INTRODUCING

InterCity:

HOW REGIONAL RAIL CAN RE-BALANCE POPULATION GROWTH AND CREATE A "STATE OF CITIES" IN VICTORIA

This paper has been prepared by Rail Futures Institute in the public interest. Rail Futures Institute is an independent non-partisan group formed to advocate cost-effective rail and intermodal solutions for public transport and freight problems based on sound commercial, economic and social reasoning. Rail Futures members include experienced rail professionals, decision-makers, engineers and economists.

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PREFACE

This report has been prepared by a team of transport and planning experts at the Rail Futures Institute. It provides a blueprint for the next thirty years of regional rail development in Victoria, to support projected population growth.

Our contention is that the challenges of population growth will require fundamental shifts in strategic policy, and that regional Victoria should play a much greater role in terms of growth and development.

Our rail blueprint shows how such development, through phased investment, can make a significant contribution to meeting the Government's statutory obligations and planning objectives, by leading and supporting substantially larger growth in Victorian regional cities and towns than is currently projected.

Achievement of these outcomes will require complementary policies and programs beyond rail strategy. . Government also needs to take a strong strategic lead in terms of planning policy, economic development, reshaping of the housing market and re-evaluating mechanisms of public and private finance. This report presents a robust strategy for regional rail within this broader context.

STRUCTURE OF THE REPORT

Section 1 explores the strategic policy gaps in terms of population growth, planning policy, integrated transport under the terms of the Transport Integration Act (2010), and then rail strategy and governance. In Section 6, we identify the strategic policies and institutional changes necessary to address these gaps, as a pre-requisite to the delivery of our blueprint for regional rail.

By way of three Propositions, Section 2 develops the argument for re-distributing up to an additional 1 million of Melbourne's population growth to the regional cities and smaller towns in peri-urban areas. We show how better and faster rail expands both the economic basis and geographic reach of regional development.

Section 3 presents an overview of the regional rail network today, providing context in terms of service patterns, journey times, travel demand, performance and key capacity gaps.

Section 4 introduces our blueprint for regional rail, which we call *InterCity*. This represents a step-change from the current network. It aims to transform how people regard the regions as a place to live and work.

In Section 5, we present the *InterCity* investment plan in more detail, route by route.

The report concludes in Sections 6 and 7 with the strategic policy and governance arrangements required, and implementation considerations.

EXECUTIVE SUMMARY

1. STRATEGIC POLICY GAPS

Victoria's population is projected to grow to 10.1 million in 2051, and Melbourne will grow by 92% to over 8 million. This growth is almost unprecedented in Victoria's history. The scale and pace of development required will not have been seen since the gold rush period from the 1860s to 1890s that gave rise to 'Marvellous Melbourne'.

Melbourne is already experiencing the difficulties of such rapid growth. Melbourne's urban form cannot continue to sprawl, or soar, without a robust development strategy to keep the city liveable.

Our analysis, however, uncovers major gaps in strategic policy and governance.

Firstly, the recent growth projections for Victoria reveal that the population imbalance between Melbourne and regional Victoria will be greater by 2051 than now. This outcome does not meet the Government's statutory planning and strategic planning objectives, which require that Victoria's population be rebalanced from Melbourne to regional Victoria.

Secondly, the Government's planning framework also stipulates the creation of a "State of Cities". Successive Victorian Governments are yet to demonstrate that they have an adequate concept of what this might look like, or how they will integrate regional and metropolitan planning to create a "State of Cities" capable of accommodating the projected population growth.

Thirdly, the Government is not clear how it will integrate planning and transport strategy. The 2015 *Plan Melbourne Refresh* discussion paper provides no indication how transport strategy can support a polycentric city or a "State of Cities". Instead of exploring the critical nexus between planning and transport strategy, *Plan Melbourne Refresh* explicitly excludes it.

The Victorian Government is therefore not meeting its obligations under the Transport Integration Act 2010 (TIA) which requires integration of planning and transport strategy, expressed in a Transport Plan. Responsibility for producing the Transport Plan rests with the Department of Economic Development, Jobs, Transport and Resources (DEDJTR), but there has been no such Plan in the public domain since 2008 despite this being mandatory under the Act.

Fourthly, the Government needs to resolve significant issues of rail strategy and governance. Recent reports by the Victorian Auditor-General's Office (VAGO) indicate that these problems are deeply embedded and, to date, their resolution has been elusive. Critical problems in the transport portfolio include:

- an absence of strong central leadership and a dearth of strategic policy;
- a lack of clarity in role and responsibilities between the Department and agencies such as Public Transport Victoria (PTV); and
- problems of co-ordination given the proliferation of agencies responsible for various elements of transport.

It is unclear the extent to which the recently announced formation of Transport for Victoria (TfV) will address these issues

These strategic policy gaps and governance issues need to be addressed in order meet the Government's obligations on regional development and growth.

2. KEY PROPOSITIONS

In this report, we outline a blueprint for regional rail to enable and support regional growth. This blueprint is based on three key propositions:

I Population growth needs to be rebalanced from Melbourne to regional Victoria.

II A "State of Cities" requires well-defined development policy integrated with transport strategy.

III Investment in faster, more frequent and more reliable rail services is essential to enable and lead regional growth.

The current projected regional growth for Victoria is 693,900 or around 51% to 2051. A new bolder strategy could set targets for additional growth of 1 million in the regions. Further analysis may show that an even more ambitious target is feasible.

What is required is strategic policy that clearly links transport and land-use planning. A suite of planning, land use and transport investment policies should be integrated to fulfil the Government's statutory obligations under the Victoria Planning Provisions (VPPs) and the Transport Integration Act 2010, and to plan effectively for population growth.

The role of transport infrastructure in shaping settlement patterns is well recognised, and rail provides a powerful and effective tool for redirecting growth to regional centres. A much improved regional rail network can reduce pressure on Melbourne's outward growth, provide access to affordable housing and high quality jobs, and help distribute economic and social benefits across the State.

A networked city model would link regional centres with Melbourne, with each other through hubs, and with smaller towns through buses and other transport integrated with the rail network. Such a network would be the physical embodiment of a "State of Cities". This is what we propose in our blueprint for regional rail.

3. VICTORIA'S RAIL NETWORK TODAY

Victoria has a strong rail foundation on which to build a new regional network to support growth. This rail legacy would cost billions of dollars to build today. It is an invaluable asset.

The V/Line regional network is multi-modal: rail provides a radial backbone of services, connecting to coordinated road coach services to smaller towns, in most cases with integrated fares and ticketing. This integration is a positive feature on which to build.

There has been a regional rail renaissance in the last 35 years, with three major investment programs, most recently *Regional Rail Link* (RRL). Service frequency has been enhanced for most regular commuters. Yet despite these investments, journey times overall have not improved, with the exception of commuter services on the Bendigo and Ballarat routes.

Perceptions of unsatisfactory service reliability are widespread amongst most V/Line users. Service quality, as measured by punctuality and reliability, has not improved. Furthermore, punctuality and reliability measures used by V/Line are extremely generous by international standards and are an inadequate tool for managing the level of operating discipline required to operate a reliable network.

Despite this, demand growth has been remarkable: V/Line patronage has more than doubled in the last decade. Key factors include population growth, rising costs and congestion that discourage car travel, and new service provision under various investment programs.

Rail demand is projected to continue to grow, but significant capacity gaps will limit the ability to provide additional services. Expansion of regional rail is severely hampered by a legacy of underinvestment in Melbourne metropolitan rail infrastructure. Major new investment is required for regional and express services to be segregated from slower metropolitan services, to increase overall capacity of the rail system.

4. THE BLUEPRINT: *INTERCITY*

InterCity is our blueprint for fast rail in regional Victoria.   This will be a key enabler of a "State of Cities" and regional growth, and provide a regional rail network for the 21st Century.

InterCity involves a phased program of investments: Phase 1 to 2026 and Phase 2 to 2040.   The key features include:

- faster, regular rail services linking major regional centres, with clear route patterns;

- a major new Melbourne Airport hub new line served by regional rail, an airport shuttle and designed for future High Speed Rail (HSR);

- new fast lines on the Geelong, Bendigo and Seymour routes, fully segregated from the metropolitan rail network;

- removal of impediments to fast running through the metropolitan area for Ballarat and Gippsland services by track quadruplication and provision of long passing loops;

- *Cross-Country* regional rail routes directly linking regional cities to each other; and

- much-improved service reliability, through more robust infrastructure, new rolling stock, institutional changes and greater proficiency in operational and engineering management.

The new network means that regional centres will be better connected to Melbourne, to each other and to their rural hinterlands.   This transforms how people and businesses regard these regional centres as desirable places to live and work.

Figure 1: InterCity blueprint – at 2040, Phases 1 and 2 combined
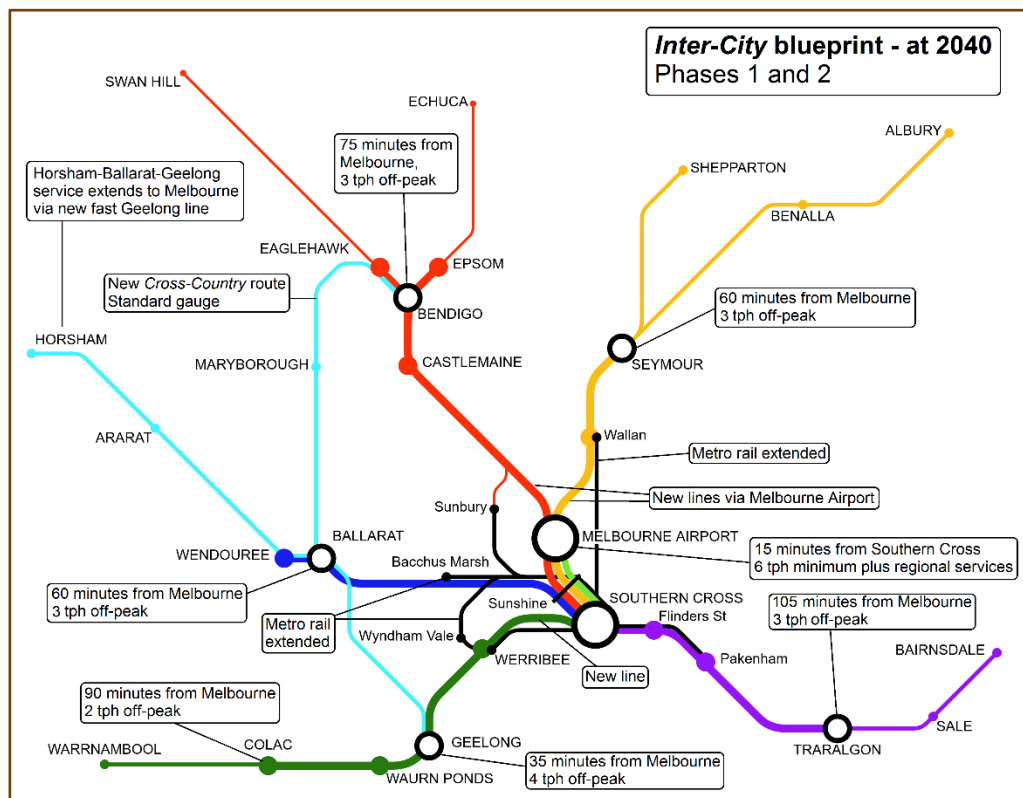
5. *INTERCITY* PHASED INVESTMENT PROGRAM

The phased program has been carefully designed to allow projects to be progressively brought on stream over a 25-year period.   It is ambitious but achievable.

The phased investment program proposes incremental improvements in Phase 1 (to 2026) which will yield significant benefits in improved journey times, service frequency and reliability. These improvements involve infrastructure enhancements, smarter scheduling and better interchange and integration with other transport modes.

Major improvements in journey times and frequencies and overall network connectivity will be achieved in Phase 2 (by 2040) through a rolling program of new fast regional lines and high-performance rolling stock.

6. A NEW STRATEGIC POLICY FRAMEWORK

Our analysis shows that Government needs to take leadership in addressing strategic policy gaps in relation to growth, planning policy, rail strategy, governance and integrated transport planning.

These strategic policy gaps are a result of a "planning deficit", including a serious absence of policy integration, an erosion of in-house capability and a weakening of the role of government.

In particular, the Victorian government needs to:

- assess the potential for population growth across the State, clearly define growth areas, and set targets and measures;

- demonstrate how it will create a "State of Cities", to meet the objectives in the VPPs;

- develop a Transport Plan for Victoria integrated with land-use planning, including Plan Melbourne as refreshed, to address its obligations under the TIA 2010; and

- assign clear institutional roles and responsibilities for transport governance.

Core capabilities also need to be rebuilt in government, particularly in rail strategy, planning, engineering and operational management.

7. IMPLEMENTATION

Providing for a population of 10 million in Victoria by 2051, while maintaining overall livability, will require a step-change in expenditure on infrastructure and services.   Achieving this will require a fundamental shift in terms of the role of government, holistic design and collaborative leadership.

Each component in the *InterCity* blueprint will require a comprehensive business case, but the program as a whole is likely to have a positive benefit-cost ratio, especially compared to the alternatives of 'business as usual' or focusing growth on Melbourne.   Indeed, Victoria cannot afford <u>not</u> to invest in *InterCity*.

InterCity needs to be part of a strategic program that goes well beyond the provision of rail infrastructure and services.   It will therefore require very significant ongoing commitment from Government, preferably on a bi-partisan basis.   The policy and governance challenges posed by growth projections for Victoria require this long-term strategy to become embedded and enduring.

A blueprint such as *InterCity* can then become an effective enabler of growth and help create a vibrant Victoria that is proactively meeting the challenges of the 21st Century.

1. STRATEGIC POLICY GAPS

SUMMARY

Victoria's population is projected to grow to 10.1 million in 2051, and Melbourne will grow by 92% to over 8 million.   This growth is almost unprecedented in Victoria's history.   The scale and pace of development required will not have been seen since the gold rush period from the 1860s to 1890s that gave rise to 'Marvellous Melbourne'.

Melbourne is already experiencing the difficulties of such rapid growth.   Melbourne cannot continue to sprawl, and have its population soar, without a robust development strategy to keep the city liveable.

Our analysis, however, uncovers major gaps in strategic policy and governance.

Firstly, the recent growth projections for Victoria reveal that the population imbalance between Melbourne and regional Victoria will be greater by 2051 than now.   This outcome does not meet the Government's statutory planning and strategic planning objectives, which require that Victoria's population be rebalanced from Melbourne to regional Victoria.

The most recent 2016 data shows that this imbalance is now projected to be even greater.   In 2015 the projections were that 78% of Victoria's population would be in Melbourne.   The Government now expects this to be 80%, which will even further entrench Melbourne's dominance.

Secondly, the Government's planning framework also stipulates the creation of a "State of Cities". Successive Victorian Governments are yet to demonstrate that they have an adequate concept of what this might look like, or how they will integrate regional and metropolitan planning to create a "State of Cities" capable of accommodating the projected population growth.

Thirdly, the Government is not clear how it will integrate planning and transport strategy.   The 2015 *Plan Melbourne Refresh* discussion paper provides no indication how transport strategy can support a polycentric city or a "State of Cities".   Instead of exploring the critical nexus between planning and transport strategy, *Plan Melbourne Refresh* explicitly excludes it.

The Victorian Government is therefore not meeting its obligations under the Transport Integration Act 2010 (TIA) which requires integration of planning and transport strategy, expressed in a Transport Plan. Responsibility for producing the Transport Plan rests with the Department of Economic Development, Jobs, Transport and Resources (DEDJTR), but there has been no such Plan in the public domain since 2008 despite this being mandatory under the Act.

Fourthly, In terms of rail strategy and governance, the Government also needs to resolve significant issues, some of which have become more evident following the recent major problems with V/Line and the widespread withdrawal of services.   Recent reports by the Victorian Auditor-General's Office (VAGO) indicate that these problems are deeply embedded and, to date, their resolution has been elusive. Critical problems in the transport portfolio include:

- an absence of strong central leadership and a dearth of strategic policy;

- a lack of clarity in role and responsibilities between the Department and agencies such as Public Transport Victoria (PTV); and

- problems of co-ordination given the proliferation of agencies responsible for various elements of transport.

Regional Victoria can play a significant role in helping to resolve Melbourne's growth impasse.   Strong leadership in population distribution, land use and transport planning will reduce growth pressures on Melbourne, grow our regional cities and ensure a more equitable spread of economic and social benefits.

1.1   INTRODUCTION

This report focuses on the challenges of population growth and, in this context, explores the nexus between regional development policy and transport strategy.

We therefore start by analysing strategic policy, in terms of

- population growth;
- planning and development;
- integrated transport planning; and
- rail strategy and governance.

This critique uncovers major strategic policy and governance gaps, which need to be addressed.   The report returns to these themes in section 6, where we propose a new strategic policy and governance framework.

1.2   POPULATION GROWTH

Our analysis indicates that Victorian Government policies are inadequate to meet the challenges of population growth.

Victoria's population is projected to grow 82% to 10.1 million in 2051.   This will be a massive change in the number of people who call Victoria their home, where they want to work, and where they need to travel. The scale of this change is unprecedented in Victoria.

Melbourne is already experiencing the difficulties of rapid growth, urban sprawl and traffic congestion choking the city.   Building more roads will not solve the problem.

The most recent growth projections for Victoria were published in July 2016.[1]   These reveal that the population imbalance between Melbourne and regional Victoria will be greater by 2051 than now.

This outcome does not meet the Government's own statutory planning and strategic planning objectives which require that Victoria's population be rebalanced from Melbourne to regional Victoria.

Moreover, the projected imbalance is even greater now than was forecast only one year ago , in 2015.[2]   In 2015 the projections were that 78% of Victoria's population would be in Melbourne, compared to 75% in 2011. The Government now expects this to be 80%, which will even further entrench Melbourne's dominance.

Figure 2 provides a summary of projected growth in Greater Melbourne compared to the regions.   The data shows that:

- 85% of the population growth is expected to be accommodated in Greater Melbourne and just 15% in regional Victoria, with the Geelong, Ballarat, Bendigo and Latrobe/Gippsland regions accounting for around three-quarters of regional growth.[3]
- The annual forecast growth rates will be higher in the decade to 2021 (2% for Greater Melbourne, 1.8% for Victoria) compared to the period to 2051 overall (1.6% for Greater Melbourne, 1.5% for

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[1] "Victoria In Future 2016: Population and household projections to 2051", DELWP 2016.

[2] "Victoria in Future 2015, Population and household projections to 2051", DELWP 2015.

[3] ABS data released in April 2016 shows that Melbourne metropolitan growth between June 2014 and June 2015 accounted for 92% of Victoria's total population growth and now accounts for 76.3% of Victoria's population.   Refer: ABS "Regional Population Growth" series.

Victoria).   This indicates that population increase cannot be downplayed as a long-term problem, but must be addressed now: forecast annual growth rates are highest in the next ten years.

The Victorian Government does not propose any targets for population growth.   Policy based on 'business as usual' therefore helps determine that population growth will be concentrated in Melbourne.

Figure 2: Population growth projections [4]

	Year of forecast	Total population		Population growth 2011-2051	Percentage population growth 2011-2051	Average annual percentage growth 2011-2051
		2011	2051			
Greater Melbourne	2015	4,169,400	7,849,400	3,680,000	88.3	1.6
	2016	4,169,400	8,024,100	3,854,700	92.5	1.65
All Regional areas	2015	1,368,500	2,158,100	789,600	57.7	1.1
	2016	1,368,500	2,062,400	693,900	50.7	1.0

The recent RMIT report *Melbourne at 8 million* finds that:

> "*No Victorian government has undertaken the required spatial and infrastructure planning for a Melbourne of 8 million people.   Strong State government leadership will be required to successfully accommodate such an increased population.   Clear roles should be delineated for State and local government.*" [5]

The report also observes that the Regional Growth Plans:

> "*…need revision to better and specifically address future housing demands, particularly in relation to Melbourne and a State-wide network of urban centres.*"

The potential for regional areas of Victoria to absorb a proportion of the projected population growth of metropolitan Melbourne has never been fully evaluated.   Comparative scenarios of land supply and demand between Melbourne and regional cities have never been proposed.   Such scenarios are necessary in order to plan for future regional employment and population growth, and corresponding infrastructure provision including improved regional public transport.

Regional planning was instigated by the former Hamer government in the early 1970s for environmentally sensitive areas, while the former Melbourne Metropolitan Board of Works introduced a regional plan for the Melbourne Statistical Division in 1971.   However, true regional planning extending in a cross-sectoral manner across extensive regional areas has never been practiced in Victoria.

Regional population increases are therefore occurring unguided by any State strategy.   In particular, the major regional centres of Geelong, Ballarat, Bendigo, together with Drouin/Warragul in west Gippsland, are expanding through sprawl on their fringes, while large amounts of developable land exist within the boundaries of these centres.

Towns along major transport corridors, particularly the Bendigo corridor, are developing in a similar manner with many of these towns experiencing population and long distance commuting growth equal to the highest Melbourne rates.   Such growth requires coordinated planning, particularly improved public transport connections to Melbourne, along with major new employment opportunities.

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[4] Ibid, page9.

[5] "Melbourne at 8 million: Matching land supply to dwelling demand", RMIT University Centre for Urban Research, October 2015.

1.3 PLANNING POLICY

In the sections below we explore planning policy in terms of:

- the Victoria Planning Provisions (VPPs);
- regional growth plans; and
- Plan Melbourne, which provides the strategic policy framework.

The focus of the critique is whether strategic policy is effectively addressing the challenges of population growth, and the extent to which it supports the role for regional Victoria.

1.3.1 Victoria Planning Provisions (VPPs)

The Victoria Planning Provisions (VPPs) provide the statutory framework for strategic policy such as *Plan Melbourne* and the regional growth plans.

In the VPPs, two clauses in particular provide an important mandate for regional growth and a powerful rationale for the blueprint for regional rail presented in this report. The VPPs also establish the key concept of a "State of Cities".

Clause 11.04-6, "State of Cities", specifies the objective:

> "*To maximise the growth potential of Victoria by developing a State of cities which delivers choice, opportunity and global competitiveness.*"

It identifies the following strategies:

- deliver a permanent boundary around Melbourne
- rebalance Victoria's population growth from Melbourne to rural and regional Victoria
- integrate metropolitan, peri-urban and regional planning implementation
- improve connections between cities.

Despite the above, the Government's population growth projections show a decrease in the proportion of Victorians living in the regions. This does not align with the VPP strategy to rebalance population growth away from Melbourne.

Clause 11.05, "Regional Development", specifies the objective:

> "*to promote the sustainable growth and development of regional Victoria through a network of settlements identified in the Regional Victoria Settlement Framework Plan.*"

This Plan (see Figure 3) identifies a hierarchy of 10 regional cities and 17 regional centres. The aim is to redirect urban growth, provide services for increasing populations and promote transport links.

Strategic planning policy needs to clearly identify how the obligations in the VPPs will be achieved. The following sections question whether the regional growth plans and *Plan Melbourne* provide the necessary clarity and objectives.

Figure 3: Regional Victoria Settlement Framework Plan

1.3.2   REGIONAL GROWTH PLANS

In 2011, the Victorian Government established a process to develop regional growth plans for each of eight regions in Victoria.   The growth plans provide broad direction for land-use and development at a regional level, to plan for future growth.   They are aligned with strategic planning at a local and regional level and are built into the planning framework through the VPPs.

There is bi-partisan political support for substantial regional growth.   In 2012, the Coalition Government's Planning Minister was quoted as saying:

> *"Focusing all our growth on Melbourne is just not going to be sustainable.   That's why... there is going to be almost regionalisation by necessity, which is going to be very important."* [6]

The current government announced on 15 December 2015, that it *"will take a new approach to regional population attraction".*   In doing so, it stated that:

> *"the most effective drivers of population attraction to rural and regional Victoria are jobs, good infrastructure, access to services and lifestyle."* [7]

The regional growth plans, while useful documents, do not seek to rebalance growth from Melbourne.   They are primarily descriptive and continue business-as-usual approaches instead of interventions to achieve alternative futures.   While the policy objectives are sound, the plans do not constitute regional policy; the implementation measures are vague and unmeasurable and there are no population targets.   The plans are

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[6] Statement by Matthew Guy, former Planning Minister, reported in The Age, 25 November 2012.

[7] Announcement by Hon. Jaala Pulford MLC, Minister for Regional Development, 15th December 2015: http://www.premier.vic.gov.au/a-new-approach-for-regional-population-attraction/

heavy on principles, but light on actions.   They rarely make specific recommendations for improved passenger rail links, or other implementation measures to support rebalancing growth.

1.3.3   PLAN MELBOURNE

In October 2015, the Victorian Government released *Plan Melbourne Refresh*, the latest step in a very long journey to deliver a clear strategic policy for planning.   The recent history of *Plan Melbourne* is outlined in Box 1 below.

