

# Effective and integrated public transport









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## Goal

Public transport will be the most attractive way to travel around the municipality and the inner metropolitan Melbourne region. An integrated system of rail, tram, bus, taxi, car and bike share will meet customer’s needs and be fully coordinated with the municipality’s pedestrian network. It will be possible to live and do business in inner Melbourne without needing a car.

## Overview

Public transport includes rail, tram, bus, taxi, car share and bike share and, for regional trips, air travel – all cases of the use of a shared vehicle. Government plays a major role through ownership, operation, regulation and coordination of these services.

State Government is largely responsible for running much of the public transport system, but local government, as the land use regulator, and the manager of the pedestrian network, has a key role integrating the system with land use and the walking component of each public transport trip. The City of Melbourne has an additional role, as it is at the hub of the public transport system.

Melbourne’s public transport network extends throughout metropolitan Melbourne, with varying degrees of service. Most of the train stations and tram stops are in the inner metropolitan region because much of the expansion beyond this region has been enabled and driven by car usage. The inner metropolitan region also has the highest densities of residents and jobs. The municipality of Melbourne has the highest concentration of public transport services.

Public transport in the inner metropolitan sub-region needs to provide for continuing high employment and residential growth, coordination with land use development, integration of all the public transport modes as one system, increased capacity, reliability and accessibility, and establishing a complementary role with private transport, particularly in addressing the

need to enable better east west travel through the sub-region.

## Priorities

### Planning public transport for growth

Over the next 20 years the municipality and the inner region will see continued significant growth in population and employment. The main growth sector will be knowledge/services. Constraints on public transport availability may significantly impede labour productivity. Melbourne’s productivity growth has been falling in recent years, in part due to these constraints on its transport system. This sector thrives on the agglomeration effects of high densities enabled by very good transport connections. This growth will need to be matched by a significant expansion and upgrade of the public transport system.

### Public transport within the central city

Metropolitan train and tram networks have traditionally focussed on Swanston Street as the spine of the central city. This has reinforced both the public transport network itself and the economic productivity of the city. As the city has expanded projects like the City Loop and road-based tram improvements have improved the ability of the network to deliver and disperse larger numbers of people to their destinations in the Hoddle Grid.

Swanston Street plays a vital role in the tram network, the bicycle network and for pedestrians. Balancing these competing priorities has made the redevelopment of the street a challenge. A significant opportunity

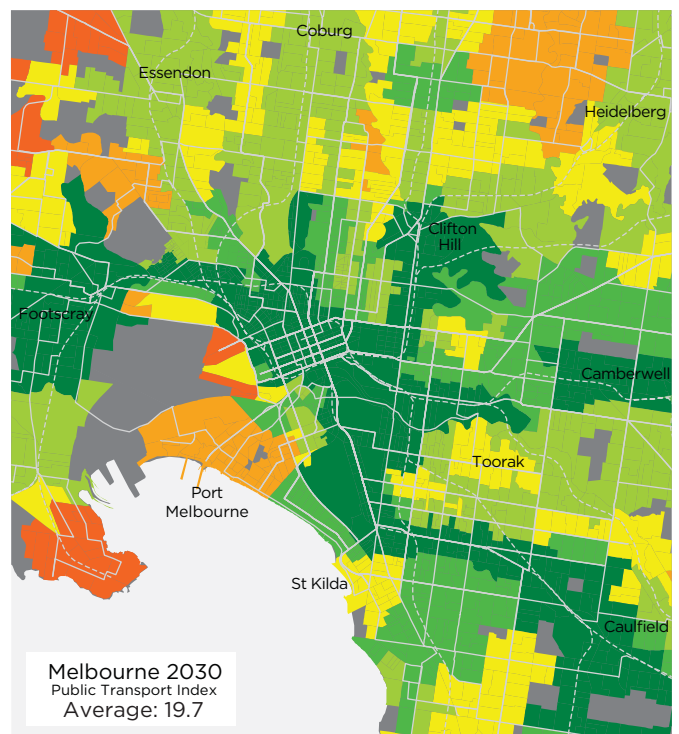
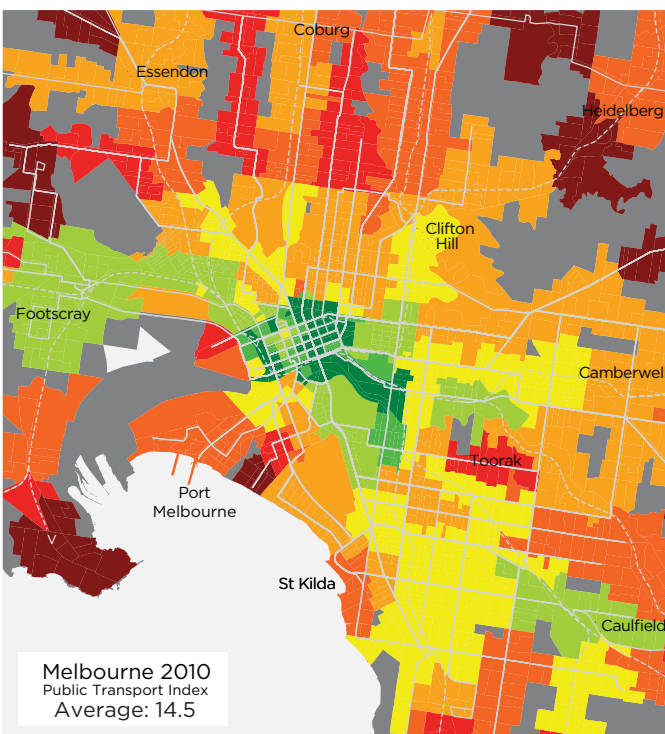
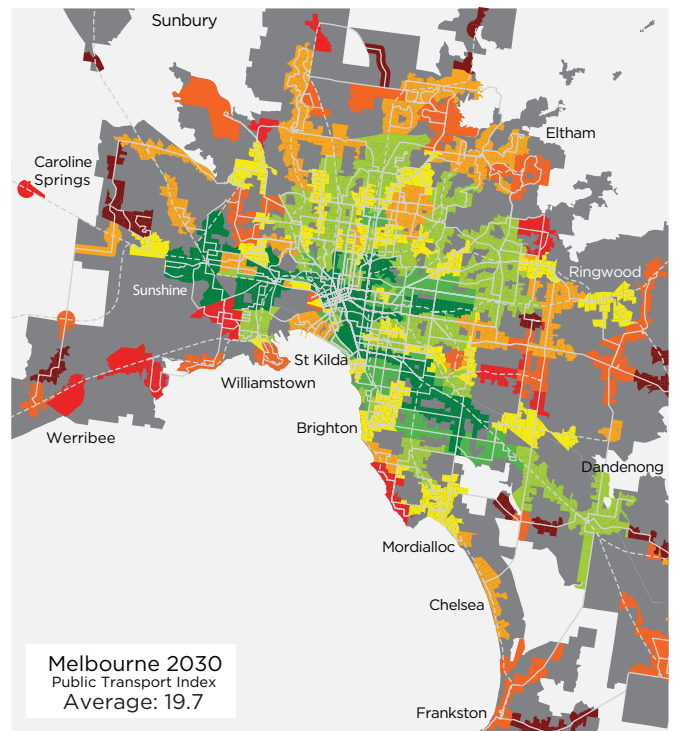
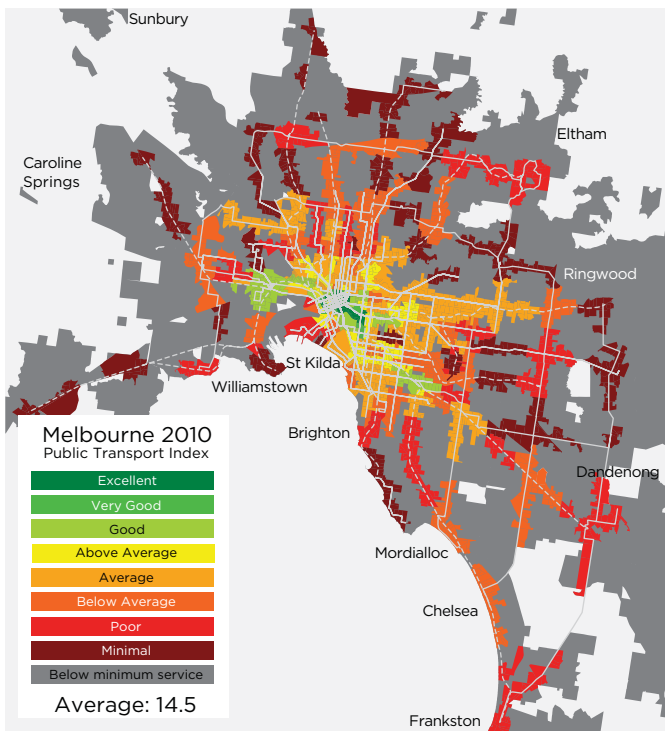


Fig 6.0 Spatial Network Analysis for Multimodal Urban Transport Systems (SNAMUTS) 2010. Source: RMIT, Dr Jan Scheurer

exists with the development of the Melbourne metro rail project to create better tram connections and land use integration through Southbank, to the west of the CBD and the north of the CBD .

### Coordinated development of transport and land use

The development of urban transport and land use must be coordinated. Rail and tram are space efficient and high capacity, making them ideal for the mobility needs of high density mixed development land uses. These modes are also at their most efficient when their high infrastructure and running costs are spread across a large number of trips over the whole daily and weekly cycle.

This relationship is evident in the region of the Melbourne's network extending out from the central city along the inner south-eastern corridor. This area has the highest density of stops, interchanges and service levels and is also the region with metropolitan Melbourne's highest effective jobs density.

The economy in this region is also well serviced by high capacity roads for driving, but driving is a space hungry mode best suited to lower density urban areas.

As this region's land use density increases, driving will become a less effective mode. This trend is evident already in the municipality and particularly in the central city.

Twenty-four hour activity in the City of Melbourne requires reliable and safe inter-peak transport options. There is currently a clash between the hours of operation of many central city land uses (restaurants, bars and clubs) and the hours of public transport operation. Taxis and flexible bus transport are best

suited to meet the demands of people travelling late at night.

### Integrating public transport modes as one system

Each of the public transport modes suits different types of trips. These modes must be integrated into a seamless public transport system allowing users to mix and match modes easily to suit their trip needs.

This has started, with Public Transport Victoria and myki providing customers with information for a single user perspective for trip planning and payment, but we are only beginning to optimise the coordination of rail, tram and bus routes, the modal interchanges and the incorporation of taxi, car share and bike share directly into one system, planned developed and coordinated across government departments, transport companies and agencies, and local government. A 'one system' approach to planning and governance.

### Making our public transport system more effective

#### Capacity

Public transport capacity today cannot comfortably meet demand. To meet the future demand from projected growth, especially at peak times, the capacity of the system will need expansion and significant upgrades, including metro style separated train lines, new rolling stock, tram and bus priority, and new tram routes.

The walking component of public transport journeys also requires more capacity. Many parts of the pedestrian network are now at capacity during peak times. More than 153,000 people per day use Flinders Street Station

and 36,000 people use the Federation Square tram stop. In 12 years these numbers will more than double, to 380,000.

#### Reliability

Overloaded trains, cancellations and maintenance difficulties are reducing train service reliability. Melbourne's large suburban rail system is ill suited to providing a high frequency, high capacity service. The reliability of the tram and bus services is undermined by delays caused by road traffic congestion and insufficient priority at intersections.

Users rate reliable departure and arrival times as more important than journey time. As customers come to rely more on public transport its reliability becomes more critical. Improvements to reliability require improvements to infrastructure as well as operations.

#### Accessibility

A world standard public transport system in a dense, mixed-use city provides users with good access to a wide range of destinations at most times of the day and week. The London Underground, Paris Metro and New York Subway do this. These metro style systems provide business users, visitors and residents with a high degree of accessibility, meeting most of their transport requirements and underpinning the economy in those city centres.

An assessment of the accessibility afforded by Melbourne's combined rail, tram and bus network<sup>1</sup> shows

<sup>1</sup> *Spatial Network Analysis for Multi Modal Urban Transport Systems (SNAMUTS) 2010. RMIT. Dr Jan Scheurer*



that a large east-west corridor through the inner Melbourne region provides users with above average accessibility. A world class system should provide them very good to excellent accessibility.

By expanding and upgrading Melbourne's public transport network over the next 20 years, the system would provide very good to excellent accessibility over a much larger area. With this degree of accessibility, users would be able to go anywhere, anytime using the public transport system much as they would use their car.

The scenario expansions and upgrades include a new Footscray to Caulfield Metro line, reengineering the train network

into a system of separated metro style lines, reducing travel times by 25 per cent, increasing service frequency to no less than every 10 minutes, adding new rolling stock, redeploing tram routes to provide a more even service spread across the central city, and adding new services and links.

