Report to the Future Melbourne (Transport) Committee   **Agenda item 6.4**

Draft Transport Strategy 2030 – for public consultation   **7 May 2019**

Presenter: Claire Ferres Miles, Director City Strategy and Place

Purpose and background

1. The purpose of this report is to seek endorsement of the Draft Transport Strategy 2030 for public consultation. Development of the Transport Strategy is 2018–19 Annual Plan Initiative 6.1.

2. The Draft Transport Strategy 2030 is informed by extensive independent background research, surveys and data analysis undertaken by transport consultants and academics. Workshops with Victorian Government transport agencies and peak transport associations have also informed the strategy. Outcomes of the community engagement were reported to Council on 11 December 2018 with analysis of submissions received indicating strong support for the ideas proposed in the discussion papers.

3. Following engagement and community feedback, a final Transport Strategy is scheduled to be presented to the Future Melbourne Committee for endorsement in Q3 2019.

Key issues

4. Melbourne's central city is at the heart of Victoria's most visited economic, social and cultural destinations. A world-class transport system, which is effective, efficient and comfortable, is fundamental to supporting productivity and prosperity in Melbourne. The central city is where Melbourne's radial public transport network converges and hundreds of thousands of people move into and around every day, to do business, to visit and to live. The Draft Transport Strategy considers the important and uniquely different role of transport in the central city, and its significance to both the metropolitan transport network and economic prosperity of Victoria.

5. The Draft Transport Strategy outlines the City of Melbourne's transport vision and policy directions for the next ten years to 2030. It maintains the broad directions of City of Melbourne's 2012 and 2008 transport strategies by supporting efficient and sustainable transport with a focus on walking, cycling and public transport. It recognises that people in Melbourne have changed and are continuing to change the way they travel. Public transport use, walking and cycling are growing and private vehicle trips are declining. Our city's streets and places need to adapt to support these changes as the daily city population is forecast to grow from 900,000 today to 1.4 million per day in 2036.

6. Key outcomes of the Draft Transport Strategy are:

    6.1.   A safe and liveable city – with people at the centre of street design and making streets, station precincts and public spaces safer, more secure, comfortable, inclusive, attractive and enjoyable for people. We will deliver footpath widenings, people priority 'Little' Streets and protected cycle lanes. We will partner to deliver world-class station precincts, speed reductions in the central city and additional protected cycle lanes on Victorian Government managed roads.

    6.2.   An efficient and productive city - by prioritising the movement of people and goods and providing more space for people walking, cycling and catching public transport. We will support projects which enable a public transport network which is more reliable, efficient and accommodate Melbourne's growing population. Kerb space along streets will be transformed into productive space for the city.

    6.3.   A dynamic and adaptive city - by embracing opportunities to address transport challenges through technology, trials and innovative policy. We will support policy which improves the city for people and protects against potential negative technology impacts, such as increasing numbers of autonomous motor vehicles.

Recommendation from management

7.   That the Future Melbourne Committee:

    7.1.   Endorses the Draft Transport Strategy 2030 for public consultation.

    7.2.   Authorises the Director City Strategy and Place to make any further minor editorial changes to the Draft Transport Strategy prior to publication.

Attachments:
1.   Supporting Attachment (Page 3 of 156)
2.   Draft Transport Strategy (Page 4 of 156)
3.   Draft Transport Strategy Summary Document (Page 132 of 156)
4.   Community Engagement on Draft Transport Strategy (Page 156 of 156)

Supporting Attachment

Legal

1.   The Draft Transport Strategy proposes a review of some existing laws including laws relating to new transport technologies and bicycle use. This would be done in partnership with the Victorian Government. The implications of any potential changes to these laws would be assessed as part of the review.

Finance

2.   The costs of community engagement are included under existing budget allocations for 2018–19.

3.   Budget for projects arising from this strategy will be subject to Council approval for capital works and operational expenditure. The strategy notes continued reduction in numbers of on-street parking spaces, in line with assumptions included in the 10-year Financial Plan. It is foreshadowed that proposed introduction of new market-based parking controls may offset revenue losses. The strategy also proposes that City of Melbourne secure a shared revenue funding agreement from any future road pricing scheme.

Conflict of interest

4.   No member of Council staff, or other person engaged under a contract, involved in advising on or preparing this report has declared a direct or indirect interest in relation to the matter of the report.

Health and Safety

5.   The Draft Transport Strategy outlines health and safety issues in the municipality as they relate to transport. These include overcrowded footpaths and public transport, unsafe and intimidating cycling conditions and pedestrian road trauma, including hostile vehicle attacks. The Draft Transport Strategy introduces policies and actions to address these issues including the reallocation of street space to improve safety and amenity for pedestrians, the delivery of more protected cycle lanes through the municipality, advocating for more efficient, reliable and frequent public transport services, reducing speed limits and redesigning streets to protect vulnerable road users from vehicles.

Stakeholder consultation

6.   Extensive stakeholder consultation was undertaken during preparation of the Draft Transport Strategy. Between April and July 2018, eight discussion papers were released to the public to generate debate and discussion. This prompted 19,053 visits to the Participate Melbourne webpage, 1325 submissions and 1500 social media comments. This is the largest response to a City of Melbourne request for community input. A detailed report on community engagement feedback was presented to Council on 13 December 2018. Attachment 4 lists the stakeholder engagement activities planned for consultation on the Draft Transport Strategy. Engagement is planned to occur over a period of six weeks following its release and includes on-line and face to face consultation (see Attachment 4).

Relation to Council policy

7.   The Draft Transport Strategy aligns with the current endorsed Transport Strategy 2012 as well as the Council Plan Goals for 'A Connected City' and 'A Prosperous City'. The community engagement plan for the Transport Strategy refresh aligns with the 'A Deliberative City' goal. Policies in the Draft Transport Strategy support other City of Melbourne strategies including Climate Change Mitigation Strategy, Climate Change Adaption Strategy, Bicycle Plan 2016–20, Walking Plan 2014, Urban Forest Strategy, Total Watermark – City as a Catchment 2014, Startup Action Plan, structure plans and council-endorsed submissions on growth areas including Arden and Fishermans Bend.

Environmental sustainability

8.   Environmental sustainability issues are a key consideration of the Draft Transport Strategy. The Strategy aligns with the City of Melbourne 2018 Climate Change Mitigation Strategy and supports sustainable transport as priority modes in Melbourne. The Draft Transport Strategy includes a range of policies which align with environmental sustainability. These include:

8.1.   Conversion of road space to greening and water-sensitive urban design projects.

8.2.   Conversion of the Melbourne train network to renewable power.

8.3.   Conversion of buses from diesel power to hybrid or electric power.

DRAFT TRANSPORT STRATEGY 2030

CITY OF MELBOURNE

A CONNECTED CITY

In a connected city, all people and goods can move to, from and within the city efficiently. Catering for growth and safeguarding prosperity will require planning for an efficient and sustainable transport network.

Acknowledgement of Traditional Owners

The City of Melbourne respectfully acknowledges the Traditional Owners of the land, the Boon Wurrung and Woiwurrung (Wurundjeri) people of the Kulin Nation and pays respect to their Elders, past and present.

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CONTENTS

To find out how you can participate in the decision-making process for City of Melbourne's current and future initiatives, visit **melbourne.vic.gov.au/participate**

FOREWORD

To be completed for final strategy.
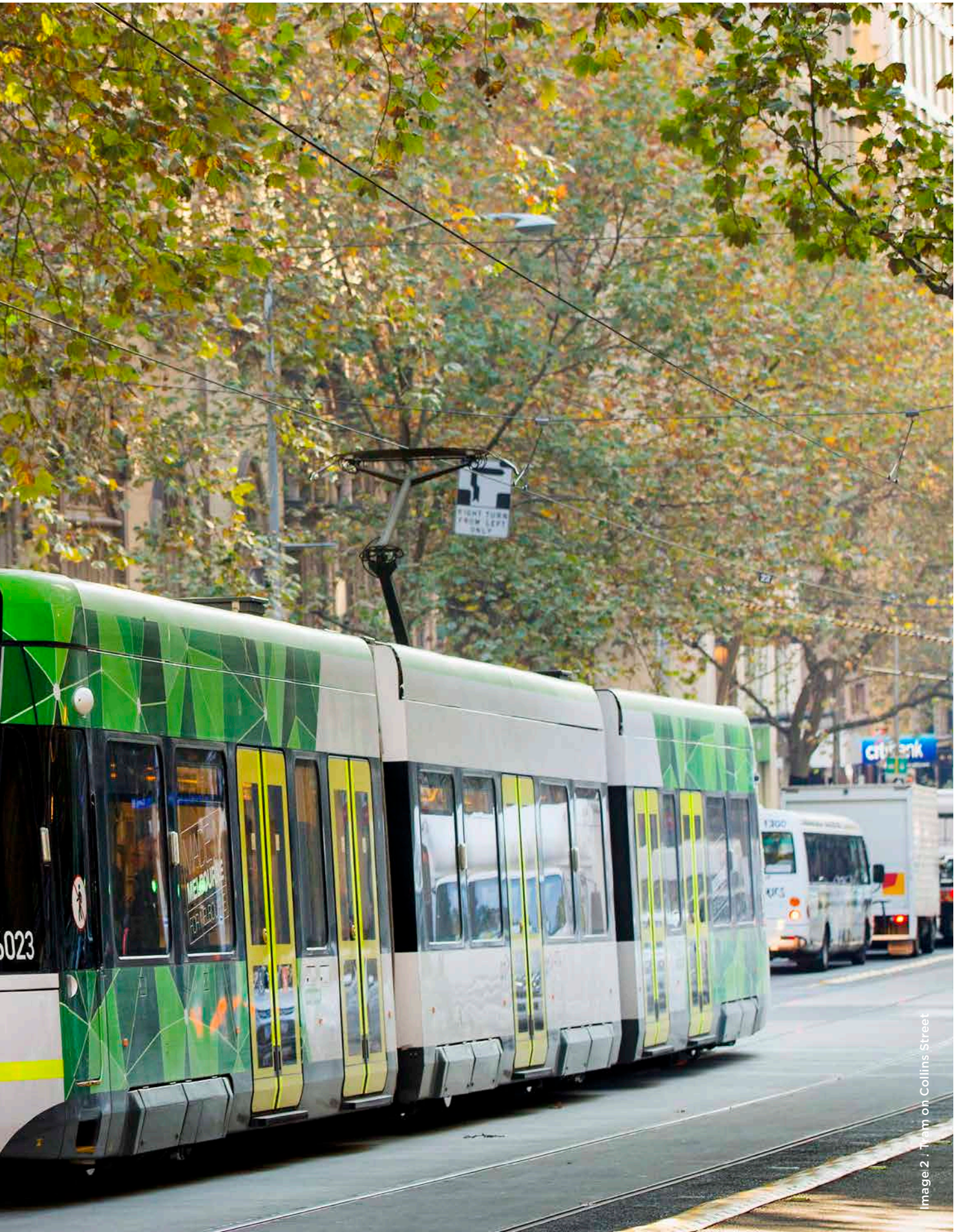
FOREWORD

EXECUTIVE SUMMARY
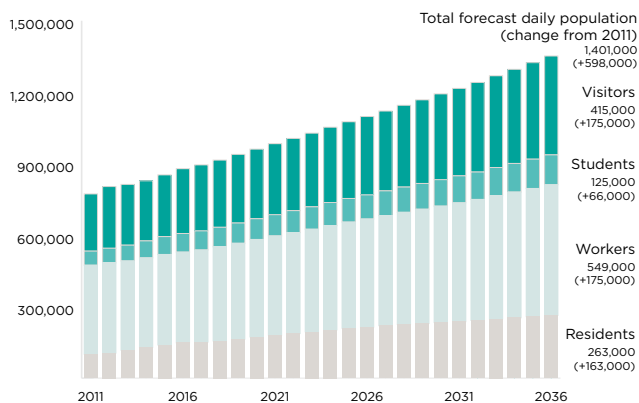
Image 2 : Tram on Collins Street

TRANSPORT STRATEGY 2019

The central city is the heart of Victoria's most visited economic, social and cultural destinations. It is the centre of the state's transport network.

Victoria's economic prosperity is reliant on a productive central city. It is the part of our state where the demand for travel is greatest and where walking, cycling and public transport do the heavy lifting. More than 900,000 people - residents, workers and visitors - move into and within the municipality every day. This makes our municipality unique and our transport challenges complex.
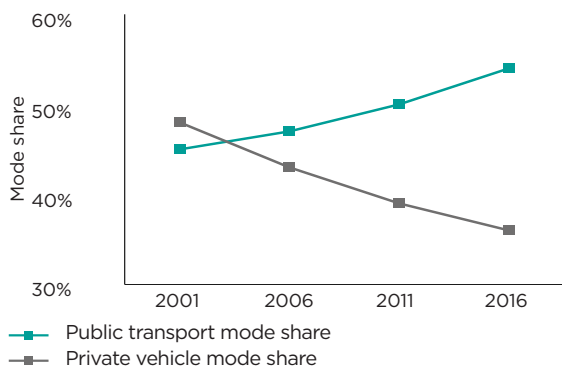
The daily population is estimated to grow to approximately 1.4 million by 2036.

Figure 1: Municipality Daily population estimates and forecasts 2011-2036

The number of journeys to work has increased, particularly by public transport

Figure 2: Journey to work by mode 2001 - 2016 (ABS 2017)

Our municipality has seen significant change as a result of population and job growth over recent decades. Today there are 150,000 more trips to the municipality for work each weekday than there were in 2001.

The way that people travel has also changed. More people travel to work in the municipality by train than by car. More people are walking, riding bikes and catching public transport than ever before. The share of car trips has decreased by 25 per cent since 2001 and the number of vehicles entering the Hoddle Grid, the centre of the city, has reduced by 14 per cent since 2014.

With Victorian Government investment in public transport including the delivery of projects such as Melbourne Metro, car dependency will continue to decrease as more convenient transport alternatives become available.

Walking is critical to the success of the central city economy. Eighty-nine per cent of all trips which start and finish within the Hoddle Grid are made on foot. These walking trips allow people to easily connect, do business and share knowledge through face-to-face interactions. The safety, security and comfort of people is critical to maintaining Melbourne's liveability and reputation.

Footpath congestion is a serious concern in parts of the central city. When over 290,000 people converge at central city rail stations each weekday, crowds of people build up on the footpaths and at intersections within the station precincts. Streets can sometimes feel hostile and unsafe. The municipality also has the highest rate of pedestrian road trauma in Victoria.

By 2036, the number of people moving around our municipality each day will increase to 1.4 million. To remain globally competitive and maintain our reputation as a great city to do business, live and work, our growing population needs streets and public spaces which are welcoming, safe, comfortable and move people efficiently. Our footpaths must be generous, uncluttered places for walking, knowledge exchange and enjoying the city.

Bikes must play a more significant role in the transport network. The huge potential for more trips to be made by bike is possible with the right infrastructure. Once safe, connected bicycle lanes are in place, more trips will be made by bike. Bike trips are low-cost for the user and government, they improve the efficiency of the transport network and benefit society more broadly.

The city also needs an efficient and reliable public transport network which meets the needs of our fast-growing population and our business community.

To achieve this, we need to move more people in the same amount of street space, make our existing transport infrastructure work harder and commit to sustained investment in walking, cycling and public transport. There is significant potential to boost the contribution of each of these modes.

VISION

Walking in our streets and laneways will be safe and comfortable with expansive uncluttered footpaths, seating and a generous street tree canopy.

We will extend Melbourne's renowned laneway culture linking the 'Little Streets'. Our future laneways will be places for people, knowledge exchange and hospitality, walking, meeting, eating and drinking.

Melbourne will be Australia's premier bicycle city. More people will be confident to ride with a connected network of safe protected bicycle lanes and high quality bicycle parking.

Our train stations will be international gateways to our city - world-class open public spaces celebrating arrival to our city for hundreds of thousands of people, with seamless interchange between transport modes that is intuitive and easy.

Public transport services to the central city will be safe, accessible, direct and frequent.

Private vehicle access to the city will be prioritised for efficient deliveries, servicing and for people who need to use a car.

We will embrace the future with smart and micro mobility trials that deliver public benefit. City disruption will be co-ordinated, managed and communicated.

We will deliver this vision by:

1. Creating a safe and liveable city

2. Fostering an efficient and productive city

3. Encouraging a dynamic and adaptive city.

Image 4. Indicative future vision.

STRATEGY SUMMARY

Theme 1: A safe and liveable city

Outcome 1. Safe streets for people

1.1 Redesign streets in the Hoddle Grid

1.2 Reallocate more space to people walking in the city

1.3 Adopt a strategic approach to managing footpath obstructions

1.4 Prioritise public transport, walking and cycling during construction disruption

1.5 Deliver physically protected environments for people through innovative urban design

1.6 Proactively facilitate a permeable street network

1.7 Reduce speed limits for safety

Policies 1-3

Actions 1-7

Outcome 2. Safe streets for bike riding

2.1 Deliver a network of protected cycle lanes into and through the central city

2.2 Make every street safer for cycling

2.3 Make intersections safer for cycling

2.4 Make streets safer for motorcycling

Policy 4-5

Actions 8-11

Outcome 3. Public transport hubs as welcoming people places

3.1 Transform major transport interchange precincts into people places

3.2 Design tram stops which are integrated into streets

3.3 Create new clean and green bus streets

3.4 Enable a fully-accessible public transport network

Policies 6-7

Actions 12-13

Outcome 4. Fewer non-essential vehicles in the municipality

4.1 Reduce central city through-traffic

4.2 Capture the benefits of road bypass projects

4.3 Maintain access for essential vehicles

4.4 Focus land development around public transport

4.5 Review off-street parking policies

4.6 Increase the use of car share

Policies 8-12

Actions 14-15

Theme 2: An efficient and productive city

Outcome 5. Reduced delays for people using efficient transport

5.1 Optimise traffic signals to reduce waiting times

5.2 Reduce tram and bus travel times and increase reliability

5.3 Reduce incidences of vehicles blocking intersections to prevent delays to all modes

Policies 13-14

Action 16

Outcome 6. More people riding bikes

6.1 Deliver community programs to get more people riding bikes

6.2 Support a review of the road rules to support safe and efficient cycling

6.3 Support the growth of e-bikes for moving people and goods

Policies 15-16

Action 17

Outcome 7. Productive kerb space

7.1 Proactively manage kerb space to boost efficiency and productivity

7.2 Improve on-street parking access and efficiency through demand-responsive pricing

7.3 Encourage innovative, low-impact approaches to freight

7.4 Support efficient port logistics

Policies 17-18

Action 18-19

Outcome 8. Efficient and reliable public transport for everyday life

Policies 19-25

Action 20

8.1 Support a transition to 'turn up and go' public transport

8.2 Advocate for investment in increased inner city rail capacity, beginning with Melbourne Metro 2

8.3 Support a review and redesign of tram and bus routes

8.4 Support establishing a rapid, high-frequency orbital network, beginning with buses

8.5 Support improvements to the rail network to boost capacity during peak times

8.6 Support improvements to public transport safety and user experience

8.7 Support improving regional rail

8.8 Support improving airport public transport

Outcome 9. Integrated transport planning

Policies 26-30

9.1 Support the development of a Central City Transport Framework

9.2 Support sustainable outcomes from major city-shaping projects

9.3 Support early delivery of integrated transport for urban renewal areas

9.4 Leverage construction disruption to capture benefits of behaviour change

9.5 Support transparent public transport performance data and indicators

Theme 3: A dynamic and adaptive city

Outcome 10. New technologies delivering a net community benefit

Policies 31-34

Action 21

10.1 Advocate for regulation of dockless shared mobility services

10.2 Support trials to test new technology and evaluate performance and impacts

10.3 Support the integration of transport services through technology

10.4 Support regulation to protect accessibility and equity

10.5 Investigate the use of sensors to improve transport performance

Outcome 11. Vehicle innovation supporting a people focused city

Policies 35-36

Action 22

11.1 Capture the road safety potential of vehicle innovation to protect vulnerable road users

11.2 Mitigate and manage the negative impacts of automated vehicles

11.3 Use technology to enable reallocation of space currently used for car parking

Outcome 12. Zero emissions transport

Policies 37-39

Action 23

12.1 Support electric vehicles powered by renewable energy

12.2 Prioritise lower emissions for commercial vehicles and freight

12.3 Support stronger vehicle emissions standards

12.4 Support electric car charging in buildings and minimise on-street charging

Outcome 13. Equitable and efficient transport pricing

Policy 40-41

Action 24

13.1 Advocate for a road user pricing system which improves equity and efficiency of the network

13.2 Support a national road revenue sharing agreement to secure long-term road maintenance funds

13.3 Support effective public transport pricing to manage demand

The following pages provide an overview of the three themes, actions and policies. Opportunities for collaboration with the Victorian Government are identified.

A SAFE AND LIVEABLE CITY

Safe, walkable streets support the knowledge economy, which is dependent on face-to-face interaction and the sharing of ideas and information. Cities with streets which support convenient, comfortable and safe transport have healthier populations and a more equitable society. Streets designed for people attract investment and promote economic growth.

Outcomes:

1. Safe streets for people

Our streets will be safe places for people of all ages. People will be protected from the risk of moving vehicles. Innovative design will enhance the quality of the public realm without compromising the amenity of our streets for people walking and resting. Pedestrians are safe, the risk of harm posed by motor vehicles is reduced by slowing vehicles down and creating more car-free spaces.

2. Safe streets for bike riding

People in Melbourne will feel confident to ride a bike. Major investment in safer cycling infrastructure and programs will make cycling a vital and growing component of the transport network. Transport corridors with protected bike lanes will move more people in a cost effective way using the same amount of space, increasing safety and contributing less noise and air pollution.

3. Transport interchanges as welcoming people places

Public transport interchanges will support seamless, comfortable, door-to-door journeys. High-quality footpaths will provide comfortable walking and waiting spaces which enable people to get on and off trams and buses efficiently and safely. Our station precincts will be enhanced by expanded, welcoming, world-class civic spaces. Crowding at tram and bus stops will be accessible for all and moving between footpaths and tram stops will be quick, safe, easy and direct.

4. Fewer non-essential vehicles in the municipality

Removing non-essential vehicle trips from the city's streets will free up valuable space to make streets safer, more attractive and more efficient. Fewer cars means better amenity, less noise and fewer emissions. This is good for business, residents, workers and visitors. Fewer non-essential vehicle trips means improved priority for emergency vehicles, on-road public transport, deliveries and servicing. Access for people with a disability will be maintained as a priority.

City of Melbourne will:

- Redesign our streets to prioritise walking, public transport and cycling.

- Provide more space for people on footpaths by introducing new measures to prevent obstacles blocking pedestrians in high volume locations.

- Install an initial 300 additional on-street motorcycle parking bays to provide an alternative to parking on the busiest footpaths.

- Provide more space for walking and other important uses including greening, street furniture and street trading by repurposing road space equivalent in size to 20 Bourke Street Malls.

- Progressively convert 'Little' streets into pedestrian priority shared zones to link our laneways and support a thriving retail economy and cafe culture.

- Install additional road crossings to address gaps in the walking network and increase safety.

- Deliver an expanded network of protected on-road bicycle lanes - increasing from around 6km today to more than 50km by 2030 - connecting into and through the central city to get more people who want to ride on a bicycle.

- Update our bicycle lane design standards to allow us to deliver best practice bicycle infrastructure across the city.

- Maintain vehicle access for emergency vehicles and people with a disability or limited mobility as a priority. Ensure street and loading access is facilitated for freight, trade and servicing.

- Reduce vehicles travelling through the central city (currently 43 per cent of traffic) with improved transport options, encouraging use of bypass routes and allocating more road space for efficient transport.

- Review and renew policies in relation to off-street car parking and car share.

Opportunities to collaborate with the Victorian Government and other key stakeholders to:

Deliver world-class, safe people-priority areas around our major transport interchanges and railway stations.

Reduce the risk of harm from vehicles by investigating a trial of 30km/h speed limits in the central city and reduced limits in other busy pedestrian areas across the city.

Deliver an additional 40km of protected bicycle lanes on roads managed by the Victorian Government.

Make intersections safer for bikes by trialling innovative intersection designs.

Deliver safer tram stop designs which are seamlessly integrated into our streets and footpaths to enable excellent service for public transport passengers.

Transport interchanges and city gateways

Major rail stations - and the precincts within which they sit - are the gateways to the central city.

The city's public transport network delivers hundreds of thousands of people on to the city's streets each day. The precincts surrounding these major transport hubs facilitate access and interchange, operating as an extension of the public transport network. These places are the beginning of people's experience of our vibrant city heart.

These precincts are under pressure from ever increasing volumes of people. They will become increasingly congested as the public transport use continues to grow.

Prioritising people in these precincts and their safety, comfort and enjoyment will benefit the public transport network experience and elevate the reputation of Melbourne as a great place to visit, do business and live. They should welcome people to the central city and provide a memorable sense of arrival. To achieve this, significant investment is required to improve the civic qualities of these spaces.

Image 3: Flinders Lane

AN EFFICIENT AND PRODUCTIVE CITY

The efficient movement of people and goods is critical to the function of our city. Economic growth and productivity is powered by efficient transport. The walking economy has been key to the success of the central city as a place to do business, visit and live. Moving more people and goods efficiently in the same amount of space is a significant challenge we must address in partnership with the Victorian Government.

Outcomes:

5. Reduced delay for people using efficient transport

Reduced delays will make efficient modes of transport more attractive. Increased use of walking, cycling and public transport will improve public health and stimulate the economy.

6.More people riding bikes

Increased bicycle use will support a healthy, sustainable and prosperous community. Cycling will ease pressure on our public transport network - particularly on crowded inner-city trams - and decrease traffic congestion. Increased bicycle use will be supported by an uptake in electric pedal-assist bikes, more programs to boost people's riding skill and confidence and possible improvements to road rules to reduce barriers to riding.

7. Productive kerb space

Kerb space - the road space adjacent to the kerb - will be managed so that competing uses are balanced and economic and liveability benefits are maximised. On-street parking changes will optimise occupancy and some space reallocated to other uses including greening, safe bicycle lanes, motorcycle parking, wider footpaths and public open space.

8. Efficient and reliable public transport for everyday life

Improved public transport capacity, useability and user experience will mean more people on public transport more often. High-quality public transport means that more people can live without owning a car or needing to use one often. Significant investment in public transport will deliver a network where services and interchanges are frequent and effective, allowing people from across Victoria to easily access a variety of destinations in an affordable, sustainable and time-efficient manner.

9.Integrated transport planning for Victoria

Best-practice transport planning will deliver equitable, sustainable and efficient outcomes for all Victorians. The City of Melbourne and the Victorian Government will work together to ensure our transport objectives are met in line with the Transport Integration Act (2010). Construction disruption will be well coordinated and managed.

City of Melbourne will:

- Reduce pedestrian crossing distances at intersections to improve safety, accessibility and enable shorter wait times for pedestrians.

- Investigate the creation of a team dedicated to the planning and delivery of bicycle projects and programs at the City of Melbourne.

- Deliver community programs to get more people riding bikes.

- Support the growth of e-bikes by helping our community experience this new technology and advocating for government support.

- Reform on-street car parking management to ensure street space is used efficiently, access for deliveries and servicing is optimised and to improve access for those who need it.

- Investigate opportunities for innovative design and flexible use of kerb space, such parking, loading and street trading, to meet changing demands throughout the day.

- Optimise the efficiency of our reduced supply of on-street parking, initially through a trial of demand-responsive pricing for on-street car parking.

- Support the transition to a 'turn-up-and-go' public transport network. This will require improved bus and tram routes, improved orbital services, boosting service frequencies, improved access to public transport, regional rail, airport access and improved public transport safety.

- Support and accommodate more rail replacement buses in the city during disruption.

City of Melbourne will work in partnership with the Victorian Government and key stakeholders to:

Review current traffic signal operations to optimise performance and reduce delays for the majority of users who are people walking, cycling and using public transport.

'Supercharge' buses and trams to improve performance and frequency. This may include new dedicated lanes, signal priority at intersections, upgrading stop designs to reduce loading times, consolidation of stops and improved physical separation from private vehicles. This will improve access to the rail network.

Minimise incidences of vehicles blocking intersections by exploring opportunities to improve intersection design, signal operation and enforcement.

Review Victorian road rules as they apply to cycling, such as the requirement to stop at a red light when turning left into a bicycle lane, to make cycling safer and more attractive for everyday trips.

Ensure that major transport investment delivers on our transport objectives.

Plan and deliver world-leading urban renewal areas to create liveable, sustainable communities and places for new residents.

Complete a Central City Transport Framework which recognises the complex and unique transport challenges in the central city and establishes a partnership for planning and managing transport.

Manage construction disruption and consider the opportunities to test new transport conditions.

City of Melbourne will advocate for:

Delivery of both Fishermans Bend tram lines by 2022.

Delivery of Cross-City Rail linking Mernda and Werribee lines via Fisherman's Bend and the central city with early works construction commencing in 2025. This project is the next critical inner city rail expansion to boost capacity, relieve overcrowding and improve public transport accessibility.

Explore options to encourage through-traffic to avoid the central city.

Big build, big opportunity

Major investment in city-shaping infrastructure will continue over the next decade. Projects such as Melbourne Metro are critical to transforming the city's public transport network and meeting the demands of a growing population.

Disruption caused by construction of major transport infrastructure is inevitable and can have significant impacts. Disruption can also have benefits, leading to positive changes and present opportunities to improve the city. For example, disruption can change travel patterns creating opportunities for streets to be used in different ways.

We will work in partnership with the Victorian Government to manage disruption, ensure the city continues to operate efficiently during disruption and to advocate for the best possible outcomes on our streets and precincts following project completion.

Image 4: Southern Cross Station

A DYNAMIC AND ADAPTIVE CITY

As our population grows and transport challenges become more complex, there are real opportunities for technology, trials and innovative policy to be part of the solution. Our streets, public spaces and transport network must be adapted to meet the travel demands of the future while ensuring we continue to put people first in a liveable, prosperous and sustainable Melbourne.

Outcomes:

10. New technologies deliver net community benefit

New technology will deliver a range of transport benefits for Melbourne including better access, new transport modes, lower emissions and more efficient use of existing assets. Appropriate regulation will ensure that new technologies integrate into the city and do not undermine amenity, efficiency and liveability.

11. Vehicle innovation supporting a people-focused city

The benefits of innovations in vehicle technology will be captured. These include more flexible mobility, reduced parking demand and greatly reduced road trauma. Potential negative impacts, including increased congestion and reduced active travel, will be avoided.

12. Zero emissions transport

By 2050, transport in the municipality will be emissions-free. Vehicles with internal combustion engines will be phased out, replaced by zero emissions technology. The public transport network will be converted to 100 per cent clean energy. Walking, cycling and public transport will increase. Private motor vehicle use will transition to electric shared and private vehicles.

13. Equitable and efficient transport pricing

The way we pay for transport ensures an equitable and efficient system which manages transport demand and reduces congestion. Travel choices will be guided by price to influence the number of trips, at what time of day, the route and the transport mode. Off-peak fares increase public transport travel patronage at these times.

City of Melbourne will:

- Be a 'city lab' testbed for smart mobility and micro mobility trials, encouraging new services and new technology aligned with the outcomes of this Strategy and the objectives of the Transport Integration Act 2010.
- Ensure thorough evaluations of trials are completed to fully understand opportunities and impacts.
- Encourage electric vehicle charging in buildings and limit on-street charging to areas without off-street parking.
- Lead a public conversation on trialling road user pricing in Melbourne to discuss the opportunities to reduce traffic congestion, improve transport efficiency and increase liveability across Melbourne.

City of Melbourne will work in partnership with the Victorian Government and key stakeholders to:

Trial advanced traffic signal technology to increase efficiency and safety for people walking, riding bikes and using public transport.

Explore options to change public transport pricing to encourage more people to travel outside peak times.

Ensure vulnerable road users are legally protected from the risks of motor vehicles and autonomous technology.

Ensure urban amenity is an important consideration as autonomous vehicle technology develops. More efficient use of road space will be ensured by providing more space for walking and cycling.

Develop a regulatory framework for new mobility services, such as dockless, drones, shared, electric and autonomous. This should protect amenity and consider parking, safety, vehicles, consumer protection, liability, timeframes and competition.

Leverage disruption to trial new street designs to improve the quality of the public realm while capturing the benefits of technology and behaviour change.

City of Melbourne will advocate for:

The Victorian and Australian Government to reduce the emissions-intensity of motor vehicles and promote electric vehicles if powered by renewable energy. This includes strengthening and expanding vehicle emissions standards.

The Victorian and Australian governments to engage in a public conversation on the future of road pricing and funding, and deliver a trial of road pricing with the goal of improving transport equity and efficiency.

Introduce a fair and equitable road revenue-sharing agreement between all levels of government through pricing reform.

Prioritise the transition of public transport and commercial vehicles to low-emissions technology.

Trials and pilots

Trials and pilots have been used in many cities, such as New York, London, Toronto and Copenhagen, to test new ways of designing streets, changing transport operations and introducing new technology.

There are many opportunities for the City of Melbourne and the Victorian Government to use our city as a test-bed with trials and pilots to adapt our streets and transport network to make our city safer, more efficient and more liveable.

Trials and pilots give all stakeholders an opportunity to test a new way of doing things in the city and evaluating the benefits before committing to long-term change and investment.

Changes to how people move in our city during major construction disruption are also an opportunity to test how travel behaviour changes and ask what we want for our city once the construction is complete.

Image 5: Princes Bridge

IMPLEMENTATION

How will the Transport Strategy be delivered?

This strategy will be delivered through the *Transport Strategy Implementation Plan*.

The *Transport Strategy Implementation Plan* will outline how the actions will be delivered over the next ten years to achieve the outcomes as defined in the Strategy and the Proposed Transport Network 2030.

The *Transport Strategy Implementation Plan* will be one, integrated action plan which replaces multiple City of Melbourne transport action plans - including the Walking Plan and Bicycle Plan.

The *Transport Strategy Implementation Plan* will be released on endorsement of the final Transport Strategy.

How will the Transport Strategy be funded?

The major capital projects to be delivered by the City of Melbourne through the *Transport Strategy Implementation Plan* are bicycle infrastructure projects and public realm improvement projects. Some of these projects will require approval and co-funding from the Victorian Government.

The City of Melbourne will commit operational funds to deliver the actions and initiatives in this strategy.

How will we measure success?

The final Transport Strategy will include specific targets and indicators to measure the progress of this strategy against each outcome over the next 5, 10 and 30 years. These targets and indicators will be developed when the strategy is finalised following community engagement.

Image 8: Crossing Spencer Street during peak hour.

2030 PROPOSED TRANSPORT NETWORK

Melbourne's transport network in 2030 as proposed by this Transport Strategy.

Key	Existing	Proposed/ under investigation
Protected bike network		
Station		
Station precincts		
Greenline		
Tram		
Full-time bus priority		
Rail		
Traffic bypass		

Map 1: Combined map of all proposals.

Map 1. 2030 proposed transport network

CONTEXT

This chapter considers how people are moving in our city, the transport issues people face and future challenges and opportunities for transport in Melbourne.

Image 9. Crossing Swanston Street at Lonsdale Street
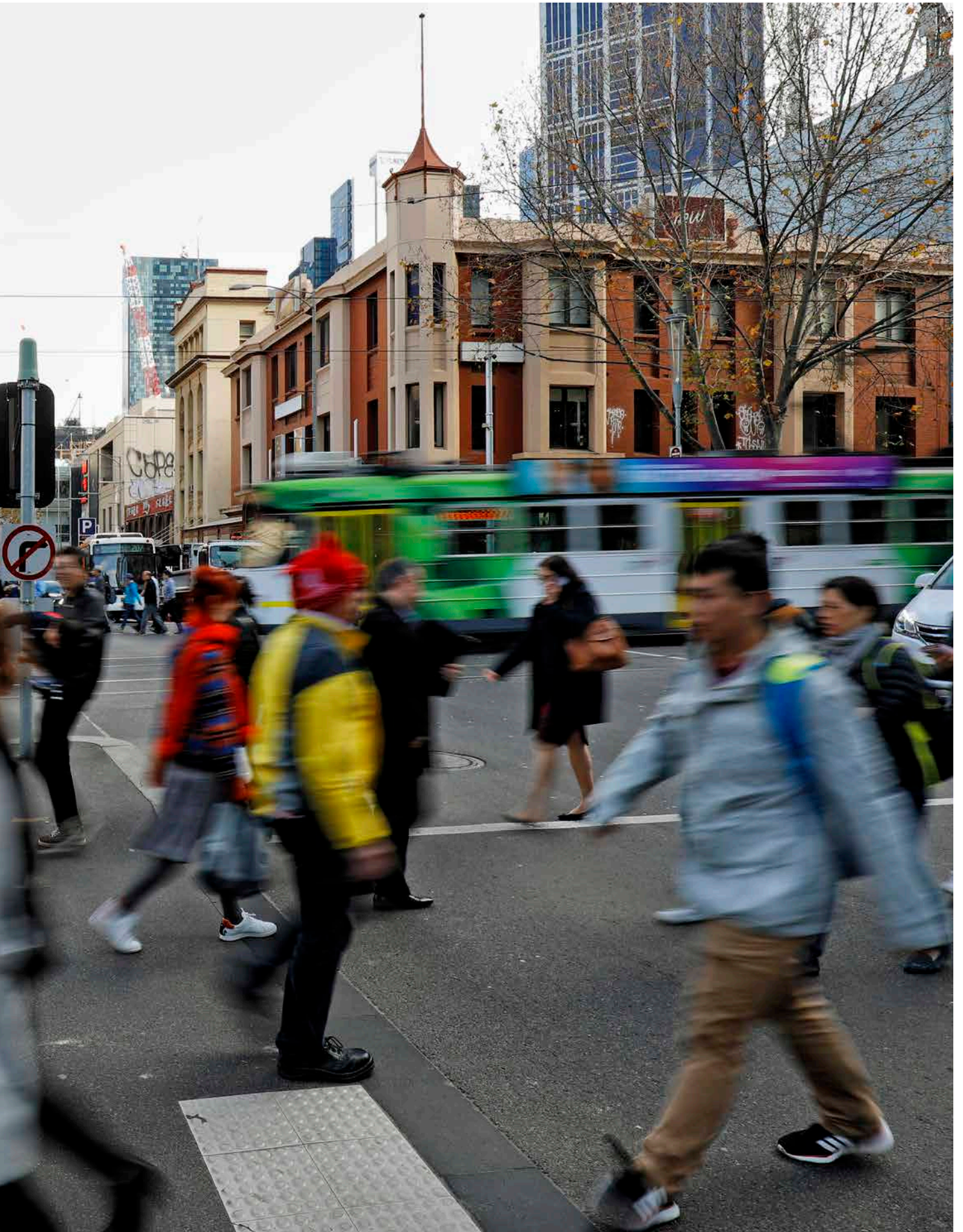
THE CENTRE OF VICTORIA'S TRANSPORT NETWORK

Transport in the municipality

Each day, more than 900,000 people move into, within and through the municipality. Sixteen metropolitan train lines, six regional train lines, 22 tram routes and 28 bus routes converge in Melbourne's central city.

Parkville

Flemington

Macaulay

3080
2100

Kensington

Arden

West Melbourne

North Melbourne

33

2580
570

Docklands

Yarra River

Employment Precinct (Fishermans Bend)

Lorimer

Sou
Wh

Port Melbourne

Map 2. Context map.