Plan Melbourne Refresh is a discussion paper for public consultation that will lead to a 2016 iteration.   It has been informed by the Plan Melbourne Ministerial Advisory Committee (MAC) review released in June 2015.[8]

The *Plan Melbourne Refresh* consultation reports were published in May 2016,[9] and the large number of submissions reflects significant community interest and concern.   For example, submitters

> *"strongly supported the concepts of the polycentric city and… said investment in public transport should be a priority."*

They also made specific observations on governance and implementation:

> *"submitters felt that bipartisan support and a whole-of-government approach were vital. It was also noted that partnership with local government and clarification of the roles of the Metropolitan Planning Authority and Infrastructure Victoria are required."* [10]

There is marked resonance between many of the submissions and the positions we take in this report.

Relevant to this paper and the essential nexus between regional growth and transport, we identify six critical questions for *Plan Melbourne Refresh*:

    (1)   What are the targets and implementation measures?

    (2)   What is a polycentric city?

    (3)   How do you integrate regional planning to create a "State of Cities"?

    (4)   Why has transport planning been excluded?

    (5)   Who is in charge?

    (6)   "A planning deficit": is this an infrastructure problem or a governance problem?

These are explored below, and are themes that recur throughout this report.

1. What are the targets and implementation measures?

Plan Melbourne Refresh recognises the challenges of planning for growth and outlines a range of options to increase the provision of new housing including: to better define housing needs, set targets and provide clearer direction on new development locations.   It also seeks to lock down the urban development boundary, in order to limit Melbourne's spread into peri-urban areas.   However, it remains weak on targets and implementation measures.

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[8] See: http://refresh.planmelbourne.vic.gov.au/plan-melbourne-refresh-discussion-paper

[9] See: http://www.planmelbourne.vic.gov.au/plan-melbourne-refresh/plan-melbourne-refresh-submissions/refresh-submissions

[10] "Plan Melbourne Refresh: Summary of submissions", Victorian Government, May 2016

2. What is a polycentric city?

Fundamental to *Plan Melbourne* is the concept of the "polycentric city" as a core design principle. However, *Plan Melbourne Refresh* now recognises that further work is required on the key principle of a

> "*polycentric city linked to regional cities*"

Critically, *Plan Melbourne Refresh* is based on a core design principle which is poorly defined or understood.

3. How do you integrate regional planning to create a "State of Cities"?

There is affirmation that:

> "*planning for Melbourne can't be separated from planning for the rest of Victoria which functions as a "State of Cities" in the same way Melbourne is a polycentric city."*

This implies that strategic policy should be seeking similar patterns of development in the both the city and regions.

Planning strategy for the regions is inextricably linked to the strategic planning process for Melbourne. The strategy should require that *Plan Melbourne* and the regional growth plans, which are due for a refresh in the next 2-3 years, should together identify how they will provide for population growth.

4. Why has transport planning been excluded?

There is no indication in *Plan Melbourne Refresh* of how transport policy can support the development of a polycentric city, let alone a "State of Cities". Indeed, it devolves transport network planning to:

> "*other government strategy or policy reviews currently underway.*"

The Government believes that the Plan should:

> "*outline strategic transport links and options, but aside from those committed to, should not include specific transport initiatives for the medium term*".

It makes it clear that policy should be:

> "*guided by Victoria's transport planning obligations under the Transport Integration Act 2010...and in the context of advice from Infrastructure Victoria.*"

Yet while *Plan Melbourne Refresh* only refers to periodic revisions of transport planning, it fails to disclose that the Government is required under the Transport Integration Act (S.63) to have a Transport Plan with:

> "*medium to long term strategic directions, priorities and actions... [and] a short term action plan that is regularly updated."* [11]

The June 2015 MAC review made a number of detailed recommendations on *"A more connected Melbourne"*, but the Government considers that these are already underway as part of a concurrent process. The Government refers these recommendations:

> "*for consideration as part of transport network planning.*"

The Government also rejects the MAC proposal to consider "transit corridors", but instead, suggests that the Plan should update the Principal Public Transport Network (PPTN),[12] without saying why. The PPTN is a

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[11] Section 63 of the Transport Integration Act 2010 (TIA) was amended in 2011 by the incoming Government to provide for the establishment of Public Transport Victoria. In doing so, the Victorian Transport Plan (VTP) was re-badged as a "Transport plan" that "The Department must prepare and periodically revise...for the Minister"

[12] In 2002, a Principal Public Transport Network (PPTN) was initially defined in *Melbourne 2030* and updated in 2010. Its purpose was to identify high quality and direct public transport connections between activity centres.

relatively crude planning tool that, at best, collates existing transport corridors. It is arguably too static and simplistic to inform the fundamental reshaping that population growth requires.

5. Who is in charge?

Public Transport Victoria (PTV) is the State agency responsible for public transport strategy, but is not mentioned in *Plan Melbourne Refresh.*

Responsibility for the implementation of *Plan Melbourne* is likely to be led by the Metropolitan Planning Authority (MPA). The MPA is a relatively new agency on a steep learning curve to grow from its previous incarnation as the Growth Areas Authority, which oversaw large strategic developments in the metropolitan area. It is not clear how the MPA will transform its capability on strategic developments into a collaborative leadership role in development strategy: the two roles are very different.

The new agency Infrastructure Victoria (IV) is likely to influence planning for transport and other major investments, but at this stage it is unclear how this might dovetail with the work of other agencies and government departments.

More broadly, there are emerging concerns over consultation fatigue and the ability for the community to provide a timely and informed response to a series of lengthy, detailed government reports. For example, the public is now faced with a short consultation period for *All things considered: Exploring options for Victoria's 30-year infrastructure strategy*, released by IV in May 2016 and comprising three volumes totalling over 600 pages. Laudable though the aims of public participation are, it cannot supplant integrated planning and a strong strategic lead from government.

6. "A planning deficit": is this an infrastructure problem or a governance problem?

A 2015 ACOLA report *Delivering sustainable urban mobility* [13] identifies a "planning deficit" as a root problem in governance frameworks for planning. Its research identifies:

> "*a lack of government capacity to plan, and to deploy sufficiently robust tools and levers to implement those plans.*" [14]

This planning deficit has unexpected yet familiar outcomes, which have particular relevance to large-scale rail investment programs:

> "*The effects of this deficit in Australian cities have fed perceptions of an 'infrastructure crisis', to which politicians have sought to respond. 'Big ticket' projects (or packages of projects) have come to symbolise the government's 'planning' efforts.*" [15]

Transport and planning strategy equally depend on a clear strategic lead set by government, with transparent and coherent governance arrangements. In the absence of this:

> "*too often in Australia, metropolitan plans look like bundles of infrastructure projects prepared by State governments tacked on to a range of 'hope' statements inserted amongst lavish displays of coloured photos.*"[16]

We address these issues around the planning deficit in our new strategic policy framework in Section 6.

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[13] Australian Council of Learned Academies (2015) "Delivering sustainable urban mobility": http://www.acola.org.au/index.php/projects/securing-australia-s-future/8-sustainable-urban-mobility

[14] Stone et al 2015, "ACOLA background paper, Social Study", p43 at http://www.acola.org.au/index.php/safo8-contributing-reports

[15] ACOLA (2015) p94

[16] Curtis and Low (2012)" Institutional barriers to sustainable transport"

Box 1: Plan Melbourne

In 2014, the former Coalition government released its metropolitan strategic plan, Plan Melbourne. Despite some reference to regional planning, this was a metropolitan strategic plan, concentrating mostly on the Melbourne area.

Plan Melbourne sought to reposition Melbourne towards integrated planning with its hinterland by retaining the productive agriculture, biodiversity, water resources and landscapes of its peripheral area. It aimed to expand metropolitan planning to include regional planning by redirecting some metropolitan growth into regional towns. Unfortunately, like so much else in the strategy, there was no discussion of the necessary links between regional growth, transport access, amenity, types of regional employment, education, improved infrastructure and other services.

Chapter 7, "A State of Cities" proposed an alternative growth scenario whereby regional centres take a greater share of the projected State population growth of 10 million people by 2051. The "State of Cities" concept would develop regional settlements by encouraging further regional employment and relocation of businesses to regions, and improving transport connections between regional cities and metropolitan Melbourne.

The plan designated Ballan, Bacchus Marsh, Kilmore, Broadford, Warragul-Drouin and Wonthaggi as further "growth centres" and implied increased populations for major regional centres. It also proposed the new "rural village style" developments, along with further infill development and increased residential densities within existing regional cities to optimise infrastructure use.

The Government proposed integrating metropolitan, peri-urban and regional planning, but the plan contained no specific implementation measures to achieve the stated objectives. It emphasised the further development of road connections but made no specific commitments on the necessary high quality public transport connections. No targets were proposed on desired regional growth rates as a proportion of future State growth, or for alternative regional city sizes.

1.4 INTEGRATED TRANSPORT PLANNING

The *Transport Integration Act 2010* (TIA), Victoria's principal transport statute, aims to provide a common set of objectives and decision-making principles, which all transport and land use agencies must consider as part of an integrated and sustainable transport system. However, the opaque nature of current planning and transport policy-making does not appear to meet the requirements of the Act.

Rather than integrating, *Plan Melbourne Refresh* has excluded most of the transport components as "already underway or part of a concurrent process". It refers only to periodic revisions of transport planning and presents little information on what such transport planning involves or how it is integrated with development or growth strategy.

It is mandatory under the TIA to have a Transport Plan that makes explicit the medium to long-term strategic directions, priorities and actions.[17] Yet since the 2008 Victorian Transport Plan, there has been no Transport Plan in the public domain prepared in accordance with the statutory requirements of the Act.

The Act states that the Department[18] has responsibility for preparing a Transport Plan for the Minister.[19] It determines requirements for the Plan, including the need for it to set strategic policy, to set the planning framework within which transport bodies are to operate, and to demonstrate an integrated approach to transport and land use planning.

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[17] Transport Integration Act 2010 S.63, as amended by the Transport Legislation Amendment (Public Transport Development Authority) Act 2011

[18] Currently this is the Department of Economic Development, Jobs, Transport and Resources (DEDJTR), a mega-department created in January 2015 in the reorganisation by the incoming Labor government.

[19] Transport Integration Act 2010 S.63(1), as amended.

There is no public indication to date that the Department has identified the specific needs and challenges of developing a Transport Plan, and indeed, whether the Department has the capacity and capability to effectively perform this function. Departmental expertise in public transport planning has been largely migrated into PTV, and also shifted to the private sector.

There is also no clear portfolio responsibility for rail freight, a sector that has significant impacts on the planning and operations on regional rail routes.

These are major weaknesses that must be rectified in order to address major challenges such as population growth.

The Municipal Association of Victoria (MAV), the peak body for local Councils, is clear about the implications for local government planning:

> *"Although the legislation provides for integrated transport planning, there is failure to deliver truly integrated transport and land use planning... Councils have a statutory responsibility to prepare plans for the delivery of council infrastructure, community services, land use and development. These plans would be improved if there was more clarity of State Government transport planning and better communication with local government."* [20]

Victoria urgently needs a new Transport Plan, which should be informed by successful examples elsewhere of managing growth and integrated planning, for example, in Hong Kong and London. Indeed, other jurisdictions also offer a wealth of experience on integrated transport planning.

Importantly, this does not necessarily require major infrastructure investment, but rather a fundamental shift in culture and approaches to planning.

Of critical importance is for planners to take a network-based approach to serve multiple origin-destination patterns and travel markets, through regular and frequent services on clear routes with ease of interchange:

> *"Case studies from Europe show that it is possible to use relatively simple but rigorous planning processes to improve the effectiveness and efficiency of public expenditure on urban public transport, particularly in creating service patterns that meet the needs of a large range of potential users."* [21]

In Victoria, previous plans and current policies remain largely focussed on radial routes rather than networked multi-modal solutions – the key to significantly reducing car dependency. Understanding how networks can achieve such good investment returns is a core capability that needs to be developed within government:

> *"The quality of a network depends on the planners' skills in using available budgets to create fast and frequent connections between bus, tram, and train lines to link the largest number of possible origins and destinations within a travel time that competes well with the car" (Dodson, Mees, Stone & Burke, 2011)."* [22]

The 2015 ACOLA report *Delivering sustainable urban mobility* takes its lead from Europe and the institutional process of integration. It identifies some clear pre-requisites in terms of strategic policy and governance arrangements:

> *"Integrated and ambitious local mobility plans are the starting point for the comprehensive changes that are needed. These are best located within an environment of strong strategic planning and coordination from*

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[20] Municipal Association of Victoria (MAV), "An examination of the key transport challenges facing Victoria and the role of local, State and Australian Governments in addressing them", Transport Position Paper, 2013.

[21] John Stone (2013) "Planning for affordable transit infrastructure and service expansion: two European case studies", Australasian Transport Research Forum 2013.

[22] Quoted in: Whitzman et al (2014) "Melbourne: What Next?" Melbourne Sustainable Society Institute, p89

national and regional governments able to provide enabling legal frameworks and policies and coordinate transport infrastructure development, thus ensuring efficiency." [23]

In summary, the Victorian government has to take a lead and establish a robust strategic policy framework in order to deliver on the objectives of the Transport Integration Act 2010.   There is a clear role for government and an urgent strategic imperative.

1.5   RAIL STRATEGY AND GOVERNANCE

The leadership role in rail strategy, governance and co-ordination rests with the Department.   It is becoming increasingly clear, however, that an absence of strong central leadership and a dearth of strategic policy have become critical problems in the transport portfolio.   This is also the conclusion of the Government's Auditor-General, as we note below.

Responsibility for transport planning and operations is shared between a number of entities, including Public Transport Victoria (PTV), V/Line, VicTrack and VicRoads.   However, there is a lack of clarity in roles and responsibilities between these and with the Department.

This lack of clarity is then compounded by the complex web of relationships with a myriad of players, including other government departments, local authorities, franchisees and contractors.

On 27 June 2016 the Minister for Public Transport announced a "simpler, more coordinated transport system for Victoria" through the establishment of a new agency: Transport for Victoria (TfV).[24]   TfV may indeed be a positive step in terms of integration and collaborative planning, yet there is currently nothing to substantiate this and, crucially, there is no further clarity on the relationship between the new agency and the Department in terms of strategic policy and planning.

Core capabilities on rail strategy, planning, engineering and operational management need to be rebuilt and facilitated by government to overcome the fragmentation of rail planning and management that has been ongoing for the best part of two decades.[25]

For example, in the first half of 2016 Victoria's railways and V/Line in particular have been embroiled in controversy, with many train cancellations due to excessive wheel wear and problems associated with safe operation through level crossings.   The investigative report by rail engineers at Monash University identifies three critical issues relating to implementation that, in combination, have resulted in part of a new railway that is not compatible with the current rolling stock design and requires major remedial works.[26]   These setbacks have helped highlight the imperative for good governance, the importance of high engineering and maintenance standards and the need to avoid false economy in investment decisions.

There has also been inadequate future-proofing of rail projects or safeguarding of future transport corridors. An example of serious planning failure has been the lack of provision for rail gauge standardisation, particularly on the Regional Fast Rail (RFR) program (see Box 3 in Section 3.9).   A current example is emerging on the Dandenong rail corridor in the failure to provide for track quadruplication (see Box 5 in Section 5.5).

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[23] Ibid p.15

[24] See: http://www.premier.vic.gov.au/a-simpler-more-coordinated-transport-system-for-victoria/

[25] Significant fragmentation of the integrated rail network began in the late 1990s during the lead-up to full privatisation in 1999.   This pattern has been well documented in countries such as the UK that has pursued such a privatisation model.

[26] "VLocity wheel wear investigation for VLine Pty Ltd", report by Institute of Rail Technology, Monash University, April 2016.

There is also little evidence to show that project proposals are tested to ensure compliance with the TIA. This is symptomatic of the planning deficiencies discussed in the preceding section of this report.

A series of reports by the Victorian Auditor-General's Office (VAGO) indicate that these problems are deeply embedded, and that their resolution appears elusive. For example, in a 2014 VAGO report, the Auditor-General States that:

> *"public transport services are poorly coordinated, and progress to improve this has been slow. The longstanding difficulties I identified in the planning and management of coordination activities are particularly concerning. These shortcomings have been identified in previous audits of public transport undertaken by my office."* [27]

Examining the role of agencies such as PTV and the Department in strategic planning, VAGO found a pressing need for the Department to:

> *"develop clearly defined statewide coordination objectives, performance measures, and governance arrangements to monitor achievement of coordination outcomes…*

> *"Ongoing delays in addressing existing barriers to coordination will impede the achievement of related transport system objectives."* [28]

These fundamental issues relate to transport strategy and governance. Looking beyond this to the integration of transport and land-use strategy, and focusing on the new metropolitan growth areas, VAGO is clear:

> *"Over many years, the State has failed to deliver the transport infrastructure and services needed to support rapidly growing communities. This is adversely impacting accessibility, and risks the future liveability of metropolitan Melbourne.*

> *Urgent action is required to address this serious problem. Inadequate public transport and growing gaps in the road network in these communities are creating barriers to mobility, including access to critical services, education and employment opportunities."* [29]

The lack of clarity on roles and responsibilities that VAGO identifies, and the lack of progress on integrated transport and land use planning, have since been exacerbated by the introduction of mega-departments. The former Department of Transport, Planning and Local Infrastructure (DTPLI) has now become the Department for Economic Development, Jobs, Transport and Resources (DEJTR), separate from an equally substantial Department of Environment, Land, Water and Planning (DELWP).

Mega-departments can make it harder to discern or manage the roles and responsibilities within them. They can also mask the important debate around policy trade-offs, and thereby dilute the transparency and accountability that underpin robust Cabinet decision-making.

In *Plan Melbourne Refresh*, the transport components have been extracted into a policy 'black box' marked:

> *"for consideration as part of transport network planning."*

The implication appears to be that public transport is considered peripheral to the development of planning strategy, as is the lead government agency responsible for it.

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[27] p.vii, "Coordinating Public Transport", Victorian Auditor-General's Office (VAGO), August 2014.

[28] p.x, VAGO (2014).

[29] p.viii, "Developing Transport Infrastructure and Services for Population Growth Areas", Victorian Auditor-General's Office (VAGO), August 2013.

The Government has widely promoted PTV's work in preparing a *Regional Network Development Plan,* (RNDP) which it has described as:

> "*Victoria's first ever short, medium and long-term strategy for better regional public transport.*" [30]

Publication of the RNDP was deferred for some months while the recent major problems on the network were being resolved. In its absence, we distilled three key questions below, by which we have assessed the extent to which the RNDP is strategic and addresses the key challenges:

1. Does it identify the fundamental issues and challenges, and present a coherent long-term plan?

2. Does it address Victoria's growth projections and, if so, does it explicitly link forecast demand to rail investment and service plans? [31]

3. Is it integrative? Does it explicitly embed rail planning into transport planning overall, and does it link transport planning with development and planning strategy?

The RNDP was finally released in late May 2016.[32] Our assessment of the RNDP is that it fails to sufficiently address the questions above. This assessment is presented in Appendix B.

There is now a sharp public focus on rail operational performance, on rail governance arrangements and on the capability within government to specify and deliver major investments. There are clear strategic policy gaps in terms of rail and public transport. There is also a perceived lack of clarity on roles and responsibilities – on who is in charge.

Victoria sorely needs a public transport strategy, as part of a new Transport Plan that meets the objectives of the Transport Integration Act 2010. The Transport Plan needs to address the population growth projections, demonstrate integration with development policy, and present a robust program of transport investment, including for regional rail. It also must identify the key governance changes necessary to deliver the plan.

In Section 2, we develop the argument for re-distributing up to an additional 1 million of Melbourne's population growth to regional cities and smaller towns in peri-urban areas. We also show how better and faster rail expands both the economic basis and geographic reach of regional development.

Section 4 outlines our blueprint for a transformed regional rail network, which we call *InterCity*. This is further detailed, region by region, in Section 5.

In Section 6 we identify the policy framework and institutional changes necessary to deliver this blueprint, and which address the strategic policy gaps identified above.

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[30] Minister for Public Transport media release, 12 June 2015. See: http://www.premier.vic.gov.au/preparations-ramp-up-for-regional-public-transport-plan/

[31] A reasonable benchmark against which to judge such analysis is PTV's "Network Development Plan: Metropolitan Rail", November 2012, which presents a comprehensive multi-phased plan for Melbourne's metropolitan rail network. See: http://ptv.vic.gov.au/about-ptv/ptv-data-and-reports/network-development-plan-metropolitan-rail/

[32] See: http://www.premier.vic.gov.au/blueprint-for-better-regional-public-transport-released/, 30 May 2016.

2. KEY PROPOSITIONS

SUMMARY

In this Section, we outline a blueprint for regional rail to enable and support regional growth.   This blueprint is based on three key propositions:

I   Population growth needs to be rebalanced from Melbourne to regional Victoria.

II   A "State of Cities" requires well-defined development policy integrated with transport strategy.

III   Investment in faster, more frequent and more reliable rail services is essential to enable and lead regional growth.

The current projected regional growth for Victoria is 693,900 or around 51% to 2051.   A new bolder strategy could set targets for additional growth of 1 million in the regions.   Further analysis may show that an even more ambitious target is feasible.

What is required is strategic policy that clearly links transport and land-use planning.   A suite of planning, land use and transport investment policies should be integrated to fulfil the Government's statutory obligations under the Victoria Planning Provisions (VPPs) and the Transport Integration Act 2010, and to plan effectively for population growth.

The role of transport infrastructure in shaping settlement patterns is well recognised, and rail provides a powerful and effective tool for redirecting growth to regional centres.   A much improved regional rail network can reduce pressure on Melbourne's outward growth, provide access to affordable housing and high quality jobs, and help distribute economic and social benefits across the State.

A networked city model would link regional centres with Melbourne, with each other through hubs, and with smaller towns through buses and other transport integrated with the rail network.   Such a network would be the physical embodiment of a "State of Cities".   This is what we propose in our _InterCity_ blueprint for regional rail.

PROPOSITION ONE - POPULATION GROWTH NEEDS TO BE REBALANCED FROM MELBOURNE TO REGIONAL VICTORIA

The present laissez-faire approach to population growth in metropolitan Melbourne is untenable.

The current population increase in suburban areas is already taking them towards dysfunction.   The continued outward growth and low density sprawl of Melbourne has created intractable problems such as the loss of high quality agricultural land for food production, inadequate public transport and infrastructure in outer growth areas leading to social isolation, poor access to employment and   chronic car dependency.   The outcomes have been unacceptably long commuting times, steadily worsening traffic congestion and high infrastructure costs.

Planning failures in the outer urban growth corridors have directly led to these outcomes.   The high-rise development model in the CBD and inner suburbs is negatively transforming Melbourne's character and functionality.   Together these factors are eroding Melbourne's reputation as a liveable city.

Melbourne's rapid growth and popularity with overseas investors has also contributed to a significant housing affordability problem.

A radically new development model is required, as a report by the Australian Council of Learned Academies (ACOLA) makes clear:

"a business-as-usual approach will not work.   As the Australian population continues to increase—and as that population growth is further concentrated in Australia's major cities— so the social inequities, environmental pressures and economic consequences will intensify." [33]

Regional Victoria provides an opportunity to help resolve this growth impasse, but government needs to take a strategic lead to rebalance growth from Melbourne to regional centres.

The evolution of Victoria's regional cities and towns has reached a turning point.   After decades of minimal or negative growth, the last 10 to 15 years have seen significant population increases (both in sheer numbers and rates of growth) in some regional cities and towns.   Factors driving this trend include:

- unprecedented population growth in Melbourne, prompting some to seek alternatives to congested city life;

- rising metropolitan house prices driving a search for more affordable housing;

- improved lifestyle, social and cultural amenities in regional cities;

- the attraction of historic township environments;

- improved services such as telecommunications and health; and

- improved road and rail links, especially to regional centres within 2 hours reach of Melbourne.

The latter factor demonstrates the potential for improved transport links to create new travel demand and to shift patterns of growth.   Transport experts have long understood this: providing new transport supply, such as building a new road, will induce new travel demand.   This is the key reason why building new roads rarely solves traffic congestion and is counter-productive.[34]

Further acceleration of the growth trend in regional Victoria is likely to continue, driven by the momentum of agglomeration or clustering, particularly in larger regional cities.

Some State Government policies may be already supporting this, for instance housing grants, improvements to services, and relocation of government offices.   Currently this is less strategic, more piecemeal.   Much more could be achieved if strategic planning and transport policy aligned around regional growth targets.   Recent advice commissioned by the State Government clearly underlines the significant net benefits to be gained by providing incentives to re-balance population growth between Melbourne and regional Victoria:

"Fostering regional growth could allow Victoria to better balance its population growth between Melbourne and the regions.   This would deliver an important efficiency dividend: the costs of congestion and adding new infrastructure in Melbourne are high when compared to regional Victoria, where there is already considerable infrastructure and land to absorb greater population at a lower cost." [35]

A 2012 report for Regional Cities Victoria provided cost-benefit analyses on infrastructure and resource needs in regional Victoria for different population growth scenarios.   It found that:

"Higher regional population levels can positively contribute to a more efficient population settlement pattern in Victoria, recognising that many regional centres have established and well-functioning economies, with significant capacity to expand further in a sustainable manner."

