Strategic Cycling Corridor Network Overview

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Department of Transport

Contents

Introduction

Purpose of this document

This document provides an overview of Strategic Cycling Corridors (SCCs) in Victoria, including:

- The SCC network planning principles
- Overview of the 2018 - 2019 SCC review process
- Relationship of SCCs with the Movement and Place (M&P) Framework.

Background of SCCs

SCCs are important routes for cycling for transport[1] and link up important destinations including the Central City, National Employment and Innovations Clusters, Metropolitan Activity Centres and other destinations of metropolitan and regional significance. SCCs can be on and off road, on municipal and state roads and are designed to provide a safe, lower-stress cycling for transport experience.

The SCC network was first developed in 2015, recognising that state funding would be better directed into a smaller 'spinal' subset of the Principal Bicycle Network (PBN). With the release of the Victorian Cycling Strategy 2018-28 (the 'Strategy'), the criteria for SCC alignment, network coverage and facility type changed from when SCCs were first identified.

Level of Stress

Consultation as part of the development of the Strategy, showed that 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 mixing with pedestrians, inadequate or no information, delays and hills, but traffic stress is the most important factor to deterring the take up of cycling.

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 those 'interested but concerned'[2]) 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. Implementing the level of stress approach when investing in the SCC network will also improve the perceived and actual safety of cyclists.

Cycling in Victoria

Active transport is very important for Victorians; however, it is currently very underrepresented as a mode of transport.

Most cycling trips are short trips – more than half of vehicle trips in Melbourne are less than 6kms. VISTA[3] data shows that the average weekday trip length by bicycle is:

- 3.9km for trips originating from inner Melbourne
- 6.2km for trips originating from middle Melbourne
- 2.9km for trips originating from outer Melbourne
- 4.2km for trips originating from Geelong
- 3.6km for trips originating from regional Victoria.

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 (principle within Plan Melbourne 2017-2050).

[1]Cycling for transport is defined as commuter trips (to work or education) and local trips such as to stations, shops or schools (mostly shorter trips to meet every day needs).

[2] Sixty per cent of the population describe themselves as 'Interested but Concerned' in relation to cycling. This cohort vary in age and ability, 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 high-speed, high volume roads or where conflicts are more likely to occur.

[3] Victorian Integrated Survey of Travel & Activity (VISTA) 2014-16 dataset. 2009-10 dataset used for regional Victoria. Accessed online: https://public.tableau.com/profile/vista#!/vizhome/VISTA-Trips-timeseriesAccess/Trips-methodoftravel

2018 - 2019 SCC review

One key action from the Victorian Cycling Strategy 2018-28 was to review the SCC network to ensure it is meeting its intended goal of providing key transport links on routes where a lower stress, safer cycling environment can be delivered.

Over an 18-month period from 2018 to 2019, the Department of Transport (DoT) engaged with municipal councils and other key stakeholders including Bicycle Network and the RACV, to review the original SCC network. Workshops were held in 2018 and 2019 with all metropolitan and identified regional Councils. The first workshops sought stakeholders' ideas while the second workshops focused on feedback and refining the SCC network. The workshops were attended by council officers, DoT (including VicRoads and Active Transport Victoria), Bicycle Network and RACV. Consultation also occurred with other parts of DoT (Public Transport Victoria, Freight Victoria, tram, bus and rail planning), VicTrack, , Yarra Trams, and Resilient Melbourne.

The SCC network update is now finalised and available on the DoT website and VicRoads websites. Variations to route alignments may still occur through detailed future planning process, with the SCC network updated accordingly. DoT will continue to engage with local councils and key stakeholders to review route priorities for investigation, and development.

State Policy and Planning Context for SCCs

Victorian Cycling Strategy 2018-28

The Victorian Cycling Strategy 2018-28 was released in December 2017 following extensive consultation with local councils, key stakeholders and the community. The vision of the Strategy is to increase the number, frequency and diversity of Victorians cycling for transport by:

- Investing in safer, lower-stress, better connected networks, prioritising SCCs; and
- Making cycling a more inclusive experience.

Key actions within the Strategy that relate to the SCC network include:

- Working 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.
- Prioritise investment in the strategic cycling corridors with the current and potential highest levels of demand. Investing 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.
- Working with local councils to join up strategic cycling corridors on local streets, arterial roads, highways, rail corridors and green spaces. Working 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.

