

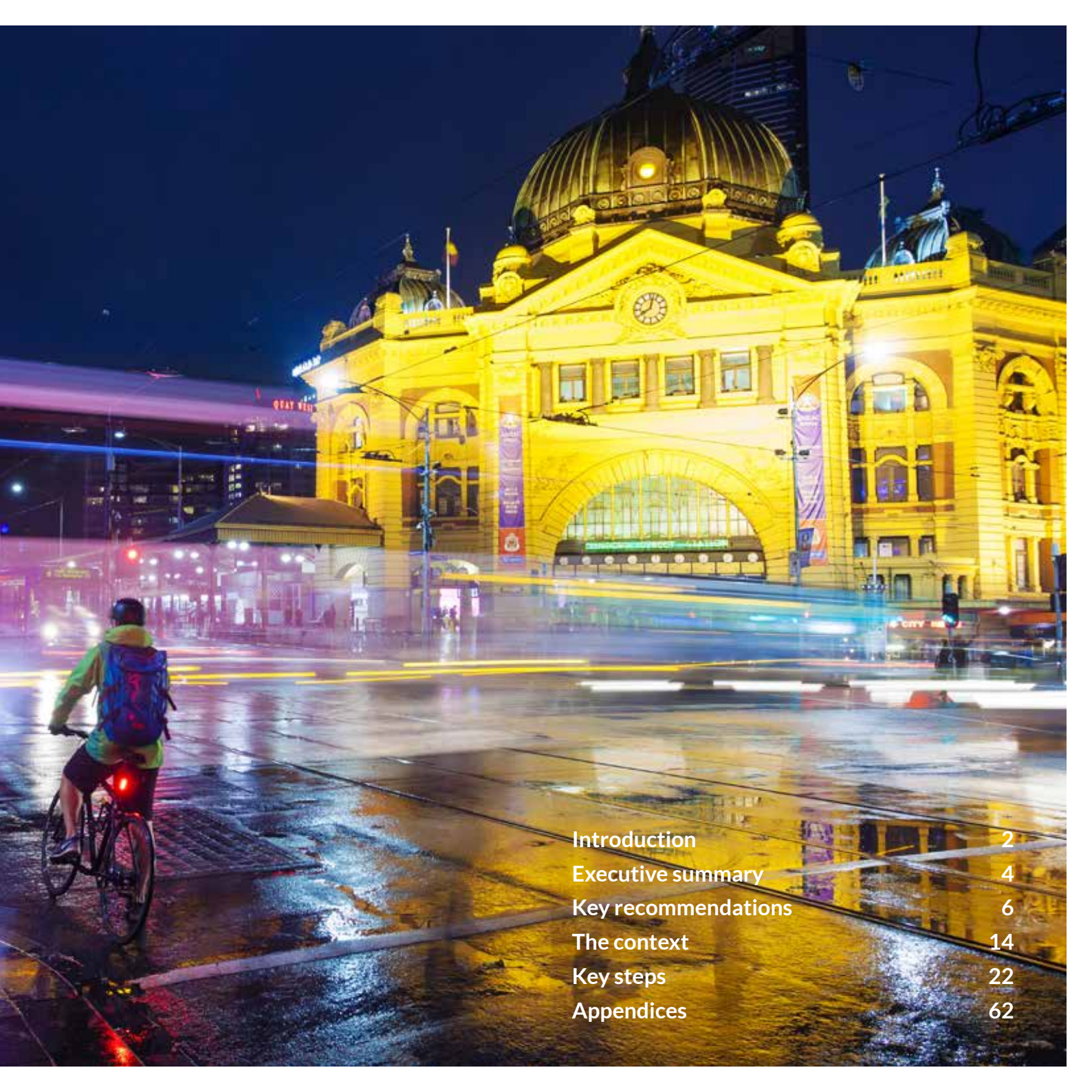


TRANSPORT TASKFORCE REPORT **GEARING UP FOR SUCCESS**

The Victorian Chamber of Commerce and Industry
Transport Taskforce:

- > **Mr Brian Negus** Victorian Chamber of Commerce and Industry Board member and Taskforce Chair
- > **Jason Price** Port of Melbourne
- > **Caryn Anderson** Port of Melbourne
- > **David Collomb** Bombardier
- > **Richard Elkington** Paradise Consulting
- > **Mick Gleeson** Unigrain Pty Ltd
- > **Nerida Kerr** AgBiz Assist Limited
- > **Associate Professor Hermione Parsons**
Deakin University
- > **Peter van Duyn** Deakin University
- > **Paul Sabo** Monash University
- > **Geoff Smith** SCT Logistics
- > **Peter Valentine** Geelong Taxi Network
- > **Steven Wojtkiw and Katherine Smith**
Victorian Chamber of Commerce and Industry
(Taskforce Policy Secretariat)





| | |
|---------------------|----|
| Introduction | 2 |
| Executive summary | 4 |
| Key recommendations | 6 |
| The context | 14 |
| Key steps | 22 |
| Appendices | 62 |

INTRODUCTION



Mark Stone AM

Victorian Chamber of
Commerce and Industry
Chief Executive

There are a number of challenges that need to be overcome if Victoria's transport system is to effectively meet future service demands from business and the wider community.

An efficient and integrated transport system is vital for business and vital for Victoria.

It is needed to underscore economic activity, trade, population dispersal and liveability. It is key to getting people to where the jobs are and ensuring a positive visitor experience.

The investment in the state's transport system made by successive governments and the private sector over the past two decades has played an important role in underscoring these objectives.

It has created greater connectivity between Melbourne and regional Victoria and positioned the state as a key player in national and international trade.

Victoria's extensive public transport system, integrating rail, tram and bus services, has played a key role in managing the state's rapid population growth. It will need to continue to do so into the future.

However, there are a number of challenges that need to be overcome if Victoria's transport system is to effectively meet future service demands from business and the wider community.

Foremost is the need to improve coordination across different modes of transport and better connect transport and land use planning.

Given Victoria's rapid population growth, it is important that governments address these critical community needs with comprehensive plans to improve transport for all road users, whether they are drivers, public transport passengers, bicycle riders or pedestrians.

There is a relatively limited adoption of smart technologies by businesses in the transport sector. Transport regulation remains prescriptive and is not keeping pace with new technologies.

The sector's workforce skills and productivity varies. More needs to be done to elevate the status of available jobs and careers in this diverse and important industry.

A range of industry-led recommendations to address these issues have been developed through the work of the Victorian Chamber's Transport Taskforce. If adopted, they will improve the operation of the transport system and spur increased private sector investment, confidence and certainty.

I take this opportunity to thank Taskforce members who shared their time, expertise and experience in coming together to identify issues, opportunities and ideas that will strengthen Victoria's transport system now, and into the future.

The Transport Taskforce's vision for an effective and integrated transport system is guided by the following principles:

- > **Integrated land use and transport system planning is the foundation of a productive, modern economy and competitive industries.**
 - > **An effective transport system improves the liveability of cities, towns and their communities.**
 - > **An effective transport system requires both physical infrastructure (such as the rail network, roads, ports and bridges) and digital infrastructure to effectively control the systems required to operate, manage and monitor transport operations.**
 - > **A bipartisan, long-term and whole-of-government approach to transport system planning and delivery is key to improving productivity and competitiveness.**
-

5.9

Victoria's population is projected to grow from 5.9 million



10.1

to 10.1 million people by 2051





EXECUTIVE SUMMARY

An effective transport system is vital to Victorian business and Victorian competitiveness.

It is key to facilitating commerce and trade, supporting tourism, attracting new investment, growing jobs and strengthening community integration and connectivity. In meeting the demands of a modern, fast-growing population and reducing congestion, it can also improve liveability.

Victoria's transport system is both extensive and diverse. It includes freight logistics, supply chain management, public transport, transport planning and transport management. It also incorporates a wide range of transport modes including road, rail, maritime and air services.

Over the past two decades Victoria's transport network has been transformed. The Western Ring Road, connecting the Port of Melbourne and Melbourne Airport, supports the growth of commercial and residential areas in Melbourne's west. Similarly, Eastlink has stimulated investment in Melbourne's south-east and cut transit times between the city, ports and some of Victoria's most important industrial areas.

A range of other major projects are either underway or soon will be, including the Tullamarine Freeway widening, the Monash Freeway upgrade and the West Gate Tunnel which will provide a much-needed alternative to the West Gate Bridge.

The Victorian Government's Level Crossing Removal program is improving safety, reducing congestion, creating jobs and enabling more frequent train services.

Regional rail networks have been given a boost through the Ballarat, Shepparton and Gippsland line upgrades and the \$3.65 billion Regional Rail Link project that separated metropolitan and regional services through Melbourne's west.

Metropolitan linkages are being strengthened through the Metro Rail Tunnel project which will improve the frequency and reliability of rail services and enable more workers to locate in highly productive and employment-dense areas. Benefits will flow to businesses, employees and the economy at large.



The reform momentum must not stop. Victoria's population is projected to grow by 4.2 million, from 5.9 million to 10.1 million people by 2051, with the population in Melbourne to reach 7.9 million. Continued delivery of environmentally sustainable transport infrastructure is therefore crucial if Victoria is to meet the future demands of industry and the community. Action is needed to provide job opportunities in the outer Melbourne growth areas and in regional Victoria.

Policy makers must support this investment with wider reforms that tackle gaps in the performance of the state's transport system.

Foremost is the need to improve coordination across different modes of transport and better connect transport and land use planning.

The disconnect between transport and land use planning is evident in continued population growth in outer metropolitan areas with a clear lack of adequate transport.

Similarly, inadequate preservation of land in critical locations for future transport system expansion is threatening industry growth and adding to existing land use tensions between commercial, social and environmental interests.

Victoria's public transport system of extensive rail, tram and bus services has strong foundations but more needs to be done to accommodate the forecast strong population growth into the next decade and beyond.

Inadequate support for smaller yet important projects and enhancements to the transport system undermines efforts to connect businesses to markets and help get workers to where the jobs are.

Network connectivity gaps between different modes of transport are constraining supply chain efficiency and exacerbating the first and last mile challenge facing producers.

We clearly need to introduce a transport network pricing regime that replaces the existing dysfunctional fuel excise and fixed Federal and State taxing system with an equitable and sustainable pricing regime that can also help manage congestion.

The limited adoption of smart technologies means many transport sector businesses are missing out on vital productivity and efficiency benefits that would help keep them competitive.

Inconsistent regulations applying across a number of states lead to inefficient and costly interstate transport, in some cases leading to lost business.

Skills shortages and an ageing workforce in many parts of the transport sector workforce are acting as a brake on industry growth and the uptake of new technologies.

