

Victorian Cycling Strategy 2018-28

Increasing cycling for transport



TRANSPORT FOR VICTORIA

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A MESSAGE FROM THE MINISTER FOR ROADS AND ROAD SAFETY

Victoria's population is growing rapidly. While this is great for our economy and for diversity, it creates challenges for our transport network.

By 2050, Melbourne's transport network will need to cater for almost 24 million trips a day – up from 13.4 million today – and our regional cities will face similar pressures.

Boosting the number of trips we make using public transport, walking and cycling will be key to addressing these pressures. More people walking and cycling will also help make neighbourhoods more vibrant and result in healthier Victorians.

More than half of all vehicle trips in Melbourne are less than 6km in length, so there are ample opportunities for more Victorians to cycle. But the fact is, aside from a few small pockets in inner Melbourne, the number of people cycling is plateauing across Melbourne and declining in regional Victoria.

That's why the Victorian Government is launching a new strategy to encourage more people to cycle for transport – to work, to school, to public transport and around their neighbourhoods.

The *Victorian Cycling Strategy 2018-28* will guide planning and investment in cycling for the next decade. Shaped by the views of more than 2,780 Victorians, it sets out two goals and a range of initiatives to increase the number, frequency and diversity of people cycling for transport.

The strategy aims to get more people on bicycles by delivering a safer, lower-stress, better-connected network and by building a more inclusive cycling culture.

It includes initiatives that will result in more direct, separated cycle paths to important destinations, like workplaces, schools and public transport stops, and make it easier for cyclists to park their bikes at stations or take them on a train or bus.

The strategy will also support local councils in their crucial role as providers and managers of parts of the cycling network.

Infrastructure alone isn't enough to deliver a boost in cycling participation: we also need a change in attitude.

We know about 60 percent of Victorians are curious about cycling but are deterred by real or perceived safety concerns. Women, children and seniors cycle far less than the typical cyclist, who is male and under 45.

We want to open up cycling to a greater range of Victorians, promoting the benefits of riding a bike to underrepresented groups.

Transport for Victoria, through its Active Transport Victoria unit, will work with councils and state government agencies to deliver the strategy, ensuring cycling investments are coordinated and have maximum effect.

The strategy will help guide cycling infrastructure investment over the decade and ensure decisions consider Victoria's transport network as a whole, to deliver the best outcomes for all Victorians.

My personal thanks to the individuals, councils, bike user groups and state government agencies who helped develop the strategy.



A stylized, handwritten signature in dark ink, consisting of a large, looped 'L' followed by a horizontal line that tapers off to the right.

Luke Donnellan
Minister for Roads and Road Safety



EXECUTIVE SUMMARY

The Victorian Cycling Strategy 2018–28 vision is that:

We will increase the number, frequency and diversity of Victorians cycling for transport by:

- investing in a safer, lower-stress, better-connected network, prioritising strategic cycling corridors
- making cycling a more inclusive experience.

About 60 percent of Victorians are curious about cycling and like to ride, but they don't cycle, or cycle less, because they want a safer, lower-stress, better-connected network and a more inclusive cycling culture. If we had such a network and culture, four in 10 Victorians say they would be encouraged to cycle, or cycle more often, to destinations close to where they live. They would be attracted by the comfort and safety of the cycling experience, the predictability of the journey time and the low cost.

More people cycling will reduce congestion on public transport and take motor vehicles off the road. This will provide economic and environmental benefits for individuals and the community.

Cycling for transport

That's commuter trips such as from home to a place of work or education, (commonly trips up to 45 minutes) and local trips such as to the station, shops, or schools (mostly short trips to meet everyday needs).

Investment

This strategy sets out the strategic basis for Victorian Government funding commitments to develop a safer, lower-stress, better-connected network and prioritising strategic cycling corridors.

Safer

A majority of Victorians have real and perceived safety concerns that put them off cycling. We will improve safety using a Safe System approach to better separate pedestrians, bicycles and motor vehicles, reducing the need for cyclists to mix with other road users. This will reduce the risk of serious injury and death for cyclists.

Lower-stress

We will provide a lower-stress cycling experience by taking a whole-of-route approach to reducing traffic stress and ensuring it fits into an integrated network and delivers our goal of creating a lower-stress cycling network.

Better-connected network

People want a network of continuous, low-stress routes that connect directly and conveniently to other local and regional routes and which integrate smoothly with metropolitan and regional multimodal transport networks. We will better integrate cycling and public transport by prioritising cycling networks to train stations and by improving bicycle infrastructure at them, by improving the experience of cyclists on buses and V/Line trains, and by amending the Victoria Planning Provisions to improve outcomes for cyclists in planning including end-of-trip facilities. We will work with local councils to address gaps in strategic cycling corridors and continue to incorporate new cycling infrastructure in major transport projects.

Strategic cycling corridors

Strategic cycling corridors are the arterials of the bicycle network, which join up important destinations: the central city, national employment and innovation clusters, major activity centres and other destinations of metropolitan and state significance. We will prioritise strategic cycling corridors for investment to deliver safer, more direct cycling into and across Melbourne and Victoria. We will work with others to update guidelines for strategic cycling corridors to ensure a consistent approach to developing a high-quality network of cycling infrastructure.

More inclusive

Women, children and senior Victorians cycle far less than the typical cyclist, who is male and under 45. Making the network safer and lower-stress will increase the participation of underrepresented groups. We will also make cycling for transport a more inclusive experience by changing the way it is perceived – as something a diverse range of people do. We will help with education and support programs to increase the number and frequency of people in underrepresented groups cycling. This will result in more women, children and older people choosing to cycle instead of driving, reducing congestion on roads and crowding on public transport.

We will plan for emerging technologies that market cycling to more people, support recreational cycling and sport, tourism and community events, and support cycling to school.



INTRODUCTION

About this strategy

The *Victorian Cycling Strategy 2018-28* sets out a vision for the future of cycling in the state and a pathway to deliver it. The strategy's vision is:

We will increase the number, frequency and diversity of Victorians cycling for transport by:

- investing in a safer, lower-stress, better-connected network, prioritising strategic cycling corridors
- making cycling a more inclusive experience.

Cycling has become more popular over the past two decades, and its many health and wellbeing benefits are now widely understood. This strategy aims to transform cycling over the next decade by setting out the strategic basis to increase cycling for transport. It provides the direction to better plan and deliver the safer, lower-stress and better-connected cycling network Victoria needs. This will support funding commitments to deliver high-quality cycling infrastructure and to improve the coordination of planning, development and delivery of cycling investments and programs. The strategy also recognises government and non-government organisations must work together to deliver a high-quality, connected cycle network.

Four in 10 Victorians say they would be encouraged to cycle, or cycle more often, to local services within 3km of where they live, if the cycling network was safer and better-connected and if it provided a lower-stress experience. Competition for space with other road users, overreliance on shared paths and lack of protected cycleways have all impeded the uptake of cycling.

How we developed the strategy

To develop the *Victorian Cycling Strategy 2018-28*, the Department of Economic Development, Jobs, Transport and Resources consulted with cyclists, the Victorian community, local councils, state government agencies and other stakeholders over the past two years. It received written submissions from 170 individuals and 45 organisations and 2,539 responses to an online survey. It also held several stakeholder and community workshops.

The strategy also draws on relevant research and on the experiences of the great, and the emerging, cycling cities of the world.

