

# Need 10

## Meet growing demand for access to economic activity in central Melbourne

Meeting this need will help achieve objectives:

- 1  Prepare for population change
- 2
- 3  Reduce disadvantage
- 4  Enable workforce participation
- 5  Lift productivity
- 6  Drive Victoria's changing, globally integrated economy
- 7
- 8
- 9
- 10  Build resilience to shocks

Victoria's high productivity industries are typically concentrated in central Melbourne. The centralisation of economic activity is only expected to continue as the economy becomes increasingly services driven. Demand for central city access from all parts of Melbourne and many regional areas is likely to grow strongly, leading to increasing capacity constraints on the transport system, which are particularly pronounced in Melbourne's west and north.

Victoria's population growth patterns, combined with the shift in economic activity from distributed manufacturing to more centralised service and knowledge-based industries, have and will put increasing pressure on demand for travel to and from central Melbourne for work, leisure and specialist services, particularly during peak periods. Better access will be required from all parts of Melbourne and across regional Victoria, particularly Geelong, Ballarat, Bendigo and Latrobe City.

Capacity constraints will be experienced across the transport network, but are expected to be most pronounced in Melbourne's west and north growth areas, where the number of jobs has not kept pace with the number of residents (see Figure 8). Accordingly, people travel outside of these areas for work, often to the central city, and this trend is expected to continue. In contrast, high growth areas in the southeast of Melbourne are less reliant on the central city for job opportunities given their proximity to other employment centres including Dandenong and Monash.

Without action to manage and meet demand for access to economic activity in central Melbourne and address congestion, the state is likely to become less productive, equitable and attractive as a place to live and work. Transport and planning initiatives, such as building Melbourne Metro and encouraging growth in alternative employment centres, will go some way to addressing this need, but more fundamental changes to the transport system are likely to be required to meet the challenges ahead.

The transport infrastructure in operation today will still be the core infrastructure in use in 30 years' time. The response will require changes in the planning, use and operation of our transport network for greater efficiency to sustain current and future demand.

# Recommendations

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A well-planned, systematic approach is required to respond to the huge demand challenges facing Victoria's transport system over the next 30 years and maintain adequate access to economic activity in central Melbourne. The great unknown is exactly when and how driverless vehicles will impact travel patterns, but it could result in a surge of additional trips within the next 15 years. Government needs to plan now for how these could be integrated into the transport network and urban form.

The recommendations below cover three key areas of action. The first involves shaping Melbourne's growth to make best use of available transport capacity (Recommendation 10.1). The second involves introducing a comprehensive and fair transport network pricing regime to change behaviour and manage demand for travel (Recommendation 10.2). The third involves improving access to active and public transport with a focus on multi-modal trip making, as well as improving the performance of the existing road network, including preparing for new technologies (Recommendations 10.3 to 10.10).

Complementary investment in transport infrastructure and services is vital prior to the introduction of a transport network pricing regime to ensure people have transport choices and are not unfairly disadvantaged by where they live (though it is clear that not everything, particularly major capital projects, can happen all at once).

In some cases the recommendations highlight areas where more money could be spent, while in others the focus is on how it could be spent more wisely. Some of the highest impact reforms proposed don't involve spending much at all.

No major new roads have been recommended under this need as public transport will continue to be the backbone for access to central Melbourne. However, the transport network is very interrelated and road projects recommended under other needs, such as the Outer Metropolitan Ring Road, could also improve overall access to central Melbourne by relieving congestion elsewhere. Ultimately, major policies and reforms will have the greatest impact on managing radial movements into the city.

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## 10.1 Promote urban consolidation to enable people to live closer to jobs, public transport and the central city

- 10.1.1   **Development in established areas.** Intensify medium density housing development in established areas of Melbourne and regional cities, such as Geelong, Ballarat and Bendigo, that are already well serviced with infrastructure by amending planning schemes within 0-5 years. This should focus initially on Melbourne's inner and middle ring eastern and southern suburbs, in particular within walkable catchments for train stations on the Lilydale, Belgrave, Glen Waverley, Alamein, Frankston, Sandringham, Pakenham and Cranbourne lines, as these train lines are expected to experience fewer capacity constraints over the next 30 years. Investigations to better understand the capacity of the tram network should also commence, with a view to intensifying housing along tram corridors. This reform will require greater state government leadership, working in partnership with local government, to identify opportunities for densification in established areas and any supporting infrastructure priorities (ref. UDC).

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## 10.2 Introduce a transport network pricing regime to manage congestion and obtain the most efficient use of the transport network



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## 10.3 Encourage people living along congested corridors and in higher density areas to shift to active travel to reduce the demand on other transport modes

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10.1.2   **Development in/around employment centres.** Intensify medium to high density housing, services and commercial development in and around employment centres by amending planning schemes within 0-5 years. Areas for consideration should include National Employment Clusters (NECs) such as Latrobe, Monash and Sunshine, Melbourne's Metropolitan Activity Centres (MACs), and major regional employment centres, as well as the transport corridors that feed them. This reform will require greater state government leadership, working in partnership with local government, to identify opportunities for more densification around employment centres and any supporting infrastructure priorities (ref. STO).