### **Building the complementary relationship with private transport**

Disjointed strategic transport planning is the result of long institutionalised separation at all levels of governments between the planning and provision for private transport and that for public transport.

Walking in particular is a critical trip component of the public transport system and its ability to service land uses effectively. The locale of a station or stop must link with convenient, logical and safe walking connections. The design and management of the public realm between stops and stations must be integrated with the design of stops, stations and interchanges.

Driving has been the dominant mode of metropolitan travel for nearly 50 years, but it is not the universal solution it once appeared to be. In the more dense parts of the city, public transport and walking are the most effective combination, so driving needs to be designed to



complement this combination rather than compete with it.

Cycling is an ideal mode for extending the catchment of public transport. High quality cycling networks linking stops and stations with residential and employment centres, are critical for enabling cycling to complement the public transport system. Facilitating the carriage of bicycles on some public transport vehicles may also be appropriate. Secure bike parking at suburban stations can facilitate a form of 'park and ride' that is significantly more space and cost efficient than 'drive and ride' car parking. This, together with improved bike share mobility options in the central city, can enable public transport users to integrate cycling easily into their journey.

### Enabling east west travel

Whilst the population of the western half of the metropolitan region is growing rapidly, this is not being matched with strong jobs growth. The high effective jobs density along the south eastern corridor between central Melbourne and Clayton is underpinned by a strong road and public transport network. There is no comparable employment corridor or underpinning transport network west of the Maribyrnong River.

The western suburbs need better transport connections with Central Melbourne and the south eastern employment corridor, as well as with the Port of Melbourne. These connections would boost the west's capacity to attract and retain businesses and reduce social disadvantage by providing better access to the central city for work, education and other purposes. They would also open up new business

opportunities in the west (especially in the services sector) and improve its competitive advantage as a freight and logistics hub.

The 2008 East West Link Needs Assessment (EWLNA) identified that the lack of rail capacity through North Melbourne and the City Loop constrains the ability to boost rail services to and from the west. The Regional Rail Link (RRL) and the proposed Footscray to Caulfield Metro Rail link are designed to build a rail service to the west comparable with that serving the south east.

The City of Melbourne's envisages the urban renewal of Docklands, E-Gate, Arden Macaulay and the land north of Dynon Road as an intensive employment and residential corridor extending out from the central city to the Footscray Central Activities Area and beyond. These land uses would be serviced by the new rail services and by new and re-directed tram and bus services to the inner west.

### Public Transport and the 24-hour city

The NightRider bus provides the best solution to late night public transport on Fridays and Saturdays.

Extending train operating hours may not be ideally suited to the night time transport task. Trains have a significantly higher operating cost than buses. Additionally any overlap between trains and NightRider will result in competition between the two modes.

Considerable improvements to NightRider have been made in recent years. This has contributed to high demand for services. Further improving service frequencies will increase

transport in and out of the city during these times.

There is scope to extend tram services into the night on Fridays and Saturdays. The City of Melbourne will work with others to explore the value of extending trams until 2am, and running services on selected routes all night to provide a complementary service with NightRider buses.

### Contributing to emissions reductions

The public transport system will be a central component of a low emissions future. High capacity public transport will enable people to move throughout inner Melbourne in an environmentally efficient way. Sustainable transport behaviour will be further enabled by fine grain public transport modes throughout the municipality, such as tram and bus systems, taxis, car and bike share programs, which together will provide flexibility in mode choice without the embedded restrictions of vehicle ownership.

Zero Net Emissions by 2020 (Update 2008) sets a target for reducing the carbon intensity of the public transport system: a 20 per cent reduction by 2020.

The most effective way to achieve this in Melbourne will be to decarbonise the fuel supply, through the introduction of low-carbon or clean source energy, thereby reducing reliance on emission-intensive sources.

Additionally, improvements to the energy efficiency of the public transport network, such as regenerative braking on trains, can also contribute to overall reductions in greenhouse gas emissions.







# 6 Train

## Goal

Train travel to and within the City of Melbourne will be convenient, reliable, safe and efficient. Peak hour (peak direction) train frequency will be increased by 50 per cent from 2011 service levels.

## Context

An efficient and reliable train network is the central component of a well functioning public transport system. High capacity and fast train connections are vital for enabling access to the central city and the variety of facilities and services hosted there.

The Melbourne train system carries about 400,000 people each day on a network of 830 km of track, using 180 six-carriage trains. There is no other mode of transport with the capacity and efficiency of trains, capable of moving people into and from the central city.

Improving train network efficiency and integration with complementary modes of transport is essential if we are to support sustainable growth in the number of residents and employment opportunities in the City of Melbourne.

Melbourne has a large suburban rail system. Suburban rail systems operate on main line tracks, carrying a mix of other rail traffic such as regional passenger rail and freight services. This means that the train traffic is more complex, headways are longer, average speeds slower and service frequencies lower.

As the density of activity in Melbourne's inner metropolitan region has grown over the last 20 to 30 years, our suburban system has become increasingly ill-suited to meet the rail service needs of these parts of the city.

## Issues

### The suburban rail system is inadequate for inner Melbourne

The dense inner metropolitan regions of most large advanced

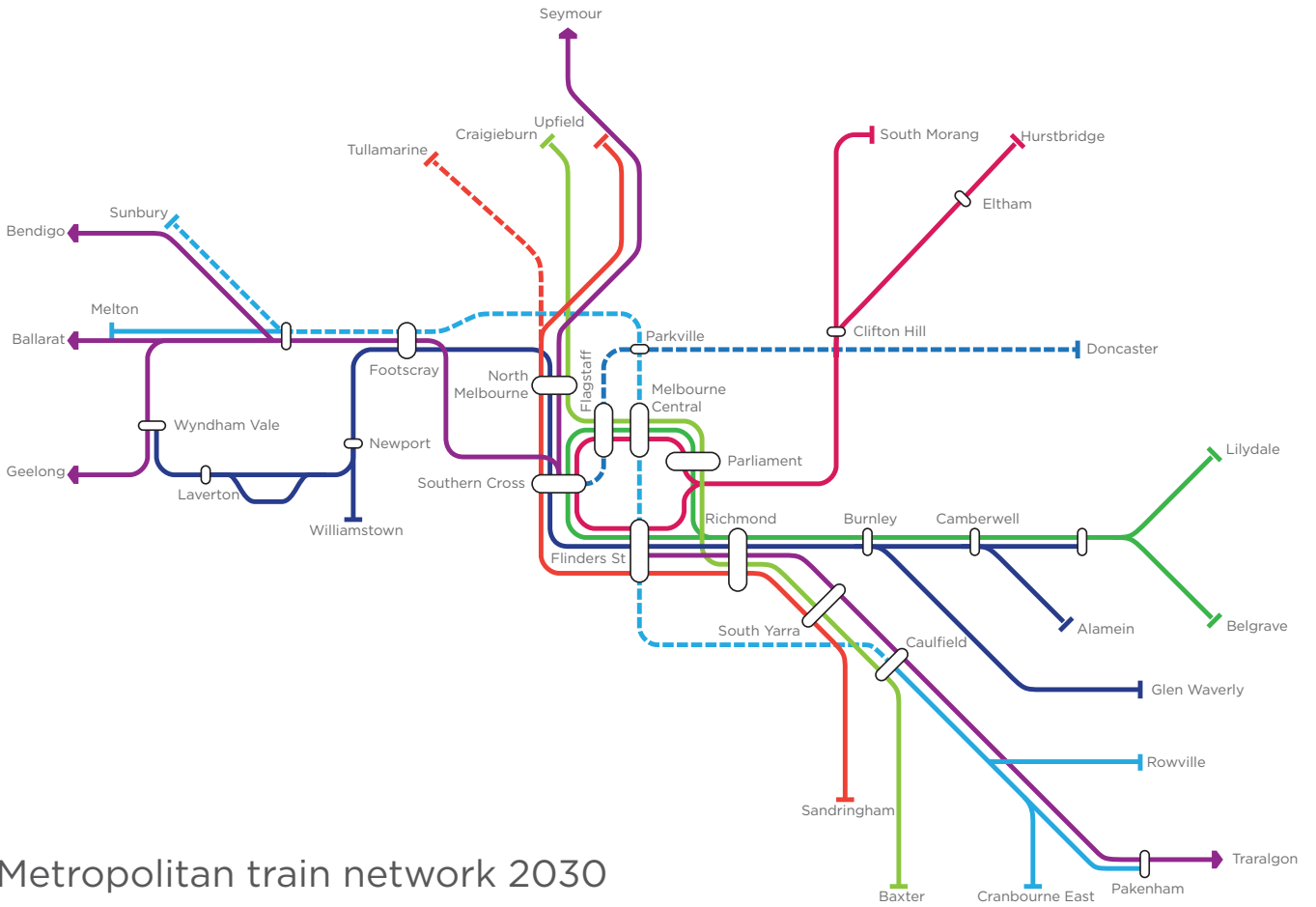
cities across the world have (or are installing) a metro rail system to meet the more intensive passenger rail task. Unlike a suburban rail system, a metro (or rapid transit) rail system is a network of dedicated lines segregated from each other and other rail traffic and running back and forth along the one line. Passengers wanting to traverse the network make interchanges at hub stations where two or more lines pass by each other.

Melbourne needs a metro style rail service that can run at higher frequencies and speeds and with greater reliability. Running at frequencies of every five minutes means a timetable is not required. The metro network can be complemented by a suburban rail service to the outer metropolitan areas.

### The costs of congestion on trains

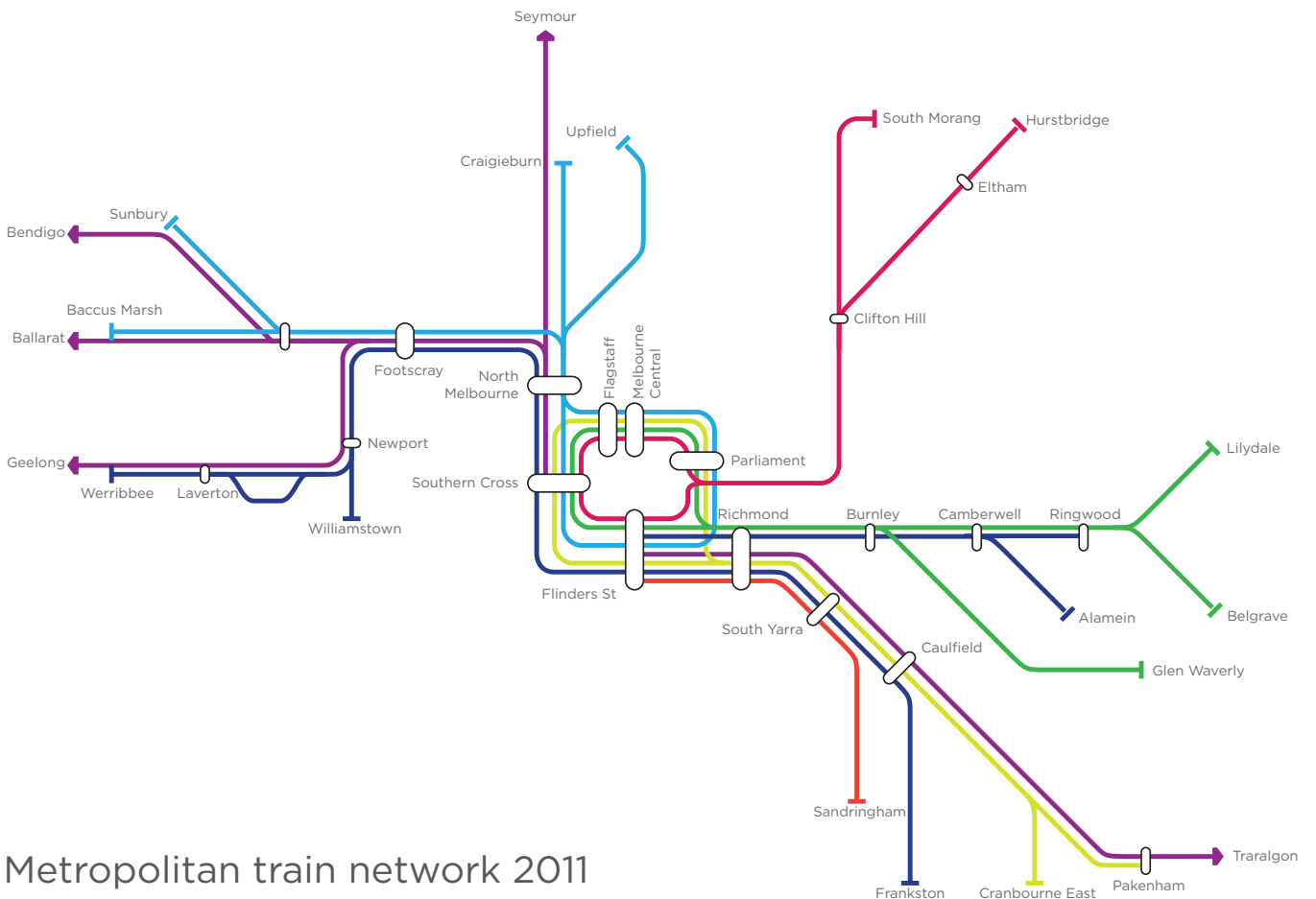
Overcrowding on our train network makes access to the City of Melbourne difficult for some people across the metropolitan area and coming from some regional centres. It also affects inner city residents who are unable to access persistently overcrowded services. This can be especially problematic at peak times, when many people rely on the rail network to get to work. Further overcrowding on our trains has the potential to suppress jobs growth in inner Melbourne. It has been calculated that for every 10 per cent of overcrowding on Melbourne's trains, the city misses out on creating between 1600 and 2600 jobs<sup>1</sup>. The peak rail capacity of Melbourne's train

<sup>1</sup> Currie, G, 2010 *Understanding Urban Agglomeration Benefits in Mass Transit Project Evaluation*, Monash University



## Metropolitan train network 2030

Fig 6.1 Possible Train Network Concept 2030 showing new lines with less convergence



## Metropolitan train network 2011

Fig 6.2 Train Network Configuration 2011 showing pressure on Flinders Street





Fig 6.3 Melbourne Metro project proposed alignment Source: Department of Transport

system is currently approximately 40 per cent overloaded and this is projected to go as high as 44 per cent by 2015, even with current planned improvements in place. Regional Rail Link is an important project addressing train congestion by constructing new tracks to separate suburban trains from the west from regional trains servicing Geelong, Ballarat and Bendigo.