KEY RECOMMENDATIONS



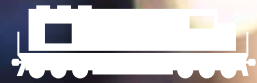
01

Improve
integrated
transport
and land use
planning
across Victoria



02

Meet the
capacity
challenge



03

Improve supply
chain and
transport
network
connectivity



04

Foster new technologies to improve transport system efficiency, reliability and safety



05

Improve transport industry regulation



06

Strengthen transport industry workforce skills and productivity

01

Improve integrated transport and land use planning across Victoria

- > Strengthen institutional links between infrastructure and land use planning by:
 - » Creating a formal role for Infrastructure Victoria in the identification and reservation of infrastructure corridors.
 - » Creating a statutory requirement for metropolitan planning strategies (i.e. Plan Melbourne) to incorporate transport projects in Victorian Infrastructure Plans.
 - » Developing strategies to locate jobs in outer Melbourne growth corridors.
 - » Implementing strategies to regionalise population growth and jobs in Geelong, Gippsland, Ballarat, Bendigo and the Hume region.
- > Preserve transport corridors and land around the following areas:
 - » Melbourne Airport. The airport's curfew-free status must be maintained. Development controls need to be in place to manage noise sensitive land uses and ensure that tall structures are not allowed to impinge on operational airspace.
 - » A new airport in Melbourne's southeast.
 - » Interface Council areas (i.e. outer Melbourne, high growth corridors).
 - » Pipeline corridor connections.
 - » Inland freight hubs.



02

Meet the capacity challenge

- > Build the North East Link and an East West Link.
- > Progress the Melbourne Airport Rail Link.
- > Progress regional rail connections to the Melbourne Airport Rail Link.
- > Build a busway on the Eastern Freeway with 24/7 bus lanes on Hoddle Street, Victoria Parade, Lonsdale Street, and Doncaster Road in the east.
- > Commence planning for Melbourne Metro 2.
- > Finalise a site for a new airport in Melbourne's southeast.
- > Extend funding for the Mode Shift Incentive Scheme for another four years to ensure the continued removal of trucks off major regional and metropolitan roads and onto our rail networks (the current scheme concludes in June 2018).
- > Establish metropolitan Intermodal Terminals with rail connectivity to the Port of Melbourne.
- > Introduce a transport network pricing regime that is more equitable and sustainable than the current dysfunctional road taxation system.
- > Encourage businesses to adopt flexible starting and finishing times to take the pressure off the transport system in peak commuting times.
- > Expand parking facilities at outer urban railway stations.
- > Link the Monash Precinct to Melbourne's core transport network through a mass transit solution.
- > Expand parking options for heavy vehicle operators in major regional towns, reducing pressure on commercial and residential areas.
- > Progress the Inland Rail freight project and Regional Rail Revival program, including upgrading rail routes and services to Geelong, Ballarat and Bendigo, as well as other major regional transport infrastructure priorities identified in section 2 of this report.



03

Improve supply chain and transport network connectivity

- > Progress the construction of a new east-west runway at Melbourne Airport and fast-track other major developments listed in the 2013 Melbourne Airport Master Plan.
- > Elevate the role of supply chain management and logistics by establishing a centre for excellence in supply chain management and logistics.
- > Fast-track the progression of the Avalon Airport Master Plan.
- > Incorporate more spaces for freight hubs and distribution centres in urban planning to drive more efficient last mile outcomes.
- > Prioritise necessary road and bridge upgrades to facilitate the wider use of High Productivity Freight Vehicles (HPFV). This will reduce the number of freight trips required, improving productivity, road safety and environmental outcomes.
- > Remove barriers to the use of overnight road and rail freight capacity and incentivise its use.



04

Foster new technologies to improve transport system efficiency, reliability and safety

- > Expand high capacity signalling across Victoria's transport network. Trials are already taking place as part of the Metro Tunnel Project, however, the use of high capacity signalling needs to be expanded to the entire Victorian train system.
- > Implement a program to improve arterial road operation by upgrading traffic signal efficiency, implementing more active public transport prioritisation and restricting parking in critical locations.
- > Continue to support Mobility-as-a-Service (MaaS) solutions that offer commuters and business improved transport options based on their needs. Since a major challenge for last mile logistics is congestion and parking in large cities, the development of MaaS applications offers a potential solution.
- > Accelerate trials of connected and automated vehicles (CAV) to build public engagement and endorsement of emerging CAV technology.



05

Improve transport industry regulation

- > Review, streamline and remove cross border regulatory duplication and inconsistencies that are impeding the efficient and effective operation of the Victorian transport sector.
- > Develop appropriate regulatory frameworks to facilitate the testing and eventual introduction of autonomous freight and passenger vehicles.
- > Improve the consistency of national heavy vehicle regulation.



06

Strengthen transport industry workforce skills and productivity

- > Work with the Victorian Skills Commissioner and key industry stakeholders to develop an industry-wide workforce development strategy projected across a ten-year period.
- > Work with industry to roll out a communications campaign to raise awareness of careers in transport and logistics and to increase the participation of female and younger workers in the sector.
- > Ensure that the national training package qualifications relevant to warehousing and logistics operations (the TLI - Transport and Logistics Training Package) is tailored to the current and future skills needs of the sector, in particular the increased demand for higher-skilled workers to implement and operate new technologies and practices.
- > Clearly articulate state and federal government policy on the testing and development of automated vehicle technology to allow better planning for the medium and long term skills needs of the sector.
- > Develop a school career service communication toolkit to promote the benefits of transport and logistics careers and apprenticeship and traineeship pathways to school leavers.



THE CONTEXT



An effective and integrated land use and transport system is the cornerstone of a prosperous and productive modern economy.

There are significant economic and social benefits that can be realised from an effective transport system. These benefits can flow to all sectors of the economy and impact the quality of life of all Victorians.

An effective transport system can play an important role in reducing business costs. It means businesses can transport products and services in a time efficient manner, making them more globally competitive and profitable. This can underscore expansion and job creation.

There are many other benefits. Land values can increase, creating new opportunities for population settlement and business development, particularly in regional areas. Commuters can get to work quickly and in comfort, the impact on the environment is minimised and accident rates are low, all improving liveability and social cohesion.

No single transport mode can be solely responsible for economic growth and social development. Benefits will only be realised through an integrated transport system where interfaces between different modes are efficient and different modes strategically complement each other.

Integrated land use and transport system planning is critical for Victoria's economic prosperity. An important element of this integration is the protection of vital infrastructure corridors for future development.

Successful integration also considers the fact that system improvements which reduce congestion, such as public transport infrastructure, also speed up the movement of freight. Similarly, planning reforms that co-locate housing and jobs can also reduce congestion, resulting in flow-on benefits to business. An effective and integrated transport system can significantly improve regional liveability and prosperity.

A complex web of systems

Victoria's transport system is both extensive and diverse. It includes freight logistics, supply chain management, public transport, transport planning, and transport management. It also incorporates several modes of transport including road, rail, maritime and air services.

While we often think of and make reforms to individual aspects of the transport system independently, each connect, overlap and influence each other.

THE CONTEXT CONTINUED

Transport is a vital part of Victoria's competitive advantage

Victoria has a strong history of investing in world-class transport systems.

It is home to Australia's largest container port, accounting for 35 per cent of Australia's total containerised trade¹. It is also ranked the 59th busiest port in the world².

Our public transport system spans central city centres, suburban employment and residential corridors and into our regions. Melbourne is currently home to the world's largest tram network and landmark infrastructure projects such as the Metro Tunnel will further expand the capacity of the public transport network.

Other competitive advantages include two curfew-free international airports at Tullamarine and Avalon, supported by two general airfields at Essendon and Moorabbin. Victoria's national distribution, warehousing and logistics centres are supported by an extensive rail and road network.

The transport, postal and warehousing sector³ in Victoria employs approximately 158,400 people. The workforce has been steadily increasing over the past five years and since 2012 has increased by almost 20 per cent⁴.

Not captured in this data is Victoria's transport equipment manufacturing sector, which is Victoria's second largest manufacturing industry and employs approximately 29,000 people⁵.

The transport, postal and warehousing sector contributes \$17 billion to Victoria's Gross State Product, representing around five per cent of the state's economy⁶. Furthermore, transport equipment manufacturing contributes approximately \$3.5 billion annually to the state's economy⁷.

But this is only part of the story. Many indirect benefits to the economy and labour force are not captured in this data. There are indirect impacts through upward and downward supply chains. Industries that rely heavily on efficient freight connections, such as manufacturing, wholesaling, warehousing, retailing and agribusiness, have also traditionally made a significant

contribution to Victoria's economy and will continue to do so into the future.

Multiplier effects from those directly and indirectly employed by the industry using their wages to buy goods and services in the Victorian economy are also not captured. Therefore, the economic importance and contribution of Victoria's transport system is significantly understated.

1 *Containerised and non-containerised trade through Australian to 2032-33 Ports*, Bureau of Infrastructure, Transport and Regional Economics (BITRE), December 2014.

2 *Lloyd's List and Containerisation International Top 100 Container Ports 2016*.

3 The Transport, Postal and Warehousing sector is defined under the ANZSIC classification (industry division I). It includes road transport, rail transport, water transport, air and space transport, scenic and sightseeing transport, pipeline transport, postal and courier pick-up and delivery services, and warehousing and storage services. It does not include transport equipment manufacturing or motor vehicle and transport equipment rental and hiring.

4 6291.0.55.003 *Labour Force, Australia, Detailed, Quarterly*, Australian Bureau of Statistics, released 21 September, 2017.

5 *Transport Technologies Sector Strategy*, Department of Economic Development, Jobs, Transport & Resources, March 2016.

6 ABS, 5220.0 *Australian National Accounts: State Accounts*.

7 *Transport Technologies Sector Strategy*, Department of Economic Development, Jobs, Transport & Resources, March 2016.

TOTAL EMPLOYED IN VICTORIA'S TRANSPORT, POSTAL & WAREHOUSING SECTOR



THE CONTEXT CONTINUED

A complex network of objectives

Victoria's transport system needs to balance multiple objectives.

GUARANTEE SYSTEM SECURITY
ENSURE USER SAFETY PROTECT THE ENVIRONMENT
FACILITATE VISITOR ATTRACTION
INCREASE ECONOMIC PRODUCTIVITY
INCREASE SYSTEM ACCESSIBILITY AND USABILITY
ATTRACT COMMERCIAL INVESTMENT
FOSTER REGIONAL CONNECTIVITY AFFORDABILITY
STRENGTHEN JOB CREATION
PROMOTE EQUITY
ENHANCE BUSINESS COMPETITIVENESS

While these objectives sometimes overlap, often they compete. This is where much of the complexity lies in reforming and growing Victoria's transport system.

Transport system reform – state of play, gaps and opportunities

The changes to Victoria's transport network that have occurred over the past two decades have been transformative and substantial. Transport system investment has created greater connectivity between Melbourne and regional Victoria, positioned the state as a key player in national and international trade, and managed significant population growth.

Significant investment has been made

Successive governments have recognised the importance of creating and investing in an extensive public transport system. Melbourne has a vast rail network that provides radial access to the city centre and key employment and residential hubs in the broader metropolitan area, as well as the world's largest tram network. Metropolitan linkages have been further strengthened through public transport projects like the Metro Tunnel project, the high capacity metro trains project, level crossing removals and the Box Hill Transit Interchange.

Regional rail networks have also been given a boost through the Ballarat, Shepparton and Gippsland line

upgrades and the \$3.65 billion Regional Rail Link project that separated metropolitan and regional services through Melbourne's west.

The Western Ring Road demonstrates the capacity of large-scale transport projects to generate commercial development and jobs. The heavy freight use of the connection between the Port of Melbourne and interstate freight routes has spurred commercial and residential growth in Melbourne's west. Growing employment and residential hubs such as Broadmeadows, Sunshine, Keilor and Essendon all have their foundation in the Western Ring Road development.

