LeadWest and Western Transport Alliance

3 August 2012

Western Transport Strategy

Western Transport Strategy

Prepared for

LeadWest and Western Transport Alliance

Prepared by

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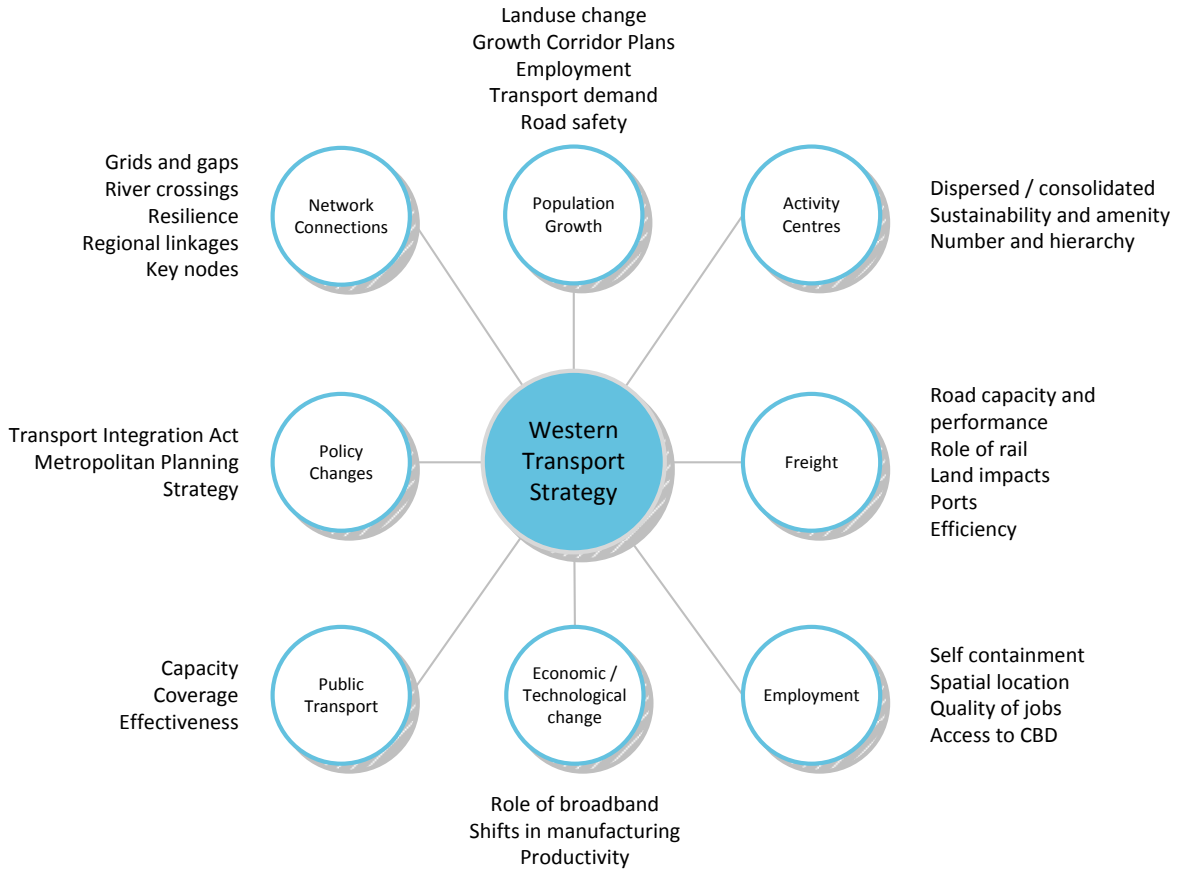
Executive Summary

Between 2012 and 2026 the Western Region is expected to be the major population and industrial growth region in Melbourne. By 2026, it will have a population similar to Adelaide, and will need activity centres, transport infrastructure and services commensurate with an urban area of this size. This transport plan outlines the strategic direction for the Region's transport response and provides a context for the projects identified by the Western Transport Alliance and LeadWest as priorities for the Region's development.

This Strategy has been developed by and for the Western Region, with technical and process support from AECOM. The Strategy was developed through a top-down process that established a Vision and Strategic Objectives, assessed issues, opportunities and gaps in the transport performance of the Region, and identified projects that were effective, suitable and feasible to address the transport challenges.

The Region has many transport challenges. Principal issues include network resilience, access to and competition between ports, urban growth, and rapidly changing manufacturing, transport and logistics economic sectors. The following diagram is a thematic mind-map of the key challenges.



The Vision of the Region in response to these challenges is:

A liveable, productive and prosperous community, whose nationally significant economic and sustainable growth capabilities are strengthened and supported by its integrated transport system.

To support this Vision, six Strategic Objectives have been developed. They are:

1) Economic Development: Promote opportunities for transport to support sustainable economic prosperity for the region

2) Competitive Positioning: Sustain and develop the region's competitive advantages through the design of the transport network

3) Access to Employment: Increase accessibility to employment opportunities in the region to facilitate better management of travel demand

4) Impact Reduction: Reduce the adverse impacts from transport operations on the region

5) Resilient alternatives: Provide improved transport alternatives to address changing transport demands resulting from changes in land use and demographics

6) Freight: Develop an integrated freight system for the region

A suite of projects consistent with these strategic objectives has been identified in conjunction with stakeholders, with an emphasis on network-level project identification. The projects all contribute to the development of a better integrated transport and land use system.

Many of the projects are suitable for a range of innovative funding mechanisms including public private partnerships, tax increment financing, land development, transit-oriented development, development infrastructure charges and direct user charging.

The projects are:

- East West Link (Western Section)
- SmartRoads Growth Area Plan
- Managed Motorways on the Region's freeway system
- Growth area arterial roads – corridor upgrades
- Activity centre arterial road/rail grade separations
- Seven Transit Network Development packages:
    - Upgrading existing premium routes
    - Regional Rail Link package
    - Melbourne Metro / Melbourne Airport Rail Link package
    - Westgate Freeway Bus Rapid Transit package
    - Melton Rail Upgrade package
    - Avalon Airport Rail Link
    - Second CBD Rail Corridor Planning
- Bay West Port Study
- Principal Freight Networks
- Western Freight Activity Centre (incorporating Western Intermodal Freight Terminal and Metropolitan Intermodal System)
- Outer Metropolitan Ring Transport Corridor
- Cycling Network Development

1.0 About This Strategy

Between 2012 and 2026 the Western Region is expected to be the major population and industrial growth region in Melbourne. By 2026, it will have a population similar to Adelaide, and will need activity centres, transport infrastructure and services commensurate with an urban area of this size. This transport plan outlines the strategic direction for the Region's transport response and provides a context for the projects identified by the Western Transport Alliance and LeadWest as priorities for the Region's development.

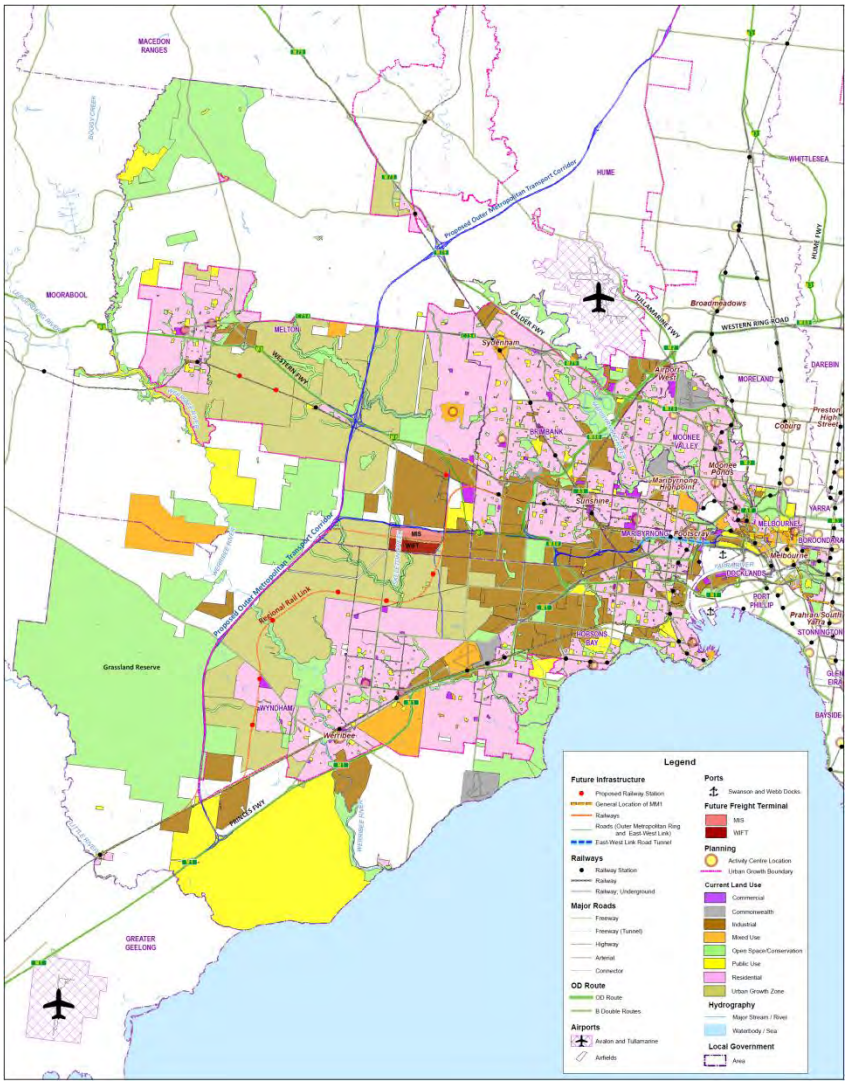
1.1 Project Partners

This Regional Transport Strategy is for the Western Region of Melbourne. It has been prepared for the partnership of the Western Transport Alliance (WeTAI) and LeadWest. This transport strategy has been funded by Brimbank City Council, Hobsons Bay City Council, Maribyrnong City Council, Melton Shire Council, Moonee Valley City Council, Wyndham City Council, LeadWest, Western Melbourne RDA Regional Development Victoria and the Department of Transport.

The other members of the Western Transport Alliance were involved in discussions on this strategy but it does not necessarily reflect their views or endorsement of the Western Transport Strategy.

WeTAI is an alliance of the seven councils in the Region (Brimbank, Hobsons Bay, Maribyrnong, Melbourne, Melton, Moonee Valley and Wyndham, shown in Figure 1), LeadWest, the Port of Melbourne Corporation, VicRoads, the Department of Transport, Transport Workers Union, National Union of Workers, Victoria University, the RACV, Victorian Transport Association and major transport, stevedoring and logistics companies operating out of the region.

Figure 1 The Western Region

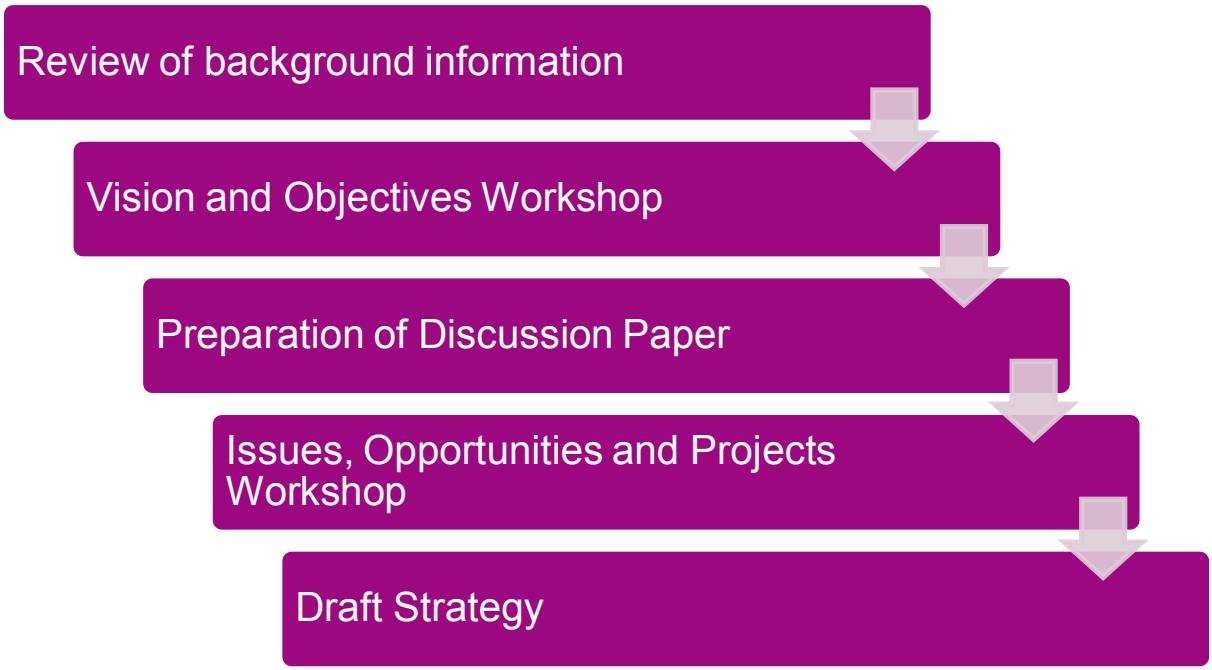


LeadWest is a regional organisation for Melbourne's west. Its objective is to foster and undertake actions that will support sustainable growth and development of the region. LeadWest aims to build on the existing social, economic and environmental capacity of the region and to plan and create a sustainable future for the well being of the communities of the region. LeadWest is constituted as a company limited by guarantee without share capital. Any organisation with operations in the region may apply for membership.

1.2 How the strategy has been developed

This Strategy has been developed by and for the Western Region, with technical and process support from AECOM. The Strategy was developed through a top-down process that established a Vision and Strategic Objectives, assessed issues, opportunities and gaps in the transport performance of the Region, and identified projects that were effective, suitable and feasible to address the transport challenges. Figure 2 provides a summary of the study process.

Figure 2 The development of the Western Transport Strategy involved regular stakeholder engagement



The Strategy has been developed with reference to over seventy strategic and tactical documents prepared by local, State and Federal Governments and regional groups that apply to the Region. A reference list of documents cited in this Strategy is included in Chapter 11.0.

1.3 Time horizons

This strategy has been prepared considering two time horizons – short term (2012-2016), and a longer term 20-year horizon.

These time horizons shape the focus of the Vision for the strategy, rather than provide a target year for modelling or forecasting. This strategy has a philosophy of identifying the desired future and actions to move towards it, rather than a 'predict and provide' approach.

This Strategy should be considered a 'living document', with new initiatives that are consistent with the Strategic Objectives incorporated as new evidence increases the Region's understanding of emerging transport challenges. For example, additional transport corridors and links in the transit network may be identified that support the strategic objectives and fit with emerging National and State integrated transport strategies.

1.4 Structure of this Strategy

This Strategy is structured to present:

- **overarching strategic themes and challenges** for the Region, and the Region's aspirational **strategic response** in its Vision in the first two chapters.
    - Chapter 2.0 outlines the regional strategic context, with a focus on land use; population, demographics and growth, and social characteristics.

  - Chapter 3.0 outlines the strategic vision and objectives developed for the Strategy.

- **Strategic directions** by transport task or mode in the next section of three chapters. Each chapter outlines specific challenges and directions, and the key supporting projects, for each task as follows:
  - Chapter 4.0 covers development of the arterial road network
  - Chapter 5.0 covers public transport
  - Chapter 6.0 covers the freight network
  - Chapter 7.0 covers walking and cycling
- Strategy **implementation** – the projects needed to advance the Strategic Objectives, the funding sources that will need to be drawn on, and the process of reviewing the strategy itself.
  - Chapter 8.0 discusses funding, delivery and implementation issues
  - Chapter 9.0 profiles important transport projects
  - Chapter 10.0 recommends a review and monitoring process for this Strategy.
- References cited in this Strategy are listed in Chapter 11.0.

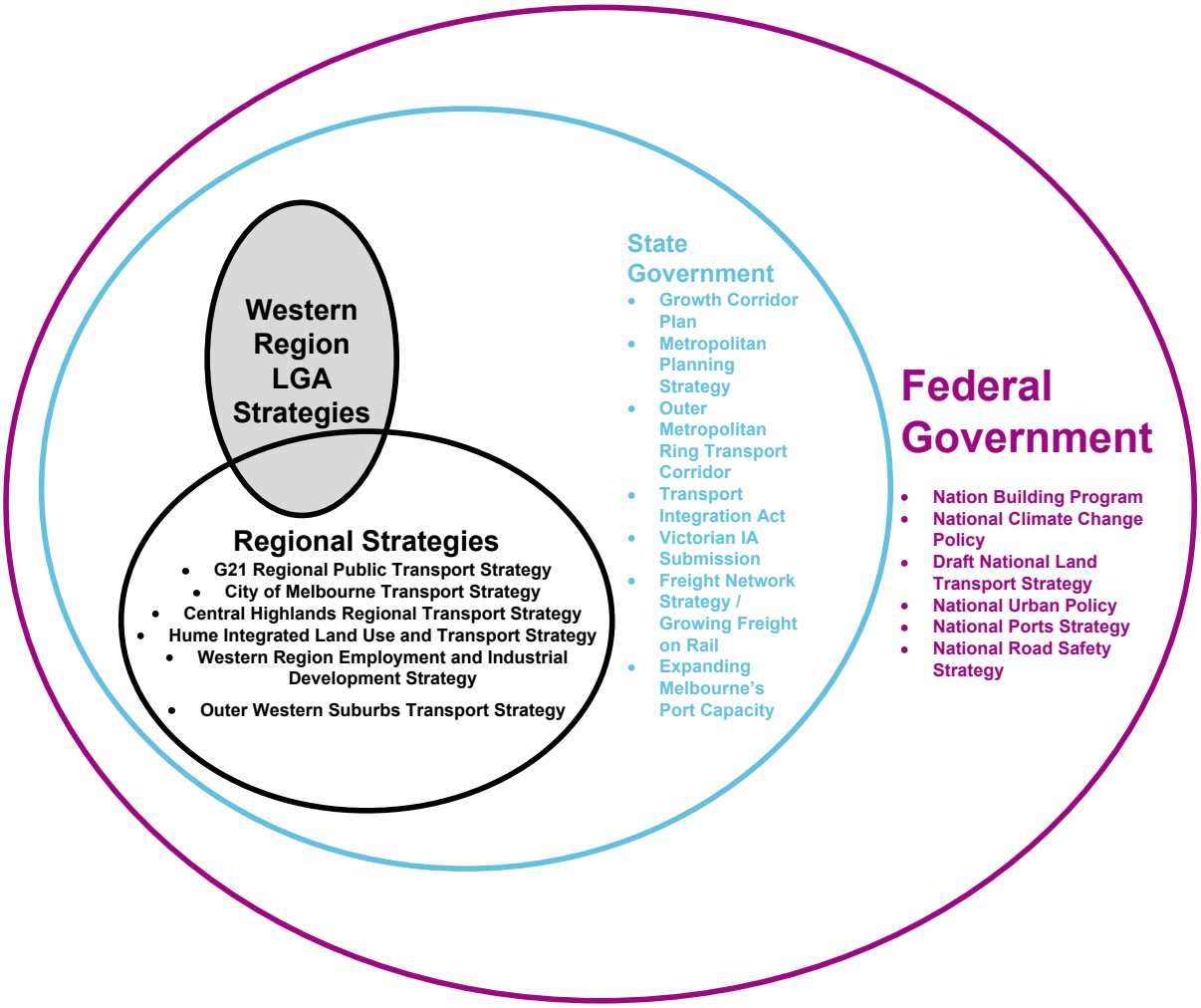
2.0 Regional Strategic Context

This Chapter first introduces the overarching policy framework for transport in the Region. The policy framework provides a context for a discussion of existing and planned land uses, population and demography that follows in the second half of this section.

2.1 Policy context

Transport policy making in the Western Region is influenced by all levels of Government. A summary of the policy framework is provided in Figure 3. The diagram shows the Federal and State governments jointly make policy decisions in areas like the 'Nation Building Program', where the Federal Government chooses to fund priorities proposed by Victoria in its Infrastructure Australia submission. Policy making also overlaps increasingly in urban planning. However, the State still has considerable independence as well, creating the *Transport Integration Act* as an overarching State policy framework.

Figure 3 Summary of current policy framework



The Federal and State Governments wield most influence on Regional transport outcomes through their control of infrastructure development, service delivery and strategic land use planning. The following two diagrams provide a summary of Federal and State Government policy respectively. A noteworthy policy gap is the lack of Federal and State overarching integrated transport strategies.