**Poor customer pedestrian connections and interchanges**

Poor pedestrian connections for customers around modal interchanges is undermining the

ability of the public transport system to function as an integrated multi modal system. Some precincts such as the train/tram interchange at Swanston Street, at Flinders Street Station, or the Spring Street exits for Parliament Station, have not been designed for current peak capacity and congestion will only increase as patronage grows.

**Urban renewal areas will require new train services**

Major urban renewal areas such as City North and Arden-Macaulay will require new rail services to

provide excellent accessibility and high passenger capacity to serve what will be high intensity, mixed-use areas very similar to the current central city. The long-term planning for land use development and transport planning in these contexts must be coordinated.

**Greenhouse emissions and energy cost**

Melbourne’s train network currently relies on electricity generated by brown coal. This is very greenhouse gas intensive. Fuel costs are expected to rise in

the future, including the cost of electricity to run the train network.

## Objectives and actions

### Re-engineer the suburban rail system to provide a metro service

The suburban train system needs to be converted into a metro train service to cater for the large number of users and to serve the growth and intensity of development in inner Melbourne.

Creating a metro system could increase the capacity of the train network from approximately 135 trains in the morning peak hour to about 256 trains.

- Through-route trains – The most efficient way for trains to operate is to travel from one side of the metropolitan area to the other, running through the central city. This means they spend as little time as possible in the most congested part of the network which, in Melbourne, is the City Loop.
- Separate lines – When lines are separated they can be upgraded independently (including larger train sets and new signalling) and breakdowns are isolated to a single line. Washing and repair facilities are provided for each line so trains do not travel on the network to access servicing. Trains can be run simply and more frequently because complex timetabling and track sharing is avoided.
- New routes – As Melbourne grows, new train lines will be needed. The first of these will be the Melbourne Metro Rail Tunnel. Other potential future extensions to Melbourne Airport, Doncaster and

Rowville are currently being studied.

### 57. Priority Action: Work with the Department of Transport to achieve the conversion of the suburban rail network into a metro style system.

#### Melbourne Metro

The State Government has proposed that one of the next major improvements to the train system is to be the Melbourne Metro rail tunnel. This new service, planned to be operating by around 2020, was initially proposed by the East West Link Needs Assessment (the Eddington Report) and is similar to the North-South Underground Rail Line proposed in the City of Melbourne's previous transport strategy, *Moving People and Freight 2006-2020*.

The project would provide a high capacity underground train running from Footscray, via new stations at Arden-Macaulay, Parkville, City North, City South and Domain to join the existing train network near South Yarra station. The Melbourne Metro would add 24, nine-car trains per hour to Melbourne's network and be able to carry 60,000 people per hour.

The Melbourne Metro proposal is a major city shaping project comparable in scale and effect with the City Loop. Planning for the new Melbourne Metro stations at Arden, Parkville, CBD North, CBD South and Domain has been incorporated into City of Melbourne's new Municipal Strategic Statement (MSS), the Arden-Macaulay Structure Plan 2012 and City North Structure Plan 2012. These are plans for the local land use development, transport and mobility in these urban renewal areas. The City of Melbourne has developed these



Fig 6.4 Proposed Arden station location

plans in close consultation with the community and the State Government to ensure that the local land use and transport planning is fully integrated with the planning for the proposed Melbourne Metro.

The timeframes envisaged in the City of Melbourne's plans are coordinated with State Government's project timelines. In November 2011 the Victorian Government submitted a bid to Infrastructure Australia for \$130 million for pre-construction work on the project (nominally for 2012/13).

The Melbourne Metro proposal must provide for a very high level of transport and land use integration. New development located near stations or feeder services to the Melbourne Metro (such as new tram or bus lines) should be strongly transit-oriented. The project should include a review of existing transport systems to ensure they provide optimal service to the growing city. In particular



tram services should be re-routed from the overcrowded Swanston Street corridor on to routes that will feed better transport service to the west of the central city. The project must integrate the new stations with the surrounding urban fabric to enhance the mobility, liveability and economic performance of the city. This would mean excellent pedestrian networks to ensure that the walking leg of public transport journeys is prioritised, efficient and attractive. Construction of the Melbourne Metro would take several years and have a significant impact on city operation. Construction in the central city is complex and affects many people and businesses. The City of Melbourne will need to work closely with the State Government to minimise negative impacts of construction.

**58. Priority Action: Work closely with the Department of Transport on the planning and construction of the Melbourne Metro project to ensure it is well integrated with the existing city and its future development and enhances Melbourne’s transport network in addition to actively supporting future rail extensions to Doncaster.**

**Improve customer pedestrian interchanges and connections**

The design of the public realm around existing and proposed stations needs to optimise pedestrian priority, safety, amenity and convenience of all rail customers as they move between the station and their final destination, or the next leg of their journey. This requires specific improvements to facilitate convenient access for people with



Fig 6.5 Proposed Parkville station location

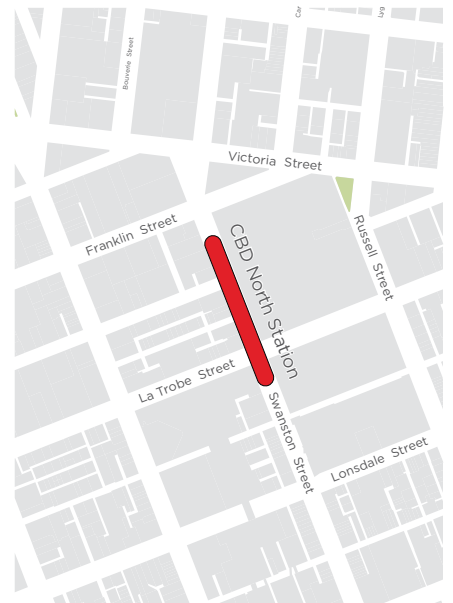


Fig 6.6 Proposed CBD North station location

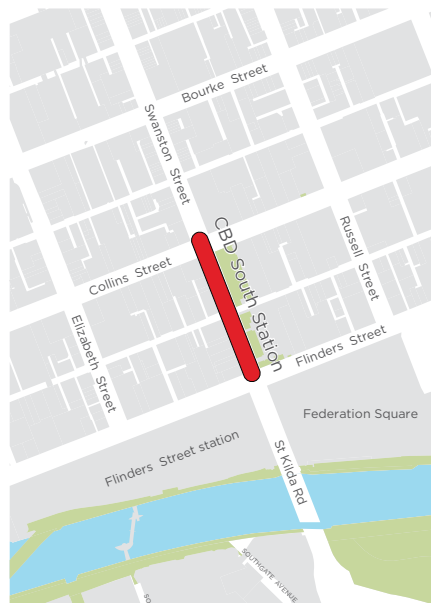


Fig 6.7 Proposed CBD South station location



Fig 6.8 Proposed Domain station location

disabilities to existing and future underground train stations. The Flinders Street precinct, and links to the Federation Square tram stop and the Elizabeth Street tram terminus require specific short term improvements.

**59. Priority Action: Work with the Department of Transport and train operators to ensure that areas around train stations provide excellent pedestrian access.**

**60. Priority Action: Work with State Government to ensure the municipality's urban renewal areas (Southbank, Docklands, E-Gate, Arden-Macaulay and City North) are planned to prioritise direct, high quality, high capacity pedestrian links for 800m around new and existing stations.**

### **Coordinate land use intensification with existing and new rail stations**

The development of land around new rail stations should be planned to maximise the benefit of the accessibility provided by the train network. Higher density, mixed-use developments should be located closest to stations.

Existing train stations, such as Flagstaff and North Melbourne, will play a more important role as urban renewal of the inner north and west of the central city continues. These stations should be managed to complement this increase in activity and provide convenient access for residents, commuters and visitors.

**61. Priority Action: Work with the State Government to ensure that planning for new rail stations and precincts integrates land-use planning with the transport network.**

**62. Action: Advocate for the hours and days of operation of Flagstaff Station to be similar to other City Loop stations.**

### **Greenhouse emissions and energy cost**

There are opportunities to reduce the greenhouse intensity of the public transport network through both the operation of the network and the energy that is used to power it.

**63. Action: Advocate to improve the overall energy efficiency of the train network and in particular increase the use of low-carbon and clean-source energy to power Melbourne's train system.**



# 7 Tram

## Goal

Tram operations in the City of Melbourne will be improved to offer a more frequent and reliable service. Tram stops will be better integrated into the public realm to improve passenger access, safety and amenity, with 90 per cent of stops upgraded to 'level access' by 2016.

## Context

Melbourne's trams are an iconic part of the city's street life.

They connect Melbourne's inner suburbs and shopping centres and offer a fine grain of mobility compared with the longer distance task performed by the heavy rail network. Melbourne's trams have the potential to be one of the world's leading surface transport systems.

Trams serve approximately 600,000 people every day in Melbourne's inner metropolitan areas, on a 247 km network that is worth between \$10 billion and \$15 billion. Trams can move more than 10,000 people per hour in a single arterial traffic lane that could otherwise move only 800 cars. During peak hour on key routes into the city, trams already move more people than motor vehicles. For example, they move 56 per cent of the people travelling on Nicholson Street, Carlton, and 54 per cent of the people on Bridge Road, Richmond.

The tram network is one of Melbourne's most important strategic assets. Trams provide high quality, on-street public transport that does not require passengers to travel underground to access it.

However Melbourne's trams are amongst the slowest in the world, running at around 16 kph throughout the system and 10 kph in the city.

The low average running speeds are caused by:

- Sharing tramways with general road traffic – This means trams are being stalled in road congestion and stopped by

traffic manoeuvres crossing the rails, such as cars turning right.

- Only limited priority at intersections with signals along tram routes – Trams receive some level of priority at traffic lights but this could be significantly increased. On average, Melbourne's trams spend 17 per cent of their journey time waiting at traffic signals. Analysis by Yarra Trams shows that changing signal operation to give trams dynamic priority (signals responding to arriving trams) on Swanston Street could result in delays being reduced by up to 33 per cent.
- Tram stops are too frequent – Melbourne's tram stops are very closely spaced compared with tram and light rail systems overseas. This provides excellent access to tram services, however it can also mean frequent stopping, which increases travel time.
- Tram stop design is inefficient for passenger boarding – Many tram stop designs are inefficient. These include stops yet to be converted to level access and stops where passengers have to wait for vehicles to halt before they can cross traffic lanes.

Many tram routes in the city have developed as corridors of mixed use and often high density land uses. This integration of efficient transport and centres of employment and housing is beneficial for people living, working and visiting these areas, as well as for the macro-urban form of Melbourne. While this is common in the inner city, many tram routes in the middle and outer network are underdeveloped and have

the potential to accommodate significantly more residents, jobs and other services.

## Issues

### Slow tram speeds

There are many factors that impede and slow down trams, together making Melbourne's trams the slowest in the world.

Delays caused by sharing tramways with general road traffic result in unpredictable delays and even cancellations of services.