Implementing the strategy

Transport for Victoria through its Active Transport Victoria (ATV) unit will be responsible for implementing the strategy. In October 2016, the Victorian Government established ATV as a unit within Transport for Victoria to increase rates of walking and cycling in Victoria.

Transport for Victoria brings together the planning, management and coordination of Victoria's transport system and its agencies including VicRoads and Public Transport Victoria (PTV). Transport for Victoria has overarching responsibility for the entire transport portfolio and will in time be the single source of information about Victoria's road, train, tram, bus, taxi, active transport and freight networks. It is also responsible for planning Victoria's future transport system, ensuring it grows and adapts as the community, economy and technologies change.

Many organisations are involved in planning, delivering and managing cycling infrastructure including Victorian government planning authorities, authorities delivering major projects, local councils, VicRoads, Parks Victoria, the Transport Accident Commission, utility providers and public land managers. Local councils, in particular, do much of the planning, construction and maintenance of Victoria's cycling infrastructure.

In implementing the strategy, ATV will collaborate with state and federal government agencies, local councils and other stakeholders. This will ensure cycling is integrated into the planning, development, delivery and operation of transport systems. ATV will help coordinate state and local government resources to provide a safer, lower-stress, better-connected network for cyclists.

Cycling in Victoria

Active transport is very important for Victorians. Recent research indicated that 21 per cent of journeys during the morning peak include walking or cycling. More than half the vehicle trips in Melbourne are short trips: of less than 6km. Encouraging people to cycle rather than use a car for short trips will reduce pressure on the road network and support the development of 20-minute neighbourhoods.

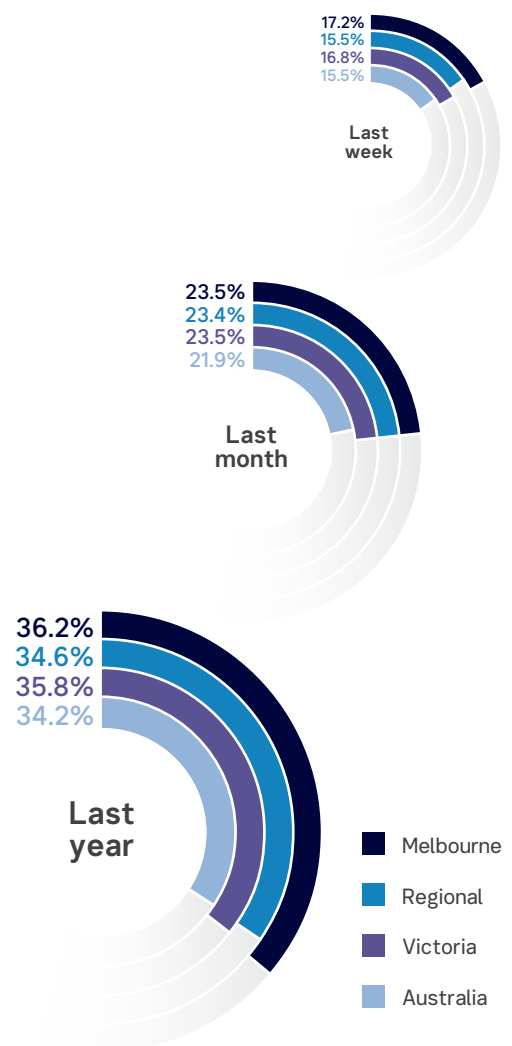
Plan Melbourne 2017–2050 emphasises the need to plan for 20-minute neighbourhoods by creating a network of cycling links for local trips. The 20-minute-neighbourhood idea is simple: it's about people being able to meet most of their everyday needs through a 20 minute walking, cycling or public transport trip from their home. This will reduce their need to journey beyond their local area. It is about improving accessibility to local services and facilities such as shops, restaurants and schools, without using a car. The concept applies equally to Melbourne and to Victoria's regional cities.

Participation in cycling

Figure 1 shows the proportion of the population who cycled in Melbourne, Victoria and Australia in the week, month and year before the 2017 study.

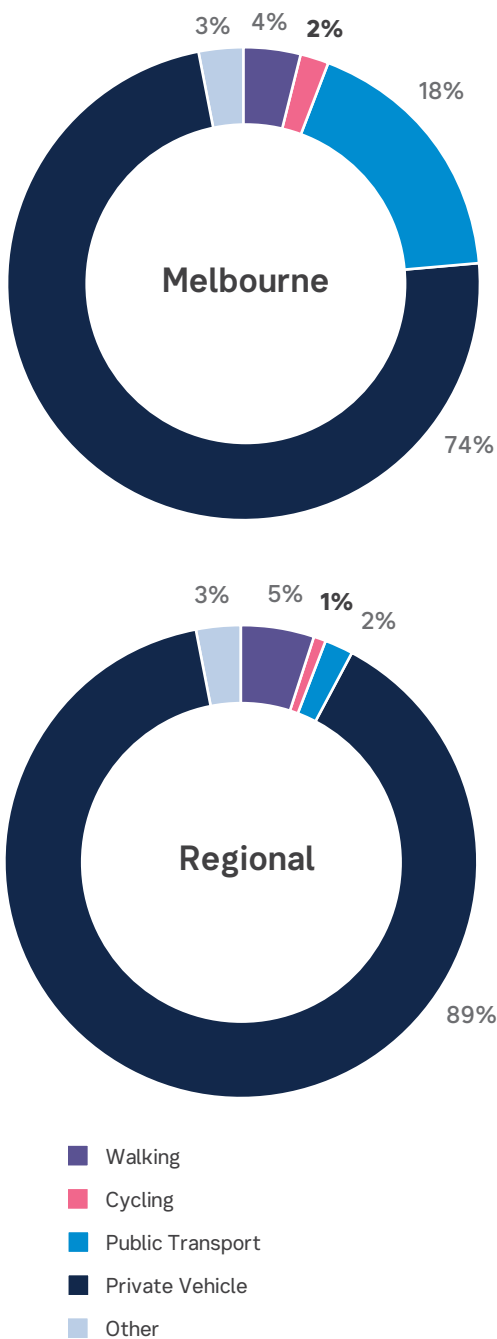
More detailed survey data tells us the proportion of people cycling in regional Victoria has fallen since 2011, but the proportion cycling in metropolitan Melbourne has stabilised since 2011. While over a third of Victorians have cycled in the last year, most of them did so for recreational purposes rather than for transport.

Figure 1: Participation in cycling, various jurisdictions, 2017



Source: Austroads, 2017 National Cycling Participation Survey

Figure 2: Journeys to work, by mode of transport proportion and location



Cycling to work

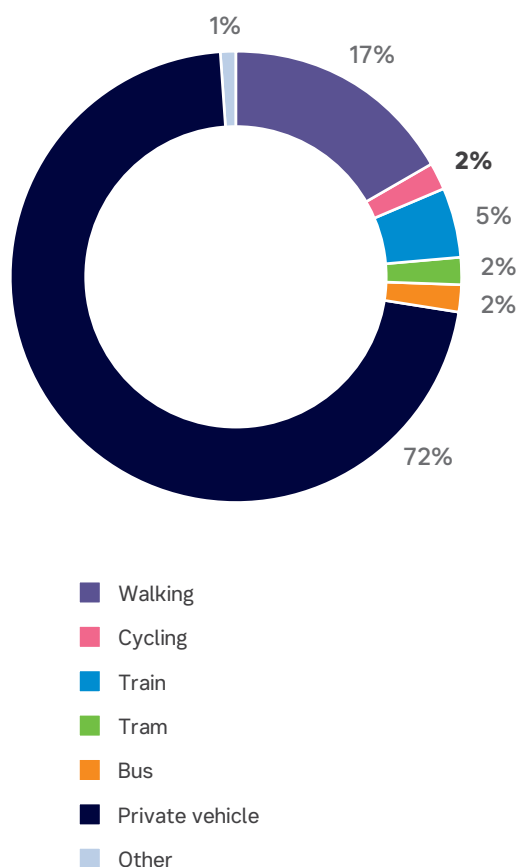
Figure 2 shows the proportion of Victorians who cycle to work. While the number of people cycling to work is low compared with the number using other modes of transport, work journeys are typically the longest journeys we take.