Key

Central city		Road - Victorian Government		**People moved (weekday 8-9 AM):**	
Tram route		CityLink (privately-operated)		Station exits	
Bus route		**Under construction:**		Tram passengers	
Passenger rail		Melbourne Metro 1 (due 2025)		Bicycle riders	
Train station		West Gate Tunnel (due 2022)		Vehicle occupants	

Carlton North

1540
1210
870

1600
1240

1980
560

2520
740

1680
660

Carlton

220

310

710

30

12,300

15,500

370

8,700

1900
900

Central City

elbourne

2280
1140

20,800

24,100

Southbank

810

6000
1120
460

uth
arf

630
500

East Melbourne

South Yarra
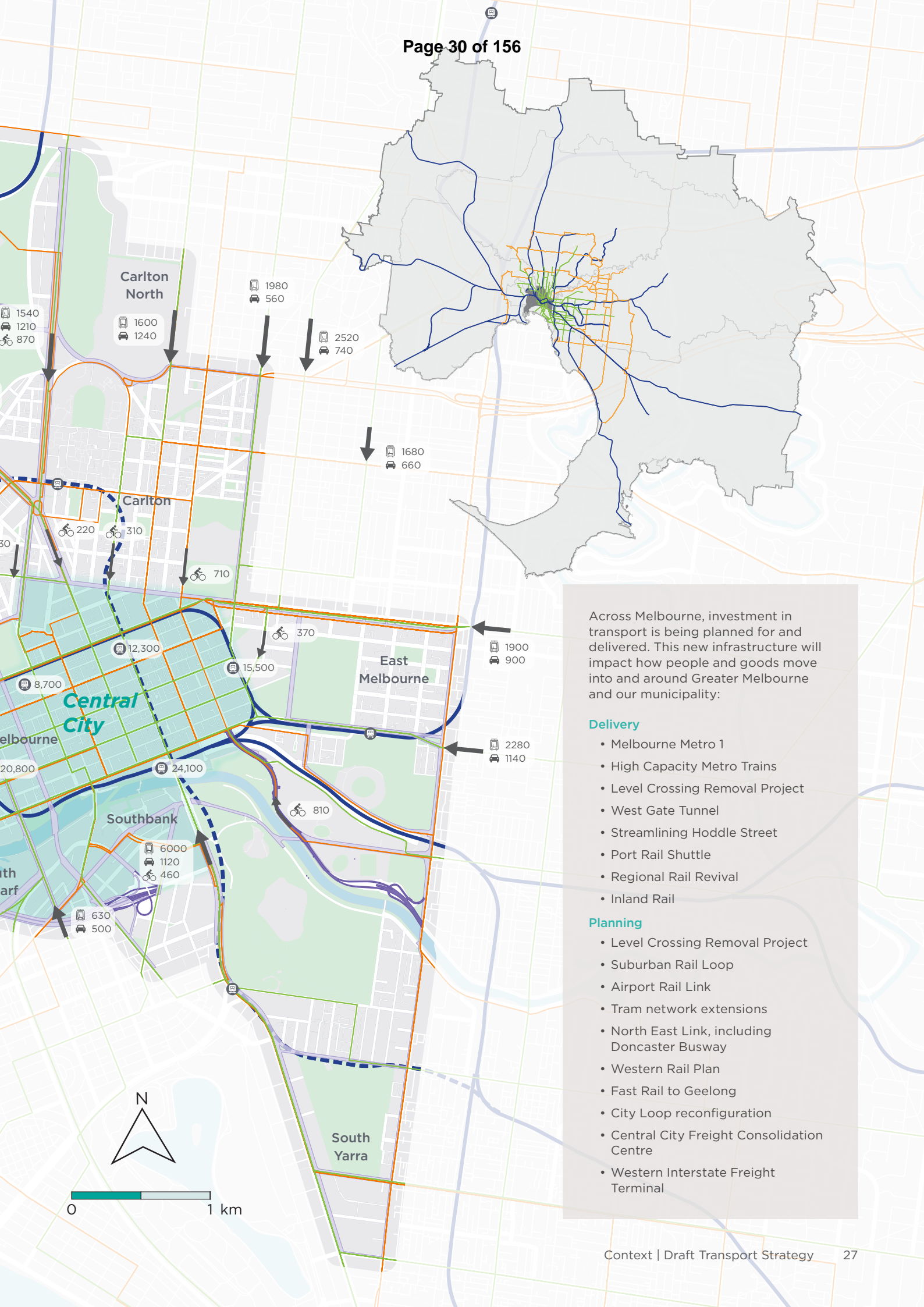
Across Melbourne, investment in transport is being planned for and delivered. This new infrastructure will impact how people and goods move into and around Greater Melbourne and our municipality:

Delivery

- Melbourne Metro 1
- High Capacity Metro Trains
- Level Crossing Removal Project
- West Gate Tunnel
- Streamlining Hoddle Street
- Port Rail Shuttle
- Regional Rail Revival
- Inland Rail

Planning

- Level Crossing Removal Project
- Suburban Rail Loop
- Airport Rail Link
- Tram network extensions
- North East Link, including Doncaster Busway
- Western Rail Plan
- Fast Rail to Geelong
- City Loop reconfiguration
- Central City Freight Consolidation Centre
- Western Interstate Freight Terminal

N

0   1 km
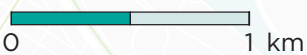
ROLES AND RESPONSIBILITIES

Who is responsible for transport?

City of Melbourne

The City of Melbourne manages, operates and funds some aspects of the transport network in inner Melbourne. We are primarily responsible for local roads and we design, deliver and maintain most of the city's public spaces, footpaths, streets, bicycle lanes and paths in parks and gardens.

Victorian Government

The Victorian Government is responsible for most aspects of planning, building, managing and operating transport in Melbourne through its various agencies and contractors. This includes the public transport network, arterial roads and all traffic signals.

The City of Melbourne works closely with Victorian Government agencies, authorities and operators to gain approvals for projects, to advocate for change and influence good outcomes for our municipality.

What are our objectives?

The *Transport Integration Act 2010* (TIA) is Victoria's principal transport statute. The TIA requires the transport system to be planned as a single system performing multiple tasks rather than as separate transport modes. Its core focus is integration and sustainability.

The City of Melbourne and the Victorian Government is required to have regard to the objectives and decision-making principles of the TIA. The transport objectives of the TIA are to achieve:

social and economic inclusion

economic prosperity

environmental sustainability

integration of transport and land use

efficiency, coordination and reliability

safety, health and wellbeing.

Street trees are managed by the City of Melbourne.

Footpaths are managed by the City of Melbourne.

On-street parking is managed by the City of Melbourne.

Trams are operated by Yarra Trams under contract from the Victorian Government.

Arterial roads are managed by the Victorian Government.

Signalised intersections are managed by the Victorian Government.

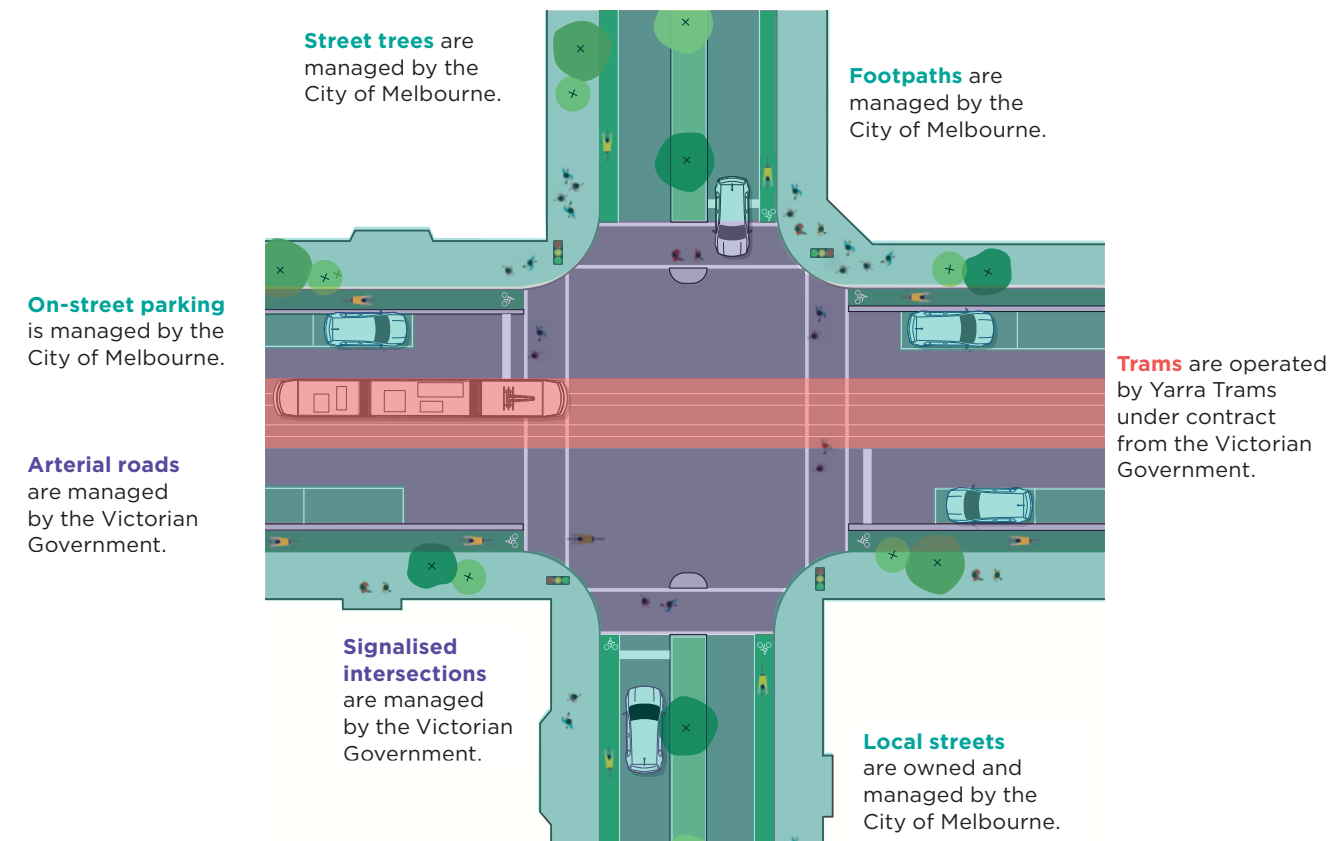**Local streets** are owned and managed by the City of Melbourne.

Figure 3: Road management roles and responsibilities.

POLICY ALIGNMENT

Working together for a world-class transport network

The City of Melbourne commits to working with the Victorian Government to deliver the world-class, efficient, safe and reliable transport network needed for a growing Melbourne.

This will be especially important in places where the transport roles of the Victorian Government and the City of Melbourne intersect:

- The rail network and stations are managed by the Victorian Government and are major gateways to the central city. When the thousands of people come by rail each day, they arrive on to streets managed by the City of Melbourne.

- The city's hardworking and iconic trams run on many City of Melbourne streets. The stops are integrated into streets and footpaths we manage and maintain.

- Most streets in the city are local streets managed by the City of Melbourne, while signalised intersections are managed and operated by the Victorian Government.

It is critical that we work constructively with the Victorian Government to ensure a seamless, integrated transport system and respond together to the challenges and complexities of moving more people in the same amount of space.

Major transport projects and disruption

Construction of the Metro Tunnel and other major transport and building projects will disrupt existing travel patterns in many ways. We will work with the Victorian Government to manage disruption and accommodate people safely and comfortably as they arrive in the central city during construction.

Public transport and public realm interface

The Victorian Government is progressively increasing public transport capacity by purchasing larger vehicles, investing in infrastructure, making the system more efficient and moving towards a 'turn-up-and-go' service. The passenger experience extends beyond the public transport vehicle and onto the streets and footpaths around stations and stops. We must work together to ensure these public spaces are welcoming and adapted to match the aspirations for an efficient, modern public transport system.

Safety

As Melbourne becomes busier and more people gather at our transport hubs, ensuring the safety of people in the central city becomes a greater challenge. We will work with the Victorian Government to ensure our streets are designed to keep people safe and minimise overcrowding.

More cycling

Increasing cycling uptake will reduce congestion on our streets and trams. We support investment in safer, lower-stress, better-connected bicycle routes in line with the Victorian Cycling Strategy. We will work with the Victorian Government to deliver on our shared goals for cycling and make it a real option for more people.

Intersections

Improving the people flow at signalised intersections is key to reducing footpath congestion and improving the efficiency of movement throughout the city. We will work with the Victorian Government improve traffic signal operations and timing.

Trials and pilots

We support trialling and testing changes to the design and operation of our streets and transport infrastructure in partnership with the Victorian Government.

The Transport Strategy has been informed by key policies and legislation:

Victorian Government

- Plan Melbourne 2017
- Infrastructure Plan 2018
- Victorian Cycling Strategy 2018
- Movement and Place in Victoria 2019
- Network Development Plan - Metropolitan Rail 2012
- Victorian Freight Plan 2018
- Towards Zero 2016
- Climate Change Act 2017
- Transport Integration Act 2010

City of Melbourne

- Future Melbourne 2026
- Council Plan 2017-2021
- Transport Strategy 2012
- Walking Plan 2014
- Places for People 2015
- Bicycle Plan 2016
- Last Kilometre Freight Plan 2016
- Motorcycle Plan 2015
- Road Safety Plan 2013
- Road Management Plan 2017
- Climate Change Mitigation Strategy 2018
- Climate Change Adaptation Strategy 2017
- Urban Forest Strategy 2014
- Access Docklands 2013
- Central Melbourne Design Guide 2018
- City of Melbourne Design Standards

CHALLENGES AND OPPORTUNITIES

The following challenges and opportunities were identified by City of Melbourne analysis and community feedback and reinforced through independent research. The strategy proposes a series of actions, policies and projects to respond to these issues.
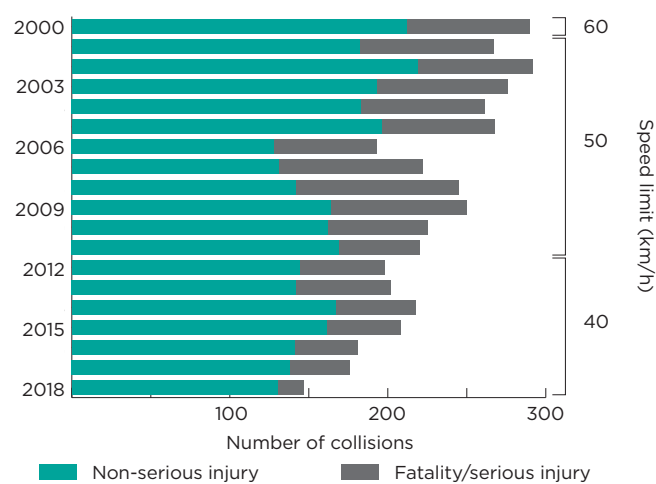
1. Safety and security in the city

Pedestrian road trauma

The city has the highest rate of pedestrian road trauma in Victoria. On average approximately 46 pedestrians are seriously injured and one pedestrian dies each year on roads in the city. More needs to be done to keep people safe on our streets.

Road-related fatalities and injuries have declined but there is a long way to go

Figure 4: Annual recorded road collisions resulting in injuries in the Hoddle Grid (Victorian Government 2018)

In recent years, motor vehicles have been used to deliberately harm people on our streets. We are working with the Victorian Government to protect our primary gathering spaces. However with more people in the central city each day we need to consider expanding this to other streets and spaces.

Footpath overcrowding

The quality of life in Greater Melbourne and the growth of our economy continues to attract people to the central city. As a result, pedestrian overcrowding occurs frequently at key locations, including around train stations and tram stops, on streets and at intersections. For example, at the intersection of Spencer and Collins streets during peak hours, there are often so many pedestrians waiting to cross the road that they spill onto the street, putting people in danger.
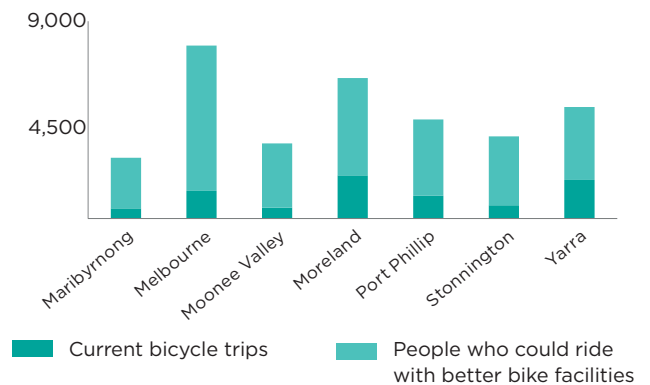
Experience and reputation

The experience of visitors in the central city affects Melbourne's status as a global destination. With most visitors on foot, the quality and generosity of the walking environment is critical to our international reputation and a thriving economy. In line with Council's goal for a 'City for People', we want to ensure all people can access, feel safe in and enjoy the city. The city's streets, public realm and transport network must be inclusive for all.

Many people don't feel confident to ride a bike in Melbourne

Cycling is good for our health and environment. It is cheap, fun and flexible and requires relatively little space in a busy city. While there is an extensive network of painted lanes in the city, our evidence shows that most people do not feel safe enough to use them. Many people who want to start riding or want to ride more often would do so if bike lanes were physically protected from motor vehicles. Protected bike lanes attract more people to ride. Cycling could play a bigger role in the transport network for a relatively low-cost investment (e.g. the 12,000 people who ride to work today is equivalent to 57 E-class trams on the network).

Thousands of people could ride to work in the municipality with better infrastructure

Figure 5: Number of potential bike riders in adjacent LGAs

Public transport safety

Most of Melbourne's extensive tram network shares space with vehicles. Every year 1,000 tram/vehicle accidents occur across the network. These accidents injure people, affect lives, cause extensive delays and substantially increase operating costs. Feeling unsafe at public transport stations, stops and surrounding streets prevents some people accessing public transport services at all times and locations.

2. Network efficiency

Congestion

A certain level of transport congestion is a feature of all prosperous cities. However, it also undermines liveability and economic prosperity. Congestion costs Greater Melbourne $4.6 billion per year and is forecast to reach $10 billion by 2030. Increasing road capacity does not eliminate congestion. Rather, evidence shows it increases the number of motor vehicles on the road. Buses and trams get stuck in congested conditions across Greater Melbourne. We have the largest tram network in the world, however our trams are also among the slowest, averaging just 16km/h across the network.
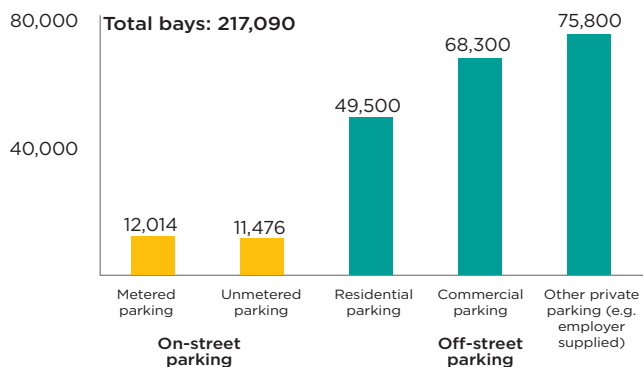
The impact of through-traffic

Many people who drive through the central city are passing through with business elsewhere. Forty-three per cent of vehicles travelling into the Hoddle Grid is through-traffic. King Street, Spencer Street and William Street carry the most through-traffic.

Excess and underused parking space

The price of on-street parking is lower than off-street parking. This adds to congestion, as people search for a cheaper space. The use of street space for on-street parking benefits a small number of people. There is little evidence that parking is essential for retail performance. This space could be used more productively to benefit more people if converted to others uses such as footpaths, bike lanes and street trees – for meetings, eating, drinking and as places for hospitality. There are 40 per cent more residential parking spaces in the city than vehicles owned. This oversupply pushes up the cost of housing by $50,000 to $80,000 per parking space.

Residential car parking is oversupplied

Figure 6: Parking supply in the municipality.

Pedestrian delays at intersections

The traffic lights at many intersections in the Hoddle Grid create long delays for pedestrians waiting to cross. Traffic signals which change infrequently lead to a build up of people waiting to cross, particularly near city loop train stations. As train capacity increases and more people arrive in the city each day, overcrowding at intersections will increase.

3. City disruption and transformation

Major project disruption

Greater Melbourne's growth has led to an unprecedented investment in major projects including the Metro Tunnel, West Gate Tunnel and level crossing removals. These are transformational projects which will take several years to complete. Construction requires frequent changes to the way people travel such as road closures, diversions and replacement bus services.

Disruptive technology

Disruptive technology such as ride share apps and dockless bike share provide opportunities to improve transport and increase accessibility. However, there is a risk that the benefits will not be realised, or that without regulation negative impacts of new technologies will not be mitigated.

There is a high degree of uncertainty about how soon driverless cars will be using our streets. Driverless cars could remove most human error in road accidents and help deliver people the first and last kilometre of their trip, complementing efficient public transport. However, driverless cars are likely to contribute to additional car trips, more congestion and may shift people away from walking, public transport and cycling.

Transport emissions are increasing

Current transport emissions in the city exceed the levels required to meet Australia's obligations under the Paris Climate Agreement. In 2018, cars contributed around 52 per cent of the city's land transport emissions.

Private cars are the greatest source of transport emissions in the municipality

Figure 7: Transport emissions in the municipality, by mode

Transport pricing

Currently, the main form of road demand management is traffic jams – people are discouraged from making trips during peak hours due to longer journey times. There is no price signal to manage road demand or encourage people to travel differently. People pay the same price for transport during peak hours as they do during off-peak hours.

COMMUNITY FEEDBACK

Between April and July 2018 the City of Melbourne released eight discussion papers for community feedback. The response was the one of biggest in the history of the *Participate Melbourne* website with over 1,300 responses.
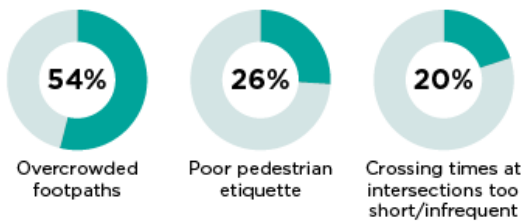
Walking

Seventy-four per cent of 197 submissions on walking supported the concepts outlined. These included car-free zones, reduced speed limits and reduced delays for pedestrians at traffic lights.

Top 3 experiences (unprompted):

54%	26%	20%
Overcrowded footpaths	Poor pedestrian etiquette	Crossing times at intersections too short/infrequent

City Space

Eighty-seven per cent of 80 submissions on city space supported the concepts outlined. These included removing footpath clutter, converting on-street parking to wider footpaths and implementing shared zones on 'Little' streets.
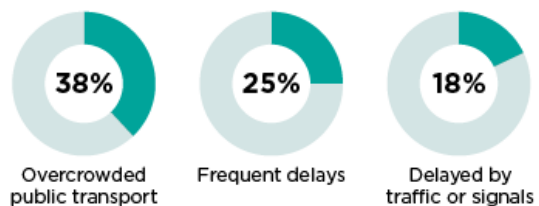
Top 3 experiences (unprompted):

68%	16%	16%
Overcrowded footpaths and streets	Unsafe conditions, too few dedicated bike lanes	Too many cars and on-street parking in CBD

Public Transport Network

Sixty-three per cent of 128 submissions on public transport supported the concepts outlined. These included build Melbourne Metro 2 (Cross City Rail: Clifton Hill to Newport via Fishermans Bend), plan for Melbourne Metro 3 (Airport Rail), supercharge the tram network and invest in better orbital services.

Top 3 experiences (unprompted):

38%	25%	18%
Overcrowded public transport	Frequent delays	Delayed by traffic or signals

Emerging technology

This discussion paper received less community interest than other topics with only 18 submissions.

Bicycles for Everyday Transport

Ninety per cent of 366 submissions support the concepts outlined. These included transforming traffic lanes into protected bicycle lanes, bicycle lanes which continue to and through intersections and trialling separated bike lanes along Flinders Street.

Top 3 experiences (unprompted)

39%	17%	16%
Unsafe and intimidating conditions	Pedestrians and drivers who do not check for cyclists	Car-dooring or threat of car-dooring

Car Parking

Sixty-seven per cent of 91 submissions on car parking supported the concepts outlined including converting more on-street parking to other uses, putting a cap on car parking supply, setting car parking reductions targets and reforming on-street parking pricing.

Top 3 experiences (unprompted):

36%	24%	16%
Other modes of transport are not used enough	Too much of a focus on on-street parking	Too many cars in the city

Motor Vehicles

Sixty-seven per cent of 94 submissions on motor vehicles supported the concepts outlined including preventing through-traffic, creating more space for non-car uses and providing opportunities for more efficient driving.

Top 3 experiences (unprompted)

38% Motor vehicles block intersections

34% Unsafe for pedestrian and cyclists

23% Traffic and congestion

Reducing traffic for better streets (road user pricing)

Forty-four per cent of 39 submissions on road pricing supported the concept of road pricing reform as presented in the discussion paper.

Top 3 suggestions:

Improve public transport first

Implement road user pricing

Improve pedestrian and bicycle infrastructure first

Image 10: Prototype Street 2018 community engagement.

The analysis of current transport challenges and opportunities, data and trends, community feedback and independent research has informed the Draft Transport Strategy.

We will deliver:

- A safe and liveable city

- An efficient and productive city

- A dynamic and adaptive city.

A SAFE AND LIVEABLE CITY

Walkable streets support business and activity in the city, which is dependent on face-to-face interaction and the sharing of knowledge and ideas. Cities with streets that enable convenient, comfortable, enjoyable and safe walking, cycling and public transport have healthier populations and more sustainable environments. Streets designed for people bring life to the city.

Melbourne's generous streets have allowed us to provide for multiple modes of transport in most areas of the municipality. However, with a growing population and more people coming to the municipality, street space needs to be allocated to the modes of transport that will move the most people. This means prioritising pedestrian space, cycling networks and room for public transport.

Public space will become even more important to the long-term liveability, reputation and prosperity of our growing city. The City of Melbourne will increase the area of pedestrian-only and pedestrian-priority spaces in the central city to enhance safety, commercial viability and place activation, introducing temporary and permanent, full- and part-time street closures. This will be achieved using a strategic approach to ensure appropriate access is maintained.

Outcomes

1. Safe streets for people

2. Safe streets for bike riding

3. Transport interchanges as welcoming people places

4. Fewer non-essential vehicles in the municipality

Image 11. Flinders Lane

CHALLENGES AND OPPORTUNITIES

Safety and security in the city

Pedestrian road trauma

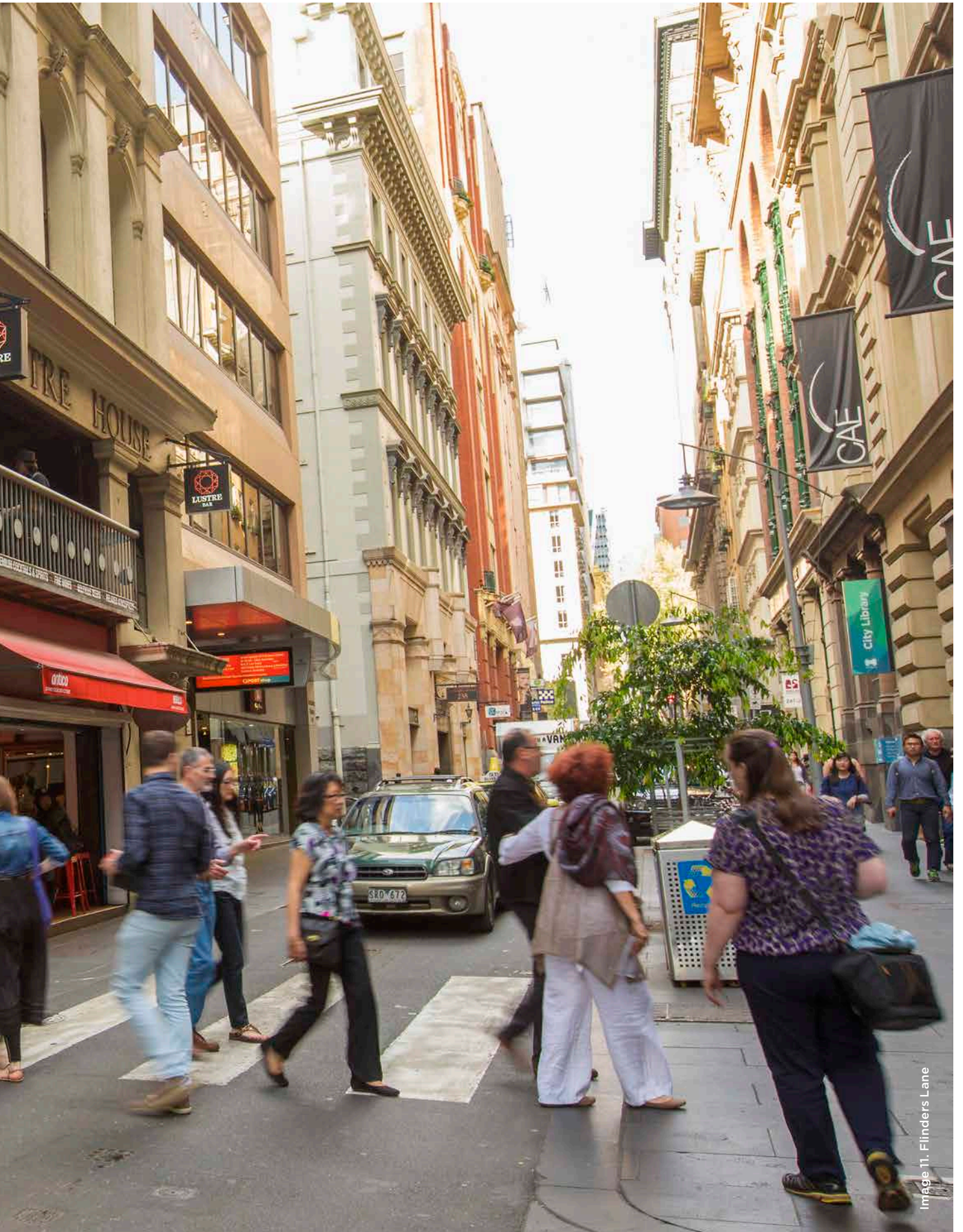Our municipality has the highest rate of pedestrian road trauma in Victoria. On average approximately 46 pedestrians are seriously injured and one pedestrian dies each year on roads across the municipality[1]. In recent years, motor vehicles have been used with the intent to harm people walking on footpaths. More will need to be done to reduce the risk of motor vehicles causing harm to people in the city. Many improvements have been made. For example, since the 40km/h speed limit was introduced throughout the Hoddle Grid, slower vehicle speeds have meant 170 people have avoided suffering serious injury.

Road-related fatalities and injuries have declined but there is a long way to go

Figure 4: Annual recorded road collisions resulting in injuries in the Hoddle Grid (Victorian Government 2018)
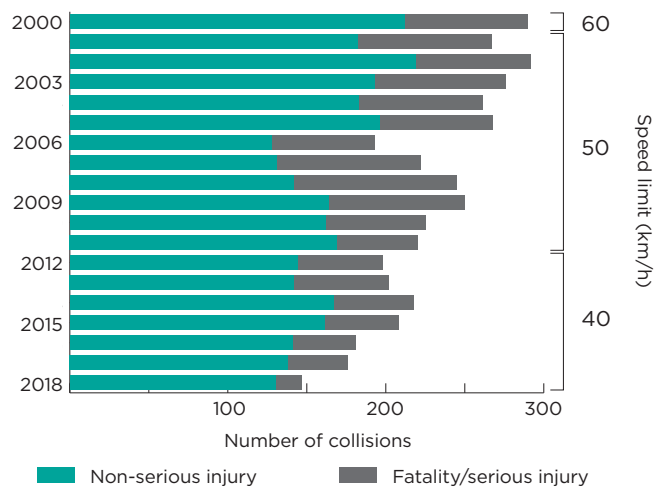
Footpath overcrowding

Pedestrian overcrowding occurs frequently at key locations, including around train stations and tram stops, on central city streets and at intersections[2]. For example, at the intersection of Spencer and Collins streets during peak hours, there are often so many pedestrians waiting to cross the road that they spill off the footpath. Overcrowded spaces are unpleasant, uncomfortable and put at risk the municipality's reputation, liveability and economic productivity. During the morning and lunchtime peaks, 14 per cent of central city footpaths are so crowded that people have to walk on the kerb or roadway[3]. Overcrowding is also a safety and security risk.

Our 'Little' streets are not designed to prioritise people. The footpaths are too narrow, making it hard for people to pass each other, to window shop or to dwell and enjoy the city. There is acute overcrowding on streets such as Flinders Lane, Little Collins and Little Bourke.

Experience and reputation

The experience of visitors in the central city impacts Melbourne's status as a global destination. With most visitors on foot, the quality and generosity of the walking environment is critical to our international reputation.

Many people don't feel confident to ride a bike in Melbourne

Cycling is good for our health and our environment[4]. It is cheap, fun and flexible and requires relatively little space in a busy city. Many people who want to start riding or want to ride more often would do so if bike lanes were physically protected from motor vehicles. Our research shows that protected bike lanes attract more people to ride[5].

We have constructed protected lanes on some streets, such as parts of Elizabeth, Swanston and La Trobe streets. These will need to be connected into a network of protected bike lanes, including protection at intersections, to attract more people to ride.

Tram network safety

On Melbourne's extensive tram network, trams and private vehicles compete for space. Every year 1,000 tram/vehicle accidents occur across the network – an average of three collisions each day. These accidents injure people, affect lives, cause extensive delays and substantially increases operating costs. When trams are taken out of service for repairs, a larger fleet is required to maintain services.

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[1] Transport Strategy refresh background paper: Walking, MRCagney 2018
[2] Transport Strategy refresh background paper: Walking, MRCagney 2018
[3] Footpath obstacle survey, Phillip Boyle and Associates 2018
[4] Transport Strategy refresh background paper: Bicycles for everyday transport, Phillip Boyle and Associates 2018
[5] Bicycle user confidence study, CDM research and ASDF research 2017

Health impacts of motor vehicles

Motor vehicles are a major source of pollution. In addition to carbon dioxide, motor vehicles emit particulates, nitrogen oxides and volatile organic compounds, which are harmful to human health. Motor vehicle use is strongly associated with negative physical and mental health outcomes including obesity, heart disease, diabetes, depression, stress and anxiety. Substitution of some motor vehicle trips with walking, riding a bicycle and/or public transport can improve public health and reduce strain on the health system.

Societal cost of motor vehicles

Every kilometre driven by a private motor vehicle imposes 58 cents in costs to society[6]. These costs include pollution, noise, traffic congestion, accidents, reduced health outcomes from sedentary behaviour, land use costs and road maintenance.

Slow growth of the car share fleet

Car sharing reduces ownership of private vehicles by allowing people to access a car when they need one, without the cost of having to own one. Car share users catch public transport, walk and ride bikes more often than car owners[7]. The City of Melbourne has a goal of 2000 car share vehicles in the municipality by 2021. The goal is designed to help halt the growth of the city's residential car fleet. If current trends continue, the City of Melbourne will not achieve its goal and the number of cars owned by residents may continue to increase.

The growth of car share is below what's needed to reach the current target

Figure 11: Size of the car share fleet in the municipality, 2011-18
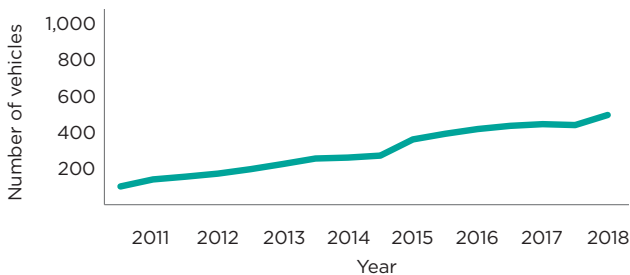
Melbourne is not yet accessible for all

Legislative requirements under the *Disability Discrimination Act 1992* (Cwth) (DDA) set the minimum standards for disability access in the city. While parts of the city's transport network continue to be upgraded to meet minimum standards, we should be aiming to go beyond this by designing a city which is universally accessible to all people including those with physical or mental disabilities. For example, while a section of city street may be DDA compliant, crowding makes it harder for the elderly, people with a disability or parents with prams or young children to navigate the street safely and comfortably.

Competing demands for street space

The 1.4 million people forecast to be in the central city every day in 2036 will need to move around in the same amount of space that is used by 900,000 today.

Historically Melbourne has tried to accommodate as many modes as possible on most streets. With rapid population growth, the increased demand for travel requires a new approach[8].

More space is needed for walking, cycling and public transport to move people efficiently, safely and in comfort. Also, more space will be needed for people to rest, relax and enjoy the city.

Obstacles on footpaths disrupt pedestrian flow and make pedestrian crowding worse[9]. Obstacles on footpaths include motorcycle and bike parking, A-boards and cafe tables.

Cars are the least space efficient mode of transport

Figure 12: Space per person (m²) for different modes of transport

Car (average occupancy) 9.2   Motorcycle 1.9   Bike 1.5   Tram 0.6   Train 0.5   Walk 0.5

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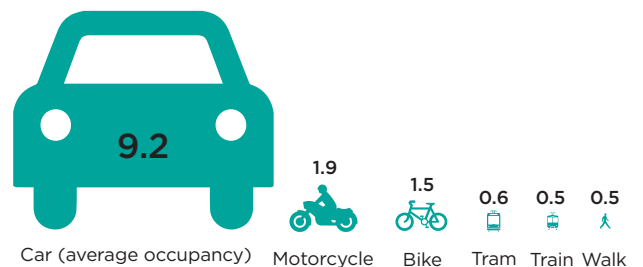
[6] Divorcing growth from the car, Deloitte 2018
[7] Car sharing research report, prepared by GHD for City of Melbourne and City of Stonnington, 2010
[7] Transport Strategy refresh background paper: City Space, UB-Lab 2018
[8] Footpath obstacle survey, Phillip Boyle and Associates 2018

OUTCOME 1 – SAFE STREETS FOR PEOPLE

Our streets will be safe places for people of all ages. People will be protected from the risk of moving vehicles. Innovative design will enhance the quality of the public realm without compromising the amenity of our streets for people walking and resting. Pedestrians are safe, the risk of harm posed by motor vehicles is reduced by slowing vehicles down and creating more car-free spaces.

1.1 Redesign streets in the Hoddle Grid

The future transport role of each street in the Hoddle Grid has been defined in this strategy (see the Proposed Transport Network maps).

We will transition the design of streets to reflect current and future use by delivering the 'Central City Public Realm Plan'.

Fundamental drivers of the plan are to reallocate more space to people, increase walking, cycling and public transport use in the central city and improve the experience of streets for people. In developing the Central City Public Realm Plan, the City of Melbourne will:

- prioritise space-efficient transport modes
- improve amenity by designing streets for people as our first priority
- seek to remove kerbs where drainage and other considerations allow, to create more permeable and accessible streets, such as on streets converted to 10 km/h shared zones
- continue to widen footpaths in the busiest walking areas, removing on-street parking where necessary
- integrate streetscape projects with climate change adaptation measures, such as tree planting and water sensitive urban design
- maintain vehicle access for emergency services, people with a disability and freight
- maintain property access

Action 1: Design our future streets based on the 2030 Proposed Integrated Network established in this Strategy. Deliver priority footpath widenings to reduce overcrowding.

1.2 Reallocate more space to people walking in the city

Walking is integral to cities. It is the main way people experience the city and connect with each other. A good walking network increases interaction between people doing business which drives the economy. Walking requires the least space of any mode of transport.

Creating wider footpaths for the comfortable movement of people as well as increasing space for seating, trees, street trading, bike lanes and bus/tram lanes is a priority.

Intersections play a critical role in the transport network. Some of Melbourne's most congested footpaths are at corners where footpaths meet. Roundabouts are space-intensive intersection designs. They remove pedestrian priority and are difficult to negotiate on bicycles. They are not a preferred solution in the City of Melbourne.

We will improve streets and intersections by:

- reallocating traffic lanes to pedestrian space, including at intersections and slip lanes
- reducing crossing distances and seeking to provide pedestrian crossings on all legs of an intersection
- narrowing traffic lanes and introducing traffic calming
- converting roundabouts to conventional intersections
- removing kerbs where possible to create level streets
- reallocating on-street parking to pedestrian space
- converting some roads into shared zones and people-priority 'shared spaces'
- reducing space allocated to roads and car parking in parks
- working towards a maximum of one traffic lane each way on all streets in the Hoddle Grid, except King Street.

Making these changes may have an impact on traffic capacity but will improve the people moving capacity and safety of our streets.

Locations where pedestrian overcrowding is already a problem will be prioritised, such as Bourke Street, Elizabeth Street, Spencer Street and areas around central city train stations. Haymarket roundabout is a priority for redesign to deliver better outcomes for pedestrians, cyclists and trams including improved public realm, improved cycling safety, an efficient interchange between trams and Parkville Station and more efficient tram movements.

Transitioning the city's 'Little' streets – Flinders Lane, Little Collins, Little Bourke and Little Lonsdale streets – to pedestrian priority streets is a key outcome.

These streets were originally established to service properties fronting the major east-west streets in the Hoddle Grid. As the city evolved, so has the function of the 'Little' streets. Today, many of them are vibrant, pedestrian-dominated spaces with a mix of fine-grained activity. Other streets in the city, such as Franklin Street, are changing as a result of projects such as Melbourne Metro.

The 'Little' streets are well-suited to pedestrian-based businesses, hospitality and retail. However, these streets narrow footpaths and crowded and uncomfortable pedestrian environments. Increasing the amount of space for people on foot in the 'Little' streets will increase their viability and vitality and link the laneways.

Fast movement or through-traffic are not appropriate in the 'Little' streets. Access for local traffic and deliveries will be maintained.

All policies established in the City of Melbourne Walking Plan 2014-17 remain current and actions which extend beyond the life of the plan will be delivered as part of this Transport Strategy.

Policy 1: Ensure adequate space is provided for people through all street renewal or upgrade projects. Intersections will be designed to optimise the flow of pedestrians and improve the safety and amenity of the intersection for all.

Action 2. Convert parts of 'Little' streets into people-priority shared zones with lower speed limits.

Evidence base - Spatial analysis of the municipality

An analysis of transport space across the municipality was undertaken to inform this strategy. The purpose was to better understand how much space between buildings is allocated to transport and how much is allocated to each mode.

The study found that the majority of street space in the municipality is allocated to the movement of motor vehicles. That is, 61 per cent of street space is allocated to roads and on-street car parking. Of the remainder, 4 per cent is dedicated to tram tracks and platforms, 9 per cent to kerbs and medians, and 26 per cent to footpaths. Of this footpath space, a significant proportion is taken up by street furniture, bins, poles, trading and bike and motorcycle parking.

Motor vehicles account for just 22 per cent of all trips to, from and within the Hoddle Grid. It is more efficient and equitable to allocate street space to the modes of transport which move the most people.

89 per cent of trips within the Hoddle Grid are made on foot. Only 26 per cent of street space is allocated to footpaths.

Street space in the municipality is disproportionally allocated

Figure 13: Analysis of City of Melbourne street space allocation by transport mode

Legend:
- Footpath
- Tram
- Kerbs and medians
- On-street parking
- Roads, shared zones, private lanes & on-road bike lanes
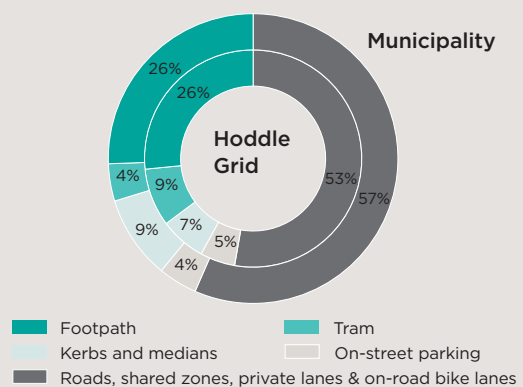
"I love finding different ways to get to work, exploring laneways and avoiding streets which are busy with traffic."