Eastlink, Australia's largest public-private partnership, spurred further transformation with a 45 kilometre highway between the Eastern and Frankston Freeways, including major bypasses of Ringwood and Dandenong. This project has stimulated investment in Melbourne's south-east and cut transit times between the city, ports and some of Victoria's most important industrial areas.

A range of other major freeway projects, many being delivered in partnership with the Federal Government, are either underway or soon will be. They include the West Gate Tunnel project, the Tullamarine Freeway widening project and the Monash Freeway upgrade. The 2018-19 Federal Budget included funding of \$1.75 billion towards the North East Link and reconfirmed the Commonwealth Government's commitment of \$3 billion towards the East West Link. The 2018-19 Victorian Budget committed \$110 million to fast track the completion of design and planning for the North East Link.

A full list of transport system projects currently committed or underway is provided at Appendix 1.

But further reform is needed

For Victoria to meet its economic and social growth potential, continued targeted improvements, reforms and investments must be made to the State's transport system.

The following table highlights where Victoria's transport system is performing well, but more importantly, where improvements are needed.

THE CONTEXT CONTINUED

| Where Victoria's transport system performs well | Gaps in Victoria's transport system | Taskforce recommendations to close the gap |
|---|--|--|
| Identifying transport system assets for development through numerous government reviews and reports. A list of relevant government reviews are provided at Appendix 2. | <p>A disconnect between planning and land use frameworks.</p> <p>A lack of coordinated vision and linkage across different modes of transport.</p> <p>Inadequate preservation of land in critical locations for future transport system expansion.</p> <p>An imbalance between the multiple objectives of the transport system when planning for growth.</p> | <p>Create a formal role for Infrastructure Victoria in the identification and reservation of infrastructure corridors.</p> <p>Create a statutory requirement for metropolitan planning strategies (i.e. Plan Melbourne) to incorporate transport projects in Victorian Infrastructure Plans.</p> <p>Develop strategies to locate jobs in outer Melbourne growth corridors.</p> <p>Implement strategies to regionalise population growth and jobs in Geelong, Gippsland, Ballarat, Bendigo and the Hume region.</p> |
| <p>A strong foundation of significant infrastructure assets:</p> <ul style="list-style-type: none"> > Strong investment in rail public transport infrastructure. > The largest port in Australia with a new 50-year lease allowing for the investment needed to expand port capacity. > Home to two curfew-free international airports. | <p>Inadequate support for smaller yet important projects and developments to the transport system.</p> <p>A disconnect and relatively low investment in on-street public transport (i.e. buses and trams).</p> <p>Limited consideration to the whole-of-life cost of operating, maintaining and upgrading assets when committing funds to projects.</p> | Commission Infrastructure Victoria to undertake specific analysis to identify and prioritise 2nd tier transport system projects in metropolitan Melbourne and major regional centres. |
| A strong pipeline of future transport infrastructure projects in public transport (especially rail) and major roads. | Inconsistencies in government specifications relating to train and tram rolling stock design and maintenance. | Modify government procurement guidelines to ensure greater standardisation in train and tram rolling stock design and maintenance specifications. |

| Where Victoria's transport system performs well | Gaps in Victoria's transport system | Taskforce recommendations to close the gap |
|--|--|---|
| A healthy start-up ecosystem and strong investment from universities in research and development activities. | Limited adoption of smart technologies by transport sector businesses. Slow implementation of transport system improvement projects (e.g. high-capacity signalling). | Fund a \$2 million best practice demonstration program to raise awareness among small and medium-sized transport businesses of the productivity and efficiency gains that can be achieved through the adoption of smart technologies. |
| Home to the world's most liveable city, attracting new business investment, creating employment opportunities, resulting in net population migration from overseas and interstate. | Melbourne's population is expected to reach eight million people by 2050, putting significant strain on existing infrastructure, leading to intense congestion and rising costs. | Improve integrated land use and transport system planning across all tiers of government. |
| A world-class education system coupled with a great environment and lifestyle, attracting and retaining skilled staff from all over the world. | Skills shortages and an ageing workforce in many parts of the transport sector workforce. | Work with industry to roll out a communications campaign to raise awareness of careers in transport and logistics and to increase the participation of female and younger workers in the sector. |
| A stable political system with low sovereign risk, sound legal and governance frameworks. | A confusing, overlapping and inefficient transport regulatory system governed by multiple regulators across different jurisdictions (including cross border). | Develop appropriate regulatory frameworks to facilitate the testing and eventual introduction of autonomous freight and passenger vehicles. Improve the consistency of national heavy vehicle regulation. |
| A triple-A stable credit rating with a strong history of public-private partnerships and industry driven asset management. | Financial limitations on government investment in transport and related economic development infrastructure. | Continue to strongly advocate for a fairer share of federal infrastructure funding. |



KEY STEPS

transport





01

Improve integrated transport
and land use planning across Victoria



Major transport infrastructure development is a medium to long-term endeavour. Victoria's ability to deliver high standards of living and economic development depends on the ability of governments to develop and deliver a clear vision for our future cities and regional centres. This vision needs to encompass considerations of future population growth, changes in the way we live and work, business and trade needs, structural changes in the economy and community expectations about the quality and type of services needed to underpin high levels of liveability.

Historically, land use planning and transport infrastructure planning have been undertaken by separate arms of government. While land use plans have informed infrastructure plans and vice versa, the two have not been structurally linked.

The Victorian Chamber has consistently called for a better alignment between land use planning and infrastructure planning as land use planning informs infrastructure requirements and infrastructure provision enables the achievement of land use objectives.

Better integration of land use and transport system planning is needed to protect potential future transport corridors from competing urban development and ensure that future locations for housing and business can be appropriately serviced by transport infrastructure. This is critical to the future social and economic growth of both Melbourne and regional Victoria.

8,700

more jobs are expected
at Melbourne Airport
by 2033

1/3

of Australia's air
freight is handled by
Melbourne Airport

Gaps in the current system

Currently, land use planning throughout Victoria lacks consistency and does not adequately balance competing objectives. Rising demand for land is likely to drive continued growth in the cost of critical infrastructure investment. The expansion of many of Victoria's transport system assets are either being compromised or restricted by inconsistent land use planning decisions.

This is preventing critical private sector investment across Victoria's transport system. Furthermore, it is increasing the cost and limiting the viability of future transport infrastructure projects.

However, this has not always been the case. Many key Victorian infrastructure assets we rely on today such as the M80 motorway and the EastLink motorway have been built on corridors and areas protected during the 1950s, 1960s and 1970s. Unfortunately, action to protect land has been the exception rather than the rule in recent years.

The interplay between current government reviews

In its recent 30-Year Infrastructure Strategy, Infrastructure Victoria recognises the importance of aligning land use planning with infrastructure planning. However the lack of a structural connection continues with Infrastructure Victoria simply drawing on existing land use plans to inform its 30-year Infrastructure Strategy.

The Victorian Government's overarching planning policy is Plan Melbourne which provides a strategic direction for how Melbourne will grow over the next 35 years. It aims to support job creation, housing and transport needs, while also building on Melbourne's liveability and sustainability. It also includes planning for future State-shaping infrastructure.

The Victorian Infrastructure Plan is the Victorian Government's response to Infrastructure Victoria's 30-Year Infrastructure Strategy, responding to infrastructure Victoria's recommendations and outlining the Victorian Government's infrastructure priorities over the next five years and beyond.

While cross-government dialogue is strong and growing, there is a risk that land use plans and infrastructure plans will continue to be developed by different parts of government with different objectives.

The following examples highlight why better integration of land use and transport system planning is needed in Victoria.



CASE STUDY:

Port of Melbourne

As Melbourne's population grows, demand for land to develop residential properties and for pedestrian access is increasing. As the Port of Melbourne is located close to the city, developments are increasingly encroaching on the port. This threatens to prevent the port from operating efficiently and creates safety concerns for residents.

To mitigate such risks, WorkSafe Victoria has dedicated guidelines to ensure land use planning minimises exposure of people close to a Major Hazard Facility (MHF), including the Port of Melbourne. A MHF is an industrial facility where significant quantities of dangerous goods may be present. Despite these guidelines being in place, land developments are constantly threatening the efficiency of the Port of Melbourne. Three contentious recently proposed developments include:

1. Café at 90-96 Maribyrnong Street, Footscray which has been approved by the Local Council but is being considered by VCAT as it is 200 metres from the Port of Melbourne Coode Island Precinct.
2. Proposed 90 metre residential tower immediately west of the Bolte Bridge, 30 metres from the Port of Melbourne cement facility, existing reservation for the Webb Dock Rail Link and a frontage to Lorimer Street, a designated High Productivity Freight Vehicle (HPFV) route.
3. 122 dwellings at 187 Williamstown Road, Port Melbourne, which have been approved by the Local Council and are 30 metres from the border of the Webb Dock Precinct and frontages to Todd Road and Williamstown Road, both designated HPFV routes.



CASE STUDY:

Melbourne Airport

Melbourne Airport is Victoria's primary gateway for air passengers and air-freight exporters. It handles around 30 million passengers a year and accounts for almost a third of Australia's air freight. Melbourne Airport is directly responsible for 14,300 jobs, a figure that is expected to grow to 23,000 by 2033.

Its curfew-free status is a competitive advantage that must be protected. Additionally, the airport's central location between three of Melbourne's major growth areas means it is well placed to capitalise on growing product, labour and service markets. Together with Essendon Airport's expanding regional services, this airport corridor has the potential to become one of Australia's leading transport and logistics hubs.

MELBOURNE AIRPORT PLANNING CONTROLS



As residential development occurs closer to Melbourne Airport, including under flight paths, a night-time curfew for flights has been proposed a number of times. A curfew-free Melbourne Airport is crucial to the economic health of the Victorian economy.

Melbourne Airport is predominantly surrounded by non-urban or green wedge land, particularly to the north and west, which helps protect the community and safeguard the airport and its flight paths from the encroachment of incompatible activities. However, there is urban development located to the east and south of the airport, comprising a mix of industrial and residential development.

While Melbourne Airport is protected from encroachment by the urban growth boundary and the Melbourne Airport Environs Overlay (see figure below) we need to be vigilant to development that could compromise the airport's future ability to grow.

Source: Department of Environment Land Water and Planning,
Planning Maps Online

The Urban Growth Boundary, a planning tool used to define the extent of Melbourne's urban area, limits outward expansion and protects nonurban areas. Most of the land adjoining the airport site (particularly to the north and west) is located outside the Boundary.

The Melbourne Airport Environs Overlay provides a planning control that limits the density and land use of developments near the airport that would be impacted by aircraft noise.

A recent proposal to build a private primary school in Oaklands Junction, within both a green wedge zone and the Melbourne Airport Environs Overlay, was rejected by VCAT on the grounds that the school would be increasingly impacted by noise associated with the operation of Melbourne Airport. VCAT reaffirmed that the airport is a critical piece of infrastructure requiring protection from incompatible land uses.