The City of Melbourne is the most common destination for cycling journeys to work, with over one third of trips ending there. In 2016, during the morning peak, 17 per cent of private vehicles entering the City of Melbourne were bicycles, up from 11 per cent in 2012.

Residents of Melbourne's inner north municipalities make a much higher proportion of journeys to work by bicycle than the rest of Victoria. In 2016, residents of Yarra, Moreland and Darebin recorded the greatest proportion of cycling journeys to work, for instance, 16.5 per cent of work journeys from Fitzroy North were by bicycle.

Source: ABS Census Journey to Work 2016

Figure 3: Percentage of weekday trips by mode of transport, metropolitan Melbourne



Source: VISTA 2016

Weekday trips

Figure 3 shows the percentage of weekday trips taken in metropolitan Melbourne by various modes of transport in 2016. It shows:

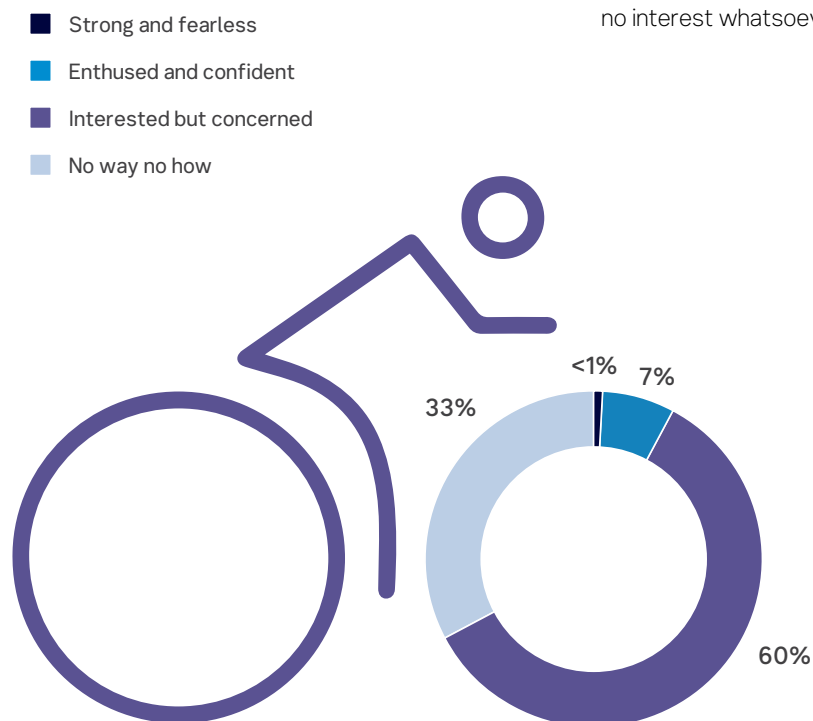
- about three-quarters of trips were by private vehicle and less than 2 per cent were by bicycle
- the percentage of trips by bicycle was equivalent to the percentage of trips by tram and bus.

Other VISTA data tells us that the percentage of bicycle trips is higher in some parts of Melbourne such as the inner northern suburbs, which have relatively good cycling infrastructure and higher population density. This makes cycling a good alternative to travel by road, rail and tram, which face increasing congestion and crowding.

Cycling attitudes and behaviours

People can be grouped into four types according to their cycling attitudes and behaviours, according to an American study. This is based mainly on their level of comfort when cycling and their interest in or intent to cycle for transport. This study is used internationally (including in Australia) to better understand people's propensity to cycle for transport and what can be done to encourage them. Figure 4 shows the estimate of the proportion of people in each group.

Figure 4: Peoples propensity to cycle



Source: Roger Geller, *Four types of cyclists*, Portland

Interested but concerned cyclists are the largest group, and they vary in age and cycling ability. They are curious about cycling and like to ride but are afraid to do so and put off by the need to ride close to motor vehicles and pedestrians, especially on higher-speed, higher-volume roads or where conflicts are more likely. This indicates that investment in cycling infrastructure to make it safer and lower-stress is worthwhile, to encourage interested but concerned people to cycle.

Of the other three types:

- strong and fearless cyclists will cycle regardless of road conditions and are ready to mix with traffic
- enthused and confident cyclists are already riding, but they could ride more and their riding experience could be better
- no way, no how people will not cycle because they can't, because the terrain is unsuitable or because they have no interest whatsoever in it.



Why increase cycling for transport?

People cycle for transport and for sporting, recreational and fitness reasons. While cycling for sport, recreation and fitness has major benefits including some of the benefits of cycling for transport, this strategy is about cycling for transport. This includes:

- commuter cycling trips, such as cycling from home to a place of work or education, (commonly trips up to 45 minutes)
- local trips, such as to the station, shops, local services, cafes, playgrounds or schools (commonly short trips to meet everyday needs).

Reducing the pressure on transport systems

Victoria's population is growing strongly. By 2051, the state's population is projected to reach 10.1 million people, with about 8 million living in metropolitan Melbourne. The population of regional Victoria will also grow, but unevenly: the large regional cities are projected to account for about 50 per cent of all population growth outside metropolitan Melbourne.

Melbourne's transport network will need to cope with an extra 10.6 million trips a day by 2050, up from the current 13.4 million trips taken a day.

Modelling suggests that even with high levels of investment in transport infrastructure, congestion will continue to be a major constraint unless we provide a more efficient transport network. The morning peak period is starting earlier and finishing later as pressure mounts on the system. Similar pressure will be put on the transport systems of our large regional cities.

For Victoria to continue to be a competitive state, with strong and healthy communities and high rates of social and economic participation, the share of trips by public transport, walking and cycling must increase. Land uses and transport systems must enable more people to meet more of their needs locally and rely less on their cars.

Achieving Transport Integration Act objectives

The *Transport Integration Act 2010* specifies six objectives for Victoria's transport system. The Act's six objectives (and how cycling can advise them) are shown on page 14 and 15.

Efficiency, coordination and reliability

Cycling is very efficient and can transport more people per square metre of road space than can cars and trams.