Consequently, the tram service becomes less reliable in running to timetable, which deters travellers from using the service. It is also extremely expensive to manage a tram network that is heavily impacted by traffic; if trams were not held up by traffic congestion, the same level of service could be achieved with approximately 100 fewer trams. (Melbourne has 486 trams, including 37 historic W class vehicles). Many tram routes in the city of Melbourne have been separated from traffic, however trams are often still held up by non-compliant traffic and right turning vehicles. These issues can be most obvious on streets which provide access to off street car parking.

Considering the critical role that trams play in the transport system, they are often afforded little priority at traffic lights, which can reduce the quality of the service they provide. The City of Melbourne has been working with VicRoads and tram operators to improve tram priority at signals for many years, achieving some excellent results. However, more can be done to reduce the time that trams are held up at traffic lights.



Fig 7.1 Level access tram stop in Swanston Street, Melbourne



Fig 7.2 Level access tram stop showing permeable access to footpath in StKilda



**Infrequent services**

Poor frequency of tram services can be a result of the problems which slow trams down. When services are significantly delayed, there is often a knock-on effect to other services using the same route or line, resulting in extended time gaps between services.

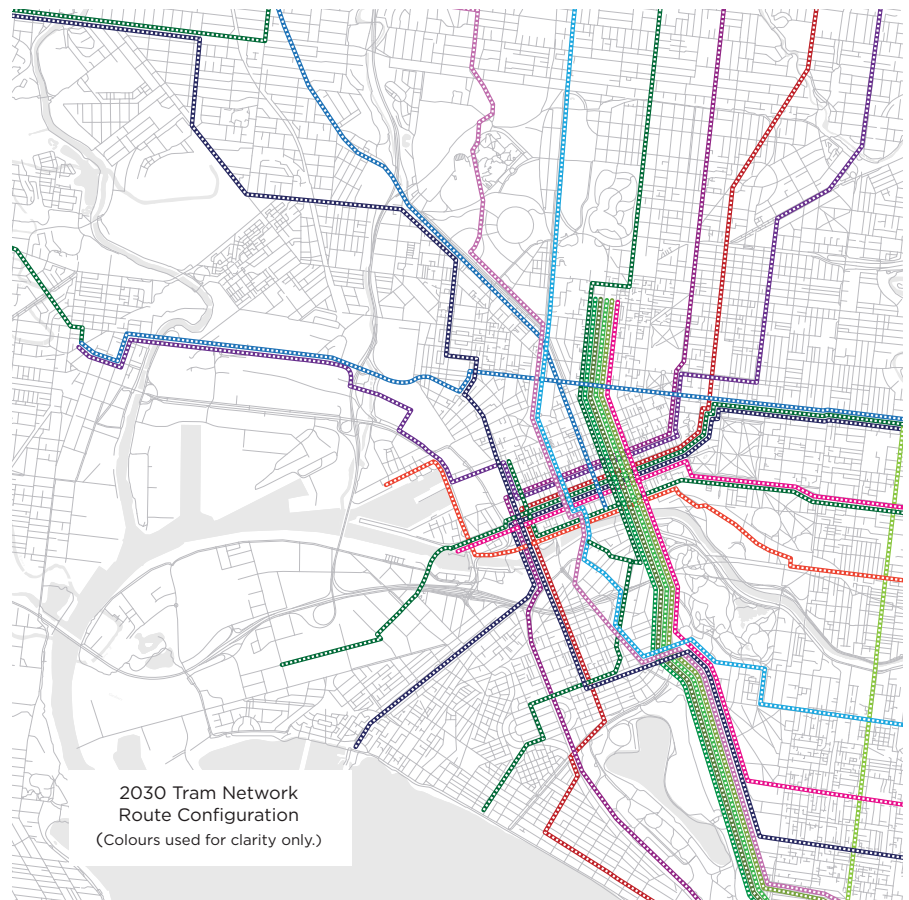
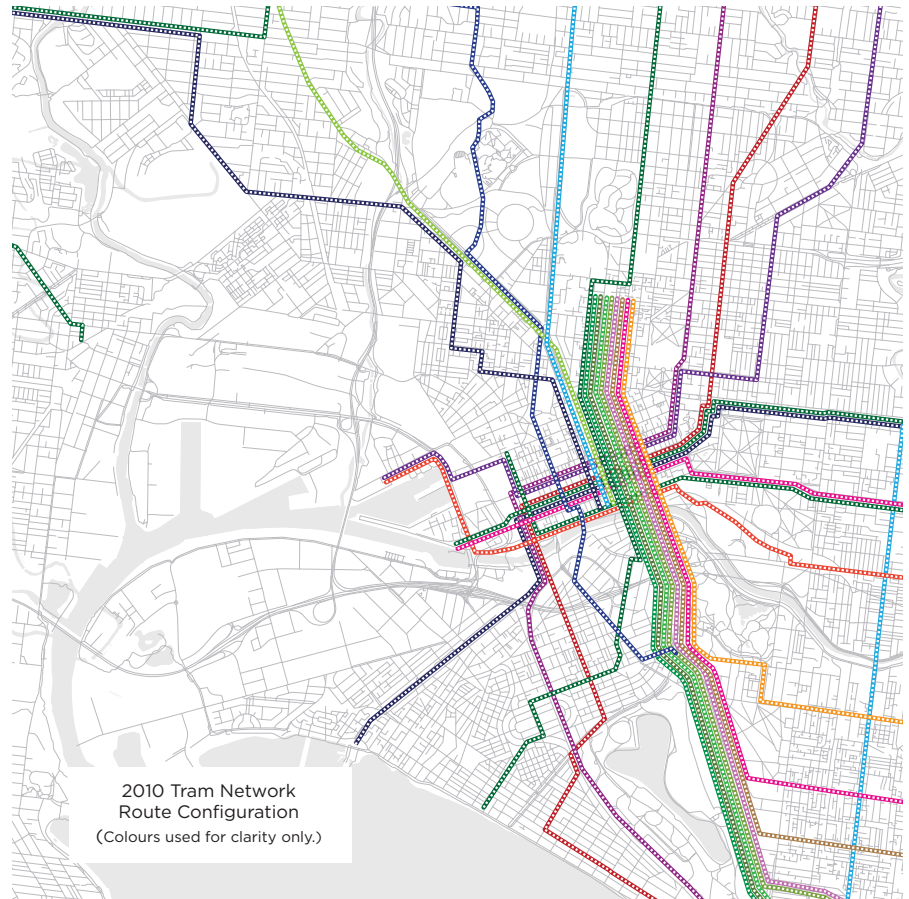
Many tram routes are scheduled to run at low frequency, due to a lack of rolling stock, lack of demand, or inability to accommodate more services on the existing infrastructure. Low frequencies are common in the inter-peak times.

**Stop and interchange design**

Tram stop designs need significant improvement to ease overcrowding and improve connections for walking. Level access stops have improved the safety and amenity of stops, as well as reducing loading times. In some cases they have calmed traffic in high pedestrian areas. However, some are now overcrowded and require staff to maintain passenger safety and efficient movement. Extensive fencing is used to separate traffic (often 50 to 60 kph zones) from pedestrian areas, which has led to an impermeable walking environment.

Creating a more equitable, accessible transport system is a major driver for improving the design of tram stops. Meeting the requirements of the Disability Discrimination Act will ensure those with physical disabilities can access trams and it improves the ease and safety of access for all customers.

Some of the most important tram stops in the city are interchanges between tram and train or bus. For example, the Flinders Street Station connection to the

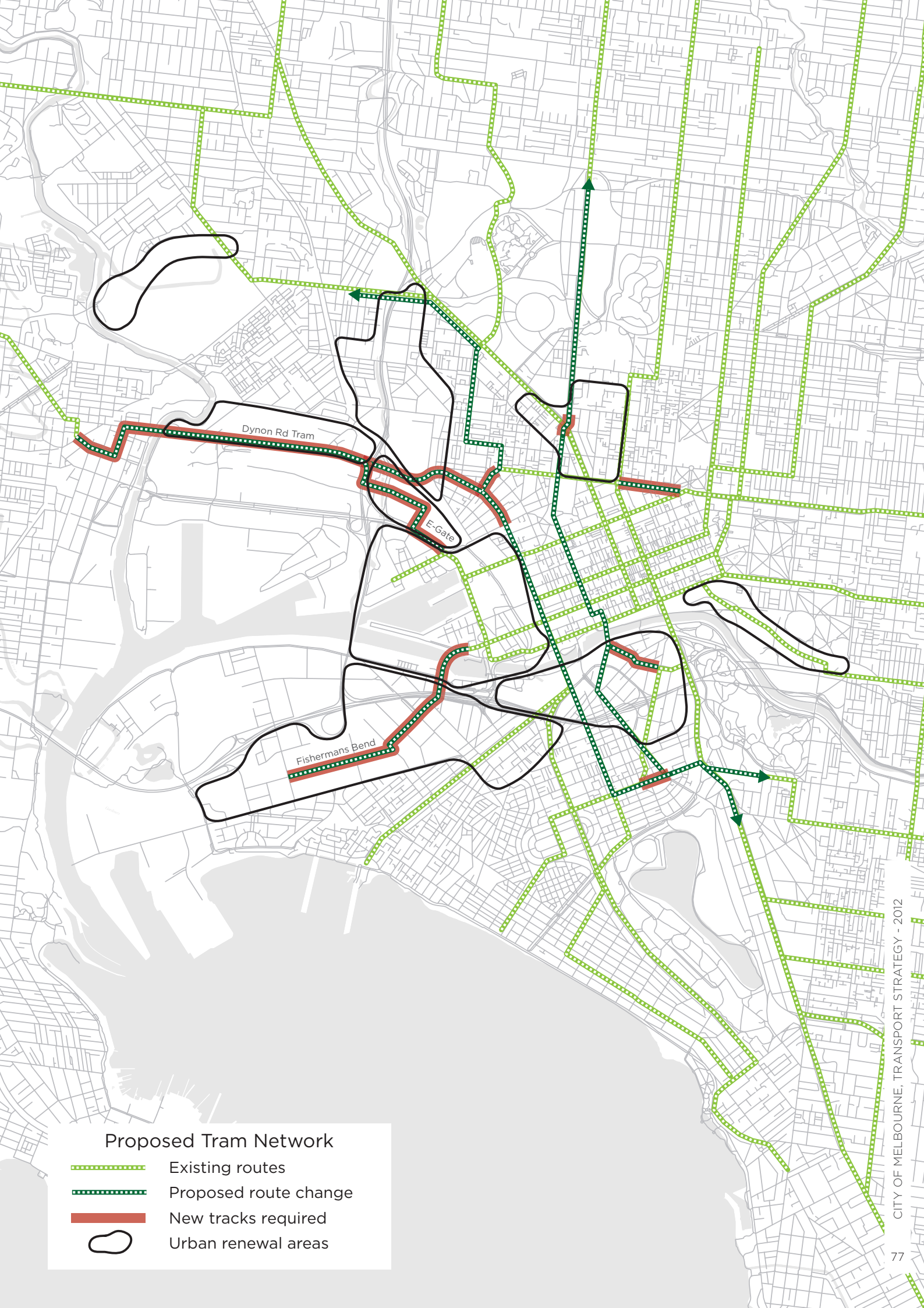


*Fig 7.3 Tram congestion on Swanston Street*





*Fig 7.4 Trams to the west of the central city and additional routes*

*Fig 7.5 (Right) Tram routes moved to the west of the central city; additional tracks at Victoria Parade, E-Gate and Haymarket. New tracks and routes on Dynon Rd, in Fishermans Bend, and along Grattan and Elgin Streets*





**Proposed Tram Network**

-  Existing routes
-  Proposed route change
-  New tracks required
-  Urban renewal areas



Federation Square tram stop, and the interchange between Southern Cross Station and the tram network are extremely busy places in the morning and evening peaks. Better tram stop design, and traffic treatment, including lower speeds, can help create a more permeable walking environment to ease some of the current overcrowding, safety and amenity issues.

**Network imbalances and gaps**

The tram network in the city is currently very dependent on the St Kilda Road-Swanston Street corridor. The number of routes that feed into this corridor means that even a slight problem can have a major impact on tram operations and people’s travel time. The emerging and future urban renewal areas will need to be serviced by extensions to the tram network to deliver excellent accessibility.

**Greenhouse emissions and energy cost**

Similarly to Melbourne’s train network, the tram system currently relies on carbon intensive electricity. As the use and deployment of tram services increases, and in an economic climate where fuel costs are expected to rise, it will be increasingly important to transition the tram fleet onto a sustainable power supply.