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[33] "Delivering sustainable urban mobility", report by Australian Council of Learned Academies (ACOLA), October 2015.   See: http://www.acola.org.au/PDF/SAF08/SAF08_FullReport_web.pdf

[34] The Lewis-Mogridge Position was defined in 1990 and posits that traffic expands to meet the available road space.   The transport system needs to be considered as a whole, including public transport.

[35] External Advisory Board Review of Regional Economic Development and Services, , Final Report, July 2015, Department of Economic Development, Jobs, Transport and Resources.(DEDJTR), p.4.

> *"This outcome will assist in reducing economic and social congestion costs associated with ongoing expansion of Melbourne's outer metropolitan areas." [36]*

Regional centres have ample capacity to provide new housing at affordable prices; but housing availability needs to be complemented by diverse housing options within towns, affordable housing to cater for lower income groups otherwise disadvantaged by location, and high quality transport links to ensure access to jobs. Such links also provide much wider access for those wishing to travel for employment, education, health services or retail activity. Population growth in regional centres will also generate beneficial economic multiplier effects that will create additional jobs locally.

Better land utilisation could enable significant population increases in regional centres such as Bendigo, Ballarat, Geelong and the Latrobe Valley, and some smaller towns such as Ballan, Kyneton, Kilmore, Seymour and Warragul. This could be achieved without expanding town boundaries or diminishing heritage values.

This is supported by a recent RMIT report, *Melbourne at 8 million*, which:

> *"demonstrates how Melbourne can double its population by 2051 through residential development largely within existing urban boundaries while preserving the existing historic urban fabric and maintaining lifestyle amenity." [37]*

The report notes that regional urban centres:

> *"are smaller in scale but have similar urban form characteristics to Melbourne. The State government should examine the potential to divert a proportion of the planned increase in metropolitan population to regional centres, and how such an objective should be achieved… Regional development should be integrated with fast rail transport using a network city model."*

A typical Australian city houses half the population in the same area of land as a typical European city.[38] The implication is that there is significant potential to increase the concentration of Australian cities and regional centres within their existing boundaries. This increased population density will then improve the viability of public transport services.

For example, an RMIT-Latrobe University study recently applied six alternative growth scenarios to Bendigo as a case study. This demonstrated that a substantial oversupply of land exists to provide an additional 62,161 diverse dwelling types to meet all future housing needs in Bendigo beyond 2040 without expanding the growth boundary.[39]

The study finding also aligns with emerging research considering what sustainable settlements might look like. For example, medium-sized towns of around 15,000 may offer a socially and economically viable alternative to larger cities. Networks of such towns, linked by regional rail, could provide a more attractive and resilient option to the maladaptive growth of big cities.[40]

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[36] "Implications of population growth on infrastructure and resources in regional cities", report prepared for Regional Cities Victoria by Essential Economics Pty Ltd., October 2012.

[37] "Melbourne at 8 Million: Matching Land Supply to Dwelling Demand, RMIT University Centre for Urban Research, October 2015.

[38] See: http://chartingtransport.com/2015/12/06/how-do-australian-and-european-cities-compare-for-population-and-area/

[39] Buxton M and Phelan K et al (2014) "Alternative futures for Melbourne's peri-urban region", RMIT University, Melbourne. See: http://www.periurbanfutures.com/

[40] Nick Sharp (2016) "Why medium-sized towns are the key to a sustainable future:, see ABC Ockham's Razor, 18 Jan 2016: http://www.abc.net.au/radionational/programs/ockhamsrazor/zillion-year-town-nick-sharp/7095060

The website Charting Transport[41] provides a useful analysis of the population density of 43 major cities in Europe and Australia.   In the comparison, it locates the five main Australian cities at the bottom of the density table (see Figure 4).

Figure 4: Population density of cities globally.[42]
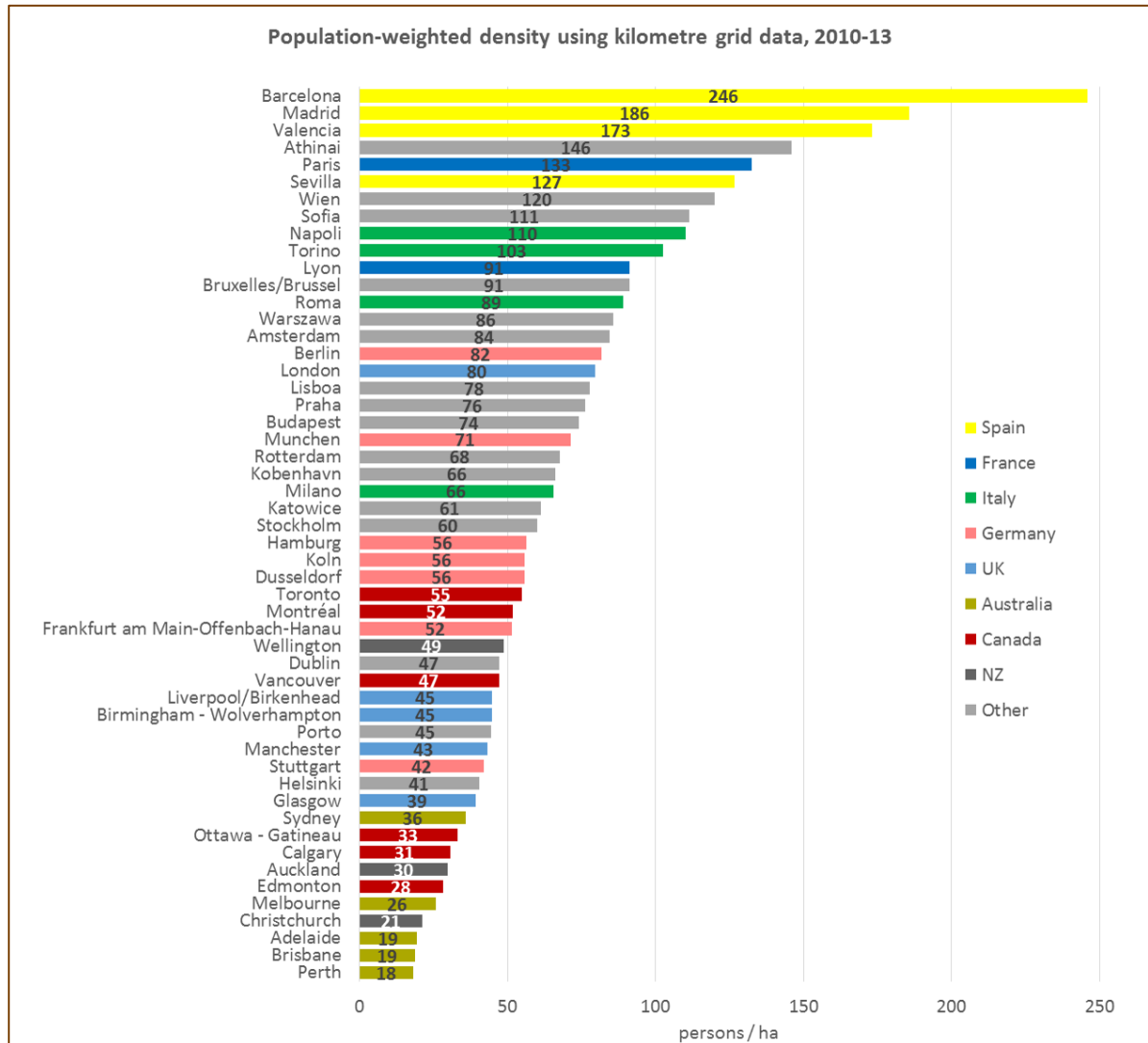
The current projected regional growth in Victoria is 693,900 or around 51% to 2051.   A bolder strategy could set targets for additional growth of 1 million in the regions.   The population distribution in 2051 would become 69% in Melbourne (instead of almost 80%) and 31% in regional Victoria (instead of 20%).   Further analysis may show that an even more ambitious target is feasible.

The Government could then meet its objectives under the VPPs, and achieve a much more balanced outcome with significant economic, social, environmental and housing affordability benefits.

It would also allow an achievable population target for Melbourne in 2051 of around 7 million.

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[41] See: http://chartingtransport.com/

[42] See: http://chartingtransport.com/2015/11/26/comparing-the-densities-of-australian-and-european-cities/

PROPOSITION TWO - A "STATE OF CITIES" REQUIRES WELL-DEFINED DEVELOPMENT POLICY INTEGRATED WITH TRANSPORT STRATEGY

Without integrated planning, it will not be possible to achieve the policy objectives of *Plan Melbourne* and the regional growth plans.   Victoria's growth will continue to be imbalanced, with significant economic, social and environmental consequences.

Plan Melbourne needs to provide much greater clarity on the concept of the polycentric city, and define how this will be implemented.   Melbourne will not be able to recreate itself as a polycentric city without a strategy to progressively reshape and re-balance its urban form, and provide much-improved public transport.

Similarly, the Government needs to define what a "State of Cities" looks like and how it will be implemented.

Planning and transport strategies need to be developed together, whereby planners can visualise a transport network for a polycentric city and a "State of Cities" and describe its function and form.   Melbourne and regional Victoria both have a radial passenger rail network focused on the CBD, with poor linkage between transport modes.   Fundamental restructuring is required.

This will require a step-change in public transport provision, based on integrated planning.   There is a considerable body of research that identifies how integrated transport planning can be implemented:

> *"Policy-makers in 'successful' regions exhibit a sophisticated awareness of the complex processes through which improvements to public transport can be achieved.   These include building political support, securing long-term funding, finding practical mechanisms to integrate land-use and transport planning, and assigning institutional responsibility for measures to give priority to public transport."* [43]

The Australian government should also provide a lead.   Its research consistently emphasises the importance of integrated planning, particularly integrating transport and land use planning:

> *"There is a growing consensus that broad-scale, multimodal, high-level planning systems are needed."* [44]

This research also identifies the transport policy challenges resulting from population growth:

> *"Critically, this will mean the integration of long-term planning in order to anticipate and address growing demand and avoid unnecessary additions to transport tasks, making efficient use of existing transport infrastructure and identifying and planning for future needs."* [45]

In 2014, the RACV published a blueprint for regional transport to improve connectivity and maintain liveability, drawing upon an extensive consultation with its members.[46]   The report calls for an integrated investment approach, noting that:

> *"Failure to deal with transport infrastructure issues now will leave governments with an unaffordable and insurmountable backlog of projects."*

In Victoria, regional growth plans are helping to align policy, and the stakeholder approach supports the relationship building which integrated planning requires.   However, these plans do not show how growth can be transferred from Melbourne to the expanded regional centres, nor provide any policy levers to do so.

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[43] Whitzman et al (2014) "Melbourne: What next?", Melbourne Sustainable Society Institute.

[44] "State of Australian Cities 2014-2015", Commonwealth Department of Infrastructure and Regional Development, July 2015.

[45] Ibid.

[46] RACV 2014, "Growing pains: Keeping pace with transport needs in regional Victoria".

What is required is strategic policy that clearly links transport and land-use planning. It should integrate a suite of planning, land use and transport investment policies to fulfil the Government's statutory obligations under the VPPs and the Transport Integration Act 2010, and to plan effectively for population growth.

PROPOSITION THREE - INVESTMENT IN FASTER, MORE FREQUENT AND MORE RELIABLE RAIL SERVICES IS ESSENTIAL TO ENABLE REGIONAL GROWTH

Investment in a polycentric regional rail network is essential to lead and enable a "State of Cities" and this will relieve growth pressure in Melbourne.

Rail provides a powerful and effective tool for redirecting growth to regional centres. A much improved regional rail network can reduce pressure on Melbourne's outward growth, provide access to affordable housing and high quality jobs, and help distribute economic and social benefits across the State.

The role of transport infrastructure in shaping settlement patterns is well recognised:

> *"Australian authors Wellman and Spiller (2012) divide infrastructure investments into follower and leader types. The provision of essential infrastructure such as electricity and water is at least as important as transport for productivity; but is generally a follower of urban development. By contrast, certain transport infrastructure investments can determine the physical shape of cities, leading population and employment patterns over long periods and evolving in patterns that can be difficult or costly to reverse."* [47]

Higher population densities are likely to increase the viability of high frequency public transport services. Interestingly, the argument can be reversed: given that transport supply can determine the pattern of settlements, providing new public transport can then lead to more concentrated population densities, which will then support the viability of the services. Strategic policy should seek to create this virtuous cycle.

Fast regional rail transforms the proposition of living in or working in the regions. It is well understood that increasing transport supply will invariably induce new transport demand, particularly with provision of fixed infrastructure such as heavy rail or trams. People change their work and housing decisions based on ease, availability and the time involved in travel.

Overseas experience confirms that a high quality fast rail service, when combined with implementation of other inducements, is an effective tool for regional integration and economic development and can help shape more sustainable land use patterns. In particular, the introduction of high-speed rail (HSR) services in Japan, France and Germany supports the correlation between improved rail services and population and employment growth rates.

High-speed rail (HSR), 300km/h+, is not necessary to achieve desired policy outcomes in Victoria. HSR invariably requires complete new build, whereas faster rail at 150-200km/h can largely be achieved on existing alignments. Nevertheless, as we propose in our *InterCity* blueprint in section 4, some fast regional rail in Victoria can be developed with future interstate HSR in mind. Indeed, there are significant co-benefits in planning faster regional rail in conjunction with HSR.

HSR to Canberra, Sydney and beyond will drastically shorten 'economic distance' and will inevitably stimulate rapid growth and development in the regional centres it serves, for example at Shepparton and Wodonga.

In regional Victoria, the provision of faster (150-200km/h) rail services between Melbourne and regional cities will open up significant new lifestyle and employment opportunities and induce population redistribution through reduced travel times. For example, a one-hour rail journey from Ballarat equates to the current

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[47] "State of Australian Cities 2014-2015"

suburban train journey time from Frankston or Belgrave and is faster than a trip from Cranbourne or Pakenham.

Recent advice commissioned by the State Government strongly supports this view:

> *"Increasing connectivity between Melbourne and its hinterland will deliver an economic dividend for Victoria. Greater connectivity reduces transport costs for businesses located in these cities, and increases labour mobility.   More people will be able to live in regional Victoria and still access economic and social opportunities in the metropolitan area.   In addition, local or international tourists coming from Melbourne will have greater access and ability to visit regional Victoria."* [48]

The Marchetti Constant travel time budget of just over an hour on average has been found to apply universally across all cities:[49]

> *"Some people can go beyond an hour and some much less, but the average everywhere is an hour. This has been found over and over to apply in every city… If people find it hard to live with so much time "wasted", they move to somewhere more within their travel time budget."* [50]

Recent research by the Federal Government on long-distance commuting reiterates the Marchetti effect and finds that the direct effects of long-distance commuting are negative.[51]   In general, commuters adapt by reassessing their location and commuting options.   A high-quality service proposition for regional rail will increase long-distance commuting because the journey time can be used productively.   Equally, a much-improved regional rail network will support the economic development of regional centres, and will increase commuting flows into those centres.

Of all the Australian States, Victoria's settlement pattern most closely resembles the 'European model' of a network of connected cities within reasonable distance of each other, and improved viability of public transport services, including rail.   Victoria has a unique advantage in having radial rail corridors extending south-west (Geelong), west (Ballarat), north (Bendigo), north-east (Seymour/Shepparton) and east (Latrobe Valley), each of which can be further developed to offer viable and attractive travel alternatives.

There is considerable potential to build on the State's historical rail legacy, recent growth momentum and the past investments in *Regional Fast Rail* and *Regional Rail Link* to progress a sustainable, multi-city model of urban settlement.

Required is a formal adoption of a networked city model.   This would link regional centres with Melbourne, with each other through hubs, and with smaller towns through buses and other transport integrated with the rail network.   The key is to have a clear regular service pattern that consistently achieves reduced travel times along each corridor.

Such a network would be the physical embodiment of a "State of Cities".   This is what we propose in our *InterCity* blueprint for regional rail.

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[48] External Advisory Board Review of Regional Economic Development and Services, p.16, Final Report, July 2015, Victorian Department of Economic Development, Jobs, Transport and Resources.

[49] See: http://www.cesaremarchetti.org/archive/scan/MARCHETTI-052.pdf

[50] "Defying the 'one-hour rule' for city travel, traffic modelling drives policy madness", Peter Newman, The Conversation, 15 January 2016.

[51] BITRE (2016), "Lengthy commutes in Australia", Bureau of Infrastructure, Transport and Regional Economics (BITRE) Report 144

The *InterCity* blueprint for a transformed regional rail network is outlined in Section 4.

Before this, in the next Section, we provide an overview of Victoria's rail legacy, as a firm foundation for growth.   We also note the key performance, reliability and capacity issues, which the *InterCity* blueprint aims to resolve.

Figure 5: Victoria's rail network today
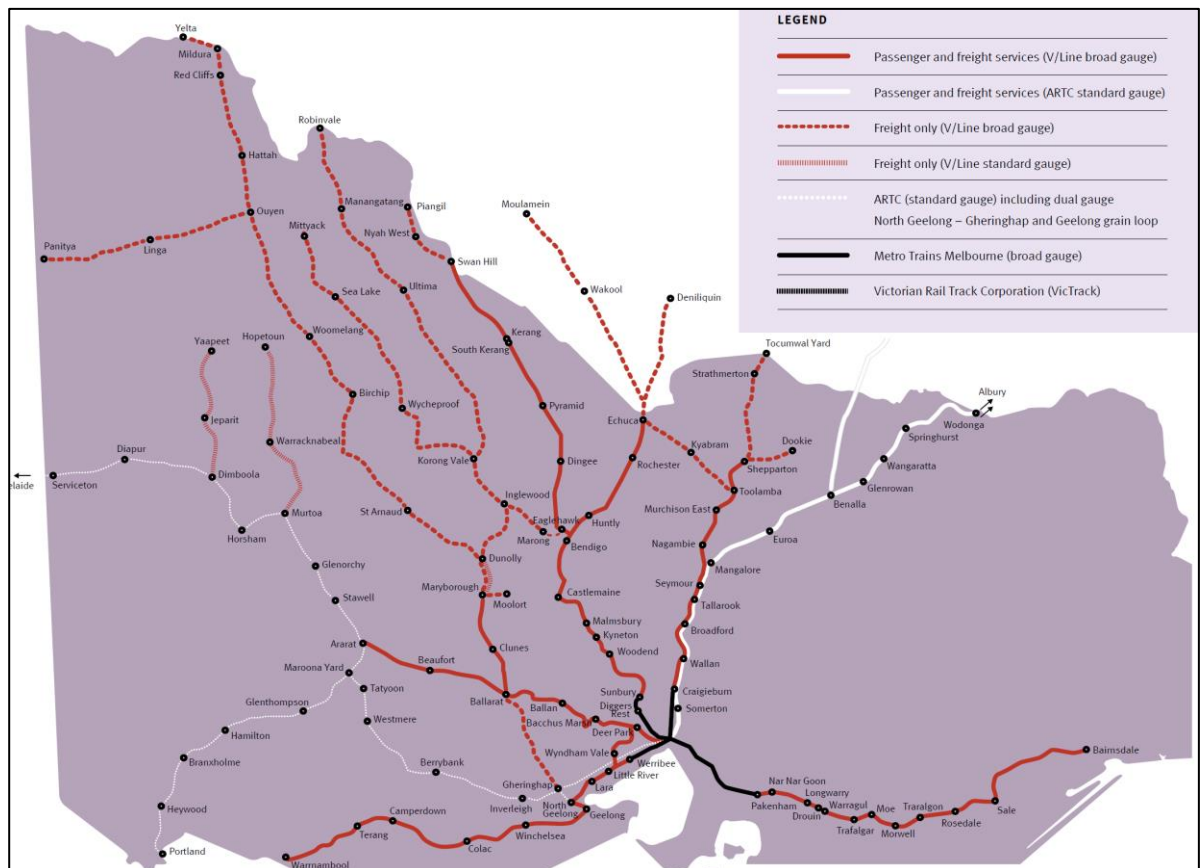
3. VICTORIA'S RAIL NETWORK TODAY

SUMMARY

Victoria has a strong rail foundation on which to build a new regional network to support growth.   This rail legacy would cost billions of dollars to build today.   It is an invaluable asset.

The V/Line regional network is multi-modal: rail provides a radial backbone of services, connecting to coordinated road coach services to smaller towns, in most cases with integrated fares and ticketing. This integration is a positive feature on which to build.

There has been a regional rail renaissance in the last 35 years, with three major investment programs, most recently Regional Rail Link (RRL).   Service frequency has been enhanced for most regular commuters.   Yet despite these investments, overall journey times have not improved, with the exception of commuter services on the Bendigo and Ballarat routes.

Perceptions of unsatisfactory service reliability are widespread amongst most V/Line users.   Service quality, as measured by punctuality and reliability, has not improved.   Furthermore, punctuality and reliability measures used by V/Line are extremely generous by international standards and are an inadequate tool for managing the level of operating discipline required to operate a reliable network.

Despite this, demand growth has been remarkable: V/Line patronage has more than doubled in the last decade.   Key factors include population growth, rising costs and congestion that discourage car travel, and new service provision under various investment programs.

Rail demand is projected to continue to grow, but significant capacity gaps will limit the ability to provide additional services.   In particular, expansion of regional rail is severely hampered by a legacy of underinvestment in Melbourne metropolitan rail infrastructure.   Major new investment is required for regional and express services to be segregated from slower metropolitan services, to increase overall capacity of the rail system.

3.1   FIRM FOUNDATIONS

Victoria has a strong rail foundation on which to build.   This rail legacy would cost billions of dollars to build today.   It provides an invaluable, under-utilised asset to support regional development.

Figure 5 shows the network today, with its mix of standard and broad gauge lines.   Five passenger routes currently radiate from Melbourne, around which freight lines hint at a much more extensive system.

Most of the key rail arteries and stations remain in place to provide the foundation for a 21st Century network. Even abandoned rail routes around regional cities and elsewhere are generally still in public ownership and capable of regeneration as demand warrants.   Examples include South Geelong to Drysdale, Bendigo to Heathcote and the former South Gippsland lines from Cranbourne to Leongatha and Nyora to Wonthaggi.

Box 2: How rail built Victoria

The railways played a pivotal role in Victoria's early settlement and development, opening up the entire State, connecting the hinterland with the capital Melbourne, providing access to ports for export of agricultural produce, and providing social and economic links between towns and cities. Indeed, at rail's peak, there was a vast network of lines reaching nearly every town.

Given the need for self-sufficiency in the State's 19th Century economy, the railways became Victoria's first major industrial undertaking.   The Victorian Railways, with almost 30,000 employees at its peak soon after World War 2, was a major institution in the life of Victorians.

Maryborough Station in its heyday, c1890s, "a railway station with a town attached" – attributed to Mark Twain, 1895.

This station has recently undergone a major refurbishment to provide a new tourist and community hub.   Our InterCity blueprint would recreate it as a transport hub.

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The advent of mass-produced motor vehicles from around the 1930s and subsequent development of the road network combined with changing transport economics and to some extent, the failure of the railways to innovate and adapt to change triggered a slow but steady decline of the rail system, punctuated by occasional advances such as the 1962 Melbourne-Sydney standard gauge project.

By the late 1970s, country passenger train service quality and patronage had declined to an historical low, characterised by ageing equipment, antiquated operational practices and a perceived irrelevance by the public.

When it reached its peak in 1942, the overall route network covered 7668km, and there were 870 stations beyond the (then) metropolitan electrified area with rail passenger services.   Today there are 1762 route km with rail passenger services served by 89 V/Line stations and a further 2041 route km of freight-only lines although some of these are currently non-operational.
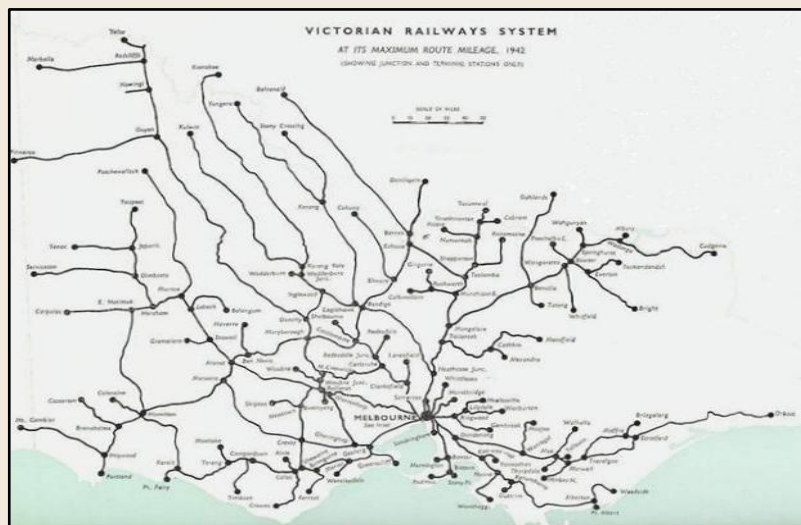
The Victorian Railways non-metropolitan network at its maximum extent in 1942

3.2   REGIONAL RAIL RENAISSANCE

Victoria now enjoys the most comprehensive and heavily patronised regional passenger rail system in Australia, providing a strong base for further improvement.   This turnaround can be attributed to three significant injections of funds and operational reforms over the last 35 years, each providing improved and revitalised services:

1. The *New Deal for Country Passengers*, initiated by the Hamer Government in 1981 and significantly accelerated by the Cain Government and Minister Crabb from 1982 to 1985, under which faster services with new air-conditioned carriages and locomotives replaced very old wooden carriages, combined with major operational and network reforms.

