Engineering Considerations (AECOM, June 2014)*. The preferred option locates the rail line west of WPH between the Cranbourne Rail Line and approximately 600m south of Glasscocks Road and within the WPH median further south. This option minimises the costs and impacts of constructing the rail line.

It has not been necessary to change the minimum horizontal and vertical alignment criteria for the WPH project to accommodate the rail line. The horizontal and vertical alignment of the rail line generally follows the horizontal and vertical alignment of WPH, except for the vertical alignment of the rail line between Glasscocks Road and Thompsons Road, at and south of the southern limit of the study and beneath the side road overpasses. At these locations, the rail line follows a different vertical alignment to achieve a maximum grade of 2% and minimum vertical clearance of 7.1m.

# 9. CONCLUSIONS

Road network modelling shows that a freeway is required along WPH between South Gippsland Freeway and Cranbourne-Frankston Road to accommodate long term traffic demands associated with surrounding urban development, and to avoid undesirably high traffic volumes being experienced on parallel roads.

The project includes full movement interchanges at Glasscocks Road, Thompsons Road, Hall Road and Cranbourne-Frankston Road, consistent with these roads being future primary arterial roads.

Consideration has been given to the need for interchanges at the future secondary arterial roads of Wedge Road and Ballarto Road. Northerly ramps are proposed at Wedge Road to provide good access to a proposed industrial/employment area and relieve the Thompsons Road interchange. An overpass without ramps of WPH is proposed at Ballarto Road, as there is no compelling economic or accessibility justification for interchange ramps.

All other roads intersecting with WPH are proposed to be closed, including the local roads of Monash Drive, Northey Road, Bayliss Road, Moreton Bay Boulevard, Carbine Way, Pandora Drive and Carrboyd Road. All driveways along WPH and some driveways on east-west cross roads affected by WPH interchange and overpass proposals will also require closure.

Most road closures are expected to have negligible impact on the operation of the surrounding road network, as adequate alternative access routes exist. The most significant impacts relate to the closure of access to/from WPH at Moreton Bay Boulevard and Ballarto Road. Although alternative access routes exist, selected intersections along these routes (ie. Glasscocks Road/Aylmer Road, Ballarto Road/Potts Road and Hall Road/McCormicks Road) will be upgraded to accommodate diverted traffic.

Access will be restored to all properties affected by driveway closures, via new roads and/or new driveways, except two service stations abutting the east side of WPH. These service stations largely rely on passing trade from WPH, and it is not safe to maintain access to/from WPH.

AECOM's concept design plans show proposals for restoring access to affected properties. The proposals focus on providing safe and convenient alternative access routes, minimising social, business and environmental impacts, and addressing (where possible) the concerns of affected property owners. The access changes are not expected to cause any adverse impact to the operation of the surrounding road network.

Other than the impacts to the above service stations and the possible impact to another business partly reliant on passing trade, the impacts of the access changes on the operation and viability of affected businesses along and near WPH is expected to be minimal.

