Infrastructure Victoria Draft 30 Year Strategy: BikeWest Submission

March 2025

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About BikeWest

BikeWest is advocating for more state of the art cycling infrastructure in Melbourne`s west. We do this by submitting proposals for cycling infrastructure to councils and providing feedback on planned projects to ensure they are in accordance with the newest safety standards and meet the needs of the cycling community.

BikeWest's motivation to advocate for high quality cycling infrastructure is because we know this creates a better future for us and our children and society as a whole. We see quieter, calmer communities where young people are able to move about safely on their bicycles with increased amenity, reduced pollution and better quality of life.

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BikeWest Submission Infrastructure Victoria Draft 30-year Strategy

Introduction

Road safety is a critical public health and economic issue that must be central to any infrastructure strategy. As communities grow and transport networks expand, the risks to road users—particularly pedestrians, cyclists, and vulnerable populations—also increase. Investing in safer road designs, speed management, and evidence-based interventions not only saves lives but also yields significant economic benefits through improved health and negligible environmental impact. This submission highlights key road safety priorities that align with international best practices and local needs, advocating for a proactive, data-driven approach. By prioritizing road safety within infrastructure planning, it is possible to create a more sustainable, equitable, and resilient transport system.

Draft Recommendation 14

Make local streets safer for children and communities

Reduce speed limits to 30km/h on local streets, starting in places that children often visit including around schools, playgrounds, childcare centres and kindergartens.

Slower local streets reduce road trauma

BikeWest Response

In principle, BikeWest considers this to be essential and would bring Victoria into line with world's best practice. However, simply sign posting reduced speed limits and expecting them to be obeyed displays a profound lack of understanding regarding the main factors that determine the speeds at which drivers travel.

Lower speed limits should first be introduced around the areas identified, i.e. schools, playgrounds etc, as these areas have increased densities of children with a commensurate increase in risk of injury. Numerous studies from around the world show that these areas are hotspots for road traffic injuries[1][2].

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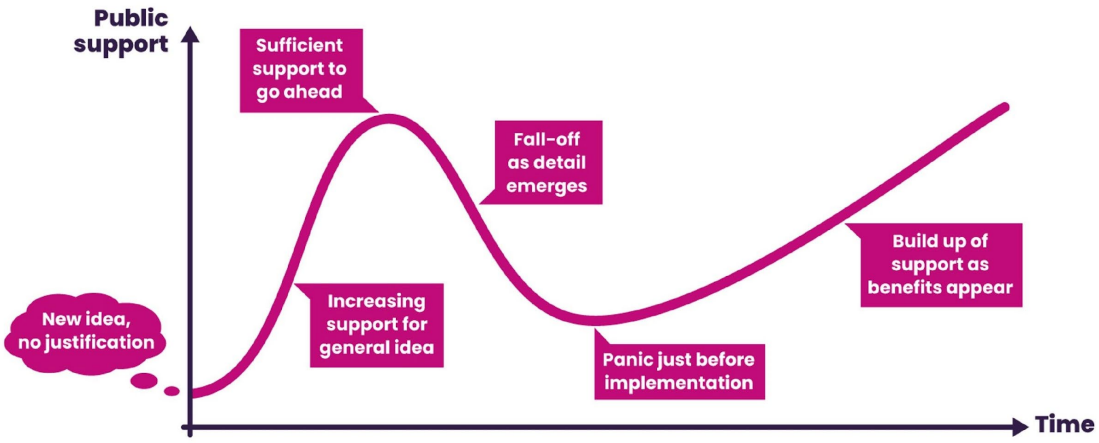
[1] Kendi S, Johnston BD, COUNCIL OI, Hoffman B, Agran PF, Culyba A, Dodington J, Lee LK, McFadden T, Monroe K, Tenenbein M. Epidemiology and prevention of child pedestrian injury. Pediatrics. 2023 Jul 1;152(1).

[2] Khan MN, Das S. Advancing traffic safety through the safe system approach: A systematic review. Accident Analysis & Prevention. 2024 May 1;199:107518.

We know that people nearly always drive at whatever speed they feel most comfortable driving[3]. This is how speed limits were first established; speeds were assessed in rural American roads, then the 85th percentile speed was arbitrarily chosen as the speed limit. Therefore, drivers' speeds were used to determine speed limits, not the other way around. While speed limits play a role, street design plays a much bigger role[4].

In Australia, most roads do not conform to Safe System guidelines that prioritise injury prevention. On these roads speed limit adjustments have primarily been used to address risk when roads do not have the features required to prevent crashes or reduce their severity[5]. Often there is some community disquiet about speed reductions and many authorities believe there must be a high level of community understanding about retrofitted streets before these can be implemented. However, this is not necessarily the case as explained by Goodwin, shows how (Figure 1) that after an initial period of opposition, acceptance increases as the benefits become apparent. This was also the experience in Auckland with the Future Streets Project[6][7]. The timid approach historically used in Australia display towards road changes inevitably means they rely upon speed limit signs that are then almost universally ignored with extremely low compliance and blame being allocated to police for a lack of enforcement as explained by Charles Marohn from Strong Towns[8].

Figure 1: Goodwin's public acceptance curve



Source: Goodwin P (2006) *The gestation process for road pricing schemes, Local Transport Today LTT444,* 1.6.2006.