10.2.1   **Transport modelling.** Improve transport modelling tools within 0-5 years to better assist long-term strategic transport planning, particularly to support the operation of driverless vehicles and the impact of transport network pricing on freight and people movements (ref. ABM).

10.2.2   **Transport network pricing.** Introduce a transport network pricing regime within 5-15 years that will reduce congestion and crowding and enable faster travel times for high-value trips, considering all modes and with a focus on addressing equity concerns. This reform will fundamentally change the way the transport network is used and will play an important role in preparing for the arrival of driverless vehicles and improving freight productivity (ref. TNP).








10.3.1    **Cycling/walking data.** Improve and standardise walking and cycling data capture and analysis across the state, including expanding the network of bike counters and leveraging smart phone technology, within 0-5 years. This will enable the development of high-quality investment proposals and better promotion of walking and cycling, including by providing information on route choice (ref. BWP1).

10.3.2    **Cycling corridors/walking improvements.** Finalise and accelerate investment in the roll-out of Victoria's Strategic Cycling Corridors and identified walking network improvements for completion within 0-15 years, working closely with local government. The immediate first step is to deliver improvements on state government roads and land and in other significant locations (such as the central subregion of Melbourne). An accelerated roll-out beyond current funding commitments should include:

- expanding walking and cycling networks, including to address missing links (ref. BWP2)
- improving standards for existing walking and cycling networks, in particular the separation of walking and cycling paths and also from other road users (ref. BWP3)
- identifying and prioritising locations where grade-separated bicycle highways in the central city could facilitate safer and more direct access into and across central Melbourne (ref. BHT).

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## 10.4 Enhance and upgrade existing public transport infrastructure to maximise the efficiency and operation of an integrated multi-modal network

- 10.4.1  **Public transport real-time information.** Expand the availability of open-source, real-time public transport information, including passenger loading data, across the metropolitan and regional networks covering all modes within 0-5 years. This will enable private developers to create applications that allow people to more confidently use public transport and will attract increased patronage (ref. TNI).
- 10.4.2  **Train timetabling.** Implement the required timetable changes on the metropolitan train network to deliver the peak period service uplifts enabled by the completion of the Regional Rail Link within 0-5 years. This should be done as soon as possible as it will significantly increase capacity on overcrowded lines in the west of Melbourne, particularly the Werribee line (ref. PTT).
- 10.4.3  **Transport interchanges.** Develop a transparent prioritisation process within 0-5 years for upgrading transport interchanges beyond current commitments. This framework should focus on identifying upgrades that facilitate faster and easier passenger transfers, including for people with mobility challenges, and support a multi-modal network. Priority interchanges for upgrade are expected to include those that serve the Monash, Dandenong and Latrobe NECs and the Box Hill and Broadmeadows MACs, but consideration should also be given to high volume or end of line stations in regional areas (ref. MII).
- 10.4.4  **Metropolitan rail upgrades.** Review and update Public Transport Victoria's *Network development plan – Metropolitan rail* within 0-5 years to transparently identify and prioritise network upgrades and enhancements required to remove physical and operational constraints that will maximise the use of the existing rail network. High-priority projects that will increase the reliability of passenger services, reduce ongoing maintenance costs and support the delivery of additional services could include upgrading and renewal of life-expired signalling systems, untangling rail junctions (such as at Clifton Hill) and providing additional platforms at existing stations (such as Dandenong station) (ref. MRC).
- 10.4.5  **Metropolitan bus network.** Reform the metropolitan bus network starting from a clean slate within 0-10 years, with planning work to begin as soon as possible. This should include a review of the existing routes and services based on the approach taken in the City of Brimbank in 2013. Focusing on major employment centres, this reform of the bus network will progressively deliver more targeted services, primarily with existing resources (ref. MBN).
- 10.4.6  **Metropolitan rail stations.** Upgrade metropolitan rail stations with high passenger volumes, such as central city stations and Caulfield and South Yarra stations, subject to transparent assessment to identify priority locations, over 5-30 years. These upgrades will facilitate faster, safer and easier passenger access and transfers (ref. MRI).
- 10.4.7  **High-capacity signalling.** Roll out high-capacity signalling systems on key sections of the metropolitan rail network, beyond current commitments, over 5-30 years to support the operation of additional services at peak times and improve reliability. This program should build on existing studies and imminent trials, with a likely early focus being the lines that operate through Clifton Hill (ref. RSF).

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## 10.5 Adopt a consistent, asset management-based approach to funding and procuring new trains and trams, to better manage the average asset age and meet service demands

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- 10.5.1   **Metropolitan rolling stock.** Institute an asset management-based approach to a long-term program of tram and train rolling stock procurement within 0-5 years, building on the 2015 *Victorian rolling stock strategy*. This program should implement a cycle for the continuous build of new rolling stock, beyond the current commitments, that avoids the stop-start procurement of recent decades. This will enable the timely retirement of older rolling stock and the ability to meet the demands of increased patronage across the network (ref. HCT3 and HCT4).
- 10.5.2   **10-car metropolitan trains.** Introduce 10-car high-capacity metro trains to operate on lines that run via the Melbourne Metro tunnel within 10-15 years to support further patronage growth to the west and southeast, complementing electrification of the Melton line (see Recommendation 1.3.6/10.8.3) and potentially enabling a later extension to Melbourne Airport (see Recommendation 10.9.2/11.4.2) (ref. HCT2).