2. The 2002-2005 *Regional Fast Rail* (RFR) project under the Bracks Government, introducing 160 km/h operation, new VLocity trains, more frequent services and much rebuilt track and signalling, transforming the role of services to regional centres (particularly within the two-hour reach of Melbourne) resulting in major increases in patronage not seen in other States.

3. The *Regional Rail Link* (RRL) project implemented during 2014-15, the first and largest transport infrastructure project to face full Infrastructure Australia scrutiny and approval.   RRL has greatly increased network capacity by separating regional from suburban trains on the regional routes heading west from Melbourne through Sunshine.

Welcome though these investments are, their implementation has sometimes been flawed or incomplete. One example relating to gauge standardisation is outlined in Box 3.   Others are noted in Section 1.5.

The following sections will explore the extent to which these investments overall have improved regional rail, or otherwise.

A 1982 VicRail brochure promoting "The New Deal for Country Passengers"

3.3 RAIL SERVICE PATTERN AND FREQUENCIES

The passenger rail network has five radial routes from Melbourne, on which rail presently serves three general travel zones:

- **Commuting zone** including peri-urban towns, e.g. Lara, Geelong, Ballan, Ballarat, Gisborne, Woodend, Kyneton, Castlemaine, Kilmore, Broadford, Seymour, Drouin and Warragul;

- **Regional zone**, the area potentially within two hours but currently beyond reasonable commuting distance of Melbourne, e.g. Colac, Winchelsea, Bendigo, Nagambie, Shepparton, Moe, Morwell and Traralgon; and

- **Long-distance** to Warrnambool, Ararat, Swan Hill, Echuca, Shepparton, Albury/Wodonga, Sale and Bairnsdale.

Services to Albury/Wodonga currently operate on standard gauge track.   All other V/Line passenger services currently operate on broad gauge.

Service frequencies in the commuting zone have generally improved in the last ten years.   On the Geelong line, off-peak frequency on weekdays following opening of RRL is 20-60 minutes, and peak hour frequency is every 10 minutes.   On the Ballarat, Bendigo, Seymour and Traralgon lines, off-peak frequencies are 60-90 minutes, with 2-3 services per hour in the peak.

In comparison, there has been no improvement in service frequencies to Warrnambool, Swan Hill, Albury or Bairnsdale since the *New Deal for Regional Passengers* in 1981.   On weekdays, there are three return trips from Warrnambool, Ararat, Shepparton, Albury/Wodonga and Sale/Bairnsdale, two from Swan Hill, and one each from Echuca and Maryborough.

In 1993, rail passenger services to Horsham/Dimboola, Mildura, Cobram and Leongatha were discontinued. Services beyond Ballarat to Ararat and beyond Sale to Bairnsdale were also withdrawn at this time, but were reinstated in 2004.   In 2010, passenger services from Ballarat to Maryborough were also reintroduced.

3.4 JOURNEY TIMES

In 1992, the maximum speed of passenger trains in Victoria was 115km/h and almost all services were operated using locomotive-hauled carriages.   Today, many regional services are operated with high-performance VLocity diesel multiple unit (DMU)[52] trains at up to 160km/h.   However, the current maximum speed of 160km/h is only achieved on certain parts of the network within the commuting zone.   DMUs have greater acceleration and perform better on steep gradients than locomotive-hauled trains, such as on the Bendigo and Ballarat routes.

The three periods of rail investment described in Section 3.2 each resulted in significant changes to rail operating practices, improved commuting service frequency and, often, reduced journey times.   However, our analysis of journey times in 2015 compared to 1992 shows that, in general, journey times have not significantly changed.   In fact, since 1992 some journey times have increased (see Appendix A).

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[52] Diesel Multiple Units (DMUs) are diesel-powered trains that are self-propelled and do not involve haulage with a conventional locomotive.   The multiple unit designation refers to the ability to couple two or more of these trains (or units) together and be operated as a single unit under the control of one driver.

There has been negligible improvement in journey times on the Geelong and Seymour lines; on the Traralgon line they are mostly slower. Despite major investment, other than the Ballarat and Bendigo lines, benefits in terms of Melbourne-oriented journey times have not been achieved.

Long-distance services have seen no improvement. Overall, in terms of travel time, rolling stock provision, frequency and general service quality, there has been no improvement for 30 years to Warrnambool, Swan Hill, Shepparton, Albury and Bairnsdale; in several cases, journey times have actually increased.

The story for regional centres is equally unsatisfactory as peak counter-flow journey times into these centres have also increased. If rail is to be an enabler to support major regional centres as economic attractors, not just as dormitory suburbs, then rail services into these centres needs to be markedly improved.

90 years on – how much faster?

3.5 SERVICE QUALITY AND RELIABILITY

Perceptions of unsatisfactory service reliability are widespread amongst most V/Line users. This was generally confirmed during the recent consultation process to inform preparation of the impending *Regional Network Development Plan* (see Section 3.9 and Appendix B). This manifests itself through late services and train services being replaced by road coaches, mostly due to rolling stock or infrastructure defects.

More recently, serious problems with wheel condition on the VLocity fleet and a failure to actuate level crossing protection on the Dandenong line, have resulted in considerable reputational damage due to extensive service cancellations and road coach substitution over many months.

Performance of V/Line rail services is measured by two criteria: reliability, i.e. that the scheduled service actually operated as a train, and punctuality, measured by actual arrival time compared to schedule at the destination.[53] More subjective performance measures are assessed by periodic surveys.

Reliability - has a target that at least 96% of scheduled rail services will be operated for both Commuting Zone and Longer Distance services.

Punctuality - has a target that 92% of Commuting Zone services will arrive at the destination within 6 minutes of schedule, and 92% of longer distance services will arrive within 11 minutes of schedule.

These performance criteria are extremely generous by international standards and are an inadequate tool for managing the level of operating discipline for a reliable network in an increasingly constrained train path environment. Tighter margins coupled with accurate scheduling are needed to incentivise management and staff to rigorously address and rectify all controllable issues that impact upon trip times and reliability.

More appropriate on-time performance margins would be ±2 minutes for commuter services and ±5 minutes for long distance services, monitored at major intermediate stations and at origin and destination locations.

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[53] These statistics are misleading as they exclude planned substitutions of trains with road coaches. See for example: "V/Line scores perfect performance ... after cancelled trains are cut from figures", The Age, February 17 2016.

Furthermore, V/Line measures the punctuality indices as within 5 minutes and 59 seconds for Commuting Zone services, and 10 minutes 59 seconds for longer distance services, but then reports the results incorrectly as arriving within 5 and 10 minutes respectively.   This has the effect of underestimating poor punctuality.

The data in Figure 6 shows that V/Line has not met its punctuality targets in the last five years.   This excludes the recent widespread service cancellations due to wheel issues on VLocity units.

Figure 6: V/Line reliability and punctuality data

Historical trend: 2010/2011 to 2014/2015.[54]					
Commuter zone rail service					
Financial Year	*2010/2011*	*2011/2012*	*2012/2013*	*2013/2014*	*2014/2015*
Services run	98.7 %	97.6 %	97.4 %	98.2 %	98.6 %
Service punctuality	84.3 %	87.3 %	87.6 %	87.5 %	89.4 %
Long distance rail services					
Financial Year	*2010/2011*	*2011/2012*	*2012/2013*	*2013/2014*	*2014/2015*
Services run	98.7 %	99.4 %	97.4 %	98.2 %	98.7 %
Service punctuality	84.9 %	81.1 %	77.1 %	87.6 %	91.3 %
					RED denotes target NOT achieved

3.6   PATRONAGE GROWTH

Over the last ten years, V/Line patronage measured by passenger journeys has more than doubled. Projections for the next ten years are for continued patronage growth.

Growing commuter demand has been driven by service improvements together with population growth, the rising cost and inconvenience of car travel, including fuel costs, and parking and traffic congestion.   Rising employment in central Melbourne has generated demand from a larger travel-to-work area.

Further substantial patronage growth (beyond that below in Figure 7) has occurred since the introduction of full RRL services in June 2015, particularly to dormitory areas with new rail access.   Currently, the Geelong, Ballarat and Seymour corridors are experiencing above average growth from stations serving the Armstrong Creek growth area, Wyndham Vale and Tarneit (Geelong Line), Deer Park, Melton and Bacchus Marsh (Ballarat Line), and Donnybrook and Wallan (Seymour Line).

Figure 7: Increase in patronage for regional rail over the last twenty years.

Regional rail patronage growth since 1994/95				
	1994/95	2004/05	2014/15	% increases
V/Line rail passenger journeys*	5.7 million	6.4 million	13.6 million	First 10 years: **12.2%** Second 10 years: **112.5%** Over 20 years: **138.6%**
				* Excludes scheduled road coach journeys

Data provided by V/Line and VicRoads in Figure 4 shows the modal split of daily commuters to Melbourne by car and rail from four major regional centres and intermediate peri-urban towns in 2013/14.   Rail is the higher mode on three of the four *Regional Fast Rail* corridors, with the fourth not far behind.[55]

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[54] Source: V/Line Annual Reports.

Figure 8: Rail mode share of commuting journeys

Daily commuters to Melbourne from regional centres, 2013/14				
	Geelong	*Ballarat*	*Bendigo*	*Traralgon*[56]
Total numbers	16,050	7,389	4,042	5,610
Rail mode share %	**54.5%**	**67.1%**	**75.1%**	**44.5%**

Off-peak, there is strong all-day demand for rail travel to Melbourne for discretionary purposes. There is significant weekend traffic both to and from Melbourne, driven primarily by expanded retail hours, leisure and sporting activities/events, reduced working hours and more part-time employment.

Demand for long-distance journeys is also growing.   This is for day-return trips from outer regional centres both to Melbourne and into regional centres, largely for business, medical, shopping, entertainment and sporting events.   There is also tourist traffic especially to Warrnambool, Ararat (for the Grampians), Ballarat, Bendigo, Maryborough, Swan Hill and Echuca.   On weekends there is strong day-return traffic between Melbourne and regional centres in both directions.

There is also growing counter-flow commuter traffic from Melbourne, particularly to Geelong, as well as commuter travel from intermediate locations to nearby regional centres.   Demand is particularly strong within the Latrobe Valley, between Castlemaine and Bendigo, and between Lara and Geelong.   Day return trips are increasingly made to regional centres for education, shopping, medical reasons, visiting friends and relatives and for work. Such counter-flows significantly improve the economic efficiency of rail operation, because services in both directions are being patronised.

3.7   NETWORK INTEGRATION

An important feature of Victoria's regional public transport network is that it has been multi-modal for more than 30 years, in most cases with integrated fares and ticketing.   This provides a solid foundation for integrated transport planning statewide.

Rail provides a radial backbone of services, connecting to coordinated road coach services to smaller towns (see Figure 9).   V/Line also provides non-radial coach services between regional centres.   Other country bus services also coordinate with trains at major regional stations, for example from Bairnsdale to Lakes Entrance.

Many V/Line coach services are replacements for former rail routes, for example Melbourne-Leongatha-Yarram, Melbourne-Yea-Mansfield and Geelong–Ballarat.   Other routes provide a more direct and faster alternative to a previously circuitous rail route; for example, Ballarat - Hamilton.   These coach services are mostly coordinated at major regional stations to provide connections with trains to and from Melbourne, and are better patronised than the slower rail services they replaced.

In comparison, integration with local bus services at regional centres is patchy.   Geelong has provided a lead with its total revamp of urban and Bellarine Peninsula bus services, resulting in better frequencies and timetabled coordination with trains, if not always achieved in practice.   Bendigo is now following this lead; however such changes are still to occur in Ballarat and the Latrobe Valley.

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[55] See External Advisory Board Review of Regional Economic Development and Services, Final Report, July 2015, DEDJTR.

[56] Lower market share on the Traralgon corridor is likely to be attributable to uncompetitive trip times and relatively unreliable service on the Gippsland line, largely due to the interface with Metro train services between the CBD, Dandenong and Pakenham.

Melbourne's Southern Cross Station is a major coach terminal where regional rail passengers can interchange with coach services, including Skybus to Melbourne Airport, as well as with Metro trains and trams, and Bike Share.   Flinders Street Station is also a key interchange with Metro trains, trams and Bike Share.

Regional rail services interface with other travel modes at many locations:

- cycle parking facilities are provided at most V/Line stations especially within the commuter area, and facilities range from racks, to cycle lockers and secure Parkiteer cages;

- car parking is provided at most stations, although the demand for car parking outstrips supply at many commuter zone locations;

- set down bays and taxi ranks are located at major stations.

Overall, there are some exemplary features of the current regional multi-modal network.   Nevertheless, improvements are needed.   Aside from timetable co-ordination, there is no overarching network monitoring and control system to ensure that actual performance (particularly at modal interfaces) matches planned service.

There is a clear need to improve network-based planning, as we outline in Section 6.5.   This is fundamental to integrated transport planning and to meet the requirements of the TIA 2010.

Network connectivity in practice - Bairnsdale Station interchange and bus route signage (photos: Geoff Mann)

Figure 9: Victoria's integrated regional rail and road coach network[57]
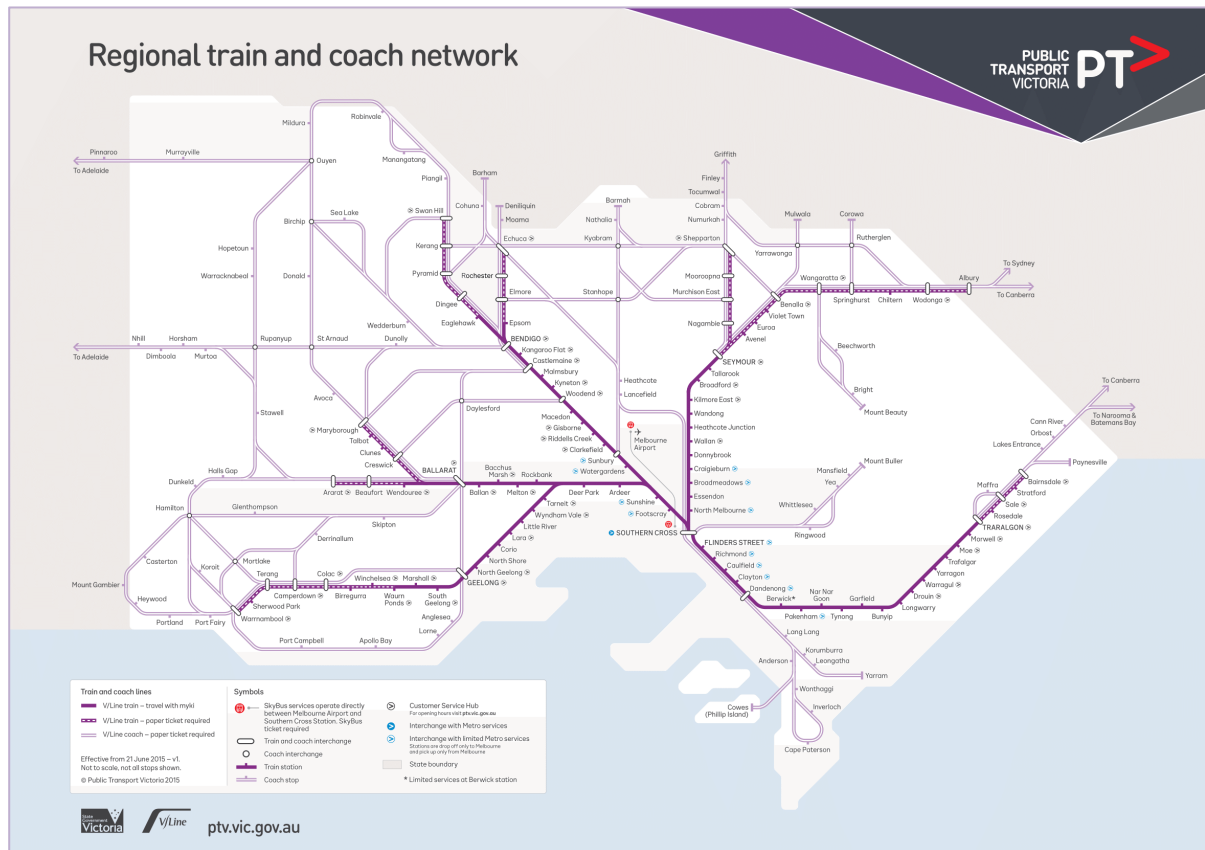
3.8 NETWORK CAPACITY AND KEY GAPS

Following completion of the RRL project, the regional network has largely been able to meet the growth in demand.   However, infrastructure capacity constraints and peak period overcrowding are now being experienced.   The situation will inevitably worsen.

Ongoing rolling stock procurement is essential for providing increased train capacity, replacing outdated rolling stock and increasing train speeds.   As the fleet of DMU trains increases and outer metropolitan electrification is extended, slower locomotive-hauled services need to be progressively phased out from all commuting zone and regional services.   DMUs also have superior acceleration and braking characteristics, which can considerably reduce journey times.

Some of the oldest rolling stock operates on the longer distance services, all of which are presently locomotive-hauled.   These carriages have been in operation for between 32 and 60 years with minimal enhancements.   Unless completely replaced in the near future with new trains that meet contemporary standards of comfort and passenger amenity, this rolling stock should now undergo substantial refurbishing and updating as part of a life extension programme.

Rationalisation of the network from the 1970s, with elimination of some crossing loops and some double tracked sections rationalised to single lines, has resulted in reduced track capacity and less flexibility in

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[57] See: https://www.vline.com.au/Maps-stations-stops/Network-Maps

timetabling.   These are now becoming bottlenecks as service frequencies have increased, and/or are inhibiting future service improvements.

Examples of past reductions in track capacity that now need to be reversed include:

- elimination of former crossing loops on the Warrnambool, Ballarat and Gippsland lines;
- Warrenheip-Ballarat East: conversion to single track; and
- Kyneton-Bendigo: conversion to single track.

More urgently, current passenger volumes are already introducing operational constraints and impacting service reliability on a number of corridors that have single track sections.   The following now require early track amplification in the form of duplication or long crossing loops:

- South Geelong-Waurn Ponds;
- Deer Park West-Melton-Ballarat; and
- Bunyip-Longwarry and Moe-Traralgon.

In addition to capacity issues on the actual regional rail network, expansion of regional services is severely hampered by a legacy of underinvestment in Melbourne's metropolitan rail infrastructure.   Demand growth in Melbourne is necessitating a far more intensive Metro operation.   Regional rail services still share Metro tracks on three of the five routes into Melbourne, and ongoing increases in Metro services are slowing or crowding out regional services.   For example:

- the Dandenong corridor comprises two tracks between South Yarra, Caulfield and Dandenong, which have to accommodate regional, Metro and freight services;
- RRL between Southern Cross and Sunshine will be at or near capacity by 2030 due to the growth of suburban and regional services;
- by 2035, the Metro lines through Sunshine will be fully utilised by suburban services from Melton/Bacchus Marsh and Sunbury, with significant impact on Bendigo services between Sunshine and Sunbury; and
- Seymour/Shepparton line services currently have to dovetail into the busy Craigieburn Metro line.

Clearly, the success and growth of regional rail has and will continue to be highly dependent on major investment in new infrastructure to provide capacity within metropolitan Melbourne.   Regional and express services need to be segregated from burgeoning metropolitan services in order to increase overall capacity for the rail system and to segregate express from slower stopping services.

3.9   PTV REGIONAL NETWORK DEVELOPMENT PLAN (RNDP)

The Victorian Government released its Regional Network Development Plan (RNDP) in May 2016.   We have outlined the inadequacies of the RNDP in Section 1.5 and Appendix B.   The new investments contained in the RNDP represent but a modest fraction of the *InterCity* Phase 1 program that we propose in Section 4.[58] The far-reaching challenges that underlie our proposals for the *InterCity* Phase 2 program are not discussed in the RNDP.

Much more is required to address existing issues and demand growth, and a step-change is required for rail to enable and not hinder regional growth.

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[58] See Appendix C for more detail on the comparison between the RNDP and the *InterCity* blueprint.

PTV undertook a comprehensive stakeholder participation to inform its Regional Network Development Plan. The findings of that participation were released in November 2015 as the *Conversation Report.*[59]

The issues raised in the RNDP *Conversation Report* provide an invaluable reflection of community perceptions in much of regional Victoria:

"*people in regional Victoria value their public transport system...*

"*they would like to use it more but the main barriers to this are:*

- *frequency of services*

- *connectivity (services getting people to where they need to go, when they need to go)*

- *capacity (particularly overcrowding on trains)*

- *reliability of services*

- *timetabling...*

"*All regions wanted more services to Melbourne that started earlier and finished later; and bus and train timetables that corresponded...*

"*A major concern by passengers across all regions is connectivity of services between regional centres and small towns. Residents felt that the connections between trains and buses could be improved; and the services both around towns and between towns were very limited. If local connections could be improved this would definitely lead to greater use of public transport in regional Victoria...*

"*Facilities, infrastructure and the on-board service were other key factors that people across regions were concerned about... inadequate car parking at stations... actual comfort and cleanliness of trains – particularly for the long distance services that feature older rolling stock – were common areas of feedback...*

"*A consistent theme throughout the regions was that it's not all about Melbourne. There is a need to focus on improving public transport within and between the regions..."*

The latter point is core to understanding the transport network necessary for a "State of Cities" to flourish. We aim to provide this through our *InterCity* blueprint.

The capacity issues outlined above are also addressed in our *InterCity* blueprint.

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[59] "Conversation Report – Regional Network Development Plan", prepared by PTV for the Victorian Government, November 2015.

Box 3: Gauge standardisation: Lessons from a failure in future-proofing

A key policy of the Bracks Government when it came to power in Victoria in 1999 was to progressively convert many of Victoria's regional rail lines to standard gauge.   Indeed, on 15 May 2001, the Bracks Government announced:

> "*an historic decision to standardise Victoria's country rail network as part of a new Regional Freight Links Program… This decision is about giving Victoria a rail system for the 21st century instead of one for the 19th century.   Mr Batchelor [Minister for Transport] said [the] program would provide funding over the next five years to standardise priority lines in Victoria's north-west, northern, north-east and western corridors that link rural industries with export ports and interstate markets.*" [60]

That program faltered because the lessee of the then-privatised regional rail network, Freight Australia, refused to co-operate with the Government on implementing the project.[61]   Nevertheless, it set a clear policy objective.

Within months of the 2001 announcement, the Government initiated its *Regional Fast Rail* (RFR) project to buy new VLocity trains and significantly upgrade the rail corridors to Geelong, Ballarat, Bendigo and Traralgon including new signalling, heavier rail and concrete sleepers.   The devil, here, lies in the detail.

Sleepers are the supports or ties for the rails, laid perpendicular and resting on stone ballast.   Normal concrete sleepers can only support one gauge, i.e. two rails, whether broad or standard gauge.   The conversion of the Melbourne-Adelaide line from broad to standard gauge in 1995 deployed special gauge convertible concrete sleepers. Based on the success of this, many transport advisers advocated the same application for the RFR project in recognition of the inevitability of further gauge standardisation being required in future.

Gauge convertible sleepers have a special fastening system that can accommodate rails of either gauge and once laid, facilitate a very fast and cost-effective completion of the gauge conversion process.   The additional cost to the RFR project to install gauge convertible sleepers at that time was an estimated 2% of the total project cost.   Concrete sleepers also have an economic life or at least 50 years.   Despite this, the Government decided not to use gauge convertible sleepers.

More lines will require conversion to standard gauge to fulfil the *InterCity* programme.   The implementation of this would be far quicker, cheaper and less disruptive if the original upgrade programs had made provision for it.

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Section 4 introduces this transformed regional rail network, integrated with HSR and Melbourne Airport. Additional detail by each route is provided in Section 5.

In Section 6, we outline the strategic policy and institutional changes that are required to deliver this blueprint and achieve the broader benefits in terms of regional development and growth.

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[60] "Bracks Government ends 120 years of different rail gauges", State Budget 2001 media release, 15 May 2001.

[61] Privatisation of the regional rail infrastructure ended in 2007 following re-purchase of the network lease by the State Government.

4. THE BLUEPRINT: *INTERCITY*

SUMMARY

InterCity is our blueprint for fast rail in regional Victoria.   This will be a key enabler of a "State of Cities" and regional growth, and provide a regional rail network for the 21st Century.

InterCity involves a phased program of investments.   Phase 1 (to 2026) delivers significant benefits in capacity, frequency, journey time and reliability, through institutional changes and relatively straightforward infrastructure and service improvements.