- Victoria, North Melbourne (Image 12)

1.3 Adopt a strategic approach to managing footpath obstructions

Obstacles on the footpath can impede the safe and comfortable flow of people walking. They can include fixed objects such as benches, poles, bicycle hoops, public phone boxes and trees, as well as non-fixed objects such as motorcycles, share bikes and scooters, dining tables and chairs, advertising boards and personal belongings. To ensure both the flow of people and quality of the public realm, the City of Melbourne will adopt a strategic approach to managing objects on the footpath.

As an immediate short term action, additional dedicated on-street motorcycle parking will be installed across the Hoddle Grid to encourage motorcycles to park on the street. More bicycle parking will also be provided on-street.

Motorcycle parking on footpaths will be restricted in busy parts of the central city. Additional bicycle parking on footpaths in busy central city locations will be limited. Audio visual advertising in the public realm creates physical and visual clutter. In general, this is not supported.

Policy 2: Reduce footpath obstructions to free up more space for walking in busy areas.

Action 3: Provide an initial 300 additional on-street motorcycle parking bays in the central city

Action 4: Increase space for walking by introducing new measures to prohibit non-fixed obstacles in busy areas.

1.4 Prioritise public transport, walking and cycling during construction disruption

Construction of buildings, major infrastructure and maintenance requires disruption to the transport system. Some disruptions can last for years.

As the number of people walking and cycling grows, it will become increasingly important to ensure safe and comfortable access is maintained.

The City of Melbourne will continue to work with the Victorian Government and others to manage disruption across the municipality.

Policy 3: Manage disruption by prioritising efficient modes during construction, especially walking, public transport and bikes as well as goods delivery and property access.

Evidence base - Footpath obstacle survey

A survey of footpaths across the central city was undertaken by independent consultants during the morning and lunch peak periods in November 2018. The survey found:

People were overflowing the footpaths (walking on the kerb or road) on 14 per cent of the 140 blocks that were observed. The main obstructions on footpaths are temporary and lightly-fixed objects.

Motorcycles, café equipment and temporary signs account for 89 per cent of the temporary objects causing obstruction.

Bicycles and bicycle parking racks, bins, seats, bollards and telephone pillars account for 73 per cent of the lightly fixed obstacles.

Observations of pedestrian flows on blocks at lunchtime found the 'Little Streets' are under the greatest strain.

62 per cent of intersections surveyed had obstructions which impacted pedestrian flows.

Temporary objects are the most common footpath obstacles

Figure 14: Comparison of the relative impact of different footpath obstacles upon pedestrian flows in the Hoddle Grid.

Temporary objects
- Other
- Wheeled rubbish bins
- A-boards
- Cafés with people
- Road work frames, signs, cones
- Cafe screens, tables no people
- Motorcycles

Lightly fixed objects
- Other
- Information pillar
- Kiosks
- Signs
- Bollards
- Street furniture
- Telephone pillar
- Council rubbish bins
- Bicycles and bike racks

Major fixed objects
- Other
- Traffic signal boxes
- Major poles (street lights, signals)
- Trees
- Construction hoardings and pillars

Blocks with:

- No obstacles affecting pedestrians during AM or lunch time peaks
- Obstacles affecting pedestrians during either AM or lunch time peak
- Obstacles affecting pedestrians during both AM and lunch time peaks

Map 3: Footpath obstacle survey locations and findings

1.5 Deliver physically protected environments for people through innovative urban design

We will continue to make our streets safer. Key ways to do this will be through creating more pedestrianised areas, all-day and time-of-day restrictions for motor vehicles and more shared zones.

In the Hoddle Grid, we will introduce pedestrian priority areas informed by the Central City Public Realm Plan and based on the principles of a 'Barcelona Superblock' (see case study).

Pedestrian-priority areas will be designed to dissuade or prevent vehicles without a destination from entering. Vehicle access within the pedestrian priority areas will be limited to emergency vehicles, residents, persons with a disability and necessary delivery or service vehicles.

In areas where motor vehicles remain and physical protection must be installed, the first approach will be to adapt urban design elements such as trees, public art and street furniture to provide protection and higher amenity as a preferred alternative to bollards.

Refer to Action 1.

1.6 Proactively facilitate a permeable street network

A permeable walking network is one of the most valuable assets a city can have. A permeable network provides lots of walking connections and route choices as well as lots of formal and informal road crossings. There are several locations in the municipality where formal opportunities for crossing busy and wide roads are insufficient due to long distances between crossings or long blocks without mid-block links. Research for the City of Melbourne Walking Plan showed that formal pedestrian crossings in busy central cities should be spaced at no greater than 100m intervals. In some areas they may be needed more frequently or the road may need to be changed to support more safe informal crossing. This could be done through traffic speed reductions, lane reductions, kerb extensions, central islands and other tools. Crossings should line up with existing connections through blocks.

Within the Hoddle Grid, at least one formal mid-block crossing should be provided within each 200m long east-west street section. There are also many locations outside the Hoddle Grid where crossing points on busy streets are much further apart. For example, on City Road in Southbank, the gap between the crossings at Linlithgow Avenue and Fanning Street is 635m. Quieter streets outside the Hoddle Grid should be designed to encourage pedestrians to be able to safely cross informally at many locations.

Action 5: Install formal and informal crossings to address gaps in the walking network.

Case study: Barcelona superblocks

Barcelona has a uniform street grid similar to Melbourne's Hoddle Grid. The city has recently introduced the concept of 'superblocks' where streets that form a 3 by 3 group of nine city blocks are being redesigned to prioritise people over cars

The streets within each superblock are transformed into shared spaces and prioritised for walking, cycling, resident's cars and deliveries. The streets that form the perimeter of each superblock are designated for cars and public transport.

Speed limits are reduced to 10 km/h to create people-friendly environments where children can play freely. Vehicle through-movement is not allowed.

In areas where, previously, almost 75 per cent of all space was allocated to cars, 75 per cent is now given to pedestrians.
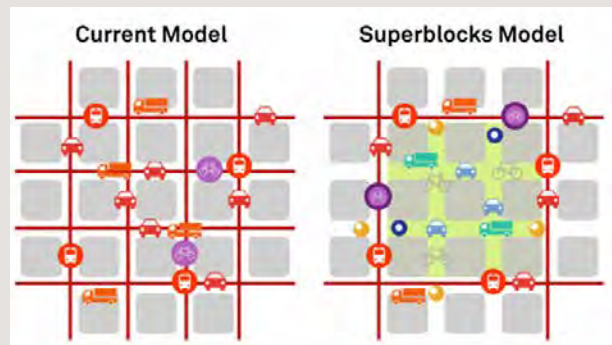

Figure 15. Barcelona Superblocks model.

1.7 Reduce speed limits for safety

Vehicle speed is the key determinant of the likelihood of death or serious injury in crashes with other road users. As vehicle speed increases above 30 km/h, there is an exponentially higher risk of serious pedestrian injury or death resulting from a collision with a vehicle. Lower speed limits also reduce the likelihood of crashes occurring by reducing vehicle braking distance.

In five years since 40km/h speed limits were introduced in the central city in 2012, pedestrian collisions have reduced by 36.5 per cent compared to the five years before. This means 170 people have avoided serious, lifelong, debilitating injury.

A reduction in speed limits across the municipality will improve road safety for all and increase amenity for the community. Slower vehicles have more time to brake, require less road space, require fewer signs and barriers, and create less noise than faster vehicles. People are able to cross streets more easily in a low-speed environment.

We will work with the Victorian Government to:

- continue to reduce road trauma for all users.
- investigate a trial of 30 km/h speed limits in the central city, on residential streets and in areas of high pedestrian activity.
- reduce speed limits on some arterial roads, particularly where significant volumes of people are walking and riding bikes.

Action 6: Work with the Victorian Government to review and reduce speed limits to 30km/h or lower in the central city.

Action 7: Review and reduce speed limits throughout the municipality.

Share our streets

City of Melbourne has for several years delivered a community program to encourage respectful, safe and courteous sharing of our streets, footpaths and shared paths. The program, "Share our Streets," included road safety messages and asked city users to make pledges to exhibit courteous and safe behaviours.

As the city becomes busier, cooperation among different road users will be even more important to ensuring that everyone can travel safely to where they want to go while enjoying the magnificent streets and attractions of our city. The City of Melbourne will continue to support programs promoting appropriate behaviour, especially those with a focus on improving the experience of the city for people walking and riding bikes.

Evidence base: 30 km/h speed limits

Cities around the world are adopting 30 km/h (or 20 mi/h) speed limits in busy areas.

A person in a collision with a motor vehicle has a 90% chance of survival when struck at 30 km/h compared with a less than 50% chance of surviving an impact at 45 km/h. At 80 km/h there is almost no chance of survival.

Speed limits in the central city were reduced from 50 km/h to 40 km/h in 2012. In the following five years collisions declined by 36.5 per cent while the daily population (residents, workers, students and visitors) increased by 9 per cent. This equates to 170 people avoiding sustaining serious, lifelong and debilitating injuries.

The risk of death for people walking substantially increases above 30 km/h

Figure 16: Relationship between risk of pedestrian fatality and vehicle impact speed (Monash University 2017)
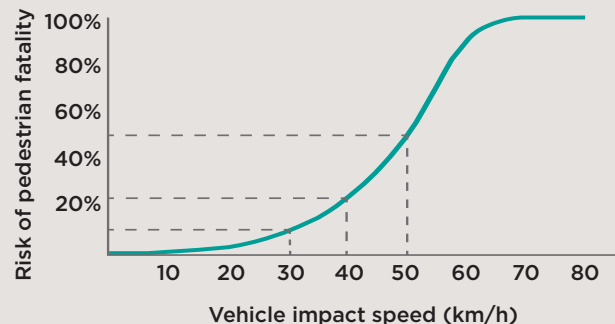
OUTCOME 2 – SAFE STREETS FOR BIKE RIDING

People in Melbourne will feel confident to ride a bike. Major investment in safer cycling infrastructure and programs will make cycling a vital and growing component of the transport network. Transport corridors with protected bike lanes will move more people in a cost effective way using the same amount of space, increasing safety and contributing less noise and air pollution.

2.1 Deliver a network of protected cycle lanes into and through the central city

A network of safe bicycle lanes - physically protected from motor vehicles - is needed to reduce road trauma and give more people confidence to start riding and ride more often. These lanes will be comfortable and enjoyable for people of all ages and backgrounds and wide enough to accommodate growth in cycling.

Gaps in the network, even short gaps in the approach to intersections, undermine people's confidence to cycle.

The City of Melbourne will deliver a network of safe lanes beginning with the highest priority places and integrated with the Victorian Government's Strategic Cycling Corridors (2017). In strategically important locations on-street parking and traffic lane capacity reductions may be needed.

We support a St Kilda Road cycleway with centre of the road cycle lanes. This model of cycleway could be delivered on other high priority cycling boulevards such as Flemington Road, Royal Parade and Victoria Parade.

Action 8: Deliver 50km of high quality, physically protected bicycle lanes over 10 years to get more people riding each day

Action 9: Work with the Victorian Government to enable a further 40km of high quality, physically protected bicycle lanes on key state managed roads over 10 years.

"More of my friends would ride bikes if there was a network of protected lanes."

- Holly, Northcote (Image 13)

Evidence Base - Bicycle User Confidence Survey

Confidence Survey City of Melbourne research shows that a significant number of people living within cycling distance of the city are able to ride bikes to work in the municipality, but choose not to (the 'near-market').

People who make up the near-market are generally not confident that the existing infrastructure is safe. Half of the near-market either own, or have access to a bicycle. The majority of the near-market (77 per cent) consider themselves to be cautious riders, preferring off-road paths or low-stress roads, and are willing to take a longer route to get to their destination. Only 8 per cent consider themselves to be confident riders.

Concern for safety is the most significant barrier preventing people in the near-market riding bikes. The type of on-road cycling conditions on which they would feel confident are physically protected lanes.

Analysis of Census data and the research findings suggest an increase in cycling transport mode share could be realised with investment in bicycle infrastructure, potentially attracting 8 per cent of the near-market.

Implementation of protected cycling infrastructure and encouragement programs will ensure a wider range of people feel confident to ride and have an enjoyable experience cycling in the municipality.

Thousands of people could ride to work in the municipality with better infrastructure

Figure 11: Number of potential bike riders in adjacent LGAs

Legend:
- Current bicycle trips
- People who could ride with better bike facilities
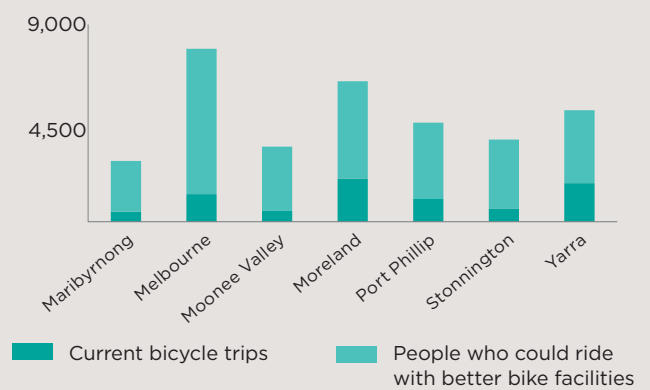
Protected lane: 83% confident to ride

Protected to the intersection: 73% confident to ride

Painted lane: 22% confident to ride

Unprotected at the intersection: 16% confident to ride

Figure 17. Level of confidence of near-market to ride on various cycling infrastructure.

Map 4: Quality of bicycle facilities in the municipality.

Key:
- Protected lane
- Painted buffer lane
- Painted lane
- Peak-only lane
- Gap at intersection

2.2 Make every street safer for cycling

Cycling occurs on all streets in the municipality but - due to cost and space constraints - protected bike lanes cannot be built on every streets. Local streets, which feed into main bicycle routes are important connectors.

Techniques other than physically protected lanes will be used to make riding safer and more attractive on these streets. Techniques will include traffic calming, traditional painted lanes, contra-flow lanes, traffic signal head starts, cut-throughs, short cuts, exemptions to turn bans and other treatments. Like all parts of the transport system, the bicycle network requires continuous improvement.

Urban design and engineering solutions to calm traffic will continue to be used to make cycling safer, especially in neighbourhoods outside the central city.

Policy 4: Apply the new City of Melbourne bicycle lane design standards, developed based on global best practice, to ensure we provide the safest and highest standard bicycle lane possible for each context on all future projects.

Image 14. People riding bikes on Swanston Street.

2.3 Make intersections safer for cycling

Many bicycle crashes occur at intersections. Also, many bicycle lanes end before intersections creating gaps in the bicycle network. This is done to increase capacity for motor vehicles but it discourages riding.

The City of Melbourne will deliver safer intersections for bike riding by adopting designs which continue bicycle lanes up to and through intersections and provide physical protection.

This may reduce traffic capacity. Highest priority routes for intersection treatments will be those with large numbers of current and potential riders.

Where roundabouts are retained, physically protected bicycle lanes will be installed around them where possible.

Other improvements to intersections will include advanced starts for bikes and trials of all-bicycle signal phases to improve the safety and level of service for people riding bikes.

Action 10: Trial a protected intersection for cyclists in the Melbourne municipality and if successful, roll out across the municipality.
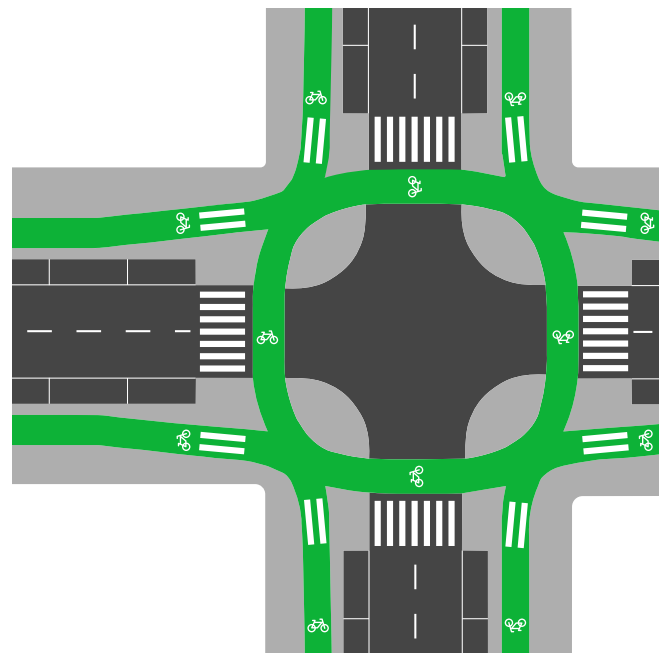
Figure 18. Indicative diagram of a protected intersection.

2.4 More space for motorcycling

Motorcycles have several advantages over private cars. They are more space efficient, cheaper to run and cause less wear and tear to our roads.

While the number of motorcycle fatalities and serious injuries has been falling over the last ten years, motorcyclists are over-represented in road trauma relative to their mode share. Only four per cent of registered vehicles are motorcycles yet about 22 per cent of all vehicle fatalities or serious injuries in the City of Melbourne during 2016/17 involved a motorcycle.

We are committed to making our streets safer for all road users and reducing motorcycle crashes in the municipality.

A trial to allow motorcycles to ride in bus lanes has recently be extended. The trial currently underway on Hoddle Street will be expanded to include the Eastern Freeway inbound from the Chandler Highway to Hoddle Street, and Victoria Parade between Hoddle Street and Brunswick Street.

Policy 5: Prioritise motorcycle parking on roads.

Action 11: Investigate opportunities to increase off-street parking for motorcycles.

Evidence base - Motorcycles

Approximately 2700 people travel by motorcycle to the municipality for work each day - this represents a journey to work mode share of 0.7 per cent.

The number of motorcycles entering the Hoddle Grid during an average weekday morning peaked in March 2013 at 1748 and was 1320 in March 2018.

Victorian road rules allow motorcycle parking on footpaths. Approximately 1179 motorcycles are parked on footpaths in the Hoddle Grid on an average weekday in 2018. In 2007, this figure was 903 motorcycles.

"I think there should be more allocated motorcycle parking because it makes parking more straightforward. I prefer to use it over parking on the footpath"

- Lucy, Kensington (Image 15)

OUTCOME 3 – TRANSPORT INTERCHANGES AS WELCOMING PEOPLE PLACES

Public transport interchanges will support seamless, comfortable, door-to-door journeys. High-quality footpaths will provide comfortable walking and waiting spaces which enable people to get on and off trams and buses efficiently and safely. Our station precincts will be enhanced by expanded, welcoming, world-class civic spaces. Crowding at tram and bus stops will be accessible for all and moving between footpaths and tram stops will be quick, safe, easy and direct.

3.1 Transform major transport interchange precincts into people places

Transport interchanges including train stations and tram and bus stops attract the highest concentrations of people in the municipality. More than 160,000 people per day use Flinders Street Station. More than 50,000 people per day use the Federation Square tram stop. Footpaths near several stations are overloaded. People accessing Southern Cross Station are regularly forced to walk on the street. Many tram stops are too crowded with narrow access ways. Some are positioned in inconvenient locations for people interchanging.

As public transport patronage increases we will need more space for wider footpaths, kerb outstands and improved streetscapes. This includes spaces for greening, spaces for resting and meeting places.

Train stations and their surrounding precincts must be designed to cater for patronage growth. The streets and interchanges in these precincts must be able to handle the volumes of people using these stations. We support use of the Transport for London Pedestrian Comfort Level standards as endorsed in the City of Melbourne Walking Plan in planning these precincts.

Additional station exits and highly connected street networks are needed for train stations in the central city. Part time pedestrian access into Flinders Street (via Degraves Subway) and at Richmond Station, which serves the sports precinct, should be reconsidered. There is an opportunity for LaTrobe Street to become a significant interchange for rail passengers from Melbourne Central and State Library Station.

Action 12: Deliver strategic plans for major station precincts, including Southern Cross Station, Flinders Street Station, Elizabeth Street, Parliament Station and Flagstaff Station.

"I would like footpaths to be more generous, especially near stations, to make it easier to get past people with the pram"

- Cindy, Collingwood (image 17)

3.2 Design tram stops which are integrated into streets

Overcrowded tram stops can be dangerous and frustrating for passengers, making it difficult to walk to the footpath or move along the platform. They slow boarding and alighting, slowing down the whole tram network. Connections from the footpath to trams stops are often too narrow, too infrequent and create bottlenecks. Crowding will worsen as the city grows unless designs are changed.

At many stops, tram patronage has grown to the point that it is difficult to provide free flowing motor vehicle lanes adjacent to stops while maintaining adequate pedestrian safety and access.

The City of Melbourne will work with partners to design and deliver tram stops which are integrated with pedestrian spaces and enable safe, quick, direct and level connections from footpaths onto trams. Most stops will need several connection points rather than one at each end of a platform. In some cases full pedestrian priority will be required by converting the road space into a shared zone or restricting vehicle access at busy times.

While tram stop design must be context-specific, we support a consistent tram stop design language along routes or within specific areas to provide more legible conditions for all road users.

For example, the highly successful Swanston Street tram stop design is suitable for locations where pedestrians, bikes and trams share the street space. This typology can be adapted to provide accessible bus platforms.

Action 13: Work with the Victorian Government and Yarra Trams to develop agreed designs for tram stops in the Melbourne municipality.

3.3 Create new clean and green bus streets

Only two per cent of trips to work in the municipality are made by bus. As transport demand grows, buses are likely to make a significantly greater contribution to moving people around Melbourne. Buses are cheaper than trams as they run on existing streets, use footpaths for boarding and alighting and cost less to purchase.

Key to realising the potential of buses will be providing dedicated bus lanes to reduce journey times and improve reliability.

In the municipality there are only two full-time bus lanes (Victoria and Spring Streets) and a small number of peak-hour lanes (peak direction only) on the busiest streets including Queen, Hoddle and Lonsdale streets.

The quality of our streets can be improved at the same time through the integration of high quality bus infrastructure into an attractive public realm, reducing private vehicle traffic and trialling clean and quieter bus technology.

We will support:

- streets with high-amenity bus stops integrated into the public realm
- investigating centre of the road lanes for high capacity bus streets such as Lonsdale Street.
- new bus streets in the central city, combining urban greening with full-time bus priority lanes. Priority streets are Lonsdale, Queen, Russell and Lygon.
- a transition to newer, quieter and cleaner buses with reduced emissions and noise including electric and hybrid buses.
- buses scaled to suit their context. Buses longer than 12 metres (excluding articulated buses) are difficult to accommodate safely in the central city.

Policy 6: Elevate the role of buses in the municipality by improving their integration into our streets, enabling new generation bus priority and busway design and supporting new bus technology.

3.4 Enable a fully-accessible public transport network

Under the *Disability Discrimination Act 1992* (Cth), all public transport must be accessible by 2032. This deadline has been extended, but is still unlikely to be achieved unless investment is significantly accelerated. Accessibility of the tram network is particularly poor.

Policy 7: Exceed the minimum standards set in the *Disability Discrimination Act 1992* (Cth) by delivering universally accessible streets and public spaces which integrate with the public transport network.

OUTCOME 4 – FEWER NON-ESSENTIAL VEHICLES IN THE MUNICIPALITY

Removing non-essential vehicle trips from the city's streets will free up valuable space to make streets safer, more attractive and more efficient. Fewer cars means better amenity, less noise and fewer emissions. This is good for business, residents, workers and visitors. Fewer non-essential vehicle trips means improved priority for emergency vehicles, on-road public transport, deliveries and servicing. Access for people with a disability will be maintained as a priority.
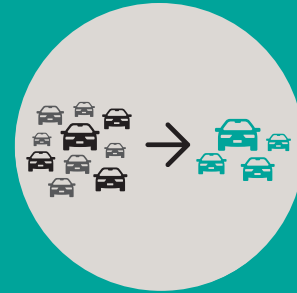
4.1 Reduce central city through-traffic

Forty-three per cent of vehicles travelling into the Hoddle Grid are through-traffic. Significant investment in bypass routes such as *CityLink*, Wurundjeri Way, Hoddle Street and the West Gate Freeway has created alternatives to travelling through the central city. We expect King Street will retain some through-traffic function.

Policy 8: Significantly reduce through-traffic in the central city, minimise through-traffic across the municipality and contain it to freeways and arterial roads.
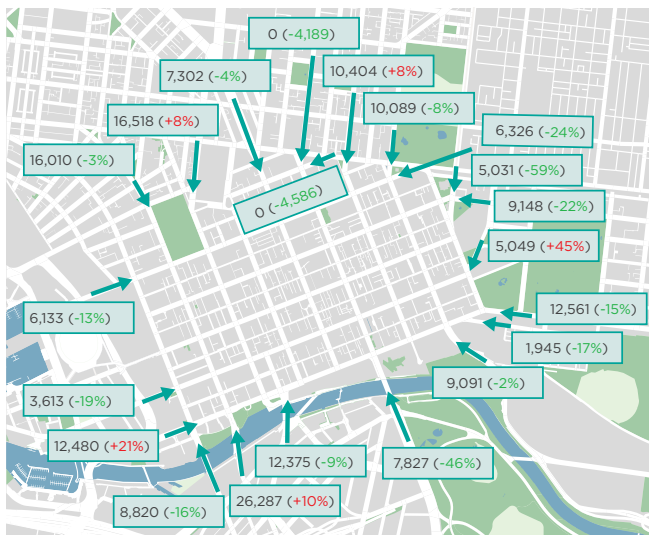
Map 5: 2018 all-day traffic count and change since 2012.
Note: In 2018 Franklin and Swanston Streets were closed due to Metro Tunnel construction.

Where will the cars go?

The volume of traffic entering the Hoddle Grid each day has been declining for many years. This will continue as the city becomes busier and alternatives to driving to - or through - the city become more attractive. There are many proposals in this strategy which support this trend. They include new cross-city rail lines and orbital public transport which will make it easier for people to avoid driving through the central city. Also, improved bicycle lanes will help those who want to use bikes to travel safely to the city as an alternative to driving.

Some through-trips will still be possible, although the way these trips occur is likely to change as the central city gets busier. Some people will choose to travel on alternative routes, by a different mode, travel at a different time or change their destination.

Reducing through-traffic volumes will allow essential local trips to be maintained

Figure X: Hoddle Grid daily traffic entries 2012-18 and 2027 forecast
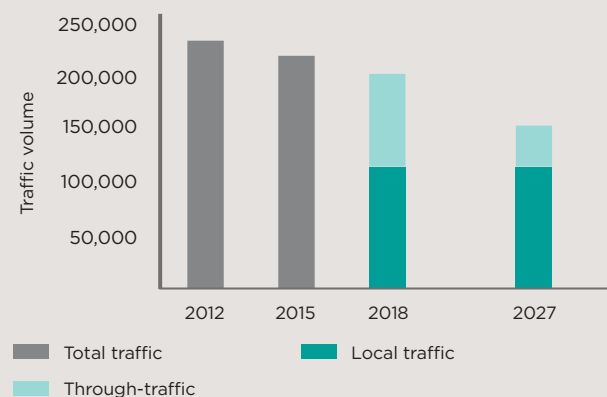
Evidence base: Central City Origin-Destination Survey

In 2018 the City of Melbourne commissioned an origin-destination survey at the 21 locations where vehicles can enter the Hoddle Grid. The survey recorded whether vehicles were passing through or had a destination in the Hoddle Grid.

The survey found that 43 per cent of weekday vehicle traffic is through-traffic. The proportion of through traffic varies throughout the day, from 34 per cent between 7:30 and 9:30 AM to 52 per cent between 10 and 11 PM. A greater concentration of car journeys to the central city in the morning contribute to a lower proportion of through-traffic.

Spencer Street south had the highest proportion of through-traffic (61 per cent). Over half of all vehicles entering King Street also did not having a destination in the central city.

The greatest volume of through-traffic entered via King Street (north or south), around 28 per cent of all through-traffic (12,500 vehicles). Approximately 13 per cent of all through-traffic entered via Spencer Street. The distribution of through-traffic is relatively spread across all other entry points, between 1 and 6 per cent.

The results of the survey suggest that reducing the amount of through-traffic would free up road space for reallocation for more productive uses.

The proportion of through-traffic is substantial across the day

Figure X: Proportion of through-traffic across the day, 2018
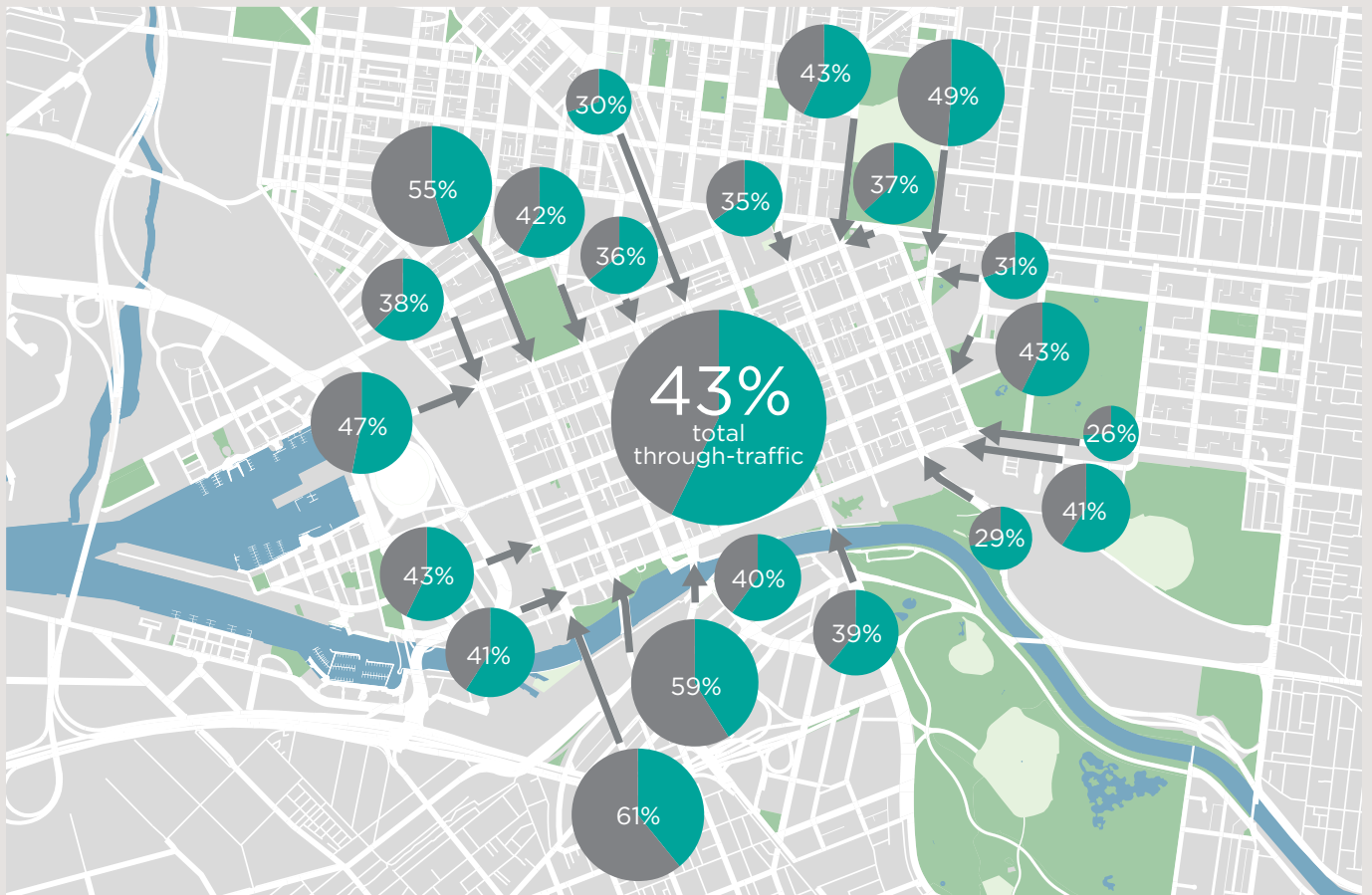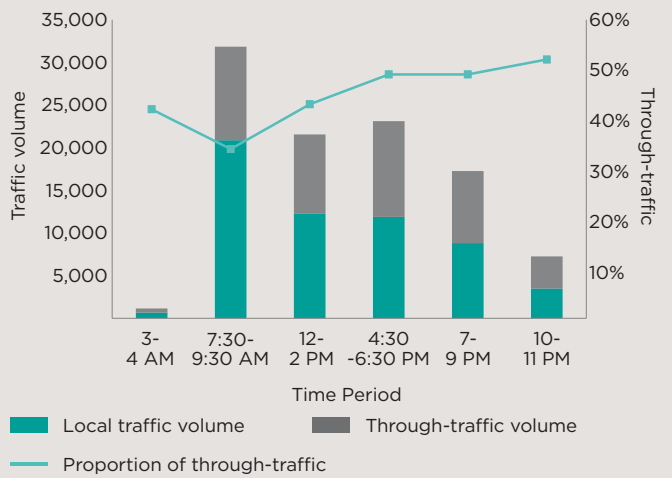
Map 6: The proportion of through-traffic entering the Hoddle Grid at each entry point.

4.2 Capture the benefits of road bypass projects

The City of Melbourne does not support increasing road capacity into the central city. Where new road projects are proposed, especially those which provide bypasses of the central city, we will work to ensure that the benefits of traffic reductions on the bypassed areas are enabled by converting the space to other uses such as wider footpaths, greening, bicycle lanes, public spaces and public transport space. This should occur as soon as the bypass road is open.

In the past this has not always occurred. For example, when CityLink was completed in the 1990s traffic on Flemington Road initially declined as people used the new road instead. The spare capacity was quickly absorbed by additional vehicles. The net result is an overall increase in vehicle trips as Flemington Road traffic volumes are comparable with pre-CityLink levels.

Increasing road capacity attracts more traffic. Where this occurs, we will work with the Victorian Government to anticipate and mitigate traffic impacts. This includes the West Gate Tunnel and any future road projects.

The need for public open space is growing. The City of Melbourne is creating new and expanding parks across the municipality. Any road project which leads to a net reduction in public open space will not be supported.

Policy 9: Capture the benefits of road bypass projects by ensuring traffic reductions and public realm improvements are delivered on other routes. Any reduction in open space as a result of a road project will not be accepted.

4.3 Maintain access for essential vehicles

Reducing the number of private vehicles on the municipality's streets and supporting the shift to walking, cycling and public transport will improve conditions for essential vehicles to move freely, safely and quickly on our streets.

The City of Melbourne places the highest priority on emergency vehicle access. One of the most effective ways to achieve this is to use the tram reserve for emergency vehicles.

Over time, freight is likely to transition to night time deliveries as the costs and benefits change. Shorter travel times are likely to offset higher delivery fees between 12 AM and 5 AM as we continue to transition towards a 24 hour city. This trend will need to be carefully balanced with the amenity of residents and building design should respond appropriately.

Any future road pricing scheme (see outcome 13) should be designed to improve access for essential vehicles.

Policy 10: Prioritise vehicle access to streets and parking spaces for emergency vehicles and people with a disability or limited mobility.

Policy 11. Ensure street and loading access is facilitated for freight, trade and servicing.
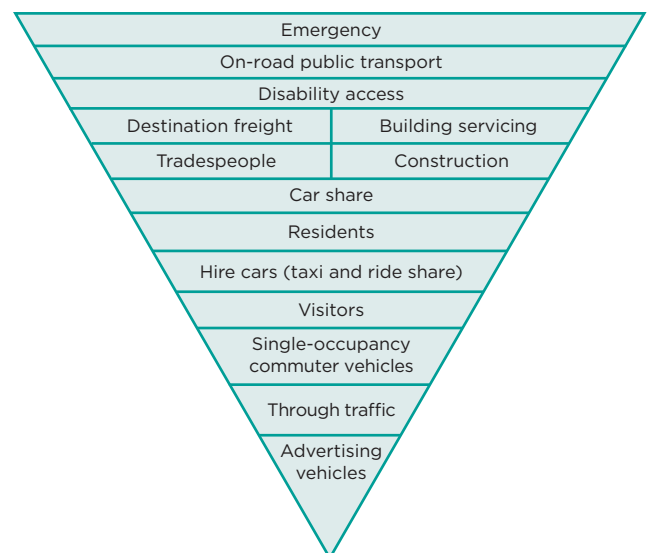

Figure 19. On-road motor vehicle priority hierarchy.

"I use callipers and crutches to get around. It is essential that I can drive in to the city because I run a consultancy and have meetings at various locations around town."

- Tricia, Ringwood (Image 18)

4.4 Focus land development around public transport

The City of Melbourne has some of the best sustainable transport options - walking, cycling and public transport - in Australia. Locating and intensifying housing and destinations close to sustainable transport will allow more people to live healthy and lower-emissions lives by using sustainable transport for most journeys and cars for less frequent trips.

We support:

• increased density in middle and inner suburbs over urban sprawl.

• the Victorian Government improving sustainable transport options.

• 'Green Travel Plans' for all multi-dwelling and commercial development in the municipality. These plans will outline how development will promote the positive mode choices envisioned in the *Transport Strategy 2019*.

Policy 13: Continue to promote development and intensity of activity around high-quality public transport.

4.5 Review off-street parking policies

The availability of car parking strongly influences a person's decision to drive to a destination, particularly if it is cheap or free at the point of use. The availability of parking near a person's home influences their decision to own a motor vehicle. The Melbourne Planning Scheme controls the amount of car parking provided in new developments. In the central city, the Planning Scheme dictates a maximum car parking provision rate for new developments. In contrast, other parts of the municipality and in most of Victoria a minimum amount of parking is required to be provided.

Most off-street parking in the municipality is built and managed by the private sector, and is subject to market forces. The provision is also influenced by Victorian Government policy, such as the Congestion Levy, bank financing conditions and consumer preferences.

Despite the relatively progressive policies in place, there is an oversupply of off-street car parking in the municipality. This oversupply impacts the number of vehicles in the municipality, building heights, streetscapes, housing affordability and mode choice. In contrast, not enough off-street bicycle parking, motorcycle parking and car share spaces have been provided in new buildings. Our research found that not enough bicycle parking being provided in new developments, despite routine provision above the minimum rates required by the Planning Scheme.

Existing and future parking spaces can be more efficiently used by adopting an 'unbundling' approach, where parking spaces are titled separately from dwellings. This creates a market for parking bays, where people can sell or rent unused bays. This will support fewer parking spaces to be constructed, lower development costs and potentially lower housing prices. This approach was adopted in the recent West Melbourne Structure Plan and in Fishermans Bend.

Traditionally, planning for off-street parking has been based on the anticipated parking demand on a site-by-site basis. Precinct parking shifts this approach towards considering the consolidated demand for parking across a precinct, reducing the number of unused parking spaces in new buildings.

We support:

- removing minimum parking requirements for new developments
- requiring parking structures that can be converted to other uses
- increasing the provision of off-street parking in new developments for car share, bikes and motorcycles. We will continue to advocate for increased requirements.

To help implement these policies, we will produce a Parking and Kerbside Management Plan. The plan will set policies for both off-street parking, on-street parking and kerbside space general. In terms of off-street parking the plan will:

- review on- and off- street parking for bikes, motorcycles, private cars and share cars
- implement precinct-based parking more widely across the municipality
- investigate requiring new developments to provide space for car share vehicles
- review relevant sections of the Melbourne Planning Scheme and, if appropriate, initiate an amendment to ensure that development supports the transport of residents and the broader community
- identify and reduce barriers to unbundling, sharing residential parking across buildings and uses and re-purposing unused off-street parking space.

We propose further improvements to the very successful Victorian Government Congestion Levy, including:

- increasing the charge to match Sydney ($2390 pa)
- expanding the Category 2 area to include Richmond, South Yarra, Windsor and Prahran
- regularly reviewing and increasing the levy to reflect congestion trends.
- promote car share by exempting off-street car share bays from the Congestion Levy (see 6.1 Increase the use of car share).

Action 14: Develop a Parking and Kerbside Management Plan to better manage our valuable kerb space.

What is the Congestion Levy?

The Congestion Levy is a Victorian Government charge ($1440 as of 2019) that is applied to all off-street commercial bays in the municipality and extends into neighbouring local government areas.

The charge is passed onto parking users through parking fees. It discourages excessive parking provision and people from driving into the municipality. The Levy has been successful, however research by Infrastructure Victoria and the Grattan Institute suggests that the price is too low and the geographic coverage should be increased.