Figure 4 Summary of Federal Government policies

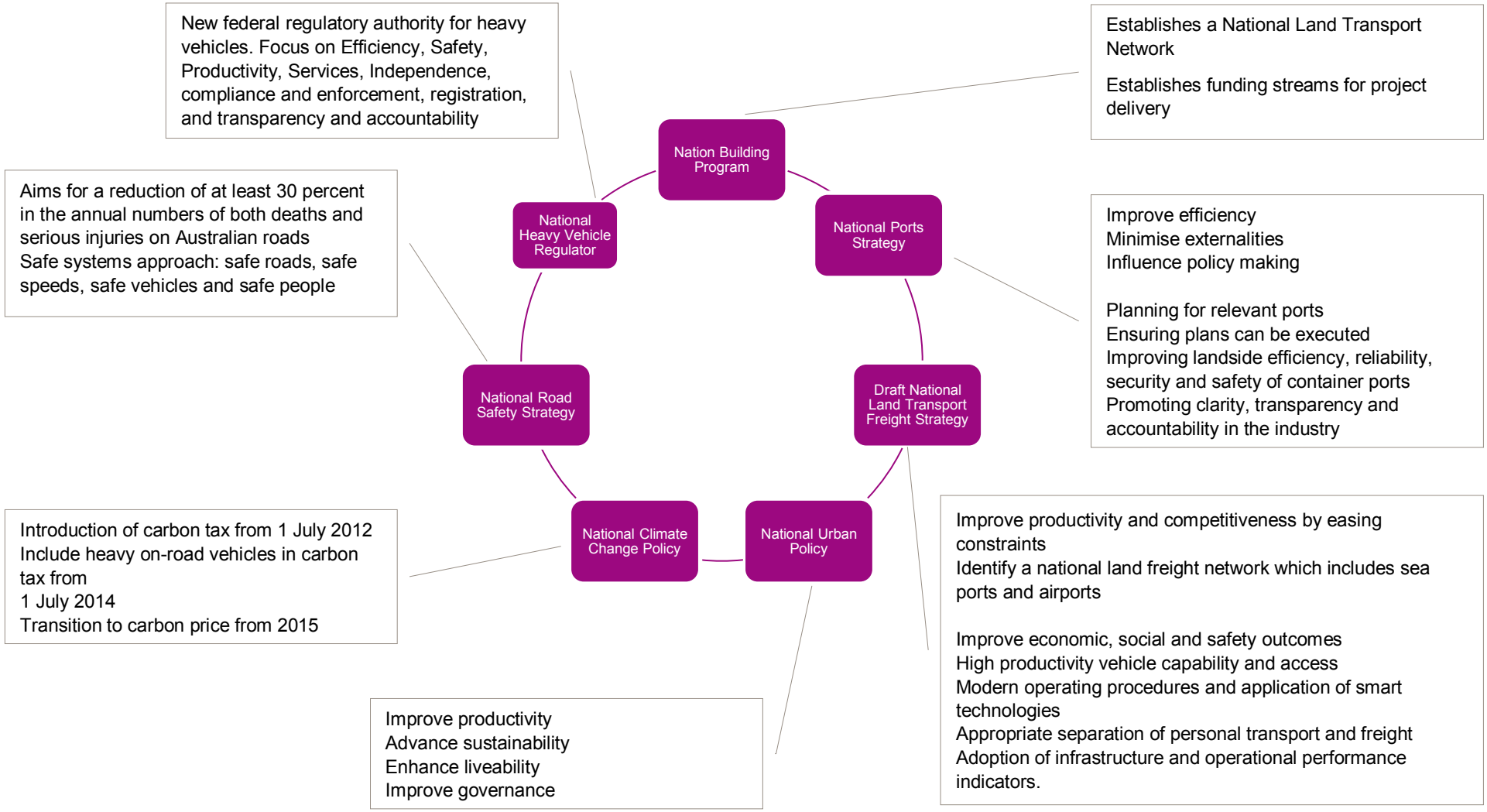


Figure 5 Summary of State Government policies

Principal Freight Network

Metropolitan Intermodal System

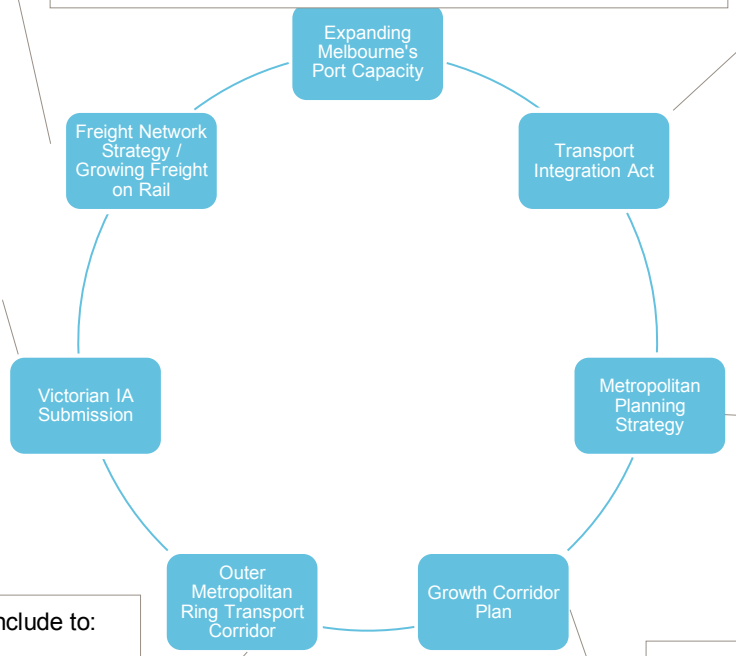
Western Intermodal Freight Terminal

Reconfigure and redevelop Webb Dock to a terminal capable of handling at least 1 million TEU container throughput.
Enhance Swanson Dock through a range of works including reconfiguring internal road linkages
Improve transport links and redirect port traffic away from residential streets

Unifies and integrates all elements of the transport portfolio
Establishes triple bottom line principles for the transport system
Encourages integrated multi-modal planning
Provides a framework for integrated and sustainable transport policy and operations
Integrates land use and transport planning by extending the Act to key land use agencies
Aligns the charters of transport agencies with the overarching policy framework.

Submission focuses on five themes:

- Taking action to maximise the efficiency of existing infrastructure
- Unlocking development capacity in Melbourne through identifying integrated urban renewal opportunities
- Progressing new, strategic city-shaping projects that would increase capacity at the core of the transport network
- Planning for and protecting transport corridors to Victoria's international and domestic Airports
- Increasing the capacity of the State's ports and freight networks to meet the nation's growing freight task



Outcomes-based strategy.
Aims to provide increased certainty for Melbourne and Victoria's growth and development over a long-term time horizon to 2051.
Foundation of a future pipeline of infrastructure works across Government.
In preparation during 2012-13.

Future road and rail transport corridor. Its functions include to:

- create better connections to international transport hubs
- serve as an important travel and freight route to interstate and regional destinations
- link residential and employment growth areas north and west of Melbourne
- define a hard edge to the western growth corridor

Outlines the infrastructure and land uses envisaged across the West Growth Corridor.

Based on principles of

Greater self-containment
Job and housing diversity
Improved transport links
Envisages a number of significant transport projects

2.2 Performance against Victorian *Transport Integration Act* policy objectives

The Region's transport system is a poor performer when measured against many of the policy objectives set for it particularly by the *Transport Integration Act*. AECOM's assessment of current overall performance is shown below in Table 1. Key points are:

- **Social and economic inclusion:** Congestion and poor public transport supply are barriers to addressing this policy outcome, as they prevent transport being available to all who wish to use it. Congestion is rising and public transport supply is not significantly growing, except through the one major rail project currently funded.
- **Economic prosperity:** The transport system's freight movements are the basis of significant economic activity, but congestion and growth pressures are emerging across all modes.
- **Environmental sustainability:** There seems to be little improvement in environmental sustainability, with improved efficiency of private vehicles outweighed by growth. The transport/land use system in growth areas is difficult to sustain with walkability, public transport supply and car dependency issues. (Wyndham City Council, 2011)
- **Integration**: the freight transport system has some areas where it is poorly integrated with adjacent land uses, resulting in localised severe impacts on residents, but planning is in place for future freight transport to be better integrated. Public transport has poor integration because of low frequencies, poorly co-ordinated services and low quality interchange facilities at the railway stations in the principal activity centres that are the major transit network nodes. There is minimal transit-oriented land use development.
- **Efficiency, coordination and reliability:** Recent improvements in public transport service delivery are positive, but whether this trend marks the beginning of a sustained improvement from recent very poor performance is unknown. Excessive reliance on private mobility and poor use of key infrastructure capacity, such as the congestion of the West Gate Freeway by private cars that delay higher capacity and value public transport and freight movements, means that the road system's performance is poor.
- **Safety, health and wellbeing:** This continues to be an important issue for ongoing improvement. Car dependence results in broader social malaises and poor wellbeing outcomes.

Table 1 Assessment of the Western Region's transport system practices against the Transport Integration Act.

Legend	Definition (the more symbols, the greater the impact)
×	Current conditions meet objectives poorly.
✓	Current conditions meet objectives well.
⚑	There are opportunities to improve.
—	The current trend is neutral.
↑	The current trend is moving in the right direction.

Assessment						
Transport Integration Act Objective	**General road-based mobility**		**Freight movement**		**Public transport**	
	Current	**Trends**	**Current**	**Trends**	**Current**	**Trends**
Social and Economic Inclusion	×	⚑	×	⚑	×	—
Economic Prosperity	×	⚑	✓	⚑	×	⚑
Environmental Sustainability	×	—	×	—	✓	—
Integration	✓	⚑	×	—	×	⚑
Efficiency, Coordination and Reliability	×	⚑	×	⚑	×	↑
Safety, health and wellbeing	×	—	×	—	✓	—

2.3 Land use and geography

Current conditions

The Western Region's supply of abundant, flat land makes it highly suitable for broadacre residential, industrial and strategic transport land uses.

The Region, with its immediate neighbours, continues to be the best strategic location for uses that are land-hungry. These include three airports at Tullamarine, Essendon and Avalon, the Port of Melbourne, rail terminals and freight and logistics warehousing and distribution centres.

The Region has a number of 'enclaved' satellite dormitory suburbs that are separated from other residential areas by industrial or rural precincts. These include Werribee/Hoppers Crossing/Tarneit, Point Cook/Laverton and Melton. These areas are significant for their opportunities for self-containment but they also have restricted access routes, often relying on one major arterial road and rail route for access. They also have poor public transport provision and poor quality declared main roads.

Victoria's major regional cities of Geelong, Ballarat and Bendigo are also directly accessible from the Western Region, and strong functional and spatial links exist. For example, almost 3000 people travel between Wyndham and Geelong for work. The Region has access to the major interstate transport corridors, such as the Western Highway to Adelaide and the Hume and Newell corridors to the Murray-Darling foodbowl, Sydney and Queensland, as well as access to the nodes of international trade – the airports and maritime ports, without needing to travel through the congested inner core of greater Melbourne.

The Western Region's strategic geographic location provides access to all major transport corridors and terminals without needing to traverse the congested CBD. Compromising this strategic competitive advantage could threaten the Region's future prosperity.

The Region is relatively close to the CBD compared to other growth areas. The West has ready access to the Central Business District and inner city employment precincts, with their higher-order social and economic capital resources and infrastructure. This means the Western Region is able to support Greater Melbourne, and strategically draw on external resources, with less adverse impact on the metropolis than other Regions.

The Western region (excluding the City of Melbourne) has an employment base of approximately 200,000 employees (see Figure 6). Manufacturing, transport/postal/warehousing, retail and community services, and government sectors provide over half of the jobs. The manufacturing and Transport/Postal/Warehousing sectors are the largest employment sectors, employing around 58,000 people in total in 2011 and comprising 25% of the regional workforce.

There are not enough jobs in the Western Region for the population. Figure 7 shows the outer areas with extensive residential development, like Melton, Wyndham and Brimbank are strong labour exporters to the inner city areas. This land use pattern results in strong tidal commuter patterns.

Figure 6 Jobs divided by supergroup for the western region, excluding Melbourne (Ratio Consultants Pty Ltd et al, 2007)

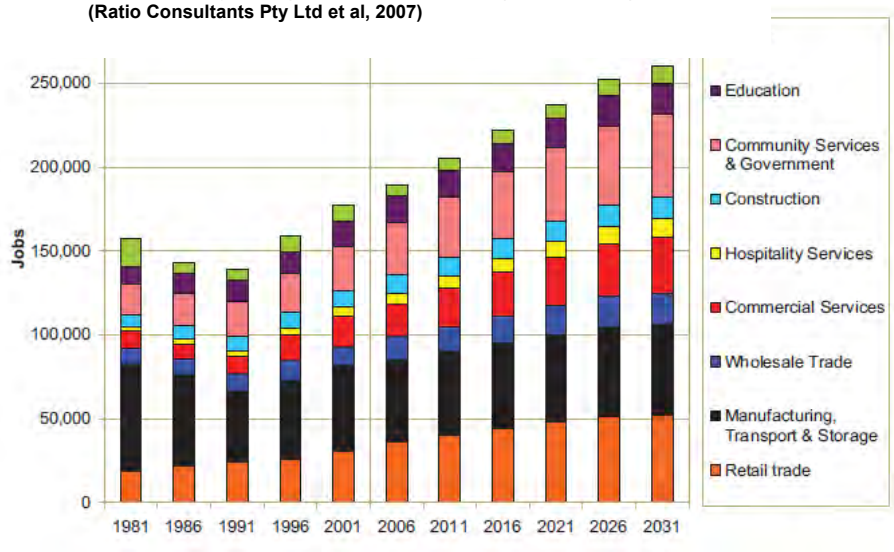
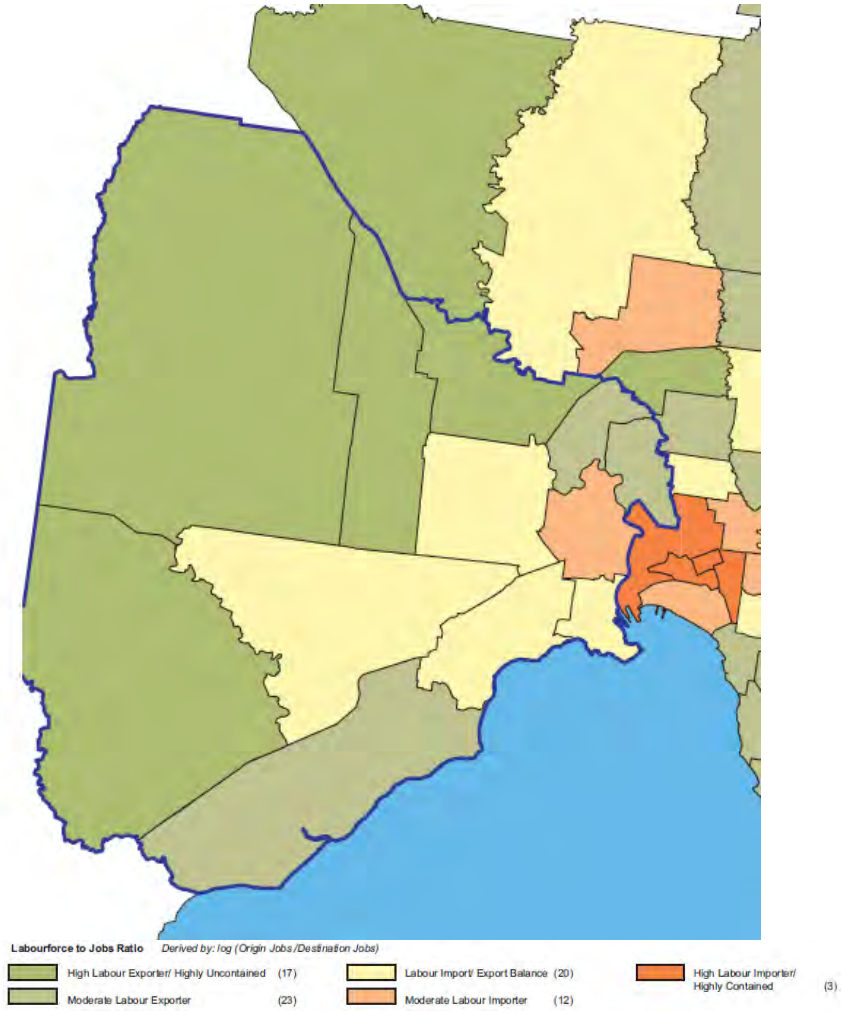


Figure 7 Areas of labour import/export (Ratio Consultants Pty Ltd et al, 2007)



Land use is rapidly changing in the inner areas of the Region, particularly in Maribyrnong, Hobsons Bay and Moonee Valley (Department of Planning and Community Development, 2012). These areas are transitioning from industrial land uses to inner-city residential and services-based employment precincts. Major urban renewal and redevelopment projects have been recently completed or are underway in Cairnlea, Footscray, West Footscray, Deer Park, Maribyrnong Defence Site, Moonee Valley Racecourse, and the Bradmill site in Yarraville West, and major urban redevelopment and central city expansion is planned for Arden/Macaulay, Parkville, the Dynon Road corridor (E-Gate) and Fishermans Bend. A longer term proposition is the Brooklyn Tottenham Employment Precinct, a triangular district generally bounded by the Princes Highway, the Tottenham Rail Line and the Western Ring Road. Much of the Precinct is degraded, underutilised and associated with significant amenity impacts. Current and future activities within the Precinct could form part of an opportunity for an urban renewal project which is being explored, particularly as an employment precinct that services the western region.

These types of development add significantly to the residential and visitor population of established areas, creating opportunities to make better use of some underutilised transport assets, but putting pressure on the parts of the transport system that are already heavily utilised. These pressures are seen in overcrowding on public transport, increased congestion at level crossings and on inner arterial roads, and in impacts from through traffic in activity centres.

At the same time, existing uses are being intensified. For example, the Port Capacity Project recently announced by Government will reactivate Webb Dock as a container terminal, redevelop its automotive trade infrastructure, and provide a new dedicated port traffic road link to the West Gate Freeway (Port of Melbourne Corporation, 2012). The new infrastructure will be capable of handling 1 million containers per year, and is estimated to account for around 5 percent of future traffic on the West Gate Freeway, further strengthening the importance of the bridge in the Australian logistics chain and the Western Region in Australia's economy.

Key Challenge

Activity Centres - A Challenge for the Metropolitan Planning Strategy

There are many town centres distributed across the Western Region, and a number of new town centres are identified in the Growth Corridor Plan.

But there is no focal activity centre for the outer region that is earmarked for higher-order social infrastructure such as galleries, theatres, tertiary education campuses and comprehensive care hospitals.

Footscray has been earmarked for this role, but Footscray is very close to the CBD and relies on its superior transport connections to serve the bulk of the region. In order to perform its role it encourages peak direction travel, placing added pressure on transport infrastructure which already struggles to cope.

Whilst a CAA may be considered difficult to justify in terms of population, there is a need to support the Region with focal points in addition to Footscray that provide higher order social infrastructure in order to reduce the demands on the transport network and help manage travel behaviour.

The reliance on limited crossings of the Maribyrnong and Yarra River, and the lack of local jobs, means that developing a higher-order Activity Centre that can support a higher share of local employment will have metropolitan-wide benefits by reducing travel and congestion on the West Gate Freeway, metro rail network and the potential East West Link.

There are a number of candidate centres, with Werribee and Sunshine forerunners but strategically located nodes with good transport connectivity and extensive land availability at Tarneit, Rockbank, Deer Park and Melton also worthy of consideration.

The Region is not likely to ever be entirely self-contained. In fact, strong links to other centres, especially the Melbourne CBD, Geelong and Ballarat, are key to its success. But strong connectivity to an internal Activity Centre, reducing pressure on strategic transport infrastructure, is a major opportunity.

Action: Identifying the Region's primary Activity Centres, and their relationship to the central city, should be a key recommendation of the Metropolitan Planning Strategy.

Future directions: The Melbourne West Growth Corridor Plan

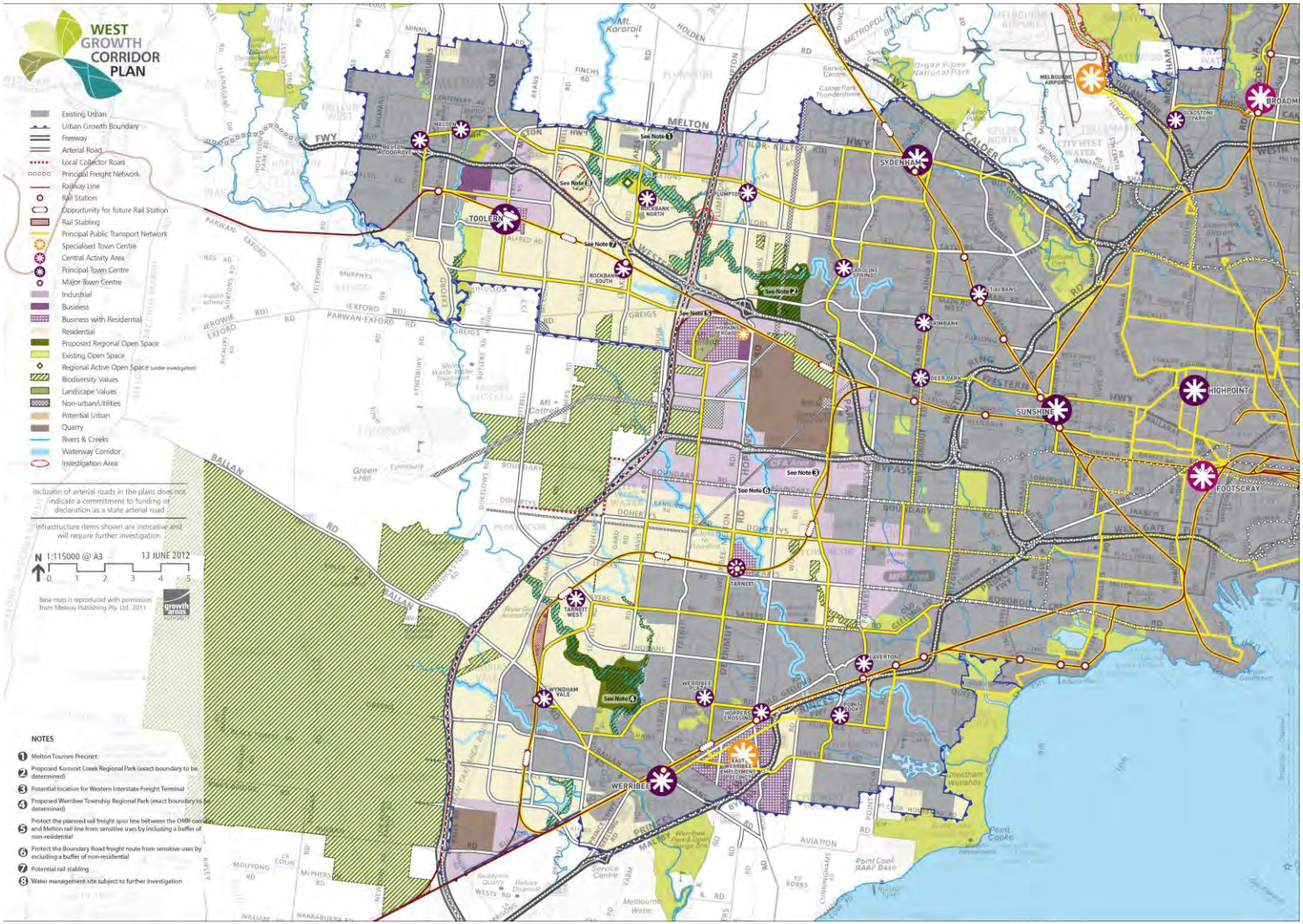
The Growth Areas Authority (GAA) published the final Melbourne West Growth Corridor Plan in 2012, outlining the infrastructure and land uses envisaged across the West Growth Corridor (Growth Areas Authority, 2012). This land was included in the Melbourne Urban Growth Boundary in 2010 in response to the demographic projections of *Melbourne @ 5 million*, and includes the significant corridor of lands around the Outer Metropolitan Ring (OMR) transport corridor and the Regional Rail Link.

The three priority themes that have driven the philosophy of this growth corridor plan are

1) Greater self-containment
2) Job and housing diversity
3) Improved transport links

The Growth Corridor Plan identifies corridors and sites for a number of significant transport projects, including a comprehensive 1.6km arterial road grid, nine infill railway stations and the Western Intermodal Freight Terminal. An overview plan of the Growth Corridor has been prepared by the GAA and is shown in Figure 8.

Figure 8 The West Growth Corridor Plan map (Growth Areas Authority, 2012)



Future directions: Land Use Planning Strategies

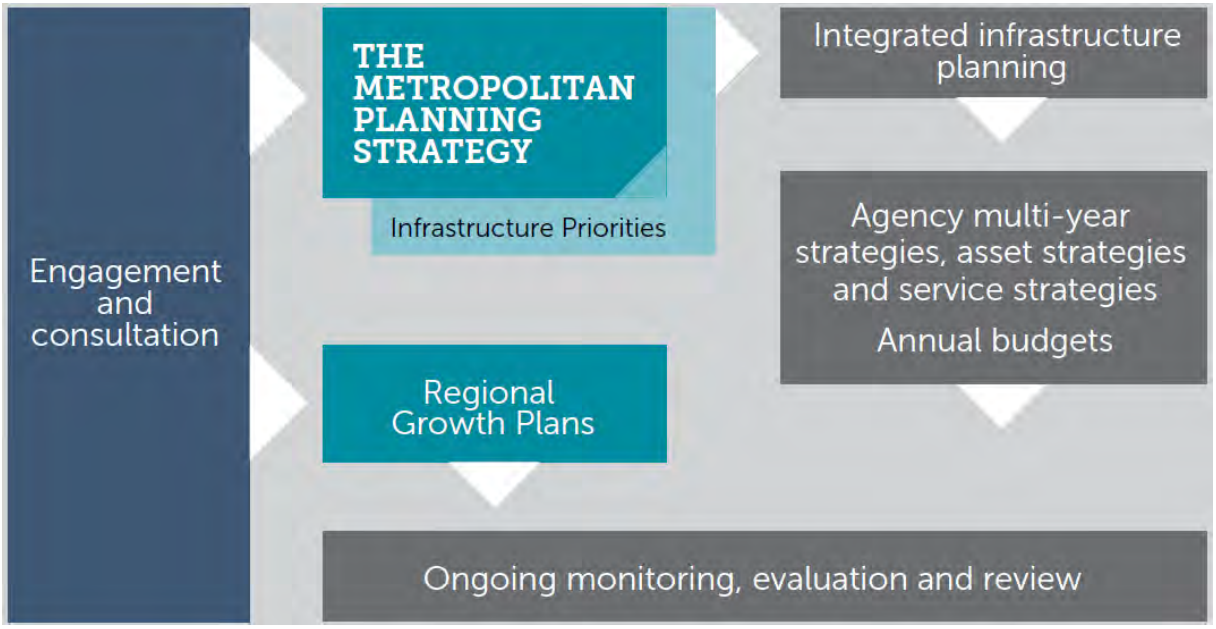
The Victorian Government is developing an outcomes-based metropolitan planning strategy (MPS) that aims to provide increased certainty for Melbourne and Victoria's growth and development over a long-term time horizon to 2051.