Phase 2 (to 2040) provides a step-change in terms of capacity and journey times, with faster trains and new lines fully segregated from the metropolitan network, including a major Melbourne Airport hub.

The new network means that regional centres will be better connected to Melbourne, to each other and to their rural hinterlands.   This transforms how people and businesses regard these regional centres as desirable places to live and work.

4.1 *INTERCITY* - REGIONAL RAIL TRANSFORMED

InterCity is a blueprint for a regional rail network for the 21st Century, to lead and support regional growth and development.   It aims to significantly improve connectedness and support new economic activity.

InterCity will create a European-style rail network with greater service intensity and integration between transport modes. The main features are:

- faster, regular rail services linking major regional centres, with clear route patterns;

- a major new Melbourne Airport hub new line served by regional rail, a CBD airport shuttle and designed for future High Speed Rail (HSR);

- new fast lines on the Geelong, Bendigo and Seymour routes, fully segregated from the metropolitan rail network;

- removal of impediments to fast running through the metropolitan area for Ballarat and Gippsland services by track quadruplication and provision of long passing loops;

- *Cross-Country* regional rail routes linking regional cities to each other; and

- much improved service reliability, through more robust infrastructure, new rolling stock, institutional changes and greater proficiency in operational and engineering management.

The route maps below show that more regional towns and cities are brought within 90 minutes of Melbourne. The maps also show how regional centres are better connected to each other and to their rural hinterlands. This transforms how people and businesses regard these regional centres as desirable places to live and work.

Faster regional rail will be competitive with travel times by car and will expand the area of regional Victoria with good access to jobs and services.   The *InterCity* network will significantly improve commuting journeys to Melbourne and, most importantly, journeys into regional centres.

The regional rail service proposition is highly dependent on quality as well as speed and reliability.   Journey times of up to 90 minutes can still be attractive to some commuters if the journey is comfortable and the time can be used productively.   The Marchetti Constant (noted in Section 2, Proposition 3 above) will still apply, as commuters realise the new potential offered by the *InterCity* blueprint and adapt accordingly.

4.2   PHASED INVESTMENT PROGRAM

InterCity involves a phased program of investments:

- **Phase 1** (to 2026) delivers significant benefits in capacity, frequency, journey time, reliability and passenger amenity through relatively straightforward infrastructure and service improvements, and essential changes to institutional and governance arrangements.

- **Phase 2** (to 2040) provides a step-change in capacity and journey times, with faster trains and new lines, including a Melbourne Airport hub.

Key investments and benefits are shown in Figure 10 and described in more detail in Section 5.

The strategic policy and governance changes necessary to deliver these are set out in Section 6.   Assessment of the business case and implementation issues are discussed in Section 7.

Figure 10: *InterCity* **phased investment program**

Phase	By	Key investment	Key benefits
1	2026	Incremental improvements to the existing network, with a new service pattern and new rolling stock.	New services, greater frequency, increased capacity, reduced journey times, and much improved reliability and passenger amenity.
2	2030	New line: CBD to Melbourne Airport, built to HSR standards.	Melbourne Airport rail shuttle.
	2035	New lines: Melbourne Airport to the Bendigo and Seymour routes.	Faster and more frequent services on the Bendigo, Seymour/Shepparton and Albury routes.
	2040	New fast line to Geelong.	Faster and more frequent regional services to Geelong, Colac and Warrnambool.

4.2.1   PHASE 1: TO 2026

Significant benefits in capacity, journey time and reliability can be achieved in the short-term, through relatively straightforward infrastructure and service improvements.   These include:

- line speed upgrades, improved signalling and level crossing protection and capacity/reliability upgrades including duplication of some single track sections;

- new timetabling with regular clock-face departures and clear paths for regional expresses;

- increased frequency on most lines with alternate fast and stopping off-peak services;

- additional rolling stock for commuter zone services and new trains for long distance services, coupled with improved rolling stock utilisation, enabling greater passenger capacity and additional services on most corridors;

- quadruplication of the Caulfield-Dandenong line, which is critical for improved regional services and is explored in more detail in Section 5.5 and Box 3;

- standard gauge conversion of lines from Geelong (Gheringhap) to Ballarat and Maryborough as part of the Murray Basin Rail Project and from Ballarat to Ararat, enabling a new Cross-Country network of regional services between major regional centres in the west, including Geelong-Ballarat and restoration of services to Horsham (see Section 4.7);

- improved interchange and integration with local bus services and other transport modes, including major new "Parkway" station developments at Corio, Warrenheip and Kangaroo Flat; and

- upgrading of station facilities, amenities and accessibility, and network-wide updating of MYKI ticketing system.

Figure 11: Proposed *InterCity* regional rail passenger network at the conclusion of Phase 1 –to 2026
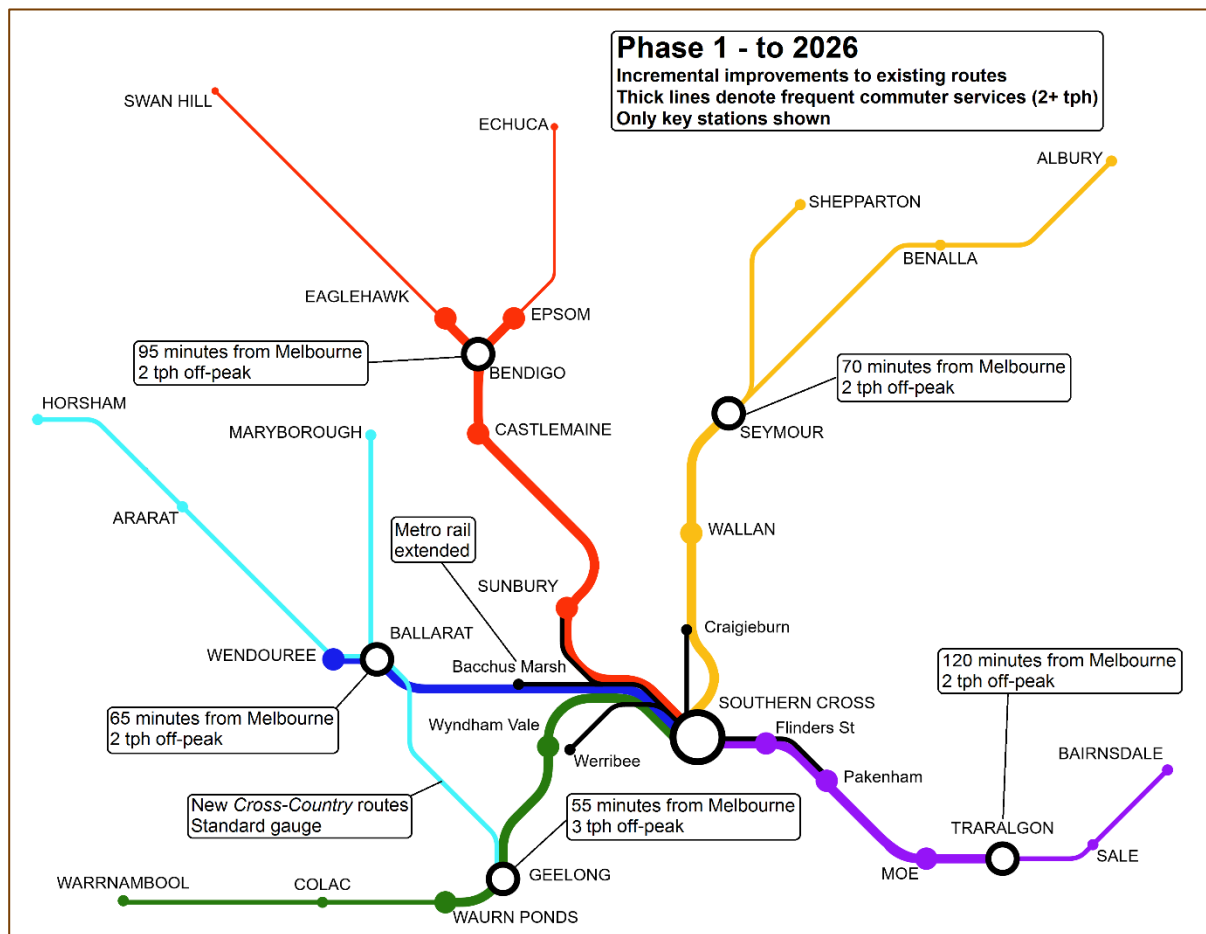
Phase 1 provides incremental changes through affordable investments over a 10-year period.   It can be achieved relatively quickly, within election cycles.

During Phase 1, electrified Metro operation would be extended from Sunshine to Melton and Bacchus Marsh, including rail/rail grade separation at Sunshine and quadruplication from Sunshine to Deer Park.   This would remove Melton/Bacchus Marsh trains from the RRL lines between Southern Cross, Sunshine and Deer Park West, but would still involve interaction with Ballarat trains between Deer Park West and Bacchus Marsh. This new infrastructure will be sufficient in Phase 1 but will require further investment early in Phase 2.

Capacity constraints elsewhere in the Melbourne metropolitan area will pose increasing limits on reliability, frequency and journey times (see Section 3.83.8).   These are addressed in Phase 2.

Phase 1 also includes a fundamental shift in transport governance, to actively integrate planning across transport modes and to deliver on the objectives of the TIA 2010.

4.2.2   PHASE 2: TO 2040

Major improvements in capacity, journey times and frequencies will be achieved in Phase 2 by building new lines, largely in the Melbourne area, and introducing new trains capable of 200km/h.   The staged program ensures a progression of major infrastructure projects to 2040.

InterCity provides an outstanding opportunity to create an integrated design for fast regional rail on the Bendigo and Seymour routes, a new Melbourne Airport link and future HSR to the Riverina, Canberra and Sydney.   This synergy will improve return on investment, through economies of scale, and boost rail travel demand as a result of integrated network planning.

Figure 12: Proposed *InterCity* regional rail passenger network at the conclusion of Phase 2 – to in 2040
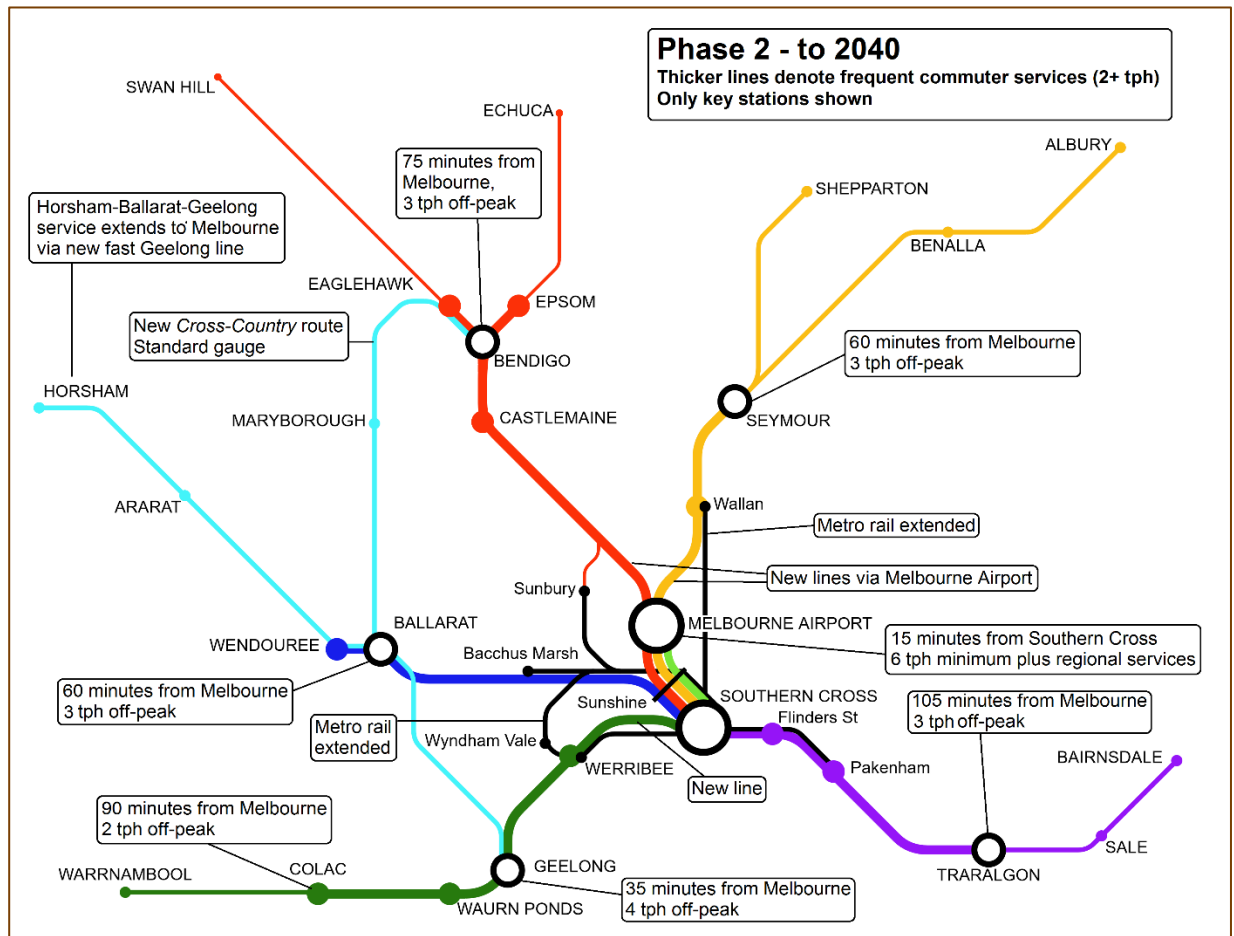
Importantly, the new route via Melbourne Airport to the Seymour line at Wallan will be built to HSR standards, but this investment is not dependent on the full HSR route to Sydney.   Rather, the new line through Melbourne Airport to Wallan would become the first phase of a future HSR line to Shepparton, Albury and beyond.

Principal Phase 2 works include:

- further line speed upgrades, including 200km/h operation where achievable;
- a new fast line from Southern Cross to Melbourne Airport shared between regional services, an Airport Shuttle and eventually HSR, with an inner-suburban interchange at Sunshine (see Section 4.5 below);
- a new line for Bendigo trains, extended from the new transport hub at Melbourne Airport to re-join the existing Bendigo line near Clarkefield;
- a new line for Seymour, Shepparton and Albury trains, built to HSR standards from Melbourne Airport to an interchange with Metro services at Wallan;
- a new fast line to Geelong connecting to the Phase 1 Cross-Country routes to Ballarat and Horsham;
- additional tracks on parts of the Ballarat and Gippsland lines shared with metropolitan trains to enable fast regional trains to operate without being impeded by slower stopping trains;
- connecting Bendigo into the network of Cross-Country services; and
- progressive conversion of additional lines from broad gauge to standard gauge.

Concurrent with Phase 2, changes to the metropolitan network would include an extension of the Melbourne Metro (MM) tunnel from South Yarra to Caulfield, electrified Metro operation on the *Regional Rail Link* (RRL)

lines from Southern Cross to Wyndham Vale, a new connecting line from Werribee to Wyndham Vale and extension of electrification from Craigieburn to Wallan.

The new lines in Phase 2 will allow *InterCity* services on the Geelong, Bendigo and Seymour lines to become fully independent of Metro services.   Additional long loops on sections of the Melton and Pakenham lines will allow unimpeded running of Ballarat and Gippsland trains respectively, by overtaking stopping Metro trains.

While beyond the scope of this paper, it is assumed that the proposed rail network will be supported by closely connected road coach, local bus services and improved walking and cycling connections which together will form the statewide public integrated transport network essential to create a "State of Cities".

The *InterCity* phased investment plan is described in greater detail, region by region, in Section 5.

4.3   SERVICE PATTERNS

InterCity features three overlaid service patterns:

- **Regional commuter**: up to 90 minutes from Melbourne, frequent services (at a minimum of 2 tph (trains per hour) off-peak) and

- **Long-distance**: destinations beyond the commuter ring with much-improved journey times, express running through the commuter area and progressively increased service frequencies, e.g. Warrnambool, Swan Hill, Shepparton, Wodonga/Albury, Sale and Bairnsdale; and

- **Cross-Country**: routes into and between regional centres, e.g. direct Geelong-Ballarat-Maryborough-Bendigo service.

Service frequency is a key determinant of perceived service quality and is often a factor in reducing actual door-to-door journey times, especially where inter-connecting services are involved.   It is a particularly important factor in increasing the attractiveness of rail as a viable alternative to car travel.

InterCity provides minimum service frequency levels on all regional commuter routes and progressively enhanced service frequency on long distance services, consistent with known and anticipated travel patterns and efficient rolling stock utilisation.

Indicative *InterCity* service frequencies are shown in Figure 13.

InterCity also provides for the progressive introduction of local metro rail networks within regional centres, such as Geelong, Ballarat, Bendigo and within the Latrobe corridor, generally aligned to population growth within these centres.   *InterCity* services would dovetail with local metro services, integrated with buses and other modes including cycling.   These major improvements in connectivity within regional centres will further improve their strength as economic hubs.

A further benefit of the *InterCity* route pattern is that it allows for regional centres to be connected directly across Melbourne, often without the need to change trains.   For example, the Traralgon regional service at 2tph could extend alternately to Bendigo via Melbourne Airport and to Ballarat.

Figure 13: Service frequencies: 2016 compared to indicative InterCity Phases 1 and 2

Regional commuter services (trains per hour)							
		2016 (actual)		*Phase I (by 2026)*		*Phase II (by 2040)*	
Corridor	*Service*	*Peak*	*Off-peak*	*Peak*	*Off-peak*	*Peak*	*Off-peak*
South-West	Melbourne-Geelong	5	3	6	3	8	4
	Melbourne-Colac	nil	nil	1	1	2	2
West	Melbourne-Ballarat	2.5	1	3	2	4	3
North-West	Melbourne-Bendigo	3	1	3	2	4	3
North-East	Melbourne-Seymour	1.5	<1	3	2	4	3
	Melbourne-Shepparton	see below	see below	1	0.5	2	1
East	Melbourne-Warragul	1.5	1	3	2	4	3
	Melbourne-Traralgon	1.5	1	3	2	4	3
Long distance services (trains per day in each direction)							
		2016 (actual)		*Phase I (by 2026)*		*Phase II (by 2040)*	
Corridor	*Service*	*weekdays*	*weekends*	*weekdays*	*weekends*	*weekdays*	*weekends*
South-West	Melbourne-Warrnambool	3	3/2**	5	4	7	5
West	Melbourne-Ararat	3	2	5*	3*	5	4
	Melbourne-Horsham	nil	nil	3*	3*	5	4
North-West	Melbourne-Echuca	1	2	3	3	4	4
	Melbourne-Swan Hill	2	2	3	3	4	4
North-East	Melbourne-Shepparton	3.5	2	see above	see above	see above	see above
	Melbourne-Albury	3	3	5	4	7	5
East	Melbourne-Bairnsdale	3	3/2**	5	4	7	5
Cross-Country	Geelong-Ballarat	nil	nil	8	4	10	6
	Ballarat-Bendigo	nil	nil	nil	nil	6	4
* originating at Ballarat (with connections ex Melbourne) **Saturdays/Sundays							

4.4 JOURNEY TIMES

InterCity recognises that, other than to Ballarat and Bendigo, regional rail journey times have barely improved since 1992, despite major investment programs and new VLocity trains. Journeys from all long distance centres are actually slower than in 1992 (see Appendix A).

Therefore, Phase 1 delivers track upgrading for full 160km/h operation on commuter lines (to complete the earlier *Regional Fast Rail* project), coupled with selective track duplication and signalling and level crossing protection upgrades. This will provide necessary route capacity, further reduce journey times and significantly improve service reliability.

Phase 2 will deliver 150-200km/h speeds on commuter services, and 130km/h across much of the extended regional network and thus achieve a step-change improvement in journey times and reliability across Victoria.

Improved journey times are shown in Figure 14.

Figure 14: Typical journey times in 2016 compared to InterCity in 2026 and 2040

Corridor	Service	Current rail distance (km)	Typical journey times (Minutes)			Percentage improvement 2015 to 2040
			2016	Phase I (by 2026)	Phase II (by 2040)	
South-West	Melbourne-Geelong	81	60	55	35**	42%
	Melbourne-Colac	161	130	110	90**	31%
West	Melbourne-Ballarat	115	75	65	60	20%
	Melbourne-Ararat	207	135	125	115	15%
North-West	Melbourne-Bendigo	162	110	95	75*	32%
North-East	Melbourne-Seymour	99	85	70	60*	29%
	Melbourne-Shepparton	182	155	120	110*	29%
	Melbourne-Albury	317	230	185	165*	28%
East	Melbourne-Warragul	100	100	85	70	30%
	Melbourne-Traralgon	158	145	120	105	28%
Cross-Country	Geelong-Ballarat	83	-	55	50	
	Ballarat-Bendigo	179	-	-	120	
Interstate High Speed Rail (HSR) – subsequent to Phase II						
North-East	Melbourne-Shepparton		-	-	48*	
	Melbourne-Albury		-	-	72*	
* via Melbourne Airport ** via new proposed Geelong fast line						

While it is not viable to raise speeds beyond 130km/h on the long-distance network, substantial time savings can be achieved through modest track upgrades, utilising the higher performance potential of new trains and new service patterns, including re-introduction of limited express services.   There may be potential to further increase speeds in the longer term with new technology, for example in rolling stock and signalling, and selective track upgrades.

Increasing line speeds will require an expansion of the existing level crossing protection program.   200km/h operations on selected corridors will require grade separation of road and rail to improve safety and reliability, and to reduce road delays as rail services become more frequent.   This is a high priority component in the *InterCity* program, and will also deliver major benefits to road users.

4.5   MELBOURNE AIRPORT

Melbourne Airport is a trip generator comparable to existing regional cities but is currently not connected to the rail network.   It generates unsustainable levels of car congestion, which has prompted the $1.3 billion CityLink Tullamarine Freeway widening.

> *"There is increasing evidence to suggest that without the provision of a rail link to Melbourne Airport, land-based transport constraints associated with congestion on CityLink and the Tullamarine Freeway and the lack*

of alternative transport modes, has the potential to negatively impact on Melbourne's status as a global city."[62]

Melbourne Airport, carrying 33 million passengers per annum currently and projected to increase to 63 million, is a major employment and activity centre, providing very strong potential demand for rail services. However, PTV's 2012 proposal[63] for a rail link was flawed:

- journey times were not competitive with taxis, private cars or Skybus;
- service reliability would be questionable with Airport trains via Melbourne Metro originating 80+ km away at Pakenham or Cranbourne/Clyde and competing for constrained network capacity with Metro services facing burgeoning demand to/from Sunbury and Melton/Bacchus Marsh; and
- dedicated, purpose built trains would not be provided, and suburban Metro services would be unattractive to most Airport users.

InterCity transforms the proposition by providing a new fast route on a segregated line from Southern Cross to Melbourne Airport, to be shared with future interstate high-speed rail (HSR) and *InterCity* services (see Figure 12). The Airport then becomes a major multi-modal transport hub. City airline check-in and luggage drop facilities would also be provided at Southern Cross station.

Beyond Melbourne Airport, new lines will extend northwards to the Bendigo and Seymour routes, the latter built to HSR standards. In addition, a dedicated airport service will provide a reliable 15-minute journey time to the CBD, with 10-minute frequencies, stopping only at Sunshine for interchange with Metro and other *InterCity* services.

Major synergies will be achieved by co-designing and building a new rail corridor combining HSR, *InterCity* and a new Airport link. The route from Southern Cross Station would be partially in tunnel and partially on the surface or elevated, with line speeds of 160 to 200 km/h.

The proposed Melbourne Airport corridor is the first major component in Phase 2. It is essential that detailed planning commences as soon as possible, to determine and safeguard its final alignment. Finalised rail alignments within the Melbourne Airport boundaries must also be confirmed in the Airport's next 20 year Masterplan, due for release in late 2018.

4.6   HIGH SPEED RAIL (HSR)

Australia has been among the slowest of developed nations in adopting HSR. The Commonwealth Government has recently put consideration of a new HSR line built to 300-350km/h linking Melbourne, Canberra, Sydney and Brisbane back on its agenda.

There is an ongoing debate over the perceived high costs relative to Sydney-Melbourne air travel, and on the potential for value capture along the route. However, equally important is the transformative effect HSR will have on regional centres along the route. The new line will transform settlement patterns on Australia's east coast including in Victoria. For example, journey times to Melbourne from Albury/Wodonga would be 72 minutes, from Shepparton 48 minutes, and from Seymour 30 minutes.

The Government's 2013 High Speed Rail Study estimated a cost of $114 billion (2012 dollars), of which the more viable Melbourne-Canberra-Sydney component was estimated to cost $50 billion.

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[62] "Melbourne Airport Rail Link: The key to a global city?" discussion paper by Essential Economics Pty Ltd, 21 July 2010.

[63] "Network Development Plan: Metropolitan rail", Public Transport Victoria, December 2012, pp.97-104. This proposal was extensively promoted by the then Victorian Government prior to the November 2014 State election, with completion expected in 2026/27.