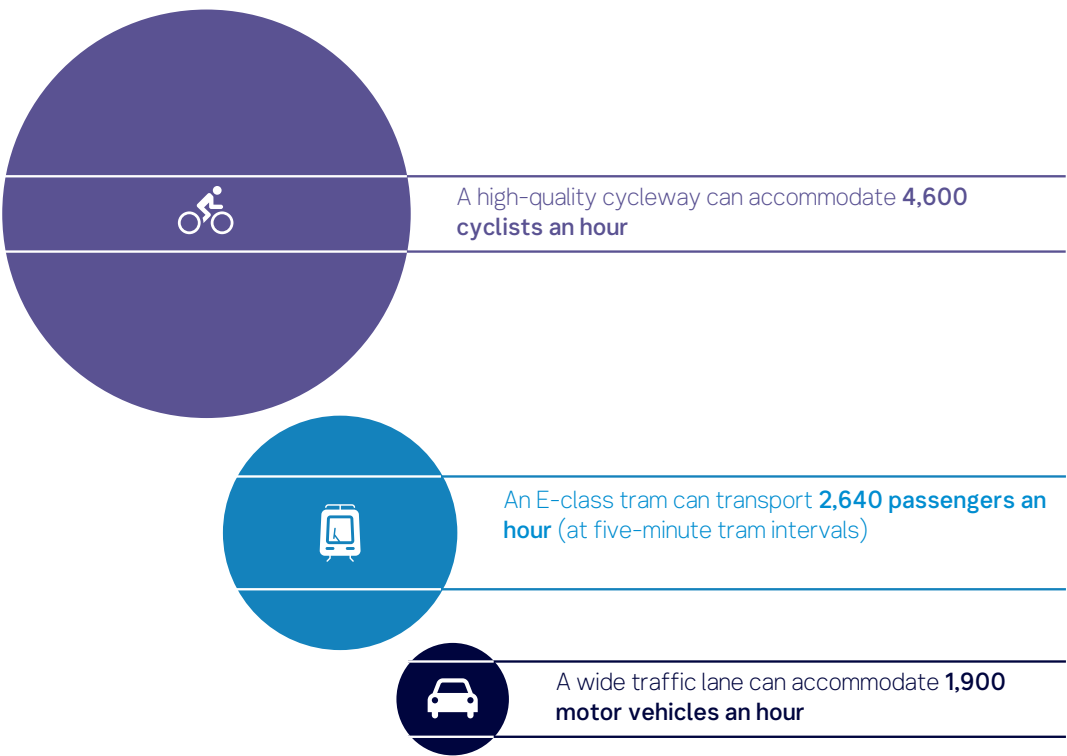
Figure 5 compares the modes of transport.

Economic prosperity

More people cycling means more economic benefits. For example, a 2011 Queensland Government study found a typical off-road cycle path can result in less congestion, lower infrastructure expenditure, lower vehicle operating costs and better health and environmental outcomes than for motorised transport.

More people cycling also develops the cycling economy: importing, retailing and servicing bicycles and related products is a substantial industry, with almost 1.4 million bicycles sold in 2015.

Figure 5: Modes of transport compared



Integration of transport and land use

As Victoria's population grows, we will be challenged to plan and deliver an integrated transport network while also enhancing a sense of place – the identity and character of an area that makes it attractive to residents and visitors. A well-planned and well-run transport system contributes to the social, economic and environmental aspects of a sense of place. In Victoria, all urban development must consider cycling improvements to support changing land uses. *Plan Melbourne* has many policy initiatives to build safe and healthy communities to which cycling can contribute, including 20-minute neighbourhoods – where people can meet most of their everyday needs with a 20-minute walking, cycling or public transport trip from their home.

Social and economic inclusion

Cycling improves connections within and between communities, which increases participation in social activities and employment. Cycling is an affordable mode of transport for many people. It can improve the mobility of women, children, seniors, students, people with low incomes and people who have recently arrived in Australia.

Safety and health and wellbeing

Cycling makes people physically active, more often, throughout their lives. Encouraging Victorians to be more physically active including by cycling is part of the state's efforts to fight chronic disease and obesity and improve mental health and wellbeing through the *Victorian public health and wellbeing plan 2015–2019*.

Environmental sustainability

Victoria's Climate Change Framework articulates the government's long-term vision for climate change action, and encourages cycling as a mode of transport. A cyclist who rides 10km each way to work can save 1.5 tonnes of greenhouse gas emissions a year. Cycling during peak periods also helps reduce emissions by moving more people more efficiently. Cycling also creates little noise and reduces the need to build, service and dispose of cars.

The strategy's legislative and policy context

This strategy supports and complements the following Victorian Government policies.

Transport Integration Act 2010

The *Transport Integration Act 2010* underpins this strategy. As Victoria's principal transport statute, the Act provides guidance about planning, managing and developing the transport system.

Plan Melbourne 2017–2050

Plan Melbourne 2017–2050 is the overarching vision for Melbourne's growth. It sets the strategy for supporting jobs, housing and transport, while building on Melbourne's legacy of distinctiveness, liveability and sustainability. Its vision is for Melbourne to continue to be a global city of opportunity and choice.

Plan Melbourne sets two policy directions that align with this strategy:

- supporting cycling for commuting, which includes developing strategic cycling corridors as direct cycling links across Melbourne
- creating a network of cycling links for local trips, which helps increase the number of cycling trips to public transport and other local services.

This strategy's vision includes increasing the number of local cycling trips. This will help implement *Plan Melbourne's* 20-minute neighbourhood concept – people should have safe, convenient access to a range of facilities and services within a 20-minute walk, cycle or public transport trip of where they live.

Regional Development

Regional Growth Plans provide broad direction for land use and development in each of Victoria's eight regions. There are also more-detailed planning frameworks for the main regional centres. Together with *Plan Melbourne*, regional growth plans provide strategic land use plans for the whole of Victoria and help integrate cycling infrastructure across the state.

Victoria's Regional Statement sets out the government's commitments to rural and regional Victoria. Tourism presents exciting opportunities for regions to promote public transport as a way of visiting popular destinations for weekend getaways and family holidays, accessing rail trails, and attending regional events.

The government's *Regional Network Development Plan* is the first-ever long-term plan to improve public transport in regional Victoria. It aims to improve connections between regional centres and Melbourne, and make it easier for people to move around regional Victoria using public transport.

The government will work with local councils on precinct planning to prioritise active transport by providing good pathways and signs to direct people to public transport and attractions. It will also examine ways to carry more bicycles on regional trains and will provide more bicycle cages and racks at regional stations and bus terminals.

Towards Zero

Towards Zero is a vision for a future free of deaths and serious injuries on Victoria's roads. This plan maps out how Victorian road safety partners will work toward a 20 per cent reduction in deaths and a 15 per cent reduction in serious injuries over five years.

Victoria's 30-year Infrastructure Strategy

Victoria's 30-year Infrastructure Strategy sets out a pipeline of initiatives to be delivered over the next three decades to improve the provision, operation, maintenance and use of the state's infrastructure. It aligns with this strategy's vision of increasing cycling for transport.

Victorian public health and wellbeing plan 2015–2019

The *Victorian public health and wellbeing plan 2015–2019* outlines the government's priorities over the next four years to improve the health and wellbeing of Victorians. The plan articulates the government's health vision: a state free of the avoidable burden of disease and injury, where all Victorians can enjoy the highest attainable standards of health, wellbeing and participation.

One of the plan's priorities is to promote healthier eating and active living. Cycling to work is included as a way to encourage people to be more physically active throughout their lives, in line with this strategy's vision.



GOALS AND STRATEGIC APPROACHES

Goal 1: Invest in a safer, lower-stress, better-connected network

1.1 Improve safety using a Safe System approach

Safety, both real and perceived, is the most important determinant of whether people cycle. This message came through strongly in the community consultations for the strategy.

Roads and related infrastructure should separate pedestrians, bicycles and motor vehicles. Most of Victoria's road network provides little or no separation for cyclists from other traffic. Although painted cycle lanes and neighbourhood cycling routes have helped people take up cycling, they do not adequately separate cyclists and other road users.