The Government intends to extensively consult with stakeholders and the public as the MPS is developed (Department of Planning and Community Development, 2011).

The MPS will become the foundation of a future pipeline of infrastructure works across Government. Figure 9 shows the State Government's conception of the relationship between the MPS and future infrastructure provision (Victorian Government, 2011).

In parallel, a series of Regional Growth Plans are being prepared. Interfaces with the Western Region will include the plan for G21 (Geelong and surrounds), Central Highlands (Ballarat and surrounds) and Loddon Mallee South (Macedon Ranges).

Figure 9 Metropolitan planning strategy concept framework – November 2011 (Victorian Government, 2011)

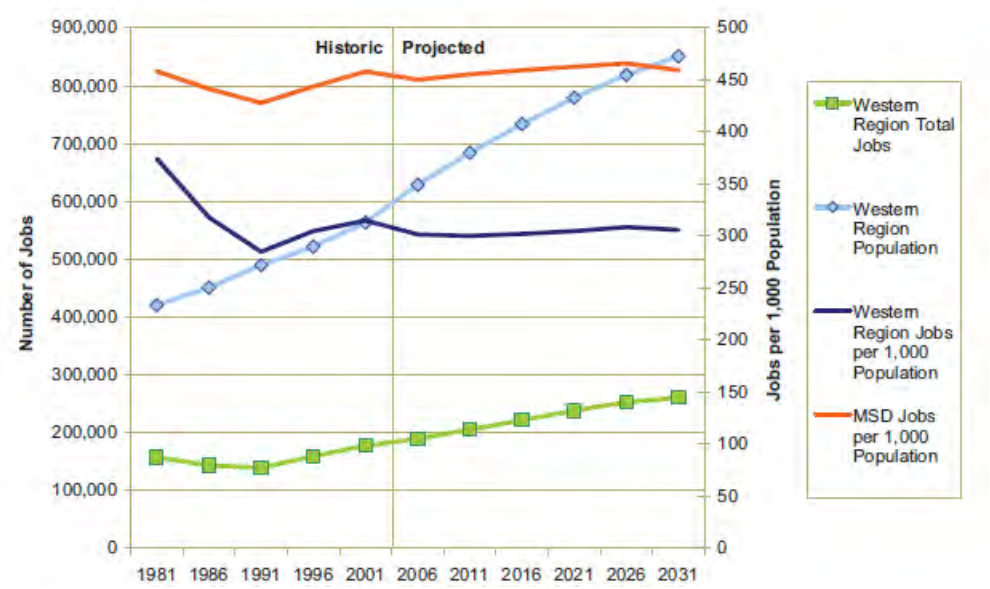


Emerging challenges: Employment

Approximately 50,000 new jobs are expected by 2031, according to a regional employment strategy (Ratio Consultants Pty Ltd et al, 2007). Current predominant sectors are expected to provide most of this growth, with the exception of a forecast decline in manufacturing.

Figure 10 shows that the ratio of regional jobs per population is expected to remain constant, at approximately 300 jobs per 1000 population.

Figure 10 Future and historic population and jobs growth (Ratio Consultants Pty Ltd et al, 2007)



Key Challenge

Access to Employment

Provision of sustainable transport access to current and future employment is a significant strategic challenge.

The gap between the population and employment forecasts for the Region suggests that long commuting trips will remain a feature of regional transport.

There is a considerable uncertainty about the future spatial distribution of employment in the Region. Although there is a large area of land and numerous activity centres identified for employment in the Growth Corridor Plan at this time, it is uncertain what the quantity, location, type, density, spatial layout and timeframe of employment supply will be.

The other crucial variable is the relative importance of central city employment opportunities, noting that there are major central city expansion initiatives being explored for Arden, Macaulay, Parkville, E-Gate (North Melbourne) and Fishermans Bend.

*The most robust way to respond to this uncertainty is to develop a **network** of transport services rather than focus on specific links. The networks – both road and public transport – need to have enough high-quality links to allow a range of possible future employment scenarios to eventuate.*

Action: Focus on developing a regional scale high quality integrated network that makes use of the extensive regional road network.

A public transport network is particularly important to encouraging sustainable mode choices for accessing future employment, because a high quality network can respond well to activity-centre based, precinct based and central city based employment strategies.

2.4 Population, demographics and growth

At the 2006 census, the Region (excluding Melbourne) had a population of around 680,000 residents (see Table 2 for an outline by local government area).

This population base makes the Region equivalent to many discrete Australian cities – larger than the Gold Coast and about half the size of Adelaide. Brimbank's population is slightly less than Geelong or Townsville; Wyndham and Moonee Valley have a population similar to Launceston or Albury-Wodonga (Australian Bureau of Statistics, 2011).

The 'Victoria in Future' projection released by the state government in 2008 (Department of Planning and Community Development, 2011) shows an increase in population of around 450,000 by 2026 to a total of more than 1.1 million residents. The projected annual population growth rate across the region is 2.5%. The areas of Melton, Wyndham and Melbourne have forecast annual growth rates significantly above the regional average whilst the remaining areas have projected annual growth under the regional average.

To give a sense of the scale of the region's population projections, comparisons to existing cities can be useful. The Region's total population in 2026 is projected to be similar to today's Adelaide. Wyndham is projected to have a residential population similar to Hobart.

Table 2 Current and projected populations for the region (Department of Planning and Community Development, 2011)

	Current		Projected		Growth
LGA	Population (2006)	Proportion of total population	Projected Population (2026)	Percentage of total population	Projected Annual Growth
Brimbank	168,215	24.6%	194,703	17.2%	0.7%
Hobsons Bay	81,459	11.9%	97,792	8.6%	0.9%
Maribyrnong	63,141	9.2%	82,958	7.3%	1.4%
Melbourne	71,380	10.5%	164,781	14.5%	4.3%
Melton	78,912	11.6%	198,293	17.5%	4.7%
Moonee Valley	107,090	15.7%	118,163	10.4%	0.5%
Wyndham	112,695	16.5%	277,660	24.5%	4.6%
Total	**682,892**		**1,134,350**		**2.5%**

The demographic forecast for the Region shows high growth in the older 60+ age brackets, coupled with strong population growth overall. The projection indicates the Western Region community is expected to have a balanced demographic profile, with similar populations in most of the age brackets. Population growth is the major driver of urban expansion; unlike some areas the average household size over the same period is expected to remain largely stable.

Population growth is leading to major increases in traffic volumes across the Region. VicRoads data shows that the volume of:

- **Overall traffic** and **traffic on arterial roads** is growing at 4 to 8 percent per year
- **Total truck traffic** and **traffic on freeways** is growing twice as fast, at 7 to 16 percent a year
- **Truck volumes on arterial roads** are growing much faster than **truck volumes on freeways** (40 to 55 percent a year on arterials compared to 5 to 10 percent a year on freeways)

These trends show the effect of rapid urban growth with population and housing construction demand key drivers of increasing traffic volumes.

2.5 Socio-economic trends and issues

The Western Region has historically had generally lower socio-economic indicators than the eastern and southern suburbs of Melbourne. This picture has become outdated through gentrification and change in the inner west in suburbs such as Seddon, Kensington, and Williamstown. Nevertheless, there are still significant areas of the Region with socio-economic challenges.

- A number of studies have investigated aspects of socio-economic disadvantage and its relationship to transport in the Western Region. They consistently find that the Western Region has large areas of suburban development which are amongst the 10 percent most disadvantaged in the State (Department of Planning and Community Development, 2012))
- Have high rates of 'forced car ownership', where low-income households have two or more cars to overcome mobility limitations imposed by limited public transport (Currie, G. and Senbergs, Z., 2007)
- Highly vulnerable to mortgage, petrol and inflation risks (Dodson, J. and Sipe, N., 2008)

Table 3 Key socio-economic indicators in the Western Region – areas in the lowest ten percent of the Socio Economic Indexes for Areas in Victoria, with high 'forced car ownership' and exposure to mortgage, petrol and inflation risks

Socio economic indexes for areas - lowest ten percent in the State

- **Brimbank:** Southern and central Brimbank
- **Hobsons Bay:** Laverton and Altona North, and parts of Williamstown
- **Maribyrnong:** Between Footscray-Sunshine Rd and the Western Highway.
- **Melbourne:** Some areas of high disadvantage within the Hoddle grid.
- **Melton:** high disadvantage in Melton Township
- **Moonee Valley:** Keilor, Avondale Heights and parts of Flemington.
- **Wyndham:** High disadvantage levels within Werribee.

Forced car ownership

- **Whole region**, excluding Footscray, Williamstown and parts of Werribee and St Albans has more than 20 percent of low-income households with two cars or more

Mortgage, petrol and inflation risks

- **Whole region west of Niddrie, Maidstone/Footscray and Newport**, excluding Point Cook / Sanctuary Lakes, and parts of Taylors Lakes, Altona, and Tarneit, is identified as at least moderately vulnerable.

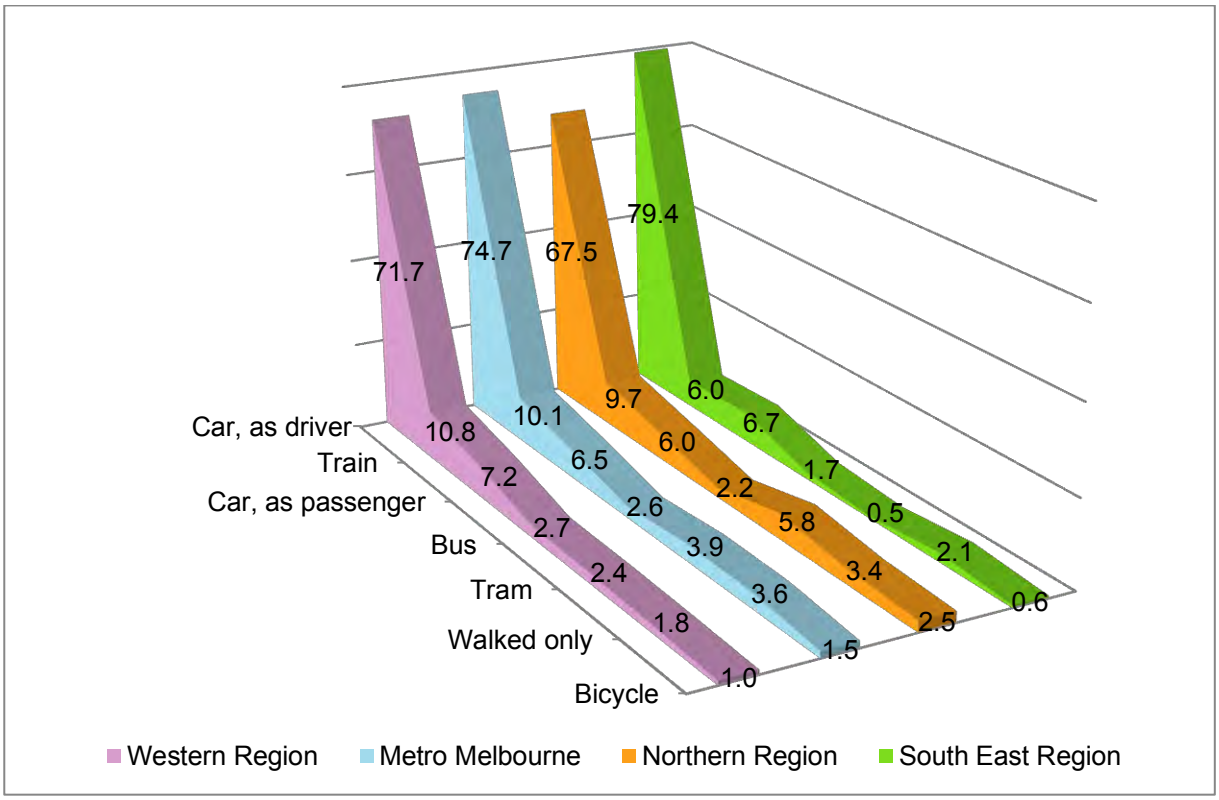
The existing transport conditions result in high dependence on private, personal mobility, and associated higher personal costs for households with a low ability to afford the expense. Land use and transport initiatives that can help reduce dependency include provision of:

- A wider choice of cost-effective and efficient transport modes, especially for journeys to work
- A higher share of employment in local activity centres and industrial precincts
- More diversity in employment opportunity locally
- Provide more social, educational and community infrastructure within distances that can be walked and cycled
- Increased centralisation of key services in areas that are highly accessible across the Region

2.6 Comparative assessment of travel

The Western Region has an extensive motorway and arterial road network but the public transport network is less well developed. Despite this, the Region is more sustainable in its longer distance travel choices than Melbourne as a whole, with lower car use and higher public transport use for journeys to work in the 2006 census. Western Region residents make a higher share of journeys to work using trains and cars as passengers. However, the Region makes fewer short trips on foot and by bicycle compared to other regions and Melbourne as a whole.

Figure 11 Comparison of mode choice decisions for the journey to work, 2006 census data



Key Challenge

Responding to the transport implications of existing conditions

The transport system has been the foundation of much of the Region's economic prosperity. But the way it has developed has made the Region reliant on private transport for many mobility requirements.

Congestion from rapid urban population growth will be a threat to future productivity and prosperity if transport does not increase its capability to respond to changing demand.

Effective transport networks within the Region, and links to key areas outside it, are vital to accessing employment, educational and social opportunities. Making effective use of limited capacity is crucial as a complement for the long term planning and reservation of future corridors.

Action: Ensuring that these networks extend through areas of disadvantage will contribute to achieving social inclusion and economic prosperity results.

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3.0 Strategic Vision and Objectives

The Vision and Strategic Objectives for this transport strategy were developed by representatives of the Region in a workshop in early 2012.

3.1 The Strategic Vision

The Vision of the Strategy is:

A liveable, productive and prosperous community, whose nationally significant economic and sustainable growth capabilities are strengthened and supported by its integrated transport system.

3.2 Strategic Objectives

The six Strategic Objectives mirror the principles underpinning the *Transport Integration Act* and the Federal Government policy settings, refined to reflect the specific challenges of the Western Region. The Strategic Objectives are:

Economic Development

- Promote opportunities for transport to support sustainable economic prosperity for the region

Competitive Positioning

- Sustain and develop the region's competitive advantages through the design of the transport network

Access to Employment

- Increase accessibility to employment opportunities in the region to facilitate better management of travel demand

Impact Reduction

- Reduce the adverse impacts from transport operations on the region

Resilient alternatives

- Provide improved transport alternatives to address changing transport demands resulting from changes in land use and demographics

Freight

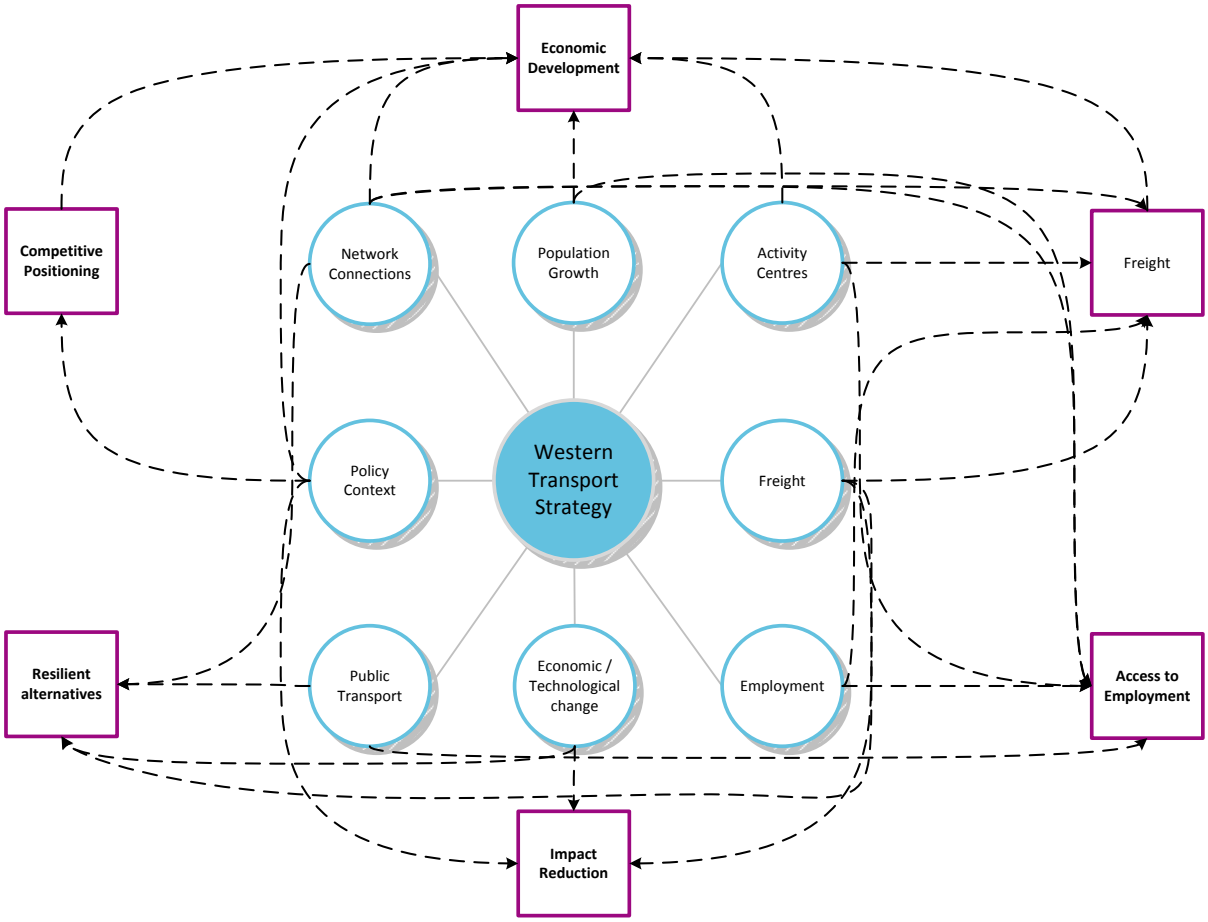
- Develop an integrated freight system for the region

3.3 Mapping the key themes to the Strategic Objectives

The six Strategic Objectives provide a wide-ranging holistic conceptual framework for developing a comprehensive transport strategy for the Western Region.

Each of the key challenges for the Region is associated with at least one of the Strategic Objectives, and there are multiple links between many of the challenges and objectives. The expanded mind map in Figure 12 shows how the six Strategic Objectives in magenta-bordered squares are related to the challenges identified for the Region.

Figure 12 Expanded mind map showing 'strategic objective' and 'challenge' relationships



4.0 Developing the Arterial Road Network

4.1 Challenges and strategic direction

The Western Region is superbly located, but vulnerably connected. The continuing reliance on single high capacity transport corridors for access to major destinations is a critical strategic issue for the Western Region. If these crucial links stop being effective, the economic and social impacts on the Region would be significant. These links need to be a key focus of strategic planning for transport in the Region in order to address capacity, reliability and vulnerability.

The Maribyrnong River is the major geographical barrier that restricts east-west connectivity. It separates the Western Region from the central city and the Port of Melbourne complex, and from Melbourne Airport. It is also an important local barrier at key redevelopment sites in the Region, notably the Maribyrnong Defence Site which is surrounded by the River and thus has constrained access to the north, west and east. In the longer term, the lack of an alternative route to Avalon and Geelong has the potential to become a strategic constraint.

The type of risks that may affect these links include natural disasters such as floods, with the Princes Highway built at 1 in 30 year flood levels; emergency closures for maintenance, perhaps as a consequence of the known cracks in the West Gate Bridge; growing congestion that reduces the transport productivity of the asset; or possible catastrophic failure.

Key Challenge

Network Connections and Network Resilience

The East West Needs Assessment Report ("Investing In Transport") described Melbourne's transport system, with particular reference to movement across the Maribyrnong and Yarra Rivers, as 'highly vulnerable', noting that minor incidents are already 'highly disruptive' and that a more serious event would have 'potentially catastrophic economic repercussions'. (Department of Transport, 2012)

The most likely crisis is that the East West Corridor will become critically congested, exposing the Region to uncompetitive economic costs of doing business and unacceptable social costs to access the central city. The central city is very likely to remain a crucial node for the Region, particularly as the pre-eminent concentration of employment in the metropolitan area.

The Region strongly reiterates the urgency of a new east west crossing of the Maribyrnong River that meets the need of freight and provides network resilience.

There will be a robust debate about the role of any new crossing. The Region's consensus is that car access to the central city should not be further encouraged. Equally, the Region sees little value in making major capital expenditures that may not guarantee long-term efficient freight access to the Port.

Action: Use demand management tools to create the network resilience that is urgently needed, and secure the best use of current and future capacity, whilst avoiding unintended adverse impacts on the Central City.

Tools that should be considered include:

- *Pricing. A range of policy-based pricing and revenue initiatives such as those discussed in section 8.0, complementing any commercially-driven prices, could provide revenue to address regional public transport needs and transport equity objectives*
- *Road space allocation, such as development of a high-quality bus rapid transit service on the West Gate Freeway to increase person-throughput*
- *Targeted dedicated infrastructure such as truck-only access routes to the Port*

Transport routes for the Region of vital importance but with low resilience are:

- The **Princes Highway**, which provides the only high standard road between the Region and Avalon/Geelong. Geelong is Victoria's largest regional city and has an important port, and Avalon Airport is emerging as a second international airport.
- The **West Gate Freeway**, the only high capacity link with an unencumbered route that minimises residential amenity impacts between the Region and the central city, including the Port of Melbourne and Webb Dock. Although Footscray Road and Dynon Road provide an alternative route, particularly for trucks travelling to and from the Port, they are compromised by having adjacent residential development where the amenity impact of freight movements is severe.
- The **Western Ring Road**, which is the only high capacity connection between the Region and Tullamarine Airport.

To respond to this issue, the arterial road network needs to be developed further in the Region in a way that secures long-term network performance for priority modes, whilst offering overall network resilience for all transport demands.