Another detailed study undertaken in early 2014 for Beyond Zero Emissions[64] estimated the total project cost at $84.3 billion, inclusive of rolling stock.   This study estimated the Melbourne-Sydney HSR infrastructure component at $37.0 billion.   However, unlike the Government study, this study adopted the Melbourne HSR exit route via Melbourne Airport, as also proposed in this *InterCity* blueprint.

The entire Melbourne-Brisbane project has recently been costed by Aurecon Consultants for the Australasian Railway Association (ARA) at $63 billion.[65]   If achievable, this would suggest that a competitively tendered Melbourne-Canberra-Sydney project cost might be nearer $30 billion.   The Aurecon study involved extensive benchmarking with other HSR projects worldwide.

It now seems more likely that Australia will be building HSR within the next two decades.   This provides an opportunity to co-design with new lines serving regional trains on the Seymour/Shepparton/Albury and Bendigo lines.   Regional services would share part of the HSR route on the Melbourne approaches.

HSR could be considered a Phase 3 of *InterCity*, but it requires strong leadership and commitment from the Federal Government.   In this sense, the new *InterCity* line through Melbourne Airport would demonstrate a commitment to HSR by Victoria at the Melbourne end.

It is now vital that the Commonwealth Government establishes engineering standards for national HSR so that Victoria can build the route section via Melbourne Airport to Wallan to HSR standards.

It is also essential that State-owned land in the Dynon area be safeguarded for future use by HSR.   Proposed designs for the Western Distributor freeway indicate include that major road junctions are being planned for this area.   These need to be urgently reassessed in the context of strategic integrated planning, and inappropriate road designs rejected.   This is part of the State's statutory obligations under the TIA to integrate transport decision making.

4.7   *CROSS-COUNTRY* REGIONAL ROUTES

A "State of Cities" requires a transport network that provides direct links between major regional centres, without necessarily having to travel via Melbourne.   Currently, the passenger rail network is radial from Melbourne, but *InterCity* will create new *Cross-Country* routes directly linking regional centres.   For example:

- services that run from one region to another through Melbourne, e.g. Bendigo to the Latrobe Valley via Melbourne Airport;
- re-introducing services to Horsham from Ararat and Ballarat; and
- a Geelong-Ballarat service would benefit both cities and towns between, including the rapidly growing populations of Batesford and Bannockburn in Golden Plains Shire.

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[64] "Zero Carbon Australia: – High Speed Rail", report by Beyond Zero Emissions, Melbourne Energy Institute and German Aerospace Centre, April 2014.

[65] "The Potential Impacts of High Speed Passenger Rail to Eastern Australia – Discussion Paper", Aurecon Consultants for Australasian Railway Association, October 2014.

Much depends on the *Murray Basin Rail Project* (MBRP), which will upgrade and standardise freight routes from Geelong north to the Murray.   In August 2015, the Victorian Government committed to funding $220 million of the full $416 million package of the MBRP works and sought a contribution from the Commonwealth for the balance.[66]   Subsequently, in April 2016 the Commonwealth agreed to match the State's contribution towards the project.[67]

InterCity provides the opportunity to resolve long-standing issues relating to track gauges and to finally overcome the lack of earlier future proofing for subsequent gauge standardisation (see Box 3).[68]   The MBRP offers potential synergies to provide an initial step in creating a new network for passenger and freight services.

Our proposal is for a core network of *Cross-Country* routes centred on Ballarat, operating on standard gauge, and connecting at Ballarat with fast frequent broad gauge services to Melbourne via Ballan.   New Phase 2 lines built to standard gauge will include the new lines to Melbourne Airport and Wallan, and the Geelong express route.   Phase 2 would also include additional gauge standardisation, e.g. from Wallan to Seymour and Shepparton, and Bendigo to Inglewood (linked to Dunolly, Maryborough and Ballarat).   These rail routes would be complemented by an extensive network of *Cross-Country* road coach services linking other key centres, e.g. between Bendigo and Shepparton.

Restoration of passenger rail services between Geelong and Ballarat and later to Bendigo exemplifies the network benefits that *InterCity* would bring.   Geelong, Ballarat and Bendigo will essentially become regional rail hubs, well connected to each other and to Melbourne.

4.8   NEW CENTRES, NEW TRAVEL PATTERNS

InterCity will create new travel patterns based on new rail services.   As regional centres grow, they will generate inward travel flows.   This will help balance the flows from those centres outwards to Melbourne. Routes like Geelong to Ballarat, with a potential 50-minute journey time, will generate significant concurrent flows.   These counter-flows improve the economic efficiency of rail operation as maximum use is made of assets.   They will represent journeys to medical, educational and employment opportunities in regional cities, as well as cultural and sporting events.

As regional travel increases into major centres such as Bendigo, Ballarat and Latrobe City, including from intermediate peri-urban areas, local rail networks will be used more intensively.   There are opportunities to increase capacity on radial routes into regional centres, with additional services, new stations and reopened rail routes, integrated with local buses and light rail.   This is precisely the future for regional centres that *InterCity* will help create.

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[66] See: http://www.premier.vic.gov.au/labor-government-backs-full-murray-basin-rail-project/ .   However, media reports indicate a further commitment from the Premier to "*deliver it* [the MBRP project] *in full by the end of 2018, even without Federal Government support*".

[67] See: http://minister.infrastructure.gov.au/chester/releases/2016/April/dc040_2016.aspx

[68] Track gauge refers to the distance between the rails.   Incompatibility between differing track gauges has bedevilled Australia's railways since the mid-19th Century.   In Victoria, almost all lines were originally laid as broad gauge.   Since the 1960s, various lines have been progressively converted to standard gauge to allow compatibility with lines in the other States.

4.9   THE REGIONS TRANSFORMED

InterCity will be a key enabler of a "State of Cities" and regional growth, much of which will be induced to better balance growth in metropolitan Melbourne.   This will bring multiple benefits:

- **Regional population change** - Improved rail services will expand the reach of the Melbourne commuting area and result in faster than forecast population growth in areas served by InterCity. There will be a net benefit to the State as a whole because growth in regional areas can be achieved more efficiently and at lower cost than growth in Melbourne.

- **Business development** – Population growth in regional locations will generate multiplier effects, in turn creating further investment in a wide range of business activities, leading to new enterprises and employment.

- **Strategic Integration** – Improved passenger rail service will facilitate closer integration of the economies of regional centres and Melbourne, generating synergies and improving the potential for Melbourne to become Australia's leading centre for international finance, trade and communications. A reduction in travel times will encourage more daily business and educational travel as people find it more convenient to attend meetings, seminars and courses in Melbourne and regional centres. More intensive communications within and between businesses has benefits in terms of faster dissemination of information and intelligence about new techniques and market conditions.

- **Services sector growth** – Regional population growth will stimulate the development and expansion of major medical and educational institutions, each with significant amenity, employment and wider economic benefits.   These services are highly significant for retention and expansion of regional populations.

- **Labour market efficiencies** – Improved rail travel between Melbourne and regional centres will open up access to a much wider labour pool for business in regional centres while access to jobs in Metropolitan Melbourne will be improved for regional residents.   Skill shortages then become less of an impediment to business and economic development.

- **Tourism growth** – Travel time is a key determinant of the level of visitation to tourism attractions. Improved rail services will increase the flow of visitors to the many tourist and cultural attractions in Victorian regional cities and towns, and the market for new attractions in regional locations will be increased.   This will lead to further investment.

- **Safety benefits** - Any shift from road to rail travel will reduce the potential for death and trauma from road accidents, since rail travel is vastly safer than travel by car.

- **Environmental benefits** – Rail is more fuel efficient per passenger kilometre than car travel.   A shift from road to rail travel will reduce the overall energy requirements for travel, and reduce motor vehicle-related pollution effects including carbon emissions.

In the following section, we will introduce our *InterCity* blueprint in more detail, and show what is required to address the rail capacity gaps highlighted in Section3.8, and improve journey times, performance and the overall rail travel experience.

5. *INTERCITY* PHASED INVESTMENT PROGRAM

SUMMARY

The *InterCity* phased investment program has been carefully designed to allow projects to be progressively brought on stream over a 25-year period.   It is ambitious but achievable.

The program proposes incremental improvements in Phase 1 (to 2026) which will yield significant benefits in improved journey times, service frequency and reliability.   These improvements involve infrastructure enhancements, smarter scheduling and better interchange and integration with other transport modes.

Major improvements in journey times and frequencies and overall network connectivity will be achieved Phase 2 (by 2040) through a rolling program of new fast regional lines and high performance rolling stock.

This section describes the phased investment program in more detail.   It looks in turn at each of the five radial routes from Melbourne and the proposed *Cross-Country* services that will directly connect regional centres.

5.1   SOUTH-WEST: GEELONG AND WARRNAMBOOL

Rail investment is barely keeping up with demand growth in the Geelong corridor.   RRL has delivered a new rail line segregated from suburban trains and has improved the service frequency to Geelong but, being 8 km longer, has not improved journey times.

For Geelong, the gains from RRL will be short-lived as metropolitan travel demand rapidly grows along the new route through Tarneit and Wyndham Vale and starts to overwhelm regional trains designed for longer trips.   The RRL route through Tarneit will therefore need to become an electrified Metro route with an intensive suburban service.   Werribee suburban services will also be extended to Wyndham Vale via a new link, with an interchange at Black Forest Road.

By 2030, RRL capacity will be fully utilised from Southern Cross to Sunshine due to demand growth from the western suburbs and Ballarat and Bendigo lines.   In Phase 2 this will trigger the need for a new fast line to serve the Geelong region, as detailed below.

In Phase 1, at Corio, the present poorly patronised station would be replaced with a major new Parkway station near the junction of the Princes Freeway and Geelong Ring Road, with the potential to provide up to 3,000 park and ride spaces and a major urban bus interchange.

South of Geelong, the main limiting factor is the single track from South Geelong to the present commuting zone terminus and planned stabling facilities at Waurn Ponds.   This requires duplication in the short-term (Phase 1) bringing immediate benefits in terms of service frequency and reliability.

The short, single-track tunnel immediately south of Geelong Station will be problematic and expensive to duplicate, but will become a bottleneck as services intensify.   This should be addressed in Phase 1 before services intensify, most likely in conjunction with grade-separation of level crossings around South Geelong.

Phase 1 will also see the introduction of new trains to service the Warrnambool line, with immediate benefits to trip times, service frequency and passenger comfort.

The population of Geelong is likely to exceed 500,000 by mid-century.   Before then, a new fast rail line will be required from Geelong to the Melbourne CBD.   This new line will allow greater frequency with a 200km/h alignment to achieve a 35-minute journey time.   It will transform Geelong as a regional centre, and have a ripple effect through its hinterland.   It will also allow extension of regular commuter services beyond Waurn Ponds to Winchelsea and Colac.

The new Geelong fast line would incorporate parts of the existing rail infrastructure beyond the Werribee/Little River area and be constructed to standard gauge as part of a wider network reconfiguration which would progressively flow from the MBRP (see Section 5.2).

There are various route options for the new fast line, for example:

- underground from Southern Cross via Fishermans Bend to Newport, then on the existing corridor via Laverton and Werribee;
- from Southern Cross on a new alignment to South Kensington, beneath Footscray then via the Princes Highway corridor and the Old Geelong Road to near Williams Landing, then on the existing corridor via Werribee; or
- from Southern Cross on a new alignment to South Kensington, beneath Footscray then via the Princes Highway, Somerville Road, Middle Road and Outer Metropolitan Ring corridors to Little River.

Under the first two options, Werribee would become a key interchange with metropolitan services and potential links to the proposed East Werribee Employment Precinct. Quadruplication would also be necessary to fully segregate Werribee/Wyndham Vale suburban services from the new Geelong fast line. All of these options have the potential to be routed via Avalon Airport, if justified by passenger throughput.

Standard gauge conversion of the Geelong to Warrnambool line would be a subsequent stage in Phase 2. This would ideally be undertaken at the same time as line upgrades to 160km/h on the Geelong-Colac section and to 130km/h for the new trains on the Colac-Warrnambool section.

As Geelong edges towards a population of half a million, there is an opportunity to develop a rail-based *Geelong Metro* service. This could include a new line from South Geelong to Drysdale (using the protected former Queenscliff line reservation) which would serve (with connecting buses) the entire Bellarine Peninsula. Another new line from Marshall to Torquay would serve the popular Surf Coast region and rapidly growing suburbs of Armstrong Creek and Mount Duneed. With regular services to Lara, Bannockburn, Drysdale and Torquay, *Geelong Metro* would dovetail into *InterCity* services to Waurn Ponds, extended to serve Moriac, Winchelsea and Colac (see Figure 15).

Geelong Station will become the hub of this new network in the south-west. It will need to expand, with an additional platform on the west side and additional standard gauge running tracks provided at the north end, providing a four-track approach beneath the LaTrobe Terrace flyover.
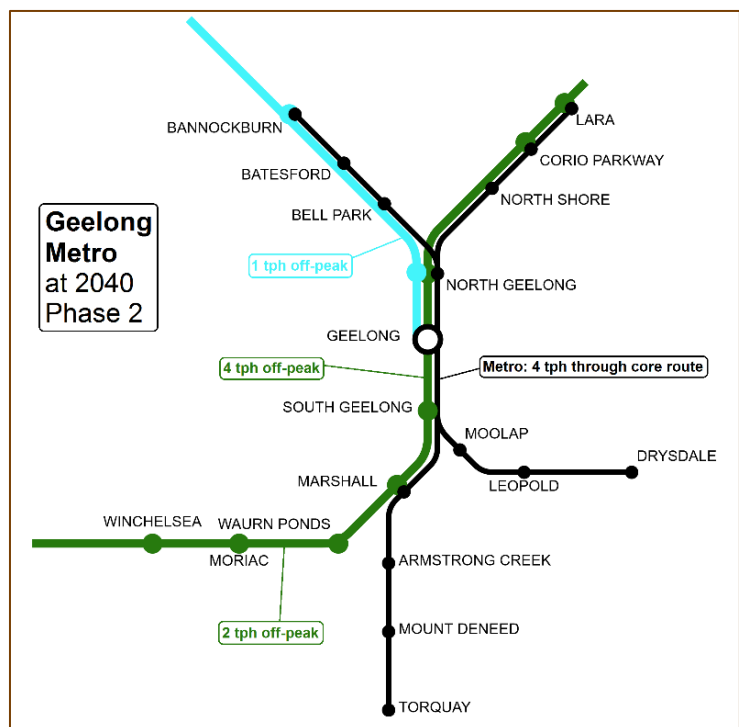

Figure 15: Geelong Metro

South West: Geelong and Warrnambool lines - phased investment program		
Phase	Key investments	Journey time (Minutes)
1	Development of Corio Parkway station. New standard gauge track North Geelong to Geelong Station for Geelong-Ballarat line and future 'Geelong Metro' services.	Geelong-Melbourne: 50
	Duplicate/rebuild tunnel beyond Geelong station (completed in Phase 2). Duplication South Geelong to Waurn Ponds. Upgrading of Waurn Ponds to Colac line section for VLocity operation at 130km/h and new VLocity services to Colac extended from Waurn Ponds. Warrnambool line - additional crossing loops to support increased service frequencies to Colac and Warrnambool.	Colac-Melbourne: 105
	New long distance trains operate Melbourne to Warrnambool.	Warrnambool-Melbourne: 180
2	New direct 200km/h standard gauge line Melbourne to Geelong.	Geelong-Melbourne: 35
	RRL lines electrification Southern Cross to Wyndham Vale, and Werribee to Wyndham Vale extension for Metro services.	
	Development of 'Geelong Metro' and expansion of Geelong Station including an additional west side platform.	
	Standard gauge conversion of Geelong to Warrnambool line including further upgrade of Waurn Ponds to Colac section to 160km/h for regular commuter services to Melbourne, and Colac to Warrnambool line section upgraded for 130km/h operation.	Colac-Melbourne: 90 Warrnambool-Melbourne: 160
	New long distance trains provide new service Melbourne to Horsham via Geelong, Ballarat and Ararat.	Horsham-Melbourne:220 Geelong-Horsham: 180

5.2 WEST: BALLARAT, ARARAT AND HORSHAM

Significant improvements should be delivered to the Sunshine-Ballarat corridor early in Phase 1 and be completed before 2026, not least because the existing alignment meanders and is mostly comprised of single-track sections.   Such investments will rapidly yield benefits in terms of journey times, service frequency and reliability.

Infrastructure works are required to progressively duplicate the single-track sections, and to remove the circuitous deviation at Bungaree.[69]   In Phase 2, construction of a new alignment from Parwan to Rowsley will provide further improvements to journey times and allow express regional trains to bypass Bacchus Marsh.

The route through Sunshine and Melton to Bacchus Marsh will become an intensive electrified Metro suburban line within Phase 1 with at least three additional intermediate stations.   This will require significant works to segregate regional and suburban trains including quadruplication between Sunshine and Deer Park West and in Phase 2, overtaking loops between Deer Park West and Melton for Ballarat trains to have an unimpeded journey.

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[69] The 2016/17 State Budget provided $517 million over four years to commence these works.   The funded projects include track duplication from Deer Park West to Melton, new crossing loops at Ballan, Bungaree and near Warrenheip and removal of the circuitous Bungaree deviation.

A new major "Warrenheip Parkway" station will be established, most likely on an 8ha site adjoining the former Warrenheip Station with potential to provide up to 2,000 park and ride spaces and a major urban bus interchange. With modest local road improvements, this would provide good access to rail from the eastern and southern suburbs of Ballarat, address restricted parking availability at Ballarat Station and complement Wendouree Station that serves the western side of the city.

Ararat is the gateway to a large hinterland in the Wimmera and western Victoria, as well as the popular Grampians and Pyrenees tourist areas. These areas are poorly served by rail, and feel distant from Melbourne. A much improved rail service is essential to reconnect Horsham, Murtoa and Stawell to Western Victoria's key service centre at Ballarat.[70] This is a key component in the *InterCity* blueprint.

Through Phase 1, the gauge standardisation program will result in conversion of several lines to standard gauge, including the Geelong to Maryborough and Mildura corridor passing through Ballarat. The detail of these works will be partly determined by the MBRP which proposes progressively upgrading the existing freight routes from Geelong north to the Murray (see earlier Section 4.7 and Figure 17).

Ballarat would become the hub of a standard gauge network linking to the west, north and south, further reinforcing its role as the major service centre for the Central Goldfields, Wimmera region and Western Victoria. Passengers will change at Ballarat onto frequent fast services to Melbourne on the existing broad gauge line via Ballan, with the Ballarat to Ararat corridor converted to standard gauge and services radiating from Ballarat to Maryborough, Bendigo, Ararat, Stawell, Horsham and Geelong (see Section 5.6). Ballarat station will be upgraded to facilitate passenger interchange.

The short Ballarat to Wendouree section of line would be converted to duplicated dual-gauge track. This will allow most broad-gauge regional commuter services from Melbourne to continue to terminate at Wendouree, where an additional platform will be required.

Looking ahead to Phase 2, the population of Ballarat is likely to exceed 200,000.

The new standard gauge fast line from Melbourne to Geelong will allow long distance services to travel directly from Melbourne to Horsham via Geelong, Ballarat and Ararat. This will reconnect Horsham, one of Victoria's ten "Regional Cities", with a direct passenger service to Ballarat, Geelong and Melbourne without a change of train.

At this stage, Mildura would remain the only defined Regional City without a rail passenger service. An operationally feasible option for restoration of a rail passenger service from Melbourne to Mildura could also be considered as an addition to Phase 2. However, it would require further substantial upgrading of the 386km Maryborough/Dunolly to Mildura corridor to fast passenger train standards to be competitive with car travel times or to provide a faster service than would be possible using an upgraded version of the existing coordinated rail and road coach service via Swan Hill.

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[70] The Grampians and Wimmera regions including Stawell, Murtoa and Horsham have been without any rail service to Ballarat or a daily train to Melbourne since the Melbourne-Adelaide line was converted from broad to standard gauge in 1995.

West: Ballarat, Ararat and Horsham - phased investment program		
Phase	*Key investments*	*Journey time (Minutes)*
1	Track upgrades to Increase line speed to 160km/h over the entire Sunshine to Ballarat route. Reconfigure junctions at Sunshine and Deer Park. Quadruplication Sunshine to Deer Park West (in conjunction with Metro electrification Sunshine to Melton and Bacchus Marsh). Duplication Deer Park West to Melton and restoration of double track operation between Warrenheip and Ballarat East.* Elimination of the existing circuitous Bungaree deviation.* New extended crossing loops near Ballan, Bungaree & Warrenheip.* Separate third track (standard gauge) Warrenheip to Ballarat East.	Ballarat-Melbourne: 65
	Development of Warrenheip Parkway interchange.	
	Ballarat Station upgraded to facilitate passenger interchange.	
	Standard gauge conversion of Ballarat to Ararat line with dual gauge Ballarat to Wendouree. Restoration of double track between Ballarat and Wendouree and additional platform at Wendouree.	Ararat-Melbourne: 125
	Ballarat-Ararat services extended to Stawell and Horsham.	Horsham-Melbourne: 195
2	Overtaking loops Deer Park West to Melton for regional services. Duplication Melton to Parwan (excluding Melton Weir bridge). New direct line Parwan to Rowsley to bypass Bacchus Marsh. Progressive duplication Rowsley to Warrenheip.	Ballarat-Melbourne: 60
	New long distance trains provide new standard gauge service Melbourne to Horsham via Geelong, Ballarat and Ararat	Ararat-Melbourne: 115 Horsham-Melbourne: 185[71]
	* These projects were announced and funded in the 2016/17 State Budget.	

5.3 NORTH-WEST: ECHUCA/SWAN HILL VIA BENDIGO

In the shorter term (Phase 1), significant travel time savings can be achieved by completing the former *Regional Fast Rail* track upgrade project to allow near continuous 160km/h operation over most of the route between Sunbury and Bendigo.   Capacity for more frequent and more reliable services would be achieved by progressively restoring the original double track between Kyneton and Bendigo.   Phase 1 will also see the introduction of new trains to service the Swan Hill line, with benefits to trip times, service frequency and passenger comfort.

By 2035, suburban lines through Sunshine to Sunbury will be at capacity, seriously impeding regional services to Bendigo and beyond.   The only robust long-term solution is to segregate suburban and regional services by building a faster, more direct route via Melbourne Airport diverging from the RRL lines near Sunshine.

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[71] Horsham-Melbourne journey time: 185 minutes with change of trains at Ballarat; or 220 minutes direct via Geelong.

This new would be built by 2035 (Phase 2) with a 200km/h alignment north of the Airport to join the existing railway near Clarkefield, thereby bypassing Sunbury.

Within the same timescale, track, signalling and level crossing protection upgrades between Clarkefield and Bendigo would allow 200km/h capability where feasible for the operation of new higher performance trains.

Within the Melbourne Airport precinct, the new route will be shared with Seymour, Shepparton and Wodonga/Albury regional trains and, in future, interstate HSR trains; the two routes would diverge just north of the Airport.   Synergies in the design and build will yield a more integrated project whereby the connectivity benefits are maximised and build costs are shared.

The new Melbourne Airport hub will provide interchange with other regional rail services, interstate high-speed rail and an Airport rail shuttle to the CBD.   In this respect it will be comparable with many overseas airports that provide integrated local and regional rail stations.

This major rail project would need to be constructed in stages:

1. By 2030: Melbourne Airport to CBD - launch of a new rail shuttle service to the CBD;

2. By 2035: Melbourne Airport north to the Bendigo line at Clarkefield, allowing Bendigo services to take the faster, more direct route to Melbourne; and

3. By 2040: Melbourne Airport to the Seymour route at Wallan (see Section 5.4 below), providing the full interchange benefits of the new Airport hub.

Phase 2 would see an upgrade of the Bendigo to Swan Hill line to 130km/h to gain the full benefit of the new trains.   This will enable further reductions in trip time and improved rolling stock utilisation.

Bendigo commuter trains would terminate alternately about 10km beyond Bendigo at Epsom and Eaglehawk (potentially extending to Huntly and Marong, respectively), forming the core of the *Bendigo Metro* rail project.[72]   These services would be integrated with *Cross-Country* services from Ballarat and Maryborough via Inglewood (see Section 5.6).

The *Bendigo Metro*, when tightly co-ordinated with a comprehensive bus and/or light rail network, has the potential to be a key enabler of the city's growth, with a potential population well in excess of 200,000 by mid-century.   It would also become a model for other regional centres, including Geelong (see Section 6.1) and potentially the Latrobe Valley corridor.