**Ageing tram fleet**

The age of Melbourne’s tram fleet needs to be addressed. Many trams will reach the end of their design life during the next decade. The lead-in time to buy new trams is three years, and the system requires a long term commitment to managing and expanding the capacity of the tram fleet. Trams are often overcrowded, partly because

many vehicles are too small: 147 of the fleet’s 486 trams are Z class, which carry only 70 people, compared with the Bumblebee (C2 class), which carries 140 people. Recent increases in user numbers has meant Melbourne’s trams are becoming overcrowded more often. Upgrading of the fleet can address this issue and realise significant performance and quality improvements.

**Objectives and Actions**

**Improving tram speeds**

There are many infrastructure and traffic management techniques which can improve tram speeds across the network. Together, these initiatives can improve speeds from the current network average of 16 kph, and central city average of 10 kph.

On-road public transport needs significantly greater priority over general traffic in the allocation of road space and time at traffic signals. This can be achieved by better delineation between traffic and tram lanes, and enforcement of road rules that ensure trams and buses are not impeded.

**64. Action: Work with Victoria Police, VicRoads, the Department of Transport and the Department of Justice to improve traffic enforcement to reduce delays to trams and buses.**

**65. Priority Action: Work with the Department of Transport to reduce tram and bus delays by providing dedicated tram rights of way.**

Giving greater traffic signal priority to trams across the network is a high priority for improving the level of service trams provide. In the CBD, priority along east-west

streets (Flinders, Collins, Bourke, La Trobe and buses on Lonsdale), at streets such as King Street, would significantly reduce tram delays. The Department of Transport plans a test of ‘absolute priority’ for tram routes 96 and 109, which would reduce to zero the delays trams experience at traffic signals.

**66. Priority Action: Work with VicRoads to change traffic signalling to prioritise tram movements.**

The road Network Operating Plan (NOP) to be developed by the City of Melbourne in cooperation with the Department of Transport and VicRoads will include the highest level of priority for trams to ensure fast running times, reduced tram crowding, better reliability and a better customer experience.

**67. Priority Action: Work with the Department of Transport and VicRoads to ensure that the municipality’s Network Operating Plan provides a high level of priority to trams.**

**Frequency boost**

More frequent tram services will deliver significant benefits for access and mobility in the inner region. A frequency boost can be achieved by speeding up the network, minimising externalities which impede tram movements, and better design solutions for busy tram stops and interchanges. A 25 per cent increase in tram frequencies will deliver substantial network improvements, as detailed in the accessibility analysis (Spatial Network Analysis of Multimodal Urban Transport Systems – SNAMUTS ) which underpins this strategy.



Fig 7.6 Federation Square Tram Stop



**68. Priority Action: Work with the Department of Transport, VicRoads and Yarra Trams to improve tram frequency and average running speeds.**

**Walkable stops and interchanges**

Constructing new level access stops for trams will be one of the most important parts of developing high mobility public transport and pedestrian streets. These should be constructed to provide pedestrian priority access and high levels of pedestrian permeability.

**69. Priority Action: Work with the Department of Transport, Yarra Trams and VicRoads to develop a four-year strategic plan to design and construct level-access stops in the municipality as part of a whole-of-streetscape renewal. Include a review of the function of existing level-access stops.**

Providing access to trams and buses for people of all abilities is important for access. By 2017, the Disability Discrimination Act (DDA) requires that 90 per cent of the public transport system (stops and vehicles) must be DDA compliant. Providing fully accessible stops will contribute to a more equitable transport system, and also improve the capacity and reliability of the tram and bus networks by speeding up boarding and alighting.

**70. Action: Work with the Department of Transport, Yarra Trams and VicRoads on the construction of level access stops in the municipality to meet comply with the requirements of the Disability Discrimination Act.**

The high cost of new stops and the need to reduce tram delays means that the overall number of stops

will be reduced in the city. There is a requirement to balance the needs of pedestrians, for example their tolerance for long distances between stops, with the speed and operational needs of trams.

New stops will be designed to integrate much more easily into the surrounding footpath network and provide better access for cyclists. The City of Melbourne’s plans for Swanston Street, and the existing stop at Cleve Plaza (Fitzroy Street, St Kilda) are examples of the new streetscape tram stop improvements we will see more of in the near future. This will mean greater permeability for pedestrians, reduced fencing, lower traffic speeds and better bicycle access.

**71. Priority Action: Work with the Department of Transport, Yarra Trams and VicRoads to ensure the design of new level-access tram stops that have excellent pedestrian accessibility with the surrounding footpath network.**

**New trams**

Melbourne needs a transparent, ongoing asset management program of phasing out old trams, introducing new ones and expanding the tram fleet to cope with strong patronage growth. The arrival of 50 new E class trams in Melbourne between 2012 and 2017 is welcome. Despite this, tram overcrowding will worsen over that time due to growth in passenger numbers.

As new trams are deployed on high performing tram routes, the routes should be upgraded to provide the highest possible level of tram priority, high quality stops and route separation. New trams will go on routes 96, 109, 19 and 112, in

that order. This is an opportunity to create a master plan for the streets on which these trams run, to ensure new transport infrastructure is integrated with high quality street design, pedestrian and public transport priority, and new, more permeable stops.

**72. Priority Action: Work with the Department of Transport to master plan streets in preparation for the introduction of new low floor E class trams.**

**Balance and optimise the network**

The City of Melbourne has identified opportunities to balance the tram network to ease over-burdened routes and also assist poorly serviced areas. This strategy is closely aligned with the urban renewal planned for the municipality, and involves improving tram services to the inner west of the central city.

**Trams to the west of the CBD**

There is an opportunity to redirect some of the trams currently using St Kilda Road to the west of the city. This will help activate development in the west of the CBD and reduce pressure on the Swanston Street-St Kilda Road spine. This would be coordinated with the construction of a new tram interchange at Domain as part of the Melbourne Metro Domain station. The Melbourne Metro will also service some of the current trips on the Swanston Street corridor.

A north-south tram alignment running through the Haymarket roundabout will also improve tram accessibility to the west of the central city. This will link the Royal Parade corridor with the Peel-William Street tram lines.

These options can be implemented in the short term, between 2011 and 2016.

### Victoria Parade, E-Gate and Haymarket

The redevelopment of the E-Gate site will require high quality public transport links into Docklands and the central city. A tram link via Footscray Road and pedestrian access to the North Melbourne train station will provide this. Future extension of this route beyond E-Gate to the Dynon Road corridor will fit well with land use activity linking central Melbourne with the Footscray precinct. A tram line will stimulate activity and deliver high quality access and mobility for commercial and residential developments along this route.

Other initiatives include connecting the two sections of tram track on Victoria Parade, between Swanston Street and Carlton Gardens, and linking the Errol Street service with the Spencer Street corridor.

These initiatives can be implemented in the medium term, between 2020 and 2030.

### Fishermans Bend

Fishermans Bend is currently poorly served by public transport. Any future mixed use development of this precinct must be accompanied by high quality public transport services. There are opportunities to link Docklands and the 109 light rail in Port Melbourne via the planned Fishermans Bend development site.

**73. Priority Action: Work with the Department of Transport and Yarra Trams and VicRoads to implement the long term reconfiguration and extension of the tram network proposed in this strategy.**

The City of Melbourne has been working with the Department of Transport, the Department of Planning and Community Development and adjacent municipalities to develop tram routes 96 and 109 as examples of integrated transport and land use planning.

Tram route 96 is already one of the most successful, and the third most patronised, tram route in Melbourne. However, current running times between Spencer Street and East Brunswick are 40 per cent slower than in 1950 (28 minutes today compared with 20 minutes in 1950). Route 96 trams spend 33 per cent of their journey time stationary. This is in addition to the 17 per cent of the journey spent loading passengers. This is a poor use of public investment in the tram system.

**74. Priority Action: Work with Yarra Trams, The Department of Transport and VicRoads to implement the 96 and 109 route upgrade projects, including ensuring that the network operating plan gives good signal priority through the city.**

### Greenhouse emissions and energy cost

**75. Action: Advocate to increase the energy efficiency of Melbourne's tram system and the use of low-carbon and clean-source energy.**

### Targets

#### Increase tram running speeds

The City of Melbourne's analysis of accessibility showed that increasing tram speeds by 25 per cent had a significant effect on the accessibility provided by the public transport network.

#### Increase service frequency

Progressively increase the service frequency across the network to increase the accessibility provided by the service. The City of Melbourne's analysis of accessibility showed that increasing service frequency was a key part of improving the overall public transport accessibility. Frequencies can be increased to a minimum of 10 minutes in inter-peak times, by implementing actions to improve running speed as well as adding more vehicles to the tram system.



Fig 7.7 Collins Street, Melbourne



# 8 Bus

## Goal

Buses will develop as an efficient and prioritised mode of public transport for residents, workers and visitors to the city of Melbourne. Central city bus routes, such as Lonsdale and Queen streets will be improved for buses, with travel times reduced on these routes by 30 per cent.

## Context

Melbourne's bus network is experiencing similar growth to other public transport modes, and this growth is forecast to continue. In inner Melbourne buses are a complementary component of the public transport network, in many cases filling gaps in the train and tram networks and feeding or extending these rail routes.

Buses currently link the central city with the Doncaster area, Fishermans Bend, linking the Parkville precinct to North Melbourne train station, and offering late night transport options, for example, NightRider.

The use of NightRider buses has been growing strongly. Patronage doubled to about 4,300 patrons per weekend after 2008, when standard fares were applied. Buses are well suited to late night operation. They are flexible (services can be quickly increased or rerouted to take account of demand) run from 'kerb-to-kerb' and can run on infrastructure that already operates 24 hours a day (the road network).

The City of Melbourne's key CBD bus corridors are Lonsdale Street (serving the Doncaster Area Rapid Transit and other services) and Queen Street. In its busiest section, Lonsdale Street carries more than 1200 buses per weekday. Queen Street carries nearly 750 buses. Bus lanes have been installed on both sides of Lonsdale Street and on one side of Queen Street. These projects were proposed in Moving People and Freight 2006-2020.

The Doncaster Area Rapid Transit (DART) is a series of effective high capacity routes connecting the central city to the Doncaster area. The routes continue to experience

strong patronage growth, and provide an example of how buses can contribute to meeting the mass transit task in Melbourne.

## Issues

### Reliability and travel times

Buses in the central city are often delayed or obstructed by general traffic, both legally and illegally. Traffic using dedicated bus lanes, left turning vehicles which block bus lanes, and general congestion, affect bus travel speeds, reliability and the frequency of services.

### Poor scheduled frequency

The infrequency of some services is a major issue for Melbourne's bus network. Some routes operate as little as once or twice per hour, and often do not offer late night or weekend service. This is not a frequency level that the City of Melbourne regards as a minimum standard.

### Bus stop design

Many bus stops are too short to cater for high-service bus routes and may need to be lengthened, requiring the removal of some on-street parking. Compared to tram stops, bus stops often provide poor amenity.

### Network imbalances and gaps

In 2010 the Department of Transport initiated a bus service review for the Melbourne, Port Phillip and Yarra areas. This review contains many recommendations for improving bus services across the region.

### Greenhouse emissions and energy cost

The noise and air quality issues associated with diesel fuelled buses are most prominent in

the central city. These vehicles can have a damaging impact on inner urban amenity and the environmental performance of the public transport network as a whole. Reliance on diesel also exposes the bus industry to the risks of future oil price fluctuations.

## Objectives and actions

### Balance and optimise the network

Investment in the bus system can be a relatively cost effective way of improving public transport service provision. Enhancing existing bus routes or adding new routes to the network can also act as a precursor to future rail and tram network extensions.

The initiatives proposed in the Bus Service Review should be implemented. Some of the network changes and additional bus network alterations are shown in this strategy.

Buses in North Melbourne should be diverted to better integrate with activity in the Errol Street precinct. Use of Queensberry Street for bus services should respect the important role of the street for cycling.

The developing urban renewal area around Arden-Macaulay will require excellent public transport. The details of the transport network in this area will be developed in the future. The City of Melbourne supports a bus link from Racecourse Road to North Melbourne train station, to serve the land use development in this area. This bus route may mature over time and eventually demand a tram service.