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* identifies that "For Melbourne to continue to be a globally connected and competitive city with strong and healthy communities and higher order social and economic participation, the share of trips by public, as well as active transport modes such as walking and cycling, must increase."

Plan Melbourne sets a policy direction that aligns with the review of the SCC network - supporting cycling for commuting, which includes developing SCCs as direct cycling links across Melbourne. Action 42 within the *Plan Melbourne 2017 Implementation Plan* is 'Strategic Cycling Corridors'. The action is to develop SCCs, beginning with links across the central city to enable more people to access jobs by bike from inner and middle suburbs.

This strategy's vision also 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 Growth Plans

Regional Growth Plans provide broad direction for land use and development across regional Victoria. They also provide more detailed planning frameworks for key regional centres.

Each of regional Victoria’s eight regions is covered by a regional growth plan. The regional growth plans are a key instrument in helping to identify future infrastructure investment needs to support local employment opportunities and education and health services. The plans identify where future growth is promoted and supported in the region.

The regional growth plans have been developed in a partnership with local government and state agencies and authorities through consultation with the community and key stakeholders.

The regional cities and towns that have been identified for the SCC review, are consistent with those in the Regional Growth Plans.

Strategic Cycling Corridor Network Planning Principles

The five principles that underpin the SCC network have been developed by drawing on international cycling network principles, while considering the local context. These principles were used to review and identify the 2020 SCC network update.

The principles are:

- Destination focussed
- Safe
- Direct
- Connected
- Integrated

They are outlined below in further detail.

Destination focussed

The SCC network provide important continuous routes “to and through” for cycling for transport, linking up significant destinations, with the greatest activity or density of trips. These routes provide connections across suburbs and municipalities.

For metropolitan Melbourne, key destinations are consistent with Plan Melbourne’s places of state significance that will be the focus for jobs, investment and growth. These are:

- The **Central City**
- **National Employment and Innovations Clusters** (NEICs)
- **Metropolitan Activity Centres** (MACs)

The SCC network also provides access between these places of state significance and **Major Activity Centres.** It also connects higher order public transport interchanges (classified as I1-I3 within Movement and Place).

In a regional context, key destinations are:

- State (P1) and Regional (P2) and some Municipal (P3) Centres
- Other key **employment** and education centres
- Key **health** and **recreation** precincts
- Commuter **railway stations**

The more significant the destination and the number and concentration of trips, the denser the SCC network surrounding the activity. In metropolitan Melbourne, the density of SCCs is highest in the Central City. In regional Victoria, the SCC network will be denser in Regional Cities (P1s) – Geelong, Ballarat and Bendigo.

It is not essential that SCCs run directly through major areas of activity, especially where competing modal priorities make this difficult and will slow down a cyclist’s journey to a place of State Significance. They must, however, be within close proximity to the activity, with the Municipal Cycling Links (C3) providing safe access from the SCC to the final destination.

While SCC routes have a final destination, they also provide for a number of shorter trips along the route. For example, the longer distance connection from Melbourne’s outer south to the CBD, also provides access to stations and activity centres along the route.

Where there is an isolated key destination, such as a Major Activity Centre on the urban fringe or a regional school, the SCC will be anchored to a residential catchment. For example, the SCC route providing a connection to Lilydale Major Activity Centre and railway station and a longer distance connection to Ringwood Metropolitan Activity Centre.

Safe

The SCC network will be designed to encourage the 'Interested but Concerned' group of the population to cycle for transport, through the provision of a safer, lower-stress cycle environment. This will be achieved, in part, by implementing a 'Level of Stress' approach when planning the network.

The SCC network also takes a Safe System approach, which 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.

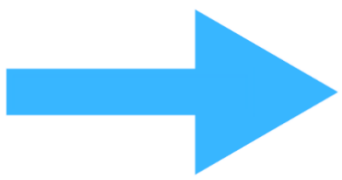
Based on this, there are three key typologies[4] for the SCC network:

- Shared (bicycle) Street
  - a local road that is actively calmed to provide self-enforcing safe system conditions for cycling, typically through low vehicle speeds and volumes
  - considers a range of options to mix or provide partial separation between bicycles and vehicle traffic
  - service roads provide opportunities to be considered as Shared Streets if managed appropriately
- Cycleway
  - Protected bicycle lanes within the road reserves for the exclusive use of bicycle traffic
  - Limit the potential for vehicle traffic to encroach on bicycle traffic through the provision of horizontal or vertical separation for vehicle traffic and pedestrians
  - Types of cycleways include:
    - Kerbside: unidirectional cycle lane protected from traffic by a horizontal barrier
    - Copenhagen: unidirectional cycle lane protected from traffic by a vertical barrier
    - Bidirectional: two-way cycle lanes protected through horizontal or vertical barrier
- Bicycle path
  - A path that is open to the public which is protected from motor vehicles and for the exclusive use of bicycles. In areas of high bicycle and/ or pedestrian demand, the bicycle path should be separate from the pedestrian path.