The Levy applies to limited areas in Moreland, Port Phillip, Stonnington and Yarra.
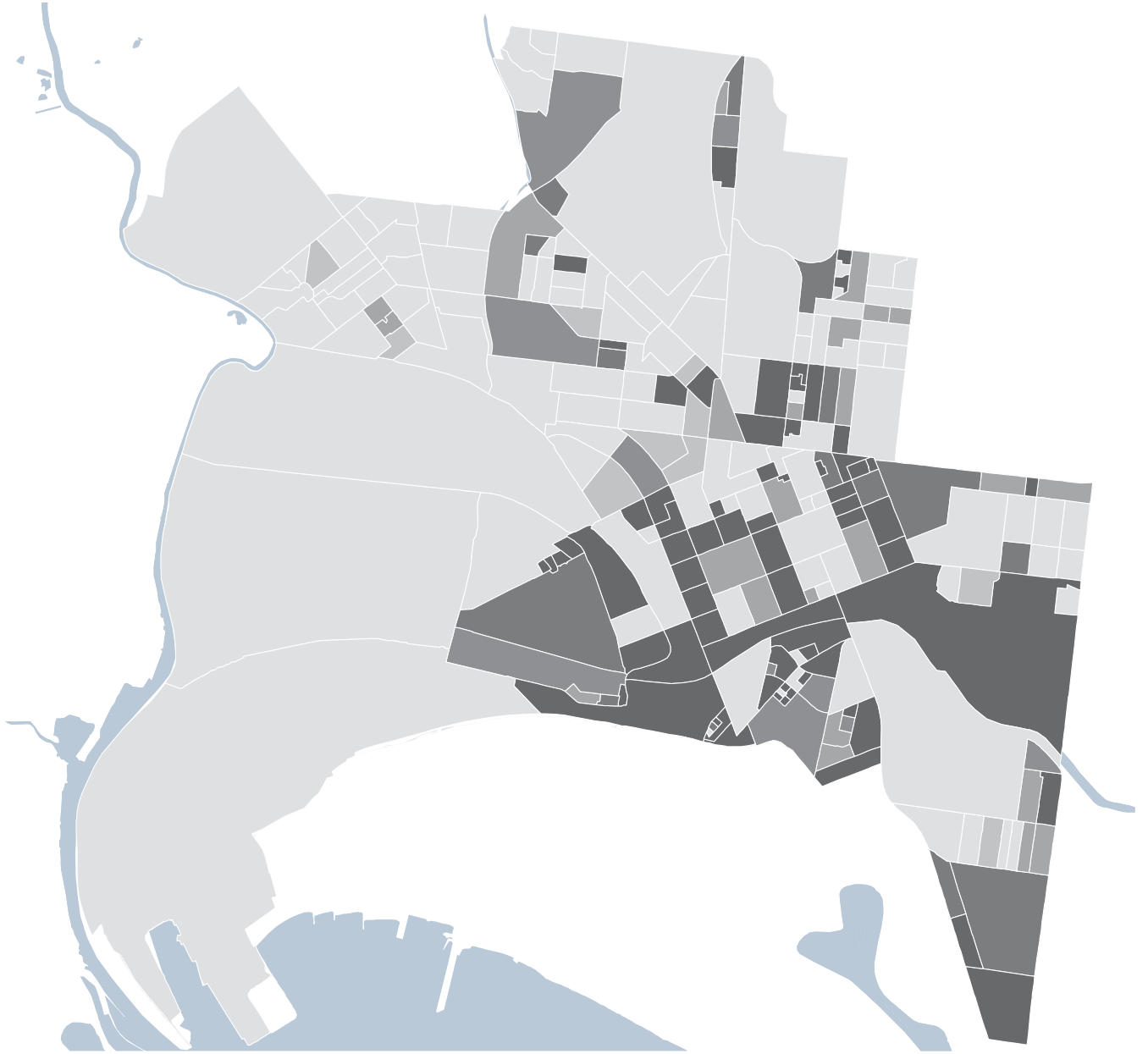
Key:

░	No oversupply	▒	20-30% oversupply
░	0-10% oversupply	▓	30-40% oversupply
▒	10-20% oversupply	▓	40%+ oversupply

Map 7: Residential parking supply compared with number of vehicles owned.

4.6 Increase the use of car share

Car share programs reduce car ownership and travel. Every car share vehicle in the municipality takes nine private vehicles off the road, while car share members drive half as many kilometres each year as non-members. Car share enables people to walk, ride bikes and use public transport for the bulk of their trips while accessing a private vehicle for infrequent trips.

The existing City of Melbourne Car Share Policy set a target of 2000 car share vehicles in the municipality by 2021. This target was created with the goal of preventing growth in the number of resident-owned private vehicles in the municipality from 2015 levels. This target is unlikely to be achieved due to numerous challenges. The key challenge reported by car share providers is the difficulty of securing one off-street space per car share vehicle for every on-street space provided by the City of Melbourne as required under the policy.

We will work with car share providers to remove barriers to the expansion of car share in Melbourne. A new Car Share Policy will be developed and will include:

- measures to encourage accelerated growth of the car share fleet
- reviewing the car share vehicle target
- providing more on-street parking for car share vehicles in the central city, where it is currently capped
- criteria to determine areas where car share provision on the street are inappropriate
- opportunities to leverage the significant supply of off-street parking for car share
- policies to enable more off-street spaces for car share vehicles, such as amending the Melbourne Planning Scheme
- advocating to the Victorian Government to promote car share by exempting off-street car share bays from the Congestion Levy.

We are currently trialling car share policy changes, including the provision of two on-street spaces for every one off-street. The results of this trial will inform the new Car Share Policy.

Action 15: Deliver a new Car Share Policy to support growth.

Car share and the congestion levy

One major impediment to increasing the supply of off-street car share vehicles is the Victorian Government Congestion Levy.

A levy of $1410 (in 2018) is applied to all off-street commercial bays in the municipality, including car share. This charge is an impediment to the viability of off-street car share. The City of Melbourne will advocate to the Victorian Government to exempt car share vehicles from the congestion levy. This is consistent with the aim of the levy, "to reduce traffic congestion in central Melbourne by encouraging more motorists to regularly use public transport."

The exemption will financially incentivise commercial car park owners and operators to provide spaces. By dedicating underutilised bays to car share, parking operators will no longer have to pay the Congestion Levy on these spaces and could earn additional income from fees paid by car share operators. Private and residential parking owners will also be able to dedicate space to car share without attracting additional charges.

Image 19. Car share vehicles on Wellington Parade

Image 20: Trams on Elizabeth Street.

AN EFFICIENT AND PRODUCTIVE CITY

The efficient movement of people and goods is critical to the function of a city, and powers economic growth and productivity. As the municipality becomes busier, moving people and delivering goods becomes more challenging.

Investment is needed in the municipality's congested public transport network. Innovation is needed in the freight sector. The movement of people and goods will need to be prioritised over the movement of private vehicles.

We need better orbital public transport links and much better public transport outside central areas so that roads are uncongested for those who rely on them.

Outcomes

5. Reduced delay for people using efficient transport

6. More people riding bikes

7. Productive kerb space

8. Efficient and reliable public transport for everyday life

9. Integrated transport planning

Image 21. Peak hour at Southern Cross station.

CHALLENGES AND OPPORTUNITIES

Congestion

A certain level of congestion is a feature of all prosperous cities. However, it also undermines liveability and economic prosperity, costing Greater Melbourne $4.6 billion per year and a forecast to reach $10 billion by 2030[9]. Increasing road capacity does not eliminate congestion. Rather, evidence shows it increases the number of motor vehicles on the road.[10]

Buses and trams get stuck in congested conditions across Greater Melbourne. We have the largest tram network in the world, however our trams are also among the slowest, averaging just 16km/h across the network.

The impact of through-traffic

Many people who drive through the central city are passing through with business elsewhere. Forty-three per cent of vehicles travelling into the Hoddle Grid are through-traffic[11]. King Street, Spencer Street and William Street are the top three city streets used as thoroughfares. Vehicles travelling through the municipality without stopping contribute negatively to congestion, emissions, noise, air quality, road safety, health and the demand for more road space but they do not contribute to the local economy or culture.

Evidence base - Induced demand

Increasing road capacity has been shown to encourage more people to drive.

In the short-term actual (or perceived) travel times decline and attract more people to drive on the road. These people used to travel along a different route, on a different mode, at a different time or not travel at all. The result is that increased capacity does not reduce congestion and more people are delayed on the road than before.

People living in a big city like Greater Melbourne can expect to experience congestion regardless of transport capacity.

The most effective way to reduce congestion is to manage travel demand by encouraging people to change how and when they travel.

Increasing demand for road space next to the kerb

Kerb space is the area of the road adjacent to the kerb. There is 45,000m² of kerb space dedicated to on-street parking in the central city. As our population grows, there will be more demand for this space to accommodate deliveries, service vehicles, pick-ups and drop-offs, trees, public space, wider footpaths and bicycle lanes.

Hidden costs of on-street parking

The price of on-street parking is lower than off-street parking. This adds to congestion, as drivers search for a 'cheap' parking space. On-street parking is public space which is used temporarily by a small number of people. Much of this space could be used more productively to benefit many more people[12].

There is little evidence that parking is essential for retail performance. Three-quarters of all trips to the City of Melbourne for shopping are made by public transport. Only 14 per cent of shopping trips in the municipality involve driving and parking on-street. Meanwhile, there is a significant supply of off-street parking (68,300 commercial spaces). Off-street parking could adequately accommodate the relatively small number of shopping trips made by car.

Oversupply of off-street parking

Data suggests that there are many more residential off-street parking spaces than the market demands. In the municipality there are 40 per cent more residential parking spaces than vehicles owned[13]. This oversupply pushes up the cost of housing by $50,000 to $80,000 per parking bay. Residential parking often occupies the bottom floors of buildings. This creates dull and lifeless streets. As the number of vehicles entering the central city declines, it is likely that commercial parking facilities will also become underused. New technologies and services, such as app-based taxis are reducing parking demand. Repurposing these spaces for more productive uses, such as residential, office, retail or hospitality would benefit the city.

Delays at intersections

The traffic lights at many intersections in the Hoddle Grid are not programmed to maximise efficient movement. Many signals do not change frequently enough leading to delays for public transport and a build up of pedestrians waiting to cross, particularly around stations at peak hours. This will worsen as train capacity increases. Delaying pedestrians is a handbrake on economic productivity[14].

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[9] Transport Strategy refresh background paper: Transport Pricing, University of New South Wales 2018

[10] Five-year focus, Infrastructure Victoria 2018; Generated Traffic and Induced Travel, Victoria Transport Policy Institute 2018

[4] Origin destination survey, prepared by Austraffic for City of Melbourne 2018

[12] Transport Strategy refresh background paper: Car parking, RMIT 2018

[13] Transport Strategy refresh background paper: Car parking, RMIT 2018

[14] Measuring pedestrian delay report, MRCagney 2018

Increasing urban freight and city servicing demands

Victoria's freight task is growing steadily[15], greater still is the growth rate of people living in and visiting the central city every day who require deliveries, building maintenance and waste collection. While the number of cars in the central city is decreasing, the volume of freight and servicing vehicles is increasing. Congestion from private vehicles creates delays for deliveries and service vehicles which can increase the cost.

Public transport needs to expand and improve

Most travel to the central city is by public transport, particularly for work. Only high-frequency public transport can enable the city to accommodate the growing number of jobs. However, during peak times, many public transport services are overcrowded, preventing more people from using it[16]. This will worsen as the population grows.

The rail network is the backbone of the public transport system. Melbourne Metro 1 - the biggest expansion of the train system in Melbourne since the construction of the city loop - will both cater for demand growth and attract many more people to use public transport. The capacity on the rail network is likely to become constrained again shortly after completion of this project. Further investment is needed in rail infrastructure and services.

On-road public transport (tram and bus) reliability across Greater Melbourne needs to improve. Overcrowded buses and trams can be stuck in congested conditions. Infrequent services discourage people from using public transport outside of peak hours. Melbourne's status as a 24/7 city is constrained by current public transport frequencies.

Our trams are among the slowest in the world, averaging just 16km/h across the network. Inadequate separation results in poor safety and reliability. Nearly 40 per cent of collisions, falls and near misses happen on 15 per cent of the tram network where poor separation such as plastic strips and painted lines are installed.

Intermodal interchanges are not well-integrated, with confusing or infrequent timetables undermining user experience, discouraging people from using public transport. Some services, such as the City Loop, are confusing to users as they run differently at different times of day and days of the week.

Limitations of a radial public transport network

Melbourne has a radial public transport network. Most tram and train lines and some bus routes run through the central city, with poor and very few connections on cross-town (orbital) routes.

Orbital services are some of the most well-used bus routes, such as the 901, 902 and 903 buses in the middle and outer suburbs. Limited orbital connections mean that trips between suburbs by public transport are generally slow, infrequent or not possible. For those with access to a car, driving is the only reasonable option for many cross-town trips. Across Greater Melbourne, the majority of journeys to work are cross-town trips as most jobs are not in the central city.

Greater Melbourne's radial public transport system lacks resilience. Disruption of one service can impact much larger areas of the network. Without orbital public transport many people are left to endure disruptions without an alternative.

Transport planning integration needs to improve

Transport planning in Melbourne has for many years been focussed on major projects. While there is a need for investment in major projects, smaller improvements to existing infrastructure are often very cost-effective and can be delivered sooner. Much transport planning in Melbourne is focussed on weekday peak trips. Improvements to services across the day are critical to an improved network and can reduce peak demand.

Transport inequality

Underperforming public transport, congested roads, inequitable pricing and poor walking and cycling infrastructure create a situation of inequity across Greater Melbourne. People living in areas poorly serviced by public transport or without active transport options typically have lower incomes and are spending a higher proportion of their income on cars and transport in general[17]. The people most likely to drive into the central city for work are high-income earners[18]. These people generally travel from inner suburbs that are serviced with good public transport alternatives and have access to a parking space provided by their employer.

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[15] Infrastructure Victoria Second Container Port Advice container trade forecasts for Victoria, Deloitte 2017
[16] Transport Strategy refresh background paper: Public Transport Network, University of Melbourne and RMIT 2018
[17] VAMPIRE index accessed online via Aurin, 2016
[18] Transport Strategy refresh discussion paper: Motor vehicles, City of Melbourne 2018

OUTCOME 5 – REDUCED DELAY FOR PEOPLE USING EFFICIENT TRANSPORT

Reduced delays will make efficient modes of transport more attractive. Increased use of walking, cycling and public transport will improve public health and stimulate the economy.

5.1 Optimise traffic signals to reduce waiting times

The timing of the traffic signals can prioritise or delay different modes of transport. In the City of Melbourne, traffic lights stay green for long periods of time. This hinders pedestrians, bikes and trams.

Cities all over the world are reducing signal cycle times to reduce delays. In the Hoddle Grid the typical signal cycle is 90 seconds. In London, many signal cycles have been reduced to under a minute.

In 2014 the Victorian Auditor-General's Office recommended improvements to traffic signals. This included increasing the frequency of reviews, undertaking cost-benefit analysis of traffic signal modifications and connecting traffic signals with real-time information on the location and status of buses and trams in order to provide them with greater priority and increase reliability.

We will:

- Work with the Victorian Government to optimise the efficient movement of people

- Support investment in smarter signal infrastructure and technology which prioritises pedestrians and public transport

- Reduce pedestrian crossing distances at intersections to improve safety

- Expand auto-on pedestrian phase signals as identified in the Walking Plan 2014

- Ensure pedestrian crossing times are long enough for all people to cross the street safely and comfortably

- Prioritise signal changes along public transport corridors

Action 16: Reduce delay to people walking, riding bikes, on buses and trams by working with the Victorian Government to optimise traffic signal cycle times, starting in the Hoddle Grid.

Evidence base - Measuring pedestrian delay on Spencer Street

Pedestrian delay was measured at four Spencer Street intersections where revised signal cycle times are proposed.

The economic impact of this delay was then calculated using Australian guidelines for economic evaluation.

Optimised signal cycle times for the intersection of Spencer and Collins streets will reduce delay for walking by between 26 and 46 per cent.

By optimising the traffic signals at these four locations, the economic benefit totalled $6.3 million per year, or $105 million in net present value terms over a 30-year evaluation period.

Further signal changes across the municipality will further reduce pedestrian delay and provide significant economic benefit.
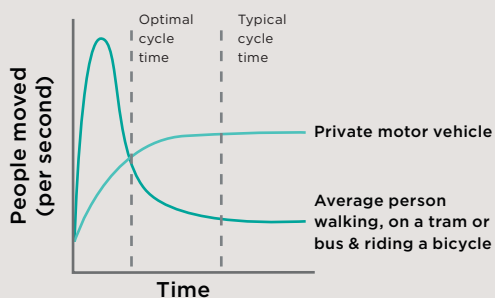
Figure 20. Conceptual diagram of people movement through a central city intersection over time.

5.2 Reduce tram and bus travel times and increase reliability

A slow tram and bus network makes public transport less attractive and limits reliability and frequency.

We advocate for the tram and bus network to be 'supercharged' to improve performance and frequency. This includes:

- dedicated bus and tram lanes
- programming traffic signals to give trams priority at intersections
- upgrading tram stops to reduce time spent stopped
- upgrading the bus and tram fleet to vehicles with more doors and without steps. Opportunities to phase out smaller trams which are non-compliant with the Disability Discrimination Act 1992 (Cth.) should be a priority
- increasing the level of physical separation between trams and vehicles, while ensuring people can still easily and safely cross the street
- rationalising stops across the tram network. Some passengers will have to walk further, but the substantial time savings for the vehicle will get all passengers to their destination quicker
- trialling new signal technology to achieve active tram priority and eliminate intersection delays for trams.

City of Melbourne transport modelling shows the above improvements would enable tram efficiency gains of up to 20 per cent on the tram network, reducing the need to purchase more trams.

Buses also play a key role in transporting nearly 11,000 people to the municipality each day. In particular, people from Manningham are most reliant on buses as their primary form of public transport to the central city. Buses must be made more attractive to draw more people to use public transport. This includes:

- a transition towards modern light rail and Bus Rapid Transit (BRT) models to develop a world-class multimodal public transport network
- the introduction of dedicated bus lanes on streets carrying 10 buses per hour or more
- reducing bus delays, including prioritising buses at traffic signals
- improving bus stop designs, including centre of road bus lanes, on streets such as Lonsdale, Lygon, Russell and Queen where full-time bus lanes are required. Centre of road bus lanes and stops reduce delays associated with left turning motorists. Changes to road rules may be required to prioritise bus passengers when alighting, similar to trams.

Refer to Action 16.

Evidence base - Melbourne tram speeds

Melbourne's tram network is among the slowest in the world. The average speed across the network is 16 km/h, dropping to 11 km/h in the central city.

Trams mix with vehicular traffic across most of the network: 60 per cent of the track is shared, with 26 per cent dedicated to trams (physical separation) and the remaining 14 per cent allocated without separation. Along shared corridors trams and are delayed by traffic congestion. A full E-Class tram moving 210 people can be delayed by a small number of single-occupant vehicles in front of it. Absent and ineffective separation increases the frequency of vehicle-tram collisions, causing injuries, taking trams off the rails, diminishing reliability and requiring costly repairs.

Another cause is delays at traffic signals. 17 per cent of tram trip time is spent at red traffic lights, compared with international best practice of 2 to 5 per cent. Trams are further delayed by excessive waiting times at passenger stops.

Many tram stops in inner Melbourne were planned for when trams moved fewer people, weren't generally required to make all stops and travelled faster between stops. As patronage and traffic congestion grew, the close spacing of many stops – sometimes as little as 200 metres – has further eroded travel times.

Average Tram Speed (km/h):

- 0-5
- 6-7
- 8-9
- 10-14
- 15-19
- 20-24
- 25+
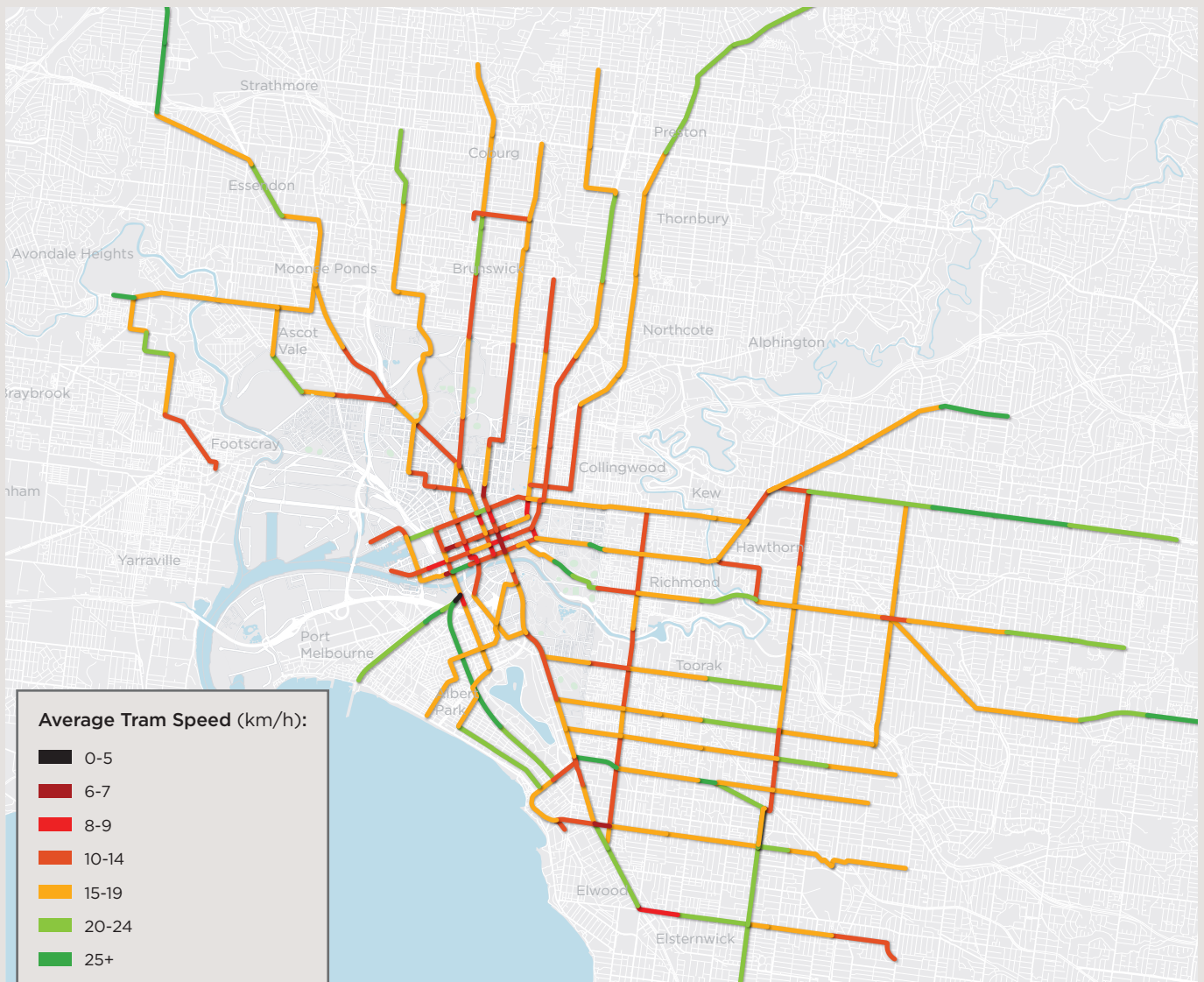
Map 8. Average Melbourne tram speeds during the weekday morning peak.

5.3 Reduce incidences of vehicles blocking intersections to prevent delays to all modes

At some intersections motor vehicles illegally queue in the intersection after the signal has gone red blocking the next movement. This delays people and is a road safety issue.

A recent afternoon peak hour survey observed 35 instances of vehicles blocking the intersection of Swanston and Flinders streets between 4 pm and 6 pm.

Under Rule 128 of the Victorian *Road Safety Road Rules* 2017 it is against the law to enter a blocked intersection.

Policy 15: Advocate for improved intersection design, signal operation and enforcement to minimise incidences of vehicles blocking intersections.

Image 23. Vehicles blocking the Swanston/Flinders streets intersection.

OUTCOME 6 - MORE PEOPLE RIDING BIKES

Increased bicycle use will support a healthy, sustainable and prosperous community. Cycling will ease pressure on our public transport network - particularly on crowded inner-city trams - and decrease traffic congestion. Increased bicycle use will be supported by an uptake in electric pedal-assist bikes, more programs to boost people's riding skill and confidence and possible improvements to road rules to reduce barriers to riding.

6.1 Deliver community programs to get more people riding bikes

The City of Melbourne is committed to investing in safe cycling lanes across the municipality. These lanes on their own will get more people riding. However, by running programs we will maximise usage of our investment in cycling infrastructure.

Many people who may want to cycle do not feel comfortable riding a bike in the municipality. Education to boost cyclist confidence levels and promote safe riding behaviour can overcome this barrier and allow people to begin using our safe cycling lanes.

Many businesses across the municipality have invested substantially in end-of-trip facilities in their buildings, recognising the benefits of cycling to their employees' health and productivity. Businesses can play a key role by working with each other and government to encourage more cycling, advocate for continual improvement of cycling infrastructure and share best practice models.

We will:

- investigate establishing a dedicated City of Melbourne bicycle planning and delivery team

- work with the community, employers and the Victorian Government to encourage and support more people cycling more often

- run courses to increase cycling confidence and riding skill levels

- promote the benefits of riding a bike

- advocate for end-of-trip facilities in more buildings

- work with businesses and the Victorian Government to support cycling as a regular mode of transport

Action 17. Get more people riding bikes by delivering community programs.

Case Study - Business support for cycling infrastructure, London

A network of 180 London employers came together through the Cycling Works campaign to support plans for protected cycle lanes in central London. This overwhelming support helped convince government agencies to push ahead with ambitious plans for improved cycling infrastructure across the city.

CEOs from finance, technology, law, media, education and healthcare supported cycling and protected lanes, as they are good for employees, businesses and London.

Businesses recognised that there was demand for better cycling infrastructure from their employees and saw the health and environmental benefits, the opportunity for reduced congestion and economic benefit to business.

Some of the protected cycle lanes are moving five times as many people as the adjacent traffic lanes. (Transport for London)

6.2 Support a review of the road rules to support safe and efficient cycling

Bikes are subject to the same road rules as motor vehicles despite their smaller size and weight, lower travel speed, greater rider field of vision and lower impact on the environment.

Some motor vehicle road rules may be unnecessary for bikes. For example, at many intersections a person riding a bike could stop safely, give way to other road users and turn left on a red light without posing a significant road safety risk. This would encourage cycling by reducing delays. In Paris, riders can treat red lights as give way signs at 1800 intersections.

There are several other rules and regulations pertaining to cycling which could be changed to make cycling safer and more attractive. The review could consider: clarifying the rule about motor vehicles turning left across bike lanes; reviewing whether cars should be able to drive in bike lanes for up to 50 metres; reviewing the appropriateness of power and speed restrictions on e-bikes including for cargo e-bikes; assessing whether powered stand-up scooters should use bike lanes.

We do not support requiring bikes to be registered, or requiring licences for cycling as such measures would reduce the attractiveness of bikes as a mode of transport.

Case Study: Idaho stop

In 1982 a new law in the US state of Idaho was enacted allowing bikes to treat stop signs as give way signs.

The law also allows bikes to treat a red light as conventional stop sign.

These laws reduce delay for bikes while maintaining safety for all road users. An added benefit of the law is that bikes spend less time exposed at intersections and can more easily get ahead of other vehicles at intersections.

The impacts of the law have not been conclusively assessed. Few negative safety impacts have been observed. One study has shown that the year after the Idaho Stop was introduced crashes reduced by around 14.5%. Further evidence is needed to understand the implications of such a law in Melbourne.

Policy 16. Advocate for a review of Victorian road rules as they apply to cycling to improve the efficiency of riding in the city and attract more people to cycle every day.

Image 24. People riding bicycles in the central city

6.3 Support the growth of e-bikes for moving people and goods

Electric pedal-assist bikes (e-bikes) allow people to travel faster, further, with heavier loads and less effort than a conventional bicycle. E-bikes can overcome many of the barriers which stop people from riding, such as topography, cargo capacity and arriving sweaty.

People who ride e-bikes cycle more frequently than riders of conventional bikes. E-bike trips are often longer than conventional bicycle journeys and replace car trips with cycling more often.

We will encourage the growth of e-bikes in Melbourne by supporting:

- 'come and try days' to allow the community to experience riding an e-bike firsthand
- advocacy to the Victorian and Australian governments to subsidise e-bikes as part of any subsidy program for electric motor vehicles
- advocacy to the Victorian Government to increase the maximum power output for cargo e-bikes, allowing them to safely carry heavier loads.

Policy 17. Support the growth of e-bikes to get more people riding bikes.

E-bikes have the potential to significantly increase the number of people riding bikes

Figure 21: Current and potential (with e-bikes) cycling mode share to work in central Melbourne.

Could electric bikes change cycling in Melbourne?

Recent e-bike technical developments and expanded range have resulted in rapid growth in use. Research from Oslo estimates that each e-bike avoids 87 to 144 kilograms of CO_2 annually. E-bike riders also experience significant health benefits. While the work rate is around 60 to 70 per cent of a conventional bike, the health benefits are similar as e-bike riders tend to ride further and more often.

If five per cent of people who work in the municipality and live between seven and 14 kilometres from the centre of the city switched from a car to an e-bike, an extra 5,782 people would commute to central Melbourne by bicycle. This is the equivalent of adding almost three extra lanes onto the Monash Freeway.

"I love my electric bike, you get to experience the environment more than when you're stuck inside a car. It's helped me feel more confident to ride"

- Jackie, Brunswick East (Image 25)

Image 26: People riding bikes Street.

OUTCOME 7 – PRODUCTIVE KERB SPACE

Kerb space - the road space adjacent to the kerb - will be managed so that competing uses are balanced and economic and liveability benefits are maximised. On-street parking changes will optimise occupancy and some space reallocated to other uses including greening, safe bicycle lanes, motorcycle parking, wider footpaths and public open space.

7.1 Proactively manage kerb space to boost efficiency and productivity

Kerb space is in demand for numerous reasons, such as for bike lanes, widening of footpaths and planting of more trees and car parking. There is increased demand for pick-up/drop-off space and loading zones.

The demand for car parking is likely to reduce as it becomes easier to travel by sustainable modes, as people shift to different types of car travel (e.g. car share and ride share) and if technology reduces or eliminates the need for parking (e.g. autonomous vehicles).

Over the last 15 years the City of Melbourne has reduced the supply of on-street car parking in the municipality by approximately 22 per cent.

Reallocating kerbside space is complex and clearer direction is needed on how the we can optimise its use. For example, there is no policy on how parking spaces adjacent to parks can be reallocated to parkland.

In 2017-18, parking income through fees and fines made up around 19 per cent of City of Melbourne's revenue. Improved management of on-street parking and new revenue sources are needed to ensure financial sustainability as car parking demand declines and the pressure to use this space to meet other needs increases.

We will develop a Parking and Kerbside Management Plan which will consider:

- priority areas for reallocation
- relocating bike and motorcycle parking from footpaths to the kerbside and (long term) off the street.
- managing construction occupations
- on-street parking occupancy targets
- time restrictions
- making more efficient use of on-street loading, including bookable bays, permits and pricing
- the role of taxi ranks as technology and consumer preferences change
- gradually reducing on-street residential parking permits while maintaining the current permit provision for existing residents.

Refer to Action 14: Develop a Parking and Kerbside Management Plan.

Action 18: Trial innovative use of kerb space in the Melbourne Innovation Districts.

What is parking management?

Parking management approaches aim to improve public space by using the on- and off- street parking supply more efficiently.

Good management encourages use of off-street parking, makes it easier to find a space on-street, reduces incidences of people driving around searching for an available space and prevents feelings of a parking shortage.

Examples of parking management policies include:

- Efficient pricing
- Removal of time limits and managing through price instead
- Parking taxes (e.g. Victorian Government Congestion Levy)
- Shared parking between multiple buildings
- Planning rules which stipulate the maximum amount of parking that can be provided

7.2 Improve on-street parking access and efficiency through demand-responsive pricing

On-street parking comes at a significant opportunity cost. The space could be used for a higher-value public purpose benefiting many more people. The price of on-street parking in the municipality does not reflect the cost of providing it. On-street parking is a premium parking product, providing a high level of convenience by being located closer to destinations directly adjacent to the footpath. Despite this, it is generally cheaper to park on- rather than off- street. Lower prices encourage people to drive and seek on-street parking over off-street alternatives.

People struggle to find an available on-street parking space when more than 85 per cent of bays. This is the case in some places at certain times, indicating that the price is too low. In other areas, occupancy is low, indicating that the price is too high, the supply is too high, or both.

While some on-street spaces attract more revenue than they cost to provide, most are subsidised from general revenue. As a principle, we will transition towards cost recovery at a minimum for all on-street parking spaces to ensure that people who don't use or benefit from parking don't have to pay for others to use it.

The City of Melbourne will apply parking management techniques, including developing a Parking and Kerbside Management Plan and regularly updating on-street parking prices based on demand. This means that in some locations it will be more expensive, in other areas it will be cheaper. Differences in price will reflect differences in the supply and demand for parking in different areas and at different times. On streets with high parking demand, fees will apply on Sundays, be extended to start earlier and/or finish later. Some changes can be implemented in the short-term.

The primary goal is that efficient parking improves the quality of the public realm. There will also be positive and negative revenue implications in terms of fees collected and the number of parking fines.

Refer to Action 14: Develop a Parking and Kerbside Management Plan.

Action 19: Implement short-term parking management measures.

Case Study: San Francisco demand-responsive pricing (SFpark)

From 2011 to 2013, the SFpark pilot demonstrated how demand-responsive pricing can increase parking availability. Instead of charging the same hourly rate all day, everyday, prices per block were incrementally adjusted to achieve occupancy between 60 to 80 per cent during each pricing period. Rates were restricted to between US $0.25 and $6 per hour, and updated monthly. Some time limits were increased or removed. Demand-responsive pricing has since been rolled out to all local government-managed paid parking in San Francisco.

The outcomes of the SFpark pilot were:

Increased sales for local businesses. Sales tax revenue grew by more than 35 per cent in SFpark areas compared to less than 20 per cent in the other areas.

Lower on-street parking prices. A 4 per cent decline was seen in pilot areas.

Decreased parking search time. A 43 per cent reduction was experienced in pilot areas.

Decreased vehicle kilometres travelled. Reduced cruising for parking led to a 30 per cent decrease in total kilometres travelled in SFpark areas.

Fewer parking fines issued. There was a 23 per cent reduction in SFpark areas.
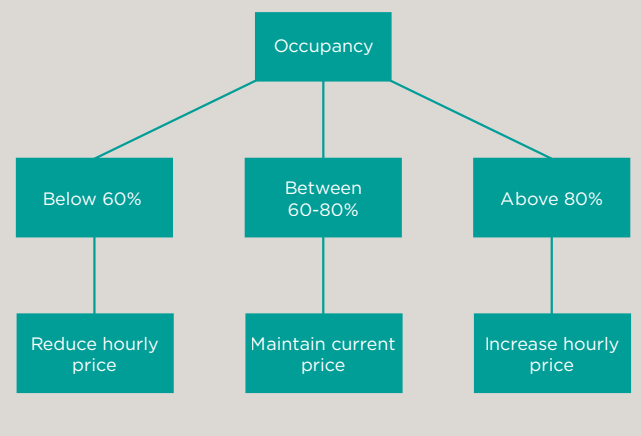
Figure 22. Flowchart demonstrating how SFpark adjusts price based on demand each month

7.3 Encourage innovative, low-impact approaches to freight

The City of Melbourne will support highly efficient and innovative solutions to improve freight, delivery and waste systems in the central city to enable a productive and vibrant city economy.

Our economy depends on deliveries to support business and the growing population of workers, residents and visitors. Deliveries are growing, increasing their physical impact on streets and amenity. Removal of waste by trucks can also undermine the amenity of the city.

Low-impact delivery models, such as cargo bikes and small vans, will allow deliveries to be made faster, at a lower cost and with greater efficiency. Low-impact vehicles are better suited to accessing people-focussed central city streets and spaces. Increased use of cargo bikes will require a wider and expanded network of dedicated cycling facilities. Electricity-assisted cargo bikes will broaden the range and size of deliveries which can occur by bike.

These low-impact models must balance accessing buildings quickly and efficiently through use of the footpath with the demands of an increasingly busy central city environment. We will work with stakeholders, the community and transport providers to ensure that the risk to vulnerable road users is minimised.

The City of Melbourne supports the trialling of a freight consolidation centre as outlined in the Victorian Freight Plan. In this trial, larger trucks and possibly trains will deliver freight to inner city freight consolidation centres where low-impact vehicles will make the final leg of the delivery. Precinct-based waste solutions and opportunities for reverse logistics for waste removal to reduce vehicle movements is supported.

Policy 18: Support innovative, efficient and low-impact solutions to last kilometre freight delivery, waste removal and servicing in the municipality.

Evidence base: Freight through-traffic in the central city

In 2018 a City of Melbourne survey determined that 43 per cent of all vehicles entering the central city are through-traffic. The characteristics of freight traffic were similar to general traffic. A significant amount of freight vehicles travel through the central city, concentrated in the west.

Major entry points for heavy freight through-traffic were Spencer Street south (72 per cent of freight vehicles were travelling through), King Street south (63 per cent), King Street north (62 per cent) and Wellington Parade South (56 per cent).

The highest volume of heavy freight was between 7:30 and 9:30 AM (735 vehicles, 40 per cent through-traffic), though there was a higher proportion of through-traffic between 12-2 PM (601 vehicles, 46 per cent).

Image 27. Vans making deliveries

7.4 Support efficient port logistics

The Port of Melbourne is one of the busiest container ports in Australia. The major freight task associated with the port is enabled by efficient transport infrastructure.

As freight volumes grow at the port, the task of moving cargo to and from the area continues to increase. As much of this task is carried out by road, more trucks are moving through the municipality. This impacts amenity through pollution, noise and increased congestion, particularly in the residential areas around the port. While the West Gate Tunnel will take some trucks off sensitive streets, a number of trucks will remain.

Infrastructure Victoria advised the Victorian Government that a second container port will be required by 2055, to be located at Bay West. It is expected that this new port facility connected to road and rail will take traffic away from the Port of Melbourne, allowing the repurposing of some land currently used for maritime activities. We support this transition as a means to increase supply chain efficiency while freeing up valuable inner city land for redevelopment and providing an amenity boost for residents.

The proposed rail and road freight corridor through Fishermans Bend is not supported in its current form as the impacts on the urban form and amenity are unacceptably high.

We will support:

- moving a greater proportion of metropolitan, regional and interstate freight by rail

- port operations where the amenity impacts are minimised. Operations overnight must not disrupt the amenity of surrounding residential areas

- opportunities for using new and innovative truck technology which reduces the impact of the port on the municipality and improves freight efficiency

- new rail or road freight infrastructure to fully respond to changes in land use around the port

- consideration being given to the future port at Bay West when decisions on expanding the Port of Melbourne are made.

Policy 19: Support the growth of the Port of Melbourne whilst ensuring the mitigation of future amenity impacts.

OUTCOME 8: EFFICIENT AND RELIABLE PUBLIC TRANSPORT FOR EVERYDAY LIFE

Improved public transport capacity, useability and user experience will mean more people on public transport more often. High-quality public transport means that more people can live without owning a car or needing to use one often. Significant investment in public transport will deliver a network where services and interchanges are frequent and effective, allowing people from across Victoria to easily access a variety of destinations in an affordable, sustainable and time-efficient manner.

8.1 Support a transition to 'turn up and go' public transport

Public transport in Melbourne requires significant improvement in order to provide a viable alternative for car trips in many places. Frequency is a key aspect. Frequent services reduce waiting times, allow short connections between services and provide freedom for people to depart and arrive at their convenience.

Greater Melbourne's public transport is generally very frequent during the weekday peak, with varying levels of frequency outside these times. Some train lines run at 10-minute frequencies outside of weekday peaks, some bus routes operate at 40-minute frequencies and some buses don't run at all on Sundays.

Off-peak frequencies should be increased for all train, tram and key bus services to 10 minutes (or less) between 6am and midnight every day. 'Short running' services on the bus inner sections of some lines should be considered to provide even higher frequencies.

Encouraging more people to travel during shoulder periods will move more people and free up capacity for people who must travel during the busiest times.

Policy 20: Support the transition to a 'turn-up-and-go' public transport network which offers fast, frequent and convenient services across Greater Melbourne.
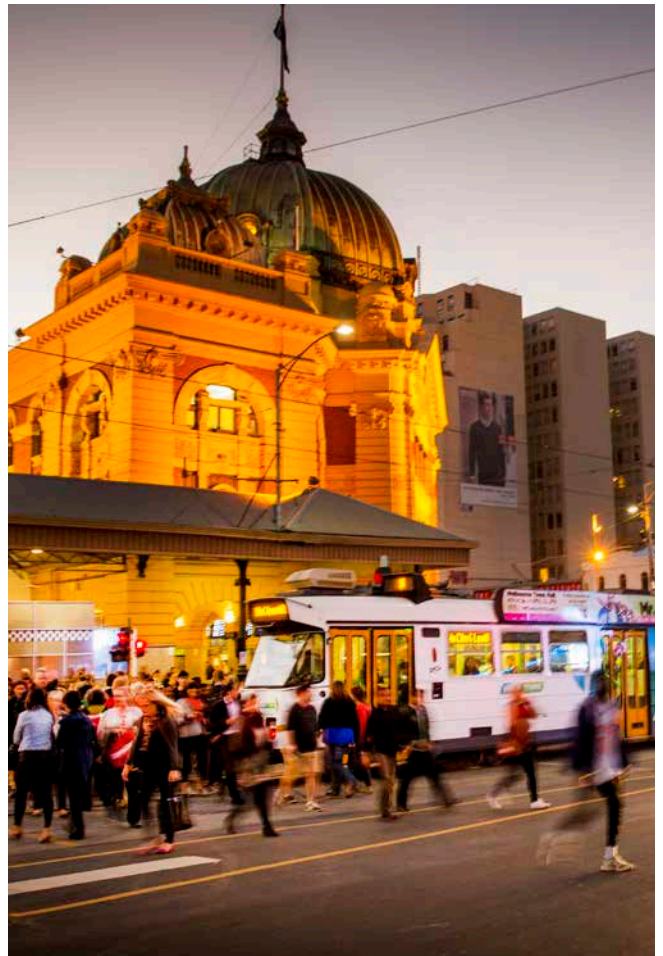

Image 28. Crossing Swanston Street.