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## 10.6 Make better use of the existing road network to maximise passenger throughput, traffic flow and value for money

- 10.6.1   **Road asset management.** Implement a performance-based asset management framework for state roads within 0-5 years that sets a priority order of users to determine the required condition of these roads, including identifying roads that are surplus to needs. This work should be supported by a review of responsibility for roads between the state and local governments to ensure these responsibilities are consistent with the purpose of the road. This would include removing anomalies where state government is responsible for roads with a local transport function and where local government is responsible for roads that provide an arterial road function. This would enable the development of well-targeted increases in road maintenance and greater transparency around proposed changes in road classifications (ref. RMF).
- 10.6.2   **Traffic management systems.** Upgrade and expand advanced traffic management systems to manage flows on metropolitan motorways, employing tools such as lane use management, access ramp signalling, CCTV and variable message signs, over 0-10 years. This will improve the efficiency and reliability of the motorway network and could potentially apply to some key arterial routes, such as the Hoddle Street/Punt Road corridor, with benefits to freight reliability and traffic flows (ref. ATM).
- 10.6.3   **Road space allocation.** Accelerate the roll-out of changes to road space allocation, whether physical changes or alterations to road signals, to improve throughput of people, particularly in areas of high congestion, over 0-15 years. Key locations for prioritising higher capacity public transport and active transport modes include the Hoddle Street/Punt Road bus corridor, SmartBus corridors, tram routes in the northern suburbs, untreated sections of the CBD and access routes to major employment centres. Road space allocation decisions should factor in both the projected transport network benefits and local urban outcomes. Longer-term planning should consider how the allocation of road space may need to be adapted in light of new vehicle technologies, particularly driverless vehicles (ref. RSA).
- 10.6.4   **Doncaster bus system.** Upgrade the existing Doncaster Area Rapid Transit (DART) bus system within 5-10 years to support increased demand and improve the reliability of services. The roll-out should incorporate the latest technology and support infrastructure required for a modern bus rapid transit system, such as traffic signal priority, dedicated lanes and upgraded boarding facilities (ref. DBI).







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## 10.7 Prepare the road network and regulatory frameworks for the arrival of driverless vehicles

- 10.7.1   **Innovative transport services.** Remove barriers to the entry of new market players offering innovative transport services within 0-5 years to increase travel options and encourage higher vehicle occupancy. Particular areas of opportunity include ride hailing, car pooling and private minibuses and coaches providing either on-demand or fixed schedule services through third-party applications. In regional areas, the ability to earn a supplementary income and provide much needed local on-demand transport has the potential for widespread community benefit. This should be undertaken with a review of metropolitan bus contracts to ensure that these new players are not contractually precluded or otherwise disadvantaged from entering the market (ref. MAS).
- 10.7.2    **Driver assistance applications.** Introduce regulatory changes, where needed, to enable the testing of advanced driver assistance applications over 0-15 years, with a view to deployment when technology is proven, commercially available and approved by national vehicle standards. Advanced driver assistance systems will provide drivers with real-time information about the road environment, such as warnings, to improve safety and create more efficient traffic flow (ref. ADA).
- 10.7.3   **Driverless vehicles.** Introduce regulatory changes to enable the testing and deployment of driverless vehicles over 0-30 years to improve traffic flow, increase the operational efficiency of public transport, expand the range of available transport options and potentially improve the carrying capacity of roadways by allowing vehicles to safely travel together in close proximity at the same speed. Further research and consultation will be required to develop a national approach for maximising the benefits of driverless vehicles (ref. ACT).











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## 10.8 Expand the reach of the public transport network into high growth areas to improve their connections to central Melbourne

- 10.8.1   **Fishermans Bend tram link.** Extend the tram network to Fishermans Bend to stimulate high density major urban redevelopment within 5-10 years. This tram extension would have a city-shaping and catalytic impact of opening up Australia's largest urban renewal precinct and enable housing for 80,000 people and 60,000 jobs to be located adjacent to central Melbourne (ref. CCT).
- 10.8.2   **Geelong/Werribee/Wyndham rail.** Deliver new stations with rail capacity expansion on the existing Regional Rail Link corridor in western Melbourne to support these high growth areas while reducing travel times and relieving overcrowding on the Geelong line within 5-15 years. Further work is required to determine the scope and sequence of this rail upgrade (ref. WWW, GWR and GRE).
- 10.8.3   **Melton rail electrification.** Extend the electrified rail network to Melton, including additional stations in growth areas, within 10-15 years to support the western growth corridor and improve services on the Ballarat line. This electrification is critical to meeting the significant projected patronage growth on the Melton line for access to the central city and requires the support of 10-car high-capacity metro trains (see Recommendation 10.5.2) to operate on this line (ref. MRE1).