Cycling infrastructure such as cycleways and cycle paths should minimise potential points of conflict between modes of transport. It should be designed to reduce users' speeds and improve visibility at intersections and conflict points.

Cyclists are vulnerable road users with very little protection. In a collision, they are more likely to be seriously injured or die than if they were in a car.

The Safe System approach aims to minimise the risk of death and serious injury on the roads by taking account of the interaction between roads, vehicles, speeds and road users. The approach recognises road users are human, mistakes will occur and we should aim to reduce the severity of the consequences of those mistakes.

The Safe System approach views safety as a shared responsibility. Cyclists need to play their part but drivers have a responsibility to protect vulnerable road users — cyclists and pedestrians.

Strategic approaches

Under *Towards Zero*, Victoria's road safety strategy and action plan, the Victorian Government is investing a record \$1.1 billion to implement the Safe System approach. This includes \$100 million to improve infrastructure for pedestrians and cyclists. We will continue to use the Safe System approach as we create a safer, lower-stress, better-connected network.

How does the Safe System approach improve cyclists' safety?

The Safe System approach has four elements, each of which has aspects that improve cyclists' safety.

Safe roads: Safe roads help reduce crashes and minimise the severity of cyclists' injuries in a crash. Separating cyclists and motorists by installing cycleways, cycle paths and protected intersections reduces the likelihood of a crash. Investment in traffic calming also helps reduce conflicts between cyclists and motorists, especially on local roads.

'Dooring' related to on-street parking is a major safety issue for cyclists. The interface between on-road parking and cyclists is being improved by better design and location of on-street parking and by relocating on-street parking where suitable alternative parking places are available nearby.

Safe vehicles: Progress toward autonomous vehicles offers opportunities to better protect cyclists. Driver-assistance technologies (such as automatic braking, blind-spot detection, lane assist, collision avoidance and driver-fatigue detection) are helping reduce the likelihood and severity of crashes with cyclists. The Australasian New Car Assessment Program (ANCAP) is likely to promote uptake of these technologies.

Safe speeds: Where it's not feasible to separate cyclists and motor vehicles, lower speed limits on local streets can reduce road trauma and improve safety for vulnerable road users. The TAC has also funded programs to educate road users and change perceptions about speeding including by creating a culture where people see speeding as being as unacceptable as drink driving.

Safe people: Because protected cycling infrastructure won't be available on every road in Victoria, we need cultural change to make the roads safer for all users. Everybody has a part to play in preventing death and serious injury on the roads. As road users, we all need to comply with road rules, and to be safety-conscious and alert, so we develop a road safety culture where no one regards death or injury on the roads as inevitable. We need a culture that supports every driver, pedestrian, cyclist and motorcycle rider to avoid and reject behaviours that are dangerous or unsafe. Safe behaviour is the responsibility of every road user.



1.2 Provide a lower-stress cycling experience

Research and consultations for this strategy showed cyclists' biggest concern is traffic stress – the potential or actual stress arising from interactions with motor vehicles. Cyclists can also be stressed by other factors including inadequate or no information, delays and hills, but traffic stress is the most important factor.

The level of traffic stress varies across the cycling network depending on motor vehicle conditions (the volume of vehicles, the speed at which they move and parking activity) and whether people cycling are in mixed traffic, a cycle lane or a protected cycleway. People make their choice to cycle based on the highest level of traffic stress they expect to encounter on a route. If a section of a route is high-stress, many people (particularly interested but concerned people) will decide not to cycle.

To minimise traffic stress, protected infrastructure such as cycleways and cycle paths can be installed to separate cyclists from vehicles. Internationally, cities that have invested heavily in connected and fully protected cycling corridors have recorded the biggest safety improvements and boosts to cycling participation.

Figure 6 illustrates the level of traffic stress as four points on a scale. The scale is based on the principle that installing cycling infrastructure to increase the physical separation of cyclists from motor vehicles reduces traffic stress.

Implementing the level-of-traffic stress approach when investing in the cycling network will also improve the perceived and actual safety of cyclists.



Figure 6: Level of traffic stress scale

Strategic approaches

We will implement the level of traffic stress approach to provide a safer, lower-stress cycling experience on strategic cycling corridors and more generally to guide decision-making for and investment in cycling infrastructure. We will draw on the experiences of Amsterdam, Copenhagen, London, San Francisco, Portland and other cities that have built safer, lower-stress and better-connected networks to increase cycling for transport.

As interested but concerned people are deterred by any high-stress section of a corridor, we will evaluate whole routes and prioritise high-stress sections for improvement. Other government agencies that develop proposals which affect a strategic cycling corridor will also adopt this approach.

An integrated transport network seeks to make the best use of limited road space by prioritising particular modes of transport on particular sections of road to maximise the efficiency of the network.

Strategic cycling corridors should provide a safe, lower-stress cycling for transport experience without undue impact on other modes of transport, to maximise the efficiency of the network.

As part of implementing the level-of-stress approach, we will review the priorities of various modes of transport on strategic cycling corridors. This may result in relocating some strategic cycling corridors so they have adequate level of separation from traffic to provide a safer, lower-stress cycling-for-transport experience as part of an integrated transport network that prioritises particular modes of transport on particular routes.

Developing strategic cycling corridors to minimise levels of traffic stress is a new approach for Victoria. We will assess the level of traffic stress along cycling routes using a similar approach to that taken by the *San Francisco Municipal Transportation Agency Bicycle Strategy*.

Strategic cycling corridors

Strategic cycling corridors are the main routes of the bicycle network, like arterials are the main routes of the road network.

They are a subset of the Principal Bicycle Network (PBN) which is a high-level plan for some 3500km of existing and proposed on-and off-road cycling routes.

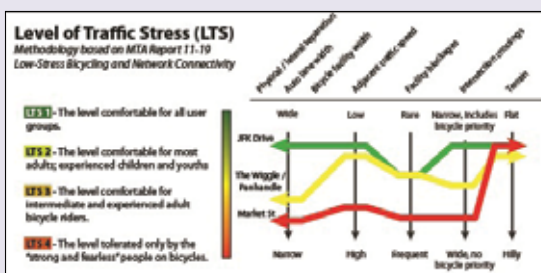
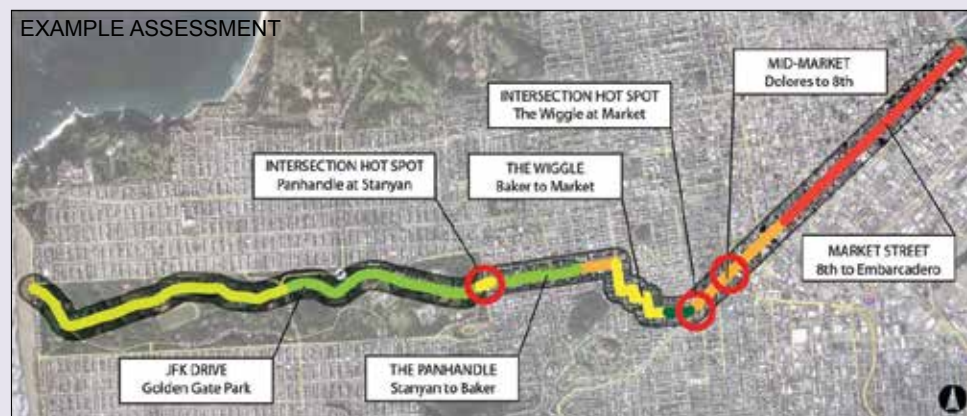
Strategic cycling corridors are the most important routes for people cycling for transport as they link up important destinations: the central city, national employment and innovation clusters, major activity centres and other destinations of metropolitan or state significance.