"I prefer to take public transport to work because it is convenient and I can save on the cost of parking. I'm looking forward to the Metro tunnel opening to improve frequency and reduce overcrowding"

- Matthew, Altona (Image 29)

8.2 Advocate for investment in cross-city rail

Since 2004, growth in public transport use has far exceeded population growth. Overcrowding means that many buses, trams and trains are already full by the time the reach the inner city. Community consultation revealed that overcrowding on public transport is a key concern of many.

We support the Victorian Government's investment in the Metro 1 project. However, additional investment will be required, as the rail network is forecast to be at capacity again soon after the Metro 1 opens.

We support planning and investment in the next major rail capacity-boosting projects:

• Immediately begin detailed planning for an additional cross-city rail line beneath the central city, to relieve pressure on lines in the west and northeast and connect Fishermans Bend. Construction resources could redirected upon the completion of Metro 1 tunnelling.

• Reconfigure the City Loop immediately following the opening of Metro 1. A comparable capacity boost could be realised by converting two loop tunnels into a bi-directional through route. This will effectively create an additional set of tracks through the central city.

• Begin planning for an additional underground rail line to follow the cross-city line. Our early concept is for a rapid transit line connecting Melbourne Airport with Dandenong via the central city and Chadstone.

Action 20: Advocate to the Victorian Government for planning and investment in capacity boosting public transport, beginning with a second cross-city rail tunnel to unlock Fishermans Bend.

Metro 1 is not enough to accommodate forecast patronage growth

Figure 23: 2011-31 rail demand and capacity forecast (Public Transport Network Background Paper 2018).
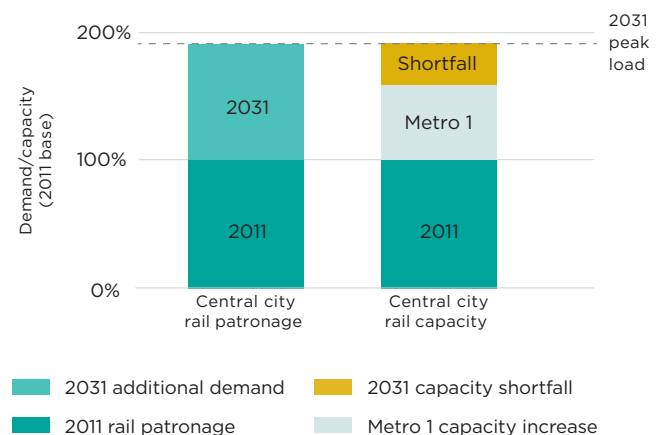
8.3 Support a review and redesign of tram and bus routes

The on-road public transport routes in the central city could be redesigned to move more people, connect more places and increase efficiency for all modes.

A review of bus and tram routes should:

- reduce turning movements
- spread services across the central city and suburbs, including more trams on La Trobe Street
- move some Swanston Street tram routes to William Street, Spencer Street and Docklands
- commit to new high capacity on-road public transport links between Fishermans Bend and Anzac Station
- introduce clean and green bus streets
- minimise routes terminating in the central city as this requires more space than through-stops.

Our priorities for full-time bus lanes are:

- Queen Street
- Hoddle-Victoria-Lonsdale-Spencer-West Melbourne station
- the Russell-Lygon streets corridor
- the Elgin-Johnston streets corridor
- Grattan-Wreckyn-Arden streets corridor

These lanes should provide congestion-free, tram-like services.

Our priorities for new tram tracks are:

- Park Street missing link, before Melbourne Metro opens
- Fishermans Bend via a non-moving 'green bridge', extending from Collins Street
- Spencer Street extension with branches to Arden-Kensington and Dynon Road
- into and through the Arden precinct
- Victoria Street missing link (Swanston to Spring)
- West Melbourne to Footscray via Dynon Road.

Policy 21: Support priority bus and tram projects to improve the coverage, efficiency and reliability of the public transport network.

8.4 Support establishing a rapid, high-frequency orbital network, beginning with buses

Establishing Greater Melbourne as a public transport-oriented city requires more than the existing central city-focussed radial network. These high-capacity routes need to be connected with orbital (crosstown) services. Orbital services are needed across the metropolitan area, in outer, middle and inner suburbs.
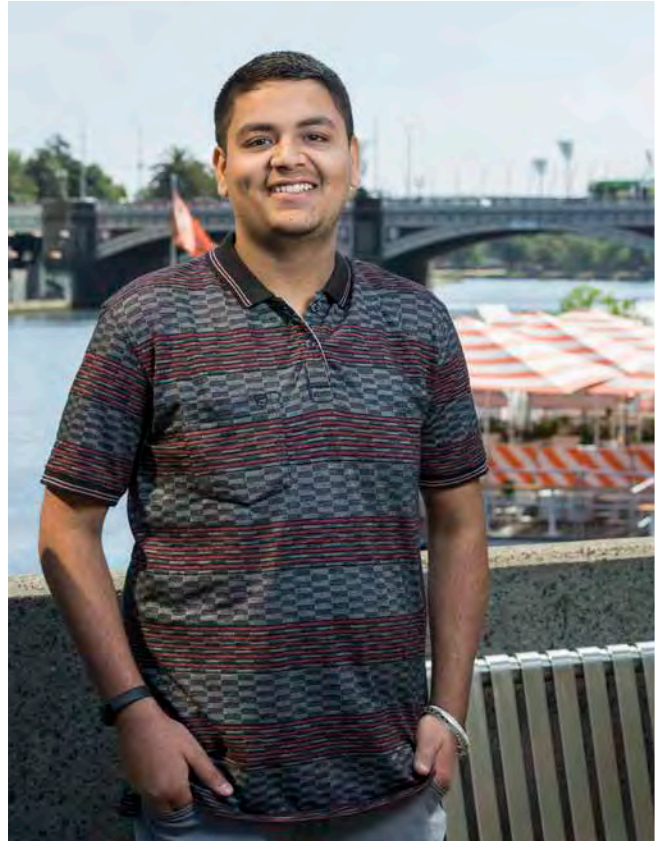
"Melbourne has a reputation as a great city to work and study. But after 10pm the train services become infrequent and it can be hard to get home from university"

- Shuvham, Noble Park (Image 30)

Existing bus services such as the 901 should be enhanced and other new routes introduced, such as the 904 inner orbital bus running between Sandringham and Williamstown. The Victorian Government's proposed *Suburban Rail Loop* would radically transform public transport across Greater Melbourne. The City of Melbourne supports continuing investigation into the benefits and costs of this project.

Policy 22: Support rapid, high-frequency orbital connections across the public transport network.

Evidence base: Spatial Network Analysis for Multi-Modal Urban Transit Systems (SNAMUTS)

In 2018 the City of Melbourne commissioned RMIT to undertake public transport accessibility modelling for Greater Melbourne.

SNAMUTS assesses how accessible the city is by public transport. It considers the question 'can a person get where they want to go, when they want to go, by public transport?'

The model used proposed public network development plans, service frequency changes and current and forecast population and employment figures. In addition, five scenarios were built into the model to test the impact of delivering (or not delivering) key transport projects. The projects tested were:

1. 'Melbourne Metro 2' (cross-city rail) - a new rail tunnel connecting Newport to Clifton Hill via Fishermans Bend, Southern Cross, Flagstaff, Parkville and Fitzroy

2. Inner-city tram network extensions - Central City to Fishermans Bend, Arden to Victoria Gardens and Footscray to Central City

3. Airport Rail Link - Central City to Melbourne Airport via Sunshine

4. Orbital bus links - Anzac Station to Fishermans Bend NEIC, Victoria Park to North Melbourne and the orbital Blue Line

5. Tram priority measures - a suite of measures including increasing tram priority at traffic lights, lowering traffic light signal cycle times, separating tram tracks, tram stop consolidation, larger trams and improved urban design. These measured were assumed to deliver progressive network efficiency improvements of 10 to 20 per cent.

Key findings from the modelling:

- Public transport accessibility in the central city is currently good to very good. Accessibility is poorer across most other parts of the municipality and inner Melbourne. Fishermans Bend has an accessibility rating below minimum standard.

- Population and employment growth will place pressure on public transport accessibility over the coming decades. Investment is needed in capacity boosting projects, operational improvements and coverage to ensure accessibility is maintained or enhanced.

- 'Melbourne Metro 2' is critical. It will increase capacity in the rail network, improve frequencies across a number of other connecting lines and have a significant impact on public transport accessibility beyond the lines directly connected to Melbourne Metro 2.

- If all investments are made as per the scenarios, Fishermans Bend would be lifted from an accessibility rating below minimum standard to good - similar to Flagstaff Station today. A good public transport accessibility rating is critical to the success of Fishermans Bend as a developing employment cluster, as a home to 80,000 new residents and as an extension of the central city.
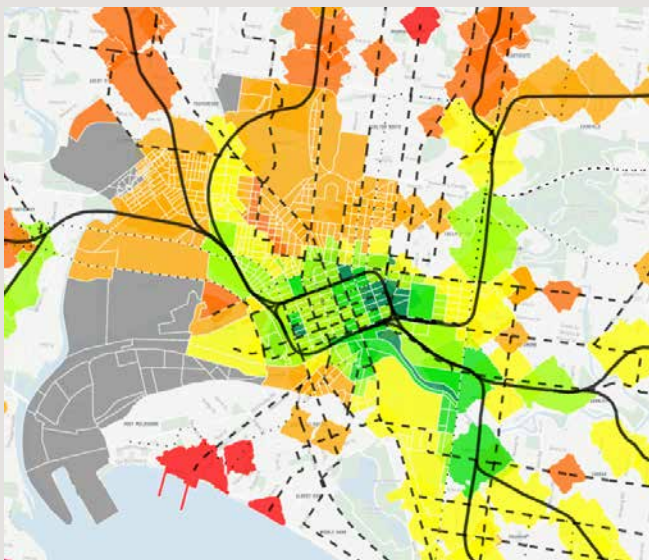
Map 9. Accessibility of public transport network in 2016.
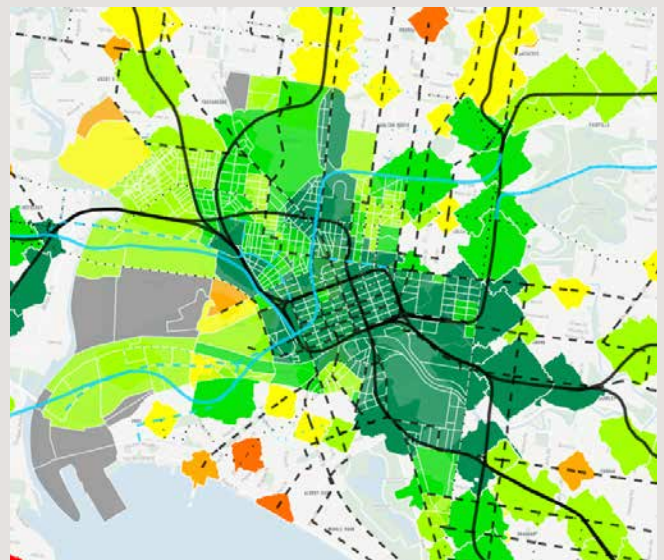
Map 10. Accessibility of public transport network in 2036 following delivery of all projects tested.

8.5 Support improvements to boost public transport capacity during peak times

On many routes severe overcrowding has deters people from using public transport. While encouraging more people to travel outside of the busiest times will relieve overcrowding, there remains a need to increase peak capacity to ensure people can access jobs and contribute to the economy. Without a capacity boost, the attractiveness of the central city for employers and employees will decline. Projects like Metro 1 and the High Capacity Metro Trains will significantly increase capacity. More capacity will be needed before and after Metro 1 opens, which may involve significant operational change and require more people to make interchanges to reach their destination.

Policy 23: Support increasing the capacity of public transport infrastructure to move more people during peak times.

8.6 Support improvements to public transport safety and user experience

Public transport user experience can be improved by making public transport services more intuitive, frequent and reliable, by creating seamless connections with other services, by meeting the needs of all users and ensuring the services are comfortable and safe.

Feeling safe on public transport and at stations and stops is key to ensuring all people feel they are able to access the public transport network at any time of day and at any location.

Policy 24: Support initiatives to improve the public transport user experience and passenger safety.

8.7 Support improving regional rail

Regional rail plays multiple key roles. It takes regular commuters to work, gets people to important personal, business and health appointments in the inner city and provides access to cultural, social and sporting facilities. We support:

- completing the Victorian Government's *Western Rail Plan*
- duplicating the Geelong, Ballarat and Bendigo lines
- electrifying the Geelong line
- boosting regional rail capacity within Greater Melbourne, potentially through use of the Melbourne Airport rail line
- new trains and incremental track upgrades to allow speed increases between Sydney and Melbourne
- support planning and enactment of land reservations for a long-term high speed rail service between Melbourne, Canberra and Sydney with a later stage to Brisbane.

Policy 25: Support regional rail projects as infrastructure which is critical to the economic prosperity of Melbourne.

8.8 Support improving airport public transport

Melbourne Airport is one of the largest employment centres outside of the central city. Employees are heavily reliant on motor vehicles as there are few alternative options. Convenient public transport for air passengers is important to ensure viability for all people who access the airport.

The high-frequency 24/7 *SkyBus* service provides one of the best central city-airport connections in Australia, but is subject to congestion during peak times and only serves a part of the Greater Melbourne area..

Public transport to and from airports is most efficient when different types of travellers, such as business, leisure and employees, are catered for using the same vehicle. In Greater Melbourne this will require multiple forms of transport, including trains, buses and trams.

Airport transport:

- must run reliably and frequently
- must be an integrated part of the public transport system, particularly in the growing west and north
- should operate at all times of day
- should pass through the central city but not terminate there

The Victorian and Australian governments' proposed airport rail line via Sunshine should continue to be investigated. Terminating the airport rail line at Southern Cross will place extra strain on the station and connecting transport. Terminating facilities will take up scarce and valuable central city space. Operating airport trains through the central city to terminate elsewhere on the rail network will make the service more attractive and ameliorate issues in the central city.

If constructed, this rail line won't be operational for many years. In the short-term, bus priority should extended beyond the the peak-only lanes on *CityLink,* including Footscray Road and Dudley Street. This is a low-cost option to significantly improve central city-airport transport.

Policy 26: Support reliable and frequent public transport to airports which is integrated into the network. Support continuing the investigation into a Melbourne Airport rail line
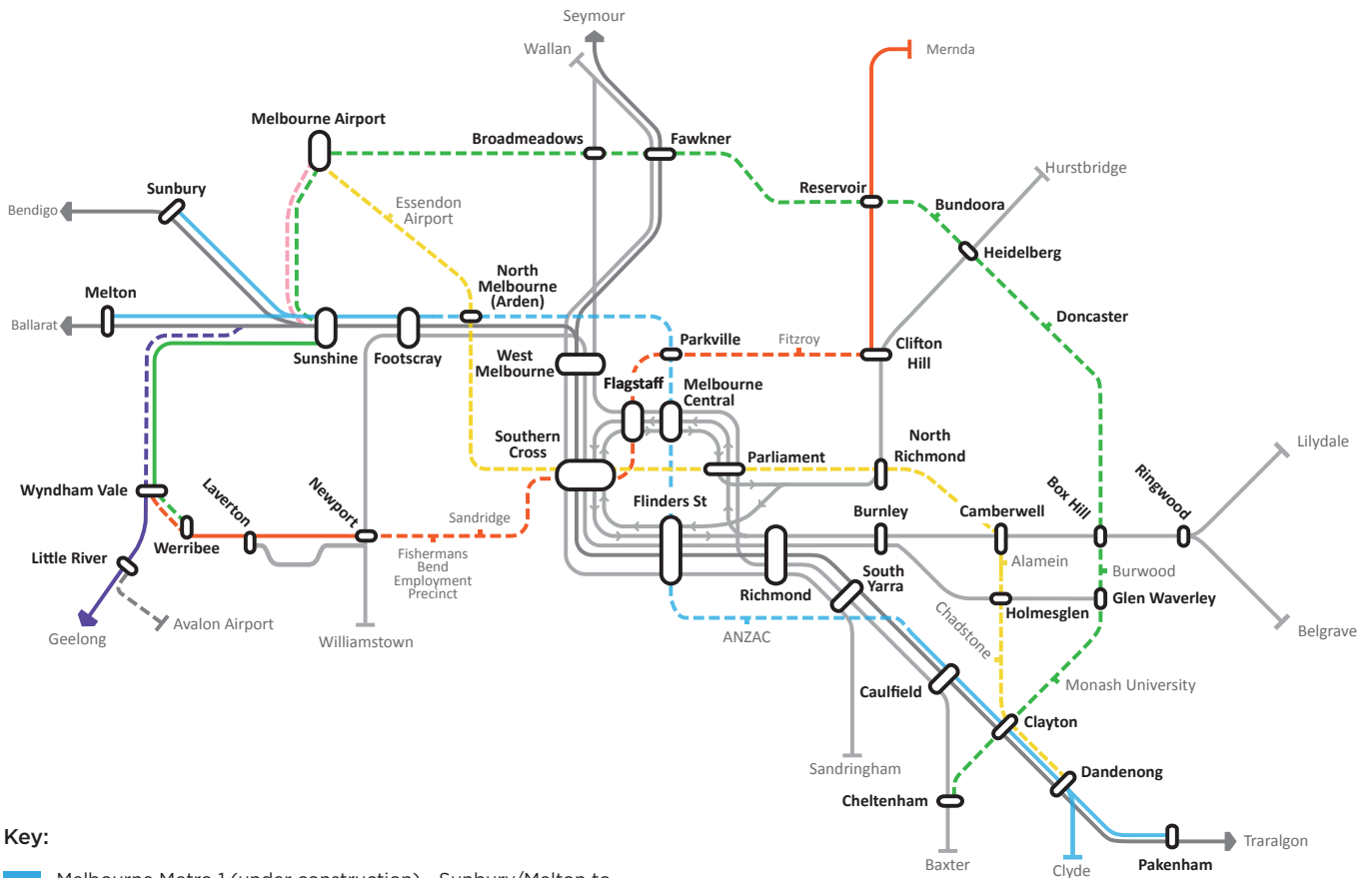
Figure 24. Future rail network

Key:

- Melbourne Metro 1 (under construction) - Sunbury/Melton to Cranbourne/Pakenham
- Cross-city rail 1 (proposed) - Wyndham Vale to Mernda
- Cross-city rail 2 (concept) - Melbourne Airport to Dandenong
- Suburban rail loop (in planning) - Cheltenham to Werribee
- Melbourne Airport Rail Link (in planning)
- Geelong high-speed rail (in planning)
- Metropolitan rail
- Regional rail

Water transport

Multiple water transport services operate in the municipality. The subsidised Westgate Punt and Portarlington Ferry operate on routes where land transport is less time-competitive. Tourist services, leisure boats and water taxis also operate on the Yarra River.

Regulations limit the speed of vessels on the Yarra River to 9 km/h and require vessels to stay on the same side of the river in each direction.

City of Melbourne research suggests that due to these impediments, additional regular public water transport routes will struggle to compete with faster land transport alternatives.

We support expanding existing water transport services to fill gaps in the land transport system. We also support tourist, leisure and event vessels as drivers of economic activity. New or expanded water transport services will be supported in principle, if consistent with the *Transport Strategy*.

OUTCOME 9 – INTEGRATED TRANSPORT PLANNING FOR VICTORIA

Best-practice transport planning will deliver equitable, sustainable and efficient outcomes for all Victorians. The City of Melbourne and the Victorian Government will work together to ensure our transport objectives are met in line with the Transport Integration Act (2010). Construction disruption will be well coordinated and managed.

9.1 Support the development of a Central City Transport Framework

The scale and rate of change in the central city requires strategic alignment between City of Melbourne and Victorian Government strategies and investment. Our Transport Strategy complements many Victorian Government strategies and initiatives. We will work with the Victorian Government to develop a strategic transport framework for the central city. The framework will set out a jointly-endorsed strategic direction and investment priorities to enhance liveability and efficiency of the transport system.

Policy 27: Collaborate with the Victorian Government to develop and endorse a Central City Transport Framework, recognising the importance of the central city as the hub of the Victoria's transport network.

9.2 Support sustainable outcomes from major city-shaping projects

The growth of Greater Melbourne has resulted in a large number of major transport projects being investigated and constructed. Many of these projects are located in the municipality or have an impact upon it.

The City of Melbourne expends considerable resources reviewing major projects, seeking the best possible outcome for the municipality and Victoria. Additionally, we perform a key role in the delivery of these projects through the use of council land (including streets) for construction sites and ensuring project integration into the broader municipal transport network.

When a new project is proposed, we will work to ensure that the project:

- supports increased use of public and active transport.
- improves pedestrian permeability and connectivity within a precinct
- does not increase private motor vehicle use in the municipality.
- supports land-use outcomes as defined by the Transport Integration Act 2010, Plan Melbourne, the Melbourne Planning Scheme and other Victorian and local strategies.
- uses recyclable materials and reuses waste wherever possible.

Policy 28: Advocate for major city-shaping projects which improve the city for walking, cycling and public transport.

9.3 Support early delivery of integrated transport for urban renewal areas

Parts of inner Melbourne are transitioning from industrial use into communities where people live, work and visit. These areas are located close to the central city and are ideally suited for higher-intensity development. However, urban renewal areas can only be successful if high-quality public transport and active transport is provided before people and jobs move in.

Walking and cycling facilities are critical foundations of urban renewal areas. This infrastructure can be delivered quickly and at relatively low cost as places are created. As intensity increases, active transport can readily absorb many more users without additional expenditure. This is critical in urban renewal areas including Fishermans Bend, West Melbourne and E-Gate.

Public transport is a catalyst for investment and demonstrates government commitment to urban renewal areas. Fast and frequent buses should be delivered before future tram and train services in urban renewal areas. This will allow people to develop habits and prove the demand for public transport.

For Fishermans Bend, the City of Melbourne seeks the shortest, most direct active transport link between this urban renewal precinct and Docklands. A tram connection between Fishermans Bend and the central city is a high priority. Our preference is for a low-level tram, walking and cycling bridge across the Yarra River extending from Collins Street in Docklands.

Opportunities for value capture in urban renewal areas and throughout the municipality should be explored, with a Developer or Infrastructure Contributions Plan as a minimum.

Policy 29: Support the sustainable development of urban renewal areas by delivering high-quality public and active transport links early in the redevelopment process.

9.4 Leverage construction disruption to capture benefits of behaviour change

Large construction projects inevitably disrupt the way people move around Greater Melbourne.

Disruption changes travel behaviour. Opportunities presented by disruption should be embraced to trial new ways of moving people and attempting to improve the overall transport system. For example, closing a road to cars during construction can cause drivers to choose alternative routes, or encourage people to walk, ride or use public transport instead. Some disruptions will stay in place for several years during which people will establish new transport patterns.

Prior to completing construction, there is an opportunity to decide whether to restore original conditions or capture the benefit of the changed travel behaviour and make permanent changes to improve the city.

During disruptions, we will work with the Victorian Government to:

- prioritise people walking, using public transport and riding bikes around construction sites, even if private vehicle access needs to be restricted during construction.
- monitor road changes to determine whether permanent change will deliver net-positive outcomes.
- develop an agreement under which the default approach would be not to revert to original traffic conditions, provided road safety is equivalent or improved. Previous traffic capacity will only be reinstated if road space reallocation can not significantly improve alternate transport modes.
- support safe and efficient rail and tram replacement bus services by temporarily providing more dedicated road space for bus access, loading and unloading.

Policy 30: Monitor construction disruption, consider the opportunities to test new transport conditions and avoid reverting to the original conditions if positive change is demonstrated.

9.5 Support transparent public transport performance data and indicators

Making more transport data public will help ensure that operator performance continues to improve. This includes patronage, performance and real-time service information.

Possible new performance indicators could include:

- targets for improved reliability and efficiency from maintenance expenditure and capital renewal investments

- targets for improvements in the reliable arrival of trains to designated platforms. This is an important element of a positive user experience

- Ensuring more reliable cross-platform transfers between City Loop and through trains at Richmond, North Melbourne, Flinders Street and Southern Cross stations would help to alleviate user resistance to changes in service patterns

- the number of transfers between public transport services to reflect progress towards the development of a true 'network'.

Policy 31: Advocate for more transport data being made publicly available to improve the transport system and user experience.

Image 31: Temporary road closure on Little Bourke Street.

A DYNAMIC AND ADAPTABLE CITY

New and emerging technologies present opportunities and challenges for the future. It is vital that new technology is carefully managed to ensure a net positive impact to society. The City of Melbourne has a well-established strategic direction to create a city that puts people first, is connected, prosperous and sustainable.

Technological changes will not diminish this vision, and innovation must support this strategic direction. When and how new technologies are introduced is highly uncertain, though we anticipate that the pace of innovation in the transport sector will accelerate.

Due to this uncertainty, clear principles, objectives and policies have been developed to guide what we want technology to achieve for the transport system and our population.

New regulations will be required to capture the benefits of emerging technologies and to protect against negative impacts. Regulations must be designed carefully, to guide innovation without stifling it.

The City of Melbourne will prioritise new technology that supports the strategic transport directions of this strategy. We will be technology-neutral in our approach to achieving our transport outcomes by seeking the best available solution to a given problem.

Outcomes

10. New technologies deliver net community benefit

11. Vehicle innovation supporting a people focused city

12. Zero emissions transport

13. Equitable and efficient transport pricing

Image 32. Princes Bridge at night.

CHALLENGES AND OPPORTUNITIES

City disruption and transformation

Major project disruption

Greater Melbourne's growth has led to an unprecedented number of major projects underway including the Metro Tunnel, West Gate Tunnel and level crossing removals. These are transformational projects which will take several years to complete. Construction requires frequent changes to the way people travel such as road closures, diversions and replacement bus services.
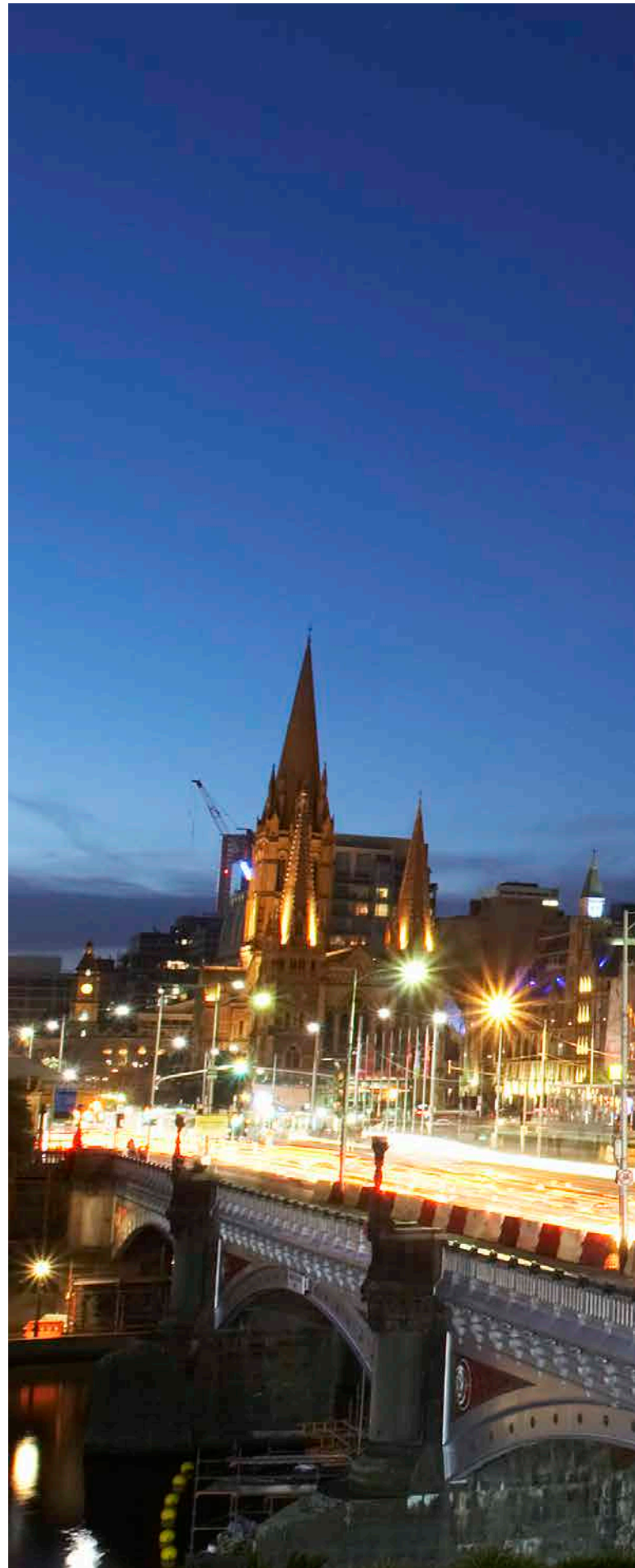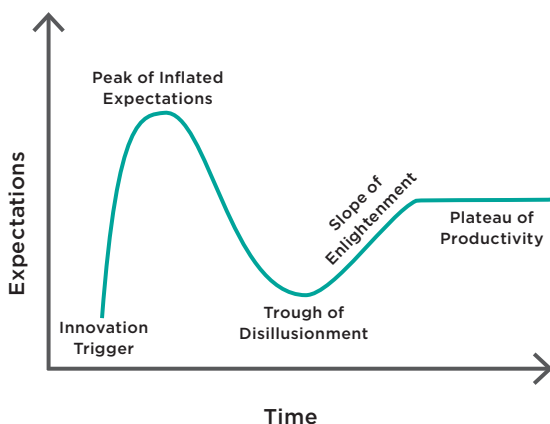
The benefits and risks of emerging technology are unclear

New and emerging technologies provide opportunities to improve transport and increase accessibility[20]. However, it is unclear how these technologies will be adopted and how they might impact people and the city. There is a risk that the benefits of this technology will not be realised, or that without regulation negative impacts of new technologies will not be prevented or mitigated.

New technologies and ideas often create inflated expectations. The full range of impacts and unforeseen consequences can take a long time to eventuate. For example, the motor vehicle disrupted the transport system following its invention and mass production, yet it has taken many decades to fully understand the consequences of adapting cities to accommodate this technology. The policy in this strategy is built upon evidence, while being cognisant of emerging trends. The Gartner Hype Cycle is a useful tool when trying to understand the speculation surrounding emerging technologies.

New technologies often follow a similar path before widespread adoption occurs

Figure 25: Gartner Hype Cycle (Gartner 2019).

Transport emissions are increasing and electric vehicles are not yet the solution

Current transport emissions in the City of Melbourne exceed the levels required to meet Australia's obligations under the Paris Climate Agreement. In 2018, private cars contributed around 52 per cent of land transport emissions in the municipality[21].Electric cars have the potential to reduce emissions if they are powered by renewable energy, however Victoria's electricity is predominantly generated from coal. This means that CO_2 emissions are still produced to recharge an electric car, making the vehicle no cleaner than an internal combustion engine.

Realising the potential benefits of electric cars will require:

- ongoing investment in renewable power generation to green the Victorian grid

- an increase in the grid capacity to enable electricity consumption increases of up to 84 per cent per household, based on 2018 car ownership rates

- extensive charging infrastructure and energy network upgrades across Victoria at a cost of at least $2.2 billion[22]

According the Intergovernmental Panel on Climate Change, shifting to more energy efficient modes like walking, cycling and public transport must be prioritised to reduce transport emissions if the world is to limit the global temperature increase to 1.5°C. Other actions, such as increasing vehicle occupancy, new fuel types and reductions in travel demand, will also contribute a smaller proportion to reducing emissions[23].

Electric vehicles offer benefits such as reduced noise and tailpipe emissions when compared to conventional cars, but an electric car will not improve road congestion, road safety or move people more efficiently than a conventional car.

Recharging requirements of electric cars

Demands on public space, particularly in the central city, are high. Public vehicle charging on streets in central Melbourne is problematic as the space is needed for other uses. It is not yet clear how zero emission vehicles will refuel, in what numbers, or whether they will use hydrogen fuel cells or rechargeable batteries.

Transport inequality

The way road revenue is currently raised increases inequality. Fuel excise is paid on the consumption of fuel, so people with older, less efficient cars pay more tax per kilometre they drive compared to those with newer vehicles. The cost of registration fees means that infrequent drivers pay more on a per trip basis, subsidising those who drive frequently.

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[20]Transport Strategy refresh background paper: impacts of emerging transport technology on the City of Melbourne, Vispoke consulting 2018
[21] Transport Strategy refresh background paper: Transport, Greenhouse Gas Emissions and Air Quality, Institute for sensible transport 2018
[22]Advice on automated and zero emissions vehicles, Infrastructure Victoria 2018
[23]Global Warming of 1.5˚c, The Intergovernmental Panel on Climate Change 2018

Driverless cars could one day change cities

There is a high degree of uncertainty about how soon driverless cars will be using Melbourne's streets. Driverless cars could remove most human error in road accidents and help deliver people the first and last kilometre of their trip, complementing efficient public transport.

However, driverless cars are likely to contribute to more car trips, more congestion and may shift people away from public transport, walking and cycling.

The road space that may be required by driverless cars is unclear

Figure 26: Space required per person by transport mode
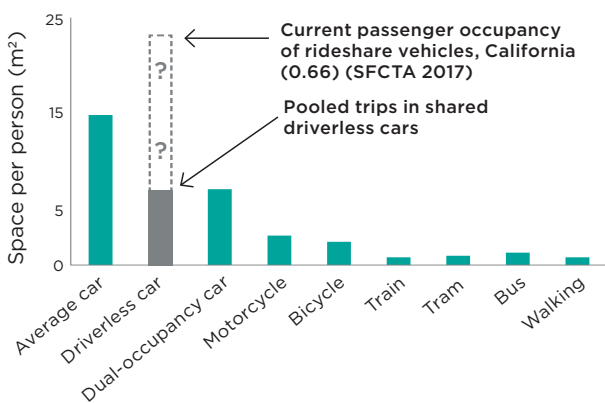
We could see:

- empty cars circulating on streets, or driving back home instead of parking.

- people may be willing to accept a longer commute time in a driverless car because they can use that time to complete other tasks.

- those who currently don't drive (children, elderly or disabled) may start making additional trips.

A forecast decline of road-related revenue

Australian Government levies a fuel excise of 41.2 cents per litre of fuel generating $11 billion per year[24]. Better fuel efficiency means vehicles are using less fuel per kilometre. Drivers of electric cars pay no fuel excise. Increased use of electric vehicles is one of the reasons this revenue is forecast to decline in the future. Driverless cars will avoid parking fees, parking fines and traffic infringements, creating further revenue issues for state and local governments. Lost revenue will need to be replaced by reformed road charges or through reduced government services and spending.

Road funding and use

Local roads managed by the City of Melbourne make up the majority of road space in the municipality - 68 per cent. These roads are funded through revenue from residents, businesses and people who use our services. Roads managed by the Victorian Government are partially paid for through registration fees, with the remainder coming from general revenue. Many people using local roads have not contributed to covering the cost of providing them – even if these local roads are of Victorian or national significance, such as Flinders Street.

Despite this significant responsibility, the City of Melbourne and other local governments lack any direct mechanism to cover the cost of providing roads. Busy roads are a particular issue as the cost of maintenance is high.

Local governments spend as much on roads as the Australian Government

Figure 27: Road related revenue across Government (BITRE 2017)
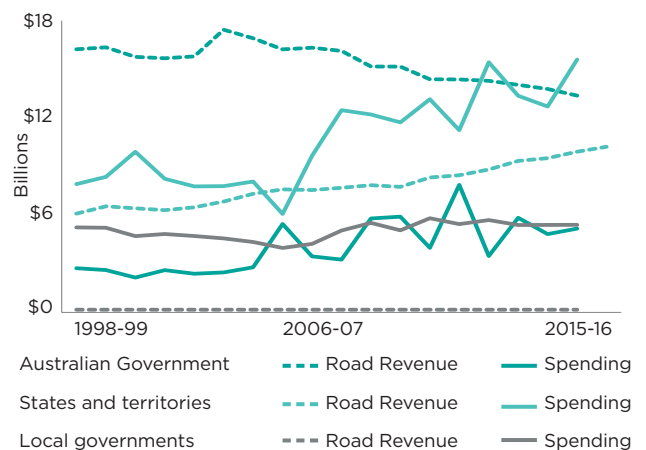
Transport pricing which doesn't manage demand

There is currently no price signal to manage road demand or encourage people to travel differently. People pay the same price for transport during peak hours as they do during off-peak hours[25]. Currently, the main form of road demand management is time delay – people are discouraged from making trips during peak hours due to the travel time penalty and frustration caused. The cost of transport can directly influence travel choices, including the number of trips we make, at what time of day, the route, the transport mode and our destination. The current road pricing arrangement fails to manage congestion, is not prepared for disruptive technology and provides no incentives for drivers to travel off peak or avoid sensitive locations. Similar to road pricing, there are also opportunities to change public transport pricing to encourage off-peak travel and get more from existing assets.

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[24] Transport Strategy refresh background paper: Transport Pricing, University of New South Wales 2018
[25] Stuck in traffic? Road congestion in Sydney and Melbourne, Grattan Institute 2017

OUTCOME 10 – NEW TECHNOLOGIES DELIVER NET COMMUNITY BENEFIT

New technology will deliver a range of transport benefits for Melbourne including better access, new transport modes, lower emissions and more efficient use of existing assets. Appropriate regulation will ensure that new technologies integrate into the city and do not undermine amenity, efficiency and liveability.

10.1 Advocate for regulation of dockless shared mobility services

Dockless shared services such as bikes and e-scooters have potential to provide new sustainable transport options. However, the lack of policy has meant that dockless mobility in Melbourne has created numerous problems and delivered few benefits.

Existing regulations are based on old technology and assume private ownership of vehicles. They do not respond to new possibilities and risks that new technology has enabled. In particular, mass production, advances in battery capacity and smartphone technology have fundamentally shifted. Large fleets of inexpensive vehicles are now able to be deployed and controlled remotely, even from overseas.

The dynamics of dockless vehicle fleets require vehicles to be broadly distributed, available everywhere and for most of the day. Any service that doesn't carefully manage vehicle storage will create additional footpath obstacles. Obstructions to the safe and efficient movement of pedestrians is not be supported by this Strategy.

To address this issue, designated parking areas may be considered which could be provided by removing on-street car parking spaces. Conversion of on-street parking comes at a cost which would need to be incorporated into the operation of dockless services.

A regulatory framework is needed for dockless transport to manage large numbers of vehicles, risks and maximise benefits. The City of Melbourne has limited regulatory power to manage the range of associated issues which include parking, amenity, safety, vehicles, insurance, liability, competition between companies, consumer protection and other issues. Community expectations to manage these issues are heightened in the Hoddle Grid. The Victorian Government is best placed to work with inner city councils to lead the development of regulation.

Action 21: Ensure new transport technology benefits the city by advocating to the Victorian Government for regulatory or legislative change in line with this strategy.

Case study: *oBike*

In mid-2017 a dockless bike share company, oBike, launched in Melbourne. The experience provides insight into the economic and environmental risk of disruptive transport technologies.

Dockless schemes are operated by private companies without fixed parking infrastructure, government subsidy or endorsement. They allow users to unlock bikes with their phone and leave them wherever they wish.

oBikes were distributed across inner Melbourne with limited management, maintenance or strategy.

Despite the company's claim that bikes could be of benefit to the city, the clean-up cost and environmental harm was significant with highly-publicised impacts on urban amenity.

oBike performed poorly against the criteria defined by the City of Melbourne leading to inappropriate clustering of bikes, clutter on already crowded footpaths, damaged bikes left longer than agreed time-frames and storage of bikes near public bike hoops.

It is anticipated that similar schemes will emerge from new and existing technologies.

10.2 Support trials to test new technology and evaluate performance and impacts

The City of Melbourne will work closely with industry, all levels of government and the community to facilitate trials and pilots of new transport technology. The objectives of the Transport Integration Act 2010 will be used to guide how we provide resources to support trials. Products, services and initiatives which are not in alignment with this strategy will not be supported.

Policy 31: Actively support and facilitate trials of new transport technology in the municipality which align with the principles in this Strategy and the objectives of the Transport Integration Act 2010. Undertake thorough evaluations of trials to fully understand opportunities and impacts.

Victorian transport system objectives

The *Transport Integration Act 2010* provides objectives for the transport system. These are the primary criteria the City of Melbourne will use when considering the benefits and disbenefits of new transport technology. Significantly, to understand net community impact, providers and operators need to measure both positive and negative effects their technology has.

The objectives are:

1. Achieve socio-economic inclusion
2. Economic prosperity
3. Environmental sustainability
4. Integration of transport and land use
5. Efficiency and reliability
6. Enhance safety, health and wellbeing

10.3 Support the integration of transport services through technology

All transport modes should function as a seamless system for the user, supported by communications technology. This is sometimes called Mobility as a Service (MaaS).

On-demand mobility services can provide access to public transport, particularly in low-density areas, making it easier to live without a owning a car.

Smartphones provide the tools and data required to achieve unprecedented integration.

