

PREFACE

This *Melbourne Rail Plan 2020-2050* (MRP) has been prepared by a transport and planning team at the Rail Futures Institute (RFI) in collaboration with members of RMIT University School of Global Urban and Social Studies.

RFI is a self-funded, non-partisan group of rail professionals, engineers, urban planners and economists working in the public interest. We have no affiliations with governments or corporate interests. We undertake independent research and advocacy to promote rail-based solutions when we judge these will best meet the future needs of passenger and freight transport.

The MRP is the RFI blueprint for the next thirty years of rail development in Melbourne to support a projected population exceeding 8 million by 2050. It follows our 2016 report *InterCity* that aims to “shrink distance” by proposing faster rail connections between Melbourne and regional cities in Victoria.

The challenges of population growth require fundamental shifts in strategic transport policy and comprehensive integration of transport and land use planning. The RFI’s work in developing the MRP has been motivated by the failure for over a decade of successive Victorian governments to produce a comprehensive Transport Plan, as mandated by the State’s Transport Integration Act (TIA).

Improved rail services as part of integrated transport policy can play a very significant role in the growth and development of Melbourne, consistent with the objectives of *Plan Melbourne 2017-2050* and the TIA.

The MRP presents a strategy for rail-based transport modes within the broader context of a multi-modal transport system – integrating heavy rail, light rail, Medium Capacity Transit (MCT), tram, bus and active transport (walking and cycling) into a cohesive grid network.

Such development, through phased investment, will significantly reduce Melbourne’s car dependency and thereby benefit the city’s liveability, economic performance, social fabric and environmental sustainability; and make an important contribution to meeting the Government’s statutory obligations and planning objectives.

Achievement of these outcomes will require complementary transport planning for Melbourne’s regions as well as policies and programs beyond rail strategy. Strong leadership is required by the State Government to ensure transport infrastructure and services are planned and delivered in alignment with settlement patterns to enable more efficient access between residences, jobs and services. Key to this is reducing travel inefficiencies related to congestion and excessive commuting times arising from the dominance of the transport task by sole occupant motor vehicles.

RFI’s plan for the future of public transport in metropolitan Melbourne sets out staged priorities for phased implementation of its proposals to 2050, to balance ambitious and conservative initiatives with realistic funding capacity. The MRP involves incremental investment on a realistic timeframe and acknowledges resource constraints that governments operate under. Nonetheless, the scale of investment required is unprecedented and will require new funding mechanisms, both public and private.

Planning for human settlement and movement is a dynamic process and requires continuous development to stay relevant. RFI will therefore continue to review and update our plans in line with continually evolving knowledge and experience and the wider environment in which we live. This includes adaptation to the changing climate and adoption of relevant new technologies.

We do not profess to having dealt with all issues or have provided the only solutions – that would not be possible for the complex and extensive transport systems of one of the World’s most expansive cities. Rather our aim has been to inform and contribute to discussion around how Victoria can best meet the challenges of population growth, congestion and good public transport.

We welcome comments on this report and invite interested persons to contribute to our processes by joining Rail Futures. A membership application form can be completed at our web site – www.railfutures.org.au.

John Hearsch, President, Rail Futures Institute

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EXECUTIVE SUMMARY

THE MELBOURNE RAIL PLAN 2020-2050 is a blueprint for the next 30 years of rail development in Melbourne.

It presents a strategy for rail-based and complementary transport modes within the context of a future fully integrated multi-modal transport system. Such development, through phased investment, will significantly reduce Melbourne's massive car dependence and benefit the city's liveability, economic performance, social fabric and environmental sustainability.

Melbourne's population reached 5 million in 2018 and the most recent forecasts are for a city in excess of 6 million by 2031, 8 million by 2047 and 9 million by 2056. Melbourne's continued urban spread and population growth has not been matched with an equivalent expansion of the public transport network. Symptoms of this transport malaise include worsening congestion, excessive journey to work times, restricted access to jobs, car dependent new suburbs, along with negative social, health and environmental impacts.

Most new outer urban growth is occurring in areas without adequate or planned provision of public transport. Strong population and employment growth in central Melbourne and inner suburbs are placing severe strain on the radial rail and road networks with overcrowded trams being among the world's slowest, operating well below their potential. Many public transport vehicles and much rail and tram infrastructure remain non-compliant with National Disability Discrimination Act (DDA) specifications.

The challenges of population growth require fundamental shifts in strategic transport policy and serious integration of transport and land use planning. Improved rail services as part of an integrated transport policy can play a very significant role in the growth and development of Melbourne, consistent with the objectives of the State Government's *Plan Melbourne 2017-2050* and the *Transport Integration Act*. Targeted investment in rail infrastructure is a powerful city shaping tool and can help transport Melbourne to 2050 by:

- providing a multiplicity of new public transport travel options as a viable alternative to car usage
- providing Melbournians much wider access to employment and other opportunities
- delivering on the *Plan Melbourne 2017-2050* polycentric city concept
- integrating the metropolitan economy by linking activity centres and boosting the role of National Employment and Innovation Clusters (NEICs)
- promoting transit-oriented development (TOD) around key rail stations
- using the tram network to help shape rapid inner area densification
- growing rail capacity to better serve Melbourne's outer growth suburbs
- delivering environmental, health and safety benefits
- providing resilience for the network and its users in time of disruption.