San Francisco reduces cycling stress

The consistency of the level of traffic stress along a cycling corridor is just as important as the comfort of a specific intersection or road, according to the *San Francisco Municipal Transportation Agency Bicycle Strategy*.

The agency found a significant increase in traffic stress along a short stretch of road or at a particular intersection (a traffic stress hot spot) can be a major deterrent for cyclists along the whole corridor.

The agency used a level of stress methodology to assess the comfort of the hot spots against seven key factors such as adjacent traffic speed and terrain. It then used the results of the assessment to improve infrastructure and raise the level of comfort for cyclists along the corridor.



1.3 Prioritise strategic cycling corridors for investment

VicRoads has worked with councils to identify strategic cycling corridors across Victoria.

Prioritising investment in strategic cycling corridors will provide safer, lower-stress and more direct journeys into and across Melbourne and Victoria for people who already cycle, and encourage more interested but concerned people to cycle.

Strategic approaches

The Victorian Government will prioritise investment in the strategic cycling corridors with the current and potential highest levels of demand, in essence providing arterials for people who cycle for transport. They will be within and outside road reserves, on local and state roads, and will be designed to maximise the separation of cyclists and motor vehicles.

We will invest in high quality infrastructure for strategic cycling corridors to make cycling on them an attractive mode of transport for people of all ages, especially interested but concerned people. This will make these corridors safer, lower-stress and part of a better-connected network. It is the best way to increase the number and frequency of people cycling and to attract a greater diversity of cyclists.

To determine the most suitable type of infrastructure for each particular strategic cycling corridor such as a cycleway, cycle path, shared street or a combination of these types, we will consider the users, level of traffic stress, land use, road environment, network hierarchy, natural environment and heritage factors.

User-centred pilot trials (such as using inexpensive, temporary materials for buffers) are a good way to test and validate proposed design solutions, introduce the public to new road conditions and gather evidence about the preferences of people who cycle for transport.

Separation between
cyclists and motor vehicles
offers the prospect
of safer, lower-stress
and more direct journeys

Cycle superhighways transform commuting in London

Transport for London's cycle superhighways are a good example of a protected cycleway that delivers safer and more direct journeys into and across a major city.

On many sections of the cycle superhighways, cyclists are separated from pedestrians and motor vehicles. The superhighways have widened footways, new pedestrian crossings, branding, wayfinding and innovative safety infrastructure at intersections.

London's cycle superhighways are popular and have improved the efficiency of roads. In the first five months after four new routes were opened, the number of cyclists using these routes and surrounding routes increased by more than 50 per cent. Studies show that roads with cycling superhighways almost immediately moved more people each hour than they could have without.



1.4 Update guidelines for strategic cycling corridors

To create a safer, lower-stress, better-connected network of strategic cycling corridors, we need a more consistent approach by state government agencies, local councils and industry.

Current national standards for cycling infrastructure offer many options, which results in inconsistency. There is a need for specific guidelines for strategic cycling corridors in particular. We have an opportunity to build on successful solutions from elsewhere, and several guides have been developed overseas that we could adapt to suit Victoria.

About one-third of all cycling casualties result from crashes at intersections and crossings. Most intersections and crossings in Victoria do not provide adequate safety and priority for cyclists.

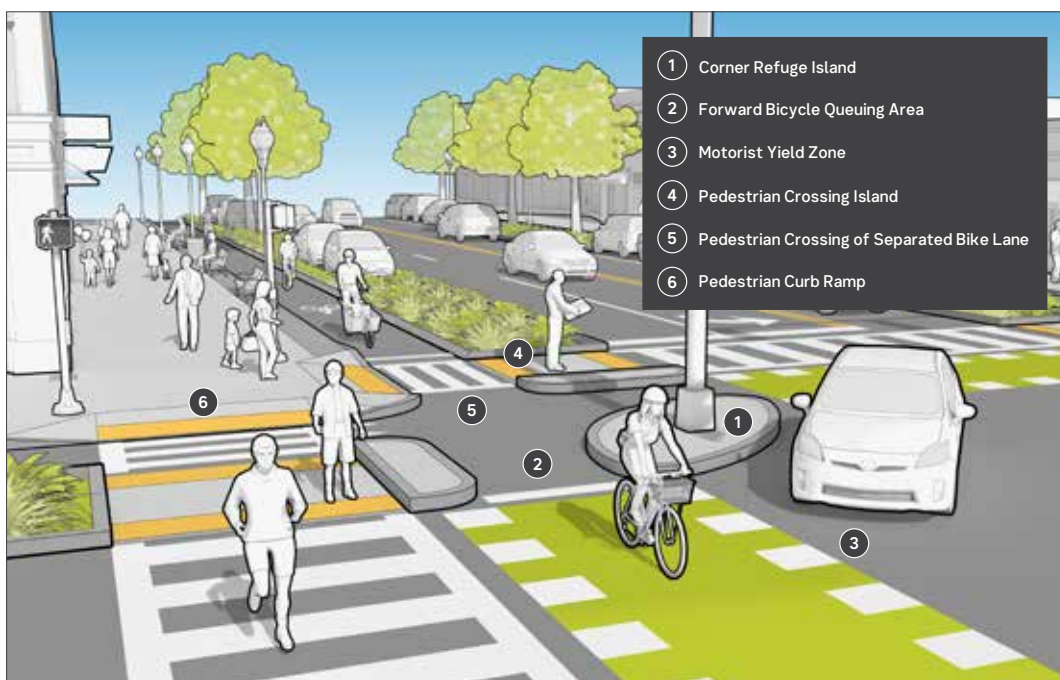
Protected intersections — road junctions at which cyclists and pedestrians are separated from cars — increase the safety, comfort and connectivity of cycling routes and offer a great opportunity to reduce the level of stress for cyclists. Figure 7 shows some elements of a protected intersection.

Intersections and crossings on strategic cycling corridors should be designed so cyclists can cross or turn safely, efficiently and comfortably. This includes reducing conflicts, reducing speeds at conflict points and providing adequate sight distance — the distance a driver needs to properly see a person cycling.

Strategic approaches

We will work with state government agencies, local councils and industry to review and update guidelines for strategic cycling corridors to ensure a consistent approach and understanding of what a high-quality network of cycling infrastructure looks like.

Figure 7: Elements of protected intersections



Source: Massachusetts Department of Transportation 2015, *Separated Bike Lane Planning & Design Guide*.



1.5 Integrate cycling and public transport

Participants in the strategy consultations said cycling routes must be better integrated with public transport with facilities such as lockers and bicycle parking to encourage more people to cycle for transport. They said they are put off cycling because the network is not continuous and does not adequately protect cyclists. They wanted a network of continuous, low-stress routes that connect directly and conveniently to other local and regional routes, all of which integrate smoothly with metropolitan and regional multimodal transport networks.

Given the need to reduce the pressure of growing population on the states transport networks, it is particularly important to integrate strategic cycling corridors with stations and major interchanges on the public transport network that serve places of state significance. *Plan Melbourne* and regional growth plans identify these places as:

- the Melbourne central city
- national employment and innovation clusters
- metropolitan activity centres
- state-significant industrial precincts
- transport gateways
- health and education precincts
- major urban renewal precincts; and
- regional cities and centres.