# APPENDIX A - PROPERTIES ALONG WPH

**Figure A1**

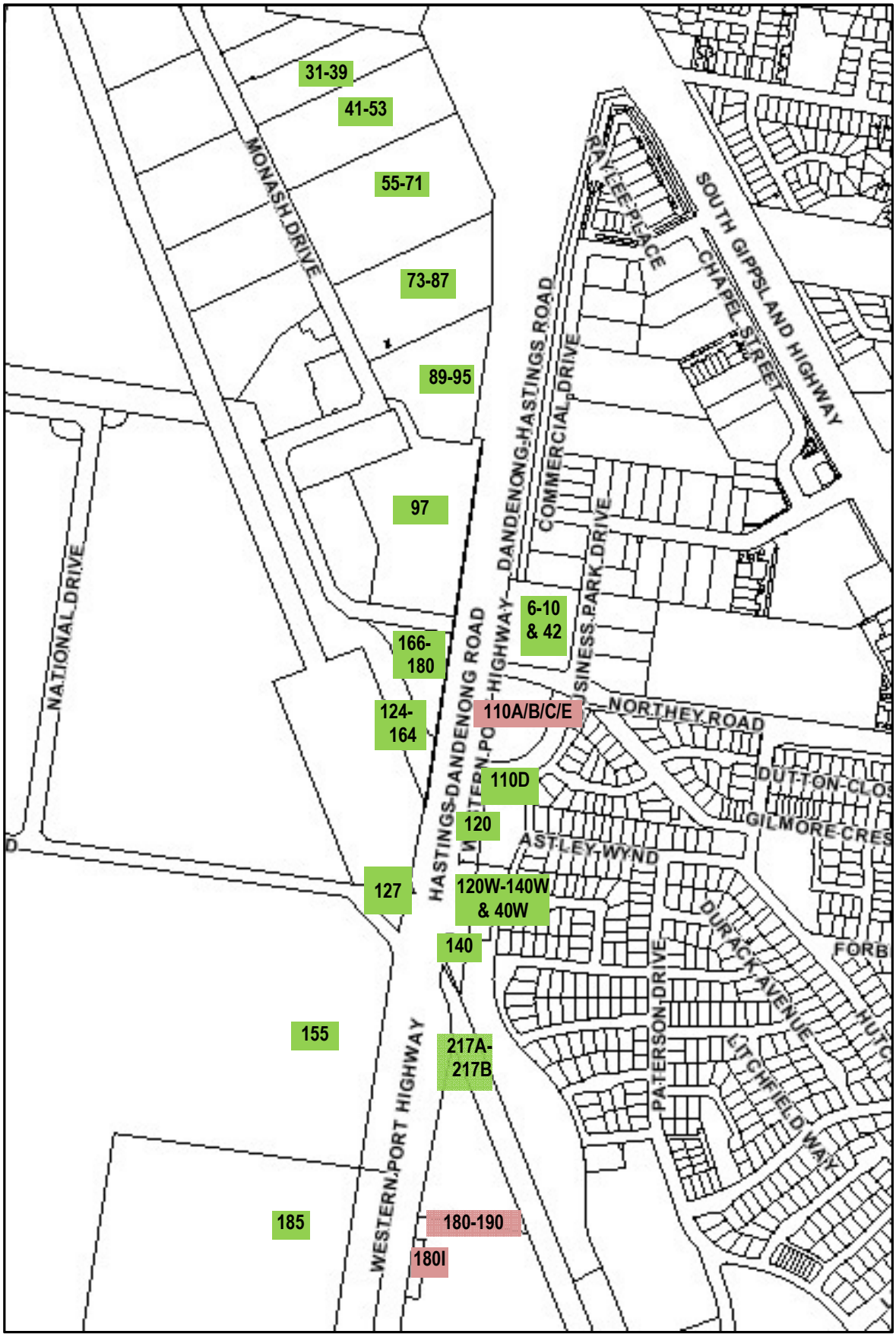

31-39
41-53
55-71
73-87
89-95
97
6-10 & 42
166-180
124-164
110A/B/C/E
110D
120
120W-140W & 40W
140
127
155
217A-217B
185
180-190
180I
MONASH DRIVE
NATIONAL DRIVE
HASTINGS-DANDENONG ROAD
DANDENONG-HASTINGS ROAD
COMMERCIAL DRIVE
BUSINESS PARK DRIVE
RAY LEE PLACE
CHAPEL STREET
SOUTH GIPPSLAND HIGHWAY
NORTHEY ROAD
DUTTON CLOS
GILMORE CRES
ASTLEY WYND
DURACK AVENUE
LITCHFIELD WAY
PATERSON DRIVE
WESTERN PORT HIGHWAY

**Figure A2**


185
180-190
200-210
214
265
335
325
310-312
WESTERN PORT HIGHWAY
DANDENONG-HASTINGS ROAD
CARABEEN WAY
BRAMBLE CLOSE
FIGTREE WALK
AYLMER ROAD
WESTBURY
CARBINE WAY
BISCAY GROVE
SUNLINE WAY
GLASSCOCKS ROAD
WESTERN PORT HIGHWAY
HASTINGS-DANDENONG ROAD
TUSCAN COURT
MELINGTON DRIVE
HURST BOULEVARD
TEA TREE
HUGDEN