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. Intersections and crossings on SCCs should be designed so cyclists can cross or turn safely, efficiently and comfortably.

Cycling is becoming more popular in Victoria and the Strategy has been developed to transform cycling for transport over the next decade. The ability to deliver a complete SCC network will need to be progressively developed through providing safe and lower stress routes, especially on priority corridors. In some instances, it will be preferable to provide improvements to local or recreational cycling routes to perform better for transport until major investment is reasonable in the SCC network.

Direct



The SCC network provides cyclists with a route that provides better travel times. Often, this is the shortest and most direct routes possible between State Significant origins and destinations, to offer users a competitive,

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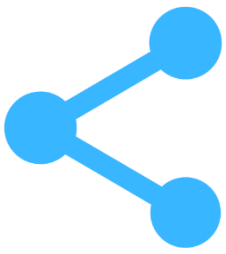
[4] User centred research and trials are a good way to test and validate proposed SCC typologies, introduce the public to new road conditions and gather evidence about the preferences of people to cycle for transport. Typologies to be updated following user testing.

efficient and attractive alternative to other modes. This is of particular importance, given that bicycles are powered by human physical exertion. Factors that impact on the route alignment for SCCs are:

- **Number of stops**: some routes that are longer in distance may provide for a faster overall journey time if they have less stops than more direct alternatives. For example, an SCC route may take a less direct route along a rail line or creek while avoiding a number of intersections that slow down the overall trip. For example, the Moonee Ponds Creek Trail from Greenvale to Footscray Road provides a better travel time than the alternative of.
- **Terrain**: some chosen routes are less direct so that they avoid steep inclines. For example, the route between Box Hill MAC and Monash NEIC does not take the alignment of the Middleborough Road – one consideration for this is due to the steep incline/decline at one section of the route.
- **Safety outcomes**: 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 balance the modes using the network. Chosen SCC routes may be less direct to avoid roads where the requirements for other modes is a higher priority and there is limited space available to provide safer, lower-stress cycling infrastructure. For example, there is an SCC route along Auburn Road, not Glenferrie Road, given the priority needed for tram, private cars and on-street car parking. In cases like this, the municipal and local links will need to support access to and from the nearby SCC to the activity areas.

Connected



The SCC network forms the core, state cycling network between key origins and destinations. It is equitably distributed across the state. It is supported and strengthened by municipal and local cycling links. Together, these networks form one cohesive, connected, accessible network that provides for complete cycling for transport trips.

Given the routes that SCCs serve, they do not provide for complete end-to-end cycling trips. A cyclist will use of combination of networks for a single trip. For example, a commute by bicycle from Beaumaris to the CBD could involve using municipal/local cycling links to travel from Beaumaris to Mentone, where municipal/local cycling links will connect with the SCC that takes the cyclists all the way to the CBD.

Integrated

The SCC network is integrated and balanced with the broader transport network, including access to stations and public transport interchanges, and surrounding land uses, recognising that cycling is one of many modes that make our city connected, accessible and liveable.

It provides a real transport options for many, including in areas where there are fewer transport options. End of trip facilities will be required at destination points to ensure cycling is a viable option.

The network recognises that modal priorities change across the network. SCCs are placed on routes where cycling will be a priority mode, given the important function it is playing in the network, both to support transport and place outcomes.

For example, an SCC has been identified on Chapel Street in South Yarra. For this SCC to be realised, the balance of modes along this link will need to change in accordance with the “Chapel Street Vision”. On the other hand, there are routes where cycling is not being prioritised and, therefore, SCCs have not been identified on these links – such as Springvale Road, in Glen Waverley.

Movement and Place

The Movement and Place Framework (the Framework) is being developed to assist with designing, planning and delivering a modern transport system that meets the increasing needs of people and businesses, whilst creating and improving great places that make up our state. The Framework offers progressive ways of working so that a variety of considerations and outcomes in land-use and transport planning are better integrated. All transport modes have been classified in relation to movement. The SCCs have been translated into the movement and place cycling classifications and are outlined below.