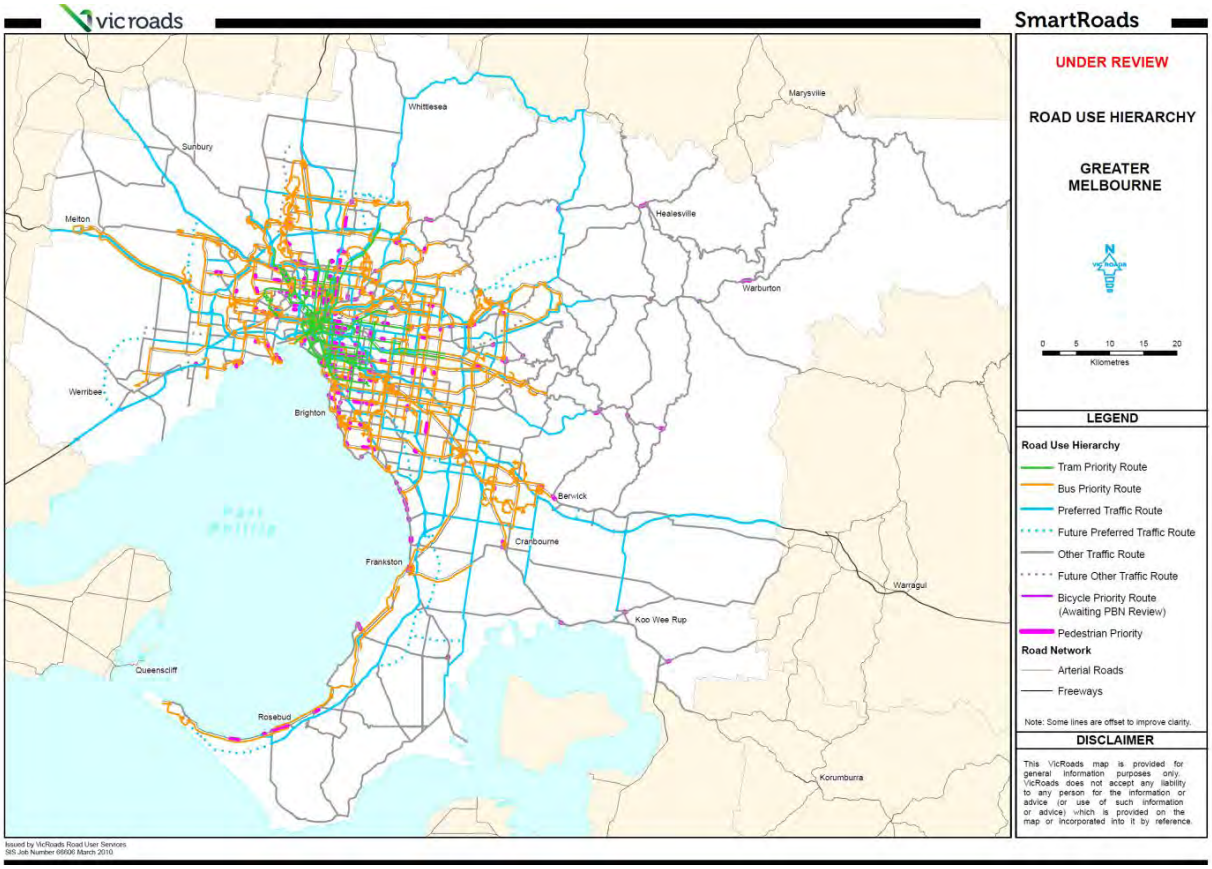
Strategic Direction

Accelerate delivery of the arterial road network in line with SmartRoads priorities and principles.

SmartRoads Network Operating Plans illustrate which transport modes have priority on the arterial road network. The key principles followed in designating the hierarchy are:

- Routes in the Principal Freight Network and the Principal Public Transport Network are generally designated as preferred traffic routes and preferred tram and bus routes as appropriate.
- Activity centres generally have pedestrian priority designations in their immediate surrounds.
- If a clear function is not identified for a road, it is uncategorised, rather than being an 'Other Traffic Route'.

Figure 13 Overview of the Road Use Hierarchy for Greater Melbourne (VicRoads, 2010)



The SmartRoads hierarchy is a useful approach to network planning and development, and needs to be extended into the Growth Corridor to fill gaps where it is currently only partially in place. The spatial planning has been done – the key Strategic Direction is to resolve the functionality of each road, and then the delivery of the planned road upgrades.

Resolving bottlenecks on arterial roads in activity centres is also important. Three Regional level crossings are amongst Melbourne's 10 worst crossings for traffic light and boom closure delay (VicRoads, 2012). Grade separation is needed so that arterial roads, and the activity centres around them, can function more effectively.

4.2 Proposed projects

The following key projects have been identified as priorities for achieving the Strategic Objectives of this Strategy.

Project	Economic Development	Competitive Positioning	Access to Employment	Impact Reduction	Resilient Alternatives	Freight
Complete SmartRoads Growth Area Planning	✓		✓	✓	✓	✓
East West Link (Western Section)	✓✓	✓✓		✓	✓✓	✓✓
Managed Motorways on the Region's freeway system	✓✓	✓				✓✓
Growth area arterial roads – corridor upgrades	✓✓	✓✓	✓		✓	✓
Activity Centre arterial road / rail grade separations				✓✓	✓	

Key Project

Arterial Road Corridors

The scope of arterial road corridor upgrades should generally include duplication, provision of public transport infrastructure, safety improvements, and provision of grade separation at motorway junctions and rail level crossings.

The strategic prioritisation of arterial road corridor improvements should

1) *address the current backlog, then*
2) *provide future **freight** and **public transport** links to activity centres and the trunk network, before*
3) *expanding to complete the network.*

Accordingly, short term priorities include:

- *Calder Freeway four lane sections*
- *Palmers Road / Robinsons Road / Calder Park Drive*
- *Sayers Road*
- *Hume Drive*
- *Taylors Road*
- *Rockbank Middle Road*
- *Leakes Road (Truganina and Laverton North)*
- *Dohertys Road (Laverton North)*
- *Point Cook Road (south of Dunnings Road)*
- *Derrimut Road*
- *Boundary Road (west of Palmers Rd / Robinsons Rd)*

Key Project

East West Link (Western Section)

The western section of the proposed East West Link is strategically more important than the eastern section.

The eastern end is dominated by private vehicles making trips to Melbourne's CBD (VicRoads, 2011)*, a trip type that is ultimately more efficiently and effectively addressed by public transport.*

By contrast, the western end is a freight corridor with substantial land use change potential. Productivity and economic returns are potentially much larger.

The western section is also an enabler of new strategies to make much better long-term use of all the capacity provided across the barriers of the Maribyrnong and Yarra River, by implementing capacity management initiatives that aim to maximise the number of people moved rather than the number of vehicles. It is recognised that this shift is much more acceptable to stakeholders when new capacity has been provided. This Strategy identifies a Bus Rapid Transit system as a good long-term use of capacity on the West Gate Freeway.

5.0 Developing the Public Transport Network

5.1 Challenges and strategic direction

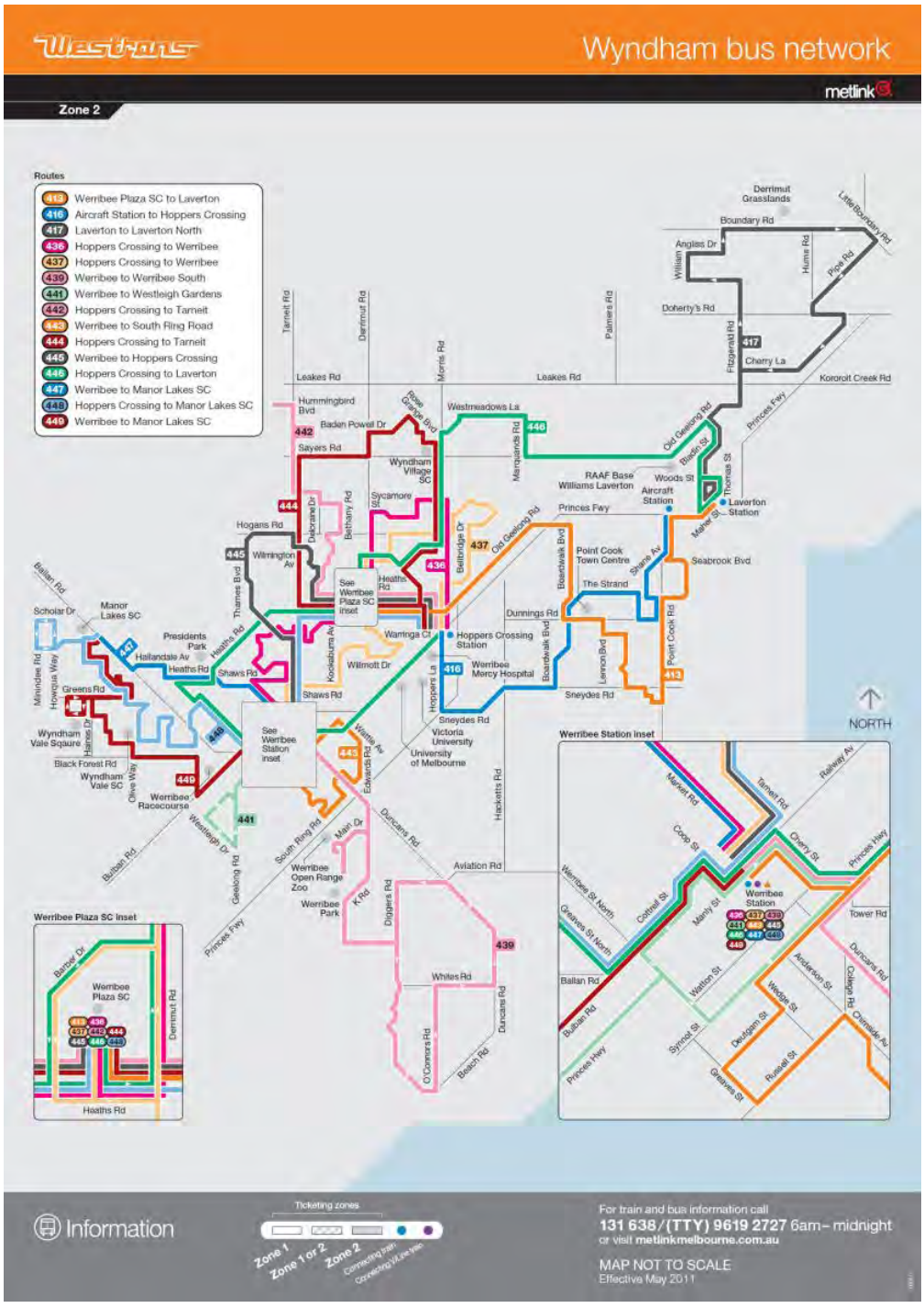
The performance of the public transport system in the Western Region is poor on many measures. Despite investment initiatives such as the Sunbury Electrification Project, the Region's network is still characterised by low service levels, indirect services, overcrowding, service delivery issues and network gaps.

A low public transport service level is an issue at all times of day. Best practice service delivery involves a 'turn up and go' service that operates around 4 to 6 services per hour during the day, every day of the week. By contrast in the Region:

- Most rail service levels operate 20 minute headways, about half those in the eastern suburbs[1].
- 190,000 residents in Wyndham and Melton have no 'turn up and go' services on any mode.
- Melton line stations like Deer Park have an average 30 minute AM peak period service to the CBD and services every two hours during the day. Melton Line stations are the worst served in Melbourne for their distance from the CBD.
- Most bus services in Werribee, St Albans, and Watergardens operate at best 40 minute headways on weekdays. This service level is lower than in major regional centres like Bendigo and Ballarat which have smaller populations.
- Weekend service levels are low and often at difficult to remember intervals, e.g. 50 minutes in Melton.
- Overall, daytime service levels across the Region are unattractively low every day of the week.
- Early morning and evening services are very limited and there are very few night time opportunities for public transport use.

[1] Note that on eastern suburbs lines 10 minute weekend services began operating in April 2012.

Figure 14 Wyndham Bus Network (Metlink)



The poor quality of bus services in the Region contrasts sharply with those of Adelaide where 38 'Go Zones' cover most of Adelaide with a 15 minute service on weekday daytimes and 30 minutes guaranteed in the evening and on weekends (Adelaide Metro).

One of the Region's major transport assets is a well-spaced grid of current and future arterial roads. This grid network should be the template for the Region's on-road public transport system, but instead many of the public transport lines in the Region are like Wyndham's bus network (Figure 14): circuitous and indirect, weaving into housing estates and diverting from arterial roads to trip destinations.

This approach compromises coverage, directness, growth and service effectiveness through:

- Constraining service expansion into new growth areas because of the impact on existing routes.
- Poorly covering employment areas.
- Overlapping and duplication that reduce service delivery efficiency and are confusing and complicated.
- Excessively long journey times to key destinations such as railway stations.
- Discontinuity in service along the main roads.

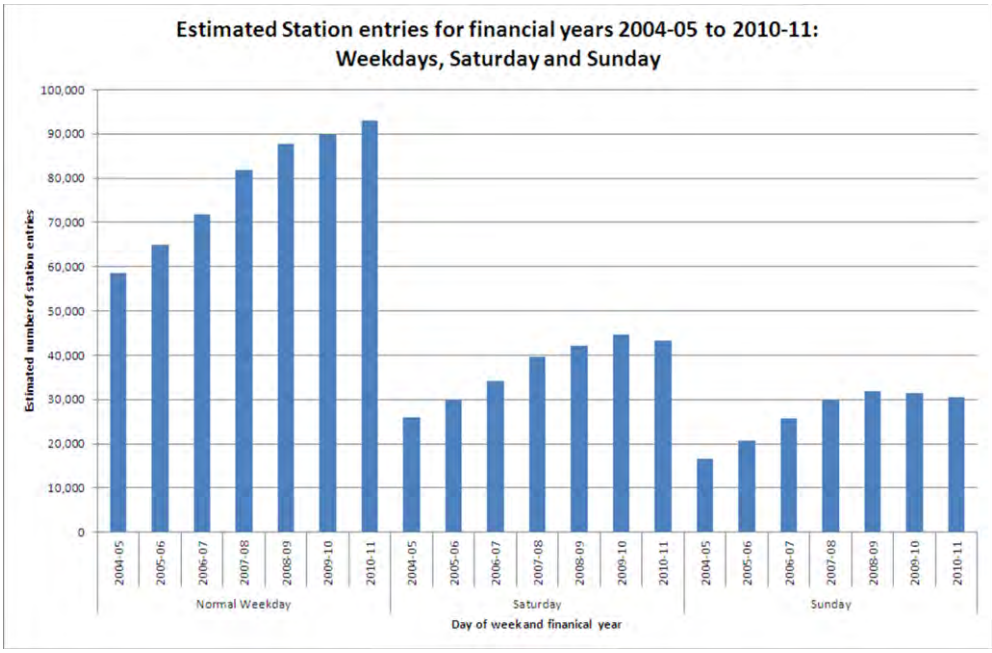
Key Challenge

Building Regional Public Transport

The challenge for public transport in the Region is for it to become a regular part of day to day sustainable mobility.

Although rail patronage from the Western Region has grown strongly on weekdays, it has recently been declining on weekends, as shown in Figure 15, even before recent reductions in service on the Werribee line. This suggests that the public transport network is not seen as an alternative to reliance on private vehicles except for commuter trips. There is considerable scope to make public transport a viable alternative mode for more trips.

Figure 15 Time series: Estimated Entries by day of week – 2004/05 to 2010/11 (AECOM analysis of DoT data (Department of Transport, 2011))



Action: Address the frequency, reliability and quality shortfalls that make public transport unattractive for non-commuting uses, thereby delivering an effective regional transit network.

Service delivery and crowding on the rail network in the Western Region is a challenge. On-time performance on the Sydenham and Craigieburn lines has been very close to the overall network average, with the Werribee line historically somewhat worse and the Williamstown and Melton corridor lines somewhat better. Performance and crowding have been somewhat improved on the Sydenham and Werribee by timetable changes in 2011 (Department of Transport, 2012), but sustaining improvements in an environment of rapid growth will be an ongoing challenge. Recent trends have shown that although additional trains have been added to services to the West, they have struggled to keep pace with growth. The number of overcrowded trains and the percentage of passengers travelling in overcrowded conditions have remained fairly steady over the past five years (Department of Transport, 2012). In the inner west, delays to on-road trams and buses are a major issue. Trams on Mount Alexander Road, for example, are expected to save five minutes' travel time from 700m of new tram lane in Travancore (VicRoads, 2012), and potential improvements to punctuality and reliability are even more highly valued by passengers. The opportunities to improve public transport and generate significant economic benefits are therefore extensive.

In order to contribute to the Strategic Objectives of this transport strategy, extensive improvement in on-road public transport and ongoing enhancement of the passenger rail network are both urgently needed. These two initiatives should work hand in hand to achieve the Strategic Direction for public transport.

The on road public transport network in the Region needs to provide five key service attributes:

- **Frequency**: the 'turn up and go' network that is almost entirely missing in the Region
- **Speed**: rapid service is required, with good on-road priority and well-spaced stops
- **Reliability**: the service needs to be punctual and trustworthy
- **Directness**: the service needs to take the shortest routes between activity centres and transport interchanges
- **Legibility**: the service needs to be easy to understand (both where and when it runs) and simple to use.

These attributes are most cost-effectively provided in the Region using a bus-based network of simple high frequency trunk routes. 'SmartBus' features (signal priority, real time information, and branding) should be provided, with Bus Rapid Transit features (dedicated lanes, station infrastructure) where appropriate.

The preference for bus-based service recognises that the challenge to move from current inadequacies to an acceptable level of transit network performance is a major one. A comprehensive Regional network is a more pressing requirement than selective provision of very high quality, high capital cost newly built rail networks.

Priorities for identifying new transport corridors for public transport should focus on areas where there are significant longer-term land use change opportunities. Examples include the parts of Wyndham between the RRL line and the Princes Highway, the Western Highway from Caroline Springs to Footscray, Dynon Road and the CBD, Altona and Williamstown, and the Footscray – Highpoint corridor. In these areas Light Rail opportunities should be protected in long-term planning, and pursued when the land use change opportunities can be realised and value captured. Heavy rail schemes should also be provided for where land use changes can contribute to the scheme's benefits. The major opportunities are the Melbourne Airport Rail Link and Melton Rail Upgrade. These schemes are included in this Strategy.

Strategic Direction

Develop a Regional connected mass transit public transport network.

The priority for improvements are:

- Upgrading of existing infrastructure that is not meeting functional requirements e.g. Moonee Ponds Interchange; service levels and infill stations on the Melton line
- Trunk services to rail stations – especially bus lines that link multiple railway lines
- Routes linking residential and employment precincts (including activity centres)

5.2 Proposed projects

Development of the Regional public transport network is a substantial project in its own right. Developing an ongoing program of service development based on major rail infrastructure projects can provide a way to package initiatives into integrated transport system improvements.

The table on page 32 summarises potential 'packages' of long term network development in the Region. They are based around development of making the most of existing services and then leveraging the benefits of three major rail infrastructure schemes. The strategic network is shown in Figure 16.

Although there are synergies in delivering these packages at the same time as the rail infrastructure, many of the necessary links are needed urgently and could be delivered in the short term. A comprehensive communications and marketing effort as services improve is also needed; this will be most effective when simple and easily communicated services are in place.

The Role of Public Transport to Airports

Tullamarine: *Direct rail links between Melbourne Airport and the CBD are challenging now that the Regional Rail Link is being developed on part of the previously identified route.*

Each current strategic option has transformative opportunities worth exploring:

- *A rail link via Sunshine could integrate with regional rail and strengthen land use redevelopment opportunities there and enroute to the CBD*
- *A rail link via Broadmeadows could result in enhanced capacity on the Craigieburn rail corridor and enable delivery of more services to Moonee Valley stations*
- *A new rail corridor could provide rail services to redevelopment and urban intensification areas currently poorly connected to the CBD e.g. Highpoint, the Maribyrnong Defence Site, and Essendon Fields.*
- *Light Rail, Bus Rapid Transit or SmartBuses could be suitable for providing access to the Airport for employees living in adjacent suburbs.*
- *A High Speed Rail option could include a Regional station, either enroute to the CBD or on a route to Geelong in the Outer Metropolitan Ring corridor. This could make the Region Melbourne's gateway to High Speed Rail.*

The current Melbourne Airport Rail Link study is noted. ***The Region supports a comprehensive planning study that identifies suitable services and infrastructure having regard to Regional benefits.***

Avalon*: The current levels of demand for access to Avalon would be most cost-effectively met with improved bus services, potentially including SmartBus from the Werribee area.*

The short-term development of a specialised passenger rail link to Avalon Airport is potentially short-sighted. The Region believes there is a strong case to investigate developing a container port near Avalon (see section 6.2), which would require broad and standard gauge rail links integrated with existing infrastructure and the Outer Metropolitan Ring rail corridor.

Reserving a corridor that can cater to export sea freight and passenger requirements is important, but construction funding should be directed to higher priorities.

Table 4 Regional public transport upgrading packages

Packages (colours refer to Figure 16)	Economic Development	Competitive Positioning	Access to Employment	Impact Reduction	Resilient Alternatives	Freight
Upgrade existing premium routes	✓	✓	✓	✓	✓	
Regional Rail Link package	✓✓	✓✓	✓✓	✓	✓	
Melbourne Metro / Melbourne Airport Rail Link package	✓	✓	✓✓	✓	✓	
West Gate Freeway Bus Rapid Transit	✓	✓	✓	✓✓	✓	
Melton Rail Upgrade	✓✓	✓✓	✓✓	✓	✓	
Other Future Schemes:						
- Avalon Airport Rail Link	✓	✓				✓
- Second CBD Rail Corridor	✓✓	✓✓	✓✓	✓	✓	

Delivering improvements to the Melton Corridor

The Melton Rail Corridor has particularly low service levels that make this route unable to meet existing or future demand. A major improvement in service levels is needed to respond to existing needs and the Growth Corridor Plan.

Although delivering a full suburban service with additional peak services and electric trains is not feasible until the Melbourne Metro is completed, there is an opportunity to deliver a 'turn up and go' service during the day and weekends by duplicating the line, providing infill stations at Caroline Springs and Toolern in the short term, and operating a more intensive service using current diesel railcars and the capacity forecast to be available during off-peak times on Regional Rail Link.

The opportunity to deliver many of the benefits of frequent rapid transit to this growth corridor – particularly social inclusion outcomes - before the Melbourne Metro is complete warrants further in-depth investigation.

Figure 16 Transit network development packages

Plan is indicative of network strategy. Individual routes should be resolved in a network plan.

Some lines offset for clarity.

6.0 Developing the Freight Transport Network

6.1 Challenges and strategic direction

The Western Region's major competitive advantage of its geographic position makes it particularly well suited to supporting freight and logistics. The Region's well developed infrastructure and land use system productively uses this competitive advantage, as shown by the extensive logistics precinct around Derrimut and Truganina.

Maintaining and protecting the Region's strategic advantage in freight and logistics is the key strategic challenge for freight. It is threatened by congestion, market change and competitive strategic infrastructure development.

The system up until now has worked reasonably well from an efficient transport perspective, but past land uses and the concentration of logistics into precincts for agglomeration benefits and overall impact minimisation has meant that adverse impacts are concentrated onto key transport corridors – notably in the inner west.