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## 10.9 Upgrade and, over time, construct high-capacity public transport links between Melbourne Airport and the CBD to create strong interstate and global links with the central city

- 10.8.4   **Clyde rail extension.** Construct an extension of the Cranbourne rail line from Cranbourne to Clyde within 10-15 years to connect this designated growth precinct with the central city, including assessment of options to use alternative modes. This will provide better access to high growth areas in the southeast of Melbourne (ref. CRE).
- 10.8.5   **Wallan rail electrification.** Extend the electrified rail network to Wallan, including additional stations in growth areas, within the early part of 15-30 years to support the northern growth corridor and improve services on the Seymour line. Part of the scope of this recommendation, the reinstatement of the Somerton Link between the Craigieburn and Upfield lines, could be accelerated to support additional regional and Craigieburn services in the short term. This electrification is critical to meeting the significant projected patronage growth on this line for access to the central city and requires the support of the City Loop reconfiguration (see Recommendation 10.10.1) to provide capacity for the additional services (ref. WRE1).
- 10.8.6   **Wollert transport links.** Complete a feasibility study within 0-5 years for creating a high-capacity transport link (rail or bus) connecting growth areas around Wollert to the rail network and on to central Melbourne. This link is likely to be required within 15-30 years and would provide a viable alternative to private vehicles for local trips and commuting to the central city from this high growth area in Melbourne's north (ref. WRE2).
- 10.9.1   **Melbourne Airport bus.** Deliver a high level of on-road priority to bus services linking Melbourne Airport to central Melbourne, including better signalling and managed motorway improvements, over 0-10 years. This will maximise the capacity, efficiency and reliability of these services and defer the need for a more costly investment in a heavy rail line to Melbourne Airport to the 15-30 year period (see Recommendation 10.9.2/11.4.2). Upgrading airport bus services will make this mode more attractive for use by employees at the airport and surrounding facilities and for travellers, reducing demand and congestion on the Tullamarine Freeway (ref. MAB).
- 10.9.2   **Melbourne Airport rail link.** Deliver a rail line to Melbourne Airport, preferably linking with both central Melbourne and the southeast, within 15-30 years once the additional capacity of the airport bus is close to being exceeded (see Recommendation 10.9.1/11.4.1). This rail line will provide a higher capacity and higher quality service for interstate and international visitors to travel from the airport to the central city. Further network planning to confirm the optimum way to integrate this line into the network will be required, given projected high growth on the Sunbury and Melton lines, with which a Melbourne Airport rail link is currently proposed to share tracks along the Sunshine corridor. Opportunities to improve access to employment in and around Melbourne Airport and the potential land use outcomes should be investigated as part of the project scope (ref. MAH).

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## 10.10 Expand public transport capacity with major new infrastructure projects to transform the network

- 10.10.1  **City Loop reconfiguration.** Reconfigure the City Loop within the early part of 15-30 years to deliver a major capacity uplift to the Craigieburn and Upfield corridors and enable electrification to Wallan (see Recommendation 1.3.8/10.8.5). Further planning for the City Loop reconfiguration should focus on developing network plans that optimise the way people move around the network, given the project will significantly increase the level of passenger interchange. It should also minimise disruption to rail customers during construction, leveraging the capacity available shortly after completion of Melbourne Metro expected in 2026 (ref. CLR).
- 10.10.2  **Melbourne Metro – future stages.** Identify trigger points and update the long-term plan for a major uplift in capacity on the Mernda, Werribee and Sunshine rail corridors within 0-5 years. It is likely this extra capacity will be required in the latter part of the 15-30 year period or potentially beyond 30 years. A new rail tunnel linking Newport and Clifton Hill offers a potential solution, along with providing greater accessibility to Fishermans Bend and Parkville. However, this is a particularly high cost solution and further network planning is required, considering both how such an investment could deliver greater benefits (given that current plans do not show any improvements to the Sunshine corridor) and all available options to better use existing infrastructure first (ref. MMS).

## Funding recommendations

Transport network pricing (Recommendation 10.2.2) is a major pricing reform that helps to change transport user behaviour. It could also generate revenue that could help fund some transport infrastructure.

Infrastructure Victoria is also examining transport network pricing as part of our research program. We think that the primary objective of a transport network pricing regime – where users pay to access and use the transport network – should be to manage demand, rather than to recover costs for infrastructure. Careful consideration must be given to the design of the regime to ensure it is efficient, fair and sustainable.

The delivery of the following major projects and policies is expected to involve significant costs or present opportunities to capture some of the value of urban planning decisions. If government chooses to adopt these recommendations, a range of funding mechanisms should be considered.



Recommendation	General government revenue	User charges	Beneficiary charges	Property development	Asset sales
10.1.1 Development in established areas			✓	✓	
10.1.2 Development in/around employment centres			✓	✓	
10.3.2 Cycling corridors/walking improvements	✓		✓		
10.4.4 Metropolitan rail upgrades	✓	✓	✓		
10.4.6 Metropolitan rail stations	✓	✓		✓	
10.4.7 High-capacity signalling	✓	✓			
10.5.1 Metropolitan rolling stock	✓	✓			
10.5.2 10-car metropolitan trains	✓	✓			
10.8.1 Fishermans Bend tram link	✓	✓	✓		
10.8.2 Geelong/Werribee/Wyndham rail	✓	✓	✓	✓	
10.8.4 Clyde rail extension	✓	✓	✓	✓	
10.8.5 Wallan rail electrification	✓	✓	✓	✓	
10.9.2 Melbourne Airport rail link	✓	✓	✓	✓	
10.10.1 City Loop reconfiguration	✓	✓	✓		
10.10.2 Melbourne Metro – future stages	✓	✓	✓	✓	

✓ Potential funding mechanism

## Funding recommendations – additional comments

For public transport infrastructure, existing user charges (public transport fares) should continue to be charged but are only expected to cover a portion of ongoing operating costs.