Buses in Fishermans Bend can be rationalised to benefit travel times and untangle the central



Fig 8.1 Daily Bus volumes in the Central City, Source: Department of Transport

### Australian bus patronage 2001-2010

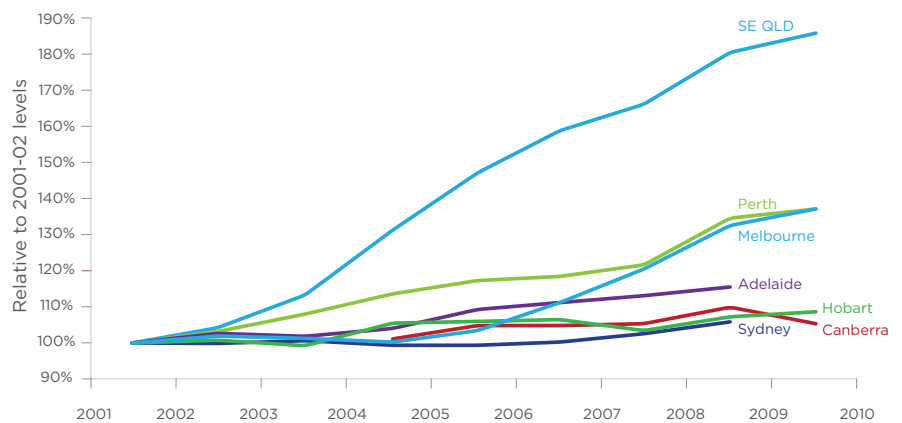


Fig 8.2, Australian bus patronage 2001-2010, Source: Bus Association of Victoria

city components of these routes. By terminating bus services at the western end of the central city and integrating these with the train, tram and other trunk bus routes, significant efficiencies can be gained without any great loss in convenience for passengers.

There is scope to use the Lonsdale Street corridor for routes that enter the central city from the south and north, such as routes 216 and 220. This realignment will use the established Lonsdale Street bus lanes and stops.

**76. Priority Action: Work with the Department of Transport and the Bus Association for the implementation of the bus service review recommendations.**

Bus operations in the central city have been greatly improved by the introduction of bus lanes on key routes, such as Lonsdale Street. Queen Street, which acts as the central city’s key north-south route, requires similar priority.

**77. Priority Action: Install north bound bus lanes on Queen Street in the central city.**

**Increase service frequency**

The City of Melbourne’s analysis of the accessibility of the bus network found that increasing bus speeds and service frequency to a minimum of 10 minutes in inter-peak times significantly improved the service provided by the public transport network.

**78. Priority Action: Work with the Department of Transport, VicRoads and the Bus Association to improve bus frequency.**

**Increase running speed**

A bus system that is not impacted by traffic congestion requires dedicated bus lanes, traffic signal priority, safe and efficient stops and interchanges. The system also needs to be managed in a way that reduces the impact of general traffic on bus operations. For example, dedicated bus lanes require enforcement, and other traffic impacts such as left turning vehicles blocking bus lanes need to be closely monitored and avoided where possible. There is scope to incorporate automated enforcement techniques on key high mobility streets, to ensure public transport priority is not impeded by illegal driver behaviour.

**79. Priority Action: Work with the Department of Transport, VicRoads and the Bus Association to improve the running speed of buses.**

**80. Priority Action: Work with the Department of Transport and VicRoads for separate bus rights-of-way.**

**Better stops and interchanges**

There is a general need to improve the legibility of bus stops across the network, including improved design, signage and information. The main bus interchange in the city is at Lonsdale Street, near Spencer Street. This stop and link with Southern Cross Station are important for the legibility and convenience of the public transport network as a whole. Pedestrians at this location, and at other major bus stops, such as Lonsdale Street near Swanston Street, require the highest possible pedestrian amenity and safety. Many bus stops may need to be

lengthened to allow buses to move easily into and out of them.

**81. Action: Extend bus stops where necessary by removing on-street parking or other measures and improve bus stop amenity.**

**82. Priority Action: Work with the Department of Transport to improve the performance of bus interchanges.**

**Meet late night travel demand with bus services**

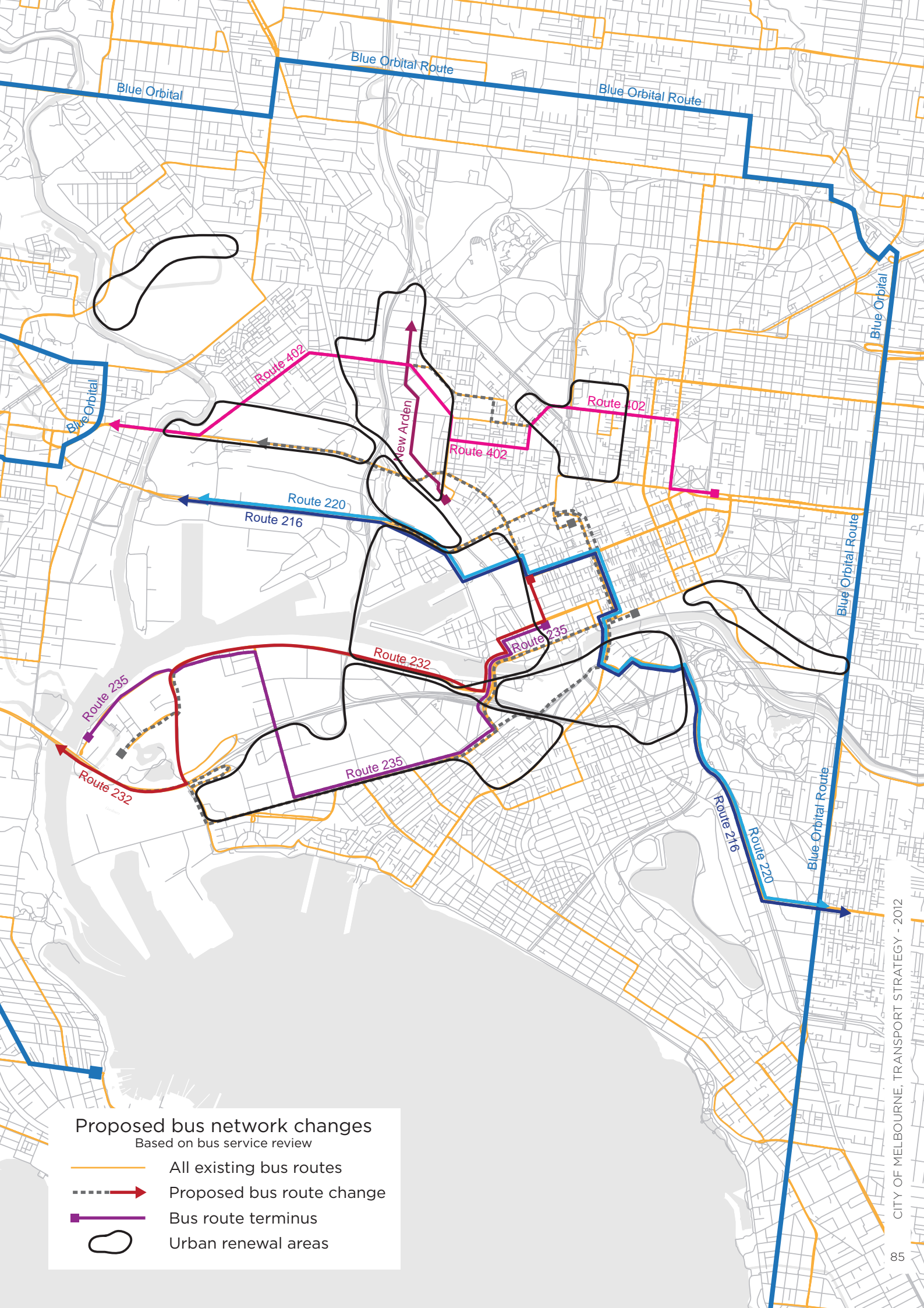
Buses such as the NightRider service currently meet demand for late night travel on Friday and Saturday evenings. Expanding the times and days of NightRider services, improving capacity, and adding new routes to the network can help to improve public transport accessibility when train and tram services do not operate.

**83. Priority Action: Work with the Department of Transport and Public Transport Victoria to improve the NightRider bus service including consideration of smaller more flexible buses.**

As the frequency of buses increases on key central city routes, the impact of buses on the amenity of the footpath will increase. Buses run at a frequency of one per minute on Lonsdale Street. Many bus rapid transit systems around the world run buses in the centre of the road in a similar way to how Melbourne’s trams operate. This removes the buses from kerbside conflicts such as turning vehicles and reduces their impact on footpath amenity. It also provides certainty to pedestrians about the position of buses on the road.

Fig 8.3 Proposed bus network changes





**Proposed bus network changes**

Based on bus service review

- All existing bus routes
- - - - - ➔ Proposed bus route change
- ➔ Bus route terminus
- Urban renewal areas

- 84. Priority Action: Investigate designing centre of the road bus operation on high-frequency routes in the city.**

#### **Greenhouse emissions and energy cost**

Innovation in vehicle technology will continue to present opportunities for making Melbourne's buses more fuel efficient. The use of clean source energy to power buses will also deliver amenity benefits in active central city locations.

- 85. Priority Action: Work with the Department of Transport and the Bus Association to introduce a fleet of clean fuel buses by 2016.**

#### **Targets**

Targets for the bus system parallel those highlighted for trams.

#### **Increase bus running speeds**

The City of Melbourne's analysis of accessibility showed that increasing bus speeds by 25 per cent had a significant effect on the accessibility provided by the public transport network.

#### **Increase service frequency**

Progressively increase the service frequency across the network to increase the accessibility provided by the service. Inter-peak services can be improved to a minimum of 10 minutes to offer more frequent buses, especially to meet late night and weekend travel demand.

- 86. Priority Action: Work with the Department of Transport, VicRoads the Bus Association and operators to improve bus service frequency and average route speeds.**







Fig 8.4 Smart Buses running in Lonsdale street



# 9 Taxi

## Goal

Taxis will become a high quality inner urban transport option, complementing other public and private transport modes.

The City of Melbourne will work with industry and government to ensure taxis can play a complementary role in the transport system.

With improved and integrated transport information, the flexibility of the taxi fleet can be further realised.

## Context

Taxis are a form of public transport, offering 24-hour service, door-to-door delivery, services for special needs, responsiveness to demand and flexibility in destination. Taxis also play a vital role in welcoming and guiding visitors to Melbourne.

Visitors from interstate and overseas are the primary users of taxis in the city. They account for 59 per cent of weekday trips and 79 per cent of weekend trips. Visitors from other parts of Melbourne account for four per cent of weekday taxi trips and seven per cent of weekend taxi trips, while business travel is 31 per cent of travel on weekdays and virtually zero on weekends.

Taxis are the main public transport service operating on Saturdays from 4.30am to 5am, and on Sundays from midnight to 1.30 am and from 5.30am to 7am. These are times when there are still significant numbers of people in the city.

The City of Melbourne allocates kerbside space for taxi ranks at locations throughout the CBD, to make it easier for people to find taxis and reduce the need for taxis to drive around looking for fares.

## Issues

### Lack of knowledge about the detailed transport role of taxis

There is currently no data available on origins and destinations for taxi trips, numbers of patrons for each trip, or taxi availability at any particular time.

### The changing role of taxis

The role of taxis is likely to change in the future. As the city becomes more pedestrianised and public transport use increases, demand

for taxis may increase and taxi ranks may need to be moved. Improved public transport and information technology may reduce the role of taxis at the airport.

### Fuel efficiency and taxi vehicle type

The role of taxis in Melbourne is well suited to a diverse vehicle fleet. Small, low emissions vehicles are suitable for inner urban trips with few passengers. Larger vehicles with luggage capacity serve the airport and other metropolitan connections. Specific vehicles for people with disabilities and mobility impairments are vital for ensuring equitable access. Improving the fuel efficiency of the taxi fleet should be a strong objective of the taxi industry, considering these vehicles' role in the highly populated and active urban environment.

## Objectives and actions

### Support the taxi inquiry

The State Government has announced an inquiry into the taxi industry, including the current and potential role of taxis, and other demand responsive transport services in an integrated transport system.

### 87. Priority Action: Participate in the State Government Taxi Industry Inquiry into the taxi and hire care industry

### Review taxi parking zones

Council can play a central role in facilitating seamless taxi transport through the management of taxi parking zones. It is important to have a good understanding of the role taxis play in the transport system in order to manage appropriately their pick-up and drop-off locations.

This knowledge of why, when and who taxis serve should be integrated with an understanding of land uses, business operating hours and other city activity.

The location of taxi parking can help improve late night transport options, especially in entertainment, restaurant and bar precincts.

**88. Priority Action: Develop taxi parking and ranks that will improve late night transport options, especially in entertainment, restaurant and bar precincts.**

**89. Priority Action: Work with the taxi industry, mobility groups and other stakeholders to review the locations and availability of taxi parking zones and to understand better the role that taxis play in Melbourne.**

**90. Priority Action: Work with the Department of Transport, Public Transport Victoria, the taxi industry and other stakeholders to improve the role of taxis in meeting demand for late night transport**

#### **A more efficient taxi fleet**

Introducing efficient vehicle technology into the taxi fleet is required. There is a pressing need for taxis to become more respectful of the inner urban environment, as city activity increases.