What is movement and place?

Fundamental to movement and place thinking is recognising that streets perform multiple functions. Transport links not only move people from A to B, they also serve as key places and destinations in their own right.

There is a natural tension between the objectives of these two functions. As a movement corridor, every link aims to minimise travel time and keep people and goods moving. Contrarily as a destination, it aims to increase visitor dwell time.

Not all streets can be popular destinations, just as not all streets can prioritise vehicle movement. Sometimes streets and roads change functions several times along the way. It is important to recognise the competing demands between movement and place on our roads and streets. Finding the right balance between the two is fundamental to integrated transport planning.

This way of thinking implies that when we plan and develop the transport network, we need to consider the breadth of community needs, expectations and aspirations for the places they live and the roads and streets they pass through.

The Movement and Place Framework turns strategic aspirations into action. It brings to life the strategic objectives of both transport and planning in Victoria to achieve movement and place goals in the context of road safety and environmental outcomes.

It provides a tool to translate the broad transport outcomes we are seeking at the network wide level through the Transport Integration Act, into priority changes to improve link and place performance for the community.

An example from NACTO Complete Streets showing improved urban streetscapes with tree canopies, a high frequency bus lane and wide footpaths for improved amenity.

Movement and Place Cycling Classifications

The movement and place cycling ‘C’ classifications have been developed to communicate the broad aspirational movement links for cycling across the network. Cycling is a unique movement mode due to diverse user groups and operating environments. The M&P Cycling classifications aim to reflect this diversity and capture a holistic view of cycling on the Victorian network.

The network is made up of four classifications for cycling for transport C1 through to C4 and four ‘specialised cycling’ classifications.

The SCC network is made up of the C1 and C2 classifications.

	Cycling for Transport Classifications				Specialised Cycling Classifications			
	C1	**C2**	**C3**	**C4**	**CD**	**CNP**	**CT**	**CR**
Definition	*Primary routes* provide a core network of Strategic Cycling Corridors that connect places of state significance – the central city, Metropolitan Activity Centres (MACs) and National Employment and Innovation Centres (NEICs) within metropolitan Melbourne. In the future, this network may extend into regional cities.	*Main routes* are Strategic Cycling Corridors that provide additional connections to state significant destinations, as well as connections to major activity centres and key railway stations within metropolitan Melbourne. In regional towns, main routes provide the SCC network that connects to destinations of regional importance including activity areas, school and railway stations.	*Municipal routes* support mostly local, short trips to activity centres, including important links to stations and other interchanges. They also feed to C1 and C2 routes (SCCs).	*Neighbourhood and local links* that make up the balance of the cyclable road network and provide short connections to C1-C3 routes and nearby activity centres.	*Direct cycling routes* provide a more direct alternative route to C1-C2 routes. These routes are expected to be used by cyclists who are comfortable riding in higher traffic stress environments.	*Non-priority routes* make up the balance of the legally cyclable arterial road network (GT1-3).	*Training routes* are designated routes used for training and sports cycling, mostly longer distances and at high speeds	*Recreational routes* provide a quieter cycling environment for recreation and tourism. Routes usually run beside rivers, creeks and rail lines
	Key Design Elements							
Design Speed	***	**	**	*	***	***	***	*
Safety	***	***	***	***	**	*	**	***
Security	***	***	***	*	*	*	*	**
Directness	***	**	**	*	***	***	*	*
Minimal Delay	***	**	**	**	***	***	**	**
Comfort	***	***	***	**	**	*	**	***
Users	**All ages and abilities**				**Confident cyclists**	**Confident cyclists**	**Confident cyclists**	**All ages and abilities**

Note:

- Star ratings for key design elements: the more stars, the more important the design factor is. E.g. three starts for directness means the route must be very direct.
- The likely volume and diversity of use of links will increase as the links approach activity areas. The key design elements will need to consider the different environments to manage the potential conflicts and performance outcomes.

Key Design Element Definitions

Design Speed: the maximum speed a user should be able to travel mid-block

Safety: safe design for cycling should meet Safe Systems Principles, separating cycling as much as possible from motor vehicle traffic. Where encounters do take place, the speed and volume of traffic should be limited. Separation between cyclists and pedestrians is important, particularly in areas of higher conflict such as close to activity areas.

Security: the social safety of a route which includes routes travelling through areas of high public safety (active surveillance/activity) and sufficient lighting.