[3] Perez MA, Sears E, Valente JT, Huang W, Sudweeks J. Factors modifying the likelihood of speeding behaviors based on naturalistic driving data. Accident Analysis & Prevention. 2021 Sep 1;159:106267.
[4] Marshall W. Killed by a Traffic Engineer: Shattering the Delusion that Science Underlies Our Transportation System. Island Press; 2024 Jun 4.
[5] Austroads 2020 Integrating Safe System with Movement and Place for pedestrians and cyclists Project Number: SAG6130
[6] https://www.futurestreets.org.nz/balancing-the-view/
[7] https://www.futurestreets.org.nz/community-perceptions/
[8] https://www.youtube.com/watch?v=H76cNOuP22w&list=PL4ZJBLI7Y9Vo-ogDOzMgLk1RrxAphs0Yv&index=3

Self-explaining roads

A key principle of road design is the "self-explaining road", an environment which encourages safe behaviour simply by its design. It uses simplicity and consistency of design so road users can easily comprehend the type of road and what is expected of their driving, reducing driver stress and driver error[9]. For example, in low-speed limit areas the road may be narrower, automatically encouraging drivers to slow down. A comparison familiar to those in the inner west of Melbourne is Arden St in North Melbourne that is dead straight for over 1km, approximately 23m gutter to gutter with 2 motor vehicle travel lanes in both directions, bicycle lanes with painted buffers and car parking on both sides that is rarely fully occupied. This compares with Anderson St in Yarraville that is 8m gutter to gutter with 2 rows of parked cars and approximately 1 ½ motor vehicle lanes (~4m wide). Both Arden St and Anderson St have the same speed limit of 40km/h. Drivers on Arden St routinely drive at 50-60 km/h as these conditions encourage people to drive at that speed regardless of the speed limit, whereas on Anderson St, it is rare for drivers to exceed 20km/h due to the crowded, narrow space. Drivers drive at speeds they feel comfortable with and slower streets and safer streets.

Consequently, the design of the road and specific road treatments are vital in creating streets suitable to the designated speed limit. Road treatments such as:

- narrowed driving lanes,
- smaller corner radii,
- road colour and/or texture changes
- roadside trees,
- gateway treatments
- pinch points,
- speed humps
- diverters and modal filters[10]

These interventions have proven to be effective in reducing fatalities and serious injuries. Consistent with the self-explaining road principle, good road design will achieve the desired driving behaviour/speed choices naturally, as opposed to simply changing the speed limit signs which is far less effective. This approach has been taken in Helsinki and Oslo leading to zero road fatalities in 2019[11]. These road design changes can be implemented in councils' annual road maintenance and resheeting programs at little additional cost.

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[9] https://toolkit.irap.org/safer-road-treatments/self-explaining-road-ser-concept/

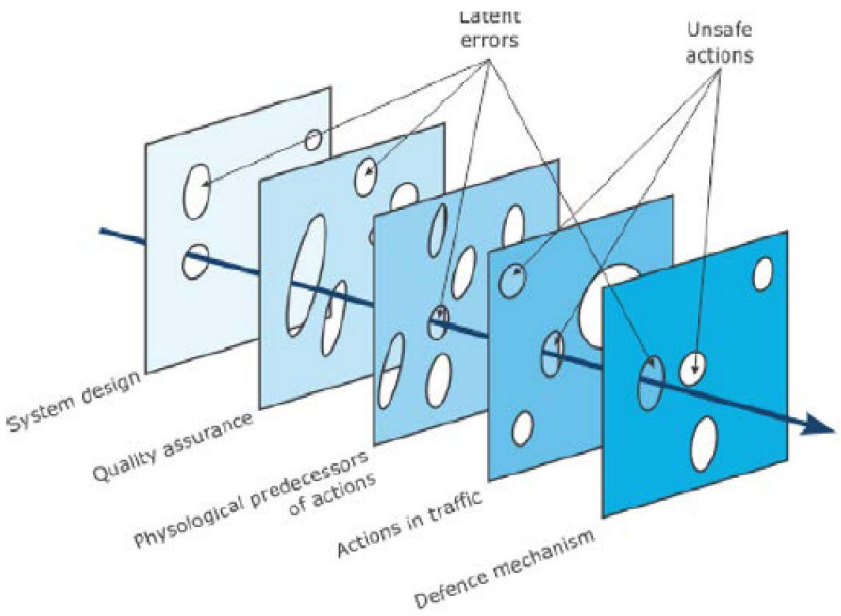
[10] https://globaldesigningcities.org/publication/global-street-design-guide/designing-streets-people/designing-for-motorists/traffic-calming-strategies/

[11] Hartmann A, Abel S. How Oslo achieved zero. Institute of Transportation Engineers. ITE Journal. 2020 May 1;90(5):32-8.

Human Error and Latent Failures

The design for roads should follow safe system principles and guidelines as when they do not, many "accidents" occur that are in fact predictable collisions or crashes. Far too many of these collisions are attributed to "human error" which is a catch all phrase used to describe outcomes that are usually the consequence of poor road design. Poor road design promotes latent failures. Latent failures derive from the road design and overall transport system. Latent failures are hard to detect as they are dormant in our transportation system. Injury prevention theory developed by James Reason's focus on systemic organisational weaknesses is illustrated by the "Swiss Cheese model" of injury causation. Active and latent failures can open "a trajectory of accident opportunities"[12]. To avoid this negative outcome a layered system of defence or "cumulative acts" should be enacted that will avoid exposing a single point of weakness that would otherwise lead to injury. These ideas have influenced the development and design of Safe System and are illustrated by the Swiss Cheese model as applied to road safety (Figure 2).