Freight volumes are expected to grow, particularly in interstate and international movements. The number of containers through the Port of Melbourne is projected to grow in the order of 5 to 8 percent per year for exports. (Bureau of Infrastructure, Transport and Regional Economics (BITRE), 2010) Its central city location means that landside access is via increasingly congested routes. This challenge has resulted in the State Government identifying both the need to develop a secondary container port for greater Melbourne and to move containers to and from the port more efficiently.

The principal challenges are to:

- identify a Principal Freight Network that can respond to changing logistics requirements, particularly access to the Port, and reduce over time the adverse impacts of growing freight volumes.
- encourage increased use of more efficient freight technology, including High Productivity Freight Vehicles and rail freight, through provision of suitable infrastructure.
- Develop a robust strategy for future major freight and logistics infrastructure, particularly for port development.

Key Challenge

Maintaining the Region's Freight Advantages

Maintaining and protecting the Region's strategic advantage in freight and logistics is the key strategic challenge for freight. It is threatened by congestion, market change, impacts on residents and competitive strategic infrastructure development.

The State Government has identified the development of the Port of Hastings as its preferred response to the challenge of growing container trade. For the Region, a port at Hastings would increase reliance on the congested West Gate corridor. Worsening congestion brings with it the risk that more freight movements will use alternative routes through the residential parts of the inner west, increasing impacts on residents in locations where current impacts are severe. The East West Link is an important response to this issue, but alternative schemes like the Truck Action Plan may need to be re-assessed if East West Link cannot be funded.

Potential solutions to this challenge can leverage the Region's existing strategic advantages. For example, although it will have its own challenges, a 'Bay West Port' located near Avalon could have:

- *Productivity benefits from proximity to the highest concentration of importers and exporters within the Melbourne metropolitan area.*
- *Excellent rail connections to the interstate and intrastate rail networks.*
- *Excellent road connections to the M1, and the planned Outer Metropolitan Ring route through to the Hume Freeway.*

Action: Ensure that strategic freight network development comprehensively investigates projects, including Bay West, that build on the Region's freight advantages.

The proposed strategic direction for the Region is summarised below, drawing on the Strategic Objectives.

Strategic Direction

Develop an integrated freight network that builds on the Region's established strategic advantages whilst mitigating adverse impacts

6.2 Proposed projects

The following projects have been identified as important contributors to achieving the strategic objectives.

Project	Economic Development	Competitive Positioning	Access to Employment	Impact Reduction	Resilient Alternatives	Freight
East West Link (Western Section)	See discussion in Section 4					
Bay West Port Study	✓✓	✓✓		✓	✓✓	✓✓
Principal Freight Networks	✓✓	✓✓		✓✓		✓✓
Western Freight Activity Centre	✓✓	✓✓	✓	✓		✓✓
Outer Metropolitan Ring Transport Corridor	✓✓	✓✓	✓	✓✓	✓✓	✓✓

Key Project

The Outer Metropolitan Ring

The OMR provides four long-term critical transport network links for the Region:

- *An alternative access to Tullamarine Airport, instead of reliance on the Western Ring Road EJ Whitten Bridge over the Maribyrnong.*
- *Access to Avalon Airport and Bay West. The resilience risk of the single road between the Region and Avalon could be reduced if the OMR were extended south as a secondary access.*
- *An alternative to the flood prone sections of the Princes Highway and reliance on the West Gate Freeway, especially when combined with the East West Link.*
- *An alternative national rail corridor avoiding the congested and indirect route towards Sydney and Brisbane, a suburban route that will come under increasing capacity and land use pressures.*

Action: Delivery of these key strategic elements before 2020 should be further investigated.

7.0 Developing the Walking and Cycling Network

7.1 Challenges and Strategic Direction

Walking and cycling within the Region is normally a local challenge. Stakeholders encounter similar issues in each Council area about identifying effective ways to encourage greater walking and cycling to activity centres, and in the provision of infrastructure. These challenges require attention at the local level with strategies suitable for the conditions in each activity centre.

The foundation of a regional-scale cycling network is in place in the Region, but it has gaps that limit its usefulness both as a transport and recreational trail network.

The Strategic Direction for the Region's walking and cycling network focuses on completing these missing links.

Strategic Direction

Complete gaps in the Region's trail network so it can serve transport and recreational needs effectively

7.2 Proposed projects

The major project opportunities for walking and cycling in the Region are likely to be located in the Growth Corridor where whole precincts can be oriented towards these sustainable modes. These projects will be identified through the precinct structure plans.

The Region has gaps in both its transport and recreational trail network. Cycle routes that are offroad and direct routes in linear corridors are important transport links, in contrast to off-road paths in the Region which use the rivers and creeklines and are more recreational in nature.

The Federation Trail and Rail Trails are potentially attractive for journeys to work, giving these routes an important transport function. These trails are also the primary link in circuits through the Region linking to recreational trails such as the Bay Trail or the Maribyrnong Trail, so they have an important recreational role as well.

A project to complete the Federation Trail has been underway for the past two years but progress has slowed. A major gap in the trail exists where the West Gate Freeway crosses the Sunshine – Newport railway in Brooklyn; a new trail bridge is required to close this gap.

Trails along the region's rail corridors offer access to public transport and to the activity centres along the railways. These routes are a key element of the long term development of the Principal Bicycle Network across the Region.

Project	Economic Development	Competitive Positioning	Access to Employment	Impact Reduction	Resilient Alternatives	Freight
Cycle network development			✓	✓✓	✓	

8.0 Funding and Implementation

Development of a substantial city in the Western Region requires major capital investment – there is no practical alternative to undertaking some major infrastructure projects.

This Strategy has been prepared at a time when the capacity of the State and Federal governments to fund the necessary infrastructure has been reduced. Traditionally (at least in the post war period), the State and the Federal Governments have been the major financiers of transport infrastructure. However, budgetary constraints plus ageing infrastructure mean that they are no longer able to adequately fulfil this role.

The table on the following pages provides a synopsis of a range of financing mechanisms available to fund transport infrastructure projects, and identifies the mechanisms that may be suitable to contribute to the funding the projects identified in this Strategy.

At the same time, there is an increasingly engaged policy debate on the appropriate mechanisms to price transport to account for economic, environmental and social externalities such as congestion, carbon pollution, and noise. Transport pricing reform will continue to be firmly on the policy agenda as a way of sustainably financing ongoing transport provision. A particular challenge is to fund the ongoing costs of the proposed projects – in particular, the recurrent cost of public transport service delivery. This issue is discussed further below.

Overseas examples suggest that the more innovative financing mechanisms on their own are not able to fully fund the infrastructure projects (bar the PPP approach in select instances). This has led to the implementation of a combination of innovative approaches including part funding from State and Federal Governments is required.

Financing Mechanism	Description	Availability and Suitability	Projects in this Strategy
State Government Consolidated Revenue Funding	This is the traditional approach. Funding is generally allocated based on feasibility and business cases, sometimes with preliminary work done by stakeholders seeking funding.	Increasing demands on state government consolidated revenue and budgetary constraints mean this source of funding is increasingly limited to projects that are perceived by the state government as having state wide importance. Suitable for most public and private transport infrastructure	Potentially all projects, but priority should be given to those less suitable to any other mechanisms, such as policy and planning projects. Typical source for recurrent funding.
Federal Government Funding	Similar to the above, but in this instance the state government would approach the Federal government with a fully developed business case for funding (typically for part funding with balance to be funded by the State).	As above. Budgetary constraints mean that securing Federal funding is proving to be a challenge. Suitable for most public and private transport infrastructure.	Potentially all projects, but priority should be given to those less suitable to any other mechanisms.
Public Private Partnerships	A partnership between the Government and private sector company(s). Can take a range of forms including build, own, operate and transfer (BOOT) after a specified concession period. Three recent examples of such PPPs in Victoria are the CityLink, EastLink and the Peninsula Link road projects. Peninsula Link operates on a shadow toll basis whereby government pays for the infrastructure on an availability charge model. The Melbourne heavy and light rail franchises are also a form of PPPs.	The technical, legal and financial complexity of most PPP deals, plus the scale of suitable infrastructure across multiple local jurisdictions, mean that PPPs are mostly structured by the State government. However, Brisbane City Council and Gold Coast City Council in association with State and Federal governments have entered into PPP deals for provision of transport infrastructure. Suitable for most public and private transport infrastructure. A particular opportunity is to competitively tender any major improvements to on-road public transport such as new SmartBus or BRT services.	- East West Link (Western Section) - Managed Motorways - Outer Metropolitan Ring - Western Freight Activity Centre - Infrastructure elements of public transport packages - Service elements of on-road public transport.

Financing Mechanism	Description	Availability and Suitability	Projects in this Strategy
Land Development/Transit Oriented Developments	TODs as a means to financing transport infrastructure entails intensive land development in designated areas alongside investment in transit projects. Receipts from property developments are used to fund transit projects.	To our knowledge, and in its purest sense, no examples of TODs for financing for transit projects exist within Australia. However, much of the urban rail network was initially developed by the private sector to open up land for development (with cost of rail covered from land sales receipts). Overseas experience suggests that TODs on average contribute around 10% of the cost of transit projects. As the name suggests, TODs are suitable for transit projects. There is an opportunity to explore innovative land development options around the Western Freight Activity Centre and Bay West concept, where infrastructure could be provided by developers. Implications for competition would need to be evaluated.	- Activity centre grade separations - Western Freight Activity Centre - Bay West Port Study
Benefit Assessment Districts	BADs generally entail the implementation of a special levy on properties that are assessed as being the direct beneficiaries of transport infrastructure. Implementation of BADs typically requires a 'special purpose vehicle' to fund the project with borrowings which are paid off over time from the revenue from BADs.	Melbourne City Loop was part funded by City of Melbourne under a similar concept. An accessibility-based methodology to assess the benefit of transport infrastructure and services may be required to strike the levy, so that the charge is suitably proportional to the benefit. BADs can be applied to fund both the private and public transport infrastructure. BADs can apply on any geographic scale depending on the geographic extent of the benefits. In practical terms the 'directness' of the benefits is a key issue in defining areas to apply BADs.	- Public transport packages - Growth area arterial roads - Grade separations

Financing Mechanism	Description	Availability and Suitability	Projects in this Strategy
Value Capture	Value capture (also known as a betterment levy) is a means to capture a portion of the value uplift that is endowed on the property without any direct contribution/action of the property owner. Such incidents can include up zoning of land or announcement of the commitment to provide transport infrastructure projects.	Theoretically suitable for most transport infrastructure types if implemented immediately on announcement of new projects. Can be problematic to implement due to the need to maintain secrecy on the proposed plans for upzoning and infrastructure provision. Typical mechanisms include combining it with land development/ TODs by the government development agency or transport infrastructure owner/ concessionaire, which acquires the land prior to any major public announcements.	Probably not suitable, as most projects are in the public domain. Exceptions may include a second rail corridor to the central city.
Tax Increment Financing	TIF can be implemented by assessing the anticipated increase in government revenues as a result of enhanced economic activity attributable to the transport infrastructure being considered, and using the increase in rates/tax base to finance the infrastructure. Similar to BADs a special purpose vehicle can be set up with borrowings to fund the infrastructure and financed through hypothecated funds from increased rates/ tax base.	Such schemes are not traditionally being applied in Australia to date but are becoming increasingly common overseas. Are suitable for large-scale public and private transport infrastructure that are likely to generate substantial direct changes in economic activity.	- East West Link (Western Section) - Outer Metropolitan Ring - Western Freight Activity Centre - Large capital components of public transport packages e.g. Melbourne Metro

Financing Mechanism	Description	Availability and Suitability	Projects in this Strategy
Development Infrastructure Charges	Also known as Infrastructure Contribution Charges. Used to fund local infrastructure based on user charge principles.	Widely used in Australia. The Growth Areas Infrastructure Charge (GAIC) is similar, though the user charges principle has been partly diluted with some value capture incorporated. GAIC is levied universally on all new land brought within the urban growth boundary and is used to fund state infrastructure necessary to support the development of new suburbs. GAIC in principle is suitable for all state level urban private and public transport infrastructure.	- Growth area arterial roads - Capital elements of public transport packages Note GAIC is also used for a wide range of other socially necessary non-transport infrastructure.

Financing Mechanism	Description	Availability and Suitability	Projects in this Strategy
Direct User Charges	Direct user charges apply the user pays principle, implying the implementation of a levy/ ticket price to pay for the use of the transport infrastructure. Only those actually using the infrastructure pay for its provision and upkeep. The payment of tolls for private transport infrastructure is an example of such a scheme. For public transport infrastructure a similar levy in addition to the standard ticket price can be levied to recover the cost of the public transport provision. Similar to BADs a special purpose vehicle can be set up with borrowings to fund the infrastructure and financed through hypothecated funds from user charges.	Direct user charges apply on major toll roads in Melbourne including on CityLink and EastLink. Whilst from the financing perspective direct user charges are a good concept, it is not economically efficient or socially equitable for financing public transport infrastructure. A more economically efficient and equitable approach is to impose a congestion charge on private transport infrastructure, and hypothecate the receipts for funding of public transport infrastructure. However, to contribute to recurrent costs of public transport, there is an opportunity to restructure public transport fares to reflect improved service levels. Potential options include: - Refined zone structures to reflect actual service levels - Increased fares within specific zones to fund improved services As such direct user charges are deemed appropriate for funding private transport infrastructure whilst a congestion charge may be deemed more efficient for public transport infrastructure.	- East West Link (Western Section) - Outer Metropolitan Ring - Western Freight Activity Centre - Recurrent costs of public transport packages, including Melbourne Airport Rail Link

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9.0 The Region's priority projects

9.1 Projects Overview

Project name	Number of Strategic Objectives addressed	Timeframe
East West Link (Western Section)	5	5 to 10 years
SmartRoads Growth Area Plan	4	1 to 5 years
Managed Motorways on the Region's freeway system	3	1 to 5 years
Growth area arterial roads – corridor upgrades	5	1 to 10 years
Activity Centre arterial road/rail grade separations	5	1 to 5 years
Transit Network Development - Upgrade existing premium routes	5	1 to 5 years
Transit Network Development - Regional Rail Link package	5	3 to 5 years
Transit Network Development - Melbourne Metro/Melbourne Airport Rail Link package	5	7 to 15 years
Transit Network Development - Westgate Freeway Bus Rapid Transit package	5	7 to 15 years
Transit Network Development - Melton Rail Upgrade package	5	5 to 15 years
Transit Network Development - Avalon Airport Rail Link	3	1 to 5 years (corridor reservation) Construction when demand warrants (freight or passenger)
Transit Network Development - Second CBD Rail Corridor planning	5	5 to 10 years
Bay West Port Study	5	1 to 3 years
Principal Freight Networks	4	1 to 10 years
Western Freight Activity Centre (incorporating Western Intermodal Freight Terminal and Metropolitan Intermodal System)	5	3 to 10 years
Outer Metropolitan Ring Transport Corridor	6	5 to 15 years
Cycling Network Development	2	5 to 15 years

East West Link (Western Section)

Summary of the Project

The East West Link (Western Section) is a road link between the Port of Melbourne and the Western Ring Road at the eastern end of the Deer Park Bypass in Sunshine.

Project Importance

The East West Link (Western Section) is urgently needed to provide network resilience by offering a high capacity alternative to the West Gate corridor.

The East West Link (Western Section) is a freight corridor to the Port of Melbourne. It has substantial potential to change land uses along the corridor. Compared to the Eastern section, which is dominated by private vehicle use, productivity and economic returns are potentially much larger.

The East West Link (Western Section) also addresses amenity impacts of freight on urban areas and is an important part of the strategy to grow the central city to Footscray.

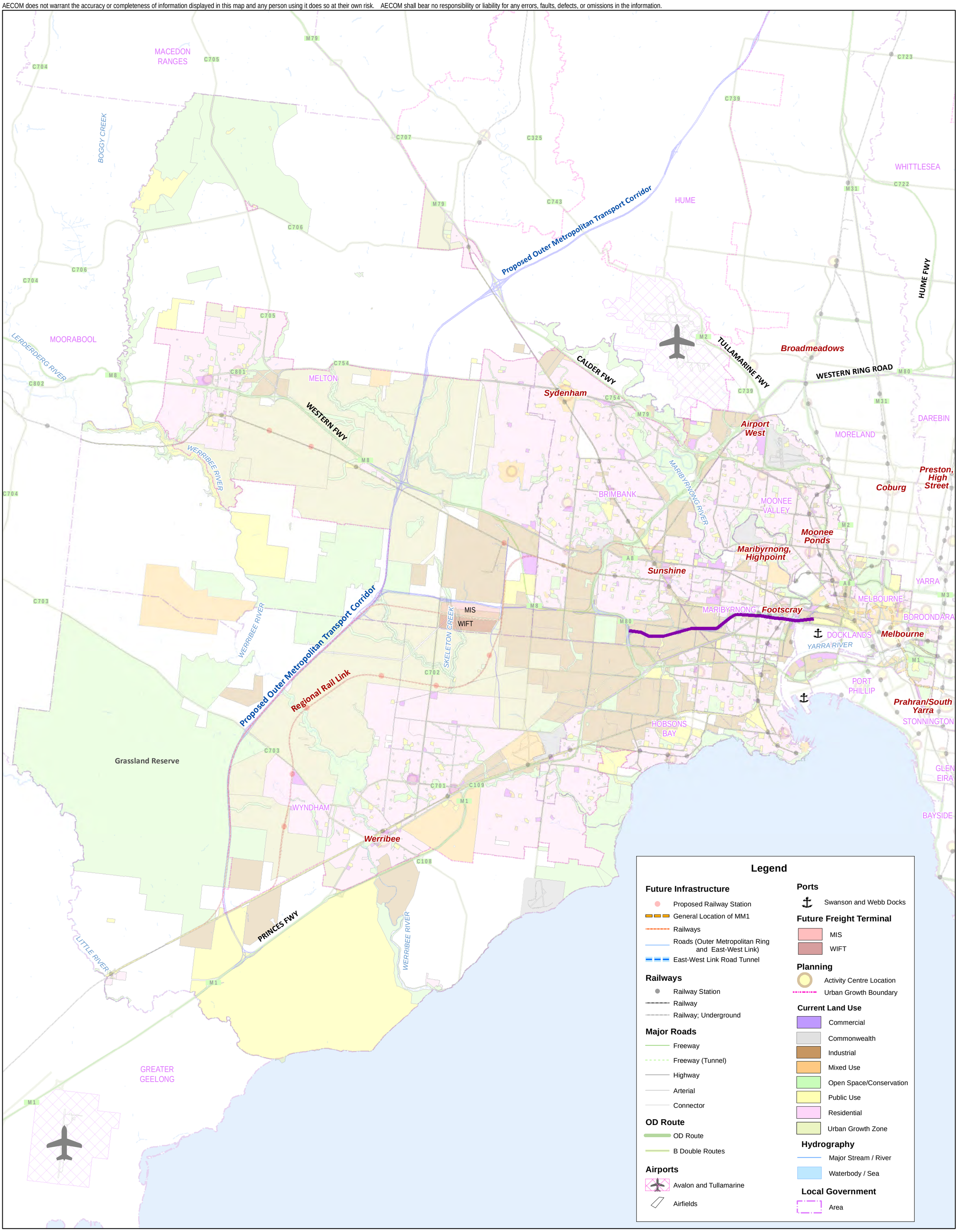
Strategic fit:

✓✓	**Economic Development**
✓✓	**Competitive Positioning**
	Access to Employment
✓	**Impact Reduction**
✓✓	**Resilient Alternatives**
✓✓	**Freight Network Integration**

Timing: 5 to 10 years

Potential funding sources

✓	State consolidated revenue		Value capture
✓	Federal consolidated revenue	✓	Tax increment financing
✓	Public private partnerships		Development infrastructure charges
	Land/TOD development	✓	Direct user charges
	Benefit Assessment Districts		



Legend

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- East-West Link Road Tunnel

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- Connector

OD Route
- OD Route
- B Double Routes

Airports
- Avalon and Tullamarine
- Airfields

Ports
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Future Freight Terminal
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- WIFT

Planning
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- Urban Growth Boundary

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- Commonwealth
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- Open Space/Conservation
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- Residential
- Urban Growth Zone

Hydrography
- Major Stream / River
- Waterbody / Sea

Local Government
- Area

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Kilometres

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Additional Legend

East West

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

East West

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M010_East_West_v3.mxd

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SmartRoads Growth Area Plan

Summary of the Project

SmartRoads Network Operating Plans illustrate which transport modes have priority on the road.

Completion of SmartRoads planning for the Growth Area Corridor is required.

Project Importance

The *SmartRoads* hierarchy is a useful approach to network planning and development. But it is incomplete in the Growth Corridor, with a number of future routes identified with partial integration with the Growth Corridor Plan. The Growth Corridor Plan identifies a comprehensive grid of arterial roads, so the spatial planning has been done – the key Strategic Direction is to resolve the function and delivery of the planned roads.

This project is a key pre-requisite to accelerating the delivery of arterial roads in the Region.

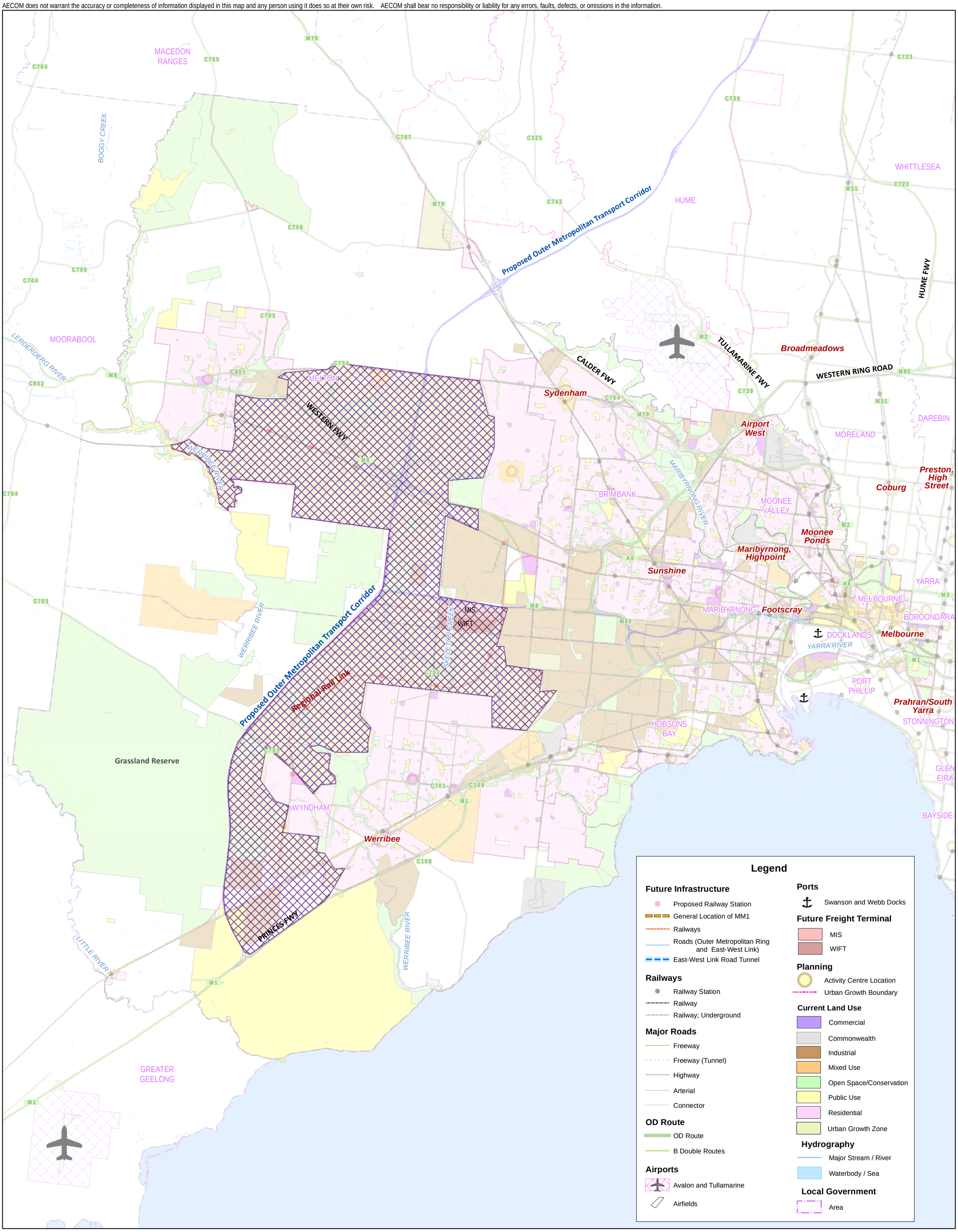
Strategic fit:

- ✓ **Economic Development**
- **Competitive Positioning**
- **Access to Employment**
- ✓ **Impact Reduction**
- ✓ **Resilient Alternatives**
- ✓ **Freight Network Integration**

Timing: 1 to 5 years

Potential funding sources

✓	State consolidated revenue	Value capture
	Federal consolidated revenue	Tax increment financing
	Public private partnerships	Development infrastructure charges
	Land/TOD development	Direct user charges
	Benefit Assessment Districts	



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Local Government
- Area

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Kilometres

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Additional Legend

Smart Roads

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Smart Roads

Western Transport Alliance and LeadWest

Western Transport Strategy

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Managed Motorways on the Region's freeway system

Summary of the Project

The Managed Motorways project is an intelligent transport systems initiative designed to optimise the performance and capacity of the motorway network.