Government leadership, possibly in the form of legislation, will be needed to ensure transport options encourage efficient transport choices and avoids the promotion of one trip choice over another (for example, encouraging a ride-share trip over a tram trip).

Policy 32: Support shared mobility which is integrated with the transport network and will encourage people to walk, cycle and use public transport.

10.4 Support regulation to protect accessibility and equity

Social and environmental benefits which could be achieved through new transport technology may not be delivered by private operators without appropriate regulation. An increase in inequality is a significant risk if the deployment of autonomous vehicles results in the dispersion of jobs and homes, or reduces the viability of certain public transport services. This could impact the level of accessibility for more vulnerable and lower-income earners.

We will support changes to transport services which allow people in fringe, regional and rural areas, or those with limited mobility or lower socioeconomic status, to access the transport system at an improved standard.

We support the establishment of a code of ethics such that technology providers and operators take greater ethical responsibility for the impacts of their products.

Policy 33 Support equitable access to transport and appropriate regulation of transport technology providers and operators.

Opportunities where technology can help solve challenges and deliver public benefits.

1. Improving road safety including reducing distracted driving

2. Freeing trams and buses from traffic congestion

3. Increasing vehicle occupancy and the sharing of vehicles for existing car trips

4. Reducing car ownership and promoting public and active transport

5. Managing demand for road space across different modes to move more people in less space, such as with smarter traffic signals

6. Reducing the impact of freight, improving efficiency and lowering costs through load consolidation, re-timing trips and new vehicle types.

7. Providing better information to help people choose the best travel options

8. Reducing the physical size of vehicles that operate on central city streets

9. Capturing and sharing movement data, particularly for people walking, cycling and using public transport to allow better planning.

Air Transport

Commercial helicopter services have been operating in Melbourne for at least 50 years. As aviation technology develops, new services may be developed such as on-demand air mobility and air delivery.

Opportunities to improve the efficient movement of transport and goods across Victoria by air are supported. However this should not be at the cost of urban amenity, safety and integration with the public transport network.

Regulation to manage noise and visual amenity impacts will be needed.

10.5 Investigate the use of sensors to improve transport performance

Wider use of new sensor technology may provide opportunities to improve the performance of the transport system. Sensors have been used to improve motor vehicle performance at intersections since 1982 through Melbourne's use of the Sydney Coordinated Adaptive Traffic System (SCATS). These sensors detect the presence and number of motor vehicles and adapt traffic signal timing to optimise traffic flow.

Additional sensors in the environment and on vehicles could maximise intersection performance for all users, not just drivers. Traffic signal technology must be better adapted to the central city, where most people move through intersections on foot, bicycle, tram or bus.

The City of Melbourne's in-ground sensors have already been used to assist on-street parking enforcement and gather occupancy data.

Future opportunities for sensors include capturing data that could support:

- improved air quality and reducing noise

- on-road priority for trams and buses

- more efficient last kilometre freight

- minimising the impact of disruptions with real time transport information

- improving road safety and efficiency through enforcement of road rules

- improved parking enforcement including residential permit compliance and reducing non-residential overstays

- reducing delay to pedestrians at crossings

- reducing response times for emergency services

- assist individuals to avoid congestion

We will work with the Victorian Government to investigate the use of new sensor technologies to enable more efficient traffic management and signal control while supporting improved transport connectivity. We will investigate improved parking management tools to support more efficient use of assets and conversion of on-street parking to other uses. The availability of new data from sensors will be made publicly available where possible, in line with our Open Data Principles.

Policy 34: Support the use of sensor technologies to enable more efficient traffic management and signal control to improve transport performance.

Image 33. Trams on St. Kilda Road.

OUTCOME 11 – VEHICLE INNOVATION SUPPORTING A PEOPLE FOCUSED CITY

The benefits of innovations in vehicle technology will be captured. These include more flexible mobility, reduced parking demand and greatly reduced road trauma. Potential negative impacts, including increased congestion and reduced active travel, will be avoided.

11.1 Capture the road safety potential of vehicle innovation to protect vulnerable road users

The greatest potential benefit of vehicle innovation in the central city is a reduction in road trauma. The City of Melbourne has the highest rate of pedestrian road trauma in Victoria. Human error is present in up to 94 per cent of serious crashes. There is a substantial opportunity to reduce trauma through vehicle innovation.

Features such as automatic braking are already available in some new vehicles. As technology develops, the City of Melbourne will investigate how road safety benefits can be delivered in more complex urban environments where many people walk or cycle near vehicle traffic. There may be opportunities to prioritise access to parts of the central city for vehicles featuring certain safety technologies.

We will work with the Victorian and Australian governments to enhance the legal protections of vulnerable road users from the risks of motor vehicles and autonomous technology.

To ensure that road safety is foremost in the development of automated vehicles, the default position should be that the autonomous driving system will be liable for injury and damage where people walking or cycling are involved. This will provide a clear incentive for manufacturers to develop technology that is safe to operate in urban environments.

Policy 35: Support enhanced legal protections of vulnerable road users from the risks of motor vehicles and autonomous technology.

11.2 Mitigate and manage the impacts of autonomous vehicles

Due to the complexity of the environment, inner urban areas are likely to be one of the last areas in which driverless cars will be able to operate safely.

Automated vehicles must be capable of operating safely without additional physical infrastructure to protect people from risks they pose, such as pedestrian fencing, physical separation or barriers.

One of the more likely outcomes of driverless cars is an increase in congestion. While efficiency of vehicle flow may improve on arterial roads and freeways, the large number of intersections and higher demand for scarce street space in the central city mean driverless cars may clog up roads. Road pricing will be crucial to avoid gridlock (see Outcome 14) including the possible use of charges to prevent empty vehicles contributing to congestion, such as commuters sending empty vehicles home to avoid paying for parking.

The City of Melbourne will not support any of the following impacts as a result of automated vehicles operating within the municipality:

- Increased risk for vulnerable road users (e.g. in the event of an accident the vehicle protects the driver first, potentially risking the lives of others)

- New or additional obligations for existing road users to protect themselves from automated vehicles

- Increased congestion, rat-running or empty vehicles circulating the streets

- Any reduction to the permeability of the walking environment such as additional fencing

Policy 36: Protect and improve urban amenity as autonomous vehicle technology develops.

11.3 Use technology to enable reallocation of space currently used for car parking

The roll-out of on-demand services and eventually driverless technology is expected to reduce demand for parking as private vehicles move towards a pick-up/drop-off model. On-street parking revenue is currently important to the City of Melbourne. However, it is unsustainable over the medium to long term. New revenue streams must be identified to continue to deliver essential city services. A declining demand for parking supports the City of Melbourne's policy to reduce the amount of on-street parking in the municipality.

Demand for pick-up and drop-off spaces is expected to increase. We currently provide loading zones for goods and taxi ranks. As technology develops, the management of these and other similar spaces will need to become more flexible. There is already unmet demand for passenger collection by app-based commercial passenger services which can create a risk of conflict with cyclists, increase congestion, delay public transport and impact on the amenity of the street.

We will develop a Parking and Kerbside Management Plan to optimise the operation of our kerbside space including the pick-up and drop-off of people and goods.

We will explore systems for efficient monitoring of and, where appropriate, charging for short-term use of space by delivery vehicles, commercial vehicles and emerging short-term parking users such as valet, ride-sharing and autonomous vehicles.

An excess of off-street car parking currently exists in the municipality. Much of this parking occupies some of the highest-valued land in the state of Victoria. Should demand for off-street parking decrease as vehicle technology changes, there are opportunities for this space to be used for other purposes, including:

- charging of electric car share, service and freight vehicles
- conversion to motorcycle or bicycle parking and end-of-trip facilities
- housing
- spaces for creative, artistic and startup industries.

Refer to Action 14: Develop a Parking and Kerbside Management Plan

Action 22: Investigate opportunities to improve the management of kerbside space for the commercial passenger vehicles (taxi) industry.

Commercial passenger vehicles

Commercial passenger vehicles (CPVs) include taxis, limousines and app-based taxi services

Since 2012, app-based taxi services such Bolt, Didi, Ola, Shebah and Uber have emerged as a new form of commercial passenger transport in Melbourne.

Evidence from New York indicates that 49-61 per cent of these trips are either new journeys or would have previously been made by public transport, walking or cycling.

Limited data is available about travel by app-based taxi services and their effects. The City of Melbourne provides taxi ranks and, during some events, pick-up and drop-off zones for app-based taxi services.

Image 34. Autonomous bus on trial in South Perth.

OUTCOME 12 – ZERO EMISSIONS TRANSPORT

By 2050, transport in the municipality will be emissions-free. Vehicles with internal combustion engines will be phased out, replaced by zero emissions technology. The public transport network will be converted to 100 per cent clean energy. Walking, cycling and public transport will increase. Private motor vehicle use will transition to electric shared and private vehicles.

12.1 Support electric vehicles powered by renewable energy

Current transport emissions in the City of Melbourne exceed the levels required to meet Australia's obligations under the Paris Climate Agreement. In the long term, all transport vehicles will need to be powered by 100 per cent renewable energy to reduce emissions in line with the Paris Climate Agreement. The City of Melbourne will advocate for a transition to renewable energy in alignment with the Climate Change Mitigation Strategy 2018.

As a high priority, City of Melbourne supports the transition of public transport vehicles to clean, renewable electric power and will work with the Victorian Government to achieve this. Emissions from electric trains currently are 8.6 per cent of land emissions in the municipality. Electric trams are soon to be powered by 100 per cent renewable energy. A number of hybrid buses are being procured.

In 2018, private cars accounted for 52 per cent of land transport emissions in the municipality. Electric cars powered by the current Victorian grid have similar greenhouse emissions to internal combustion engine vehicles. In the short term, the electrification of private cars would increase emissions until there is an adequate supply of renewable energy.

A gradual transition to private electric vehicles in line with an increase in renewable power supply is supported. It is critical to manage the increase in electricity demand that will result from this transition.

We will aim to be technology-neutral in consideration of zero emissions technologies. Different technologies which may all have a role to play include Battery Electric, Plug-in Hybrid and Hydrogen Fuel Cell.

Action 23: Enable a transition to zero emissions transport by advocating for lower carbon intensity of motor vehicles and electric vehicles powered by renewable energy in line with this strategy and the Climate Change Mitigation Strategy.

The most space-efficient modes also produce the least emissions

Figure 28. Space and emissions footprints of modes of transport.
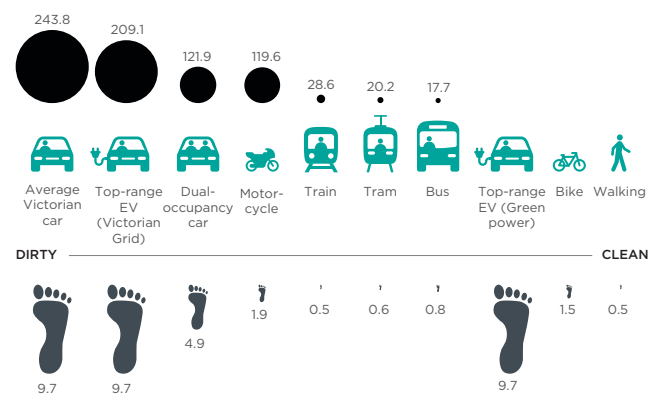
Key:

■ CO_2 emissions per person-kilometre travelled (g/km)

■ Space required per occupant (m²)

12.2   Prioritise lower emissions for commercial vehicles and freight

Commercial vehicles currently contribute 35 per cent of land transport emissions in the municipality. Many freight and service vehicles use diesel fuel which produces more carcinogenic particulates than petrol engines. The public health benefit of converting commercial vehicles to zero tailpipe emissions justifies prioritising transition of these vehicles ahead of private vehicles.

Hydrogen Fuel Cell Electric Vehicles may emerge as an appropriate technology for heavy vehicles such as semi-trailers or garbage trucks. However, hydrogen production must be achieved with clean renewable power, not coal.

Container ships contribute 10 per cent of the total transport emissions in the City of Melbourne and have a significant impact on air quality due to the use of unrefined fuel.

There is a significant opportunity to provide a 100 per cent renewable 'ship to shore' power. This would have the added benefit of improving the air quality near urban renewal precincts such as Fishermans Bend.

Policy 37: Prioritise the transition of commercial vehicles to low emissions technology

12.3   Support stronger vehicle emissions standards

Australian vehicle emissions standards lag behind Europe and the United States, with no current carbon dioxide standard. As a result, Australia imports high-emissions vehicles which would be illegal to sell in other countries.

Infrastructure Victoria has recommended that the Australian Government implement stricter vehicle emissions targets in line with advice from the Climate Change Authority (Infrastructure Victoria - Recommendation 11.a).

The Australian Government began a process to improve vehicle emissions standards, but this has stalled.

Policy 38: Advocate for the strengthening of emissions standards for private motor vehicles as an urgent priority for the Australian Government.

12.4   Support electric car charging in buildings and minimise on-street charging

As the uptake of battery electric vehicles accelerates, market demand for charging facilities will grow. The City of Melbourne does not facilitate the refuelling of combustion engines, and similarly will not be responsible for the charging of electric cars.

Recharging off-street is the preferred option throughout the municipality. There are currently more than 200,000 parking spaces in the municipality, approximately 13,000 of these are unoccupied off-street residential spaces. Charging off-street means street space can deliver benefits to more people as public space, green space, wider footpaths, bicycle lanes or other uses.

We will encourage charging facilities which are compatible with a wide variety of vehicles and available to as many drivers as possible to encourage a faster uptake of electric vehicles. The precinct parking approach – where parking is detached from individual residential developments – will support this.

On-street charging is not supported in the central city, where the demand for space is very high, the number of parking bays is reducing and there is an excess of off-street parking spaces.

However, it may not always be possible to install recharging facilities off-street. On-street charging may be appropriate in areas of the City of Melbourne with limited off-street parking. On-street charging may be considered in locations where there is no viable alternative and where space allows, such as in certain residential parking permit areas. Where required, vehicle charging facilities will be paid for by users and should not affect other uses of the street. Cordless charging technology should be investigated to avoid footpath obstacles.

Policy 39: Support off-street electric vehicle charging. On-street vehicle charging is not supported in the central city.

OUTCOME 13 – EQUITABLE AND EFFICIENT TRANSPORT PRICING

The way we pay for transport will ensure an equitable and efficient system which manages transport demand and reduces congestion. Travel choices will be guided by price to influence the number of trips, at what time of day, the route and the transport mode. Off-peak fares will increase public transport travel patronage at these times.

13.1 Advocate for a road user pricing system which improves equity and efficiency of the transport network

Current charges were not designed to manage road demand. People pay for roads based on how much fuel they use (fuel excise) and how many cars they own (vehicle registration), not based on how much and when they drive. This leads to congestion, as people are not given a price signal when roads are being under- or over-used. The current system does not reflect the delays and costs each vehicle imposes on other road users or society. State and local government revenue from road users is less than expenditure.

Without road pricing reform, the arrival of driverless cars could have serious financial and congestion effects. Empty cars could be programmed to drive around waiting for passengers, increasing congestion. Driverless cars could also avoid traffic and parking fines and parking fees, eliminating $87 million in City of Melbourne parking revenue and $323 million in Victorian Government traffic fines.

Numerous studies have concluded that road pricing would benefit Australia, including work by the Productivity Commission, Infrastructure Victoria, Infrastructure Australia, the Organisation for Economic Cooperation and Development (OECD), RACV and the Harper Competition and Henry Tax Reviews. In 2018 the Australian Government began trials of road user pricing for trucks, a step towards a future system for all vehicles.

The potential benefits of road user pricing include:

- moving more people with the existing road network, delaying or avoiding the need to build new infrastructure
- supporting the reallocation of road space to more space-efficient transport modes

- providing new and sustainable revenue options for all levels of government, including local government
- reducing public transport delays from being stuck in traffic congestion
- improving travel times for all road users, including deliveries and service vehicles.

The City of Melbourne will collaborate with the Victorian and Australian governments to deliver integrated road pricing reform.

Given the complexity and significance of road pricing reform, opt-in trials can help inform the design of the system. During a trial in Oregon, USA 60 per cent of people preferred a pay-for-use arrangement once they tried it. A similar trial run jointly by the Victorian and Australian governments would allow people to opt out of paying registration and fuel tax and instead pay for each kilometre driven.

Action 24: Continue a public conversation on road pricing reform supported by evidence, and in collaboration with government, community, experts and key stakeholders.

Our objectives for road user pricing:

- Sustainable funding for reinvestment in public transport, walking and cycling to provide better alternatives to car use.
- Replace current charges.
- Reduce traffic in sensitive areas such as on local streets, shopping strips, public transport routes and especially the central city.
- Encourage higher vehicle occupancy, and apply substantial penalties for empty driverless cars.
- Higher-emission vehicles should pay more.
- Improve transport equity. Concessions and exemptions will be required and should be carefully considered to ensure equitable access.
- Reduce congestion by charging more during peak hours and times of high demand.

Evidence base: Transport pricing

How do we pay for transport today?

Private motor vehicles

Driving is mostly paid for based through registration and fuel taxes. While the amount of GST must be separately stated on receipts, the amount of fuel excise is undisclosed. Fixed, annual registration charges mean that frequent users pay less per kilometre than infrequent road users. Purchasing a motor vehicle also attracts state, territory and Commonwealth taxes.

Public transport

Public transport users generally pay fares based on how much and how far they travel (zones differ between Melbourne and regional Victoria). Concession fares promote equitable access to the public transport network. 'Early bird' discounts are an example of how pricing is already used to manage demand during peak hours.

Parking

The cost of providing car parking is often not paid by the driver: Ninety-six per cent of trips in Greater Melbourne end in parking which is free (VISTA 2016). Some councils manage parking demand in busy areas through charges. The Victorian Government also charges a levy on inner city off-street parking to discourage vehicle commuting.

How much do people pay today?

Average capital city household government transport fees (per week)[20]:

Tolls	$59.56
Public transport	$40.84
Registration and licensing	$32.14
Fuel excise	$20.32
TOTAL:	$152.86

What is road user pricing?

Road user pricing is a system where people pay for road use based on how much they drive and when. It can encourage people to travel in different ways and at different times.

Cities around the world have introduced road user pricing in different ways. New technology means that it is possible to charge by distance, time of day or type of road.

Road user pricing influences people to change when and how often drive and encourages people to choose alternatives to the car and reduce congestion. Space is freed up to make it easier for people who need to drive to do so.

Where has it been implemented?

LOCATION	OUTCOMES
Oregon *Pay per mile*	• Opt-in trial participants pay per mile • 22 per cent less driving in peak periods. • 91 per cent would rather continue to pay per mile instead of fuel tax.
London *Pay to drive in zone*	• 14 per cent fewer trips in charging zone. • 10 years of stable congestion while population grew by 1.3 million. • Enabled public realm improvements.
Singapore *Pay to enter zone*	• 20 per cent reduction in delays within the charging area • Prices adjusted regularly based on conditions and average speed targets.
Stockholm *Pay to enter zone*	• 24 per cent fewer commuting trips by car, mostly switching to public transport. • Significant increase in free flowing traffic conditions.
Milan *Pay to enter zone*	• 15 per cent reduced emissions in 4 years. • 16 per cent reduction in traffic volumes. • 21 per cent reduction in road collisions. • 12 per cent less public transport delay.

Fuel excise costs the average household $1,060 per year. Those with electric cars pay none.

[20] Transport Affordability Index, Australian Automobile Association 2017.

13.2 Support a national road revenue sharing agreement to secure long-term road maintenance funds

The City of Melbourne is responsible for 68 per cent of road space in the municipality. In 2018-19, we will spend approximately $10 million on roads and bridges. These roads are funded through general revenue, of which rates are the major source, with a small amount from supplementary grant funding from other levels of government.

Some streets in the municipality cater for large volumes of through-traffic. Vehicles using local roads to pass through the municipality do not contribute towards funding these roads. This means that City of Melbourne rate-payers are subsidising others' use of the municipality's roads. This occurs in all local government areas. There is not a clear relationship between those who use local roads and those who pay for them. The introduction of road user pricing presents an opportunity to simplify this relationship.

Most revenue from roads goes to the Australian Government, while state governments have the major funding responsibility. Local governments derive no revenue from roads (other than parking revenue). Road charges currently do not cover the full cost of provision, requiring a subsidy from all taxpayers.

Policy 40: Support a fair and equitable road revenue-sharing agreement between all levels of government through pricing reform.

13.3 Support effective public transport pricing to manage demand

Reforms to public transport pricing could help relieve traffic congestion and public transport overcrowding. Infrastructure Victoria has recommended discounting and increasing the frequencies of off-peak services to encourage off-peak travel when there is spare capacity (Infrastructure Victoria, 2018). This would complement a road user pricing scheme.

The City of Melbourne supports changes to fees which encourage more people to use public transport, including outside peak times. Spreading transport demands into off-peak and shoulder periods (for both private vehicle and public transport usage) can save billions of dollars by avoiding construction costs associated with new major infrastructure projects.

Reducing the cost of public transport can make it more attractive, as was seen following the implementation of the free tram zone. Free trams are popular but raise some issues, such as when short walking trips are substituted by a tram ride, increasing overcrowding on trams when fares were removed in the Hoddle Grid. The time spent loading a tram typically increased by around 10 per cent during peak periods and around 5 per cent off peak.

The free tram zone can make it easier for city visitors to explore the central city. Further investigations should consider if this is the best way to enhance the experience of visitors and ensure access to destinations across metropolitan Melbourne.

Future changes to public transport pricing must be carefully considered to support the outcomes of this strategy.

Policy 41: Support changes to fees which encourage more people to use public transport, including outside peak times.

Image 35 Crossing the street.

IMPLEMENTATION

This strategy will be delivered through the *Transport Strategy Implementation Plan*.

The *Transport Strategy Implementation Plan* will outline how the actions will be delivered over the next ten years to achieve the outcomes as defined in the Strategy and the Proposed Transport Network 2030 as mapped in this chapter.

The *Transport Strategy Implementation Plan* will be one, integrated action plan which replaces multiple City of Melbourne transport action plans - including the Walking Plan and Bicycle Plan.

The *Transport Strategy Implementation Plan* will be released on endorsement of the final Transport Strategy.

This chapter provides a summary of the strategy:

• Policies

• Actions

• Proposed transport network map 2030

Image 36. Movement on Bourke Street.

POLICY SUMMARY

POLICY
A safe and liveable city
1. Ensure adequate space is provided for people through all street renewal or upgrade projects. Intersections will be designed to optimise the flow of pedestrians and improve the safety and amenity of the intersection for all.
2. Reduce footpath obstacles to free up more space for walking in busy areas.
3. Manage disruption by prioritising efficient modes during construction, especially walking, public transport and bikes as well as goods delivery and property access.
4. Apply the new City of Melbourne bicycle lane design standards, developed based on global best practice, to ensure we provide the safest and highest standard bicycle lane possible for each context on all future projects.
5. Prioritise motorcycle parking on roads.
6. Elevate the role of buses in the municipality through improving their integration into our streets, enabling new generation bus priority and busway design and supporting new bus technology.
7. Exceed the minimum standards set in the *Disability Discrimination Act 1992 (Cth)* by delivering universally accessible streets and public spaces which integrate with the public transport network.
8. Significantly reduce through-traffic in the central city, minimise through-traffic across the municipality and work to contain it to freeways and arterial roads.
9. Capture the benefits of road bypass projects by ensuring traffic reductions and public realm improvements are delivered on other routes. Any reduction in open space as a result of a road project will not be accepted.
10. Prioritise vehicle access to streets and parking spaces for emergency vehicles and people with a disability or limited mobility.
11. Ensure street and loading access is facilitated for freight, trade and servicing.
12. Continue to promote development and intensity of activity around high-quality sustainable transport.
An efficient and productive city
13. Prioritise the tram and bus network on our streets and support initiatives to improve travel times and reliability.
14. Advocate for improved intersection design, signal operation and enforcement to minimise incidences of vehicles blocking intersections.
15. Advocate for a review of Victorian road rules as they apply to cycling to improve the efficiency of riding in the city and attract more people to cycle every day.
16. Support the growth of e-bikes to get more people riding bikes.
17. Support innovative, efficient and low-impact solutions to last kilometre freight delivery, waste removal and servicing in the municipality.
18. Support the growth of the Port of Melbourne while ensuring the mitigation of future amenity impacts.
19. Support the transition to a 'turn-up-and-go' public transport network which offers fast, frequent and convenient services across Greater Melbourne.
20. Support priority bus and tram projects to improve the coverage, efficiency and reliability of the public transport network.
21. Support rapid, high-frequency orbital connections across the public transport network, especially in inner Melbourne.

POLICY
22. Support increasing the capacity of public transport infrastructure to move more people during peak times.
23. Support initiatives to improve the public transport user experience and passenger safety.
24. Support regional rail projects as infrastructure which is critical to the economic prosperity of Melbourne.
25. Support reliable and frequent public transport to airports which is integrated into the network. Support continuing the investigation into a Melbourne Airport rail line.
26. Collaborate with Victorian Government to develop and endorse a Central City Transport Framework, recognising the importance of the central city as the hub of Victoria's transport network.
27. Advocate for major city-shaping projects which improve the municipality for walking, cycling and public transport.
28. Support the sustainable development of urban renewal areas by delivering high-quality public and active transport links early in the redevelopment process.
29. Monitor construction disruption, consider the opportunities to test new transport conditions and avoid reverting to the original conditions if positive change is demonstrated
30. Advocate for more transport data being made publicly available to improve the transport system and user experience.
A dynamic and adaptive city
31. Actively support and facilitate trials of new transport technology in the municipality which align with the principles in this Strategy and the objectives of the Transport Integration Act 2010. Undertake thorough evaluations of trials to fully understand opportunities and impacts.
32. Advocate for shared mobility which is integrated with the transport network and will encourage people to walk, cycle and use public transport.
33. Support equitable access to transport and appropriate regulation of transport technology providers and operators.
34. Support the use of sensor technologies to enable more efficient traffic management and signal control to improve transport performance.
35. Support enhanced legal protections of vulnerable road users from the risks of motor vehicles and autonomous technology.
36. Protect and improve urban amenity as autonomous vehicle technology develops.
37. Prioritise the transition of commercial vehicles to low emissions technology
38. Advocate for the strengthening of emissions standards for private motor vehicles as an urgent priority for the Australian Government.
39. Facilitate off-street electric vehicle charging. Limit on-street vehicle charging to areas without off-street parking.
40. Advocate for a fair and equitable road revenue-sharing agreement between all levels of government as part of any pricing reform process to ensure that road authorities receive the necessary funding to maintain their assets.
41. Advocate for changes to fees which encourage more people to use public transport, including outside peak times.

ACTIONS SUMMARY

| ACTION	2019-2022	2022-2026	2026-2029
A safe and liveable city			
1. Design our future streets based on the 2030 Proposed Integrated Network established in this Strategy. Deliver priority footpath widenings to reduce overcrowding.	●		
2. Convert parts of 'Little' streets into people-priority shared zones with lower speed limits.	●	●	●
3. Provide an initial 300 additional on-street motorcycle parking bays in the central city.	●		
4. Increase space for walking by introducing new measures to prohibit non-fixed obstacles in busy areas.	●		
5. Install formal and informal crossings to address gaps in the walking network.	●	●	●
6. Work with the Victorian Government to review and reduce speed limits to 30 km/h or lower in the central city.	●		
7. Review and reduce speed limits throughout the municipality.	●		
8. Deliver 50km of high quality, physically protected bicycle lanes over 10 years to get more people riding each day.	●	●	●
9. Work with the Victorian Government to enable a further 40km of high quality, physically protected bicycle lanes on key state managed roads over 10 years.	●	●	●
10. Trial a protected intersection for cyclists in the Melbourne municipality and if successful, roll out across the municipality.	●	●	●
11. Investigate opportunities to increase off-street parking for motorcycles.	●	●	
12. Deliver strategic plans for major station precincts, including Southern Cross station, Flinders Street station, Elizabeth Street, Parliament station and Flagstaff station.	●	●	●
13. Work with the Victorian Government and Yarra Trams to develop an agreed designs for tram stops in the Melbourne municipality which integrate into the streetscape and minimise crowding.	●	●	
14. Develop a Parking and Kerbside Management Plan to better manage our valuable kerb space..	●		
15. Deliver a new Car Share Policy to support growth.	●		

ACTION	2019-2022	2022-2026	2026-2029
An efficient and productive city			
16. Reduce delay to people walking, riding bikes, on buses and trams by working with the Victorian Government to optimise traffic signal cycle times, starting in the Hoddle Grid.	●	●	●
17. Get more people riding bikes by delivering community programs.	●		
18. Trial innovative use of kerb space in the Melbourne Innovation Districts.	●		
19. Implement short-term parking management measures	●		
20. Advocate to the Victorian Government for planning and investment in capacity boosting public transport, beginning with a second cross-city rail tunnel to unlock Fishermans Bend	●	●	●
A dynamic and adaptive city			
21. Ensure new transport technology benefits the city by advocating to the Victorian Government for regulatory or legislative change in line with this strategy.	●	●	●
22. Investigate opportunities to improve the management of kerbside space for the regulated commercial passenger vehicles (taxi) industry.	●		
23. Enable a transition to zero emissions transport by advocating for lower carbon intensity of motor vehicles and electric vehicles powered by renewable energy in line with this strategy and the Climate Change Mitigation Strategy.	●	●	●
24. Lead a public conversation on transport pricing reform for Melbourne, supported by evidence, and in collaboration with government, community, experts and key stakeholders.		●	

WALKING AND STATION PRECINCTS

Walking network in Melbourne in 2030 as proposed by this Transport Strategy.

Key

Station precincts	▬ (pink)
Shared spaces	▬ (yellow)
Greenline	▬ (green)
Stations	▭
Existing rail network	▬ (blue line)
Melbourne Metro 1 and 2	▬ ▬ ▬ (dashed blue)

Map 11. Proposed walking priority and station precincts.
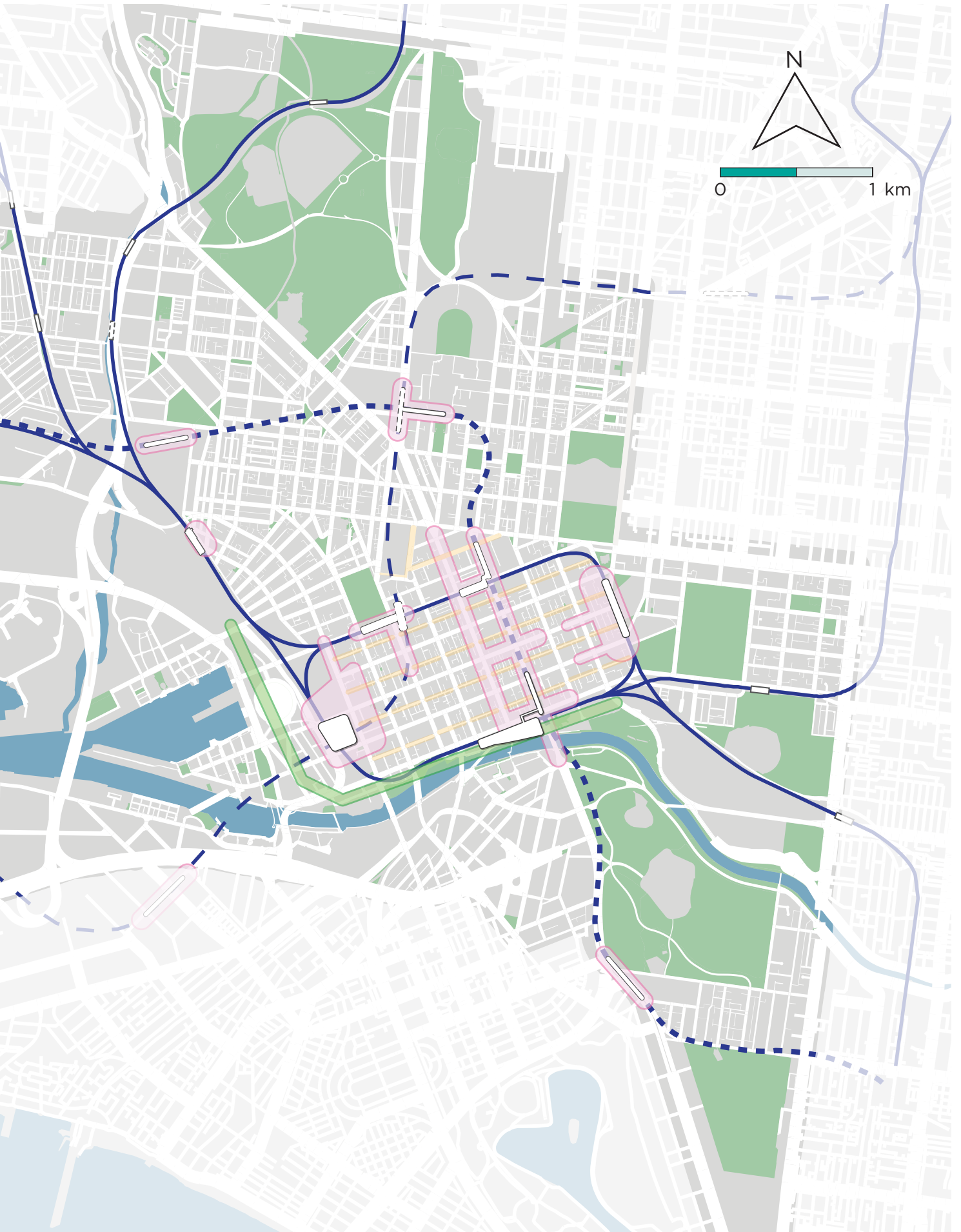
PUBLIC TRANSPORT

Public transport network in Melbourne in 2030 as proposed by this Transport Strategy.

Key

Tram existing	―――
Tram network extensions	- - -
Full-time bus priority	- - -
Train existing	―――
Melbourne Metro 1	▬ ▬ ▬
Melbourne Metro 2	― ―

Map 12. Proposed public transport capital projects.
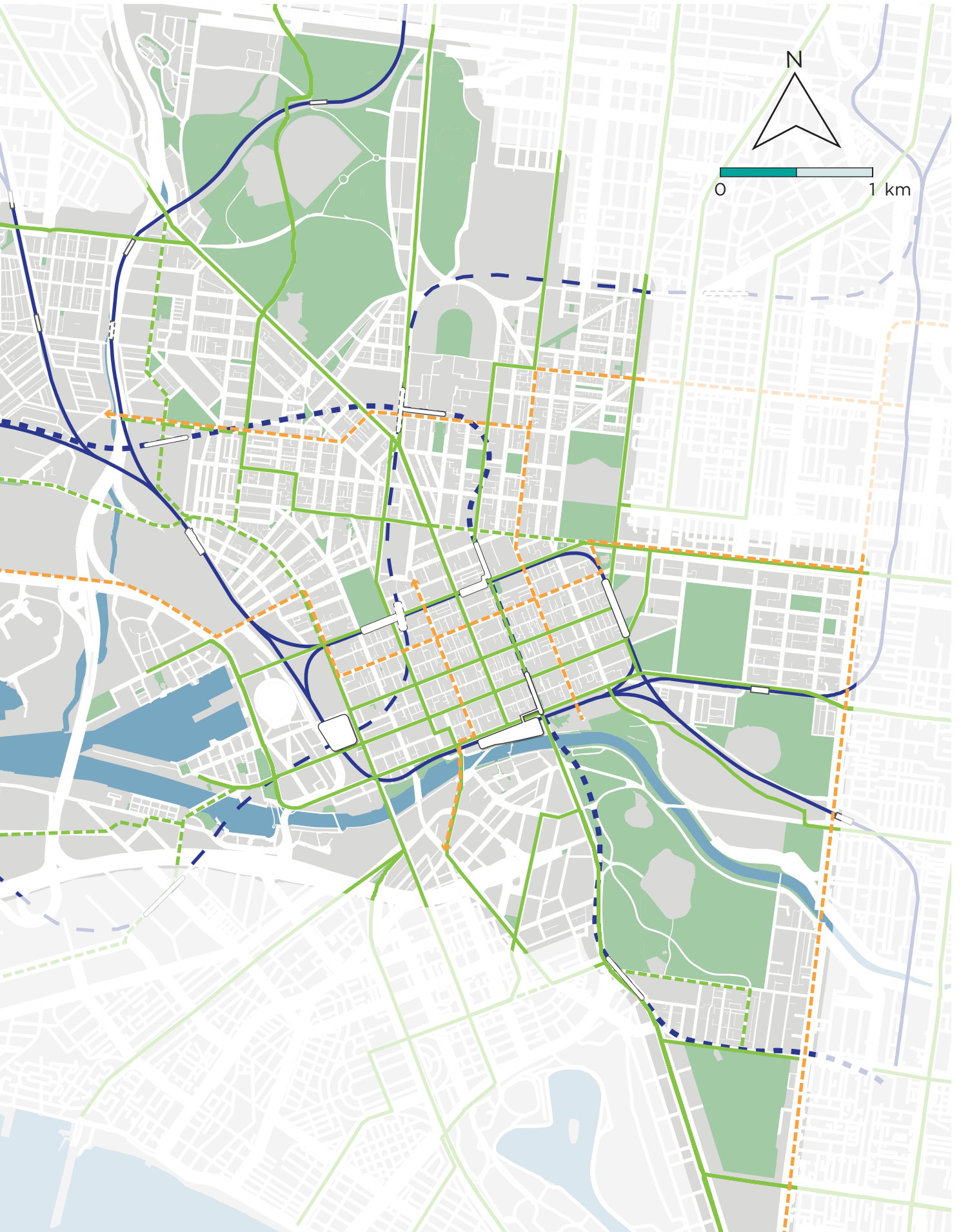
BIKES

Bike network in Melbourne in 2030 as proposed by this Transport Strategy.

Key

Existing protected bicycle routes	▬▬
Future protected bicycle route*	▪ ▪ ▪
Existing slow zone for bikes	▬▬
Future slow zones for bikes	▪ ▪ ▪

Map 13. Current and proposed protected bicycle lane projects.
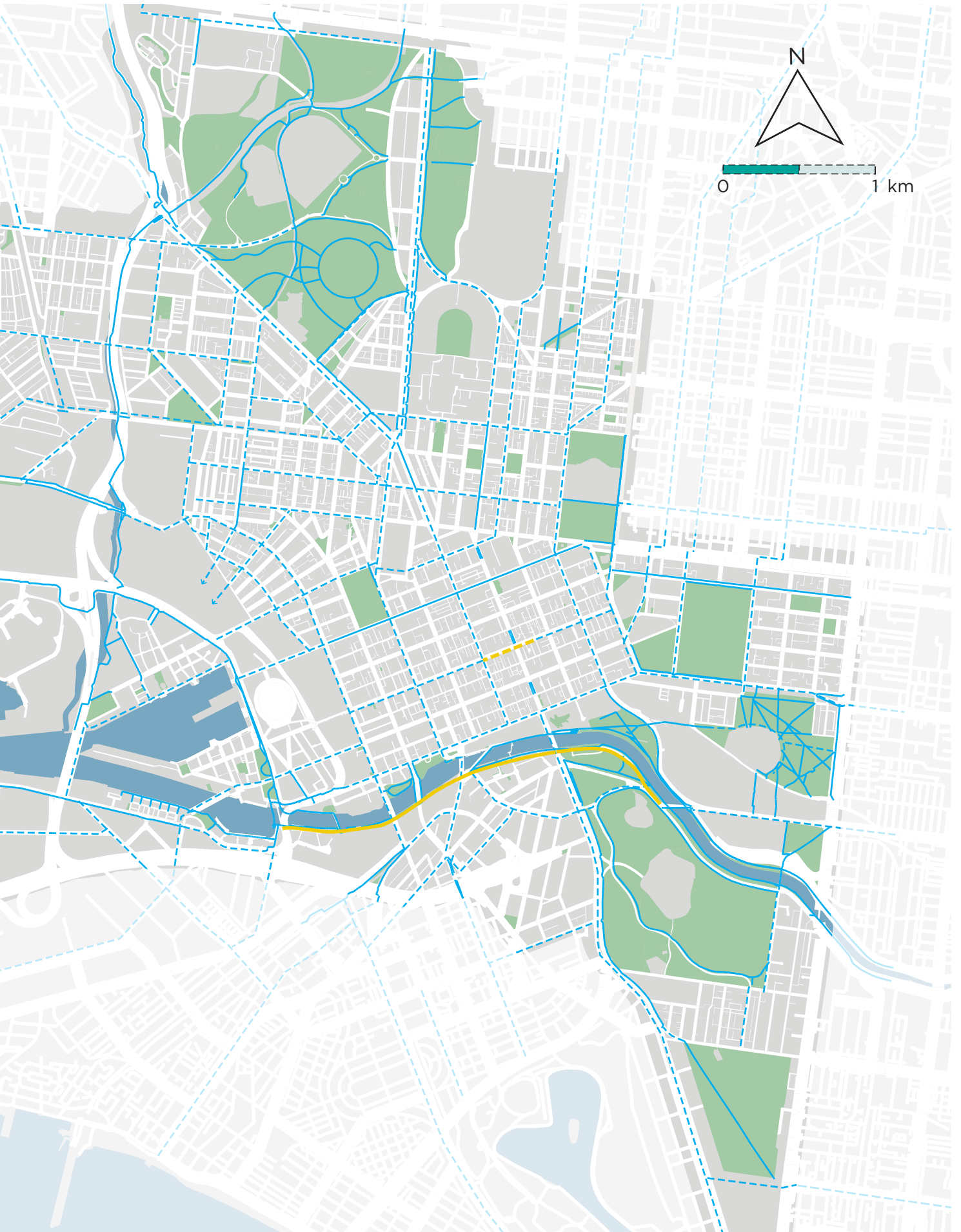
MOTOR VEHICLES

Traffic network in Melbourne in 2030 as proposed by this Transport Strategy.