Key Recommendations

- > Strengthen institutional links between infrastructure and land use planning by:
 - » Creating a formal role for Infrastructure Victoria in the identification and reservation of infrastructure corridors.
 - » Creating a statutory requirement for metropolitan planning strategies (i.e. Plan Melbourne) to incorporate transport projects in Victorian Infrastructure Plans.
 - » Developing strategies to locate jobs in outer Melbourne growth corridors.
 - » Implementing strategies to regionalise population growth and jobs in Geelong, Gippsland, Ballarat, Bendigo and the Hume region.
- > Preserve transport corridors and land around the following areas:
 - » Melbourne Airport. The airport's curfew-free status must be maintained. Development controls need to be in place to manage noise sensitive land uses and ensure that tall structures are not allowed to impinge on operational airspace.
 - » A new airport in Melbourne's South East.
 - » Interface Council areas (i.e. outer Melbourne, high growth corridors).
 - » Pipeline corridor connections.
 - » Inland freight hubs.

A photograph of a busy city street. In the foreground, a large group of diverse pedestrians is walking across a crosswalk. Some are looking at their phones, others are talking. In the background, a white tram with yellow accents is stopped. A blue banner on the tram reads "LAST CHANCE!" and "MUST CLOSE 16 FEBRUAR". Below that, it says "LAST CHANCE! BOOK AT ticketmaster". The tram is on a track. The street is paved with asphalt, and there are buildings and traffic lights in the background.

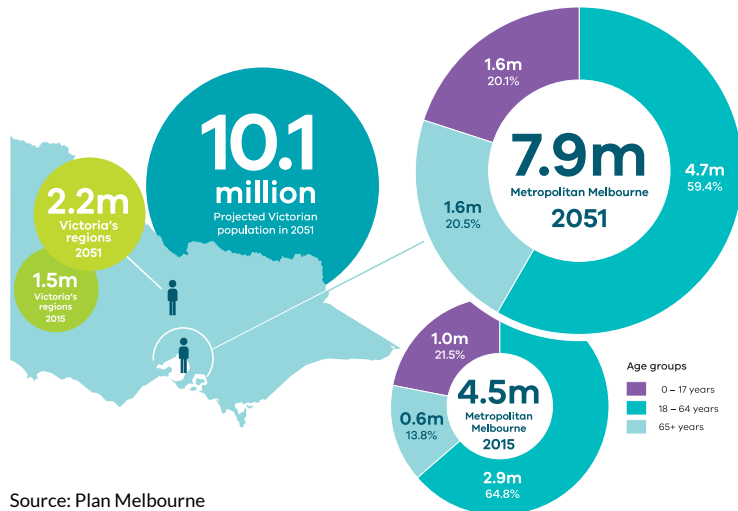
02

Meet the capacity challenge



By 2051, Victoria's population is projected to grow by 4.2 million, from 5.9 million to 10.1 million people. Most of this population growth will be in metropolitan Melbourne which will grow from a population of 3.4 million to almost 8 million⁸. While increasingly more people are working and residing in the CBD, certain pockets of suburban Melbourne such as Wyndham, Cardinia, Whittlesea and Melton are growing rapidly.

VICTORIA'S PROJECTED POPULATION GROWTH BY 2051



Source: Plan Melbourne

Population increases of this magnitude put a significant strain on the transport system and Victoria's liveability.

Congestion is forecast to grow

Congestion and overcrowding on public transport and road infrastructure, particularly at peak times, remains a significant frustration and cost for individuals and business. Almost 30 per cent of employees in Melbourne face lengthy commutes, spending more than 1.5 hours travelling to and from work each day⁹. Furthermore, by 2050,

Melbourne's transport network will have to accommodate an extra 10.4 million trips per day. The strain on public transport will also be felt with annual patronage on trains and trams expected to grow by approximately 47 per cent in the next 10 years¹⁰.

⁸ *Victoria in Future 2016*, Department of Environment, Land, Water and Planning, July 2016.

⁹ *Lengthy Commutes in Australia*, Bureau of Infrastructure, Transport and Regional Economics (BITRE), May 2016, p72.

¹⁰ *Plan Melbourne, Metropolitan Planning Strategy 2017-2051*, March 2017.

To help meet this challenge, planning for Metro 2 must be commenced. Identified by Infrastructure Victoria as a project with significant potential to meet growing demand, Metro 2 would see additional network capacity created by taking some rail traffic away from Jolimont and North Melbourne. Additional services could be provided through Newport to the Wyndham/Werribee Corridor where significant housing growth has occurred over the last decade and is expected to continue at the same anticipated rate for at least the next decade.

Managing network use

Managing rail and road use, or prioritising certain transport modes, during peak periods is a sensible solution to managing congestion. Prioritisation can be achieved in the following ways:

- > Incentivise users to use transport assets at different times of day, outside peak periods. For example, providing toll concessions for trucks and business vehicles using roads at night.
- > Dedicate space in the transport network for higher occupancy travel modes, such as buses and trams. For example, providing dedicated busways on highways and arterial roads.

Strategic use of intermodal terminals

Sometimes known as 'inland ports', Intermodal Freight Terminals provide a central location for freight to be transferred between road and rail. They are an important strategy in reducing congestion, particularly on arterial roads around major city centres and on roads entering port facilities. Some of the other benefits that successful Intermodal Freight Terminals can provide include:

- > Reduction in road traffic incidents by having fewer heavy vehicles on the road network.
- > Less physical damage to the road network, reducing the cost of maintenance.
- > Improved rail network servicing of peak and trough volume demand for regional and interstate freight movements.

To encourage the establishment of more Intermodal Freight Terminals, the Victorian Government's Modal Shift Incentive Scheme was introduced in 2010, providing intermodal operators with a rebate for containers up to a capped number for each terminal.

The Wimmera Intermodal Freight Terminal received support from this program, opening in 2012. As a result, the volume of freight passing through the terminal has tripled between 2016-17 and 2012-13. Furthermore, nine per cent of the total port volumes travelling by rail through the Port of Melbourne are entirely regional containers.

The importance of industry policy to drive job creation outside the CBD

As Melbourne's population continues to grow exponentially, and the transport network struggles to meet demand, it is critical that government policies encourage the decentralisation of Melbourne's population to outer suburbs and regional Victoria, beyond the larger regional centres. If Melbourne is to remain the world's most liveable city, job creation cannot solely be concentrated in the CBD.



CASE STUDY: 20 minute neighbourhood

Ensuring people experience limited commute time is a critical consideration for Victoria's liveability and in turn our transport and city planning. Creating cities where residents can access most of the services they need within a 20 minute walk, bicycle or public transport trip is a key liveability principle.

If we are to aspire to a 20-minute city, there must be a strategy to locate more jobs closer to where people live. Furthermore, middle and outer suburbs must be adequately serviced by public transport.



CASE STUDY:

Monash Precinct

The Monash Precinct is a leading non-CBD hub of employment, economic growth and innovation. Its key strengths are in established and emerging high-growth sectors such as health, biotech, medtech, international education, food and fibre and future technologies.

Home to Monash University, CSIRO, the Australian Synchrotron, the Melbourne Centre for Nanofabrication, the Monash Medical Centre, the coming Victorian Heart Hospital and other high tech industries, the Precinct provides superior potential to emerge as a world class ecosystem for innovation and a key place to grow priority industries.

However, the Monash Precinct's future growth is being constrained by growing traffic congestion and limited existing public transport. To help unlock the significant economic, jobs growth and innovation potential of the area, the Precinct requires a mass transport solution.

The Transport Taskforce notes the recent Federal Budget commitment of \$475 million for a heavy rail connection to Monash University's Clayton campus and the Victorian Budget commitment of \$3 million for a light rail connection between Caulfield to Rowville that will link Caulfield Station to Monash University via Chadstone Shopping Centre. We look forward to the resolution of the most appropriate transit solution for this important corridor.

Photo courtesy of Monash University

Victoria's emerging high growth sectors

The pharmaceutical and medical technologies, ICT, food and fibre and renewable energies industries are all expected to grow in prominence over the next decade as key contributors to Victorian output, exports and employment.

These industries will join sectors like manufacturing, tourism, health and education as drivers of economic activity in what will be an increasingly competitive marketplace.

Victoria is well placed to secure a growing share of global new investment due to its many competitive strengths including:

- > A highly skilled and productive workforce.
- > Strong innovation, research and development capabilities, with close links to universities and other knowledge centres.
- > A stable political environment.
- > Access to key markets and business centres.
- > A great environment and lifestyle, attracting and retaining skilled staff from all over the world.

If there is a common thread that binds the competitive position of these Victorian industries across the State, it is access to efficient, cost competitive transport infrastructure that provides support for manufacturing, trade and commerce.

Meeting the export challenge

A key consideration in transport system planning is the important role new investment has to play in supporting the State's future growth, particularly the activities of our export-oriented industries. Perhaps the most striking feature of the international economy over the past two decades has been the accelerated globalisation of production and markets.

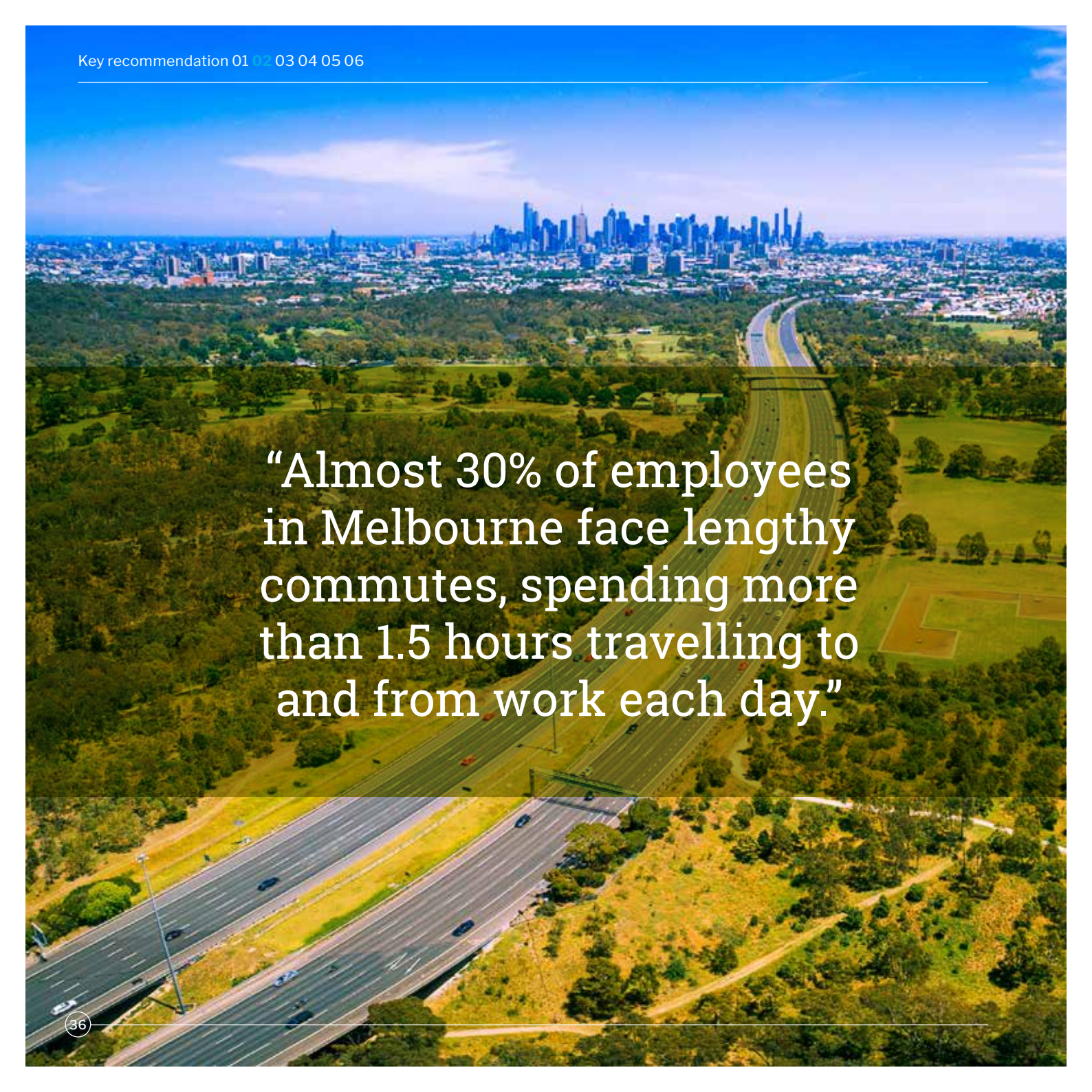
Improvements in the cost efficiency of transport have accounted for large gains in the pace and quantity of trade.