Development in established areas and development in/around employment centres require planning scheme changes that are likely to increase the value of land in certain areas. To capture part of this value, government could levy beneficiary charges such as developer contributions.

Beneficiary charges, such as developer contributions, could be considered for cycling corridors/walking improvements. This could be sourced from existing developer contributions such as the Growth Areas Infrastructure Contribution, developer contribution plans and open space contributions.

Beneficiary charges could be considered for Fishermans Bend tram link, Wallan rail electrification, Clyde rail extension, Geelong/Werribee/Wyndham rail and Melbourne Airport rail link if there is a substantial uplift in land values and business activity in the vicinity of the new projects. New beneficiary charges could include betterment levies on commercial and/or residential property and developer contributions.

If government decides to pursue Melbourne Metro – future stages as a project following further investigation, the mechanisms discussed above could also be examined for this project.

A major beneficiary contribution could be negotiated with Melbourne Airport, reflecting the direct benefits a new rail link would provide to its business. Higher than standard public transport fares (especially for express services) for the new line could be considered. Funding from general government revenue should be minimised, and should reflect the broader public benefit the project delivers, such as congestion relief. Depending on the outcomes of network planning to confirm the optimum way to integrate the Melbourne Airport rail link into the network, should it include new or upgraded train stations, property development could also be considered.

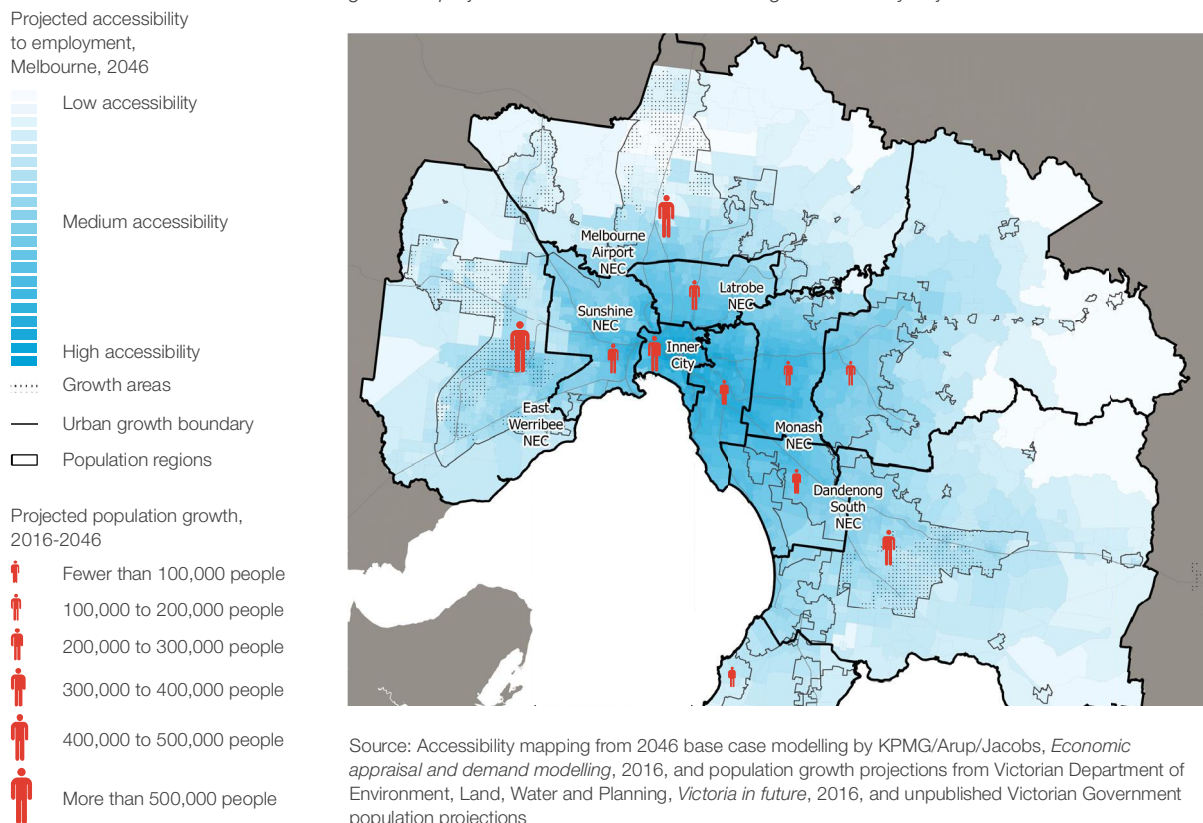
Property development could be pursued for metropolitan rail stations, Wallan rail electrification, Clyde rail extension, Geelong/Werribee/Wyndham rail, Melbourne Metro – future stages, development in established areas and development in/around employment centres by, for example, selling or leasing land or air rights surrounding new train stations for commercial, residential or retail development. In particular, for metropolitan rail stations, opportunities at South Yarra and Caulfield train stations could be investigated as part of any upgrades. For development in established areas and development in/around employment centres, funding raised could be reinvested in those areas to meet infrastructure needs arising from intensification.