Key

Central city bypass routes	
Traffic routes	
Road space rebalanced (efficient modes prioritised)	
Shared spaces	

Map 14. Motor vehicle street and road hierarchy.

2030 PROPOSED INTEGRATED NETWORK

Transport network in Melbourne in 2030 as proposed by this Transport Strategy.

Key

	Existing	Proposed/ under investigation
Protected bike network		
Station		
Station precincts		
Greenline		
Tram		
Full-time bus priority		
Rail		
Traffic bypass		

Map 15. Combined map of all proposals.
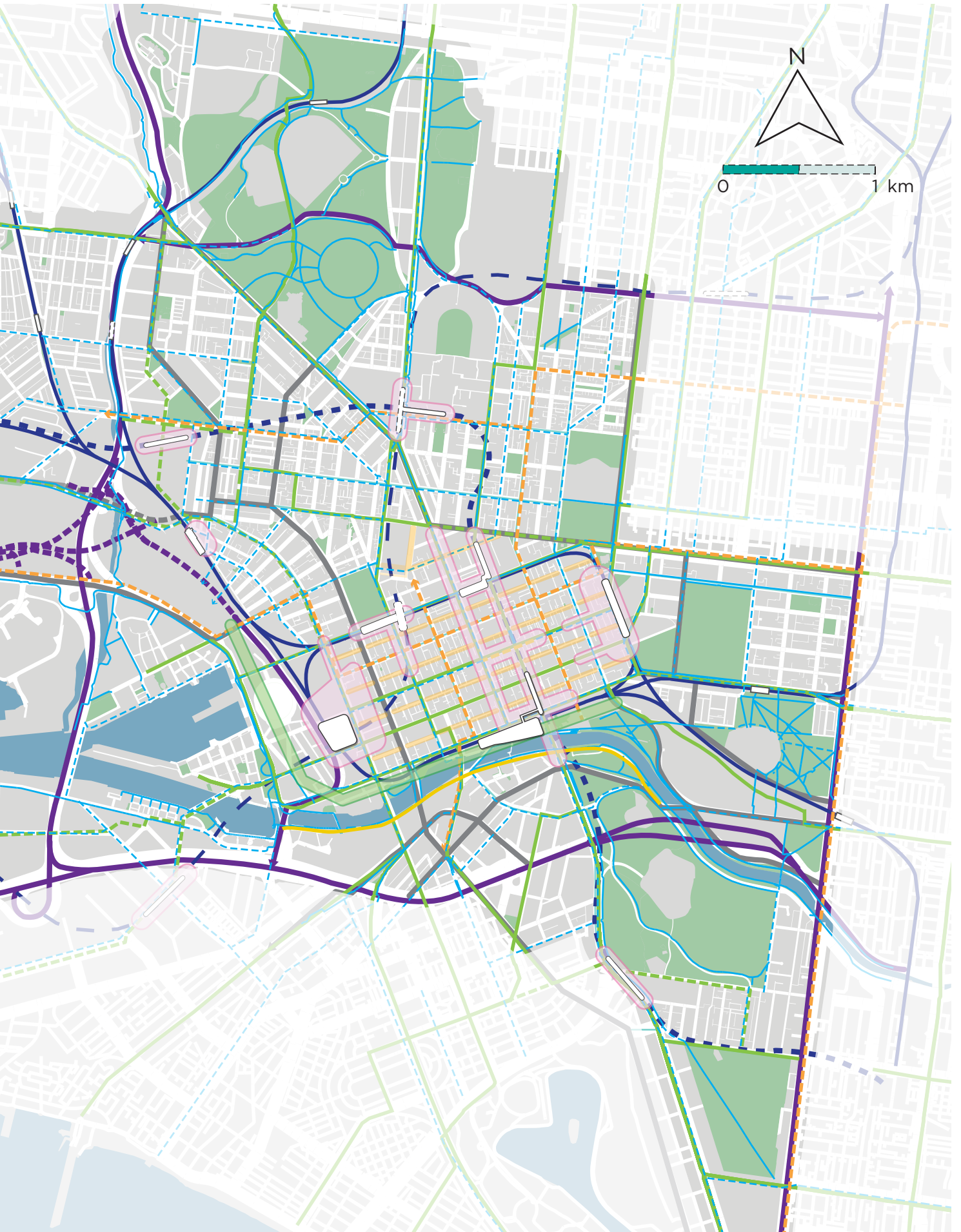
APPENDIX I – REFERENCES

Transport Strategy refresh background paper: Walking, MRCagney 2018

Bicycle user confidence study, CDM research and ASDF research 2017

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Transport Strategy refresh discussion paper: Motor vehicles, City of Melbourne 2018

Transport, Greenhouse Gas Emissions and Air Quality, Institute for Sensible Transport 2018.

Measuring pedestrian delay report, MRCagney 2018

Footpath obstacle survey, Phillip Boyle and Associates 2018

Origin destination survey, prepared by Austraffic for City of Melbourne 2018

Five-year focus, Infrastructure Victoria 2018

Roads to riches: better transport spending, Grattan Institute, Terrill, M. 2016

Generated Traffic and Induced Travel, Victoria Transport Policy Institute 2018

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

Car sharing research report, prepared by GHD for City of Melbourne and City of Stonnington, 2010

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Divorcing growth from the car, Deloitte 2018

30km/h Speed Limit: Pre-Trial Final Report prepared for City of Yarra, Monash University 2017

APPENDIX II - GLOSSARY

Accessible: The design of services and environments to suit the diverse needs of people of all ages, backgrounds and abilities.

Active Transport: Transport requiring physical activity, typically walking and riding a bike.

Autonomous vehicle (or automated vehicle): A vehicle that is capable of sensing its environment with little or no human input. Automation is a spectrum of differing levels of human input. The *Society of Automotive Engineers International* has defined the levels of vehicle autonomy through universally accepted classifications between Level 0 'no sustained vehicle control' and Level 5 'no human intervention required'.

Car share: Services where private motor vehicles are made available for rental, generally on a short-term basis (up to several days. Car share differs from traditional car rental in that hourly rentals are available, vehicles are geographically dispersed and renters have access to their vehicle without completing paperwork or interacting with a human being.

Central city: The area of intense employment, retail, residential, entertainment and other activity in central Melbourne. Roughly bounded by the Hoddle Grid, Southbank, South Wharf and Docklands.

City of Melbourne, the: The corporate and informal name for Melbourne City Council. We are the local government for the Melbourne local government area.

Climate change: A long-term change of the earth's temperature and weather patterns, generally attributed directly or indirectly to human activities such as fossil fuel combustion and vegetation clearing.

Commercial Passenger Vehicles: Any commercial service where a private motor vehicle will pick-up and drop-off people for a fee.

Connectivity: The general term for how easy it is for people to get to places, jobs, homes and services.

Cross city rail: See Melbourne Metro 2 and Melbourne Metro 3.

Docked shared mobility: Vehicles which are available for rental and conveniently accessible that can be returned to a designed dock.

Dockless shared mobility: Vehicles which are available for rental and conveniently accessible that do have a designed return location.

Driverless car: A car which can drive without human input. A type of autonomous vehicle.

Electric bike (e-bike): A bicycle with an electric motor to assist pedalling. Requires a fraction of the extertion of a manual bicycle. Also known as a 'pedelec'.

Electric vehicle: Any vehicle which is fully powered by electricity, which can be delivered by wires, stored in a battery or generated within the vehicle.

Emissions: The greenhouse gas emissions from human activities that cause climate change and/or harm human health. Including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), particulates, and synthetic gases such as chlorofluorocarbons (CFCs) and hydrofluorocarbons (HFCs).

End-of-trip facilities: Facilities available for people to shower, change clothes or otherwise transition from active transport to work or other activities.

Hoddle Grid: The area of the central city bounded by Latrobe Street, Spring Street, Flinders Street and Spencer Street, forming a grid of streets. Originally defined by Robert Hoddle in 1837.

Inclusion: Removing barriers and taking steps to create equality, harness diversity and produce safe, welcoming communities and cultures.

Inequality: The difference in social and financial opportunities between people or groups within communities.

Infrastructure: Facilities, services and networks needed for the functioning of a community or society.

Inner Melbourne: The inner suburbs of the Greater Melbourne metropolitan area. Includes areas outside of the Melbourne LGA administered by the City of Melbourne.

Kerb space: Space immediately adjacent to the kerb on the road (non-footpath) side. Can be allocated to parking, traffic lanes, bike lanes or other uses.

Last-Kilometre Freight: Describes the task of moving goods from a distribution centre to it's final destination.

'Little' streets: The narrow east-west streets within the Hoddle Grid - Flinders Lane, Little Collins Street, Little Bourke Street and Little Lonsdale Street.

Liveability: A city's residents' quality of life based on economic, environmental and social factors.

Land use: The functions of use applied by humans to land. For example: residential, commercial, industrial, recreation, conservation.

Melbourne local government area (LGA); the municipality: The area administered by the City of Melbourne.

Melbourne Metro; Metro Tunnel project: A major rail project due for completion in 2025. Connecting the Sunbury line at South Kensington to the Cranbourne/Pakenham line at South Yarra. Includes five new underground stations - North Melbourne (formerly Arden), Parkville, State Library, Town Hall and ANZAC.

Melbourne Metro 2: A proposed rail line connecting the current South Morang line at Clifton Hill with the Werribee line at Newport. Includes stations at Clifton Hill, Fitzroy North, Parkville, Flagstaff, Southern Cross, Fishermans Bend (Sandridge and Employment Precinct) and Newport. This alignment was outlined in the Infrastructure Victoria's 30-year infrastructure strategy options book and options paper.

Melbourne Metro 3: A proposed rail line connecting Melbourne Airport and the Cranbourne/Pakenham lines. Includes stations at Essendon Airport, North Melbourne, Southern Cross, Parliament, North Richmond and Chadstone. This alignment has been outlined in the City of Melbourne Transport Strategy 2019 informed by background research and has not been referenced by the Victorian Government.

Mobility-as-a-service (MaaS): A service to compare all transport options and pay for them on a single platfrom, such as an app. The MaaS model envisages a higher proportion of people accessing their mobility needs as a service when they need them and a lower proportion of people owning their own vehicle

Mode: Mode of travel, such as walking, cycling, train, tram bus, motorcycle, private vehicle.

Mode share: The proportion of trips made using one or multiple modes relative to total trips.

National Employment and Innovation Clusters (NEIC): Designated concentrations of employment distinguished by a strong core of nationally significant knowledge-sector businesses and institutions that make a major contribution to the national economy and Melbourne's positioning in the global economy.

Open space: The publicly-owned land that is set aside primarily for recreation, nature conservation, passive outdoor enjoyment and public gatherings. This includes public parks, gardens, reserves, waterways, forecourts and squares.

Orbital transport: Also known as 'cross-town transport'. Non-radial transport between one part of Melbourne and another, avoiding or going around the central city.

Peak (morning; afternoon; evening): The weekday periods in the morning and afternoon/evening when total travel demand is greatest.

Productivity: The economic value produced per input unit, such as per hour of labour or dollar of capital investment. Increasing productivity is a key source of economic growth and competitiveness.

Protected bicycle lane: Also known as a separated bicycle lane. An on- or off- road bicycle facility that is physically protected and separated from motor vehicles. Research shows that providing this type of facility encourages more people to ride.

Protected intersection: An intersection treatment where bikes are physically separated from other road users to the greatest extent practicable.

Resilience: The capacity of individuals, communities, institutions, businesses, systems and infrastructure to survive, adapt and grow, no matter what chronic stresses or shocks they encounter.

Road user pricing: A form of transport pricing that imposes direct charges based on road use, such as a distance-based charge, cordon charge for entering a certain area and toll roads. Road user pricing contrasts with traditional road fees such as registration and fuel tax, which charges based on vehicle ownership and fuel use respectively. The objectives of road pricing can vary and may include managing demand for road infrastructure, reducing road congestion, increasing speeds, improving air quality, or raising revenues.

Robot car: See autonomous vehicles.

Shared mobility: A form of personal travel in which users share access to vehicles including cars and bicycles rather than privately owning them.

Through-traffic: Vehicular traffic passing through an area without a destination in that area, such as the central city.

Traffic signal cycle: The time taken to cycle through all traffic light phases. Can also be understood as the time taken to return to a particular point in the cycle, such as a light turning green.

Transit-oriented development: Compact, walkable, mixed-use communities centred around high quality public transport.

Transport pricing: Means of charging people for use of or access to one or more parts of the transport system.

Transport space: The space allocated to the movement of people by various transport modes. It includes footpaths, roads, railways, tramways and bicycle lanes. Transport space may be devoted to one mode only or shared among modes. Transport space may also perform other functions as part of the public realm, such as a place to sit, socialise or shop.

Transport system: The combined system comprising the networks of each mode of transport. In Melbourne this includes walking, cycling, public transport, roads.

'Turn-up-and-go' public transport: Extremely convenient public transport services running at very high frequencies. This allows people to 'turn up' and expect a vehicle will arrive within a short period of time across the day

Urban greening: Growing plants wherever possible in urban areas to contribute to urban vegetation coverage, providing environmental, social and economic benefits.

Urban renewal areas: Areas be redeveloped from industrial or low-intensity land uses to mixed-use precincts. Currently includes Fishermans Bend, Arden and Macaulay. Future urban renewal area opportunities include E-Gate and Dynon.

Vulnerable road users: A person walking, riding a bicycle or motorcycle who are more vulnerable to sustaining injuries in the event of a collision.

Zero emissions: The greenhouse gas emissions associated with an entity's activities are equal to zero.

Zero net emissions: An entity's greenhouse gas emissions minus offsets equals zero.

APPENDIX III – HOW THIS STRATEGY WAS DEVELOPED

The Transport Strategy has been informed by research, analysis and engagement including:

Eight background research papers on key issues

- Walking Research Paper - MRCagney
- Public Transport Research Paper - Melbourne University and RMIT
- City Space Research Paper - Studio Huss
- Emerging Transport Technology Research Paper - Vispoke Consulting
- Cycling Research Paper - Phillip Boyle and Associates
- Car Parking Research Paper - RMIT
- Transport, Greenhouse Gas Emissions and Air Quality Research Paper - Institute for Sensible Transport
- Transport Pricing Research Paper - Monash University and University of New South Wales

Seven additional evidence base reports

- SNAMUTS public transport accessibility modelling - RMIT
- Analysis of VISTA and Census Journey to Work data - Ipsos
- E-bikes study - Institute for Sensible Transport
- Economic cost of pedestrian delay - MRCagney
- Transport Re-investigation of Future Melbourne 2026 community comments - Global Research
- Origin-Destination Survey and Automated Traffic Counts for the central city - AusTraffic
- Footpath Obstacle Survey - Phillip Boyle and Associates

Eight discussion papers on the topics of walking, city space, cycling, public transport, emerging technology, car parking, motor vehicles and transport pricing were released between April 2018-July 2018. They presented issues, ideas, global best practice and 'what if' questions to begin a conversation with the community on transport in Melbourne.

The discussion papers generated a public conversation on current transport issues faced by the City of Melbourne, highlighting best practices used in other cities as well as ideas for consideration.

Over 20,000 people visited the discussion papers webpage, and 1,316 submissions were received from people across metropolitan Melbourne. These submissions were analysed independently.

The City of Melbourne has considered all submissions as well as outcomes from conversations with the community, government and industry in the development of the Draft Transport Strategy.

We received:

- 1316 submissions on the discussion papers
- 135 media items including eight opinion pieces
- 1500+ comments on social media

EY Sweeney undertook an independent analysis of the community submissions and prepared a report, which informed the direction of this Strategy.

This report was presented to Council on 11 December 2018 and can be found at:

https://www.melbourne.vic.gov.au/about-council/committees-meetings/meeting-archive/pages/council-meeting-11-December-2018.aspx

APPENDIX IV – EVIDENCE-BASED PUBLIC TRANSPORT PLANNING

City Analytics and the Spatial Network Analysis for Multi-Modal Urban Transit Systems

City of Melbourne engaged the RMIT Centre for Urban Research to undertake public transport accessibility modelling for Melbourne. This modelling, called the Spatial Network for Multi Modal Urban Transit System (SNAMUTS), considers the accessibility of places by public transport from the perspective of an everyday public transport user. It tries to answer the question, can the user get where they want to go, when they want to go, by public transport?

Method

The modelling used proposed public transport improvements plans and service frequency changes with current population numbers and employment forecasts to model public transport accessibility levels in Melbourne in five-year time blocks. The modelling looked at the whole metropolitan Melbourne public transport network, from Wyndham Vale, Donnybrook, Lilydale, Frankston and everything in between.

The SNAMUTS modelling includes eight individual indicators, each of which measures a particular aspect of public transport accessibility, and a composite indicator that uses outputs from the previous eight indicators to present an overview of public transport accessibility by place

Scenarios

As well as each five-yearly snapshot, the modelling included five scenarios in which everything in the model is exactly the same, apart from one individual service, or a range of services, to allow for a direct comparison of the accessibility impacts if a service is provided at a later date, or even not at all.

The scenarios that were included were:

- 'Melbourne Metro 2' (cross-city rail) - a rail tunnel from Newport to Clifton Hill via Fishermans Bend (available from 2036)

- a suite of inner-city tram network extensions, including Fishermans Bend, Arden-Victoria Gardens and Footscray-City (available in stages between 2026 and 2031)

- Airport Rail Link (available in 2031)

- orbital bus links, including one from Anzac-Fishermans Bend NEIC, Victoria Park-North Melbourne and the orbital Blue Line (available in 2026)

- tram priority measures, a suite of measures that result in progressive network efficiency increases of 10 per cent, 15 per cent and 20 per cent above the already-improved network (available from 2021 and completed in 2031).

The City of Melbourne has used this modelling to provide evidence for our public transport priorities.

Melbourne Metro 2

The City of Melbourne modelled the Melbourne Metro 2 (MM2) rail tunnel, connecting Clifton Hill and Newport stations with intermediate stations at Fitzroy, Parkville, Flagstaff, Southern Cross, Sandridge and Fishermans Bend. This route would connect the Mernda and Werribee lines, taking them off existing City Loop and Viaduct tracks. The additional capacity allows for 5-minute services between Newport and Burnley via Footscray, and 10-minute frequencies on the Altona and Alamein lines. This shows the broader public transport accessibility impacts beyond the lines directly connected to the Metro 2 tunnel.

When the proposed MM2 service is operational, transport access in Fishermans Bend goes from approximately equivalent to the accessibility of Kew Junction or Surrey Hills in 2016 to better than North Melbourne or Flagstaff stations in 2016. This level of accessibility will enable the movement of a much larger flow of people in and out of an area that is considered to be a National Employment and Innovation Cluster (NEIC). Without MM2, the 'resilience indicator' is at low enough levels to indicate that existing public transport services would be congested, and there may be significant latent public transport demand in the area as people choose other modes over public transport. The connectedness of the precinct to the rest of the central city by the public transport network goes from being quite low without Melbourne Metro 2 to very high with it, indicating that Melbourne Metro 2 would have a significant influence on the attractiveness of Fishermans Bend as a place for land-use development that depends on good public transport access.

With MM2, 22 to 25 per cent of metropolitan Melbourne residents can access the precinct within 30 minutes on public transport; without it, only 13 per cent of Melburnians can. This is a difference of between 585,000 and 780,000 people being able to access the precinct within 30 minutes on public transport. The policy intent to develop Fishermans Bend as an NEIC is based on the assumption that it will be accessible for at least a metropolitan-wide catchment of commuters and business networks.

This can only be achieved by providing direct access to the fastest and highest-capacity public transport mode available, heavy rail.

MM2 also has a huge accessibility impact on the inner north area, particularly on Parkville and Fitzroy. Approximately 130,000 more people would be able to access the Parkville NEIC, and an extra 230,000 people would be able to access Fitzroy within 30 minutes on public transport if the project is completed by 2036. The Fitzroy Station precinct would become as accessible by public transport in 2036 as the Richmond and South Yarra station precincts are currently.

The addition of a second rail line at Parkville station would change the area's significance within the metropolitan transport network context (which is already significant). Parkville would have a similar level of public transport accessibility as the City Loop stations will have in 2036, which would support the process of expanding the central city into Parkville. It would also relieve some of the transfer pressure on City Loop stations by creating interchange opportunities outside of the City Loop at Parkville.
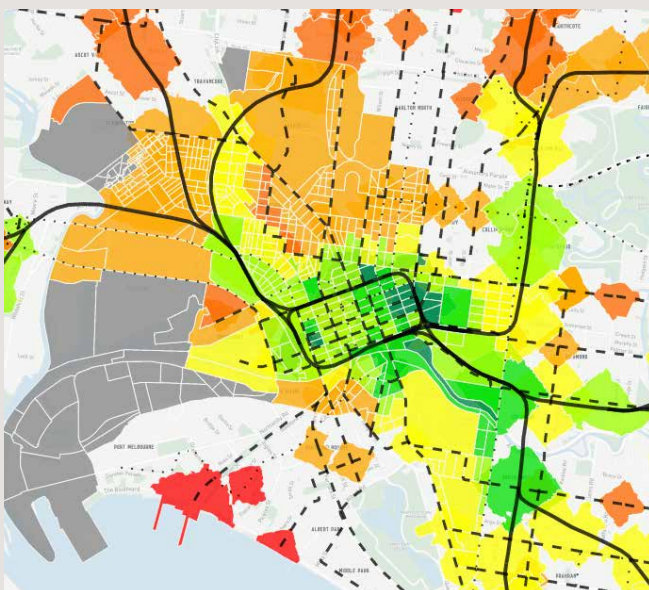
Map 16. 2016 public transport network.
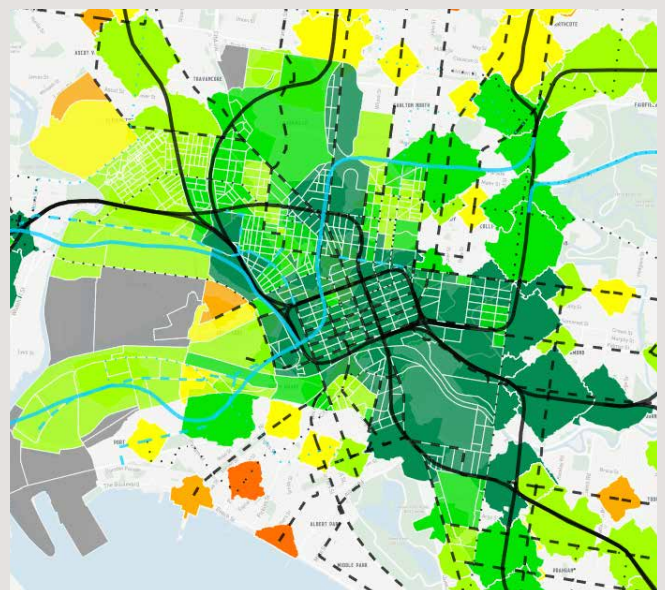
Map 17. 2036 public transport network.

Unlock renewal areas with public transport

Fishermans Bend

Melbourne Metro 2 is essential as a long-term solution to creating the Fishermans Bend precinct as an extension of the central city. To guide the development of the precinct as a public and active transport-oriented area, rather than

car-dependent, there should be a series of staged public transport investments that encourage increased development activity.

The SNAMUTS modelling shows that it's very important in the short to medium term for Fishermans Bend to be serviced by orbital and medium-capacity services such as light rail. SNAMUTS modelling indicates that the 2016 accessibility level of Fishermans Bend was below the minimum standard to register a score. This means that it is unlikely that users could have relied on public transport for everyday or spontaneous use. By 2026, the provision of a Fishermans

Bend light rail extension from Collins Street to the Employment Precinct and Wirraway, as well as a bus link from Anzac to the Employment Precinct, improves public transport accessibility from below the minimum standard to 'above average' in Lorimer, and 'average' in the rest of the precinct. This huge leap in accessibility would successfully link the Fishermans Bend activity centre to the rest of the Melbourne public transport network.

By 2031, the 'resilience indicator' scores for the Fishermans Bend NEIC and Wirraway show that even with the tram extension and bus link there is evidence there will be latent demand and/or public transport overcrowding. The nodal connectivity of the precinct is low enough to suggest that the area would not be able to attract and retain central city functions in the way that Docklands has without further fixed public transport link investment.

The light rail extensions and Anzac-Fishermans Bend NEIC bus connection serve a hugely important role in facilitating land-use development prior to the implementation of Melbourne Metro 2, but ultimately these will not be adequate service for the predicted 80,000 residents and 80,000 jobs predicted for Fishermans Bend.
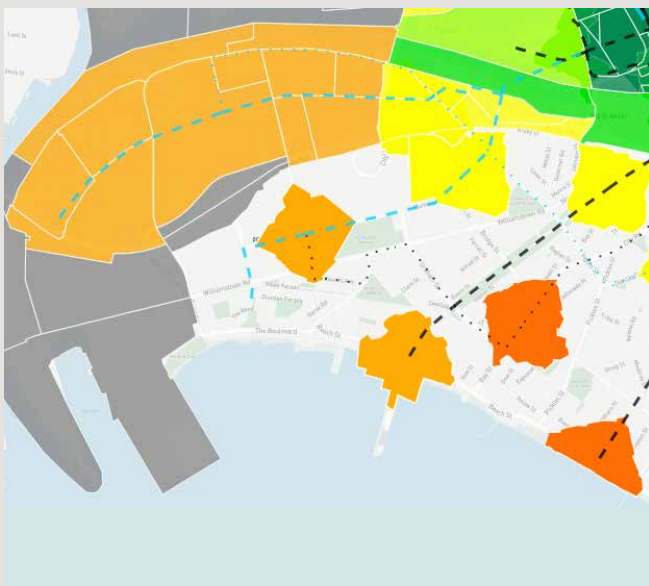
Map 18: 2016 Fishermans Bend public transport network..
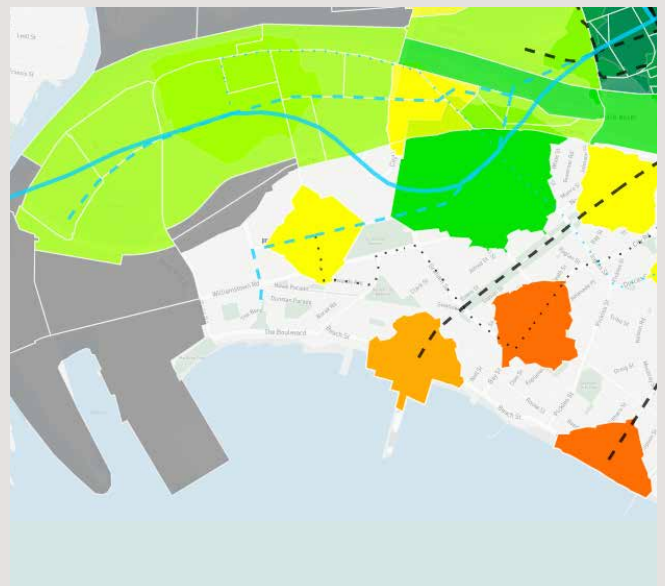
Map 19: 2036 Fishermans Bend public transport network.

Arden

The Arden Vision sets out that the precinct will have 34,000 jobs and 15,000 residents by 2051. This growth must be supported by public transport investment into high-frequency services along the Melbourne Metro 1 line as well as in new above-ground public transport links to the precinct.

In 2026, an operational Melbourne Metro 1 is included in our modelling, running services through North Melbourne (formerly known as Arden) station at 10-minute frequencies. This greatly improves the public transport in the area, making its capacity roughly equivalent to Footscray or Victoria Park stations in 2016.
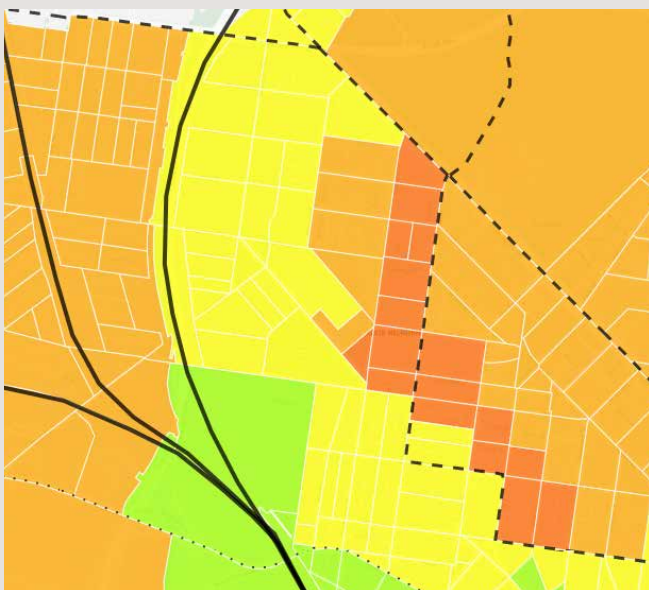
By 2031, train frequency has increased to 5-minute services and a new tram route, number 32, has been introduced, going from Arden to Victoria Gardens via North Melbourne station. The result for the precinct is a rail service comparable to central city nodes, with a new medium-capacity link that connects Arden to the rail lines at West (formerly North) Melbourne, the north suburban tram routes and the Hurstbridge-Mernda line without passengers needing to first come into the central city. With the improved frequencies and tram extension, Arden's public

transport access level has increased to above that of Flagstaff in 2016, giving the area the ability to function in a similar way to the central city public transport nodes do today in 2019, and increasing the precinct's attractiveness for medium to high density development in the area.

E-Gate, Dynon and West Melbourne Waterfront

E-Gate, Dynon and West Melbourne Waterfront occupy prime land close to Melbourne's central city between the public transport hubs of West Melbourne Station and Footscray. However, unless someone is within walking distance of either of those stations or South Kensington station, public transport access levels are relatively low.

In 2016, only Richmond and the City Loop stations have higher public transport accessibility scores than E-Gate (via West Melbourne station). As rail frequencies are improved and connecting tram and bus services are brought into the network, E-Gate's public transport accessibility level increases to 'Excellent', comparable to Parliament station in 2016. The E-Gate precinct in this scenario is an 'unbalanced node', a place which has very good public transport access but does not have a matching range of activities within the area, making it a good candidate for transit-oriented development.

The public transport access scores of Dynon and West Melbourne Waterfront are significantly improved by introducing 10-minute frequencies on the Werribee line and improving bus services along Dynon and Kensington roads. These routes connect those precincts with employment hubs in the west and form an inner orbital link so that western suburbs residents can access the inner-northern suburbs without first going to the central city. This makes the precincts' in between far more accessible by public transport for potential workers and residents, and increases the potential for attracting mixed use or employment focused development.

Map 20: 2016 Arden public transport network.

Map 21: 2036 Arden public transport network.

Reduce pressure on the Central City

SNAMUTS modelling included a number of orbital links, including a proposed inner ring route called the 'Blue Line' which would replace segments of the existing 472, 404, 506 and 246 bus routes, going between Sandringham and Williamstown via Brighton, Richmond, Clifton Hill, Brunswick, Highpoint and Footscray. It also included a proposed bus link from Anzac station to Fishermans Bend NEIC, and an inner orbital bus route (route 401) linking West Melbourne (future West Melbourne), Parkville and Victoria Park stations. All of these bus services are proposed to operate on 10-minute frequencies at least.

For each of these bus routes, the 10-minute frequency means public transport users can rely on the service with the consistency required for regular commuting or spontaneous trips. Each of the routes adds network connectivity, enabling improved public transport in directions other than to or away from the central city. While the impact of not delivering these services is much less than not delivering the Fishermans Bend tram extensions or Melbourne Metro 2, the modelled changes require much less capital outlay.

One benefit is that the legibility of a 'Blue Line' route – one that all public transport users can understand circulates along the inner-middle ring of Melbourne's suburbs at 10-minute frequencies. This could help boost patronage as awareness of public transport opportunities increase all along the circuit.

Transport hub	2016 score	2016 rating	2031 score (tram priority)	2031 rating (tram priority)
Highpoint	8.83	Poor	18.12	Average
Moonee Ponds, Town Hall	14.56	Below Average	22.1	Above Average
Brunswick, Sydney Rd	14.39	Below Average	23.11	Above Average
East Brunswick, Lygon St	14.51	Below Average	22.98	Above Average
Victoria Gardens	14.94	Below Average	21.26	Above Average
Kew Junction	17.33	Average	22.77	Above Average
St Kilda, Fitzroy St	18.02	Average	22.68	Above Average
Emerald Hill	17.81	Average	26.42	Good
Fishermans Bend NEIC	N/A	No regular service	18.39	Average

Table X. Change in SNAMUTS public transport accessibility ratings from 2016 to 2031 under the Tram Priority scenario.

Supercharge the tram network

This scenario involved a range of measures including increasing tram priority at traffic lights, lowering traffic light signal cycle times, building more separated tram tracks, tram stop consolidation, introducing larger trams and improving urban design around tram stops to allow for faster tram travel times. The faster services allow for vehicle fleet savings, which are reinvested back into the network to provide more services, except for along the Elizabeth Street and Swanston Street-St Kilda Road corridors, where frequencies are already considered to be at capacity.

The scenario includes the tram network development and service frequency goals embedded in the baseline

modelling, but assumes the extra measures will be gradually included, resulting in an improved service frequency roughly equal to 10 per cent in 2021, 15 per cent in 2026 and 20 per cent in 2031.

The scenario involved all tram routes operating at a minimum 10-minute frequency, with routes 5, 11, 86 and 96 having 5-minute frequencies along their inner sections. Routes 6, 12, 30, 32, 48, 51, 58, 68, 70, 75, 78, 82 and 109 would run at 6.5-minute frequencies. The City of Melbourne considers these frequencies achievable by 2031, when this scenario was completed.

A substantial benefit of this scenario is that it requires less capital investment than most major public transport projects as it leverages existing established assets.

This scenario has a huge impact on the general levels of transport accessibility across metropolitan Melbourne, but particularly in inner- and middle-suburban areas not readily serviced by train lines. Generally, the services along these routes in 2016 had accessibility scores of 'average', 'below average' or worse. By 2031, when the tram priority measures are included, these values are now one to two classifications higher, changing to 'above average' and sometimes even higher.

A key benefit of this scenario is that, in the 2016 modelling, the 'resilience indicator' showed that demand along multiple tram lines was at a high level of stress due to the number of commuters trying to access jobs and services in the central city. Public transport users along these routes would either suffer congested trams or potentially choose a different transport mode. Under the tram priority scenario these routes have good 'resilience indicator' levels, showing that the modelled tram network improvements will accommodate future demand for services into the central city.

Image 37: Tram passengers on Bourke Street.

How to contact us

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users phone 1300 555 727 then ask for 03 9658 9658
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CITY OF MELBOURNE

DRAFT TRANSPORT STRATEGY 2030 SUMMARY

CITY OF MELBOURNE

A CONNECTED CITY

In a connected city, all people and goods can move to, from and within the city efficiently. Catering for growth and safeguarding prosperity will require planning for an efficient and sustainable transport network.

Acknowledgement of Traditional Owners

The City of Melbourne respectfully acknowledges the Traditional Owners of the land, the Boon Wurrung and Woiwurrung (Wurundjeri) people of the Kulin Nation and pays respect to their Elders, past and present.

Cover image: Flinders Street Station

VISION

Walking in our streets and laneways will be safe and comfortable with expansive uncluttered footpaths, seating and a generous street tree canopy.

We will extend Melbourne's renowned laneway culture linking the 'Little Streets'. Our future laneways will be places for people, knowledge exchange and hospitality, walking, meeting, eating and drinking.

Melbourne will be Australia's premier bicycle city. More people will be confident to ride with a connected network of safe protected bicycle lanes and high quality bicycle parking.

Our train stations will be international gateways to our city - world-class open public spaces celebrating arrival to our city for hundreds of thousands of people, with seamless interchange between transport modes that is intuitive and easy.

Public transport services to the central city will be safe, accessible, direct and frequent.

Private vehicle access to the city will be prioritised for efficient deliveries, servicing and for people who need to use a car.

We will embrace the future with smart and micro mobility trials that deliver public benefit. City disruption will be co-ordinated, managed and communicated.

We will deliver this vision by:

1. Creating a safe and liveable city

2. Fostering an efficient and productive city

3. Encouraging a dynamic and adaptive city
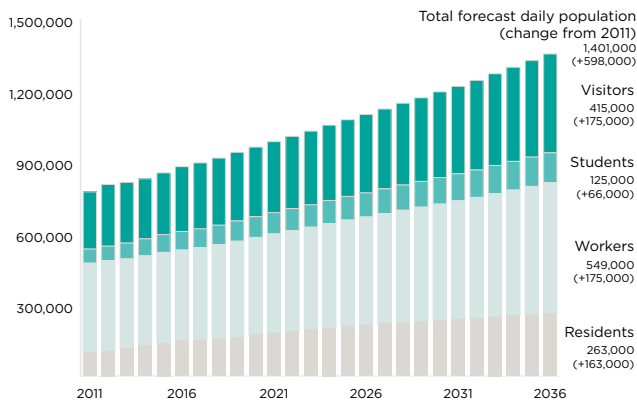
Image 2: Bourke Street

INTRODUCTION

The central city is the heart of Victoria's most visited economic, social and cultural destinations. It is the centre of the state's transport network.

Victoria's economic prosperity is reliant on a productive central city. It is the part of our state where the demand for travel is greatest and where walking, cycling and public transport do the heavy lifting. More than 900,000 people - residents, workers and visitors - move into and within the municipality every day. This makes our municipality unique and our transport challenges complex.
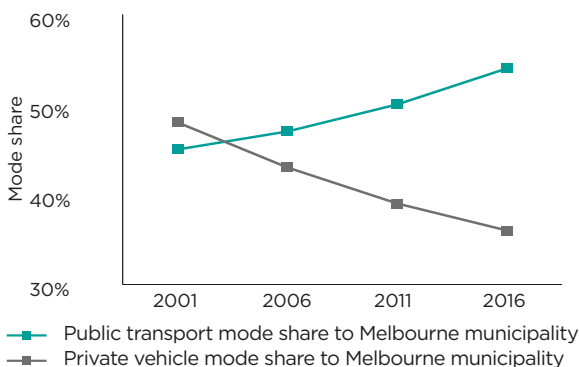
The daily population is estimated to grow to approximately 1.4 million by 2036.

Figure 1: Municipality Daily population estimates and forecasts 2011-2036

The share of trips to work by public transport has increased significantly

Figure 2: Journey to work by mode 2001 - 2016 (ABS 2017)

Public transport mode share to Melbourne municipality
Private vehicle mode share to Melbourne municipality

Our municipality has seen significant change as a result of population and job growth over recent decades. Today there are 150,000 more trips to the municipality for work each weekday than there were in 2001.

The way that people travel has also changed. More people travel to work in the municipality by train than by car. More people are walking, riding bikes and catching public transport than ever before. The share of car trips has decreased by 25 per cent since 2001 and the number of vehicles entering the Hoddle Grid, the centre of the city, has reduced by 14 per cent since 2014.

With Victorian Government investment in public transport including the delivery of projects such as Melbourne Metro, car dependency will continue to decrease as more convenient transport alternatives become available.

Walking is critical to the success of the central city economy. Eighty-nine per cent of all trips which start and finish within the Hoddle Grid are made on foot. These walking trips allow people to easily connect, do business and share knowledge through face-to-face interactions. The safety, security and comfort of people is critical to maintaining Melbourne's liveability and reputation.

Footpath congestion is a serious concern in parts of the central city. When over 290,000 people converge at central city rail stations each weekday, crowds of people build up on the footpaths and at intersections within the station precincts. Streets can sometimes feel hostile and unsafe. The municipality also has the highest rate of pedestrian road trauma in Victoria.

By 2036, the number of people moving around our municipality each day will increase to 1.4 million. To remain globally competitive and maintain our reputation as a great city to do business, live and work, our growing population needs streets and public spaces which are welcoming, safe, comfortable and move people efficiently. Our footpaths must be generous, uncluttered places for walking, knowledge exchange and enjoying the city.

Bikes must play a more significant role in the transport network. The huge potential for more trips to be made by bike is possible with the right infrastructure. Once safe, connected bicycle lanes are in place, more trips will be made by bike. Bike trips are low-cost for the user and government, they improve the efficiency of the transport network and benefit society more broadly.

The city also needs an efficient and reliable public transport network which meets the needs of our fast-growing population and our business community.

To achieve this, we need to move more people in the same amount of street space, make our existing transport infrastructure work harder and commit to sustained investment in walking, cycling and public transport. There is significant potential to boost the contribution of each of these modes.

CHALLENGES AND OPPORTUNITIES

The following challenges and opportunities were identified by City of Melbourne analysis and community feedback and reinforced through independent research. The strategy proposes a series of actions, policies and projects to respond to these issues.
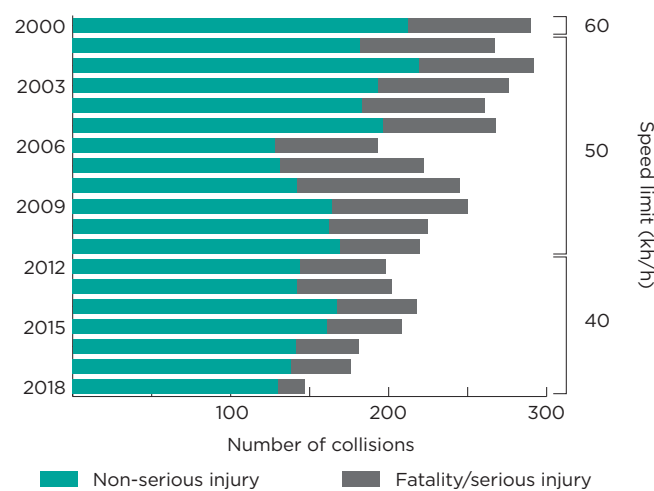
1. Safety and security in the city

Pedestrian road trauma

The city has the highest rate of pedestrian road trauma in Victoria. On average approximately 46 pedestrians are seriously injured and one pedestrian dies each year on roads in the city. More needs to be done to keep people safe on our streets.