Directness: the distance needed to travel to reach a destination should be as short as possible and not unnecessarily winding.

Delay: the amount of delay at junction points or due to modal conflicts (e.g. shared pedestrian and cyclist environments) should be minimal.

Comfort: routes should be easily navigable, logical and enjoyable for the user. This includes good surfacing, signage/wayfinding, insulation from noise and pollution and be well maintained.

Appendix A Plan Melbourne Activity and Employment Centres

Metropolitan Activity Centres (P2)

- Box Hill
- Broadmeadows
- Dandenong
- Epping
- Footscray
- Fountain Gate-Narre Warren
- Frankston
- Ringwood
- Sunshine

Future Metropolitan Activity Centre (P2)

- Lockerbie
- Toolern

National Employment and Innovation Clusters (P2)

- Fishermans Bend
- La Trobe
- Monash
- Parkville
- Sunshine
- Werribee
- Dandenong

Major Activity Centres (P3)

Airport West	Coburg	Kew Junction	Reservoir
Altona	Craigieburn	Keysborough-Parkmore	Richmond-Bridge Road
Altona North	Craigieburn Town Centre	Lilydale	Richmond-Swan Street
Ascot Vale-Union Road	Cranbourne	Malvern/Armadale	Richmond-Victoria Street
Balaclava	Croydon	Manor Lakes	Rosebud
Bayswater	Deer Park	Maribyrnong-Highpoint	Rowville-Stud Park
Bentleigh	Diamond Creek	Melton	Roxburgh Park
Berwick	Doncaster East-The Pines	Melton-Woodgrove and Coburns Road	Sandringham
Boronia	Doncaster Hill	Mentone	South Melbourne
Brandon Park	Elsternwick	Mernda	South Morang
Braybrook-Central West	Eltham	Moonee Ponds	Springvale
Brighton-Bay Street	Endeavour Hills	Moorabbin	St Albans
Brighton-Church Street	Fitzroy-Brunswick Street	Mordialloc	St Kilda
Brimbank Central	Fitzroy-Smith Street	Mornington	Sunbury
Brunswick	Flemington-Racecourse Road	Mount Waverley	Sydenham
Burwood East-Tally Ho	Forest Hill Chase	Mountain Gate	Tarneit
Burwood Heights	Gladstone Park	Niddrie-Keilor Road	Toorak Village
Camberwell Junction	Glen Waverley	Noble Park	Wantirna South-Knox Central
Carlton-Lygon Street	Glenhuntly	North Essendon	Werribee
Carnegie	Glenroy	Northcote	Werribee Plaza
Caroline Springs	Greensborough	Nunawading	Williams Landing
Casey Central	Hampton	Oakleigh	Williamstown
Caulfield	Hampton Park	Officer	
Chadstone	Hastings	Pakenham	
Chelsea	Hawthorn-Glenferrie Road	Point Cook	
Cheltenham	Heidelberg	Port Melbourne-Bay Street	
Cheltenham-Southland	Hoppers Crossing	Prahran/South Yarra	
Chirnside Park	Ivanhoe	Preston-High Street	
Clayton	Karingal	Preston-Northland	

Future Major Activity Centres (P3)

- Beveridge
- Clyde
- Clyde North
- Hopkins Rd
- Mickleham
- Plumpton
- Riverdale
- Rockbank
- Rockbank North
- Sunbury South
- Wallan
- Wollert

Appendix B Interchange Classifications

Movement and Place classifications have been developed for stations to provide a consistent framework for integration of priorities within the broader transport network.

The station classification framework enables the articulation of expectations for different types of stations and demonstration of how the station fits in the network now, as well aspirations for its function in the future. This helps planners to understand current and future gaps and plan for improvement works.

Classification	Definition
I1	State significant interchanges, the major focal points of public transport usage in Victoria with the highest levels of connectivity, service diversity and activity.
I2	Regionally significant interchanges, attracting high numbers travellers from wide catchments to access a diversity of public transport services and/or regionally significant connections.
I3	Municipally significant interchanges, where the capacity, frequency and/or variety of services on offer attract travellers to them to access these connections from surrounding suburbs.
I4	Neighbourhood public transport hubs. Travellers will connect here with higher frequency/capacity services, or may travel from their local stop/area to access additional travel options.
I5	Local public transport stops which serve as the nearest, walkable point of access to the network for travellers, but are unlikely to attract those from further away.