PTV's policy is for bicycles to be carried for free on Melbourne metropolitan trains. Carriage of bicycles is allowed on V/Line trains subject to space availability, and space is often limited. In 2016–17, external bicycle racks were installed on buses on four routes across Victoria in a 12-month trial, with the positive results encouraging further evaluations.

There is also a need for strategic, coordinated investments by state and local councils and others in end-of-trip facilities at stations and other major public transport interchanges. There are currently about 100 Parkiteer bicycle cages on the metropolitan and regional rail network, and one-third of metropolitan stations have one or more cages. Bicycle hoops in weather-protected locations at shops and stations are an inexpensive alternative. Other end-of-trip facilities might include showers, changing rooms, lockers and bicycle maintenance facilities.

Strategic approaches

We will prioritise improving strategic cycling corridors to train stations. This will increase the number of passengers cycling to public transport stops, providing many benefits including reduced demand for car parking.

We will continue to better integrate cycling with public transport by improving the experience of cyclists on buses and V/Line trains.

We will improve end-of-trip facilities at major public transport interchanges. This will include investigating more-flexible bicycle-parking options, especially in high-demand areas.

1.6 Work with local councils to address gaps in strategic cycling corridors

Local councils develop and manage their own municipal bicycle networks. These neighbourhood cycling connections provide safe access to local destinations and are essential links to strategic cycling corridors and the Principal Bicycle Network (PBN). While strategic cycling corridors provide the main routes, most cyclists make the beginning and end parts of their journey on a local connection. These local bicycle routes also provide for short trips and service locally significant places and destinations. Local councils and state government agencies also jointly plan and develop the PBN.

Strategic approaches

We will work with local councils to join up strategic cycling corridors on local streets, arterial roads, highways, rail corridors and green spaces. We will work closely with local councils to plan, identify and deliver improvements to strategic cycling corridors and to support the 20-minute neighbourhood concept, especially for cycling to schools, train stations and activity areas.

1.7 Incorporate new cycling infrastructure in major transport projects

Major transport projects offer a valuable opportunity to improve strategic cycling corridors.

This is because planning and building high-quality cycling infrastructure as part of a new project is less-disruptive and lower-cost than retrofitting it into an existing development.

All major transport projects currently being planned and built such as the Level Crossing Removal Project and the West Gate Tunnel Project include substantial new and upgraded cycling infrastructure, including infrastructure to fill gaps in the strategic cycling corridor network.

Strategic approaches

The Victorian Government will continue to require high-quality cycling infrastructure as part of major transport projects. Government policy requires the needs of cyclists to be considered early in the scoping stage of transport projects, including connections cyclists may need to make outside the project area.

Neighbourhood cycling connections provide safe access to local destinations and are essential links to strategic cycling corridors

Better, safer cycling paths for Melbourne's west

Cyclists in the west will benefit from 14km of new and upgraded shared use paths when the West Gate Tunnel Project is built.

The new paths, which include a new 2.5 kilometre cycle path above Footscray Road, will complete the Federation Trail and the missing links in the Kororoit Creek Trail. This will separate cyclists and pedestrians from motor vehicles for their entire journey from Werribee to the Melbourne central business district.

A new path along Hyde Street and a new bridge over Whitehall Street will take cyclists and pedestrians away from the dangerous Somerville Road – Whitehall Street intersection. Spotswood and Yarraville will be better-connected with a new pedestrian and cycling path from Hyde Street reserve to Spotswood station.

A new bridge over Footscray Road near Dudley Street will make crossings safer at one of Melbourne's busiest intersections. The existing path on Dynon Road will be upgraded to give cyclists a new bridge over Moonee Ponds creek and a new connection to North Melbourne.

Construction will start in early 2018, with works to be completed by end of 2022.



1.8 Improve outcomes for cyclists in planning

The strategy consultation process found that amendments to the Victoria Planning Provisions (VPP) will be needed to achieve the strategy's goals.

The VPP do not currently recognise strategic cycling corridors. Such recognition is important because investments and actions by governments, developers and other parties should give due consideration to the government's focus on these corridors.

The VPP should be updated to align the need for high-quality cycling infrastructure and requirements for new developments.

As cycling participation increases, the VPP will need to ensure there are adequate end-of-trip facilities in workplaces and residential developments. The updated VPP will also provide useful guidance about best-practice provision of end-of-trip facilities.

Strategic approaches

The Victorian Government will amend the VPP to recognise strategic cycling corridors.

We will investigate updating planning controls to improve the provision of cycling infrastructure in new developments. We will also partner with local councils and other stakeholders early in planning for new developments to ensure plans include cycling infrastructure.

The Victorian Government will work with local councils to review and update the VPP (clause 52.34) enable an increase to the number and standard of bicycle parking and end of trip facilities, especially in high-demand areas.

VPP will need to ensure there are adequate end-of-trip facilities in workplaces and residential developments

Fishermans Bend prioritises cycling

Cycling and other sustainable transport options will be a key feature of the Fisherman's Bend development.

Fishermans Bend is Australia's largest urban renewal project, covering 491 hectares in the heart of Melbourne.

It will accommodate 80,000 residents and 80,000 jobs by 2050 and is an opportunity to set new benchmarks for inner-city urban renewal including:

- an integrated transport strategy including cycle paths, tramlines and an underground rail line
- a target of 80 per cent of transport movements made via public transport, walking or cycling.

Fishermans Bend will be served by an integrated and sustainable transport network that provides ease of movement, both within the precinct and to surrounding areas including the Melbourne central business district.



Goal 2: Make cycling a more inclusive experience

2.1 Improve awareness and acceptance of cycling as a mode of transport

Community consultations about the strategy showed that greater awareness and acceptance of cyclists by all road users was necessary to make cycling a safer, lower-stress experience.

Many people have not cycled in close proximity to motor vehicles or thought much about the cyclist's situation. Therefore, they have a limited awareness and understanding of the cyclist's vulnerability on the road and at intersections.

Educating new drivers to drive safely is key to encouraging a positive road safety culture. International experience shows it provides an opportunity to improve awareness of cyclists and their safety; cyclist awareness is a core competency in Finnish and Dutch driver training and testing, and these countries are examples of best practice in road safety.

Educating cyclists about how to ride safely and the importance of obeying road rules is also important. During the strategy consultations, we were also told many people, including beginner and inexperienced cyclists, are discouraged from cycling by the poor behaviour of other cyclists.

Educating all road users is especially important where cycling infrastructure is not protected. It helps ensure more people cycle without an increase in cyclists' injuries and fatalities.

Strategic approaches

We will work to increase respect between cyclists and motorists, and awareness of how their behaviour affects the other. We will continue to conduct public awareness campaigns to increase awareness of people who cycle and their needs. We will investigate improving training requirements to improve awareness and acceptance of cycling as a mode of transport.



2.2 Increase the participation of underrepresented groups

Women, children and senior Victorians cycle far less than the typical cyclist, who is male and under 45. Women and older people say that safety concerns discourage them from cycling. Overseas data indicates that providing protected cycling infrastructure increases participation by underrepresented groups.

People are more inclined to cycle when they see it as something a diverse range of people do, and when they feel accepted. Participants in the strategy consultations thought the attitudes and behaviours of cyclists and other road users would improve if they saw women, children, seniors and people from other underrepresented groups cycling.

To attract a more diverse range of people to cycling, it's important to make cycling a more comfortable experience. Separating cyclists and motor vehicles makes cycling more comfortable by reducing traffic stress.