Figure 2: Reason's Swiss Cheese model applied to road safety [13]



For a fatality or serious injury to occur in such a design, 5 layers of the system would have to align, and this is highly unlikely and massively reduces the risk of such an occurrence. Such an approach would have saved the life of Angus Collins on Footscray

[12] Reason, J. (1997), Managing the Risks of Organizational Accidents, Ashgate Publishing

[13] Wegman, F. and L.T. Aarts (2006), Advancing Sustainable Safety: National Road Safety Outlook for 2005-2020, Dutch Institute of Road Safety Research (SWOV), Leidschendam

Rd in 2023[14][15]. The intersection where he was fatality struck by a truck driver had a large radius corner facilitating a higher speed, a wide pillar obscured the bike path from the driver, the bike path and road converged at an acute angle enlarging the blind spot of the driver, the traffic signal sequence gave both Angus and the driver green lights at the same time, there was no set back from the apex of the corner to the bike path. If any of these issues had been addressed, then Angus would be alive. The corner geometry could have been altered with bolt down concrete kerbs to make it a smaller radius, the bike path could have gone the other side of the pillar, extending the set back from the apex to the bike path would have brought Angus into the centre of the driver's field of vision, and the lights could not permit them to cross at the same time. All of these layers would have added to Angus's protection yet were not enacted.

Such an approach for road safety inevitably means adopting the Safe System approach. A Safe System moves beyond reactive, crash history-based approaches to a proactive approach. A proactive approach includes designers understanding human behaviour to know when we can "rely" on people acting safely but also when they cannot act safely and take measures in the infrastructure, in the vehicles and in the management of operating speeds to support the road user to act safely. A proactive approach also entails understanding risk and where the risk inherent in a road network is assessed and priority interventions are identified. A proactive approach also involves assessing infrastructure and where it is not in accordance with Safe System design principles; there is a plan for treatment on a priority basis before crashes begin to occur. Safety is a pre-requisite for the effectiveness of the transport system. By increasing safety, it is possible to get greater efficiency and higher output.

[14] https://www.abc.net.au/news/2024-10-23/melbourne-west-dynon-rd-city-link-intersection-accident-warnings/104504818

[15] https://www.abc.net.au/news/2023-02-07/cyclist-death-prompts-calls-changes-west-melbourne-intersection/101937556

Draft Recommendation 15: Build safe cycling networks in Melbourne and regional cities

Continue building protected and connected cycle corridors across Victoria. Publish updates to the strategic cycling corridor network.

Few Victorians ride bikes, even for short trips

More bike riding can reduce congestion

A network of safe cycling corridors will encourage more people to ride

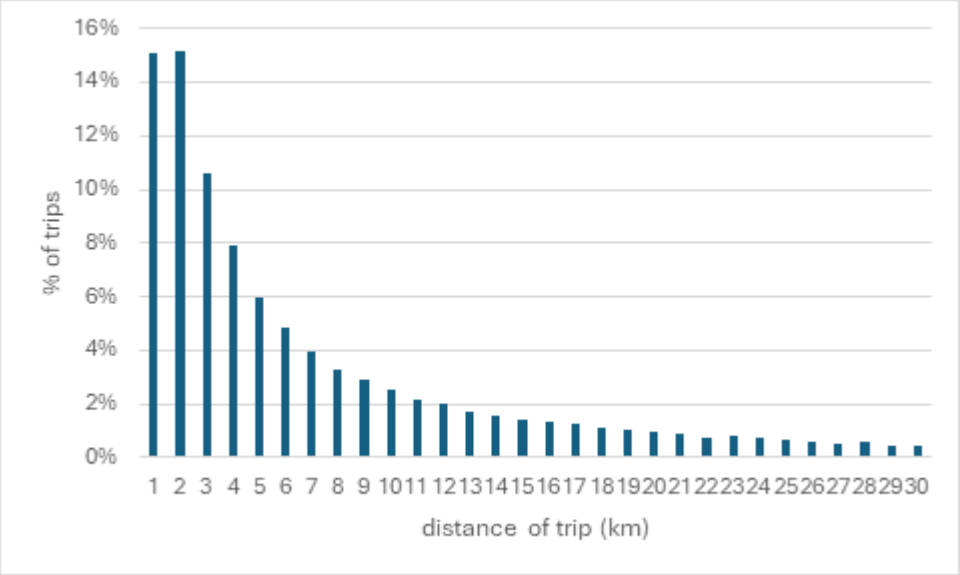
BikeWest Response

BikeWest strongly endorses the recommendation to build safe cycling networks, however, the emphasis on the 30-year-old concept that is continually ignored, the strategic cycling corridors is misplaced. The strategic cycling corridors are mapped on state government controlled roads and it is understandable an advocacy document aimed at the state government will focus on areas of their control. However, the bike network should focus on local government owned roads that constitute approximately 85-90% of all roads in Victoria. While the draft strategy proposes providing grants to councils to build safe cycle paths this is very much an afterthought. However, these are the roads that would be used in order for people to replace short trips (50% under 4.2km, 25% of trips under 1.6km[16]) (Figure 3) currently undertaken in single occupant private motor vehicles that are much more likely to be undertaken than long distance commutes (Figure 4).

Figure 3: % of trips by distance[17]

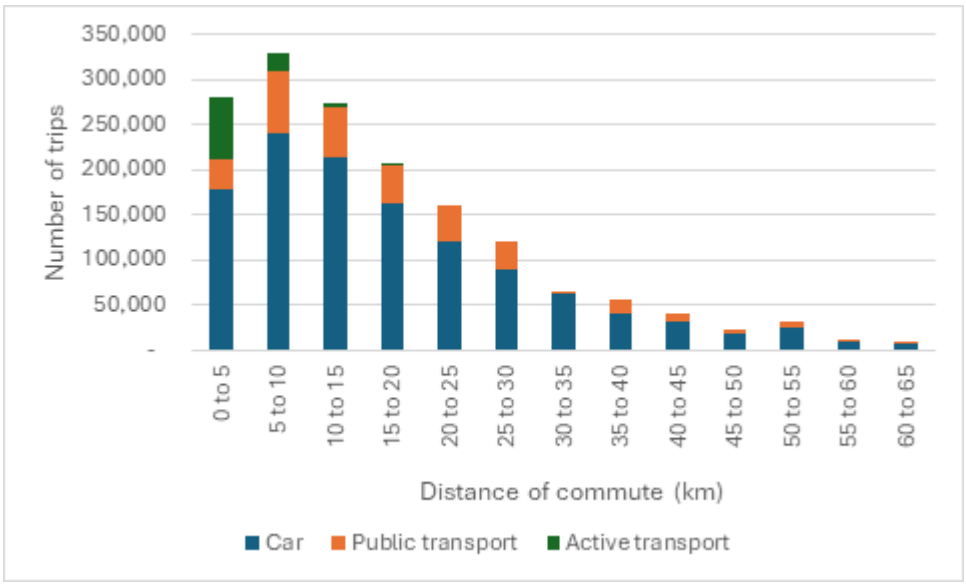
[16] https://www.vic.gov.au/victorian-integrated-survey-travel-and-activity