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[72] See: http://ptv.vic.gov.au/projects/rail-projects/bendigo-metro-rail-project/

North-West: Echuca/Swan Hill lines via Bendigo - phased investment program		
Phase	Key investments	Journey time (Minutes)
1	Selective track upgrade for line speed Increase to 160km/h over the entire Sunbury to Bendigo route. Restoration of double track between Kyneton and Bendigo. Expansion of Kangaroo Flat interchange to become a major parkway.	Bendigo-Melbourne: 90
	Bendigo-Echuca line speed increased to at least 100km/h. Upgraded crossing facilities to support higher service frequency.	Echuca-Melbourne: 160
	Swan Hill line: upgraded crossing loop for higher service frequency. New long distance trains operate Melbourne to Swan Hill.	Swan Hill-Melbourne: 235
	Development of *Bendigo Metro*.	
2	New line from Melbourne CBD to new Melbourne Airport hub, built to HSR standards. New fast line from Clarkefield via Melbourne Airport to join the existing *Regional Rail Link* beyond Sunshine (shared with North-East corridor through the Airport precinct). New trains for Bendigo corridor, with track, signalling and level crossing protection upgraded for 200km/h operation where alignment permits.	Bendigo-Melbourne: 75
	Bendigo to Swan Hill line section upgraded for 130km/h operation.	Swan Hill-Melbourne: 200

5.4 NORTH-EAST: SHEPPARTON/ALBURY VIA SEYMOUR

Regional trains on the broad gauge Seymour/Shepparton route must share congested tracks from Southern Cross to Craigieburn with Metro suburban trains.

In the short term (Phase 1), regional trains from/to Seymour and Shepparton will be re-routed at Roxburgh Park to run via Upfield and Coburg.   At best, this is an interim solution for Seymour commuter services and would provide only temporary relief for much needed enhancement of Shepparton services.   Rapid demand growth will require a significant service increase at places within the metropolitan Urban Growth Boundary such as Wallan, Beveridge and Donnybrook.

Electrification of the route beyond Craigieburn to Wallan by 2030 will allow Metro to extend its suburban services, but track capacity in the Melbourne suburbs is very limited.   This is a fundamental problem.   The only robust solution is to segregate regional/express services from Metro/suburban services.   This would be extremely challenging on the existing route, hence the need to integrate with the new high-speed route via Melbourne Airport.

Current journey times from Shepparton and Wodonga/Albury are slower than in 1992.   Whilst beyond the practical commuting zone, both cities and intermediate centres such as Nagambie, Euroa, Benalla and Wangaratta have growing populations and significant economic development potential that should be supported by faster and more frequent rail services – both for journeys to Melbourne and inbound travel to these centres.   By mid-century, with improved rail access, both Shepparton and Wodonga/Albury could have populations approaching 150,000.

In Phase 1 (to 2026), upgrading the existing broad gauge lines from Seymour to Wallan will allow 160km/h operation.   Express running south of Seymour and 130km/h operation of VLocity trains from Seymour north to Shepparton, will enable a two-hour journey time and a minimum two-hourly service frequency from

Shepparton to Melbourne.   This will require integrated track, signalling and level crossing protection upgrades.   Regular services originating from Seymour will continue to serve intermediate stations south of Seymour.

Albury line services now travel on the standard gauge lines through Seymour and Wallan diverging via Albion in Melbourne's north.   This mainly freight route adds 10km and often incurs significant delays on the single line sections between Melbourne and Seymour.

In Phase 1, new trains will be introduced onto the Melbourne-Albury corridor, potentially in conjunction with the proposed replacement of the ageing XPT trains that currently operate Melbourne to Sydney services. Completion of the ARTC[73] track improvement program and minor modifications to existing signalling should allow these services to be cleared for 160km/h operation, with likely travel time savings averaging 45 minutes.

In Phase 2, a new line will be needed.   The Craigieburn rail corridors via Essendon/Broadmeadows and Coburg/Upfield will be at capacity by 2035, soon after electric Metro services are extended to Wallan. Similarly, with the anticipated growth in rail freight traffic on the ARTC standard gauge line,[74] the existing single standard gauge line south of Seymour will become increasingly congested and unsuitable for the reliable operation of scheduled passenger services.

The proposed HSR route north from Melbourne intersects the existing Seymour line at Wallan.   This provides an opportunity to integrate planning for HSR with regional and metropolitan rail and co-develop an efficient solution which maximises the synergies.

Leaving Melbourne Airport, the new line will be developed in conjunction with the new line to the Bendigo route at Clarkefield.   Through the Airport precinct, it would share the corridor with the new Bendigo line for a short distance.   The two routes will diverge north of the Melbourne Airport hub.

The new Seymour line would be built to HSR standards.   It would use the Outer Metropolitan Ring reservation, joining the existing north-eastern rail corridor at Beveridge and then parallel the existing (by then electrified) line to Wallan.

HSR will be built to standard gauge, so this gauge will become the default for *InterCity* services from Seymour and Shepparton via Melbourne Airport.   This requires staged gauge conversion of both the Shepparton/Tocumwal line and the previously upgraded pair of broad gauge tracks between Wallan and Seymour.   When completed, Albury *InterCity* trains will benefit from a double track standard gauge line all the way from Melbourne.

These changes will complement the gauge conversion of the western routes radiating from Ballarat. Together, they are expected to deliver significant operational benefits (especially higher speeds) and economies of scale.

Wallan will become a major interchange between Metro and *InterCity* services.   It will provide direct connections between the Seymour, Shepparton and Albury routes via Melbourne Airport and Metro services operating to the CBD via Craigieburn.

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[73] Australian Rail Track Corporation (ARTC) is a Federal Government corporation that manages most of Australia's interstate rail network. In Victoria, it has a long-term lease on the Albury route, which it has upgraded and converted to double track standard gauge between Seymour and Albury.

[74] Much of the projected growth in freight traffic on this corridor is linked to the development of the proposed Melbourne-Brisbane Inland Railway that is expected to become operational during the 2030s.

A new major "Parkway" facility will be developed on a large site adjoining Wallan station to provide up to 1,500 park and ride spaces and an expanded bus interchange.   This would provide good accessibility to rail from the nearby Hume Freeway, Northern Highway and surrounding growth areas.

North-East: Shepparton/Albury lines via Seymour - phased investment program		
Phase	Key investments	Journey time (Minutes)
1	Track and signalling upgrading of broad gauge lines from Wallan to Seymour for 160km/h operation, including duplication restoration Dysart to Seymour. Duplication of Goulburn River bridge between Dysart and Seymour. Diversion of Seymour/Shepparton services to operate via Upfield.	Seymour-Melbourne: 65
	Upgrade of Seymour to Shepparton line for VLocity operation at 130km/h and introduction of two-hourly Shepparton services operating express south of Seymour. Upgraded crossing loop at Murchison East to support two-hourly Shepparton service frequency.	Shepparton-Melbourne:120
	New trains for Melbourne-Albury standard gauge corridor cleared for 160km/h operation on existing ARTC track.	Albury-Melbourne: 185
2	Metropolitan electrification extended from Craigieburn to Wallan.	
	Development of Wallan Parkway interchange.	
	New high speed line from Wallan/Beveridge via Melbourne Airport to Southern Cross.	Seymour-Melbourne: 60*
	Conversion of Wallan to Seymour and Seymour to Shepparton and Tocumwal broad gauge lines to standard gauge.	Shepparton-Melbourne: 110*
	Albury trains operating on former broad gauge lines Wallan to Seymour.	Albury-Melbourne: 165*
	* via new high speed line between Wallan, Melbourne Airport and Southern Cross	

Box 4: Shepparton: today's poor rail relation

Shepparton is Victoria's fifth largest regional centre with a relatively large population base (over 90,000 people in its extensive catchment, and 63,000 in Greater Shepparton, in 2014).   By 2031, Shepparton's population is projected to reach 78,000 and its catchment area is likely to have over 110,000 people.   By mid-century, Shepparton and district could support a population of 150,000 if incentivised by a much improved passenger service, both in terms of frequency and reduced travel time.

Although currently categorised as a long distance rail service, Shepparton should be seen as a special case because it is only 182km from Melbourne and the corridor, if upgraded, has the potential to offer a sub-two hour journey time to Melbourne.

Patronage on the corridor north of Seymour is modest, around 400-500 trips per day at Shepparton.   By comparison Bendigo alone (163km from Melbourne), with a population of around 105,000, sees an average of over 3,000 passengers per day.

For many years, Shepparton's rail service comprised three return services on weekdays.   More recently, a fourth early morning one-way service to Melbourne was added.   By comparison, Bendigo now has 19 return services to Melbourne on weekdays.   Typical journey times to Bendigo are 110 minutes (average speed 88 km/h) and to Shepparton 155 minutes (average speed 71 km/h).   The fastest Bendigo service takes 92 minutes (average speed 106 km/h) while the fastest to Shepparton takes 145 minutes (average speed 75 km/h).   Shepparton has old trains, Bendigo has modern VLocity DMUs.   Clearly a vast difference exists in rail service between these cities.

On a proportional current population basis, Shepparton could justify around 8 return trips to Melbourne on weekdays. A wholesale change of service type from relatively infrequent long distance services to a clockface two-hourly service would generate large patronage increases.   Off-peak trip times will be reduced to around two hours in Phase 2 (average speed 91 km/h), which is comparable with typical off-peak trip times by private car.

The rolling stock and infrastructure improvements to achieve this are proposed for Phase 1 of the InterCity investment program (see Section 5.4).

5.5   EAST: TRARALGON AND BAIRNSDALE VIA DANDENONG

As Melbourne grows, the key limitation on the rail network is where local and express trains share the same tracks, such as on the Dandenong line.   RRL has segregated the Geelong, Ballarat and Bendigo regional trains from Metro services from Sunshine into the CBD.   However, the current double track lines remain a critical bottleneck on other routes shared with Metro services such as Dandenong and Craigieburn.

Gippsland regional services in recent years have been slow and unreliable on the Dandenong rail corridor. Regional and Metro trains jostle along a single pair of tracks on the 58km journey from Pakenham via Dandenong to the city, with most Metro trains stopping at all 18 stations between Pakenham and Caulfield. From Caulfield, most Dandenong line trains only stop at South Yarra and Richmond before the CBD.

A key objective of *InterCity* is to improve service frequency and significantly reduce travel times.   This requires the separation of metropolitan and regional services, enabling regional trains to transit the metropolitan area at a reasonable average speed.   By the late 2020s, the existing twin track corridor between the eastern end of the Melbourne Metro (MM) tunnel at South Yarra and Dandenong will see Metro services alone absorbing most of its train path capacity.

A four-track rail corridor between South Yarra, Caulfield and Dandenong is therefore a critical medium term requirement for effective operation of Gippsland passenger (and freight) services.   This will also provide an opportunity to operate semi-fast Metro services from Pakenham or Cranbourne.

Government decisions on the Dandenong corridor are a litmus test for integrated and strategic decision-making.   As this report goes to press, the state of play does not bode well.

The ongoing debate on future proofing this critical corridor is outlined in Box 5 below.

Phase 1 (to 2026) of *InterCity* requires active provision for quadruplication of the line from Dandenong to South Yarra.   Quadruplication would commence in Phase 1 and be complete early in Phase 2.   The scope of this project depends on various factors:

- the need to redesign the MM tunnel to provide for its extension or alternatively, a separate new tunnel beyond South Yarra to Caulfield, which will allow segregation of express lines between South Yarra and Caulfield;

- the extent to which quadruplication can be viable in discrete sections between Caulfield and Dandenong, e.g. where this can be done within the existing rail reservation and/or without the need for extensive property acquisition; and/or

- alternative options to construct a new tunneled or elevated line, e.g. between Caulfield and Oakleigh or Springvale, including the potential to serve other major destinations, such as the Chadstone shopping precinct and Monash University.

Given the recent decisions made by the government, the alternative solution of a new route for express trains may become the only viable option.   This is clearly a less cost-efficient option than making strategic provision now for additional tracks on the existing corridor.

The cost per kilometre of underground construction using tunnel boring machines is becoming less prohibitive, hence tunnelling may be a more attractive option where elevated or at-grade solutions are not deliverable.   The cost of new sub-surface rail stations is generally now the most expensive component of underground rail, a cost that will be minimised with an express tunnel that, by definition, will have few or no stations.

Other important Phase 1 works for this regional corridor include track upgrading and duplication of some single line sections beyond Pakenham, track, crossing loop and signalling upgrading between Traralgon and Sale for higher service frequency and VLocity operation at 130km/h, and replacement of the old Avon River bridge at Stratford.   This bridge has a long standing 10 km/h speed restriction and is no longer capable of supporting freight trains.

In Phase 2, further intensification of Metro Pakenham services will require provision of a minimum 5km length of bi-directional third track between Beaconsfield and Cardinia Road (through Officer) to facilitate overtaking of Metro trains by express *InterCity* services.   Full duplication between Moe and Traralgon will also be required by this time, as will track upgrading between Sale and Bairnsdale to enable faster running by the new long distance trains.

In terms of connectivity within the Latrobe Valley, the *InterCity* blueprint also provides for a *Latrobe Metro* service to cater for local travel needs between Drouin/Warragul and Sale (see Figure 16).   As in Geelong and Bendigo, local *Latrobe Metro* trains would dovetail with regional services.

Figure 16: Potential Latrobe Metro service
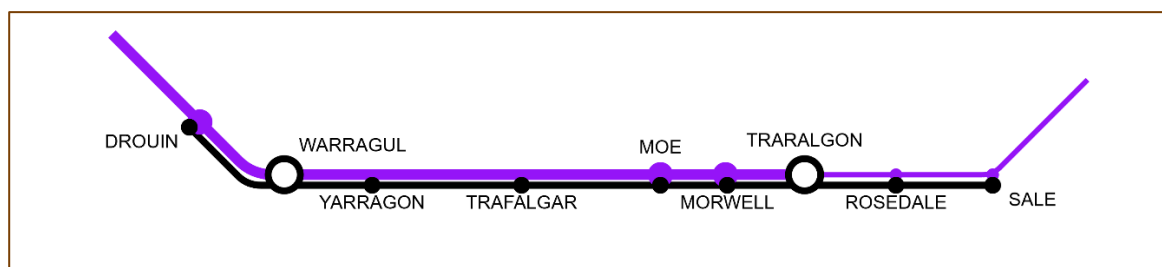
Other works may also be needed to facilitate the operation of *InterCity* and freight services within the core CBD area.   This will depend partly on the PTV infrastructure program for the Metro area, particularly potential changes to the City Loop lines in the CBD.

The key limiting factor in relation to Eastern regional services is the capacity of the viaduct between Flinders Street and Southern Cross stations and the extent to which this will be utilised by Metro services.   The planners have safeguarded the alignment for an additional two-track viaduct between Flinders Street and Southern Cross.   This will provide a segregated route for regional services and allow all Traralgon services to become scheduled cross-city services to Ballarat and Bendigo – the latter via Melbourne Airport.   This significantly improves connectivity between the major regional centres.   It will also increase the efficiency of rail operation and platform capacity of Southern Cross Station, because *InterCity* services will then be able to run straight through.

East: Traralgon and Bairnsdale line via Dandenong - phased investment program		
Phase	*Key investments*	*Journey time (Minutes)*
1	Selective track upgrade for line speed increase to 160km/h over the entire Pakenham to Traralgon corridor. Quadruplication Caulfield to Dandenong. Duplication of single line section between Bunyip and Longwarry. Partial duplication through Moe towards Hernes Oak. Additional platforms at Moe and Traralgon.	Warragul-Melbourne: 85 Traralgon-Melbourne: 120
	Upgrading of Traralgon to Sale for VLocity operation at 130km/h and extending some VLocity services from Traralgon to Sale.	Sale-Melbourne: 150
	Replace Avon River bridge at Stratford. New long distance trains operate Melbourne to Bairnsdale.	Bairnsdale-Melbourne: 195
2	Extension of Melbourne Metro tunnel South Yarra to Caulfield.	
	Overtaking loop (bi-directional third track) between Beaconsfield and Cardinia Road. Full duplication Moe to Traralgon and new crossing loop near Rosedale.	Warragul-Melbourne: 70 Traralgon-Melbourne: 110 Sale-Melbourne: 140
	Sale to Bairnsdale line section upgraded for 130km/h operation.	Bairnsdale-Melbourne: 180

Box 5: Planning failure: How the noose is tightening on the Dandenong corridor

The Department (DEDJTR) has responsibility for safeguarding the necessary capacity and suitability of the critically important rail corridor between South Yarra and Dandenong. Diffused roles and a lack of strategic leadership mean that responsibility for planning track quadruplication on this critical corridor also lies with PTV, the Level Crossing Removal Authority (LXRA) and the Melbourne Metro (MM) rail project.

PTV has maintained that demand growth projections can be met by additional capacity provided through its Cranbourne Pakenham corridor program. This program includes new high-capacity trains, level crossing removals and signalling and power upgrades with an expectation of 42% additional capacity.

The assumption is that, with the proposed Melbourne Metro (MM) tunnel from South Yarra through the CBD, the government is providing infrastructure with sufficient capacity and the capability of supporting a high quality service, for the medium to long term in that area.

However, the MM tunnel through the CBD will surface at South Yarra, instead of Caulfield as presented in the original Metro tunnel scheme. The proposed merging of MM and existing tracks at South Yarra will not increase downstream line capacity and will create reliability issues. Extension of the MM tunnel or a separate new tunnel between South Yarra and Caulfield is essential.

The LXRA's proposed elevated solution along the Dandenong corridor has been popularised as 'Skyrail'. Its particular configuration design and accelerated program for level crossing removal between Caulfield and Dandenong misses the opportunity to segregate stopping all-stations Metro trains from regional/express services by provision of two additional tracks. Express trains would save commuters up to half an hour travelling time per day. Without them, people living in Melbourne's booming south-east and Gippsland are at a significant disadvantage, compared with those from the west and north who now benefit from Regional Rail Link.

At best, the current project only makes passive provision for quadruplication. Confirmation of this approach includes a letter from the Minister for Public Transport which states:

> "*Bidders have been required to demonstrate that, wherever practicable, allowances have been made for the future provision of an additional two tracks on the Cranbourne and Pakenham line.*"

As reported in The Age:

> "*The level crossing project does not include extra tracks, but the Level Crossing Removal Authority has said the viaduct will be wide enough to build two extra tracks in the future, when needed*".[75]

The plans released by LXRA confirm that quadruplication cannot be accommodated within the existing rail reservation, at least between Caulfield and Oakleigh, and would therefore involve extensive property acquisition, as well as the major costs and disruption of a further period of construction. Creation of high quality parkland beneath the elevated tracks, even within the wide reservations through Clayton and Noble Park, while otherwise commendable, is likely to further inhibit provision of additional tracks in the present rail corridor.

Contracts for the project are now in place and construction is under way, so this is essentially a fait accompli.

It therefore seems that a tunneled solution or adoption of a completely new alignment will be required for the additional tracks. Arguably, the costs of quadruplication under these scenarios will be very significant and may even be prohibitive. The implication is that this has been deferred to the long-term.

Growth projections for Melbourne's south-east and Gippsland indicate that rail capacity will be reached by 2030. By mid-century, the combined population of Drouin/Warragul, Latrobe City and East Gippsland is likely to exceed 400,000. Meanwhile, travellers from these areas seem destined to still suffer slow and inadequate services on the Dandenong rail corridor.

The policy of "passive provision" has clearly been inadequate. It fails to integrate the project with proper planning for Melbourne's growth, notwithstanding the statutory requirements of the Transport Integration Act 2010. It is a significant planning failure with long term policy and operational implications.

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[75] "Melbourne sky rail: Many questions remain about Andrews government plan", The Age, 8 February 2016.

5.6   *CROSS-COUNTRY* ROUTES

InterCity will bring regional centres closer together.   It is also designed to support intensification of local services in regional centres by dovetailing with new *Metro* networks, for example in Bendigo, Geelong and the Latrobe Valley.

The existing rail passenger network is radial from Melbourne, along the five main corridors discussed in the sections above.   But regional growth also depends on connectivity between major centres, not just proximity to Melbourne.   This is the role of the proposed *Cross-Country* rail passenger services.

The key route proposed is Geelong-Ballarat-Bendigo, but much depends on the gauge specification under the proposed MBRP.   The current MBRP specification[76] proposes dual gauge track on the Gheringhap-Ballarat-Maryborough sections.   Dual gauge track combines standard and broad gauge, which offers operational flexibility but at the cost of a lower speed limit (80km/h maximum) for broad gauge trains and substantially greater capital and ongoing maintenance costs.

Lower train speeds do not support the goal of regional city connectivity proposed in this paper.   Therefore, *InterCity* will create a standard gauge network centred on Ballarat, with *Cross -Country* services making connections at Ballarat with fast broad gauge services to Melbourne via Ballan.

In Phase 1, the dual-gauge line from Gheringhap to Ballarat and Maryborough proposed by the Government would instead become standard gauge only, permitting 130km/h speeds once the track is restored to a suitable standard.   Coupled with a 2½ kilometre section of new standard gauge line between Geelong and North Geelong, this would enable introduction of regular Geelong-Ballarat-Maryborough *Cross-Country* services, with interchange at Geelong to the proposed *Geelong Metro* and Colac/Warrnambool services.

Phase 1 would also see conversion of the Ballarat-Ararat line to standard gauge (dual gauge from Ballarat to Wendouree).   This would result in a new service pattern, with *Cross-Country* trains from Ballarat also extending to Ararat and Horsham, also serving Stawell and Murtoa.

In Phase 2, standard gauge would extend north to Bendigo via Dunolly and Inglewood.   There are two existing disused rail routes that could be rehabilitated for this purpose: via Maryborough and Castlemaine, or via Maryborough and Inglewood.   There are pros and cons for each route, influenced by decisions as to broad vs standard gauge in the MBRP.

Although longer in distance and time than via Castlemaine, Maryborough to Bendigo via Inglewood is considered to have better patronage potential, especially on the western side of Bendigo, where there is urban and industrial development between Marong and Eaglehawk.   Moreover, as the line between Castlemaine and Bendigo would remain broad gauge, the "via Castlemaine" option would require passengers to change trains at Castlemaine.   It would also deny standard gauge access to Bendigo industry for rail freight.

The *Cross-Country* network essentially makes direct connections between regional centres.   This transforms the significance of these centres in terms of links with each other, rather than solely with Melbourne.   This increased connectivity is intended as a key driver of their growth.

Cross-Country services will also include regional services that cross Melbourne.   Some V/Line services presently operate in this way, but none is advertised as such.

As part of *InterCity,* it is proposed to operate scheduled through services at regular intervals between Bendigo and Traralgon via Southern Cross and Melbourne Airport.   This will be of considerable benefit to the
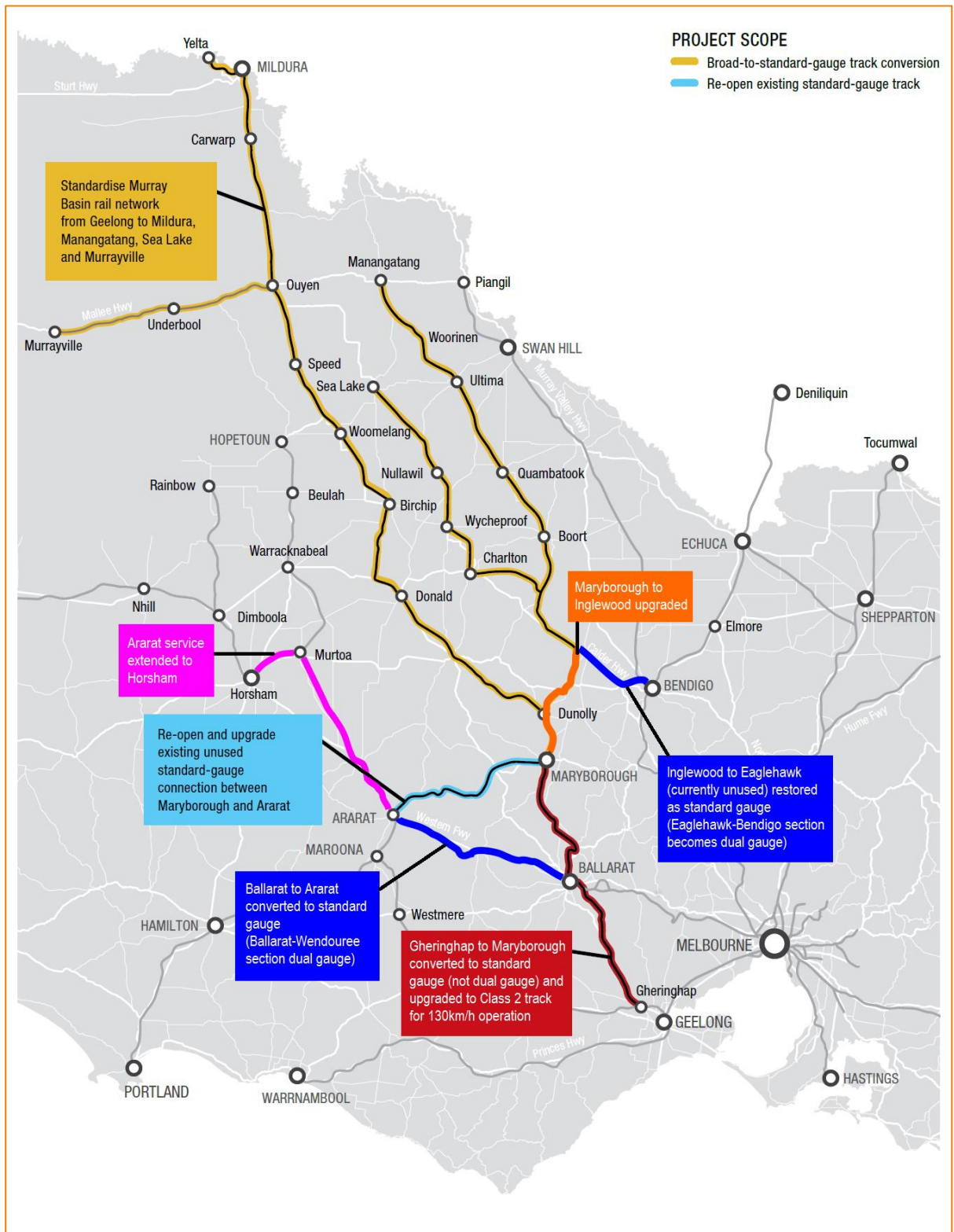
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[76] See page 4 of MBRP summary brochure - http://ptv.vic.gov.au/projects/rail-projects/murray-basin-rail-project/

Dandenong area, Latrobe Valley and the Gippsland region.   These areas support a large population and a diverse manufacturing community, but have great difficulty in accessing Melbourne Airport compared to other regions.