It also improves the cyclist's comfort by reducing their exposure to traffic noise and pollution. In addition shared-use paths, while good for recreational cycling, often don't provide a good experience for people cycling for transport because they are indirect, lack adequate lighting and require cyclists to share space with pedestrians.

Other factors that make cycling a more comfortable experience are:

- placing routes through attractive and safe locations
- providing wider and smoother paths that allow for side-by-side cycling and overtaking in comfort
- keeping existing paths well-maintained
- minimising delays for cyclists, particularly at intersections and crossings
- providing good lighting and foot rests.

Underrepresented groups are also put off cycling by lack of knowledge of safe routes, the demands of bicycle maintenance and lack of riding partners.

Strategic approach

We will work with advocacy groups and other stakeholders to help with education and support programs that aim to increase the number and frequency of people in underrepresented groups cycling. Investing in a safer, lower-stress, better-connected network will also increase participation by women, children and seniors.

2.3 Support cycling to school

If more students cycle to school, there will be less traffic congestion near schools and on nearby roads. The percentage of students walking or cycling to school is significantly less than in the past. In 1970, only 16 per cent of students (primary and secondary) were driven to school, but by 2016 this had increased to 65 per cent.

The percentages are even higher for primary school, with almost 74 per cent of children being driven. Inner Melbourne primary schools fared slightly better, with 7 per cent of trips by bicycle and 36 per cent on foot. As students transition to secondary school, there is a notable shift to using public transport. Almost no secondary students cycle to school in the outer suburbs.

Encouraging children to cycle to school is an important way to increase the uptake of cycling by adults. If primary school students see cycling as a normal, practical and fun way of travelling, they are more likely to cycle as secondary students and on into adulthood.

It's also healthy to cycle to school. Studies show the single most effective way to improve the rate of physical activity and reduce the rate of childhood obesity is to get children out of cars and into active transport. Increasing the number of students riding to school creates a safer road environment, as drivers have more experience sharing roads with children.

Strategic approaches

The Victorian Government will work with local councils to improve cycling routes and facilities at schools, which will help increase the number of children cycling to school.

If more students cycle
to school, there will be less
traffic congestion near
schools and on nearby roads

Victorian kids pedal their way to a healthy and happy lifestyle

Ride2School is a nationwide program delivered by Bicycle Network that helps schools encourage, empower and enable more students to get physically active on their journey to school. The program is showing Victorian kids there's no commute quite like an active one.

Ride2School schools have more than double the national average of school students incorporating exercise into their daily commute.

The Victorian Government has guaranteed funding for the program until 2019 to ensure more kids can enjoy the benefits of an active lifestyle.



2.4 Plan for emerging technologies

The road and rail networks have a lot of built-in technology that enables the real-time collection of data about how the networks are performing and meeting users' needs. Bicycle networks do not. Cycling network managers have to rely on intermittent data collection and anecdotal evidence to identify issues of concern on the cycling network.

Inadequate data means inadequate evaluation. It prevents us accurately assessing the performance of the cycling network, determining whether conditions for people who cycle are getting better or worse and making fully informed decisions about investments. These factors combine over time to reduce the confidence Victorians have in the cycling network.

Also, research about the effects of electric bicycles (e-bikes) is limited and more work is needed to understand cyclists' requirements and to incorporate e-bikes into cycling in Victoria, including on strategic cycling corridors. E-bikes will become more popular over the next decade, as they counteract barriers to cycling such as hilly terrain and longer distances. E-bikes may also suit people who have stopped cycling because of injury, illness or age. This is particularly important for Victoria's ageing population.

The bicycle-share market has evolved with the arrival of dockless bicycle technology. Dockless share bicycles customers use an app on a mobile device to locate a nearby bicycle and unlock it. However, there are issues with these services, mainly with bicycles being abandoned in inappropriate public places.

Strategic approaches

To identify current and future trends and to inform government investment, we will collect data and other information about cycling and cyclists. This will enable us to prioritise investments and identify economic and other benefits in business cases for investments. It will also enable us to measure the benefits of the existing cycling network, to better justify future investment.

Methods to collect data and other information include:

- journey mapping the stress levels of cyclists on each strategic cycling corridor
- using bicycle counters to measure the number of cyclists at particular locations over time
- market research to define the profiles of cyclists and noncyclists and to identify and explore attitudes, beliefs, opinions and values about cycling
- smart phone technology (e.g. blue tooth, big data).

The Victorian Government welcomes moves by local councils to ensure that share bicycle operators are accountable for their bicycles. The government will continue to work with local councils so they have the powers they need to meet the challenges posed by this emerging industry.



2.5 Support recreational cycling and sport, tourism and community events

Victoria offers tourists natural landscapes, numerous trails and a climate and terrain suited to a variety of cycling activities. To encourage cycling tourism, wayfinding information and secure places to store bicycles are essential. Better integration of cycling with public transport, such as increasing the amount of bicycle parking at stations and making it easier to carry bicycles on public transport, will help make cycle tourism more accessible.

Sport and community cycling events encourage infrequent cyclists to ride more often. These events also generate economic and social activity in local communities.

Strategic approaches

We will investigate design options that enable more bicycles to be carried on regional trains and continue to improve bicycle storage and end-of-trip facilities at stations.

We will continue to develop trails to improve the attractiveness of cycling tourism across Victoria, including rail trails. These usually follow disused rail corridors and provide a comfortable, enjoyable environment for people to cycle for leisure.

The Victorian Government will continue to support community cycling events such as the Jayco Herald Sun Tour, the Great Victorian Bike Ride, Around the Bay, the Cadel Evans Great Ocean Road Race and Wiggle Amy's Gran Fondo.



Victoria offers tourists natural landscapes, numerous trails and a climate and terrain suited to a variety of cycling activities

Better trails support cycle tourism

North-east Victoria is becoming one of the world's top destinations for trail cycle tourism.

In July 2017, the Victorian Government announced a \$12 million investment to help deliver world-class cycling infrastructure to the region including new sections of trail linking historic gold rush towns and diggings, Aboriginal sites of significance and some of Victoria's most beautiful scenery.

The North East Cycling Optimisation project builds on the almost 250km of scenic, sealed rail trails, dozens of mountain bike tracks and spectacular road rides that are found across Victoria's high country.

Stage 2 of the project includes:

- enhancements to the existing Murray to Mountains Rail Trail
- a 31.4km extension of the Murray to mountains rail trail by linking Beechworth and Yackandandah
- trail enhancements such as better signage, community hubs and digital interpretations
- marketing to local and international audiences.

The project will also kickstart private sector investment as businesses take the opportunity to boost their tourism offering with new accommodation and food options to meet increased demand.



DEFINITIONS

Cycle path

an area open to the public which is protected from motor vehicles and which is for use by people on bicycles only (in which case it is a **bicycle path**) or by pedestrians and people on bicycles (in which case it is a **shared-use path**). A cycle path can be within or outside a road reserve.

Cycleway

a protected bicycle lane within a road reserve.

Principal Bicycle Network (PBN)

the network of existing and planned routes that provide facilities for people to cycle for transport (especially locally), as well as for sport, recreation and fitness.

Protected intersection

an intersection where pedestrians, cyclists and motor vehicles have dedicated and protected space. A protected intersection is within a road reserve.

Shared street

a local road that is managed to provide safe conditions for cycling.

Strategic cycling corridor (SCC)

a designated cycling route that joins up important destinations: the central city, national employment and innovation clusters, major activity centres and other destinations of metropolitan or state significance.

Veloway

another term for a cycle path.