[17] Ibid and author's graph



The commuting distance distribution is very different to all trips and even so the active transport proportion is greatest at the 0-5km level with a less amount at 5 to 10 and a very small amount 10-15.

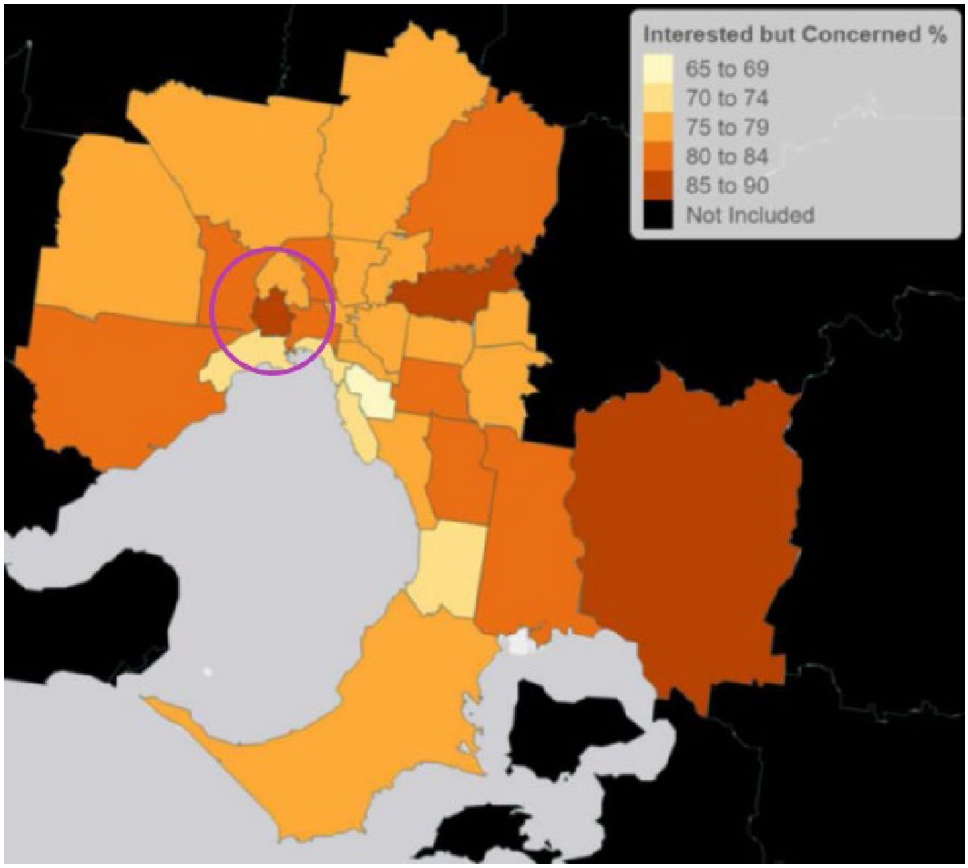
Figure 4: Proportion of commuter distances in Melbourne by mode[18]



These short trips will only be undertaken in any significant number by people who are "interested but concerned" and who represent approximately 75% of people in Melbourne and up to 90% in Maribyrnong (Figure 5).

[18] Ibid

Figure 5: Percentage of Interested but Concerned cyclists in Melbourne by Local Government Area



To encourage as many of this 75% to cycle, the infrastructure must be suitable for **All Ages and Abilities (AAA)**, or from 8 to 80 as described by NACTO[19]. A simple test to determine whether the infrastructure is safe enough, is to ask parents if they would let their 8-year-old ride there by themselves. If not, then it is not safe enough. In many countries 8-year-olds cycle to school by themselves as it is safe to do so and the parents recognise this[20].

The destinations of the short trips (50% under 4.2km, Figure 3) that can be replaced by bicycle trips include those to **Schools, Shops, Stations and Social/Sport** venues **(SSSS)**. This should be the cycling infrastructure priority for Victoria as the strategic cycling corridors mostly focus on long distance commuters and as such are far less likely to result in any significant mode shift.

This is particularly evident for the routes recommended for the west of Melbourne (Figure 6). 90% of the route to St Albans via West Footscray exists already running beside the railway line. While there are significant gaps and upgrades needed for this route (the black hole in Footscray being the main one) however this route will do little to

[19] https://nacto.org/wp-content/uploads/NACTO_Designing-for-All-Ages-Abilities.pdf