As with other Australian States, the Victorian economy has benefited from the significant growth in international trade and investment over this time. These same trends are set to continue into the next decade and will bring with them new challenges and opportunities for Victorian business.

Victorian industry has responded strongly to global competitive pressures by developing new products and new markets at home and abroad. In such an environment, it is important that these efforts are not frustrated, or worse, eroded, by poor quality, outdated transport infrastructure that adds unnecessary cost and delay to commercial transactions.

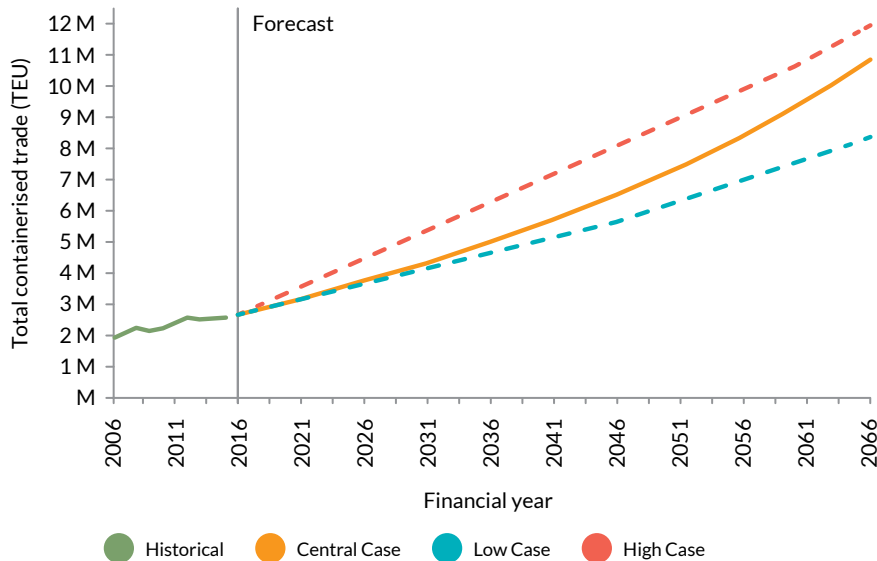
Existing infrastructure is already under pressure and this is expected to intensify. Freight volumes are expected to increase over the coming decades, potentially reaching around 170 billion net tonne-kilometres per annum by 2046, an increase of over 125 per cent on present day levels¹².

¹² Infrastructure Victoria, *Victoria's 30-year Infrastructure Strategy*, December 2016.



“Almost 30% of employees in Melbourne face lengthy commutes, spending more than 1.5 hours travelling to and from work each day.”

FORECASTS OF TOTAL CONTAINER TRADE AT THE PORT OF MELBOURNE



Source: Deloitte, Infrastructure Victoria Second Container Port Advice, Container trade forecasts for Victoria, 2017

As can be seen from the accompanying graph, demand on the Port of Melbourne is forecast to grow significantly with the total volume of containerised trade projected to reach 5.6 million TEUs by 2040¹³. Without whole-of-system planning this growth will potentially create further bottlenecks and congestion around the port.

The work of the Transport Taskforce has revealed genuine concern at a number of localised bottlenecks in Melbourne's road-rail freight network that are limiting the supply side capacity of the State economy and hindering the efforts of business to get goods to market on time. These issues must be addressed if Victoria's export potential is to be realised.

¹³ Deloitte, Infrastructure Victoria Second Container Port Advice, container trade forecasts for Victoria, 2017.

125%

potential increase of freight volume to 170 billion net tonne-kilometres over the coming decades

5.6M

TEUs of containerised trade projected by 2040

Key Recommendations

- > Build the North East Link and an East West Link.
- > Progress the Melbourne Airport Rail Link.
- > Progress regional rail connections to the Melbourne Airport Rail Link.
- > Build a busway on the Eastern Freeway with 24/7 bus lanes on Hoddle Street, Victoria Parade, Lonsdale Street, and Doncaster Road in the east.
- > Commence planning for Melbourne Metro 2.
- > Extend funding for the Mode Shift Incentive Scheme for another four years to ensure the continued removal of trucks off major regional and metropolitan roads and onto our rail networks (the current scheme concludes in June 2018).
- > Establish metropolitan Intermodal Terminals with rail connectivity to the Port of Melbourne.
- > Introduce a transport network pricing regime that is more equitable and sustainable than the current dysfunctional road taxation system.
- > Encourage businesses to adopt flexible starting and finishing times to take the pressure off the transport system in peak commuting times.
- > Expand parking facilities at outer urban railway stations.
- > Link the Monash Precinct to Melbourne's core transport network through a mass transit solution.
- > Expand parking options for heavy vehicle operators in major regional towns, reducing pressure on commercial and residential areas.
- > Progress the Inland Rail freight project and Regional Rail Revival program, including upgrading rail routes and services to Geelong, Ballarat and Bendigo, as well as the other major regional transport infrastructure priorities identified below.

Regional specific transport priorities

Ballarat region

- > Commit to a scoping study for Ballarat and Geelong fast rail links with Melbourne.
- > Fast-track the Ballarat Station Precinct redevelopment.
- > Complete the Ballarat Link Road (Stage 1B – Construction of the Rail Overpass of the Ballarat-Ararat railway and a new roundtable at the intersection of Ballarat Link Road/re-aligned Blind Creek Road).

Gippsland region

- > Finalise a site for a new airport in Melbourne's southeast.
- > Fund the Traralgon Bypass, noting the recent Federal Budget commitment of \$132 million for the duplication of the Princes Highway between Traralgon and Sale.
- > Complete commuter amenity upgrades at Traralgon, Morwell, Moe and Trafalgar stations under the Gippsland Rail Corridor Station Upgrade Program.

Hume region (Wodonga and Shepparton)

- > Progress a bypass of Shepparton.
- > Progress a rail freight link to the Goulburn Valley Freight and Logistics Centre (GV Link) in Shepparton.
- > Progress the Rutherglen Bypass on the Murray Valley Highway.

Great South Coast region

- > Commence the Colac Bypass and the building of additional passing lanes between Warrnambool and Colac.
- > Commence the Warrnambool Line Upgrade and the Surf Coast Rail Project.

Mildura region

- > Commence the second stage of the Murray Basin Rail Project to improve Victoria's freight network and provide the region with more efficient rail freight services and activities.
- > Return passenger rail services to Mildura.
- > Progress the redevelopment of Benetook Avenue as a truck bypass route.

Bendigo region

- > Fund stage three of the Bendigo Airport redevelopment.
- > Progress the major transport infrastructure priorities identified in Plan Greater Bendigo.

Geelong Region

- > Upgrade freight connections from the Geelong Ring Road to the Port of Geelong.
- > Fast-track the progression of the Avalon Airport Master Plan.



03

Improve supply chain
and transport network connectivity



Our state's natural geographic advantages coupled with a strong infrastructure base has made Victoria a leading centre for freight and logistics. Victoria is home to Australia's largest container and general cargo port, as well as two curfew-free international airports, supported by an extensive rail and road transport network. These endowments mean that we offer a competitive advantage to national distribution, warehousing and logistics businesses.

The Victorian Government is currently progressing a range of projects to ensure the efficient movement of freight on Victoria's road, rail and port systems. These include the port rail shuttle, the Murray Basin Rail Project and the development of intermodal terminals. However, there are still significant opportunities to continue to improve the efficiency and capacity of Victoria's freight and logistics networks.

Opportunities exist in air freight, expanding overnight network capacity, increased use of high productivity freight vehicles, and in the longer term, the use of autonomous vehicles and the introduction of transport network pricing.

Air freight serves high-value, time-critical supply chains such as medical goods, fresh food products and highly transformed manufactured products. Increasing air freight handling capacity requires careful long-term airport planning. The majority of Victoria's air freight trade is with Asian countries where growing populations and an expanding middle class is driving demand for high-value food exports in particular.

It is also important that additional port capacity is available in the future, particularly for key trades such as containerised imports and exports, bulk liquid imports and regional exports. In the longer term, as the Port

of Melbourne meets its maximum capacity, a second container port will be needed.

In advance of the Port of Melbourne reaching capacity of approximately eight million TEUs (predicted to be around 2055), the Victorian Government will need to undertake planning to move overflow container trade to a new port.

Elevating the role of supply chain management

Many countries around the world recognise the strategic importance of a sophisticated, effective and progressive supply chain management and logistics industry.

For example, Singapore recently opened a 'Supply Chain City' logistics facility housing a training academy, research activities, state-of-the-art warehousing space featuring a patent-pending fusion of automated storage and retrieval system.

The facility aims to accelerate supply chain innovation and best practice, set new supply chain standards, increase efficiencies in the industry and showcase the industry to the next generation, debunking the myths of the logistics working environment. Victoria needs to emulate this model.

THE LAST AND FIRST MILE CHALLENGE IN THE FREIGHT SECTOR

When goods leave their point of origin (e.g. the farm or manufacturing facility) to begin their journey to the consumer, this is known as the 'first mile' in the supply chain. At the other end of the journey, the 'last mile' refers to the distribution of goods to the final consumer. In freight transport, the first and last mile are the most complex and cost intensive.

First mile costs can arise from poor road and rail infrastructure near the point of origin, particularly in regional areas. The problem of last mile delivery is mainly caused by deliveries comprising of many individual orders which must be delivered to many dispersed addresses.

Businesses are having to rethink their supply chain solutions to capitalise on the rapid increase in Victorians buying goods online and consumers expressing a growing desire for convenience and on-demand, same-day delivery options.

Locating freight facilities close to the final point of demand generates opportunities to explore the use of alternative last mile transport solutions. An example is the UPS depot at Tuffnell Park in North London which is seven kilometres north of Trafalgar Square. Semi-trailers are used to move goods efficiently to the facility and a fleet of zero emission electric vehicles is then used to deliver throughout central London which operates with a congestion charge and low-emission zone.

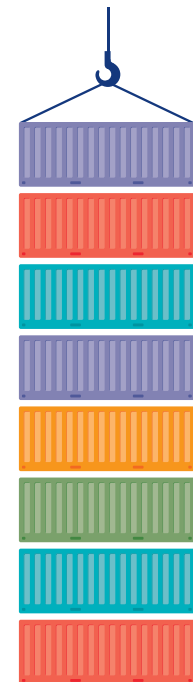
In anticipation of AmazonFresh entering the Victorian market, Coles Supermarkets has taken a similar approach by testing their first online-only store or 'dark store' in Richmond in 2016. The store serves customers living within a five kilometre radius in an attempt to grow their online service offering.