The initiative is already in place on sections of the Monash and West Gate corridor. Typical elements include:

- coordinated on-ramp signalling
- variable speed limits
- lane control
- incident detection and data loops
- travel information
- closed circuit television surveillance

Project Importance

The Managed Motorways project is important to maximising the benefit obtained from the limited crossings of the key barriers between the Region and external destinations such as the central city, airports and interstate transport corridors.

Strategic fit:

✓✓	**Economic Development**
✓	**Competitive Positioning**
	Access to Employment
	Impact Reduction
	Resilient Alternatives
✓✓	**Freight Network Integration**

Timing: 1 to 5 years

Potential funding sources

✓	State consolidated revenue	Value capture
✓	Federal consolidated revenue	Tax increment financing
✓	Public private partnerships	Development infrastructure charges
	Land/TOD development	Direct user charges
	Benefit Assessment Districts	

MACEDON RANGES
MOORABOOL
MELTON
WYNDHAM
HUME
WHITTLESEA
DAREBIN
MORELAND
BRIMBANK
MOONEE VALLEY
MARIBYRNONG
YARRA
MELBOURNE
BOROONDARA
PORT PHILLIP
HOBSONS BAY
GLEN EIRA
BAYSIDE
STONNINGTON
GREATER GEELONG
Grassland Reserve

Proposed Outer Metropolitan Transport Corridor
Regional Rail Link
WESTERN FWY
CALDER FWY
TULLAMARINE FWY
WESTERN RING ROAD
HUME FWY
PRINCES FWY

Sydenham
Airport West
Broadmeadows
Coburg
Preston, High Street
Moonee Ponds
Maribyrnong, Highpoint
Sunshine
Footscray
Melbourne
Werribee

MIS
WIFT

BOGGY CREEK
LERDERDERG RIVER
WERRIBEE RIVER
SKELETON CREEK
MARIBYRNONG RIVER
YARRA RIVER
LITTLE RIVER

Legend

Future Infrastructure
- Proposed Railway Station
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Railways
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- Railway; Underground

Major Roads
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- Freeway (Tunnel)
- Highway
- Arterial
- Connector

OD Route
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- B Double Routes

Airports
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- Airfields

Ports
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Future Freight Terminal
- MIS
- WIFT

Planning
- Activity Centre Location
- Urban Growth Boundary

Current Land Use
- Commercial
- Commonwealth
- Industrial
- Mixed Use
- Open Space/Conservation
- Public Use
- Residential
- Urban Growth Zone

Hydrography
- Major Stream / River
- Waterbody / Sea

Local Government
- Area

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Additional Legend

Managed Motorways

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Managed Motorways

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M012_Managed_Motorways_v3.mxd

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Growth area arterial roads – corridor upgrades

Summary of the Project

The scope of arterial road corridor upgrades should generally include duplication, provision of public transport infrastructure, safety improvements, and provision of grade separation at motorway junctions and rail level crossings.

Project Importance

The arterial road network in the Region provides the most important routes for public transport and freight.

A staged program of upgrades co-ordinated with land use is important to ensuring that the planned urban growth can occur without excessive adverse impacts.

There is already a backlog of arterial road upgrades where urban development has occurred in advance of transport infrastructure provision. The strategic prioritisation of arterial road corridor improvements should

1) address the current backlog, then
2) provide future freight and public transport links to activity centres and the trunk network, before
3) expanding to complete the network

Priority corridors are shown on the map.

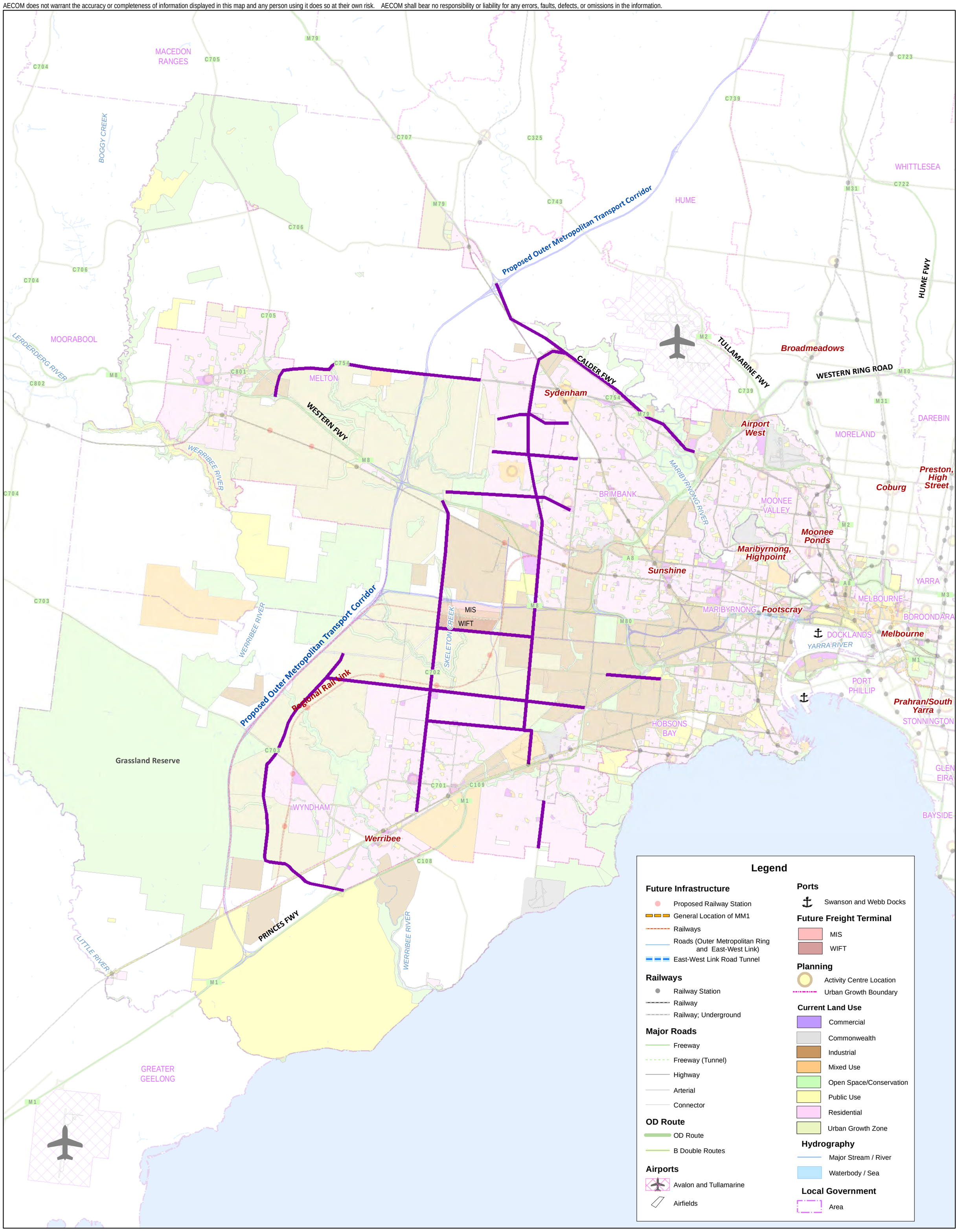
Strategic fit:

✓✓	Economic Development
✓✓	Competitive Positioning
✓	Access to Employment
	Impact Reduction
✓	Resilient Alternatives
✓	Freight Network Integration

Timing: 1 to 10 years

Potential funding sources

✓	State consolidated revenue	Value capture
	Federal consolidated revenue	Tax increment financing
	Public private partnerships	Development infrastructure charges
	Land/TOD development	Direct user charges
✓	Benefit Assessment Districts	



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Additional Legend

Arterial Roads

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Arterial Roads

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M013_Arterial_Roads_v3.mxd

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Activity Centre arterial road/rail grade separations

Summary of the Project

As part of a wider city-wide program, four level crossings in the Region's activity centres have been identified as priorities for grade separation.

They are at Hoppers Crossing, St Albans, Essendon and Watergardens.

Project Importance

Safety, congestion, and creating more active and vibrant activity centres are the three main reasons for eliminating the identified level crossings.

VicRoads data shows that Buckley St (Essendon) and Old Geelong Rd (Hoppers Crossing) both rank in the top 10 crossings in Melbourne for percentage of time that the traffic lights are activated due to the boom gates.

The boom gates at St Albans, Essendon and Hoppers Crossing (Old Geelong Rd) are all in the 10 worst crossings for morning peak boom closure time.

All three are amongst the top 20 riskiest level crossings in Victoria – St Albans is estimated to be third most risky.

Each of these three identified roads has an important strategic role as access to employment areas, current and future principal bus routes, and for local circulation within a regionally important activity centre.

The strategic issue at the Watergardens crossing is an emerging problem. Currently, service levels on the railway are low, but train movements will initially double with the opening of the Sunbury electrified suburban train service in 2012 and potentially increase to approximately 32 trains an hour under some service planning scenarios.

The Melton Highway level crossing at Watergardens is the only access route for east-west movements through the Watergardens Activity Centre and between the Calder and Western Highways in Melbourne's north-west growth corridor. A major increase in crossing closure time from increasing train volumes will reduce the effectiveness of this important arterial road.

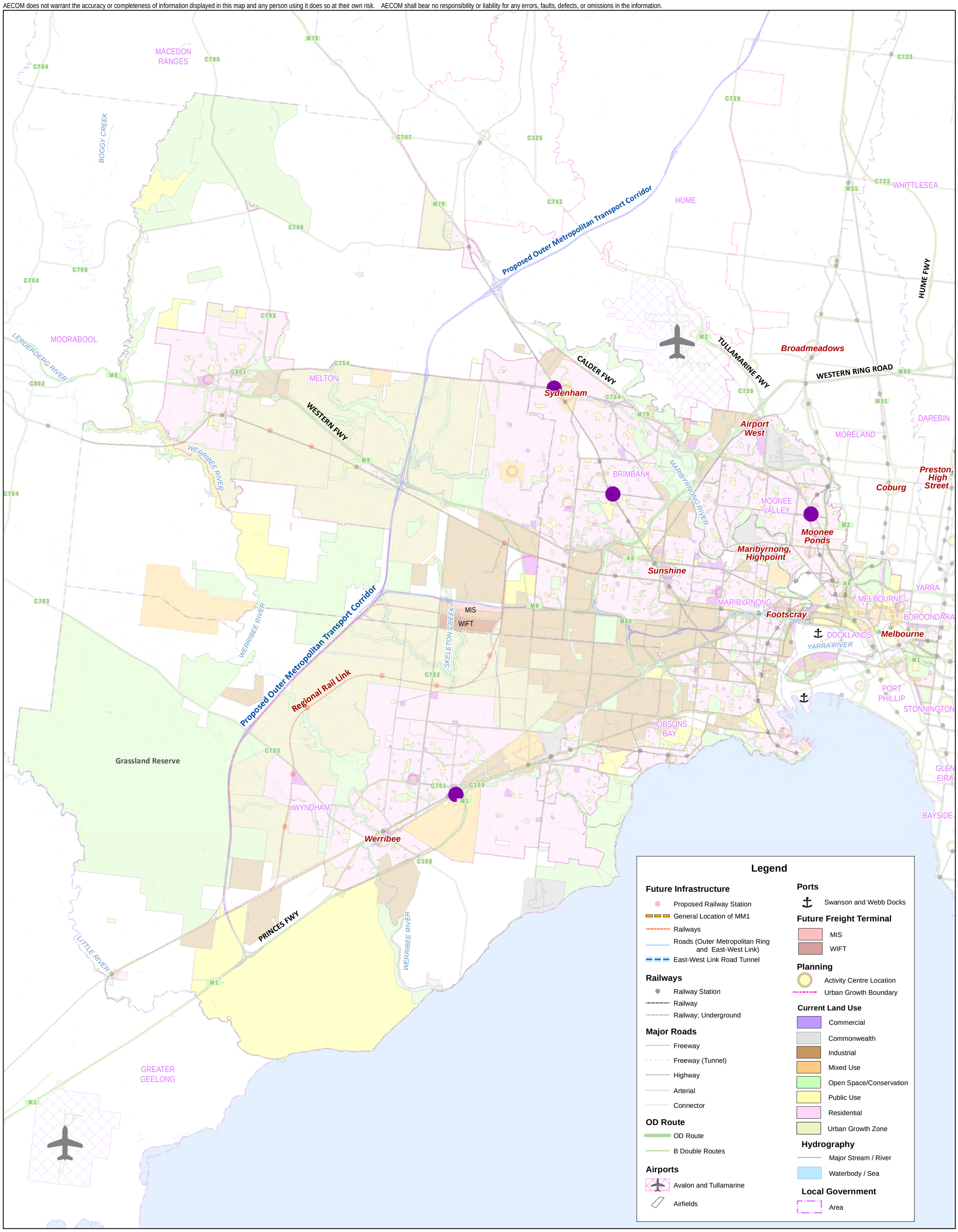
Strategic fit:

- ✓✓ **Economic Development**
- ✓✓ **Competitive Positioning**
- ✓ **Access to Employment**
- **Impact Reduction**
- ✓ **Resilient Alternatives**
- ✓ **Freight Network Integration**

Timing: 1 to 5 years

Potential funding sources

✓	State consolidated revenue	Value capture
✓	Federal consolidated revenue	Tax increment financing
✓	Public private partnerships	Development infrastructure charges
✓	Land/TOD development	Direct user charges
✓	Benefit Assessment Districts	



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Additional Legend

Grade Separation

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Grade Separations

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M014_Grade_Separations_v4.mxd

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Transit Network Development - Upgrade existing premium routes

Summary of the Project

This package of transit network developments focuses on upgrades of existing premium services on established or upgraded infrastructure.

The elements include:

- Ten minute headway rail services
- Ten minute headway SmartBus services
- Upgraded tram priority and stops
- Upgrading of key interchange at Moonee Ponds
- Extension of tram services into Maribyrnong Defence Site

Routes are shown on the map below.

Strategic fit:

- ✓ **Economic Development**
- ✓ **Competitive Positioning**
- ✓ **Access to Employment**
- ✓ **Impact Reduction**
- ✓ **Resilient Alternatives**

Freight Network Integration

Timing: 1 to 5 years

Potential funding sources

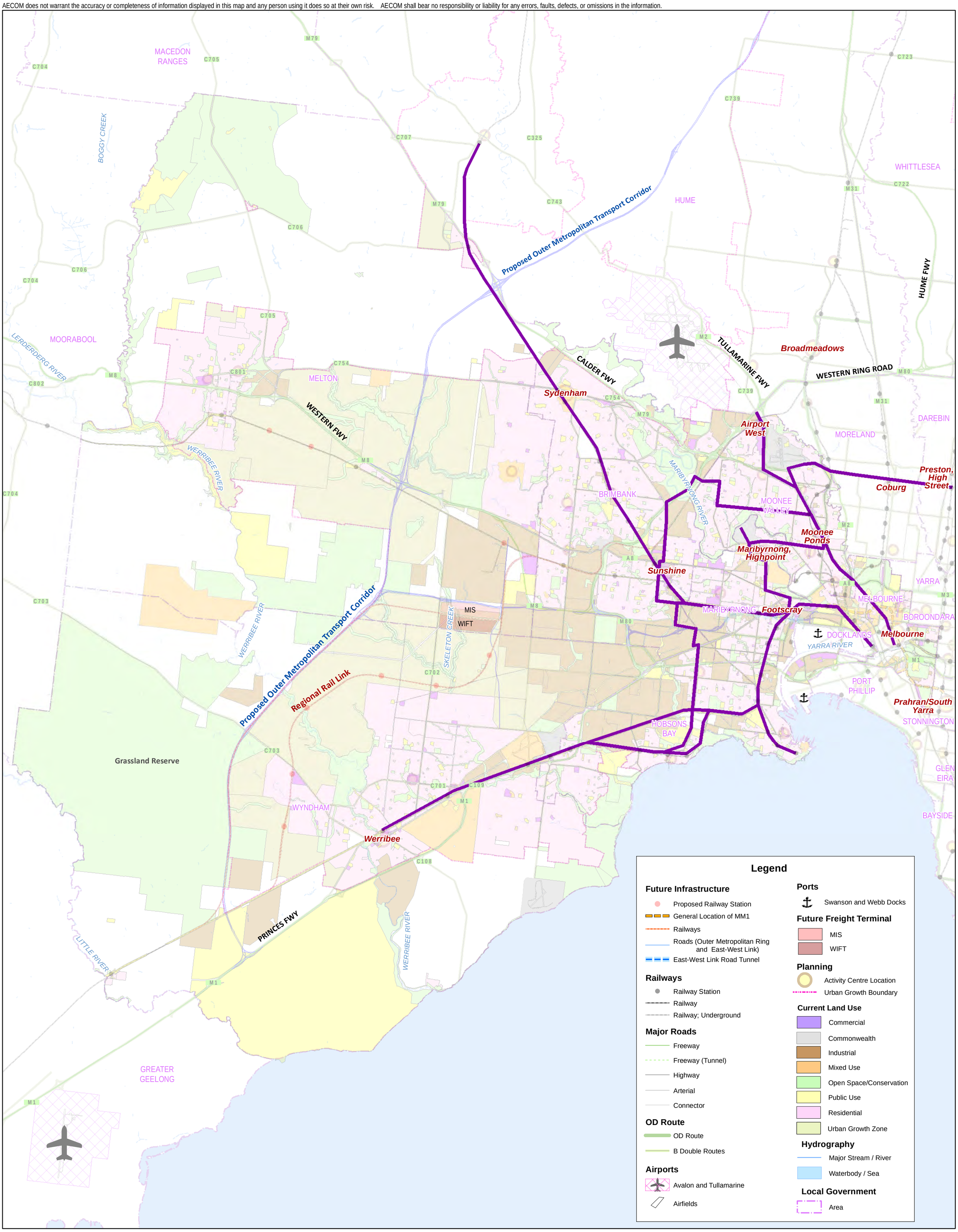
✓	State consolidated revenue		Value capture
	Federal consolidated revenue		Tax increment financing
✓	Public private partnerships	✓	Development infrastructure charges
	Land/TOD development	✓	Direct user charges
✓	Benefit Assessment Districts		

Project Importance

These package of transit network developments delivers the 'backbone' of the Region's transit network connectivity with the central city – frequent suburban rail and accessible tram services.

By working with established services, this package is a 'quick win' of lower cost upgrades and services in established areas, responding to immediate needs and challenges.

It also includes delivery of a short tram extension into the Maribyrnong Defence Site.



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Kilometres

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Additional Legend

Existing Service Upgrade

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Existing Service Upgrade

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M003_Existing_Service_Upgrade_v4.mxd

A2 size

Transit Network Development - Regional Rail Link package

Summary of the Project

This package of services leverages the $4.3 billion investment in passenger rail infrastructure to provide tracks for V/Line trains (shared only with other regional rail services) from West Werribee to Southern Cross.

The package provides trunk connections from RRL stations to Werribee line stations on routes such as:

- Manor Lakes – Hoppers Crossing – Point Cook
- Manor Lakes – Werribee
- Werribee – Tarneit
- Tarneit - Newport
- Watergardens – Deer Park – Williams Landing

Project Importance

This package will ensure that Wyndham has an effective and efficient trunk transit network.

The major feature of this package is its linkage of residential areas to employment opportunities – both directly through coverage of employment land use, and through access to activity centres on the rail network.