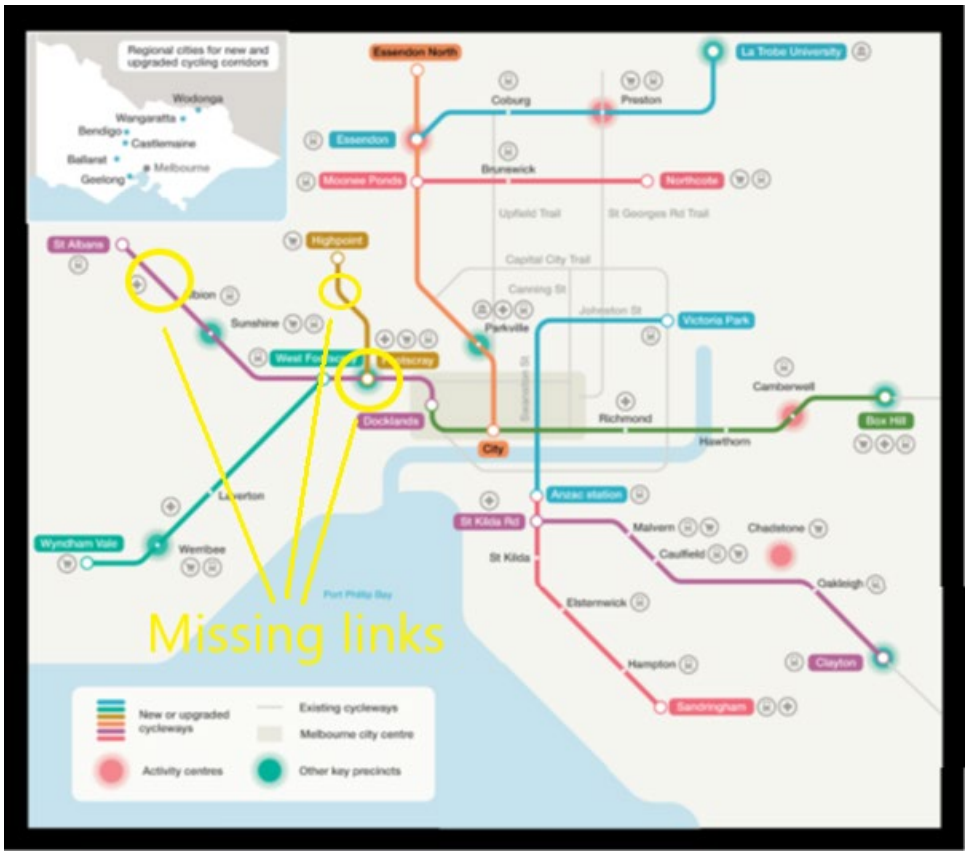
[20] Marzi I, Reimers AK. Children's independent mobility: Current knowledge, future directions, and public health implications. International journal of environmental research and public health. 2018 Nov;15(11):2441.

assist locals getting to shops, schools or social or sporting venues. However, it does assist in getting residents to train stations.

The route to/from Highpoint is presumably along the Maribyrnong River and also already exists (~95%) except for a small connecting section through Pipemakers Park. As the recent Highpoint parking plan[21] showed, a route to or from the city will provide little support for mode shift.

The route to/from Wyndham Vale is presumably the existing Federation Trail (100%) though the graphic misrepresents this by passing through West Footscray as opposed to Yarraville. It is difficult to imagine what alternative this may be other than protected bike lanes down Geelong Rd, Kororoit Ck Rd etc. BikeWest would not support such a proposal. While the Federation trail is popular for recreational riding and some commuters and is slowly being upgraded over time, it offers little assistance for those seeking to travel to schools, shops, stations and social/sport venues.

Figure 6: infrastructure Victoria proposed cycling routes



Therefore the 30-year infrastructure strategy for cycling in the west of Melbourne consists of patching up pre-existing infrastructure and filling a few gaps. This is not a bold vision to encourage more people to cycle, but rather kicking the can down the road

[21] https://www.yourcityyourvoice.com.au/highpoint-parking

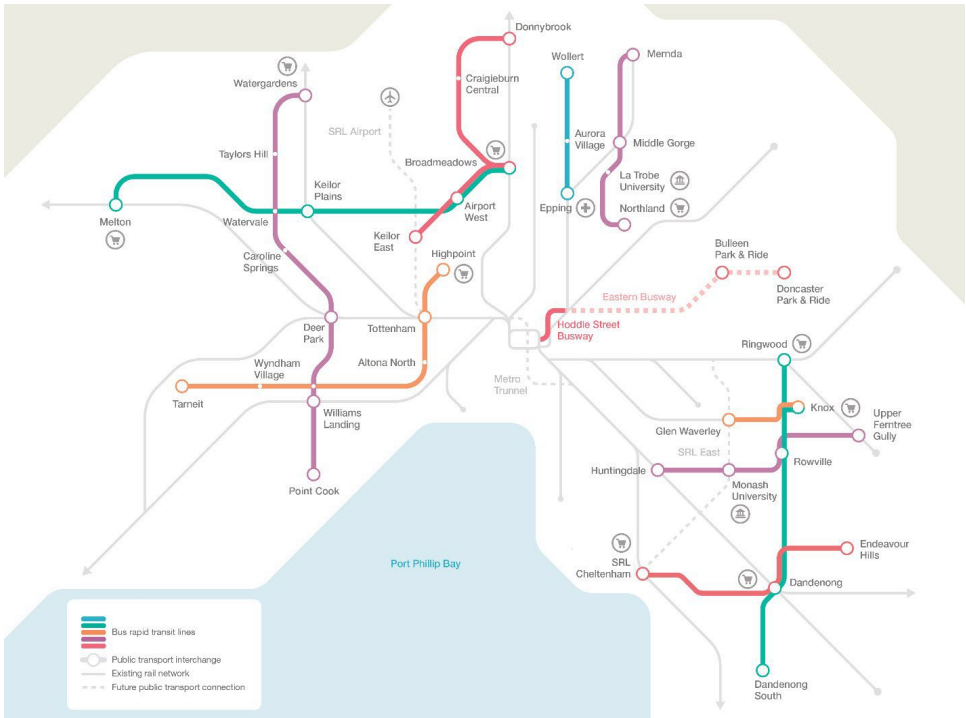
yet again. The approach is fundamentally flawed as the strategy implicitly admits with this statement on page 58:

> *To increase the benefits from this draft recommendation, Victorian and Australian governments can also give grants to councils to* ***build safe cycling paths between local destinations*** *and the new cycling corridors*

It is the local destinations that people wish to cycle to. It has been comprehensively established that people will not cycle if there is an unsafe gap in their route. This is consistent with network theory[22]. If the trip between the cycling corridors and their destination is unsafe, that person will never get on the cycling corridor in the first place. A recent study from New Zealand (one of the many) confirms this again[23].