Key Recommendations

- > Progress the construction of a new east-west runway at Melbourne Airport and fast-track other major developments listed in the 2013 Melbourne Airport Master Plan that are crucial to supporting the movement of increased volumes of high quality, perishable agribusiness products destined for the international marketplace.
- > Fast-track the progression of the Avalon Airport Master Plan.
- > Finalise a site for a new airport in Melbourne's southeast.
- > Prioritise necessary road and bridge upgrades to facilitate the wider use of High Productivity Freight Vehicles (HPFV). This will reduce the number of freight trips required, improving productivity, road safety and environmental outcomes.
- > Remove barriers to the use of overnight road and rail freight capacity and incentivise its use.
- > Elevate the role of supply chain management and logistics by establishing a centre for excellence in supply chain management and logistics.
- > Incorporate more spaces for freight hubs and distribution centres in urban planning to drive more efficient last mile outcomes.

8M

TEU capacity is predicted at the Port of Melbourne by around 2055



04

Foster new technologies to improve transport system efficiency reliability and safety



Rapid innovation and technology changes present both opportunities and challenges for Victoria's transport system. Applying technological innovation to a transport system can deliver safer, more productive, cost effective and environmentally sustainable solutions.

Many parts of the Victorian transport system are embracing technology developments. For example, drone parcel delivery, automation and robotics are being applied to the logistics and warehousing markets, and environmental sensors are being combined with traffic-management devices to help reduce congestion. Furthermore, trials of automated vehicles on Victorian roads are well underway.

However, as vehicles, systems and services rapidly move from stand-alone entities to become increasingly connected and automated, transport system safety, security and regulation require new approaches to reflect these changes. This presents a challenge for both the transport sector and policy makers.

Increasing the pace of adoption

Many other countries and cities are adopting technology advancements at a much quicker pace than Victoria.

For example, while high-capacity signalling technology is being embedded within the Metro Tunnel project, similar technology could be expanded across the transport system network and for example, applied to roads which are shared between cars,

bicycles and trams. Such applications can fundamentally change the capacity of existing infrastructure.

Seeking, creating and embracing disruptive technologies is part of standard operating practices for many successful businesses. However, not all Victorian transport businesses have the skills, capability and infrastructure to adopt advanced technologies.

The road network and technology

The principle aim of applying new technologies to Victoria's road network should be to maximise its capacity by improving the quality and efficiency of existing services and assets. Applying cutting edge technologies to the following areas can realise significant efficiencies and benefits for Victorians.

1. Incident management systems

It is estimated that the total social cost of crashes on Australian roads is \$33.16 billion . High quality incident management systems minimise the time it takes emergency services to reach the scene of a crash and can reduce congestion, reduce secondary crashes, reduce patient mortality and increase responder safety.

For example, automatic crash notification systems use sensors inside a vehicle to determine when a serious crash has occurred and then provides emergency services with the exact location of the crash by transmitting data over a mobile (cellular) network.

2. Real time traffic information

Real time monitoring of congestion points and bottlenecks allows freight and passenger movement to be optimised, giving road users more information about their journeys.

For example, building on the concept of 'shock wave' theory, new research using smartphone monitoring is being used to predict congestion up to 30 minutes prior to it occurring, allowing route guidance, speed limits and vehicle control systems to prevent it. However, the adoption of such technology advancements and the realisation of the benefits, requires real time traffic information to be captured and shared.

3. Managed motorways

Victoria can no longer afford, nor has the physical space, to build enough roads to continue to meet

peak localised demand or overall peak network demand. Actively managed motorways can dramatically increase network capacity without adding additional lanes or roads. Managed motorways use existing infrastructure in more controlled ways to increase throughput by employing techniques to maintain traffic flow, such as ramp signalling, variable speeds limits and hard shoulder use.

The VicRoads Managed Motorway program has shown improved traffic flows on some of the State's most important roads. Translating these gains to whole of network outcomes is needed and will require greater connectivity between different road network technology systems, including those on privately owned road systems.

4. Improved traffic signalling

Enhanced traffic signalling systems can decrease travel times and congestion significantly. Such systems include traffic signal prioritisation, providing green lights for emergency services and public transport vehicles at signalised intersections. It also provides motorists with the optimum amount of 'green time' to keep traffic flowing across a route and to sequence the

traffic lights across that route. Arterial road operation can be improved by upgrading traffic signal efficiency and restricting parking in critical locations.

5. Integrated transport management

If Melbourne is to offer high-quality transport, it must look at integrating all transport modes to offer better coordination via new technology, making the system more efficient, responsive and safer. At present, transport control centres for Victoria's roads exist through VicRoads, Transurban and EastLink. Trams and buses have separate control systems through Yarra Trams, Public Transport Victoria and Transdev, and trains with Metro Trains.

An integrated transport control centre is needed to bring together the control rooms of bus, tram, train and public road and toll road operators. This would enable a more holistic approach to be taken to managing all transport services. It would enable traffic incidents and transport events to be managed more efficiently, emergencies to be responded to more quickly and commuters to be provided with significantly improved information.

THE DRIVERS OF TECHNOLOGY ADOPTION IN THE TRANSPORT INDUSTRY:



Congestion and lack of connectivity create pressure for better services and infrastructure by business and the public.



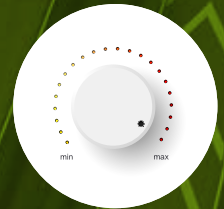
Rising community expectations about safety and environmental impact.



New and emerging technologies offer savings and productivity improvements.



Current transportation solutions are often more expensive to operate and maintain than new technology based alternatives.



The capacity of the transport network must grow to match evolving population and industry requirements.

The rail and public transport network and technology

1. High-capacity signalling

With urbanisation and populations increasing, one of the major challenges faced by mass transit operators is to solve the capacity challenge. That is, the need to upgrade systems to carry more passengers whilst maintaining services or to enhance existing networks with new and integrated lines.

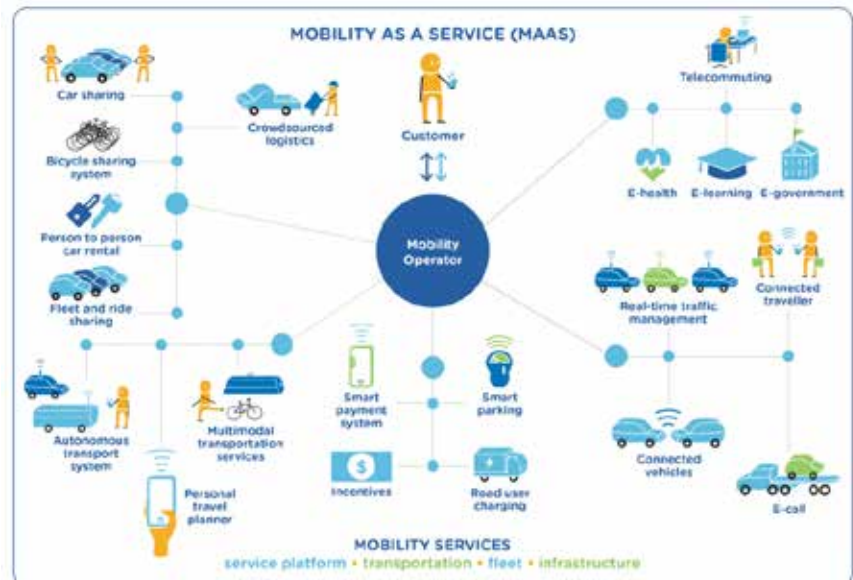
High capacity signalling allows trains to safely run closer together, meaning they can run more often. A trial of high capacity signalling is currently underway as part of the Metro Tunnel project. However, this needs to be expanded across the Victorian train system.

2. Integrated journey planning

Advancements in technology allows individuals and businesses to move away from using privately owned transportation assets towards mobility solutions that are consumed as a service based on point-to-point demand. Also known as Mobility as a Service (MaaS), this is enabled by combining transportation services

from public and private providers through a single interface that creates and manages the trip, which users can pay for with a single account (with subscription or pay as you go alternatives). MaaS will allow more efficient use of road and public transport, reduce congestion and allow individuals and businesses to make more informed decisions about travel use. The adjoining diagram highlights how MaaS interacts with transport system assets.

No integrated, full service MaaS offering, bundling public and private sector transport into a subscription service, currently exists in Australia. While integration at an information level is offered by Google Maps and others, the services do not exploit their full potential.



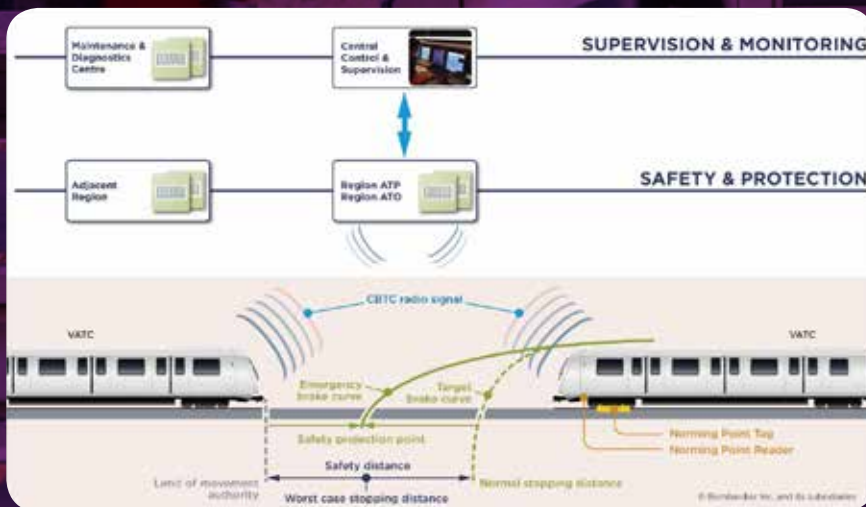
Source: NSW Government, Draft Strategy – Future Transport 2056, October 2017



CASE STUDY: High-capacity signalling

The latest Communications-Based Train Control (CBTC) systems are supporting system optimisation, tackling the capacity challenge whilst improving safety and reliability and lowering life cycle costs, energy usage and CO2 emissions.

The below image shows how CBTC can be applied to the rail network. Bombardier's CBTC solution is now operational in 13 locations around the world. The track to train communication is achieved via a state-of-the-art wireless technology to provide bi-directional communication.