**Figure A3**

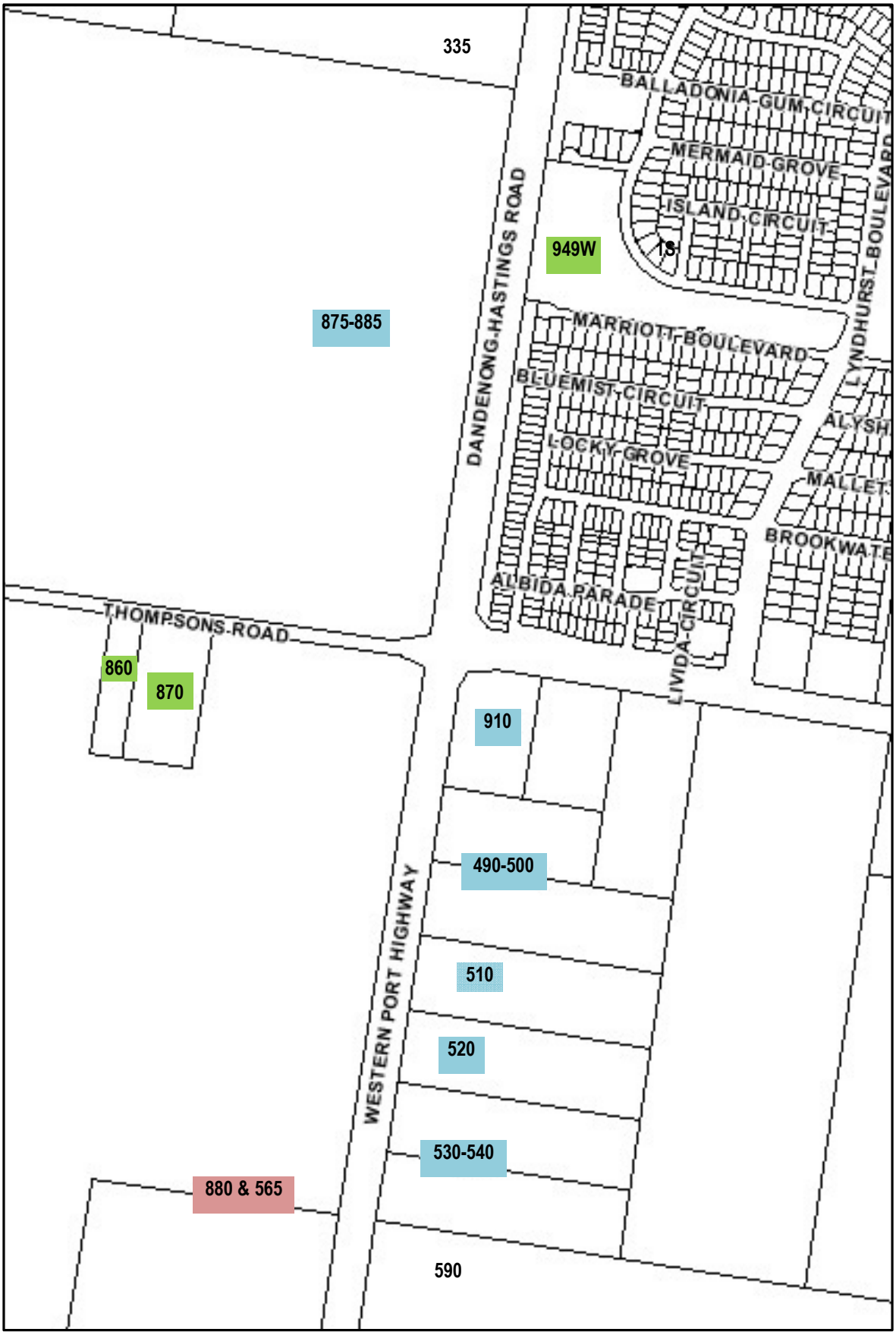

335
BALLADONIA-GUM-CIRCUIT
MERMAID-GROVE
ISLAND-CIRCUIT
949W
18
875-885
DANDENONG-HASTINGS ROAD
MARRIOTT-BOULEVARD
LYNDHURST-BOULEVARD
BLUEMIST-CIRCUIT
LOCKY-GROVE
ALYSH
MALLET
BROOKWATE
ALBIDA-PARADE
LIVIDA-CIRCUIT
THOMPSONS-ROAD
860
870
910
490-500
510
520
530-540
880 & 565
590
WESTERN PORT HIGHWAY

**Figure A4**


880 & 565
530-540
590
WESTERN PORT HIGHWAY
605
620
WEDGE ROAD
640W
HASTINGS-DANDENONG ROAD
665
671
675
685
BREASLEY ROAD
695
690 & 635
715
DANDENONG-HASTINGS-ROAD