Cross-Country rail - phased investment program		
Phase	*Key investments*	*Journey time (Minutes)*
1	Ballarat station expanded as a major interchange between standard gauge *Cross-Country* services and broad gauge services to Melbourne.	
	Maryborough-Ballarat-Gheringhap converted to standard gauge (part of Murray Basin Rail Project). New third track (standard gauge) Geelong to North Geelong. Gauge standardisation program upgrades Geelong-Ballarat for a reopened passenger service at 130km/h with four intermediate stations, and converts Ballarat-Maryborough to standard gauge.	
	Initial *Cross-Country* services introduced on standard gauge: Geelong-Ballarat-Maryborough.	Geelong-Ballarat: 55 Geelong-M'boro: 115
	Gauge standardisation program converts Ballarat-Ararat to standard gauge (dual gauge between Ballarat and Wendouree).	Geelong-Ararat: 115
	Ararat to Horsham passenger service re-instated with two intermediate stops, allowing a Horsham-Ararat-Ballarat-Geelong 130km/h service on standard gauge, with connections at Ballarat to Melbourne.	Ballarat-Horsham: 125 Geelong-Horsham: 185
2	Upgrade track Maryborough-Dunolly-Inglewood for re-instated passenger service. Gauge standardisation program re-opens and converts Inglewood-Eaglehawk to standard gauge and dual gauge Eaglehawk to Bendigo.	Geelong-Bendigo: 180
	Ballarat-Maryborough passenger service extended to Bendigo via Inglewood and Marong with five intermediate stations.	Ballarat-Bendigo: 120 M'boro-Bendigo: 75

Figure 17 presents the proposals in this *InterCity* blueprint, based on an annotated version of the map taken from the Murray Darling summary brochure (footnote 76).

Figure 17: *InterCity* proposals relating to Murray Basin Project

PROJECT SCOPE
- Broad-to-standard-gauge track conversion
- Re-open existing standard-gauge track

Standardise Murray Basin rail network from Geelong to Mildura, Manangatang, Sea Lake and Murrayville

Maryborough to Inglewood upgraded

Ararat service extended to Horsham

Re-open and upgrade existing unused standard-gauge connection between Maryborough and Ararat

Inglewood to Eaglehawk (currently unused) restored as standard gauge (Eaglehawk-Bendigo section becomes dual gauge)

Ballarat to Ararat converted to standard gauge (Ballarat-Wendouree section dual gauge)

Gheringhap to Maryborough converted to standard gauge (not dual gauge) and upgraded to Class 2 track for 130km/h operation

6. A NEW STRATEGIC POLICY FRAMEWORK

SUMMARY

This report presents a 25-year blueprint for rail to enable and support regional growth and development, thereby creating the basis for a "State of Cities" that rebalances a significant part of the State's population growth from Melbourne to regional Victoria.

To achieve these outcomes, our analysis shows that Government needs to take leadership in addressing strategic policy gaps in relation to growth, planning policy, rail strategy, governance and integrated transport planning.

Managing Victoria's expected regional growth over this period will require improved decision-making processes and fundamental changes in institutional arrangements to ensure that transport is integral to strategic policy on development and growth.

6.1 ROLE OF GOVERNMENT AND THE "PLANNING DEFICIT"

Government must take leadership in addressing strategic policy gaps in relation to population growth, planning policy, integrated transport planning and rail strategy and governance.

These strategic policy gaps are a result of what has been identified as a "planning deficit". This deficit entails:

- a serious absence of policy integration, for example Plan Melbourne Refresh excises transport strategy from planning policy, and there is no specific policy to deliver on the transport provisions of the Transport Integration Act (2010);

- an erosion of the role of government, typified by a lack of strong strategic planning leadership, resulting in poor planning and infrastructure outcomes; and

- a capability deficit, for example in rail planning, management, operations and engineering.

These weaknesses need to be addressed in new strategic policies and governance arrangements in order to deliver proper planning for Melbourne, regional growth and the *InterCity* blueprint.

6.2 POPULATION GROWTH

The Victorian Government needs to set targets or measures for population growth statewide, and thereby to specify and influence the scale of growth across the regions and the ratio of growth in each region relative to Melbourne. These targets need to demonstrate how strategic policy is meeting the objective in the VPPs: to *"rebalance Victoria's population growth from Melbourne to rural and regional Victoria".*

Growth must be focused on areas where it is most sustainable and able to be supported by efficient infrastructure investment, such as regional cities and towns with existing rail hubs.

This requires careful evaluation of the potential for each region and centre to absorb specific levels of population growth. This research needs to be informed by comparative scenarios of land supply and demand, which will help clarify the ability for regional towns and cities to provide for future employment, services and infrastructure provision including public transport.

The role of the regional growth plans also needs to be clarified. Their role should not just be to consolidate planning across the different jurisdictions and policy realms to present an integrated approach, but to set the strategic policy lead with clear priorities and measurable actions, which would then be embedded in the VPPs.

Reinforcing this strategic role will allow regional growth plans to support the requirements of the VPPs, including the development of a "State of Cities" and growth aspirations in the Regional Victoria Settlement Framework Plan (see Section 1.3).

The State's regional growth plans are also weak on the strategic role of rail. They must be revised to include specific recommendations on regional rail, as a key facilitator of growth.

6.3   PLANNING POLICY

Planning policy needs to clearly identify how the State's objectives in the VPPs will be achieved in terms of creating a "State of Cities" and rebalancing growth to regional areas, recognising that:

- planning strategy for regions is inextricably linked to the strategic planning process for Melbourne;
- transport infrastructure investments can determine the physical shape of cities and regions, defining population and employment patterns over long periods; and
- a fast, frequent and reliable passenger rail service provides a powerful and effective tool for redirecting growth to regional centres.

Plan Melbourne Refresh does not adequately deal with the spatial impacts of transport. It is weak in defining what polycentrism looks like and how transport, including rail, can help shape urban and regional settlement patterns.

It is essential that *Plan Melbourne 2016* revert to core principles to:

- clarify what a "polycentric city" and a "State of Cities" look like;
- define the strategic policy objectives required to deliver the stated objectives of a "polycentric city" and "State of Cities"; and
- demonstrate how transport strategy and planning policy will be integrated and mutually-supporting.

The 2016 iteration of *Plan Melbourne* should link align in detail with an updated Transport Plan for Victoria that sets out a specific phased investment plan. The Transport Plan needs to present regional rail development in at least as much detail as this Rail Futures paper, and in much more detail than has been the case to date in *Plan Melbourne* and associated documents.

This will provide firm policy foundations for *Plan Melbourne 2016* to identify locations and targets for regional settlement growth, the type of development in these settlements (particularly how settlements will grow within existing township boundaries) and the elements to support this such as employment, infrastructure and transport.

This then needs to align with an updated Transport Plan that specifies a phased investment plan, in which regional rail development is described in detail.

6.4   RAIL STRATEGY AND GOVERNANCE

Core capabilities in rail strategy, planning, engineering and operational management need to be rebuilt in government, to address the fragmentation of rail planning and management that has been ongoing for the best part of two decades.

Key governance issues that also need to be resolved include:

- the need for clear and exclusive Ministerial responsibility for public transport and rail freight, allowing a focus on a single portfolio which has major responsibilities in terms of financial resources and its economic and social impact;

- simplification of the current unwieldy mega-Department arrangements to address multiple layers of diffused responsibility at the top of departments alongside meagre and declining technical capacity at middle levels; and

- overcoming the current fragmented institutional arrangements under which there are an excessive number of public agencies involved in public transport management, resulting in both strategic and regulatory uncertainty.

It is unclear the extent to which the proposed formation of Transport for Victoria (TfV) will address these issues (see Section 1.5).

6.5   INTEGRATED TRANSPORT PLANNING

The Government needs to develop strategic policy that explicitly delivers the mandated objectives in the Transport Integration Act 2010.   These objectives are comprehensive and well framed, and are required under the Act to guide all transport decisions and investments in Victoria.

This strategic policy framework will require a deep review of governance arrangements to assess how these can better support holistic policy-making and 'joined-up government'.   In particular, there is a fundamental need to clarify and implement collaborative processes between departments to create and deliver integrated policy.

The government then needs to prepare a Transport Plan for Victoria, which embeds this thinking.   This Plan needs a long-term horizon and should be informed by the wealth of experience of other jurisdictions in managing growth through integrated transport planning.   It particularly needs to demonstrate how it supports planning policy and the implementation of the VPPs, specifically to:

- create a "polycentric city" and "State of Cities"; and

- "rebalance Victoria's population growth from Melbourne to rural and regional Victoria".

The Transport Plan also needs to demonstrate how the government will build a core capability in network planning, to enable a network-based multi-modal approach to transport planning directed at significantly reducing car dependency.   This core capability is essential to deliver a "State of Cities" and "polycentric city".

7. IMPLEMENTATION

7.1   A BOLD UNDERTAKING

The growth in population projected for the next 35 years is almost unprecedented in Victoria's history.   The scale and pace of development required will not have been seen since the gold rush period from the 1860s to 1890s that gave rise to 'Marvellous Melbourne'.

Providing for a population of 10 million in Victoria by 2051, while maintaining overall livability, will require a step-change in expenditure on infrastructure and services.   Achieving this will require a fundamental shift in terms of the role of government, holistic design and collaborative leadership.

While the development of regional rail is its centerpiece, *InterCity* has a much broader purpose in seeking to lead and support the re-balancing of population growth from Melbourne to regional Victoria.   The desired outcome is the genuine emergence of a "State of Cities", as mandated in the VPPs.   It is a robust response to the population growth challenge and provides widely distributed economic, social and environmental benefits.

7.2   EVALUATING THE BUSINESS CASE

Each of the components in the *InterCity* program will require a comprehensive business case based on rigorous economic analysis.

Importantly, these business cases should also be evaluated following full implementation, to assess the extent to which it was robust and delivered on strategic policy objectives.

Overall, the *InterCity* blueprint is highly likely to have a positive benefit-cost ratio, especially compared to strategic options:

1.   to lead and support growth in the regions, which is the option enabled by the *InterCity* program;

2.   to focus growth on Melbourne, where it is will be significantly more expensive and challenging to provide necessary infrastructure; or

3.   'business as usual' whereby a lack of foresight or strategy leads to piecemeal responses which become increasingly ineffective as the scale of the governance and design challenge becomes clear.

Comparative economic analysis of the three options above is likely to present *InterCity* as a viable and preferred alternative.

7.3   A PHASED PLAN

InterCity is a blueprint for implementation of a substantial program of projects.   The phased program has been carefully designed to allow projects to be progressively brought on stream over a 25-year period.   It is ambitious but achievable.

7.4   FUNDING, GROWTH AND VALUE CAPTURE

Phase 1 investments to 2026 should be within the funding capacity of the State Government, within normal budgetary and electoral cycles.   Phase 2 to 2040 is more ambitious with a program that will entail new and innovative funding sources, including significant private sector involvement.

The investment described in this paper will require a combination of funding sources including:

- sustained investment from the Victorian Government, based on revenue streams continuing to grow with population growth (particularly in relation to property taxes), along with new revenue streams such as value capture;

- a fair and sustained share of Commonwealth infrastructure investment, which in recent years has been denied to Victoria, partly because of a prejudicial reluctance to fund rail-based public transport projects; and

- private sector participation where it is appropriate, for example in high cost advanced technology projects such as HSR but also in property development around rail hubs from which government can benefit from value capture.

The role of transport connectivity in stimulating development and economic activity is becoming better understood, and this evidence base should help provide policy guidance on best practice, the role of government, and options for value capture that could further improve the business case of programs such as *InterCity*.

7.5   LONG-TERM, STRATEGIC AND ENDURING

InterCity needs to be part of a strategic program that goes well beyond the provision of rail infrastructure and services.   It will therefore require very significant ongoing commitment from Government, preferably on a bi-partisan basis.

A long-term strategy is a vital prerequisite for meeting the unprecedented challenges of population growth. This strategy needs to define what a polycentric "State of Cities" will look like.   It should guide the creation of a new Transport Plan and be fully integrated with planning strategy as stipulated in the Transport Integration Act 2010.   The Transport Plan should align with the framework of infrastructure currently being prepared by Infrastructure Victoria.

The policy and governance challenges posed by growth projections for Victoria require this long-term strategy to become embedded and enduring.   The scale of investment required transcends decision-making within election cycles.   Victoria's growth strategy needs to be understood and owned by the community and across the political spectrum.

A blueprint such as *InterCity* can then become an effective enabler of growth and help create a vibrant Victoria which is proactively meeting 21st Century challenges.

Commuting zone journey time improvements – 1992 to 2016			
Corridor	Range of typical trip times to/from Southern Cross (Fastest-slowest)		Explanations
	1992	2016	
Geelong	55-75	53-70	Negligible improvement in journey times, despite major investments and VLocity trains running at 160km/h over much of the route. The new RRL route via Tarneit is 8km longer, with most services making two additional stops (Tarneit and Wyndham Vale). There are now very few express services, hence average journey times of 60 minutes are similar to those 20 years ago.
Ballarat	98-100	66-107	Significant improvements resulting from the combination of RRL, VLocity DMUs, route straightening and partial 160km/h route capability. These benefits have also flowed on to the Ararat and Maryborough services. However, the current timetable only provides one express service in each direction, so the potential fastest times are rarely achieved with most journeys being 75 to 80 minutes. Counter-peak direction services remain very slow, due to the limited capacity of the single line beyond Deer Park West.
Bendigo	120-144	92-122	Significant improvements resulting from the combination of RRL, VLocity DMUs and partial 160km/h route capability. These benefits are yet to flow to the Echuca line. However, the current timetable only provides one express service in each direction, so the potential fastest times are rarely achieved with most journeys being 105-115 minutes.
Seymour	90-100	78-100	Slower journey times than 1992, other than off-peak trains that are mostly operated using Sprinter DMUs. There have been no track improvements on this line. Most peak services are slower at 95-100 minutes due to suburban capacity constraints between North Melbourne and Craigieburn.
Traralgon	135-160	128-164	Mostly slower journey times than 1992, despite VLocity trains and sections of 160km/h track between Pakenham and Traralgon. Trip times vary widely with most in the range of 140-150 minutes because of increased suburban services on the Dandenong/Pakenham corridor. Other factors are the single line between Bunyip and Longwarry and single platforms at Moe and Traralgon prevent trains passing at these stations.
Long distance trip time changes – 1992 to 2016			
Warrnambool	184-203	206-212	All services slower due to up to 9 additional stops within commuter zone and additional distance via Wyndham Vale that loco-hauled trains cannot offset.
Swan Hill	242-257	259-267	All services slower due to up to 5 additional stops within commuter zone and scheduling constraints within the Metro area between Sunshine and Sunbury.
Shepparton	136-150	145-164	Almost all services slower due to up to 8 additional stops and scheduling constraints within the Metro area between Southern Cross and Craigieburn.
Albury	215-240	225-260	Almost all services slower due to scheduling constraints on ARTC standard gauge line and additional distance via Albion which loco-hauled trains cannot offset.
Bairnsdale	215-250	224-242	Most services slower due to 3 additional stops within commuter zone and scheduling constraints within the Metro area between Flinders Street, Dandenong and Pakenham.

APPENDIX B: REGIONAL NETWORK DEVELOPMENT PLAN (RNDP) ANALYSIS

See Sections 1.5 and 3.9.

Assessment question	Assessment	RNDP content	Analysis
1. Does it identify the fundamental issues and challenges, and present a coherent long-term plan?	**No**	The Regional Network Development Plan (RNDP) identifies some fundamental issues and challenges such as a growing and changing regional population, meeting diverse transport needs and constraints on the existing rail network. The Plan sets out three strategic priorities: • Building a better public transport network • Putting passengers first • Developing local transport solutions Under these strategic priorities the Plan proposes initiatives under themes such as more trains, better passenger information and improving local transport. These are variously identified as short term (up to 5 years), medium term (5 to 10 years) or long term (10+ years). Specific project proposals are listed under "Future directions" for each of five regions. The document also underlines the specific initiatives contained in the 2016/17 State Budget. Some of the RNDP's more significant proposals are to: • Procure and roll out the next generation of regional trains • Provide a mixture of stopping all stations and limited express trains to get people where they need to go as quickly as possible • Work toward a minimum 20 minute peak frequency, 40 minute inter-peak frequency across the commuter rail network • Provide five services, five days a week to Warrnambool, Bairnsdale, Albury-Wodonga, Echuca, Swan Hill and Shepparton • Develop a strategic plan for the metropolitan and regional rail interface In "Next steps" it outlines the need for "Regional partnerships", "Transport agencies working together" and "Local transport forums".	The RNDP is essentially a tactical rather than a strategic plan. Its focus is relatively short term, primarily focussed on outputs over the next 5 to 10 years. While the challenges it lists are real, they are understated and the plan for addressing them assumes a 'business as usual' approach, including in the context of official population forecasts. The document notes some broad principles but does not show how they are derived and does not methodically develop them. While the project proposals are generally sound, they are essentially incremental and mostly derived from current user and local perceptions. The Plan is vague in terms of project timelines with some initiatives shown as spanning between 5 and 10+ years. Its "Next steps" acknowledge "the importance of integrated long term planning" and "to give local governments and communities…a significant voice in planning and delivering future regional transport". However, the Plan does not propose any strategic policy changes, or actions to address the more serious challenges expected to emerge within the next 10 to 15 years. Its one concession to the need for more fundamental work is a proposal under the theme "New connections" to "Develop a strategic plan for the metropolitan and regional rail interface". What is required is an integrated transport strategy for Victoria, which addresses the metropolitan-regional interface and conforms to the requirements of the Transport Integration Act 2010. Such a Plan should draw heavily on this *InterCity* blueprint for regional rail.

Assessment question	Assessment	RNDP content	Analysis
2. Does it address Victoria's growth projections and, if so, does it explicitly link forecast demand to rail investment and service plans?	No	The RNDP re-states the Victorian Government's population projections. The Plan reports that regional growth is uneven with the forecast that: *"40 per cent of all regional growth to 2031 will be in the cities of Greater Geelong, Bendigo and Ballarat. At the same time, some smaller towns are maintaining stable populations while others are declining".* The Plan acknowledges that: *"More people are travelling between regional towns and cities for work…Closer to Melbourne, many rapidly growing outer areas are serviced by V/Line, and demand for these services is increasing".* The Plan provides a general response to demand growth by accepting that: *"To run more services, we need more trains.(which) the Victorian Government is already buying. ……We will continually assess where we add more services as we receive more trains and new infrastructure".* The Plan goes to on list a range of proposed rolling stock acquisitions and infrastructure enhancements, both network-wide and region by region.	The RNDP does not recognise how rail provision can influence growth patterns as a core component of strategic policy. The Plan accepts the State's regional population forecasts as the base for its proposals. However, it does not attempt to quantify or suggest how these forecasts, if correct, might translate into additional demand for regional public transport services. The implicit assumption is that demand will grow proportionally to population increases. The RNDP does not account for qualitative factors such as journey time or service frequency, nor acknowledges the experience of induced demand with projects such as *Regional Fast Rail* or *Regional Rail Link*. Hence projected demand is not quantified in the Plan, nor is there any description as to how growth might manifest itself in terms of pressure on the rolling stock fleet or infrastructure. Rolling stock requirements are not quantified beyond the current budget commitments. Listings of specific infrastructure enhancements are shown for the various regions. However, apart from those included in the 2016/17 State Budget, no specific timelines are indicated for implementation but all are listed as "Future Directions".
3. Is it integrative? Does it explicitly embed rail planning into transport planning overall, and does it link transport planning with development and planning strategy?	No	The RNDP notes that: *"Transport policy and planning in Victoria is guided by the Victorian Government's overarching objectives to support economic development and social inclusion, and to coordinate land use and transport planning".* It also notes *"the importance of integrated long term planning"*, and also its aims to *"guide future planning for investment in the freight and passenger rail network, with a focus on encouraging economic development and job creation".*	The RDNP misses the opportunity to explicitly link regional public transport and regional growth, and does not recognise passenger rail as a potential driver of growth and development strategy. Although stated as an objective, the Plan does not demonstrate how transport strategy and planning policy should be integrated and how that might affect the desired outcomes. The integration function is instead demoted to a coordination and consultation role through partnerships and local transport forums.

RDDP proposed project	Part of InterCity?	RDDP proposed project	Part of InterCity?	RDDP proposed project	Part of InterCity?
Build new train stabling	Implicit only	Continue station accessibility program	Yes – see Section 4.2.1	Ballan and near Bungaree – new passing loops	Yes – see Section 5.2
Procure additional VLocity carriages	Implicit in Phase 1	Integrate walking and cycling networks	Not explicitly	Train stabling at Melton & Rowsley	Implicit in Phase 1
Procure next generation regional trains	Yes – see Section 4.2.1	Upgrade regional level crossings	Yes – see Section 4.3	New station at Toolern	Yes – see Section 5.2
Retire older trains – H and N cars	Yes – see Section 3.8	Warrnambool line passing loops	Yes – see Section 5.1	Shepparton station upgrade	Implicit in Phase 1 - see Section 4.2.1
Modernise/refurbish older trains	Yes – see Section 3.8	Warrnambool line track upgrade	Yes – see Section 5.1	Restore Upfield to Somerton connection for Seymour trains	Yes – see Section 5.4
Improve service frequencies	Yes – see Section 4	South Geelong to Waurn Ponds track duplication	Yes – see Section 5.1	Shepparton line passing loops	Yes – see Section 5.4
Station amenity improvement program	Yes – see Section 4.2.1	South Geelong, Marshall & Waurn Ponds – second platforms	Implicit in Phase 1 – see Section 5.1	Shepparton line track upgrade	Yes – see Section 5.4
Add car parking at stations	Yes – see Section 5	Warrnambool station upgrade	Implicit in Phase 1 – see Section 4.2.1	Seymour line – upgrade track to 160km/h	Yes – see Section 5.4
Improve interchanges at major hubs	Yes – see Section 5	Longwarry-Bunyip duplication	Yes – see Section 5.5	Train stabling at Shepparton	Implicit in Phase 1 – see Section 5.4
Develop a strategic plan for metropolitan and regional rail interface	*InterCity* is the plan. See Sections 4 & 5	Gippsland line passing loops	Yes – see Section 5.5	Use of VLocity trains to Shepparton	Yes – see Section 5.4
Further rollout of MYKI in regional Victoria	Yes – see Section 4.2.1	Replace Avon River bridge at Stratford	Yes – see Section 5.5	Bendigo and Eaglehawk stations upgrade	Implicit in Phase 1 – see Section 4.2.1
Murray Basin Rail Project	Yes – see Section 5	Gippsland line – upgrade track to 160km/h	Yes – see Section 5.5	Kyneton to Bendigo – increase track capacity	Yes – see Section 5.3
Upgrade rail infrastructure	Yes - comprehensivel	Train stabling at Sale	Implicit in Phase 1 – see Section 5.5	Bendigo line – track upgrade to 160km/h	Yes – see Section 5.3
Statewide real time PT tracking	Yes – see Section 3.7	Upgrade signalling to allow more trains to Sale	Yes – see Section 5.5	Echuca and Swan Hill lines track upgrade	Yes – see Section 5.3
Better on-board information	Implicit in new trains - see Section 4.2.1	Gippsland line station upgrades	Implicit in Phase 1 – see Section 4.2.1	Echuca and Swan Hill lines passing loops	Yes – see Section 5.3
Implement train cleaning improvement	Not explicitly	Bacchus Marsh and Ballan – second platforms	Implicit in Phase 1 – see Section 5.2	Investigate extra stations in Central Victoria	Yes – see Section 5.3
Improve mobile data connectivity	Not explicitly	Deer Park West-Melton duplication	Yes – see Section 5.2		
Review on-board catering	Implicit in new trains - see Section 4.2.1	Warrenheip - extended passing loop	Yes – see Section 5.2		