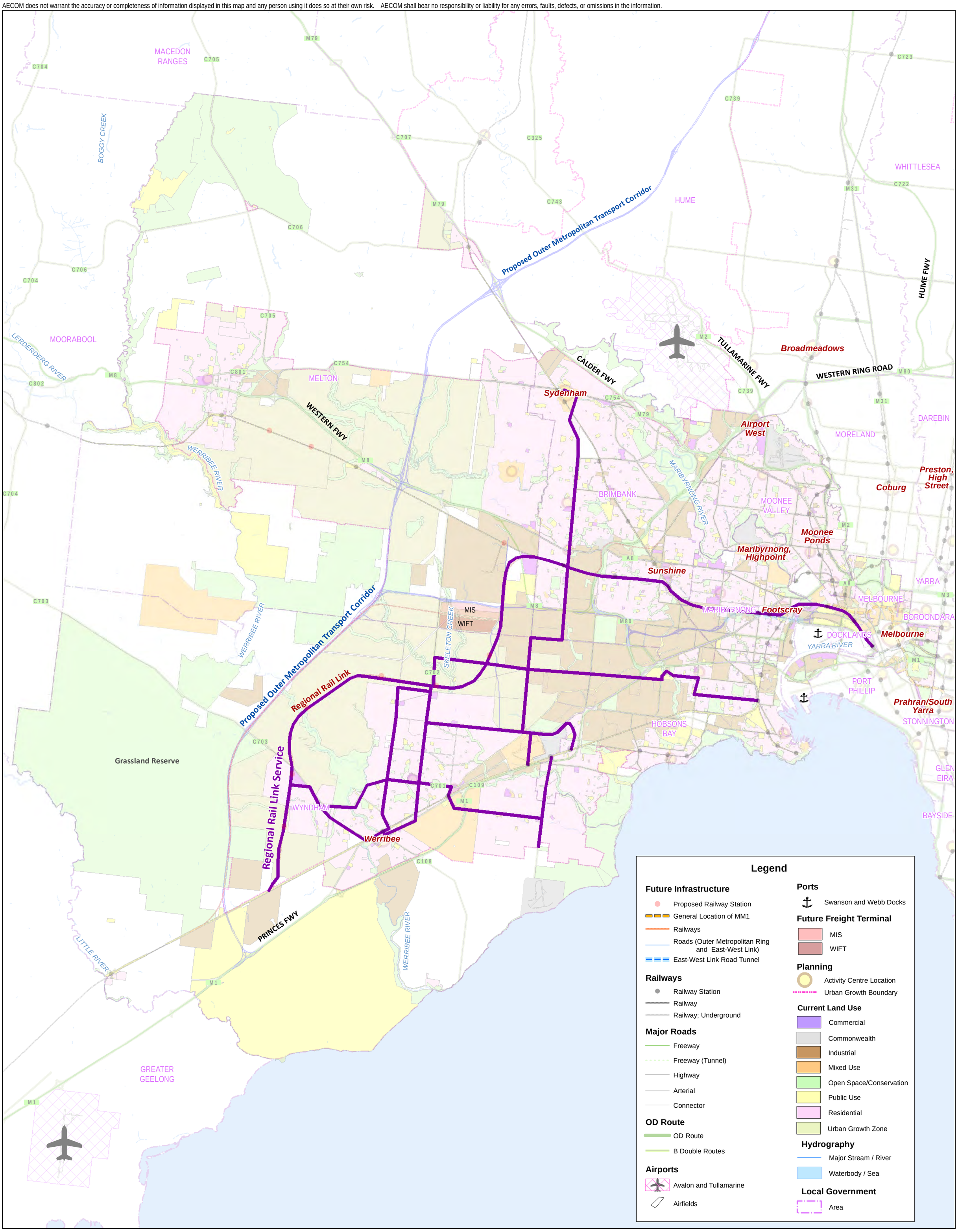
Strategic fit:

✓✓	Economic Development
✓✓	Competitive Positioning
✓✓	Access to Employment
✓	Impact Reduction
✓	Resilient Alternatives
	Freight Network Integration

Timing: 3 to 5 years

Potential funding sources

✓	State consolidated revenue		Value capture
	Federal consolidated revenue		Tax increment financing
✓	Public private partnerships	✓	Development infrastructure charges
	Land/TOD development	✓	Direct user charges
✓	Benefit Assessment Districts		



Legend

Future Infrastructure
- Proposed Railway Station
- General Location of MM1
- Railways
- Roads (Outer Metropolitan Ring and East-West Link)
- East-West Link Road Tunnel

Railways
- Railway Station
- Railway
- Railway; Underground

Major Roads
- Freeway
- Freeway (Tunnel)
- Highway
- Arterial
- Connector

OD Route
- OD Route
- B Double Routes

Airports
- Avalon and Tullamarine
- Airfields

Ports
- Swanson and Webb Docks

Future Freight Terminal
- MIS
- WIFT

Planning
- Activity Centre Location
- Urban Growth Boundary

Current Land Use
- Commercial
- Commonwealth
- Industrial
- Mixed Use
- Open Space/Conservation
- Public Use
- Residential
- Urban Growth Zone

Hydrography
- Major Stream / River
- Waterbody / Sea

Local Government
- Area

PROJECT ID 60242470
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DATUM GDA 1994, PROJECTION MGA ZONE 55

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Kilometres

1:125,000 (when printed at A2)

Additional Legend

Regional Rail Link Package

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Regional Rail Link Package

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M004_RRL_Package_v4.mxd

A2 size

Transit Network Development - Melbourne Metro/Melbourne Airport Rail Link package

Summary of the Project

This package comprises the Melbourne Metro rail tunnel between South Kensington and South Yarra and a package of supporting on-road transit improvements in the north-western part of the Region.

The package is also compatible with the delivery of the Melbourne Airport Rail Link.

Key routes provided in this package include:

- Melbourne Metro
- Footscray – Tullamarine Airport
- Footscray – Sunshine
- St Albans – Essendon
- Melton – Watergardens – Tullamarine Airport

Project Importance

The Metro offers a step change in accessibility to central city employment hubs. Like Regional Rail Link it is also an enabler of additional passenger rail services on the wider network, particularly on the Sunbury, Craigieburn and Upfield lines.

The Melbourne Airport Rail Link, currently being studied, can complement this additional capacity through direct coverage of the Region's activity centres.

To extend the benefits of these services improved on-road public transport is required.

Strategic Fit:

✓ **Economic Development**

✓ **Competitive Positioning**

✓✓ **Access to Employment**

✓ **Impact Reduction**

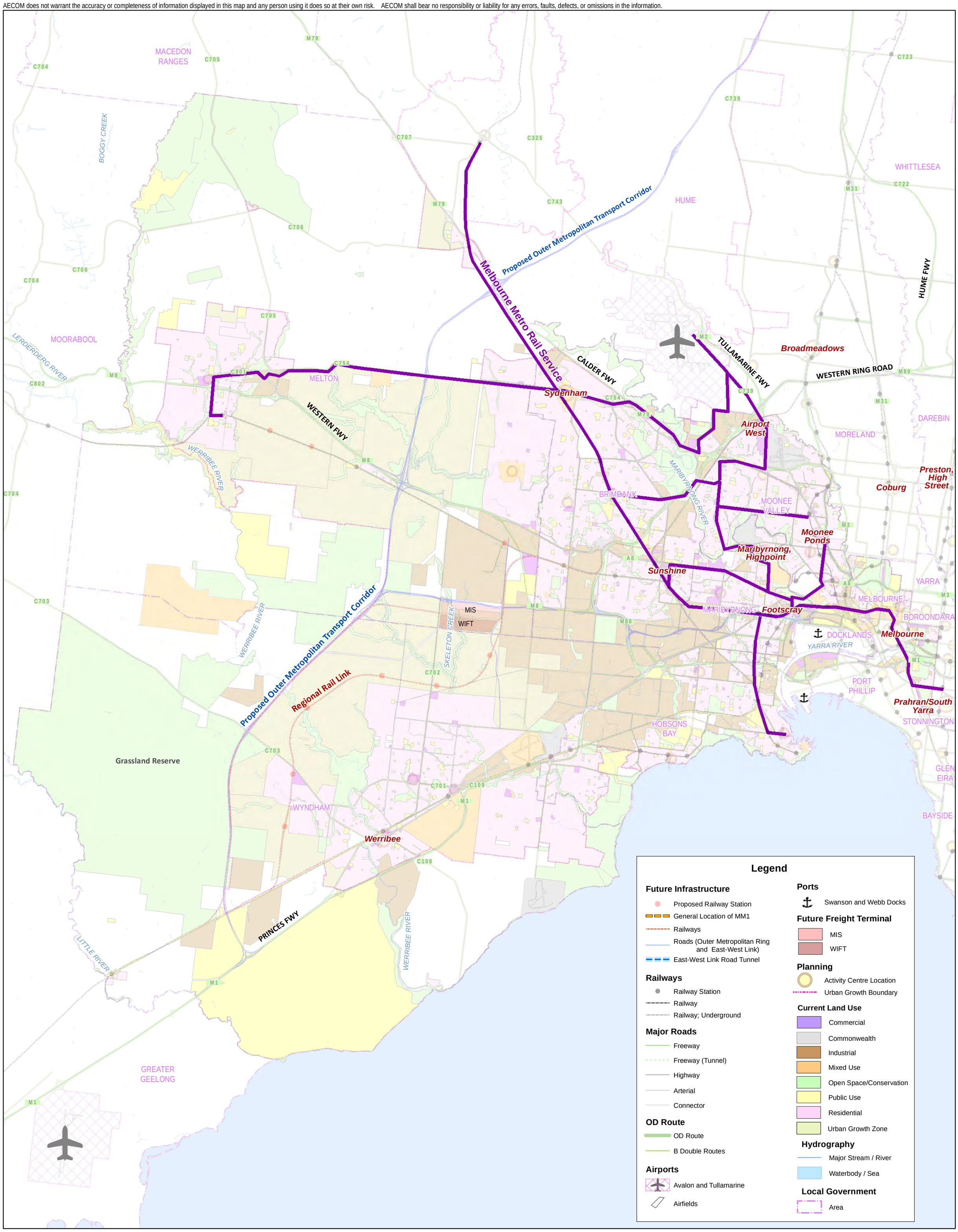
✓ **Resilient Alternatives**

Freight Network Integration

Timing: 7 to 15 years

Potential funding sources

✓	State consolidated revenue		Value capture
	Federal consolidated revenue		Tax increment financing
✓	Public private partnerships	✓	Development infrastructure charges
	Land/TOD development	✓	Direct user charges
✓	Benefit Assessment Districts		



Legend

Future Infrastructure
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- General Location of MM1
- Railways
- Roads (Outer Metropolitan Ring and East-West Link)
- East-West Link Road Tunnel

Railways
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- Railway; Underground

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- Connector

OD Route
- OD Route
- B Double Routes

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- Airfields

Ports
- Swanson and Webb Docks

Future Freight Terminal
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- WIFT

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- Urban Growth Boundary

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Hydrography
- Major Stream / River
- Waterbody / Sea

Local Government
- Area

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Kilometres

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Additional Legend

Metro Package

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Metro Package

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M005_Metro_Package_v4.mxd

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Transit Network Development - Westgate Freeway Bus Rapid Transit package

Summary of the Project

This package of services comprises a network of frequent bus rapid transit services using the West Gate Freeway.

Frequent services are the crux of this approach, designed to attract mode share and thus passenger volume from cars so that a dedicated lane over the West Gate Bridge can be efficiently used.

The routes would complement and integrate with the rail network, providing new connections from Sunshine, Tarneit, Newport, Deer Park and Altona through areas relatively poorly serviced by rail.

Park and Ride would be an important element of implementing this strategy, so routes pass near freeway interchanges and areas with land for car parking as well.

Strategic fit:

✓	**Economic Development**
✓	**Competitive Positioning**
✓	**Access to Employment**
✓✓	**Impact Reduction**
✓	**Resilient Alternatives**
	Freight Network Integration

Timing: 7 to 15 years

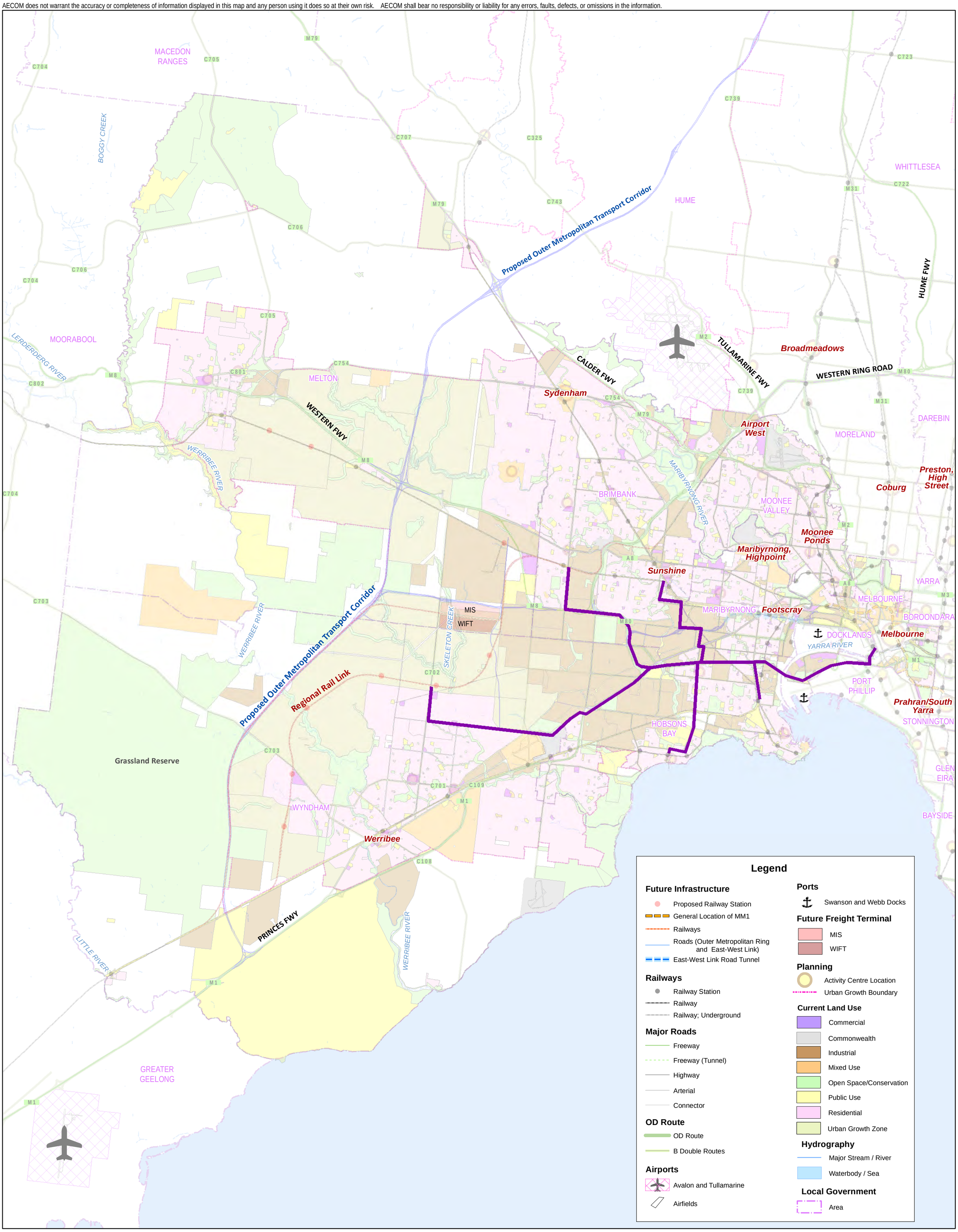
Potential funding sources

✓	State consolidated revenue		Value capture
	Federal consolidated revenue		Tax increment financing
✓	Public private partnerships	✓	Development infrastructure charges
	Land/TOD development	✓	Direct user charges
✓	Benefit Assessment Districts		

Project Importance

This package of services has two important purposes:

- Reduce the impact of limited crossings of the Maribyrnong and Yarra River by achieving mode shift to make better use of the scarce capacity of the West Gate Bridge
- Provide access from across the Region, through wide network connectivity, to the major future urban renewal area of Fishermans Bend



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- MIS
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- Activity Centre Location
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Hydrography
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- Waterbody / Sea

Local Government
- Area

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Additional Legend

Westgate Package

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Westgate Package

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M006_Westgate_Package_v4.mxd

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Transit Network Development - Melton Rail Upgrade package

Summary of the Project

This package of services is integrated around an upgraded Melton Rail Corridor service.

The package focuses on the Growth Corridor area west of Caroline Springs.

Routes included in this package include:

- Melton – Toolern – Rockbank
- Williams Landing – Caroline Springs – Watergardens
- Tarneit – Melton

The network is shown on the map below.

Project Importance

Melton line services need upgrading to meet current demand and future growth from urban development.

Electrification and suburban services will deliver the capacity needed to respond to the Growth Corridor Plan. There are also significant opportunities to address immediate needs through short-term improvements such as duplication, infill stations and more frequent diesel services.

Strategic fit:

✓✓ Economic Development

✓✓ Competitive Positioning

✓✓ Access to Employment

✓ Impact Reduction

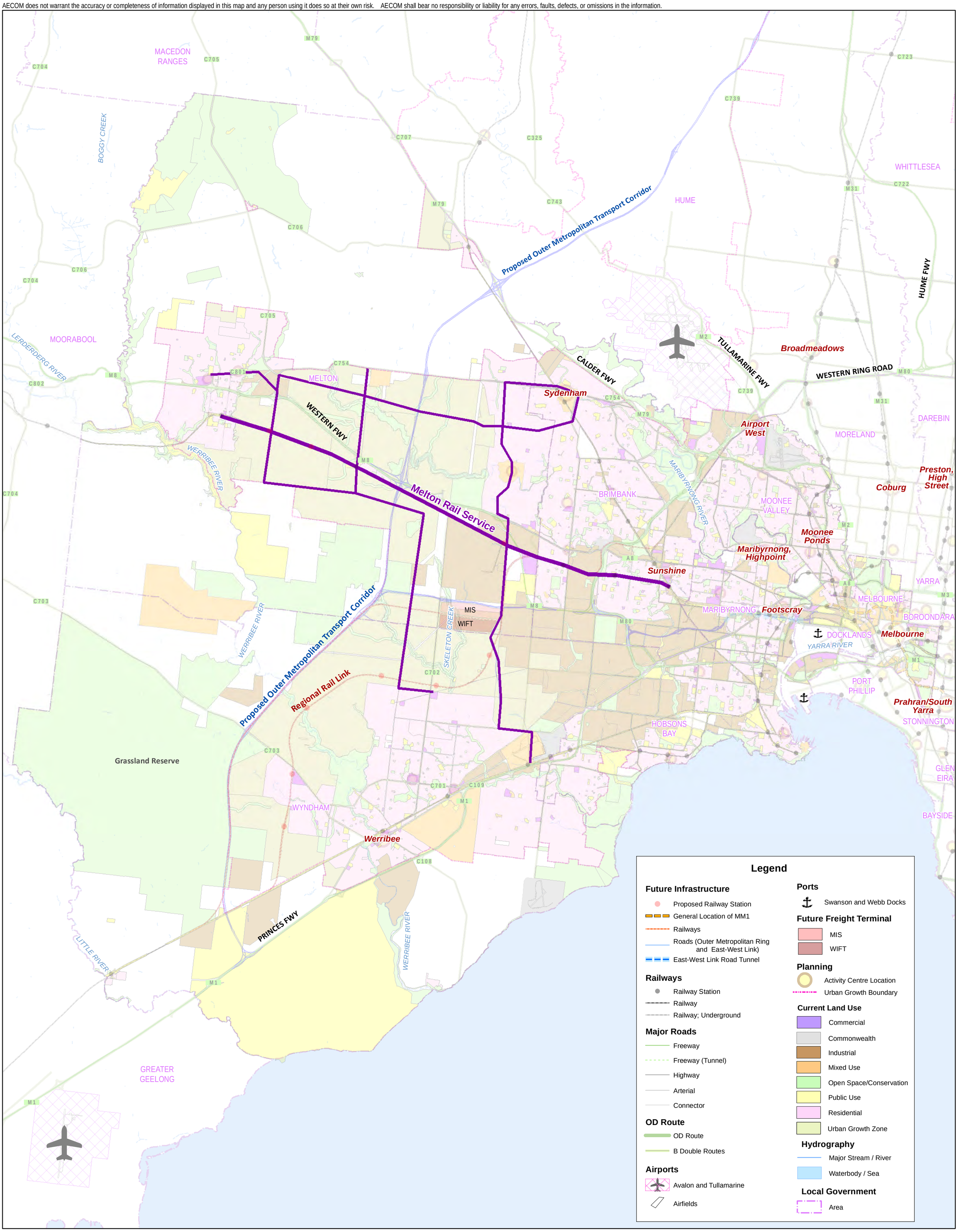
✓ Resilient Alternatives

Freight Network Integration

Timing: 5 to 15 years

Potential funding sources

✓	State consolidated revenue		Value capture
	Federal consolidated revenue		Tax increment financing
✓	Public private partnerships	✓	Development infrastructure charges
	Land/TOD development	✓	Direct user charges
✓	Benefit Assessment Districts		



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Local Government
- Area

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Kilometres

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Additional Legend

Melton Package

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Melton Package

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M007_Melton_Package_v4.mxd

A2 size

Transit Network Development - Avalon Airport Rail Link

Summary of Project

Avalon Airport Rail Link is a proposed rail connection from the Melbourne–Geelong rail line to Avalon Airport.

Project Importance

The Government objectives for the scheme include:

- provide high standard public transport for people travelling to and from Avalon Airport;
- support the development of Avalon Airport and help to secure its future as Melbourne's second international airport; and
- support the growth of economic and employment opportunities by helping to attract airlines, jobs, visitors and investment to Victoria.

The Region believes there is a strong case to investigate developing a container port near Avalon, which would require broad and standard gauge rail links integrated with existing infrastructure and the Outer Metropolitan Ring rail corridor.

Reserving a corridor that can cater to export sea freight and passenger requirements is important, but funding for construction should be directed to more immediate priorities.

Strategic fit:

✓ **Economic Development**

✓ **Competitive Positioning**

Access to Employment

Impact Reduction

Resilient Alternatives

✓ **Freight Network Integration**

Timing: **1 to 5 years (corridor reservation)**

Construction when demand warrants (freight or passenger)

Potential funding sources

✓	State consolidated revenue		Value capture
	Federal consolidated revenue		Tax increment financing
✓	Public private partnerships	✓	Development infrastructure charges
	Land/TOD development	✓	Direct user charges
✓	Benefit Assessment Districts		

Legend

Future Infrastructure
- Proposed Railway Station
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- Urban Growth Boundary

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- Residential
- Urban Growth Zone

Hydrography
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- Waterbody / Sea

Local Government
- Area

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Kilometres

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Additional Legend

Avalon Airport

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Avalon Airport

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M008_Avalon_Airport_v4.mxd

A2 size

Transit Network Development - Second CBD Rail Corridor planning

Summary of Project

The project would identify and protect an additional rail corridor towards the central city that would provide rail operational benefits and possible land use intensification opportunities.

Four corridors with strategic merit are shown on the map below:

- Sunshine –Flemington
- Sunshine –Footscray – Melbourne Metro
- Sunshine – Fishermans Bend
- Altona – Fishermans Bend

Project Importance

Patronage growth highlights the importance of long-term strategic rail capacity planning.

The currently proposed schemes for the Regional Rail Link and Melbourne Metro are major capacity enhancements. Current forecasts suggest that these schemes should be adequate for the long-term horizon of this Strategy. However, overly conservative growth forecasts have been a factor in recent poor public transport performance.

It is prudent to identify, assess and appropriately protect strategically valuable long-term options for additional rail lines towards the central city that may in turn stimulate new land uses in the Region.