## Things we considered

There is a theme across several of our recommendations of moving our rail network towards more of a 'metro' style of operation. In practice, this means changing the network from one where train lines often merge as they approach the city to one where lines operate separately, but people often have to change trains to get to their final destination. It's a trade-off, but we think the benefits of improved capacity and reliability are worth it, so long as careful planning is put into how people move around the system. This is relevant to introducing the full service uplift delivered by Regional Rail Link, the Melbourne Metro rail project currently underway, and future projects such as reconfiguring the City Loop. Indeed, on a more local scale, our recommendation to reform the metropolitan bus network will involve similar trade-offs between services that wind around local streets serving many different places and a more efficient and direct network.

A number of the options we considered for this need did not emerge as priorities; however, there are some projects we would specifically recommend against. These include building a new heavy rail line to Doncaster (ref. DHR) and building a new station at South Yarra (ref. SYM) as part of the delivery of Melbourne Metro. The benefits of these projects do not appear to outweigh the costs, with South Yarra already being very well served by public transport and, in the case of Doncaster, alternative lower cost solutions being available.

Figure 8: With no action, by 2046 there will be a mismatch between where population growth is projected to occur and areas with high accessibility to jobs.



Source: Accessibility mapping from 2046 base case modelling by KPMG/Arup/Jacobs, *Economic appraisal and demand modelling*, 2016, and population growth projections from Victorian Department of Environment, Land, Water and Planning, *Victoria in future*, 2016, and unpublished Victorian Government population projections

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## INSIGHT: Transport network pricing

National reform of road pricing has recently gained momentum, as the current system has been identified as inefficient, unfair and unsustainable. These issues are particularly relevant for Victoria. As Melbourne's population increases, congestion, and its associated economic impacts, is likely to rise substantially and place a burden on Victoria's ability to remain competitive. No city can just 'build its way out' of congestion. Building more transport infrastructure to fix road congestion without managing demand is financially and environmentally unsustainable. Experience shows that building new roads attracts more users, until roads are congested once again. New roads may mean more people can travel, and travel further – which can have benefits – but they do not solve the problem of congestion.

A comprehensive and fair transport network pricing regime designed to manage demand, alongside targeted investment in the transport system, will deliver profound benefits and help make Victoria a more productive and sustainable place to live, work and do business. It can reduce congestion and improve transport choices, including encouraging more trips by walking and cycling, and spreading the peak on both roads and public transport. It could also affect business choices about how they move freight – by road or rail, or at different times of the day.

In November, we released a discussion paper, *The road ahead*, which is the first in a series of papers examining the options, challenges and opportunities for transport network pricing. This initial analysis focuses on a road pricing regime in metropolitan Melbourne as a first step towards a comprehensive transport network pricing regime that includes roads and public transport, to manage demand across Melbourne.

Designing a road pricing regime requires an open discussion with the community about the objectives, trade-offs and impacts. Further analysis and engagement with the community is required with many issues to be explored. However, we think that introducing an efficient, fair and sustainable road pricing regime will depend upon three key factors:

- adequate public transport is in place first
- road pricing should not be another tax
- money is invested back into the transport network.

As per the draft strategy, transport network pricing remains one of Infrastructure Victoria's top three recommendations. However, on the basis of our research to date, we have extended the timeframe for its introduction from 5-10 to 5-15 years. This recognises that the necessary improvements to public and active transport will take time and that implementation of the reform may need to be staged, depending on the design of the scheme and access to enabling technologies. Depending on the road pricing regime chosen, upgrades may also be required to road networks.

Throughout 2017, we will continue to develop and share our thinking with you about the possible design of a pricing regime, and will seek community and stakeholder views. We encourage you to visit [yoursay.infrastructurevictoria.com.au](http://yoursay.infrastructurevictoria.com.au) and join the conversation about managing demand.

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# Timeline

## Target for completion of recommendation

- Changing behaviour/better use
- New or expanded asset(s)
- Planning/prioritisation or further investigation