**Figure A5**

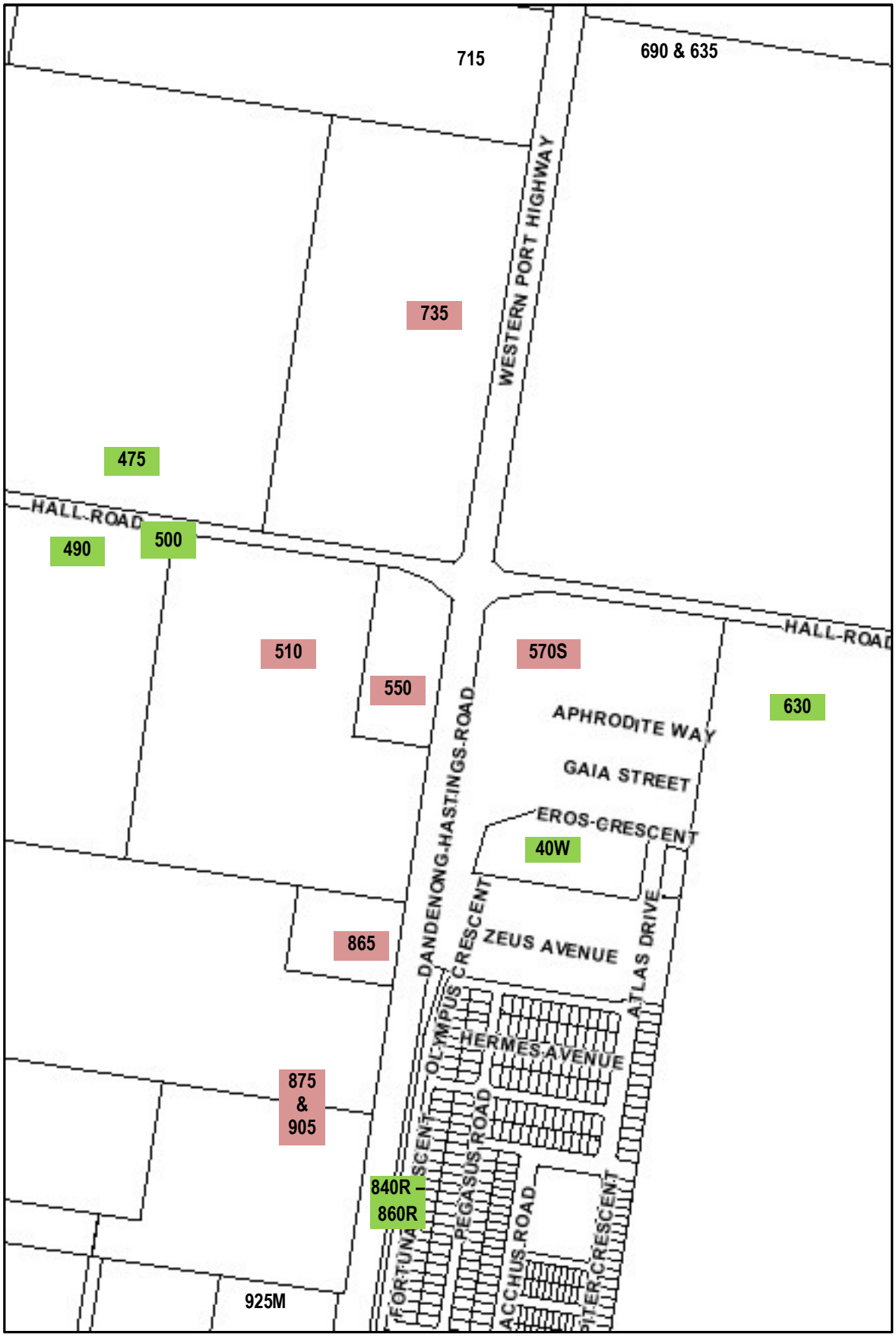

715
690 & 635
WESTERN PORT HIGHWAY
735
475
HALL ROAD
490
500
510
550
570S
630
APHRODITE WAY
GAIA STREET
EROS CRESCENT
40W
DANDENONG-HASTINGS ROAD
OLYMPUS CRESCENT
ZEUS AVENUE
ATLAS DRIVE
HERMES AVENUE
865
875
&
905
840R
860R
PEGASUS ROAD
ACCHUS ROAD
925M