**91. Priority Action: Work with the Taxi industry and The Department of Transport to develop a more efficient and effective taxi fleet.**

#### **New water-based transport services for docklands**

New water-based transport services such as fixed-service

ferries or water taxis offer several key advantages:

- An effective transport alternative for residents and workers in Docklands to overcome the barriers posed by Victoria Harbour and the Yarra River,
- an attractive alternate link to and from the CBD
- the ability to initiate services quickly, as major new infrastructure is not required
- the opportunity to embrace the waterfront, generating concentrated pedestrian and cyclist traffic at key waterfront destinations.

New ferry connections between West Gate Bridge and Docklands / CBD would provide significant new opportunities for high quality links.

Water transport stops at key locations consistent with the Docklands Waterways Strategic Plan, including Yarra's Edge, the north and south sides of Victoria Harbour, ANZ Bank and Northbank. Central Pier is also a potential location for water arrivals in Victoria Harbour.

**92. Priority Action: Work with the Department of Transport to develop water taxi services along the Yarra River connecting Southbank, Docklands and the Hoddle Grid and the sports an entertainment precinct.**

**93. Action: The City of Melbourne will work with VicUrban and Docklands stakeholders to further develop options for water-based transport through the Docklands transport plan.**



Fig 9.1 Taxi rank at Flinders street station



# 10 Car share

## Goal

Car share programs will mature to offer a realistic alternative to car ownership for people living and working in the municipality. The City of Melbourne will support this by allocating on- and off-street parking to car sharing where possible. A minimum of 300 on-street car parking spaces will be allocated to car sharing by 2016.

## Context

Car sharing is a proven catalyst for moving people from a lifestyle of regular car use to one of mostly using public transport, walking and cycling, with occasional use of shared cars for specific trips for which the other modes of transport are poorly suited. The process works for both residential and business users and results in reduced car dependency.

City of Melbourne research into the trends of car share users shows that by introducing one car share vehicle, over seven private cars are taken off the road, as people sell or avoid buying cars. Car sharing also supports policies that reduce the provision of car parking in new buildings, such as amendment C133 to the Melbourne Planning Scheme.

In 2010, the City of Melbourne expanded its support for car sharing to propose a trial of 21 on-street spaces in the Hoddle Grid and to increase the number of spaces outside the Hoddle Grid to more than 60.

Car sharing is a rapidly evolving concept, and is likely to continue to offer different arrangements for customers to access a shared vehicle. Peer-to-peer car sharing enables the shared use of vehicles already owned by the community and the 'Blue Car' trial which commenced in the Paris in 2011 provides the convenience of one-way trips. These approaches deliver significant environmental and financial efficiencies.

The growth of car sharing internationally shows that people are changing the way they access an expensive asset such as a car. For many people living and working in inner urban areas, owning a car is both expensive and inflexible, and is

**Private Car Ownership**  
For car share members, after joining

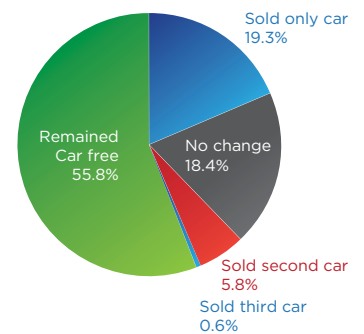


Fig 10.1 Behaviour change outcomes for car share members in Melbourne, Source: GHD

a significant over-investment in one transport mode. For this reason, car sharing is becoming more popular, and cities benefit as private car travel and parking stress decline.

## Issues

### Minimum profitable fleet size

Car sharing in Melbourne is a commercial operation. Its success relies in part on having a fleet that is large enough to generate sufficient car sharing activity to cover its costs. Costs include purchase and management of cars, booking operations and marketing. Inner Melbourne has about 130 car share cars provided by three car sharing firms. Expanding the car share fleet will provide greater certainty for the car sharing industry as well as a more comprehensive service for users.

### Allocating space to car sharing

To support car sharing, the City of Melbourne allocates on-street parking spaces for use by car share operators, in a similar way to the allocation of taxi parking spaces. This use of public space must occur in a way that is sympathetic to the local area and

surrounding land uses. Therefore it will be necessary for car share parking to be allocated in an open and transparent manner, in close collaboration with local businesses and residents.

Opportunities to locate car sharing in off-street parking facilities are often complicated by access requirements (need for 24/7 access) and a general lack of legibility and visibility. For these reasons, on-street space for car sharing is often preferred.

## Objectives and actions

### Support and enable the expansion of car sharing

Assisting car sharing to flourish in Melbourne is directly aligned with the City of Melbourne’s transport policies. The City of Melbourne will continue to re-purpose street space to accommodate car sharing throughout the municipality.

The role of local government in supporting car sharing can also extend to marketing and communications channels, and providing information

about the benefits of car sharing to the community.

**94. Priority Action: Work with car share operators in allocating City of Melbourne operated parking spaces to car sharing in the municipality’s existing and emerging high density mixed use areas.**

### Develop a car share policy

In order to direct the City of Melbourne’s support for car sharing, a specific policy will be developed to:

- provide a clear process for allocating parking spaces
- detail the City of Melbourne’s communications activity to support the growth of car sharing
- discuss and address revenue implications of allocating on-street space to car sharing
- define the rules for operating a car share scheme in the municipality
- recommend City of Melbourne projects to further embed car sharing in Melbourne, for

example opportunities to amend the planning scheme to encourage off-street car share parking.

**95. Priority Action: Review Council’s car sharing policy to ensure it meets the objectives of this strategy.**

### Encourage an innovative car share industry

New forms of car sharing are constantly evolving, including programs for which a car does not have to be parked at a ‘home pod’ and can be used for one-way journeys. These may offer new mobility choices and further encourage sustainable transport choices.

**96. Action: Monitor innovations in car sharing and update its car sharing policy where these would produce improvements.**

Behaviour changes of Melbourne car share members

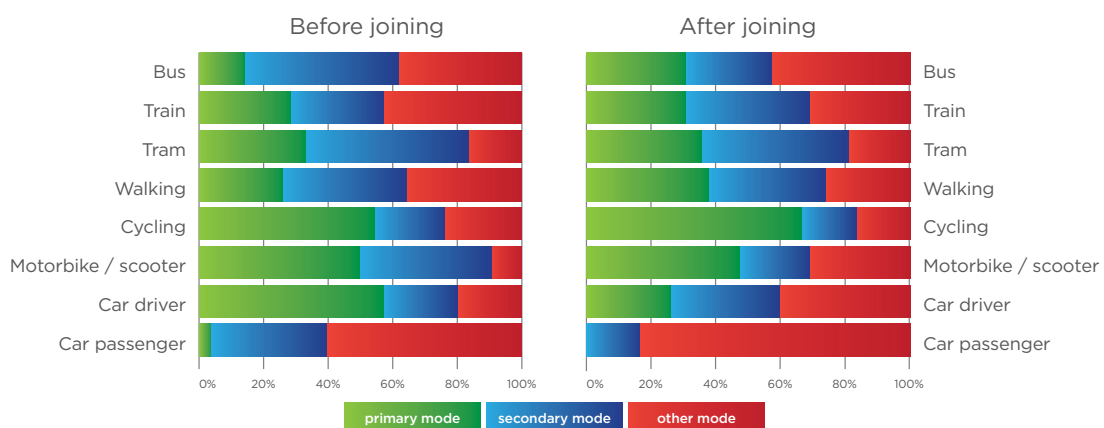


Fig 10.2 Behaviour change outcomes for car share member, Source: GHD



# 11 Bike share

## Goal

Melbourne will have a successful, popular and well utilised public bicycle system. Bike share will be well integrated with and complementary to the rest of the public transport system, from the strategic location of stations to integrated information and payment systems.

Melbourne bike share will be supported by a network of safe cycling routes and low speed streets in the central city.

## Context

Moving People and Freight 2006-2020 (2006) supported the establishment of Melbourne bike share. The scheme was launched by RACV on behalf of the State Government in May 2010. The City of Melbourne provided considerable support in selecting and providing locations for bike stations on City of Melbourne land. The scheme includes over 400 bicycles and 50 stations, mostly in the municipality. There have been no major accidents reported.

## Issues

### Limited take up

Melbourne bike share has been operating successfully, but use of the scheme has lagged behind some other bike share schemes around the world. There has been fewer than one use per day per bike compared with up to 10 uses per day in more successful schemes.

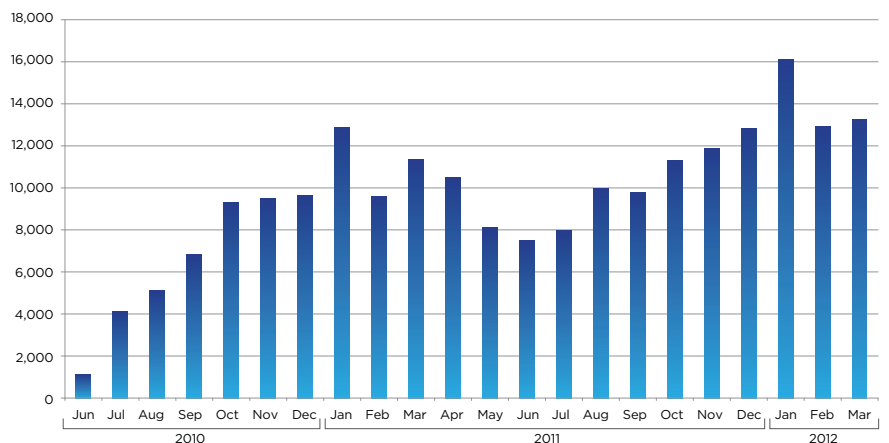
One issue believed to be contributing to limited take-up

of the scheme include Victoria's compulsory helmet law. The need to purchase a helmet or provide your own can be a barrier for many potential users, making the scheme impractical especially for spontaneous trips. A lack of high quality bicycle facilities, such as separated lanes, in central Melbourne and the relatively small size of the scheme may also play a role.

### Integration with public transport

There is an opportunity for the scheme to play a greater role as part of the public transport system, providing an option for people who need to travel from a public transport node (particularly city train stations) to their final destination. Bicycle journeys can be a low cost option, especially compared with the cost of building new tram or bus infrastructure. They can also link to destinations that are greater than walking distance from public transport nodes.

**Melbourne Bike Share rentals**  
June 2010 - March 2012



Source: RACV

Fig 11.1 Melbourne Bike Share rentals 2010-2012

### Location of stations

Growing pedestrian volumes on the city's streets will mean that some existing or new bike share stations may need to be located on the road rather than on footpaths. Lower city speed limits and redesigned, high mobility streets will help reduce any safety concerns about bike stations on roads. There are opportunities to improve the location and visibility of existing bike stations and promote their use more strongly as an integral part of public transport journeys, as well as ensuring key public transport nodes are appropriately served by bike share stations.

### Cyclists' perceptions of safety on central city streets

One of the key barriers to cycling is that the road environment is not safe enough for many people to ride. This is likely to be a factor affecting take up of Melbourne bike share, especially as many of the stations are concentrated in the Hoddle Grid where there are few separated bicycle lanes.

## Objectives and actions

### Review Melbourne bike share

There is an opportunity for a comprehensive review of Melbourne bike share involving all key stakeholders including comparison and assessment against international best practice.

**97. Priority Action: Work with VicRoads, RACV, Bicycle Victoria and the Department of Transport to review the operation of Melbourne Bike Share and develop joint strategies to increase its use including a review of the location of bike stations.**



Fig 11.2 Melbourne Bike Share Station in Swanston Street

### Improve central city cycling conditions

Improvement in cycling conditions in the centre of Melbourne is likely to help boost the use of the scheme. Separated bicycle lanes and lower speed limits will contribute to this.

**98. Priority Action: Update the Bicycle Plan with a strategy to connect up the bike share stations in the central city with a network of safe and attractive bicycle routes (see chapter 6) including separated lanes and compatible speed limits.**

### Expand and improve Melbourne bike share

**99. Action: Support Melbourne bike share and advocate for its expansion within the city and to neighbouring municipalities through IMAP.**



# 12 Transport information

## Goal

Logical and innovative user interfaces will enable seamless use of the public transport system. Open access to transport data will allow everyone to make more informed planning decisions across the transport system.

## Context

The interfaces that people experience when using the public transport system are extremely important for ease of use, journey planning, payment, navigation and orientation. There has been great innovation in this field recently due to advancements in smart phone technology, the use of online applications for journey planning and trip mapping, and new payment systems.

The Victorian Government launched the myki smart card ticketing system in 2010. Despite its problems, the card allows seamless and cashless use of Melbourne's trains, trams and buses. The data generated by myki will be a significant benefit to the day-to-day management and long term planning of the public transport network, and will hopefully feed into new user interfaces.

The C40 Smart City workshop held in Melbourne in 2010, developed our understanding of 'Smart City' principles and applications for transport systems. Improving the user experience and enabling innovation through open and engaging government (e-gov, gov2.0) are central to the Melbourne Smart City work, and have been integrated into this strategy.