## Anticipated completion of potential future project/reform










































## Location

- Statewide
- Melbourne

## Sector

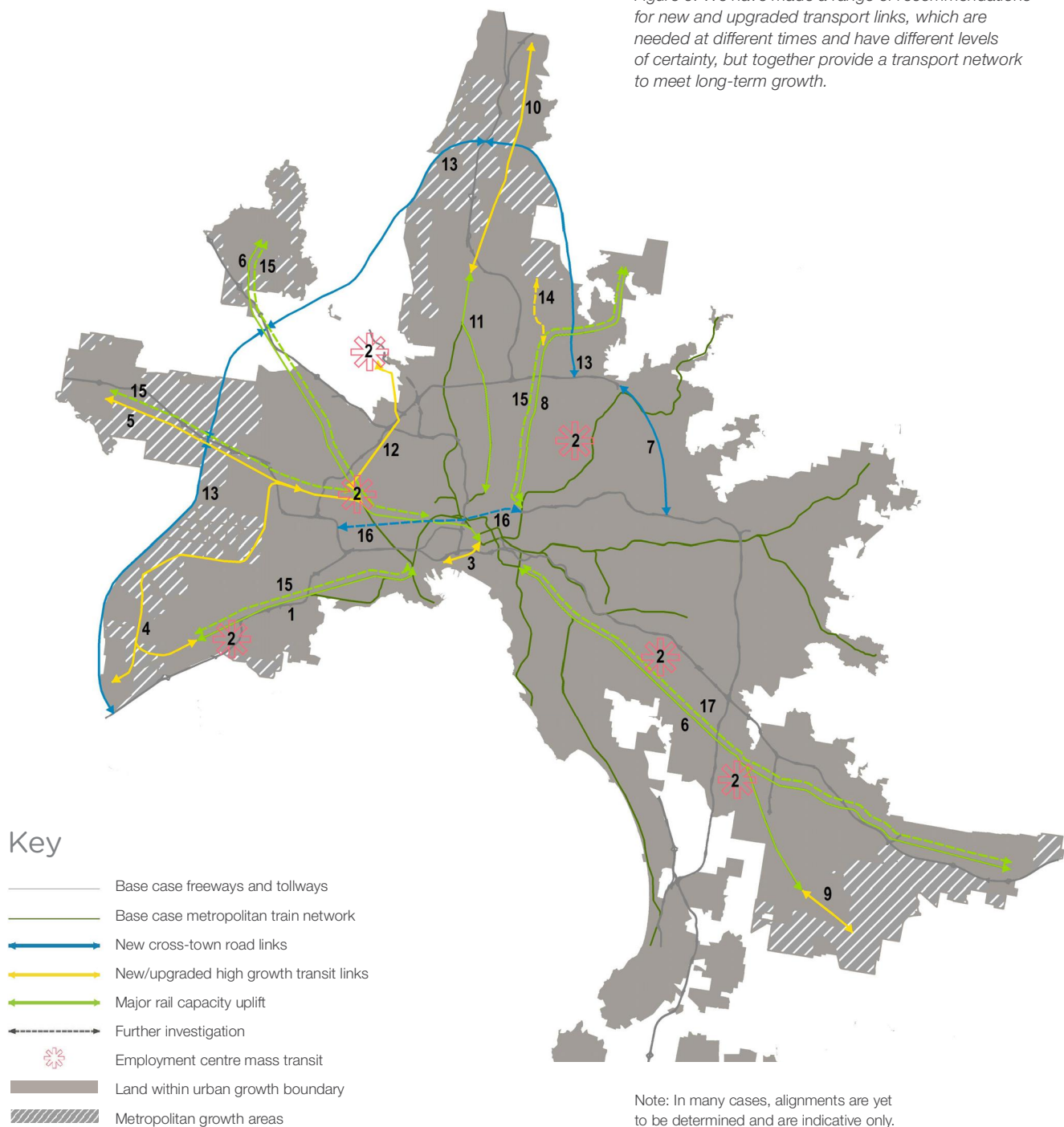
- ALL All sectors
- Transport
- ICT
- Cultural, civic, sporting, recreation and tourism