Consequently, the proposed cycling corridors for the west are irrelevant to the overwhelming majority of residents in the west of Melbourne who will continue to have no choice but to drive everywhere for everything even with the proposed bus network. While the proposed Bus Rapid Transport is a good start (Figure 7) when compared to the existing bus network (Figure 8), its coverage is still far too low.

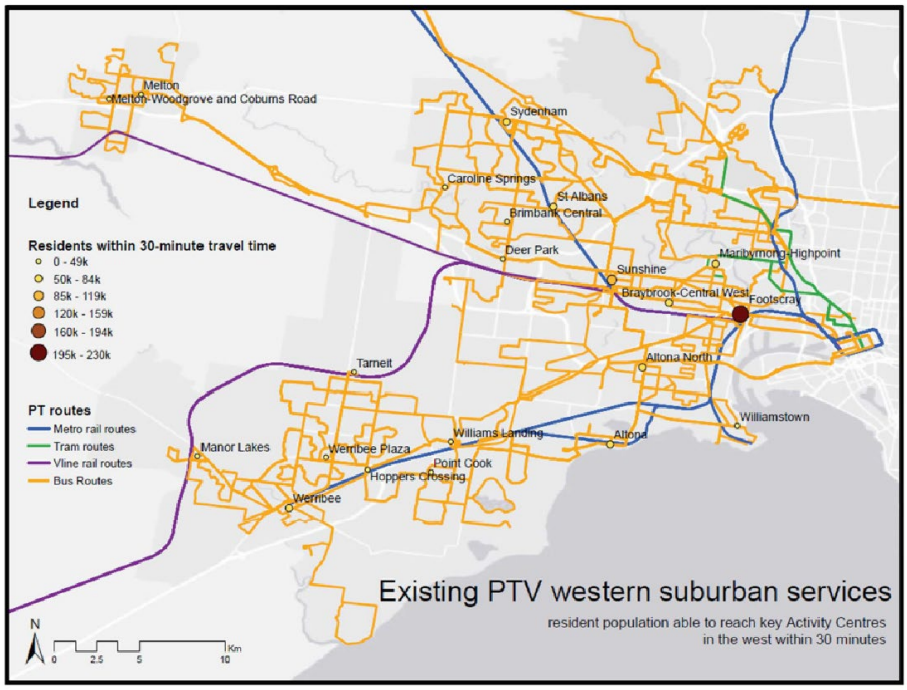
Figure 7: Infrastructure Victoria Proposed Rapid Bus Network



[22] https://en.wikipedia.org/wiki/Network_theory

[23] Smith ML, Fu X. When bike lanes are not enough: The role of connected low-stress cycling infrastructure on cycle commuting in urban Aotearoa New Zealand. Cities. 2025 Jan 1;156:105526.

Figure 8: Existing bus routes in west Melbourne

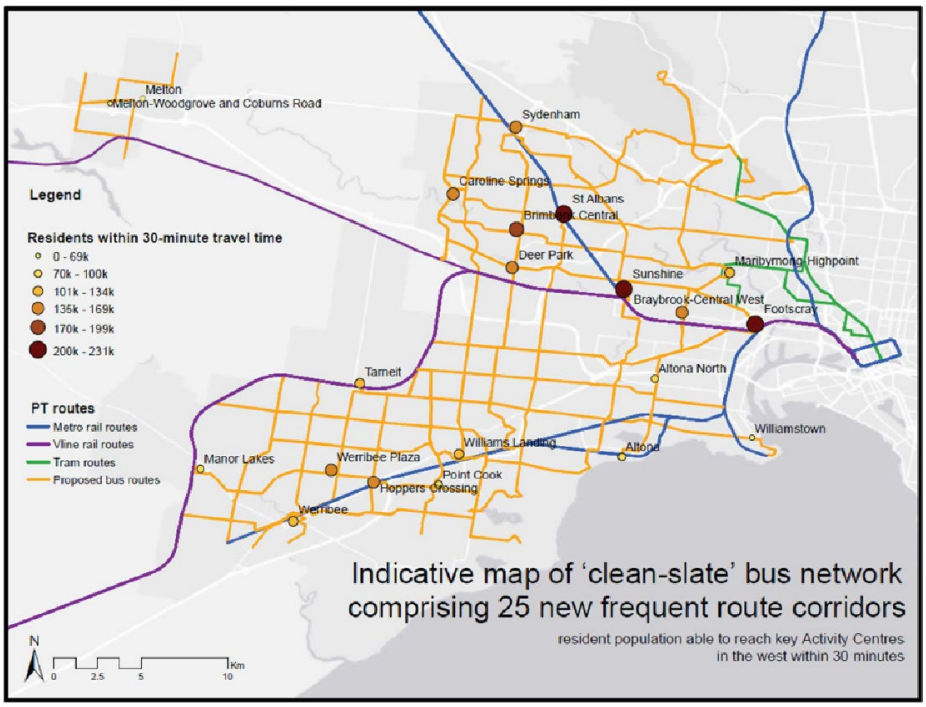


The network proposed in the Better Buses campaign as proposed by academics from the University of Melbourne[24] should be included in the Strategy (Figure 9). The Better Buses campaign only considers a pedestrian catchment; however, the capacity and coverage of the bus network could be increased 9-fold if cycling infrastructure accessing the network was incorporated into its design[25].