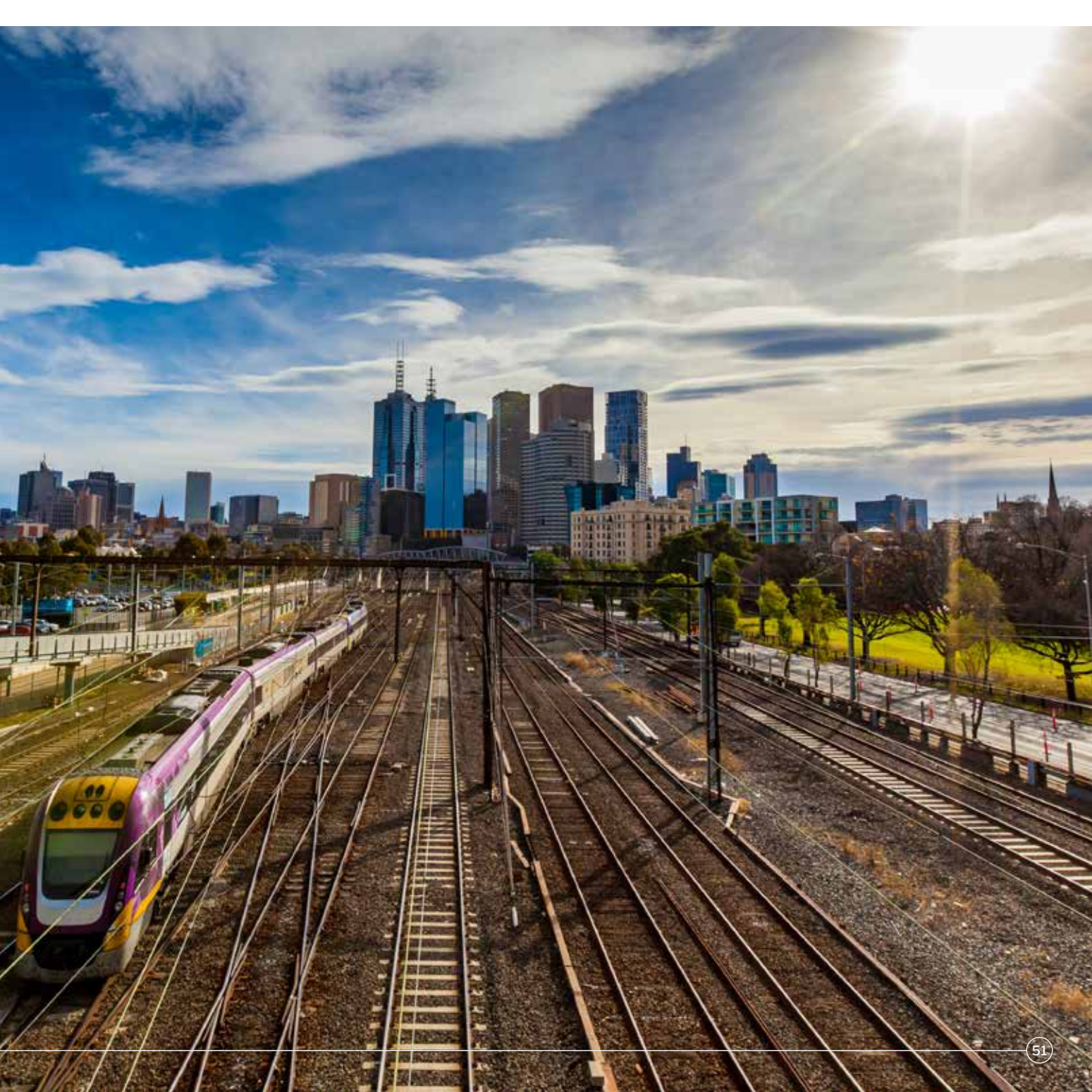


Source: Bombardier Transportation

Key Recommendations

- > Expand high capacity signalling across Victoria's transport network. Trials are already taking place as part of the Metro Tunnel Project, however, the use of high capacity signalling needs to be expanded to the entire Victorian train system.
- > Implement a program to improve arterial road operation by upgrading traffic signal efficiency, implementing more active public transport priority and restricting parking in critical locations.
- > Continue to support Mobility-as-a-Service (MaaS) solutions that offer commuters and business improved transport options based on their needs. Since a major challenge for last mile logistics is congestion and parking in large cities, the development of MaaS applications offers a potential solution.
- > Accelerate trials of connected and automated vehicles (CAV) to build public engagement and endorsement of emerging CAV technology.







05

Improve transport industry regulation



Transport regulation needs to be flexible to accommodate new technology trends. It needs to be performance based to specify outcomes and outputs that promote safety, mobility and suitability and not prescriptive.

Inconsistent, unnecessary and counterproductive regulation and standards can significantly hamper the ability of the transport system to service the needs of business and the wider community.

Burdensome reporting requirements have a particularly significant impact on smaller sized businesses. Regulation must be flexible, agile and responsive.

There is a huge array of state and federal regulation impacting transport businesses spanning:

- > Vehicle standards
- > Heavy vehicles
- > Road rules
- > Driver licensing
- > Vehicle registration
- > Rail safety
- > Maritime safety
- > Bus safety
- > Civil aviation
- > Ports
- > Coastal shipping
- > Airports
- > Customs and duties
- > Biosecurity
- > Dangerous goods
- > Food transport
- > Taxis and hire cars
- > Occupational health and safety
- > Environmental protection and noise

- > Tax
- > Planning and building
- > Workplace relations
- > Owner drivers and forestry contractors

There are also a number of emerging transport activities that are challenging existing regulatory structure including autonomous vehicles, drones and ridesharing.

Autonomous vehicles

Autonomous vehicles providing increased levels of driver assistance are now a reality, progressively reducing the need for driver input. However, currently there is no explicit regulation covering automated driving functions.

Encouragingly, the National Transport Commission has established interim guidelines to ensure the safe introduction of autonomous vehicles on Australia's roads.

Governments have also started work to remove legislative barriers to increasingly automated road vehicles. These barriers relate primarily to road traffic laws that implicitly require a human driver. Once these barriers have been removed, governments will then be able to proactively take steps to ensure automated driving technologies are safe¹⁶.

AUTOMATION LEVELS



Source: Society of Automotive Engineers (SAE)

Infrastructure Victoria has also been tasked by the Victorian Government to provide advice on what infrastructure might be required to support the introduction of automated and zero-emission vehicles in Victoria.

Ridesharing

Following the rapid rise in the popularity of ridesharing, governments around the world have been forced to come to terms with these services which have mostly been operating outside of existing regulatory frameworks.

The Victorian Government's recent reforms to regulate ridesharing provide a good example of how regulatory regimes can adapt to emerging business models. The Commercial Passenger Vehicle

Industry Act 2017 seeks to introduce appropriate levels of regulation for ridesharing while providing a level playing field with existing taxi and hire car operators by:

- > Replacing Victoria's complex taxi licensing regime with a single registration system.
- > Abolishing up-front taxi licence fees.
- > Establishing a trip levy to fund transition assistance payments to previous licence holders.
- > Providing financial assistance for existing taxi operators impacted by the changes.
- > Deregulating fares.
- > Ensuring passenger safety.
- > Providing consumer protections

Performance-based regulation

In reforming existing transport regulation and in developing regulation to cover emerging activities, governments need to focus on ensuring that regulation is proportionate, risk-based and outcomes focussed. Too often, regulations are too prescriptive, which limits the ability of business to innovate or implement product and process improvements.

Heavy vehicle regulation

A new Heavy Vehicle National Law was introduced in 2014, covering all heavy vehicles over 4.5 tonnes operating in Queensland, NSW, Victoria, Tasmania, South Australia and the ACT. The law covers matters relating to vehicle standards, mass dimensions and loadings, fatigue management, heavy vehicle accreditation and on-road enforcement.

However, further work is still required to improve national consistency in heavy vehicle regulation.

16 National Transport Commission, *Regulatory options to assure automated vehicle safety in Australia Discussion paper*, June 2017.



CASE STUDY:

Cross border taxi confusion

Border towns such as Albury, Wodonga, Mildura and others often have two operational taxi networks, with at least one network operating either side of the border. Operators in these towns face particular difficulties juggling two different taxi regulatory regimes and two different set of road rules. As operators can only operate in their own licencing area, a Victorian driver can drop off in NSW but cannot pick up a fare in NSW to return home, leading to higher dead running times.

For consumers, the two sets of regulations can create confusion about the service they should expect and the fares they have to pay. Differences in night time and public holiday surcharges, flag fall charges and tariffs mean that there can be significant cost difference between trips, to and from the same destination.

Key Recommendations

- > Review, streamline and remove cross border regulatory duplication and inconsistencies that are impeding the efficient and effective operation of the Victorian transport sector.
- > Develop appropriate regulatory frameworks to facilitate the testing and eventual introduction of autonomous freight and passenger vehicles.
- > Improve the consistency of national heavy vehicle regulation.



06

Strengthen transport industry
workforce skills and productivity



A productive, well-trained and skilled workforce is vital to the effective and efficient operation of Victoria's transport sector.

However, the ability of the sector to meet its full potential is being hampered by an ageing workforce, widespread perceptions that few career paths exist in the industry, and the introduction of new technologies and practices that are increasing the demand for higher skilled roles.

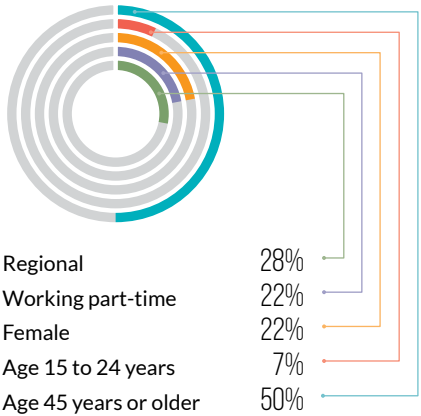
Workforce characteristics

Victoria's transport sector is characterised by immense diversity in the range of occupations and the skills required. However, this diversity is not reflected in its workforce demographics.

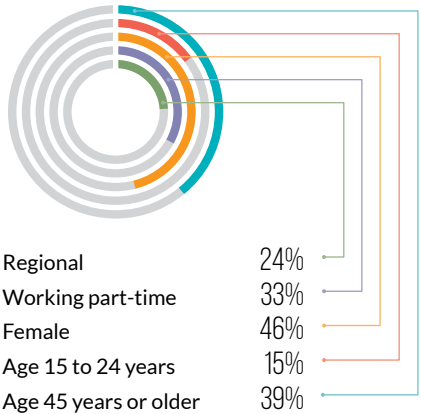
Employment in the transport, postal and warehousing sector is traditionally male-dominated (currently 78 per cent of the workforce). Compared to all other industries, the sector has the highest proportion of workers aged 45 years and over, with half of the workforce in this category. The sector also has one of the lowest proportions of young workers with only seven per cent of the workforce aged 15 to 24 years.

Source: Australian Jobs 2017, Department of Employment

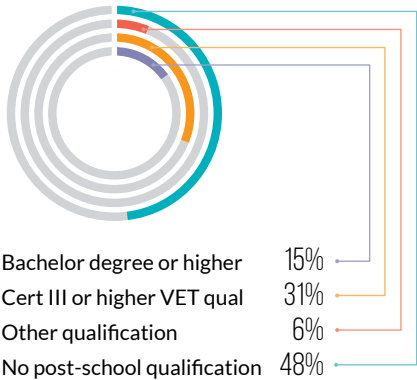
TRANSPORT, POSTAL AND WAREHOUSING: AUSTRALIA



ALL-INDUSTRY AVERAGE: VICTORIA



TRANSPORT, POSTAL AND WAREHOUSING: AUSTRALIA



Qualifications profile

Compared to the Victorian workforce as a whole, the transport, postal and warehousing sector has a relatively low skill profile, with 48 per cent of workers not holding post-school qualifications. Just 15 per cent of workers have a bachelor degree or higher and 31 per cent have a Certificate III or higher vocational qualification.