Recommendation	0-5 years	5-10 years	10-15 years	15-30 years	Location, sector(s)
<b>10.1 Promote urban consolidation to enable people to live closer to jobs, public transport and the central city</b>					
10.1.1 Development in established areas	<span style="display: inline-block; width: 100%; height: 10px; background-color: #FFD700;"></span>				<span style="display: inline-block; width: 15px; height: 15px; background-color: #FF0000; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #000000; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>
10.1.2 Development in/around employment centres	<span style="display: inline-block; width: 100%; height: 10px; background-color: #FFD700;"></span>				<span style="display: inline-block; width: 15px; height: 15px; background-color: #FF0000; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #000000; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>
<b>10.2 Introduce a transport network pricing regime to manage congestion and obtain the most efficient use of the transport network</b>					
10.2.1 Transport modelling	<span style="display: inline-block; width: 100%; height: 10px; background-color: #FFD700;"></span>				<span style="display: inline-block; width: 15px; height: 15px; background-color: #FF0000; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>
10.2.2 Transport network pricing		<span style="display: inline-block; width: 100%; height: 10px; background-color: #FFD700;"></span>			<span style="display: inline-block; width: 15px; height: 15px; background-color: #FF0000; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>
<b>10.3 Encourage people living along congested corridors and in higher density areas to shift to active travel to reduce the demand on other transport modes</b>					
10.3.1 Cycling/walking data	<span style="display: inline-block; width: 100%; height: 10px; background-color: #FFD700;"></span>				<span style="display: inline-block; width: 15px; height: 15px; background-color: #FF0000; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #800080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>
10.3.2 Cycling corridors/walking improvements	<span style="display: inline-block; width: 100%; height: 10px; background-color: #FF8C00;"></span>				<span style="display: inline-block; width: 15px; height: 15px; background-color: #FF0000; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #800080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>
<b>10.4 Enhance and upgrade existing public transport infrastructure to maximise the efficiency and operation of an integrated multi-modal network</b>					
10.4.1 Public transport real-time information	<span style="display: inline-block; width: 100%; height: 10px; background-color: #FFD700;"></span>				<span style="display: inline-block; width: 15px; height: 15px; background-color: #FF0000; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>
10.4.2 Train timetabling	<span style="display: inline-block; width: 100%; height: 10px; background-color: #FFD700;"></span>				<span style="display: inline-block; width: 15px; height: 15px; background-color: #000080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>
10.4.3 Transport interchanges	<span style="display: inline-block; width: 100%; height: 10px; background-color: #800080;"></span>				<span style="display: inline-block; width: 15px; height: 15px; background-color: #FF0000; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>
10.4.4 Metropolitan rail upgrades	<span style="display: inline-block; width: 100%; height: 10px; background-color: #800080;"></span>				<span style="display: inline-block; width: 15px; height: 15px; background-color: #000080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>
10.4.5 Metropolitan bus network	<span style="display: inline-block; width: 100%; height: 10px; background-color: #FFD700;"></span>				<span style="display: inline-block; width: 15px; height: 15px; background-color: #000080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>
10.4.6 Metropolitan rail stations		<span style="display: inline-block; width: 100%; height: 10px; background-color: #FF8C00;"></span>			<span style="display: inline-block; width: 15px; height: 15px; background-color: #000080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>
10.4.7 High-capacity signalling		<span style="display: inline-block; width: 100%; height: 10px; background-color: #FF8C00;"></span>			<span style="display: inline-block; width: 15px; height: 15px; background-color: #000080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span>

Recommendation	0-5 years	5-10 years	10-15 years	15-30 years	Location, sector(s)
<b>10.5 Adopt a consistent, asset management-based approach to funding and procuring new trains and trams, to better manage the average asset age and meet service demands</b>					
10.5.1 Metropolitan rolling stock					 
10.5.2 10-car metropolitan trains					 
<b>10.6 Make better use of the existing road network to maximise passenger throughput, traffic flow and value for money</b>					
10.6.1 Road asset management					 
10.6.2 Traffic management systems					 
10.6.3 Road space allocation					 
10.6.4 Doncaster bus system					 
<b>10.7 Prepare the road network and regulatory frameworks for the arrival of driverless vehicles</b>					
10.7.1 Innovative transport services					 
10.7.2 Driver assistance applications					  
10.7.3 Driverless vehicles					 
<b>10.8 Expand the reach of the public transport network into high growth areas to improve their connections to central Melbourne</b>					
10.8.1 Fishermans Bend tram link					 
10.8.2 Geelong/Werribee/Wyndham rail					 
10.8.3 Melton rail electrification					 
10.8.4 Clyde rail extension					 
10.8.5 Wallan rail electrification					 
10.8.6 Wollert transport links					 
<b>10.9 Upgrade and, over time, construct high-capacity public transport links between Melbourne Airport and the CBD to create strong interstate and global links with the central city</b>					
10.9.1 Melbourne Airport bus					 
10.9.2 Melbourne Airport rail link					 
<b>10.10 Expand public transport capacity with major new infrastructure projects to transform the network</b>					
10.10.1 City Loop reconfiguration					 
10.10.2 Melbourne Metro – future stages					 

# Key new and upgraded transport links in Melbourne

Figure 9: We have made a range of recommendations for new and upgraded transport links, which are needed at different times and have different levels of certainty, but together provide a transport network to meet long-term growth.



Number (not in priority order)	New and upgraded transport links	Recommendation number(s)
<b>Short to medium term (complete within 15 years)</b>		
1	Train timetabling	10.4.2
2	Employment centre mass transit*	11.5.4
3	Fishermans Bend tram link	1.2.1, 10.8.1
4	Geelong/Werribee/Wyndham rail	1.3.4, 10.8.2, 12.3.1
5	Melton rail electrification	1.3.6, 10.8.3
6	10-car metropolitan trains	10.5.2
7	North East Link	11.5.6, 13.5.2
8	High-capacity signalling (priority line, eg Clifton Hill)	10.4.7
9	Clyde rail extension	1.3.7, 10.8.4
<b>Longer term (complete within 15-30 years)</b>		
10	Wallan rail electrification	1.3.8, 10.8.5
11	City Loop reconfiguration	10.10.1
12	Melbourne Airport rail link	10.9.2, 11.4.2
13	Outer Metropolitan Ring Road	11.5.7, 13.5.3
<b>Longer term (further investigation)</b>		
14	Wollert transport links	1.3.9, 10.8.6
15	Melbourne Metro – future stages	10.10.2
16	Eastern Freeway-CityLink-Western Ring Road	11.5.8, 13.5.4
17	Regional rail eastern corridor	12.3.3, 13.5.5

\*The middle and outer employment centres covered by Recommendation 11.5.4 include East Werribee, Sunshine, Melbourne Airport, Latrobe, Monash and Dandenong South.