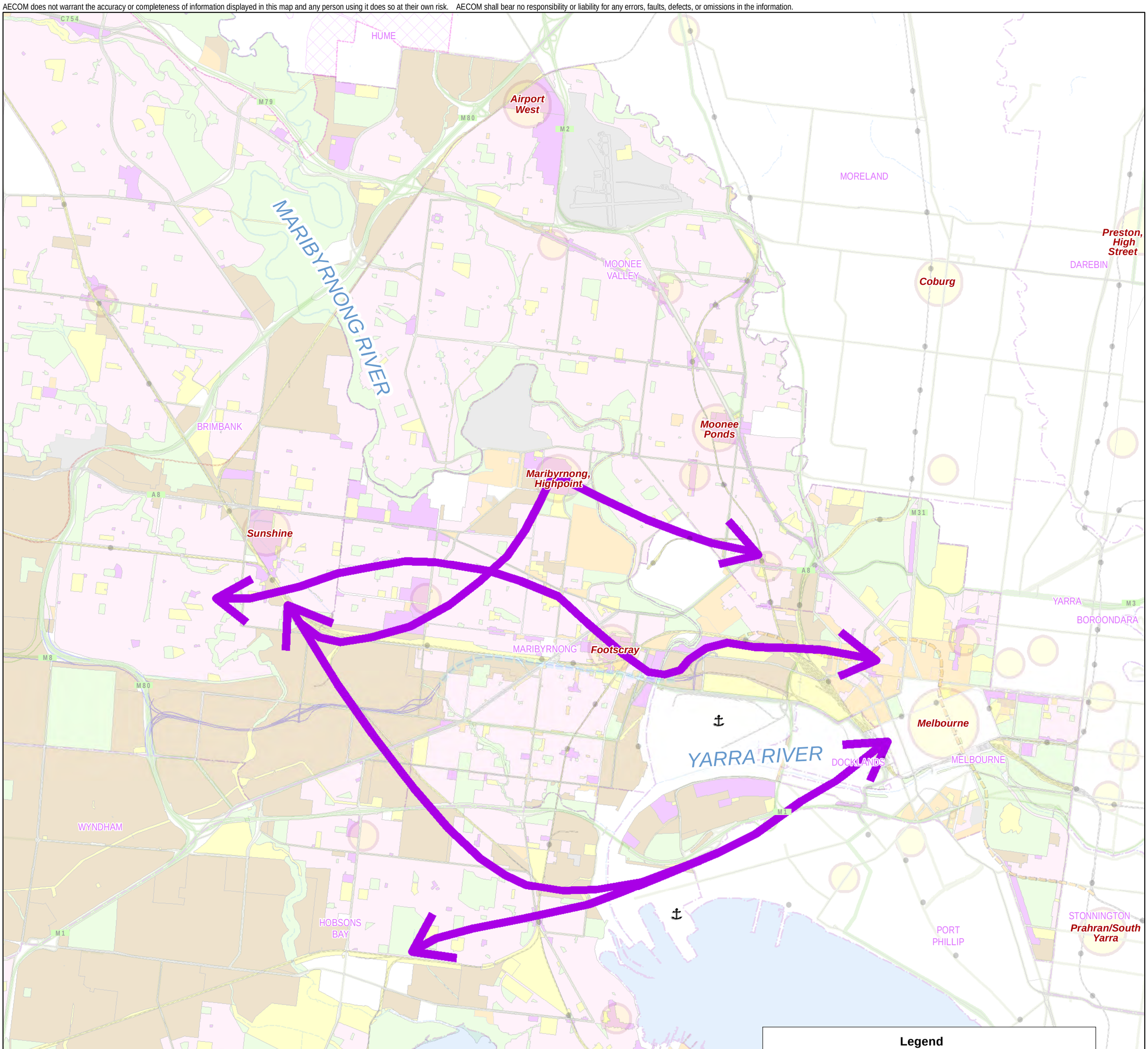
Strategic fit:

✓✓	**Economic Development**
✓✓	**Competitive Positioning**
✓✓	**Access to Employment**
✓	**Impact Reduction**
✓	**Resilient Alternatives**
	Freight Network Integration

Timing: 5 to 10 years

Potential funding sources

✓ State consolidated revenue	✓ Value capture
Federal consolidated revenue	Tax increment financing
Public private partnerships	Development infrastructure charges
Land/TOD development	Direct user charges
Benefit Assessment Districts	



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Additional Legend

West Corridor

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

West Corridor

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M009_West_Corridor_v3.mxd

A2 size

Bay West Port Study

Summary of Project

Undertake a comprehensive strategic integrated assessment of the Bay West Port concept as part of Victoria's long-term planning for future growth in container shipping, investigating the feasibility of marine- and land-side transport requirements and land use.

The study scope would include consideration of

- Broad and standard gauge rail corridors
- An extended Outer Metropolitan Ring corridor

Strategic fit:

✓✓	**Economic Development**
✓✓	**Competitive Positioning**
	Access to Employment
✓	**Impact Reduction**
✓✓	**Resilient Alternatives**
✓✓	**Freight Network Integration**

Timing: 1 to 3 years

Potential funding sources

✓	State consolidated revenue	Value capture
✓	Federal consolidated revenue	Tax increment financing
✓	Public private partnerships	Development infrastructure charges
	Land/TOD development	Direct user charges
	Benefit Assessment Districts	

Project Importance

Bay West is a potential alternative or complement to the Port of Hastings. Although Hastings is an established Port, it has major transport access challenges. For the Region it would increase reliance on the West Gate corridor, and providing a national standard gauge rail connection through Melbourne's south east is difficult.

Bay West has strategic advantages that make it worthy of comprehensive investigation, such as

- Productivity benefits from proximity to the highest concentration of importers and exporters within the Melbourne metropolitan area.
- Excellent rail connections to the interstate and intrastate rail networks.
- Excellent road connections to the M1, and the planned Outer Metropolitan Ring route through to the Hume Freeway.

It also offers the opportunity to further development freight and transport employment in the Region.

Legend

Future Infrastructure
- Proposed Railway Station
- General Location of MM1
- Railways
- Roads (Outer Metropolitan Ring and East-West Link)
- East-West Link Road Tunnel

Railways
- Railway Station
- Railway
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Major Roads
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- Freeway (Tunnel)
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OD Route
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Airports
- Avalon and Tullamarine
- Airfields

Ports
- Swanson and Webb Docks

Future Freight Terminal
- MIS
- WIFT

Planning
- Activity Centre Location
- Urban Growth Boundary

Current Land Use
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Hydrography
- Major Stream / River
- Waterbody / Sea

Local Government
- Area

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Kilometres

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Additional Legend

- Bay West
- Airport Extension

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Arterial Roads

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M015_Bay_West_v3.mxd

A2 size

Principal Freight Networks

Summary of project

Formalise the Principal Freight Network in the Region.

An indicative network based on State Government plans prepared in 2009 is shown below.

Project Importance

The key goals of Victorian freight network policy are to:

- Maintain and improve the efficiency of the freight network;
- Ensure the availability of sufficient capacity in the freight network to handle the growing freight task; and
- Enhance the sustainability of the freight network

With its strengths in freight and logistics, formalising and managing the Principal Freight Network is important to ensuring that all stakeholders are aware of the long-term intention for roads and railways and can plan nearby land uses accordingly.

The relationship between Principal Freight Networks and future trunk public transport routes also needs to be resolved.

This project also contributes to aligning with Federal policy frameworks.

Strategic fit:

✓✓ **Economic Development**

✓✓ **Competitive Positioning**

Access to Employment

✓✓ **Impact Reduction**

Resilient Alternatives

✓✓ **Freight Network Integration**

Timing: 1 to 10 years

Potential funding sources

✓	State consolidated revenue	Value capture
	Federal consolidated revenue	Tax increment financing
	Public private partnerships	Development infrastructure charges
	Land/TOD development	Direct user charges
	Benefit Assessment Districts	

MACEDON RANGES
MOORABOOL
MELTON
WYNDHAM
HUME
WHITTLESEA
DAREBIN
MORELAND
BRIMBANK
MOONEE VALLEY
MARIBYRNONG
YARRA
MELBOURNE
BOROONDARA
HOBSONS BAY
PORT PHILLIP
STONNINGTON
GLEN EIRA
BAYSIDE
GREATER GEELONG
Grassland Reserve

Proposed Outer Metropolitan Transport Corridor
Regional Rail Link
WESTERN FWY
CALDER FWY
TULLAMARINE FWY
WESTERN RING ROAD
HUME FWY
PRINCES FWY

Sydenham
Broadmeadows
Airport West
Preston, High Street
Coburg
Moonee Ponds
Maribyrnong, Highpoint
Sunshine
Footscray
Melbourne
Prahran/South Yarra
Werribee

MIS
WIFT

BOGGY CREEK
LERDERDERG RIVER
WERRIBEE RIVER
MARIBYRNONG RIVER
SKELETON CREEK
YARRA RIVER
LITTLE RIVER

Legend

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Local Government
- Area

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Kilometres

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Additional Legend

Public Freeway Network

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Public Freeway Network

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M016_PFN_v3.mxd

A2 size

Western Freight Activity Centre (incorporating Western Intermodal Freight Terminal and Metropolitan Intermodal System)

Summary of Project

This project integrates the planned development of the Western Intermodal Freight Terminal, the Metropolitan Terminal System, the rail and road (HPFV) access routes, and the adjacent land uses into a single Activity Centre development.

The interfaces between the terminals, their access routes and the surrounding current and future land uses are complex and need to be resolved. Treating this precinct as a special purpose activity centre of similar importance to a Port or Airport is an innovative approach.

Strategic fit:

- ✓✓ **Economic Development**
- ✓✓ **Competitive Positioning**
- ✓ **Access to Employment**
- ✓ **Impact Reduction**
- **Resilient Alternatives**
- ✓✓ **Freight Network Integration**

Timing: 3 to 10 years

Potential funding sources

- ✓ State consolidated revenue
- ✓ Federal consolidated revenue
- ✓ Public private partnerships
- ✓ Land/TOD development
- Benefit Assessment Districts
- Value capture
- Tax increment financing
- ✓ Development infrastructure charges
- ✓ Direct user charges

Project Importance

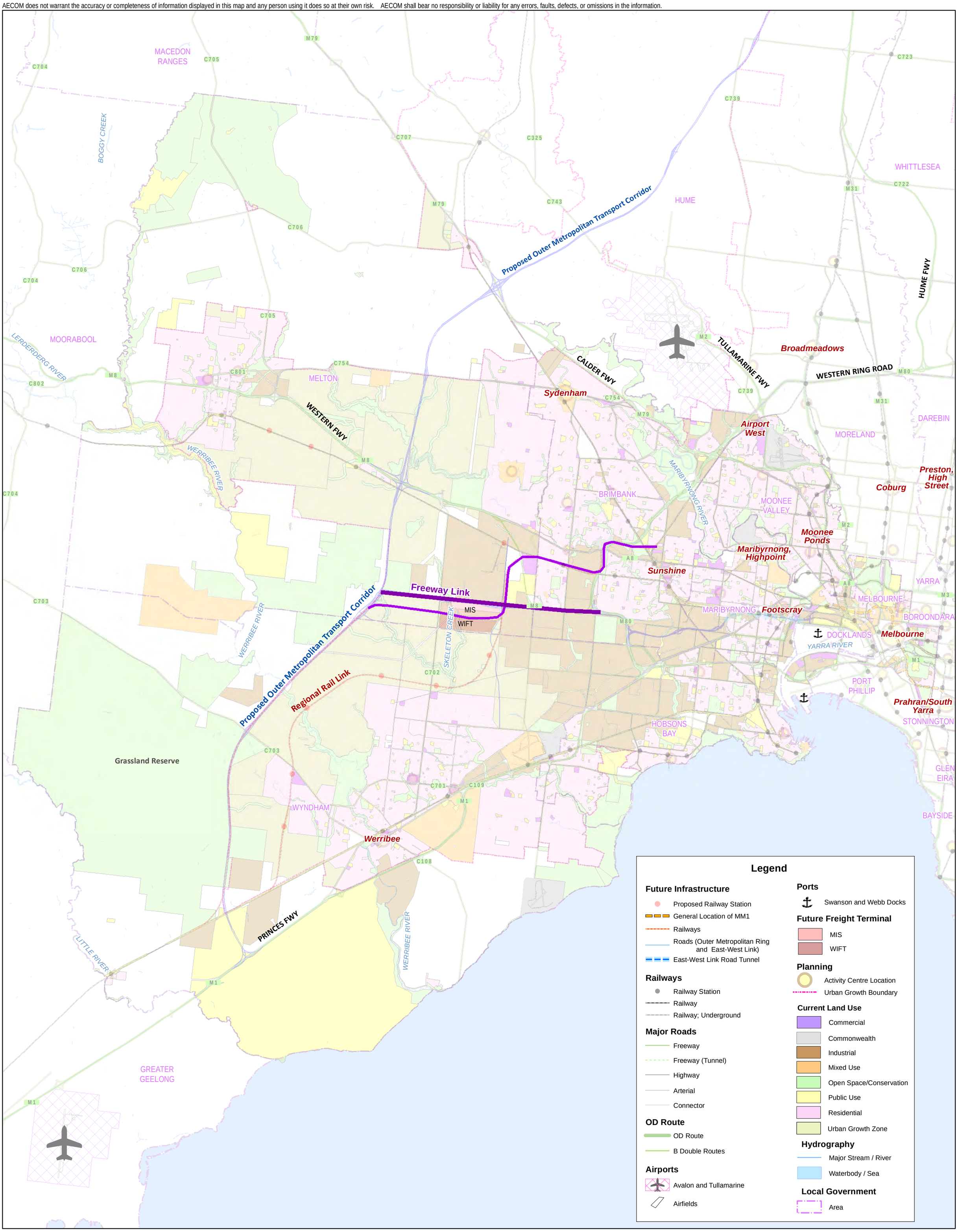
Each element of the proposed Western Freight Activity Centre is a substantially important initiative in its own right:

The Western Interstate Freight Terminal is a proposed intermodal terminal to replace the less efficient Dynon terminal. It has significant efficiency, productivity and land use benefits.

The Metropolitan Intermodal System terminal is intended to encourage freight consolidation in the Region with use of HPFVs or rail to access the Port. It could be a key contributor to reducing the amenity impact of trucks on residents of the inner west.

The access routes are crucial to the functionality of the terminals and early resolution of design issues is important to secure optimal long term performance.

A supporting 'freight village' could provide a concentration of employment opportunities within the Region – supporting public transport and non-freight access also needs to be carefully planned.



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Kilometres

1:125,000 (when printed at A2)

Additional Legend

WIFT

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

WIFT

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M017_WIFT_v3.mxd

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Outer Metropolitan Ring Transport Corridor

Summary of Project

The OMR is a major future transport corridor that has been designated for future road and potential high-speed passenger and freight rail infrastructure.

The OMR connects the Princes Freeway just south-west of Werribee with the Hume Freeway at Kalkallo/Donnybrook. It crosses the Western Highway corridor east of Rockbank and the Calder Highway corridor south of Diggers Rest.

Strategic fit:

- ✓✓ **Economic Development**
- ✓✓ **Competitive Positioning**
- ✓ **Access to Employment**
- ✓✓ **Impact Reduction**
- ✓✓ **Resilient Alternatives**
- ✓✓ **Freight Network Integration**

Project Importance

The OMR provides four long-term critical transport network links for the Region:

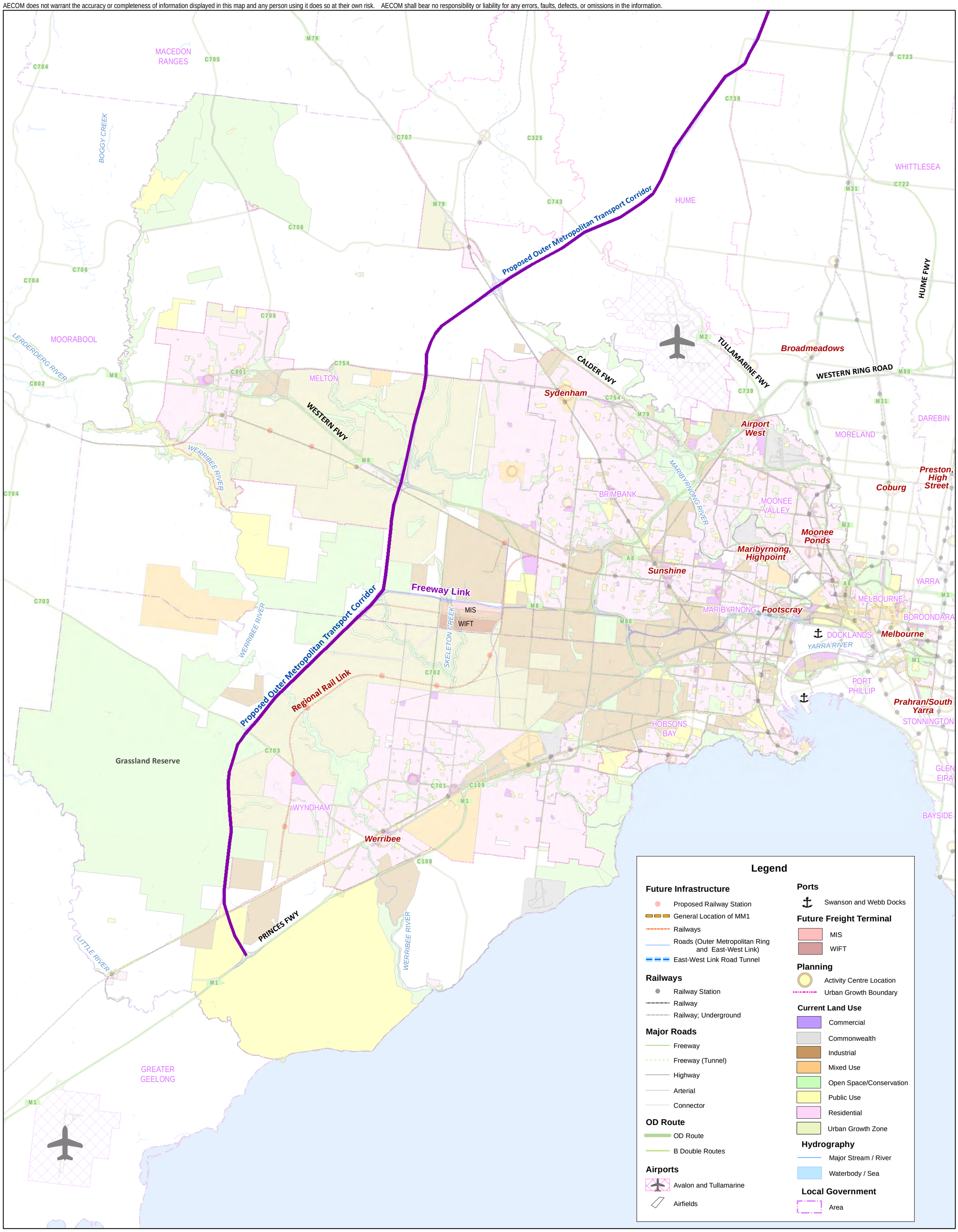
- An alternative access to Tullamarine Airport, instead of reliance on the Western Ring Road EJ Whitten Bridge over the Maribyrnong.
- Access to Avalon Airport and Bay West. The resilience risk of the single road between the Region and Avalon could be reduced if the OMR were extended south as a secondary access.
- An alternative to the flood prone sections of the Princes Highway and reliance on the West Gate Freeway, especially when combined with the East West Link.
- An alternative national rail corridor avoiding the congested and indirect route towards Sydney and Brisbane, a suburban route that will come under increasing capacity and land use pressures.

Delivery of the Outer Metropolitan Ring is currently 'not expected to start before 2020', but it is recommended that early delivery of these key strategic elements be further investigated.

Timing: 5 to 15 years

Potential funding sources

✓	State consolidated revenue		Value capture
✓	Federal consolidated revenue	✓	Tax increment financing
✓	Public private partnerships		Development infrastructure charges
	Land/TOD development	✓	Direct user charges
	Benefit Assessment Districts		



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Additional Legend

Outer Metropolitan Ring

Data sources:
Base Data: (c) 2012 (DSE)
(additional data)

Outer Metropolitan Ring

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M018_OMR_v3.mxd

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Cycling Network Development

Summary of Project

The cycling network development improves trails where cycling for transport purposes is a major opportunity. The project closes gaps in the trail network on key commuter and activity centre access routes, in particular:

- Completion of the Federation Trail over the railway corridor in Brooklyn
- Delivery of the Sydenham Rail Trail
- Delivery of the Regional Rail Link Rail Trail
- Completion of Footscray – CBD links on Footscray and Dynon Road
- Delivery of the Regional Principal Bicycle Network in growth areas

Project Importance

Cycling network development is of strategic importance as a primary route to Footscray and the CBD.

Cycle routes that are offroad and direct routes in linear corridors are important transport links, in contrast to off-road paths in the Region which use the rivers and creeklines and are more recreational in nature.

The Federation Trail and Rail Trails are potentially attractive for journeys to work, giving these routes an important transport function. These trails are also the primary link in circuits through the Region linking to recreational trails such as the Bay Trail or the Maribyrnong Trail, so they have an important recreational role as well.

Strategic fit:

	Economic Development
	Competitive Positioning
✓	Access to Employment
✓✓	Impact Reduction
✓	Resilient Alternatives
	Freight Network Integration

Timing: 5 to 15 years

Potential funding sources

✓	State consolidated revenue		Value capture
✓	Federal consolidated revenue		Tax increment financing
	Public private partnerships	✓	Development infrastructure charges
	Land/TOD development		Direct user charges
	Benefit Assessment Districts		

MACEDON RANGES
MOORABOOL
MELTON
WYNDHAM
GREATER GEELONG
HUME
WHITTLESEA
DAREBIN
MORELAND
BRIMBANK
MOONEE VALLEY
MARIBYRNONG
YARRA
MELBOURNE
BOROONDARA
PORT PHILLIP
HOBSONS BAY
STONNINGTON
GLEN EIRA
BAYSIDE

BOGGY CREEK
LERDERDERG RIVER
WERRIBEE RIVER
SKELETON CREEK
MARIBYRNONG RIVER
YARRA RIVER
LITTLE RIVER

Grassland Reserve

Proposed Outer Metropolitan Transport Corridor
Freeway Link
Regional Rail Link
MIS
WIFT

WESTERN FWY
CALDER FWY
TULLAMARINE FWY
WESTERN RING ROAD
HUME FWY
PRINCES FWY

Broadmeadows
Sydenham
Airport West
Preston, High Street
Coburg
Moonee Ponds
Maribyrnong, Highpoint
Sunshine
Footscray
Melbourne
Prahran/South Yarra
Werribee

Legend

Future Infrastructure
- Proposed Railway Station
- General Location of MM1
- Railways
- Roads (Outer Metropolitan Ring and East-West Link)
- East-West Link Road Tunnel

Railways
- Railway Station
- Railway
- Railway; Underground

Major Roads
- Freeway
- Freeway (Tunnel)
- Highway
- Arterial
- Connector

OD Route
- OD Route
- B Double Routes

Airports
- Avalon and Tullamarine
- Airfields

Ports
- Swanson and Webb Docks

Future Freight Terminal
- MIS
- WIFT

Planning
- Activity Centre Location
- Urban Growth Boundary

Current Land Use
- Commercial
- Commonwealth
- Industrial
- Mixed Use
- Open Space/Conservation
- Public Use
- Residential
- Urban Growth Zone

Hydrography
- Major Stream / River
- Waterbody / Sea

Local Government
- Area

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Additional Legend

Walk and Cycle

Data sources:
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(additional data)

Walk and Cycle

Western Transport Alliance and LeadWest

Western Transport Strategy

Map Document: P:\60242470\4. Tech work area\4.99 GIS\02_Maps\M019_Walk_and_Cycle_v3.mxd

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10.0 Reviewing and monitoring

This Strategy is intended to be a living document; the Region should regularly review the Directions and projects' continuing relevance as they are implemented and as conditions change. New projects that contribute to achieving the Strategic Directions and Objectives can be included as they are identified.

An annual high-level review of Strategy progress is recommended. The Region could consider providing an annual 'report card' to key stakeholders, highlighting successes, emerging issues and any adjustments to the Strategy.

Notwithstanding the above, specific triggers for a review of the Strategy should include:

- Agreement by the owners of the Strategy that new or different objectives are appropriate;
- Identification of elements of the Metropolitan Planning Strategy that are not consistent with this Strategy;
- Major changes to the *Transport Integration Act;*
- Decisions by Government to deliver major transport infrastructure addressing the key strategic constraints of the Maribyrnong River crossings; and
- Release of a new overarching strategic transport plan for the State to succeed the Victorian Transport Plan.

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