The Plan has eleven key elements:

- Making the existing system work better by maximising use of the existing assets
- Creating a multi-modal grid network of high frequency services
- Completing major cross-city mass transit rail routes and a dedicated CBD to Melbourne Airport rail link
- Extending electrified rail coverage of metropolitan services to outer growth areas
- Making new connections to and between National Employment Clusters and Major Activity Centres
- Maximising potential of the tram network to enhance connections for middle and inner suburbs
- New CBD tram routes and cross-suburban journeys including tram route extensions and new links to rail interchanges
- New Medium Capacity Transit (MCT) systems (including light rail and other emerging technologies) providing high frequency orbital, cross-suburban and CBD-linked routes
- Re-configuration of the bus network to effectively complement rail, trams and MCT
- Strongly facilitating active transport (cycling and walking) to and from public transport
- Improving accessibility of services for less able people and meeting DDA compliance.

Melbourne's existing train and tram networks are hugely valuable assets. Much can be done to enable these assets to work harder and deliver services more efficiently. While this Plan requires the provision of new large-

scale infrastructure, it also aims to increase the capacity, attractiveness and efficiency of the existing network through a range of investment and operational initiatives.

The Train Plan

The main components of the Train Plan are:

- 3 new mass transit heavy rail Lines
- a new express line from Southern Cross to Melbourne Airport
- 5 extensions of existing rail lines
- electrification of inner parts of 6 regional lines
- network reconfiguration to provide multiple major cross-city corridors
- duplication of 5 single-track sections
- 26 new stations on existing and extended lines
- level crossing removal priority at 16 locations which negatively impact rail and on-road public transport
- replacement of obsolete and inadequate infrastructure including track and structures, power supply and overhead upgrading, station rehabilitation, and new signalling and communications systems
- new trains of increased length and capacity
- new maintenance and train stabling facilities
- new and enhanced services operating to “turn up and go” frequencies.

The Tram Plan

Features of the Tram Plan are:

- tram priority measures
- 6 short route extensions
- 7 longer route extensions
- an extended Western and Northern CBD network
- expanded and reorganised route network
- upgraded stops and interchanges, meeting obligations for less able travellers
- improved connectivity between services at inner Melbourne locations
- a fleet of 640 low floor articulated trams by 2034, replacing over 300 older low capacity/high floor trams
- upgraded power supply and traction systems
- new tram maintenance and depot facilities
- new and enhanced services operating to “turn up and go” frequencies.

The Medium Capacity Transit (MCT) & Light Rail Plan

Medium Capacity Transit (MCT) is a key element of the Melbourne Rail Plan. A new concept for Melbourne, it provides an urban public transport solution ideally suited to new trunk routes not requiring the capacity of conventional heavy rail systems and deliverable at substantially lower cost. MCT infrastructure will be on the surface, elevated or underground, as determined by individual route conditions. MCT technologies are rapidly evolving, ranging from conventional light rail using upgraded trams, light metro railways to high capacity guided buses with electric and hybrid traction systems. In Melbourne, MCT will use one or more of these systems. It will fully complement other modes to form one network with interchanges making it convenient to transfer between modes.

The proposed 10 initial MCT routes provide high quality cross-suburban connectivity, comprising:

- one radial corridor, filling a gap in the radial rail network
- 3 major orbital corridors
- 6 major cross-suburban corridors

This part of the Plan also provides a comparative analysis of RFI’s MCT and Light Rail proposals against the Victorian Government’s proposed Suburban Rail Loop project and highlights the benefits of the more comprehensive MCT approach.

The Metropolitan Bus Network

The Plan proposes a substantial re-structure of the metropolitan bus network to effectively integrate with the proposed train, tram and MCT networks. The revised bus network will operate at 3 levels:

- High frequency SmartBus routes on trunk corridors (including routes developed to build corridor patronage in anticipation of future MCT investment)
- High frequency feeder services to train, tram or MCT interchanges
- Local services to Major and Local Activity Centres, schools, hospitals, etc.

The bus network will be pivotal in completing the grid network of high frequency public transport on routes which cannot justify investment in major fixed infrastructure. It will be designed to provide convenient interchanges at key nodes with other modes. All principal routes would operate at “turn up and go” frequencies compatible with train, tram and MCT services. Detail of the reworked metropolitan bus network is beyond the scope of this Plan; a total review should be a Department of Transport (DoT) priority.

Active Transport

For Melbourne to have strong and healthy communities and high rates of social and economic participation, the share of trips by public transport, walking and cycling must increase. A key factor in achieving this objective is promotion of walking and cycling access to trains, trams and MCT.

Provision of dedicated safe walking and cycling paths to all principal public transport corridors and mass bicycle storage facilities at train, tram and MCT interchanges are integral components of this Plan.

A Connected City

The projects promoted in this plan are focused on improving public transport access across Melbourne to ensure effective connectivity between residential areas, employment, educational, social and recreational centres without people being as dependent on cars. A high level of accessibility will allow Melbourne residents to enjoy a high quality of life in an environmentally sustainable city.

If *Plan Melbourne 2017-2050* is to succeed in making suburban NEICs and activity centres viable and functional places, then Melbourne will require not only much higher capacity radial rail transport, but also a quantum leap in cross-suburban public transport. The Plan proposes high-quality links to designated NEICs and some Major Activity Centres.

Indicative Cost Estimates

The Plan initiatives will require an investment of \$120 billion over a 30-year period to 2050 comprising:

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|------------------------------------------|--------------|
| • Heavy Rail infrastructure | \$70 billion |
| • Tram infrastructure | \$9 billion |
| • Medium Capacity Transit infrastructure | \$30 billion |
| • Rolling stock (Trains, trams and MCT) | \$11 billion |

The proposed capital investment program of \$120 billion over 30 years to 2050 is the minimum required to meet Melbourne’s public transport needs. Further expenditure to meet an even larger public transport task will be needed as Melbourne grows beyond 8 million people.

Overview maps of the improved network of train, tram and MCT services proposed in this Plan, together with some key SmartBus routes, are shown on the following page. An enlarged fold-out map of the proposed overall network is on the inside back cover of the document.