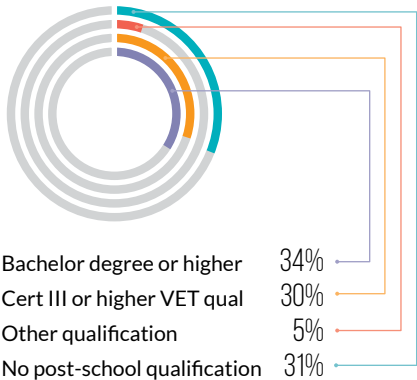
Skills shortages

Of particular concern is the large proportion of employers in the transport and logistics sector and rail sector that are experiencing skills shortages.

The reasons for skills shortages are varied and differ between each sub-sector of the transport industry. However, the following issues are commonly cited:

- > Competition from other organisations.
- > Remuneration/employment conditions.
- > Current staff retiring.
- > Shift/weekend work.
- > Unattractive job or poor industry image.

VICTORIAN WORKFORCE



Source: Australian Jobs 2017, Department of Employment

% OF EMPLOYERS THAT HAVE EXPERIENCED SKILLS SHORTAGES IN THE LAST 12 MONTHS (FEB 2016-17)



87.2%

Transport & logistics sector



66.7%

Maritime sector



83.8%

Rail sector



67.7%

Aviation sector

Source: Australian Jobs 2017, Department of Employment



CASE STUDY:

Wayfinder: Supply Chain Careers for Women

Wayfinder is an exciting new career development program that has been developed by the Centre of Supply Chain and Logistics at Deakin University in partnership with Wayfinder industry sponsors: Qube, ARTC, Woolworths, Lion, Toll, Viva Energy, Linx Cargo Care, VICT, DP World, Coca-Cola Amatil, Nestle and Patrick.

It was successfully launched in March 2018 and aims to increase the number of women and girls in supply chain education, training, jobs and careers. Australia's leading supply chain and logistics companies recognise the need to attract women and new talent to the industry. The supply chain and logistics industry is vital to our economy yet traditionally has been a male domain. Increasingly key roles are being filled by dynamic women, but many more women are needed.



The recruitment challenge

Victoria's transport sector workforce is ageing. At the same time many young people across the state are unemployed or underemployed.

The proportion of employees in the transport sector approaching retirement is much greater than other sectors of the Victorian economy, with half of the workforce expected to reach retirement in the next 15-20 years.

Unfortunately, the transport industry is often not perceived as an attractive career choice by many young people. This limited pool of work-ready graduates is of serious concern. If succession planning strategies are not implemented quickly and effectively, there will be a loss of vital business and industry knowledge and capability.

While some businesses already employ a diverse cross-section of staff, compared to other sectors, transportation and logistics is still largely male-dominated. Some parts of the industry report limited career progression opportunities and a perception that most work undertaken is stereotypically 'masculine'¹⁷. Attracting more women to this male-dominated sector will not be easy, but companies that succeed will have access to a rich new talent pool.

Workplace trends and a responsive Victorian training system

Like many other sectors in the Victorian economy, traditional occupations in the transport sector are at risk of technology-based disruption. Adoption of new technology does not necessarily represent a mass loss of jobs but rather changes in job structures and roles. Clearly, an education and training system that is responsive to industry needs will be critical to future industry and workforce growth.

New technologies and practices within the transport sector are reducing opportunities for low-skilled roles and increasing the demand for higher-skilled ones. While the Victorian education system has invested heavily in aligning training with current and future industry needs, the return on this investment will take time.

The importance of a clear industry strategy

The transport sector is different to many other sectors as the majority of infrastructure and procurement decisions are driven by government. A lack of a clear industrial strategy means businesses in the transport sector struggle to predict their future training needs. For example, without a clear and

specific long-term policy commitment to adopting autonomous vehicle technology, businesses are forced to continue to develop traditional workforce skills such as welding and machinery. This adds to the difficulties faced by business, as many young people are reluctant to enter traditional careers as they are uncertain of future employment prospects.

Retaining staff

Once adequately trained, SMEs in some parts of the transport sector have reported difficulty in retaining skilled workers because of 'poaching' by larger firms. This poaching is an issue affecting the sector's willingness to invest in training.

More needs to be done to ensure a diverse pool of work-ready graduates are available as the transport system grows. Furthermore, businesses in the transport sector need support to continually upskill their existing workforce so they can implement and leverage advancements in the use of technology.

¹⁷ Transport and Logistics IRC Skills Forecast 2017, Australian Industry Standards Ltd.

Key Recommendations

- > Work with the Victorian Skills Commissioner and key industry stakeholders to develop an industry wide workforce development strategy projected across a ten-year period.
- > Work with industry to roll out a communications campaign to raise awareness of careers in transport and logistics and to increase the participation of female and younger workers in the sector.
- > Ensure that the national training package qualifications relevant to warehousing and logistics operations (the TLI - Transport and Logistics Training Package) is tailored to the current and future skills needs of the sector, in particular the increased demand for higher-skilled workers to implement and operate new technologies and practices.
- > In consultation with employers and training providers, review opportunities to ensure vocational education and training (VET) more effectively facilitates the transfer of student learnings and technical skills to practical workplace applications.
- > Clearly articulate state and federal government policy on the testing and development of automated vehicle technology to allow better planning for the medium and long term skills needs of the sector.
- > Develop a school career service communication toolkit to promote the benefits of transport and logistics careers and apprenticeship and traineeship pathways to school leavers.

APPENDICES

Appendix 1

Transport system projects currently committed to or underway:

The following provides an overview of significant transport projects currently committed to or underway across Victoria.

Rail:

- > **Metro Tunnel Project** – giving three of the busiest train lines their own tunnel through the CBD, freeing up space in the City Loop to run more trains, more often.
- > **High Capacity Metro Trains project** – investing in 65 next-generation high capacity trains for the metropolitan network.
- > **Bendigo Metro Rail** – delivering a commuter train service for Bendigo, with an increased number of services running from Epsom, Eaglehawk and Kangaroo Flat to Bendigo.
- > **Ballarat Line Upgrade** – delivering more trains and better reliability for Melbourne's outer western suburbs, Melton, Bacchus Marsh, Ballan and Ballarat.
- > **Shepparton Line Upgrade** – upgrading the Shepparton rail line, with rail infrastructure works between Shepparton and Seymour to benefit the wider Goulburn Valley Community.
- > The Murray Basin Rail Project involves standardising and increasing axle loading of the rail freight lines servicing the Murray Basin region in Victoria's North West.
- > **Waurin Ponds Duplication and Surf Coast Rail** – developing the Armstrong Creek and Torquay transit corridor, and paving the way for Waurin Ponds track duplication.
- > **Warrnambool Line Upgrade** – delivering extra services, shorter journey times, and paving the way to run VLocity trains to Warrnambool.
- > **Gippsland Line Upgrade** – delivering more trains more often, a safer more reliable journey, and paving the way for more services.

Road:

- > **West Gate Tunnel project** – providing an alternative to the West Gate Bridge, a second river crossing, and direct access to the Port.
- > **Monash Freeway upgrade** – improving safety and reliability along the 44 kilometres between Chadstone and Pakenham.
- > **Level Crossing Removal project** – program to remove 50 of the worst level crossings in Melbourne.
- > **CityLink Tulla Widening** – adding new lanes and other measures to improve traffic flow across 24 kilometres of freeway between the CityLink tunnels and Melbourne Airport.
- > **North East Link** – undertaking business case development, consultation and route selection to connect Melbourne's freeway network between the M80 Ring Road at Greensborough and the Eastern Freeway or EastLink.

Appendix 2

Ports:

- > **Port Capacity Project** – infrastructure development in the Port of Melbourne at both Swanson and Webb Dock East, and the creation of an automotive facility at Webb Dock West.

Freight:

- > **Shepparton Freight Network Planning** – Planning to better understand the impact on the freight network of increased passenger services to and from Shepparton and to identify infrastructure improvements to enhance freight capacity.
- > **Mode Shift Incentive Scheme** – an incentive program that encourages industry to shift more containerised freight from road to rail.
- > **Western Interstate Freight Terminal** – construction of an interstate terminal and freight precinct at Truganina in Melbourne's west as well as a rail link to the interstate rail freight network. Funding for a pre-feasibility study has been provided but the project has not received final approval.

Strategies to inform the direction of transport system reform

Governments of all levels have undertaken significant research to assess Victoria's transport system needs and recommend areas of improvement. The following provides an overview of major work undertaken to date.

Infrastructure Victoria – Victoria's 30-year infrastructure strategy

This report identifies major state-wide infrastructure projects that need to be completed by 2046. While the definition of infrastructure is very broad, recommendations relating to the transport system include:

- > Introduce a transport network pricing regime.
- > Build the North East Link.
- > Deliver a port rail shuttle.
- > Extend the tram network to Fishermans Bend.
- > Remove barriers to the entry of new market players offering innovative transport services.

Transport Technologies - Sector Strategy

This strategy, analyses the capabilities and capacity of businesses and their workforces in the transport equipment sector, making recommendations to establish Victoria as the leading producer of transport related products and services in the Asia-Pacific region. While reference is made to expected patronage growth on public transport and freight requirements, no recommendations are made regarding infrastructure projects or use. Commitments include:

- > Ensuring local content requirements continue to be applied to the procurement of transport-related products and services.
- > Advocating for the creation of a national market for transport-related products and services.
- > Promote local capabilities to global buyers to increase exports.
- > Build new skills for new technologies through investing in Victoria's TAFE system.

Plan Melbourne – Metropolitan Planning Strategy 2017-2050

Plan Melbourne provides a blueprint to ensure Melbourne's growth is sustainable, productive and liveable with a focus on responding to predicted population growth. This report does not address regional Victoria's transport system needs, however, recommendations on Melbourne's transport system include:

- > Improve local travel options to support 20-minute neighbourhoods.
- > Produce an integrated transport system for Fishermans Bend.
- > Commence planning for the North East Link.
- > Develop strategic cycling corridors across the central city.

Victoria the Freight State – the Victorian Freight and Logistics Plan 2013

This plan identifies efficiencies and gaps in Victoria's freight and logistics network as it reaches capacity. Recommendations include:

- > Deliver the East West Link project.
- > Accelerate planning and development of the Port of Hastings.
- > Consider options for a North East Link, connecting the M80 Ring Road with the Eastern Freeway.
- > Identify a 'Mass Freight Network' for access by High-Productivity Freight Vehicles (HPFVs) operating at higher mass limits.

It is clear from the above summary that there is no single report solely representing the views of business on the priorities for transport system reform and the related reforms needed to ensure there is strategic integration of individual projects with land use and population planning, workforce development and sector capacity.





victorianschamber.com.au



facebook.com/victorianschamber



twitter.com/vicchamber



linkedin.com/company/victorianschamber

Proudly printed in Victoria by a Victorian Chamber of Commerce and Industry member

© Victorian Chamber of Commerce and Industry 2018

This document was prepared by the Victorian Chamber of Commerce and Industry. From time to time, and on the basis of new information and research, the Victorian Chamber will update its policies and recommendations. While the Victorian Chamber has endeavoured to provide accurate, reliable research and analysis, it will not be held liable for any claim by any party utilising this information.