**Figure A6**

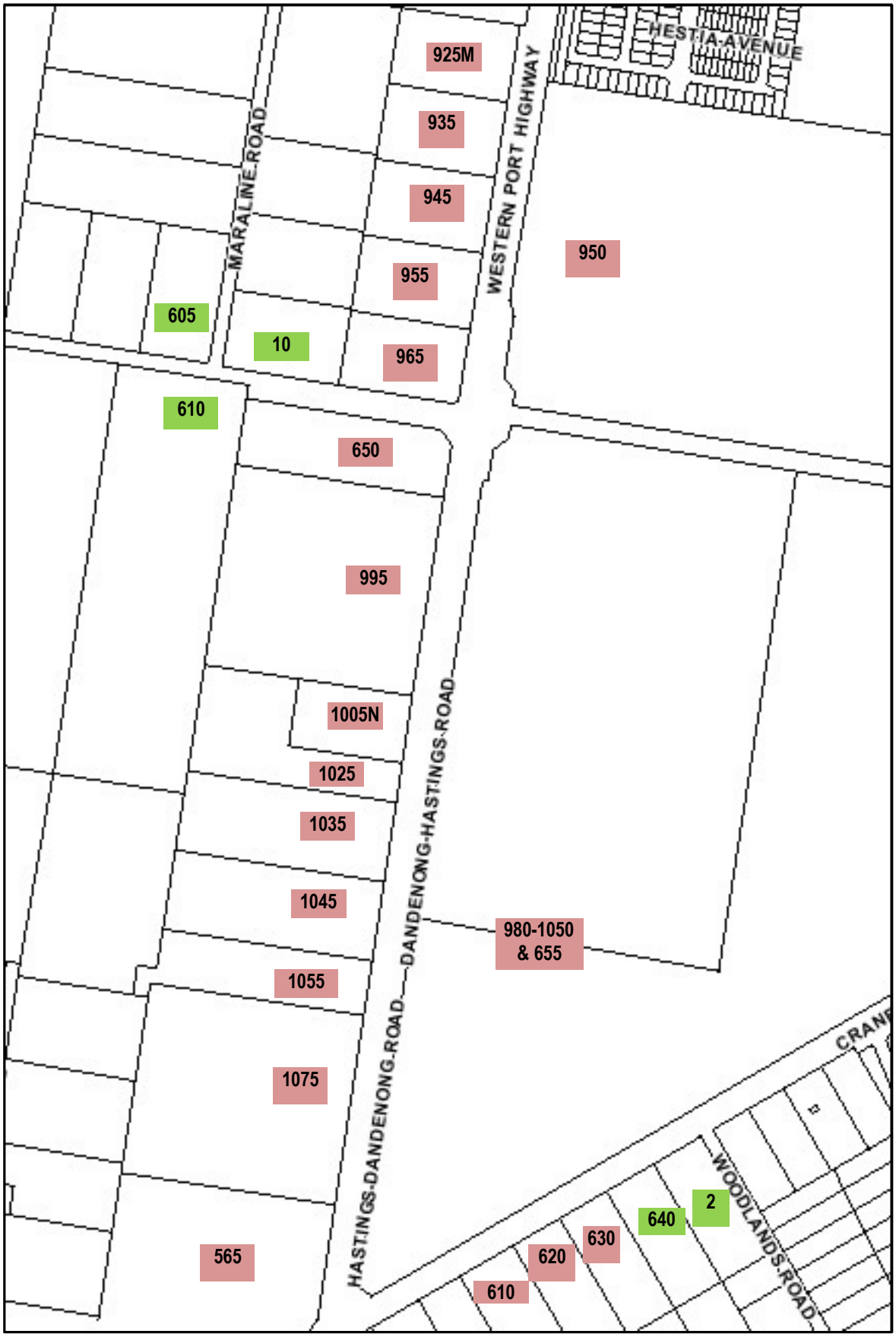
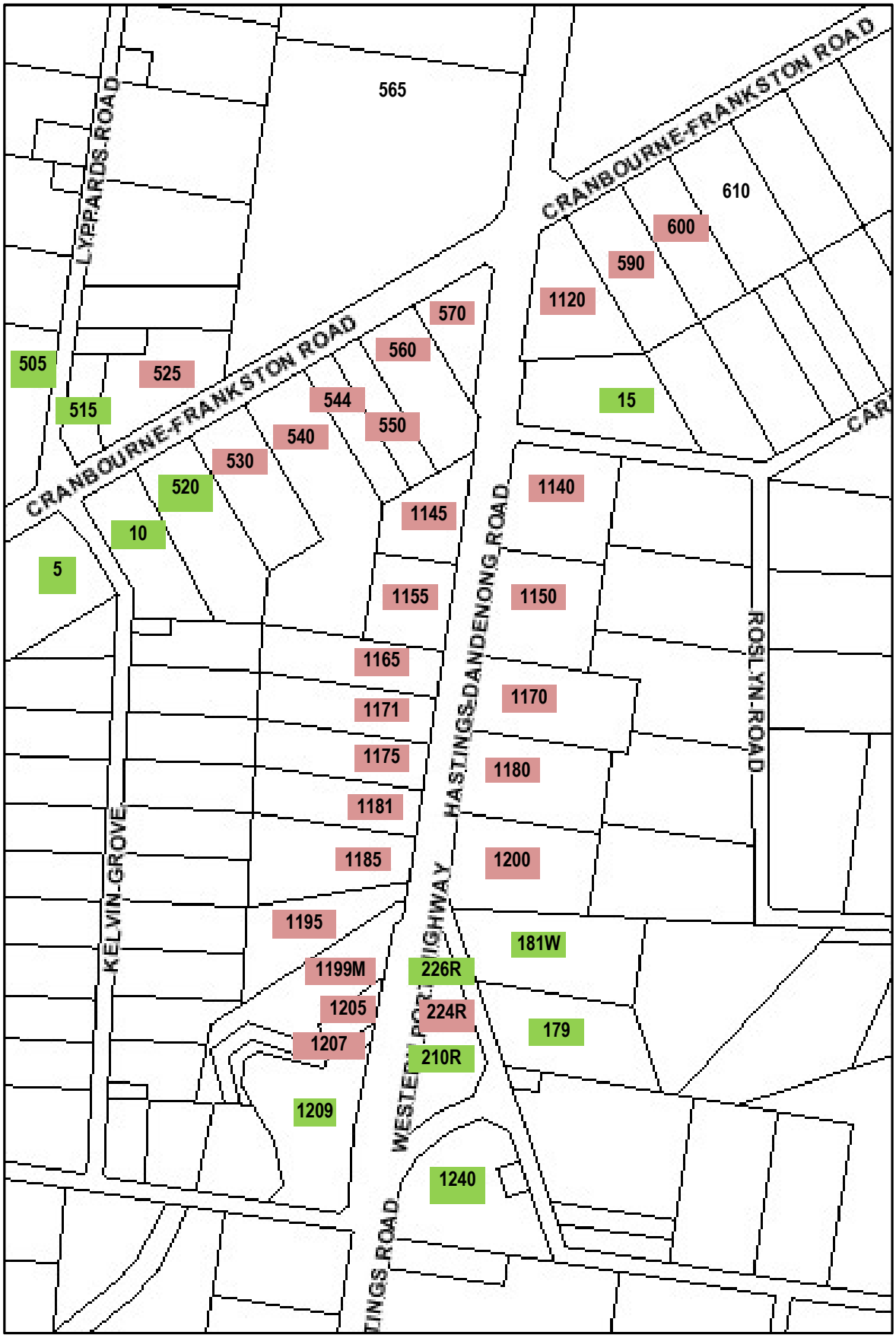

HESTIA AVENUE
MARALINE ROAD
WESTERN PORT HIGHWAY
925M
935
945
950
955
605
10
965
610
650
995
1005N
1025
1035
1045
980-1050
& 655
1055
1075
565
HASTINGS-DANDENONG ROAD
DANDENONG-HASTINGS ROAD
WOODLANDS ROAD
2
640
630
620
610

**Figure A7**


565
610
600
590
1120
570
560
505
525
544
515
550
540
530
520
10
5
1140
1145
1155
1150
1165
1170
1171
1175
1180
1181
1185
1200
1195
181W
1199M
226R
1205
224R
179
1207
210R
1209
1240
LYPPARDS ROAD
CRANBOURNE-FRANKSTON ROAD
CRANBOURNE-FRANKSTON ROAD
15
HASTINGS-DANDENONG ROAD
ROSLYN ROAD
KELVIN GROVE
WESTERN HIGHWAY
TINGS ROAD