Road-related fatalities and injuries have declined but there is a long way to go

Figure 4: Annual recorded road collisions resulting in injuries in the Hoddle Grid (Victorian Government 2018)

In recent years, motor vehicles have been used to deliberately harm people on our streets. We are working with the Victorian Government to protect our primary gathering spaces. However with more people in the central city each day we need to consider expanding this to other streets and spaces.

Footpath overcrowding

The quality of life in Greater Melbourne and the growth of our economy continues to attract people to the central city. As a result, pedestrian overcrowding occurs frequently at key locations, including around train stations and tram stops, on streets and at intersections. For example, at the intersection of Spencer and Collins streets during peak hours, there are often so many pedestrians waiting to cross the road that they spill onto the street, putting people in danger.
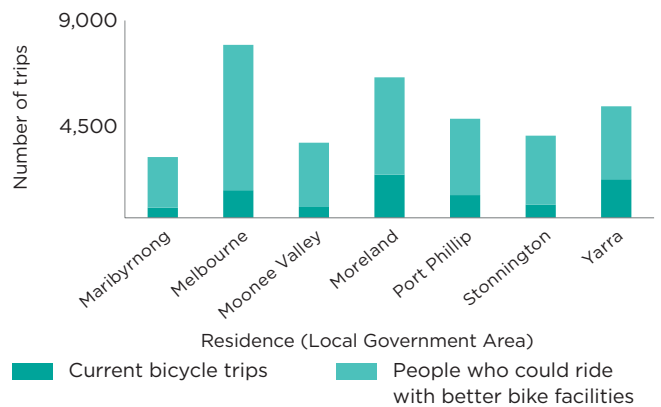
Experience and reputation

The experience of visitors in the central city affects Melbourne's status as a global destination. With most visitors on foot, the quality and generosity of the walking environment is critical to our international reputation and a thriving economy. In line with Council's goal for a 'City for People', we want to ensure all people can access, feel safe in and enjoy the city. The city's streets, public realm and transport network must be inclusive for all.

Many people don't feel confident to ride a bike in Melbourne

Cycling is good for our health and environment. It is cheap, fun and flexible and requires relatively little space in a busy city. While there is an extensive network of painted lanes in the city, our evidence shows that most people do not feel safe enough to use them. Many people who want to start riding or want to ride more often would do so if bike lanes were physically protected from motor vehicles. Protected bike lanes attract more people to ride. Cycling could play a bigger role in the transport network for a relatively low-cost investment (e.g. the 12,000 people who ride to work today is equivalent to 57 E-class trams on the network).

Thousands of people could ride to work in the municipality with better infrastructure

Figure 5: Potential bicycle trips to work in adjacent LGAs

Public transport safety

Most of Melbourne's extensive tram network shares space with vehicles. Every year 1,000 tram/vehicle accidents occur across the network. These accidents injure people, affect lives, cause extensive delays and substantially increase operating costs. Feeling unsafe at public transport stations, stops and surrounding streets prevents some people accessing public transport services at all times and locations.

2. Network efficiency

Congestion

A certain level of transport congestion is a feature of all prosperous cities. However, it also undermines liveability and economic prosperity. Congestion costs Greater Melbourne $4.6 billion per year and is forecast to reach $10 billion by 2030. Increasing road capacity does not eliminate congestion. Rather, evidence shows it increases the number of motor vehicles on the road. Buses and trams get stuck in congested conditions across Greater Melbourne. We have the largest tram network in the world, however our trams are also among the slowest, averaging just 16km/h across the network.
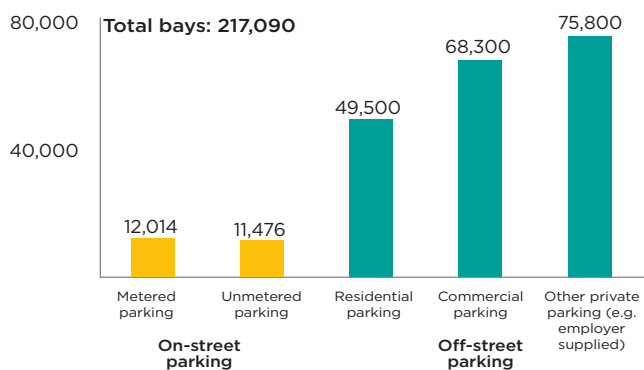
The impact of through-traffic

Many people who drive through the central city are passing through with business elsewhere. Forty-three per cent of vehicles travelling into the Hoddle Grid is through-traffic. King Street, Spencer Street and William Street carry the most through-traffic.

Excess and underused parking space

The price of on-street parking is lower than off-street parking. This adds to congestion, as people search for a cheaper space. The use of street space for on-street parking benefits a small number of people. There is little evidence that parking is essential for retail performance. This space could be used more productively to benefit more people if converted to others uses such as footpaths, bike lanes and street trees – for meetings, eating, drinking and as places for hospitality. There are 40 per cent more residential parking spaces in the city than vehicles owned. This oversupply pushes up the cost of housing by $50,000 to $80,000 per parking space.

Residential car parking is oversupplied

Figure 6: Parking supply in the municipality.

Pedestrian delays at intersections

The traffic lights at many intersections in the Hoddle Grid create long delays for pedestrians waiting to cross. Traffic signals which change infrequently lead to a build up of people waiting to cross, particularly near city loop train stations. As train capacity increases and more people arrive in the city each day, overcrowding at intersections will increase.

3. City disruption and transformation

Major project disruption

Greater Melbourne's growth has led to an unprecedented investment in major projects including the Metro Tunnel, West Gate Tunnel and level crossing removals. These are transformational projects which will take several years to complete. Construction requires frequent changes to the way people travel such as road closures, diversions and replacement bus services.

Disruptive technology

Disruptive technology such as ride share apps and dockless bike share provide opportunities to improve transport and increase accessibility. However, there is a risk that the benefits will not be realised, or that without regulation negative impacts of new technologies will not be mitigated.

There is a high degree of uncertainty about how soon driverless cars will be using our streets. Driverless cars could remove most human error in road accidents and help deliver people the first and last kilometre of their trip, complementing efficient public transport. However, driverless cars are likely to contribute to additional car trips, more congestion and may shift people away from walking, public transport and cycling.

Transport emissions are increasing

Current transport emissions in the city exceed the levels required to meet Australia's obligations under the Paris Climate Agreement. In 2018, cars contributed around 52 per cent of the city's land transport emissions.

Private cars are the greatest source of transport emissions in the municipality

Figure 7: Transport emissions in the municipality, by mode

- Private cars
- Motorcycles
- Light commercial vehicles
- Heavy Commercial vehicles
- Buses
- Trams
- Electric trains
- Diesel trains
- Waterbourne cargo ships
- Helicopters

Transport pricing

Currently, the main form of road demand management is traffic jams – people are discouraged from making trips during peak hours due to longer journey times. There is no price signal to manage road demand or encourage people to travel differently. People pay the same price for transport during peak hours as they do during off-peak hours.

COMMUNITY FEEDBACK

Between April and July 2018 the City of Melbourne released eight discussion papers for community feedback. The response was the one of biggest in the history of the *Participate Melbourne* website with over 1,300 responses.

Walking

Seventy-four per cent of 197 submissions on walking supported the concepts outlined. These included car-free zones, reduced speed limits and reduced delays for pedestrians at traffic lights.
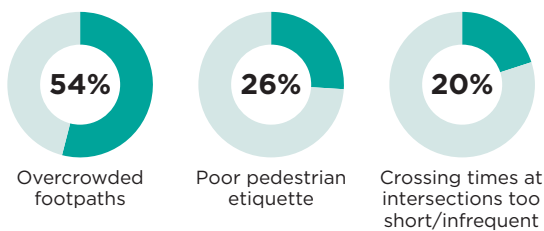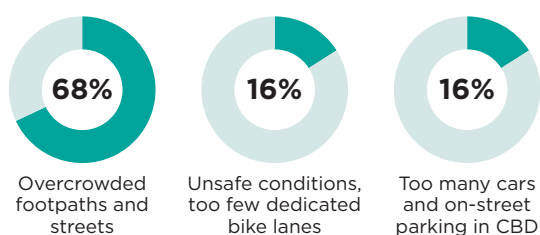
Top 3 experiences (unprompted):

54% Overcrowded footpaths

26% Poor pedestrian etiquette

20% Crossing times at intersections too short/infrequent

City Space

Eighty-seven per cent of 80 submissions on city space supported the concepts outlined. These included removing footpath clutter, converting on-street parking to wider footpaths and implementing shared zones on 'Little' streets.

Top 3 experiences (unprompted):

68% Overcrowded footpaths and streets

16% Unsafe conditions, too few dedicated bike lanes

16% Too many cars and on-street parking in CBD

Public Transport Network

Sixty-three per cent of 128 submissions on public transport supported the concepts outlined. These included build Melbourne Metro 2 (Cross City Rail: Clifton Hill to Newport via Fishermans Bend), plan for Melbourne Metro 3 (Airport Rail), supercharge the tram network and invest in better orbital services.

Top 3 experiences (unprompted):

38% Overcrowded public transport

25% Frequent delays

18% Delayed by traffic or signals

Emerging Technology

This discussion paper received less community interest than other topics with only 18 submissions.

Bicycles for Everyday Transport

Ninety per cent of 366 submissions support the concepts outlined. These included transforming traffic lanes into protected bicycle lanes, bicycle lanes which continue to and through intersections and trialling separated bike lanes along Flinders Street.

Top 3 experiences (unprompted)

39% Unsafe and intimidating conditions

17% Pedestrians and drivers who do not check for cyclists

16% Car-dooring or threat of car-dooring

Car Parking

Sixty-seven per cent of 91 submissions on car parking supported the concepts outlined including converting more on-street parking to other uses, putting a cap on car parking supply, setting car parking reductions targets and reforming on-street parking pricing.

Top 3 experiences (unprompted):

36% Other modes of transport are not used enough

24% Too much of a focus on on-street parking

16% Too many cars in the city

Motor Vehicles

Sixty-seven per cent of 94 submissions on motor vehicles supported the concepts outlined including preventing through-traffic, creating more space for non-car uses and providing opportunities for more efficient driving.

Top 3 experiences (unprompted)

38% — Motor vehicles block intersections

34% — Unsafe for pedestrian and cyclists

23% — Traffic and congestion

Reducing traffic for better streets (road user pricing)

Forty-four per cent of 39 submissions on road pricing supported the concept of road pricing reform as presented in the discussion paper.

Top 3 suggestions:

Improve public transport first

Implement road user pricing

Improve pedestrian and bicycle infrastructure first

Image 3: Transport Strategy discussion paper consultation

The analysis of current transport challenges and opportunities, data and trends, community feedback and independent research has informed the Draft Transport Strategy.

We will deliver:

- A safe and liveable city

- An efficient and productive city

- A dynamic and adaptive city.

A SAFE AND LIVEABLE CITY

Safe, walkable streets support the knowledge economy, which is dependent on face-to-face interaction and the sharing of ideas and information. Cities with streets which support convenient, comfortable and safe transport have healthier populations and a more equitable society. Streets designed for people attract investment and promote economic growth.

Outcomes:

1. Safe streets for people

Our streets will be safe places for people of all ages. People will be protected from the risk of moving vehicles. Innovative design will enhance the quality of the public realm without compromising the amenity of our streets for people walking and resting. Pedestrians are safe, the risk of harm posed by motor vehicles is reduced by slowing vehicles down and creating more car-free spaces.

2. Safe streets for bike riding

People in Melbourne will feel confident to ride a bike. Major investment in safer cycling infrastructure and programs will make cycling a vital and growing component of the transport network. Transport corridors with protected bike lanes will move more people in a cost effective way using the same amount of space, increasing safety and contributing less noise and air pollution.

3. Transport interchanges as welcoming people places

Public transport interchanges will support seamless, comfortable, door-to-door journeys. High-quality footpaths will provide comfortable walking and waiting spaces which enable people to get on and off trams and buses efficiently and safely. Our station precincts will be enhanced by expanded, welcoming, world-class civic spaces. Crowding at tram and bus stops will be accessible for all and moving between footpaths and tram stops will be quick, safe, easy and direct.

4. Fewer non-essential vehicles in the municipality

Removing non-essential vehicle trips from the city's streets will free up valuable space to make streets safer, more attractive and more efficient. Fewer cars means better amenity, less noise and fewer emissions. This is good for business, residents, workers and visitors. Fewer non-essential vehicle trips means improved priority for emergency vehicles, on-road public transport, deliveries and servicing. Access for people with a disability will be maintained as a priority.

City of Melbourne will:

- Redesign our streets to prioritise walking, public transport and cycling.

- Provide more space for people on footpaths by introducing new measures to prevent obstacles blocking pedestrians in high volume locations.

- Install an initial 300 additional on-street motorcycle parking bays to provide an alternative to parking on the busiest footpaths.

- Provide more space for walking and other important uses including greening, street furniture and street trading by repurposing road space equivalent in size to 20 Bourke Street Malls.

- Progressively convert 'Little' streets into pedestrian priority shared zones to link our laneways and support a thriving retail economy and cafe culture.

- Install additional road crossings to address gaps in the walking network and increase safety.

- Deliver an expanded network of protected on-road bicycle lanes - increasing from around 6km today to more than 50km by 2030 - connecting into and through the central city to get more people who want to ride on a bicycle.

- Update our bicycle lane design standards to allow us to deliver best practice bicycle infrastructure across the city.

- Maintain vehicle access for emergency vehicles and people with a disability or limited mobility as a priority. Ensure street and loading access is facilitated for freight, trade and servicing.

- Reduce vehicles travelling through the central city (currently 43 per cent of traffic) with improved transport options, encouraging use of bypass routes and allocating more road space for efficient transport.

- Review and renew policies in relation to off-street car parking and car share.

Opportunities to collaborate with the Victorian Government and other key stakeholders to:

Deliver world-class, safe people-priority areas around our major transport interchanges and railway stations.

Reduce the risk of harm from vehicles by investigating a trial of 30km/h speed limits in the central city and reduced limits in other busy pedestrian areas across the city.

Deliver an additional 40km of protected bicycle lanes on roads managed by the Victorian Government.

Make intersections safer for bikes by trialling innovative intersection designs.

Deliver safer tram stop designs which are seamlessly integrated into our streets and footpaths to enable excellent service for public transport passengers.

Transport interchanges and city gateways

Major rail stations - and the precincts within which they sit - are the gateways to the central city.

The city's public transport network delivers hundreds of thousands of people on to the city's streets each day. The precincts surrounding these major transport hubs facilitate access and interchange, operating as an extension of the public transport network. These places are the beginning of people's experience of our vibrant city heart.

These precincts are under pressure from ever increasing volumes of people. They will become increasingly congested as the public transport use continues to grow.

Prioritising people in these precincts and their safety, comfort and enjoyment will benefit the public transport network experience and elevate the reputation of Melbourne as a great place to visit, do business and live. They should welcome people to the central city and provide a memorable sense of arrival.

To achieve this, significant investment is required to improve the civic qualities of these spaces.

Image 4: Flinders Lane

AN EFFICIENT AND PRODUCTIVE CITY

The efficient movement of people and goods is critical to the function of our city. Economic growth and productivity is powered by efficient transport. The walking economy has been key to the success of the central city as a place to do business, visit and live. Moving more people and goods efficiently in the same amount of space is a significant challenge we must address in partnership with the Victorian Government.

Outcomes:

5. Reduced delay for people using efficient transport

Reduced delays will make efficient modes of transport more attractive. Increased use of walking, cycling and public transport will improve public health and stimulate the economy.

6.More people riding bikes

Increased bicycle use will support a healthy, sustainable and prosperous community. Cycling will ease pressure on our public transport network - particularly on crowded inner-city trams - and decrease traffic congestion. Increased bicycle use will be supported by an uptake in electric pedal-assist bikes, more programs to boost people's riding skill and confidence and possible improvements to road rules to reduce barriers to riding.

7. Productive kerb space

Kerb space - the road space adjacent to the kerb - will be managed so that competing uses are balanced and economic and liveability benefits are maximised. On-street parking changes will optimise occupancy and some space reallocated to other uses including greening, safe bicycle lanes, motorcycle parking, wider footpaths and public open space.

8. Efficient and reliable public transport for everyday life

Improved public transport capacity, useability and user experience will mean more people on public transport more often. High-quality public transport means that more people can live without owning a car or needing to use one often. Significant investment in public transport will deliver a network where services and interchanges are frequent and effective, allowing people from across Victoria to easily access a variety of destinations in an affordable, sustainable and time-efficient manner.

9.Integrated transport planning for Victoria

Best-practice transport planning will deliver equitable, sustainable and efficient outcomes for all Victorians. The City of Melbourne and the Victorian Government will work together to ensure our transport objectives are met in line with the Transport Integration Act (2010). Construction disruption will be well coordinated and managed.

City of Melbourne will:

• Reduce pedestrian crossing distances at intersections to improve safety, accessibility and enable shorter wait times for pedestrians.

• Investigate the creation of a team dedicated to the planning and delivery of bicycle projects and programs at the City of Melbourne.

• Deliver community programs to get more people riding bikes.

• Support the growth of e-bikes by helping our community experience this new technology and advocating for government support.

• Reform on-street car parking management to ensure street space is used efficiently, access for deliveries and servicing is optimised and to improve access for those who need it.

• Investigate opportunities for innovative design and flexible use of kerb space, such parking, loading and street trading, to meet changing demands throughout the day.

• Optimise the efficiency of our reduced supply of on-street parking, initially through a trial of demand-responsive pricing for on-street car parking.

• Support the transition to a 'turn-up-and-go' public transport network. This will require improved bus and tram routes, improved orbital services, boosting service frequencies, improved access to public transport, regional rail, airport access and improved public transport safety.

• Support and accommodate more rail replacement buses in the city during disruption.

City of Melbourne will work in partnership with the Victorian Government and key stakeholders to:

Review current traffic signal operations to optimise performance and reduce delays for the majority of users who are people walking, cycling and using public transport.

'Supercharge' buses and trams to improve performance and frequency. This may include new dedicated lanes, signal priority at intersections, upgrading stop designs to reduce loading times, consolidation of stops and improved physical separation from private vehicles. This will improve access to the rail network.

Minimise incidences of vehicles blocking intersections by exploring opportunities to improve intersection design, signal operation and enforcement.

Review Victorian road rules as they apply to cycling, such as the requirement to stop at a red light when turning left into a bicycle lane, to make cycling safer and more attractive for everyday trips.

Ensure that major transport investment delivers on our transport objectives.

Plan and deliver world-leading urban renewal areas to create liveable, sustainable communities and places for new residents.

Complete a Central City Transport Framework which recognises the complex and unique transport challenges in the central city and establishes a partnership for planning and managing transport.

Manage construction disruption and consider the opportunities to test new transport conditions.

City of Melbourne will advocate for:

Delivery of both Fishermans Bend tram lines by 2022.

Delivery of Cross-City Rail linking Mernda and Werribee lines via Fisherman's Bend and the central city with early works construction commencing in 2025. This project is the next critical inner city rail expansion to boost capacity, relieve overcrowding and improve public transport accessibility.

Explore options to encourage through-traffic to avoid the central city.

Big build, big opportunity

Major investment in city-shaping infrastructure will continue over the next decade. Projects such as Melbourne Metro are critical to transforming the city's public transport network and meeting the demands of a growing population.

Disruption caused by construction of major transport infrastructure is inevitable and can have significant impacts. Disruption can also have benefits, leading to positive changes and present opportunities to improve the city. For example, disruption can change travel patterns creating opportunities for streets to be used in different ways.

We will work in partnership with the Victorian Government to manage disruption, ensure the city continues to operate efficiently during disruption and to advocate for the best possible outcomes on our streets and precincts following project completion.

Image 5: Southern Cross Station

A DYNAMIC AND ADAPTIVE CITY

As our population grows and transport challenges become more complex, there are real opportunities for technology, trials and innovative policy to be part of the solution. Our streets, public spaces and transport network must be adapted to meet the travel demands of the future while ensuring we continue to put people first in a liveable, prosperous and sustainable Melbourne.

Outcomes:

10. New technologies deliver net community benefit

New technology will deliver a range of transport benefits for Melbourne including better access, new transport modes, lower emissions and more efficient use of existing assets. Appropriate regulation will ensure that new technologies integrate into the city and do not undermine amenity, efficiency and liveability.

11. Vehicle innovation supporting a people-focused city

The benefits of innovations in vehicle technology will be captured. These include more flexible mobility, reduced parking demand and greatly reduced road trauma. Potential negative impacts, including increased congestion and reduced active travel, will be avoided.

12. Zero emissions transport

By 2050, transport in the municipality will be emissions-free. Vehicles with internal combustion engines will be phased out, replaced by zero emissions technology. The public transport network will be converted to 100 per cent clean energy. Walking, cycling and public transport will increase. Private motor vehicle use will transition to electric shared and private vehicles.

13. Equitable and efficient transport pricing

The way we pay for transport will ensure an equitable and efficient system which manages transport demand and reduces congestion. Travel choices will be guided by price to influence the number of trips, at what time of day, the route and the transport mode. Off-peak fares will increase public transport travel patronage at these times.

City of Melbourne will:

- Be a 'city lab' testbed for smart mobility and micro mobility trials, encouraging new services and new technology aligned with the outcomes of this Strategy and the objectives of the Transport Integration Act 2010.
- Ensure thorough evaluations of trials are completed to fully understand opportunities and impacts.
- Encourage electric vehicle charging in buildings and limit on-street charging to areas without off-street parking.
- Lead a public conversation on road user pricing in Melbourne to discuss the opportunities to reduce traffic congestion, improve transport efficiency, liveability and equity across Melbourne.

City of Melbourne will work in partnership with the Victorian Government and key stakeholders to:

Trial advanced traffic signal technology to increase efficiency and safety for people walking, riding bikes and using public transport.

Explore options to change public transport pricing to encourage more people to travel outside peak times.

Ensure vulnerable road users are legally protected from the risks of motor vehicles and autonomous technology.

Ensure urban amenity is an important consideration as autonomous vehicle technology develops. More efficient use of road space will be ensured by providing more space for walking and cycling.

Develop a regulatory framework for new mobility services, such as dockless, drones, shared, electric and autonomous. This should protect amenity and consider parking, safety, vehicles, consumer protection, liability, timeframes and competition.

Leverage disruption to trial new street designs to improve the quality of the public realm while capturing the benefits of technology and behaviour change.

City of Melbourne will advocate for:

The Victorian and Australian Government to reduce the emissions-intensity of motor vehicles and promote electric vehicles if powered by renewable energy. This includes strengthening and expanding vehicle emissions standards.

The Victorian and Australian governments to engage in a public conversation on the future of road pricing and funding, and deliver a trial of road pricing with the goal of improving transport equity and efficiency.

Introduce a fair and equitable road revenue-sharing agreement between all levels of government through pricing reform.

Prioritise the transition of public transport and commercial vehicles to low-emissions technology.

Trials and pilots

Trials and pilots have been used in many cities, such as New York, London, Toronto and Copenhagen, to test new ways of designing streets, changing transport operations and introducing new technology.

There are many opportunities for the City of Melbourne and the Victorian Government to use our city as a test-bed with trials and pilots to adapt our streets and transport network to make our city safer, more efficient and more liveable.

Trials and pilots give all stakeholders an opportunity to test a new way of doing things in the city and evaluating the benefits before committing to long-term change and investment.

Changes to how people move in our city during major construction disruption are also an opportunity to test how travel behaviour changes and ask what we want for our city once the construction is complete.

Image 6: Princes Bridge

IMPLEMENTATION

How will the Transport Strategy be delivered?

This strategy will be delivered through the *Transport Strategy Implementation Plan.*

The *Transport Strategy Implementation Plan* will outline how the actions will be delivered over the next ten years to achieve the outcomes as defined in the Strategy and the Proposed Transport Network 2030.

The *Transport Strategy Implementation Plan* will be one, integrated action plan which replaces multiple City of Melbourne transport action plans - including the Walking Plan and Bicycle Plan.

The *Transport Strategy Implementation Plan* will be developed alongside the final Transport Strategy.

The following pages provides a summary of the strategy:

- Policies
- Actions
- Proposed transport network map 2030.

How will the Transport Strategy be funded?

The major capital projects to be delivered by the City of Melbourne through the *Transport Strategy Implementation Plan* are bicycle infrastructure projects and public realm improvement projects. Some of these projects will require approval and co-funding from the Victorian Government.

The City of Melbourne will commit operational funds to deliver the actions and initiatives in this strategy.

How will we measure success?

The final Transport Strategy will include specific targets and indicators to measure the progress of this strategy against each outcome over the next 5, 10 and 30 years. These targets and indicators will be developed when the strategy is finalised following community engagement.

Image 7: Spencer Street and Collins Street

POLICY SUMMARY

POLICY
A safe and liveable city
1. Ensure adequate space is provided for people through all street renewal or upgrade projects. Intersections will be designed to optimise the flow of pedestrians and improve the safety and amenity of the intersection for all.
2. Reduce footpath obstacles to free up more space for walking in busy areas.
3. Manage disruption by prioritising efficient modes during construction, especially walking, public transport and bikes as well as goods delivery and property access.
4. Apply the new City of Melbourne bicycle lane design standards, developed based on global best practice, to ensure we provide the safest and highest standard bicycle lane possible for each context on all future projects.
5. Prioritise motorcycle parking on roads.
6. Elevate the role of buses in the municipality through improving their integration into our streets, enabling new generation bus priority and busway design and supporting new bus technology.
7. Exceed the minimum standards set in the *Disability Discrimination Act 1992 (Cth)* by delivering universally accessible streets and public spaces which integrate with the public transport network.
8. Significantly reduce through-traffic in the central city, minimise through-traffic across the municipality and work to contain it to freeways and arterial roads.
9. Capture the benefits of road bypass projects by ensuring traffic reductions and public realm improvements are delivered on other routes. Any reduction in open space as a result of a road project will not be accepted.
10. Prioritise vehicle access to streets and parking spaces for emergency vehicles and people with a disability or limited mobility.
11. Ensure street and loading access is facilitated for freight, trade and servicing.
12. Continue to promote development and intensity of activity around high-quality sustainable transport.
An efficient and productive city
13. Prioritise the tram and bus network on our streets and support initiatives to improve travel times and reliability.
14. Advocate for improved intersection design, signal operation and enforcement to minimise incidences of vehicles blocking intersections.
15. Advocate for a review of Victorian road rules as they apply to cycling to improve the efficiency of riding in the city and attract more people to cycle every day.
16. Support the growth of e-bikes to get more people riding bikes.
17. Support innovative, efficient and low-impact solutions to last kilometre freight delivery, waste removal and servicing in the municipality.
18. Support the growth of the Port of Melbourne while ensuring the mitigation of future amenity impacts.
19. Support the transition to a 'turn-up-and-go' public transport network which offers fast, frequent and convenient services across Greater Melbourne.
20. Support priority bus and tram projects to improve the coverage, efficiency and reliability of the public transport network.
21. Support rapid, high-frequency orbital connections across the public transport network, especially in inner Melbourne.

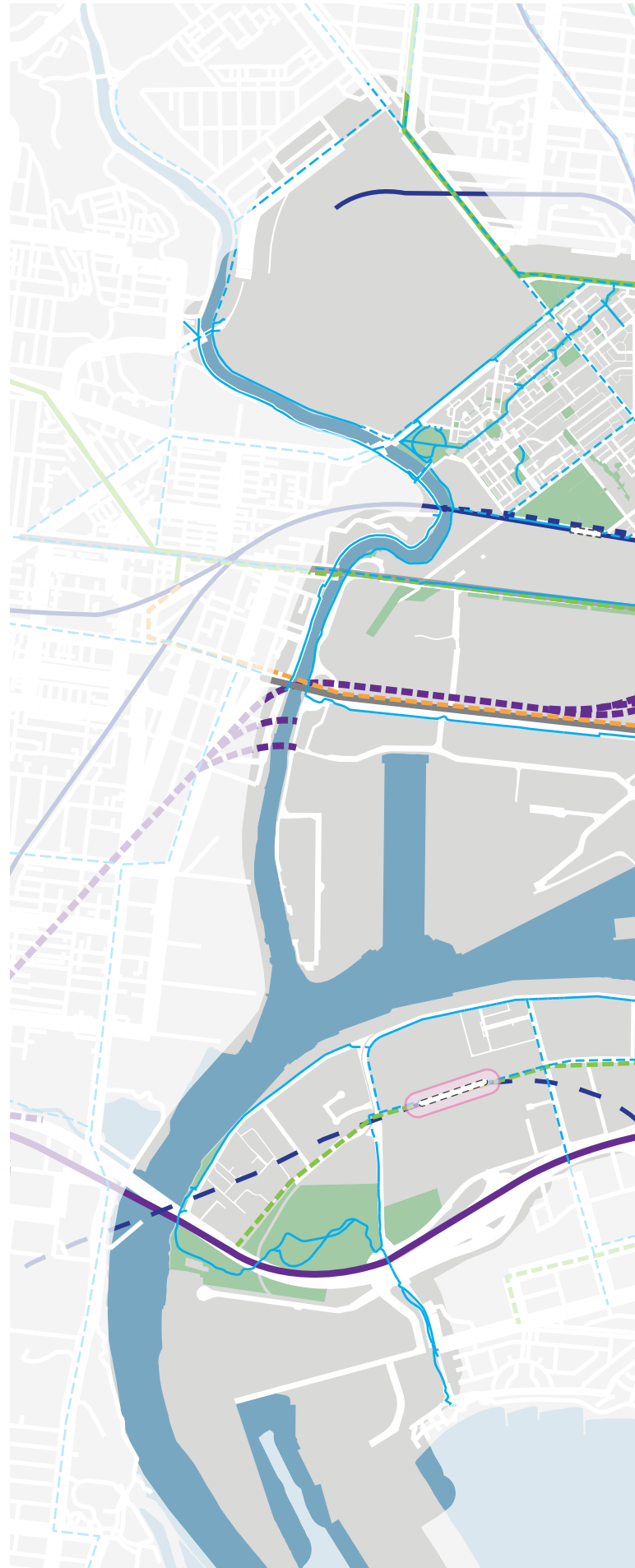| POLICY |
| --- |
| 22. Support increasing the capacity of public transport infrastructure to move more people during peak times. |
| 23. Support initiatives to improve the public transport user experience and passenger safety. |
| 24. Support regional rail projects as infrastructure which is critical to the economic prosperity of Melbourne. |
| 25. Support reliable and frequent public transport to airports which is integrated into the network. Support continuing the investigation into a Melbourne Airport rail line. |
| 26. Collaborate with Victorian Government to develop and endorse a Central City Transport Framework, recognising the importance of the central city as the hub of Victoria's transport network. |
| 27. Advocate for major city-shaping projects which improve the municipality for walking, cycling and public transport. |
| 28. Support the sustainable development of urban renewal areas by delivering high-quality public and active transport links early in the redevelopment process. |
| 29. Monitor construction disruption, consider the opportunities to test new transport conditions and avoid reverting to the original conditions if positive change is demonstrated |
| 30. Advocate for more transport data being made publicly available to improve the transport system and user experience. |
| A dynamic and adaptive city |
| 31. Actively support and facilitate trials of new transport technology in the municipality which align with the principles in this Strategy and the objectives of the Transport Integration Act 2010. Undertake thorough evaluations of trials to fully understand opportunities and impacts. |
| 32. Advocate for shared mobility which is integrated with the transport network and will encourage people to walk, cycle and use public transport. |
| 33. Support equitable access to transport and appropriate regulation of transport technology providers and operators. |
| 34. Support the use of sensor technologies to enable more efficient traffic management and signal control to improve transport performance. |
| 35. Support enhanced legal protections of vulnerable road users from the risks of motor vehicles and autonomous technology. |
| 36. Protect and improve urban amenity as autonomous vehicle technology develops. |
| 37. Prioritise the transition of commercial vehicles to low emissions technology |
| 38. Advocate for the strengthening of emissions standards for private motor vehicles as an urgent priority for the Australian Government. |
| 39. Facilitate off-street electric vehicle charging. Limit on-street vehicle charging to areas without off-street parking. |
| 40. Advocate for a fair and equitable road revenue-sharing agreement between all levels of government as part of any pricing reform process to ensure that road authorities receive the necessary funding to maintain their assets. |
| 41. Advocate for changes to fees which encourage more people to use public transport, including outside peak times. |

ACTIONS SUMMARY

ACTION	2019-2022	2022-2026	2026-2029
A safe and liveable city			
1. Design our future streets based on the 2030 Proposed Integrated Network established in this Strategy. Deliver priority footpath widenings to reduce overcrowding.	●		
2. Convert parts of 'Little' streets into people-priority shared zones with lower speed limits.	●	●	●
3. Provide an initial 300 additional on-street motorcycle parking bays in the central city.	●		
4. Increase space for walking by introducing new measures to prohibit non-fixed obstacles in busy areas.	●		
5. Install formal and informal crossings to address gaps in the walking network.	●	●	●
6. Work with the Victorian Government to review and reduce speed limits to 30 km/h or lower in the central city.	●		
7. Review and reduce speed limits throughout the municipality.	●		
8. Deliver 50km of high quality, physically protected bicycle lanes over 10 years to get more people riding each day.	●	●	●
9. Work with the Victorian Government to enable a further 40km of high quality, physically protected bicycle lanes on key state managed roads over 10 years.	●	●	●
10. Trial a protected intersection for cyclists in the Melbourne municipality and if successful, roll out across the municipality.	●	●	●
11. Investigate opportunities to increase off-street parking for motorcycles.	●	●	
12. Deliver strategic plans for major station precincts, including Southern Cross station, Flinders Street station, Elizabeth Street, Parliament station and Flagstaff station.	●	●	●
13. Work with the Victorian Government and Yarra Trams to develop an agreed designs for tram stops in the Melbourne municipality which integrate into the streetscape and minimise crowding.	●	●	
14. Develop a Parking and Kerbside Management Plan to better manage our valuable kerb space..	●		
15. Deliver a new Car Share Policy to support growth.	●		

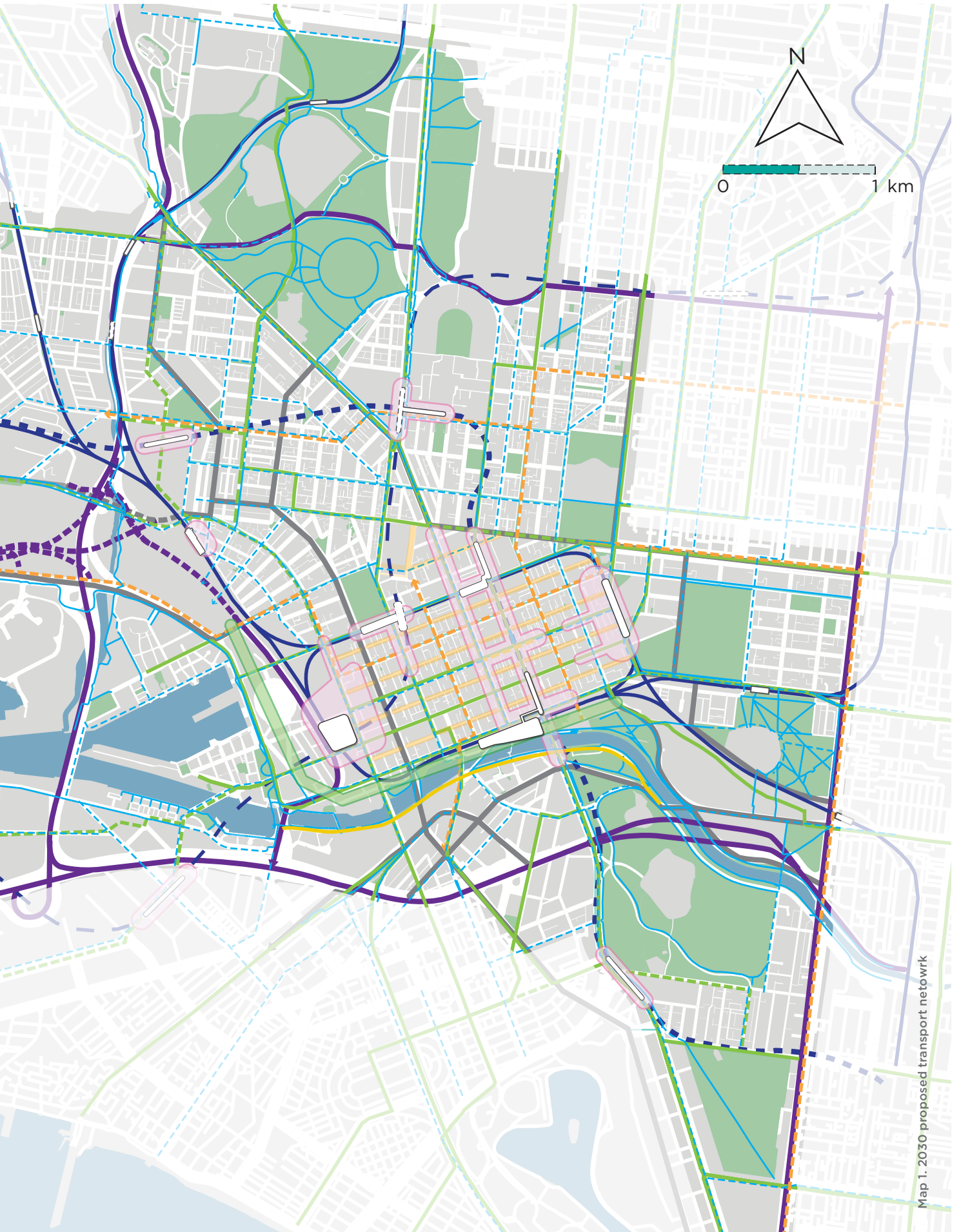| ACTION	2019-2022	2022-2026	2026-2029
An efficient and productive city			
16. Reduce delay to people walking, riding bikes, on buses and trams by working with the Victorian Government to optimise traffic signal cycle times, starting in the Hoddle Grid.	●	●	●
17. Get more people riding bikes by delivering community programs.	●		
18. Trial innovative use of kerb space in the Melbourne Innovation Districts.	●		
19. Implement short-term parking management measures	●		
20. Advocate to the Victorian Government for planning and investment in capacity boosting public transport, beginning with a second cross-city rail tunnel to unlock Fishermans Bend	●	●	●
A dynamic and adaptive city			
21. Ensure new transport technology benefits the city by advocating to the Victorian Government for regulatory or legislative change in line with this strategy.	●	●	●
22. Investigate opportunities to improve the management of kerbside space for the regulated commercial passenger vehicles (taxi) industry.	●		
23. Enable a transition to zero emissions transport by advocating for lower carbon intensity of motor vehicles and electric vehicles powered by renewable energy in line with this strategy and the Climate Change Mitigation Strategy.	●	●	●
24. Lead a public conversation on transport pricing reform for Melbourne, supported by evidence, and in collaboration with government, community, experts and key stakeholders.		●	

2030 PROPOSED INTEGRATED NETWORK

Melbourne's transport network in 2030 as proposed by this Transport Strategy.

Key

	Existing	Proposed/ under investigation
Protected bike network		
Station		
Station precincts		
Greenline		
Tram		
Full-time bus priority		
Rail		
Traffic bypass		

Map 1: Combined map of all proposals.

Map 1. 2030 proposed transport netowrk

How to contact us

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03 9280 0721   普通话
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call us via the National Relay Service: Teletypewriter (TTY)
users phone 1300 555 727 then ask for 03 9658 9658
9am to 5pm, Monday to Friday (Public holidays excluded)

CITY OF MELBOURNE

Attachment 4: Community engagement on Draft Transport Strategy

Engagement dates: 7 May to 19 June 2019 (6 weeks)

Objectives:

To communicate how community input received during the discussion paper phase has been incorporated into the Draft Transport Strategy.

To seek community feedback on the draft outcomes and policy directions and input on the implementation and priorities.

Engagement activities and audiences:

Online

The Draft Transport Strategy will be posted on Participate Melbourne.

- A multiple choice survey will be used to inform the finalisation of implementation and priorities.
- The community and stakeholders will also be able to make formal submissions in response to the draft strategy.

City of Melbourne website and social media will promote and link to the Draft Transport Strategy on the Participate site.

Audience: Greater Melbourne (and beyond)

Face-to-face engagement:

City of Melbourne will present the Draft Transport Strategy at community pop-ups across the municipality including at Melbourne Knowledge Week (20-26 May). Staff will be present to discuss the Draft with the community and answer higher level questions.

Audience: People who live, work, do business in or visit the municipality.

Community workshops:

Two community workshops will be conducted during the consultation period. This is an opportunity to engage in greater depth with the project team, with presentations by staff and expert contributors.

Audience: Highly engaged community members, city users and visitors

Stakeholder workshops:

Workshops with key transport industry stakeholders will be conducted during the consultation period.

Audience: Government and key transport industry stakeholders