[24] https://msd.unimelb.edu.au/__data/assets/pdf_file/0003/4224729/Better-Buses-for-Melbournes-West-launch.pdf

[25] Kager, R. and Harms, L., 2017. Synergies from Improved Cycling-Transit Integration: Towards an integrated urban mobility system. International Transport Forum Discussion Paper.

Figure 9: Proposed bus routes in west Melbourne



Unfortunately, the proposed level of cycling infrastructure investment is not the sort of paradigm shift that will lead to the government's target of 25% of all trips being made by bike or foot. In fact, it is difficult to imagine the number of trips by bike or foot will increase at all in the west of Melbourne.

Consequently, the focus should be on assisting local governments retrofitting their streets with cycling infrastructure that is simple, quick and cheap to install. As local governments spend between $150-$300 per resident on roads, with an average estimated to be $200, leading to $1.3 billion on roads per annum with the state government spending approximately $660 million per annum leading to a total of nearly $2 billion spent on roads each year, not including large scale projects such as the West Gate Tunnel.

A certain proportion of this money could be allocated to cycling infrastructure, with the UN recommending 20%[26] which would represent $400 million a year for cycling infrastructure. Given Australian cycling infrastructure is some of the most expensive per km in the world, attempts should be made to avoid expensive kerb and channel rebuilds and use innovative approaches and strategic placement of bolt down concrete to keep costs at a minimum. Such an approach has been taken by the City of Sydney where their preferred cycling infrastructure are "Yield Streets". This approach incorporates protected bicycle lanes behind parked cars with motor vehicle lane where only one car can pass in each direction, requiring drivers to yield to oncoming traffic in

[26] Jennings G. UNEP-Global Outlook on Walking and Cycling: Policies & Realities from Around the World.

specifically designated passing bays (Figure 10). This cycling facility is achieved by bolting down sections of concrete at strategic locations along the street to protect cyclists, preventing incursion of parking into the bike lanes as well as keeping disability and pram access to the parked cars.

Figure 10: Yield St Alexandria Sydney

Infrastructure Victoria should propose a compendium of cycling infrastructure approaches from Australia and New Zealand (particularly the Future Streets Project[27]) that emphasise cost effectiveness as well as drawing upon best practice approaches to intersections which are routinely neglected in Australia[28]

Professional Development

As explained in Wes Marshall's book, "Killed by a Traffic Engineer", there is little to no training of traffic engineers in their degrees on road safety or cycling infrastructure. This leads to inconsistent and often poor standards of cycling infrastructure that can make cycling less safe than nothing at all[29] due to subconscious bias towards motorized travel, known as motonormativity[30] (Figure 11).

[27] https://www.futurestreets.org.nz/

[28] http://www.protectedintersection.com/

[29] Ferenchak NN, Marshall WE. Advancing healthy cities through safer cycling: An examination of shared lane markings. International journal of transportation science and technology. 2019 Jun 1;8(2):136-45.

[30] Walker I, Tapp A, Davis A. Motonormativity: how social norms hide a major public health hazard. International Journal of Environment and Health. 2023;11(1):21-33.

Figure 11: Motonormativity thinking in road safety

To identify and overcome this bias and ensure consistently high-quality infrastructure, professional development should be mandated and funded as part of the cycling strategy. The examples of cycling infrastructure to nowhere, that are too narrow, that end abruptly (Figures 12, 13 and 14) are far too common.

Figure 12: Protected bike lane abruptly ends into car parking spot (Footscray)

Figure 13: Bidirectional bike path to nowhere (Braybrook)

Figure 14: Too narrow bike lane (80cm) beside regular truck lane Yarraville (site of many recent collisions where cyclists were injured)

Draft Recommendation 16: Help government schools share their grounds

Prioritise which government school sports fields and facilities could deliver the greatest benefits if they were shared with local communities outside school hours. Give these schools extra help for maintenance if they voluntarily share their grounds outside school hours. Offer funding for upgrades to incentivise shared access outside school hours.

Sharing school grounds can help more Victorians stay healthy, active and social

BikeWest Response

BikeWest strongly supports the concept of sharing school grounds. BikeWest is a strong advocate for utilising school ground space to incorporate cycling facilities, specifically MTB trails or pump tracks.

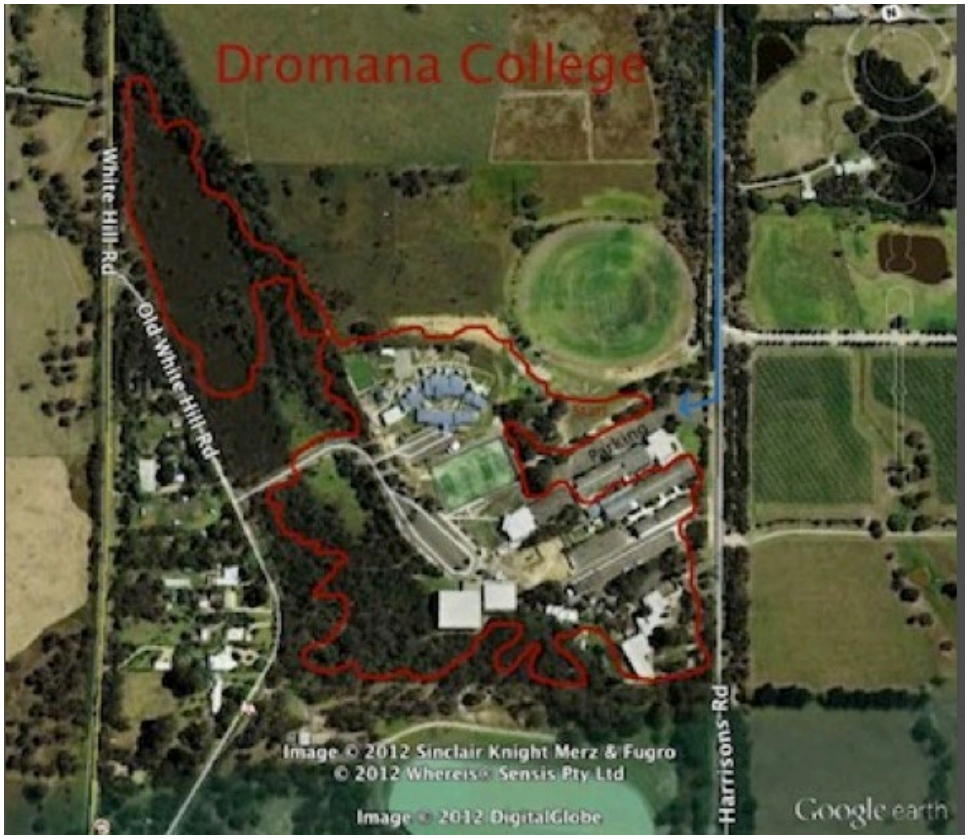
Properly planned bike sport facilities and trail networks with supportive infrastructure can provide significant liveability, economic and health benefits to communities.