The data collected by governments and transport operators can enable a greater community understanding of transport systems. Many cities around the world are actively opening up their data to encourage the development of third party applications and tools which improve public understanding of transport, create a more sophisticated system and ultimately encourage more efficient

transport behaviour. Open data also has benefits for government transparency and accountability.

## Issues

### Comprehensive integrated customer payment systems

The implementation of myki has been a significant improvement towards an integrated payment system for mobility in Melbourne. Payment systems for other public and private transport remain divided, requiring users of taxis, car parking, bike and car share programs to be subscribed to various accounts, all with individual access cards, websites, payment methods and journey planners or maps.

### Signage and information

The signage and information relevant to public transport can play a significant role in how easy the system is to navigate and use. There are major gaps in signage and information across Melbourne's public transport network, and also issues for people with vision and hearing impairments accessing information.

### Closed data

Data and back-end information related to the transport system is often not publicly available, or is not well published for easy public access. This limits the ability of the broader community to use transport data, and restricts the development of innovative user interfaces such as apps and online tools.

## Objectives and actions

### Seamless payment systems

There is also great potential in rolling out the myki platform to

other modes of transport and other aspects of city life that may require a ticket, or instant payment. Services that could be included in the myki system include Melbourne bike share, bicycle parking at train stations, SkyBus, car sharing, car parking and other non-transport services. This integration will make car-free mobility easier and more flexible in Melbourne, which will enable it to compete more effectively against private car use.

**100. Priority Action: Work with the Department of Transport and Public Transport Victoria to develop a public transport user online information interface for customer payment and trip planning that merges all modes - rail, tram, bus, taxi, car share, bike share and extending to regional trains, buses and air travel.**

### **Easy to understand signage and information**

Transport information needs to be simple, easy to understand and common across the network. Metlink has been successful in integrating train, tram and bus information and signage, which has improved the legibility of the public transport network. There remain issues regarding access to information for people with disabilities and people from non-English speaking backgrounds. Improving internet access at public transport stops and stations and on vehicles can help elevate the attractiveness of public transport above car use.

**101. Priority Action: Work with the Department of Transport and Public Transport Victoria to improve the integration of signage and user information of all the public transport modes - rail, tram, bus, taxi, car share, bike share.**

### **Open data**

The data the City of Melbourne collects relating to the transport system presents significant opportunities to improve the planning, operation and user experience of the whole system.

There are increasingly new ways of collecting and analysing data which can help improve the ways in which people move around the city. The rate of innovation in this field is likely to continue as new technologies are developed, new collection methods are forged and the international community becomes more advanced in its use and understanding of such information. Melbourne is a knowledge city. A key way to advance knowledge is to recognise the talent of creative people and engage their expertise and creativity by making data open.

**102. Priority Action: Make the transport data the City of Melbourne collects publicly available on an open data basis to encourage research, innovation and applications (apps) in its use and interpretation.**

**103. Priority Action: Expand the Melbourne Bicycle Account into a Melbourne Transport Activity Account to report on all modes of transport in the municipality.**

**104. Priority Action: Work with the Department of Transport, Bicycle Victoria, VicRoads and RACV, to gather and use cycling data for planning the development and promotion of city cycling.**

# 13 Regional and global transport connections

## Goal

Melbourne will have fast and direct connections to Australia's network of major cities and global cities in the Asia-Pacific region and around the world. Very high speed business and tourist passenger transport will connect Melbourne to the eastern seaboard region (including Sydney, Brisbane and Canberra). This connectivity is essential for the future prosperity and global competitiveness of Melbourne, Victoria and Australia.

## Context

The number of people travelling to Melbourne from regional Victoria, from interstate and overseas is growing significantly, as Victoria continues to act as a major attractor of business and tourism trips.

By 2020, more than 50,000 international visitors, and more than 33,000 interstate visitors will come to Melbourne daily. This visitation will be primarily channelled through Melbourne Airport. Melbourne Airport currently carries approximately 23 million people annually and this is expected to double by 2027/28.

As the hub of many business and tourism trips to Victoria, Melbourne has an important role to play in accommodating this growth. It is imperative that the urban environment and transport systems can handle significant increases in people accessing the airports and other regional and interstate centres. For Melbourne to enhance its role as a key economic unit in the Asia-Pacific region, the city also needs to be an inviting, vibrant and safe place for visitors.

Central Melbourne is a major destination for many people visiting Australia. Tourism is an important jobs sector for Melbourne, and the City of Melbourne has clear commitments to enhancing the city experience for tourists. One of the best ways to experience a city like Melbourne is on foot and by public transport.

## Issues

### Reliance on air travel

Connections between Melbourne and other major Australian cities are important for the economic

prosperity of the country.

Melbourne's airports deliver a substantial number of people to Victoria every day. The airports link the city with the rest of the world, contribute greatly to Melbourne's competitiveness as a successful business and knowledge city, and foster high levels of tourism.

The Melbourne-Sydney air route is the second most travelled domestic air route in the world. Options to relieve air traffic present significant opportunities to improve mobility on the eastern seaboard and reduce greenhouse gas emissions.

### Airport access

The airports are primarily accessible by private car, taxi, hire car, and some bus services. The current demand for travel and the projected growth of the airports means that public transport services to Melbourne and Avalon airports need to improve.

The major change since 2006 has been the growth of the SkyBus service. SkyBus now operates over 230 services a day between Melbourne airport and Southern Cross Station, carrying more than 1.7 million people annually. This is a major improvement in public transport provision. The City of Melbourne has a lot to gain from improvements to the journey between the central city and Melbourne and Avalon airports.

### Regional connections

Melbourne's capital city role requires the central area to be well connected with regional centres of activity. Current travel between regional centres and inner Melbourne is dominated by car use, which is enabled through the extensive freeway network. Infrequent timetabling



and capacity constraints on some routes are often issues which encourage car use.

### Visitor transport in the central city

Catering for visitor transport modes in the central city is important to encourage tourism and create a welcoming and enjoyable city for visitors. Forms of visitor transport operating in the city (in addition to most public and private transport) vary from large tourist buses and coaches, the City Circle tram, the Melbourne tourist shuttle, river transport, down to niche local forms such as horse drawn carriages.

Whilst these forms provide a valuable service, it is important they complement and do not impede other public and private transport modes. Signage and information for users of these systems also needs to be well integrated into visitor services and other tourism points of contact.

## Objectives and actions

### Inter-city high speed rail

Central city to central city transport would provide a convenient option for travellers, improve directness, and potentially reduce the overall travel time of the journey.

Developing high speed rail links between Australian cities is essential to maintaining transport connections in a future of rising oil costs and a lower carbon economy.

**105. Priority Action: Work with state and federal government and the cities of Sydney and Brisbane to investigate the benefits and feasibility of a very high speed CBD-to-CBD rail service between Melbourne, Canberra, Sydney and Brisbane.**

### Public transport to Melbourne's airports

The City of Melbourne supports the improvement of public transport serving Melbourne and Avalon airports. The State Government has announced plans for rail links to both airports. In the interim, the City of Melbourne supports a significant upgrade of the network infrastructure on which SkyBus operates, to reduce travel times, improve reliability and continue to boost patronage.

**106. Priority Action: Work with the Department of Transport to improve the reliability, travel times and frequencies of the SkyBus service and the introduction of standard public transport fares to encourage greater public transport access to Melbourne Airport.**

### Better regional connections

Regional Rail Link will make a significant contribution to improving rail links with Geelong, Bendigo and Ballarat.

**107. Action: Work with the Department of Transport to improve the public transport links between Victoria's regional centres and Melbourne's central city.**

### Melbourne city tourist shuttle

The tourist shuttle — a free bus service that connects many tourist attractions within the central city — has been a success. The service is used by approximately 800 people every day, and user feedback indicates the service is of great value to the city.

There is potential to integrate the tourist shuttle with other tourist transport services in the inner city, such as the City Circle tram and river transport. By

combining these services as a package, the visitor experience in Melbourne could be improved.

**108. Action: Work with the operators of tourist shuttle services to develop integrated services, joint promotion and to offer visitors an easily understood offer of visitor mobility options.**

### The role of our waterways

River transport presents a great opportunity to improve visitor connections between the central city and Docklands, and other destinations such as Port Melbourne, St Kilda and Williamstown.

Integrating river transport with the public transport ticketing system has the potential to make it more accessible and easily understood by both the Melbourne public and visitors to the city.

Any transport using the waterways must respect the speed limit which has been implemented to protect the banks from erosion and the amenity along the river. This may limit the ability of water transport to compete with trams, buses, taxis, walking and cycling, and therefore it is likely that water transport will continue to serve a predominantly tourist market.

**109. Action: Work with State Government to improve tourist river transport connections especially between Docklands and the east of the central city.**

### Provide a legible transport network for visitors

Melbourne's walking environment and public transport network must be easy to use to create a good experience for visitors. There has been a deliberate focus on a high quality public realm in

the central city, however more can be done to make Melbourne welcoming to visitors. Integration across transport modes will help achieve this – for example, trams approaching intersecting bus routes should advise passengers of their choices, and vice-versa.

**110. Action: Development and manage the city's walking network and signage so that visitors and tourists find it welcoming and easy to navigate.**

**111. Priority Action: Work with the Department of Transport and Public Transport Victoria to make the city's public transport services - rail, tram, bus, taxi, car share and bike share - easy to access and use for visitors and tourists.**

### Urban bicycle tourism

Bicycle tourism is booming in regional Victoria. Cycling along rail-trails between country towns, wineries and restaurants is becoming a major promotional focus for many regional centres, and the local economies are benefiting from the new markets that this industry is opening. The 'Pedal to Produce' initiative in northern Victoria is one example of this.

Inner Melbourne hosts some very high quality food markets and a network of excellent food and drink precincts throughout the region.

The City of Melbourne sees a tourism opportunity to promote cycling to and between these locations. This would reinforce the City of Melbourne's support for everyday cycling and also build on a strong culture of social and recreational cycling.

Melbourne bike share offers an excellent network of publicly

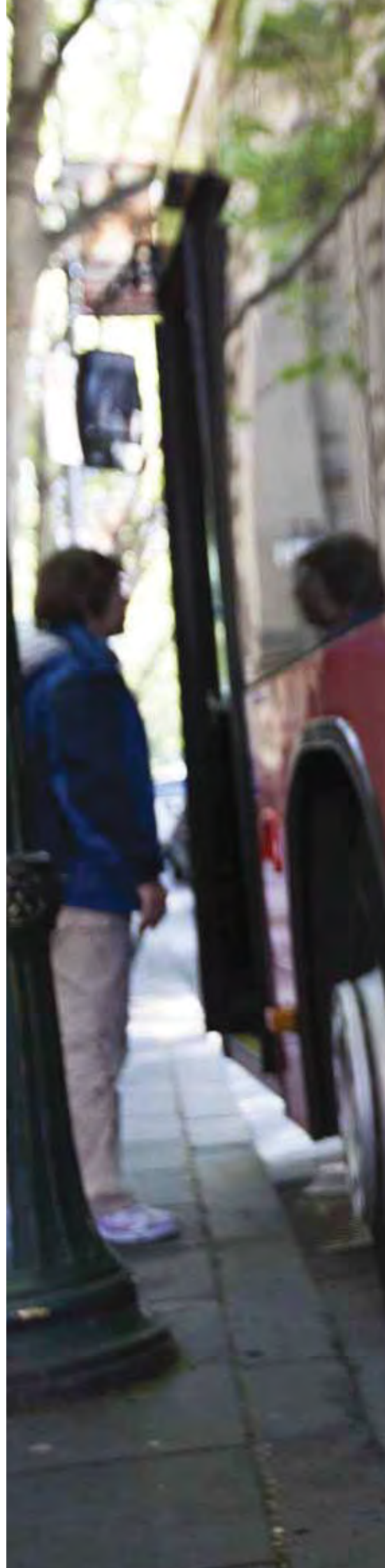
available bikes, perfect for visitors to use. This network could be expanded to cover key destinations, such as the region's markets.

**112. Priority Action: Develop the opportunities to promote bicycle tourism in inner Melbourne through IMAP.**

### Bus and coach access

The City of Melbourne has investigated the concept of a single bus terminal to cater for tour buses, public transport route buses, interstate coaches and airport buses in one central location. The research found that it would be very difficult to find a space large enough to accommodate the different types of buses and their varied requirements. It concluded that all buses converging on a single location would be unnecessary and inefficient.

**113. Action: Manage tourist bus parking to enable efficient passenger loading and minimise impact on other modes of mobility.**





*Fig 13.1 SkyBus connects Melbourne's CBD to Tullamarine International Airport*



# Efficient urban freight