This approach has been pioneered by Dromana Secondary College and has proven so successful they have a Cycling Academy Program where parents move into the school zone so their children can attend the school[31]. They have produced numerous state and national champions but more importantly have generated a culture of regular physical activity and inclusiveness for students who are not attracted to traditional bat and ball sports. In conjunction with the practical cycling component, students learn bicycle maintenance skills, leadership skills where they teach younger students in the program as well as business skills should they wish to set up a bicycle maintenance business.

The success of the program is entirely dependent upon easy access to a MTB trail. The Dromana SC MTB trail, Hillview Community Trail, is located on both school and council land (Figure 15) and used by students on a weekly basis.

[31] https://dsc.vic.edu.au/enhancement/cycling/

Figure 15: Dromana SC Hillview Community MTB Trail



Without access to the trail to ride on the program and all its associated benefits would not exist. The current approach to MTB trails in Victoria is to create extensive trails in national or state parks. While these are popular, they limit the opportunities for young people to try cycling as they are entirely reliant upon their parents to drive them between 1 and 4 hours to go cycling. In practice, this is too great a barrier for nearly all students. Two examples of an extremely successful yet small urban MTB parks are The Hill in Geelong and Quarry Park in Footscray. Consequently, local places for local people are required

However given how heavily contested urban public spaces are with NIMBY protests inevitable for all public parks, utilising school grounds to construct trails around their perimeter is a perfect opportunity to provide recreational cycling infrastructure with very little community controversy. Such trails need only be 50-75cm wide and if restricted to the perimeter of school grounds would have almost no impact on ovals or other sporting facilities while dramatically increasing the utility of the school grounds.

Pump Tracks

Alternatively, should there be space, school grounds are ideal places for pump tracks. A pump track is a purpose-built track for cycling. It has a circuit of rollers,[a] banked turns and features designed to be ridden completely by riders "pumping"—generating momentum by up and down body movements, instead of pedaling or pushing.[1] It was

originally designed for the mountain bike and BMX scene, and now, due to concrete and/or asphalt constructions, is also used for skateboarding, and accessible to wheelchairs. Pump tracks are relatively simple to use and cheap to construct, and cater to a wide variety of rider skill levels.

Pump tracks have proven immensely popular in the UK and continental Europe and have played a part in revitalising areas such as Wishaw in Glasgow (https://www.youtube.com/watch?v=n4auyR3mjTs), the Quarry Park pump track or the Creswick Pump Track in Hammon Park (Figure 16) within walking distance of the town centre and linked with the Creswick mountain bike trail network.

Figure 16: Creswick Pump Track

Installing pump tracks or MTB trails in underutilized school grounds would enable the development of bicycle programs in schools, provide greater opportunity and exposure to cycling for broader community members and also minimises the NIMBY issues that are so prevalent in urban areas that prevent such opportunities.

Summary

BikeWest's submission to Infrastructure Victoria's draft 30-year strategy emphasizes road safety and cycling infrastructure as essential components of sustainable transport planning. The response to Draft Recommendation 14 advocates for safer local streets through effective speed management, arguing that road design—rather than just speed limits—plays a crucial role in driver behaviour. The submission highlights international best practices, such as "self-explaining roads" and the Safe System approach, which reduce road trauma through improved infrastructure rather than enforcement alone.

Regarding Draft Recommendation 15, BikeWest supports building safe cycling networks but criticizes the focus on strategic cycling corridors, which primarily serve long-distance commuters. Instead, the response calls for investment in local roads, which make up most of Victoria's network and are more relevant for short trips. The submission emphasizes the need for cost-effective, scalable solutions, such as retrofitting existing roads with protected cycling infrastructure, adopting models from successful international projects, and ensuring accessibility for all ages and abilities.

Draft Recommendation 16 proposes that government school sports fields and facilities be shared with local communities outside school hours, with priority given to those that would offer the greatest benefits. Schools that participate should receive extra maintenance support and funding for upgrades to encourage shared access.

BikeWest strongly supports this initiative, particularly for integrating cycling facilities like mountain bike (MTB) trails and pump tracks. BikeWest believes that local MTB trails in school grounds provide accessible opportunities for students, unlike distant national park trails. We also suggest that perimeter trails or pump tracks are low-impact, cost-effective solutions that avoid community opposition while maximizing school ground utility. Examples from the UK and Australia demonstrate their success in revitalizing communities and encouraging cycling participation.

Conclusion

For Victoria to achieve meaningful increases in active transport, the strategy must shift from high-cost, limited-scope projects to a broader, community-centred approach. Investing in safer, well-connected local cycling infrastructure and road designs aligned with human behaviour will create a more equitable and efficient transport system.