Box Hill MAC Integrated Transport Strategy
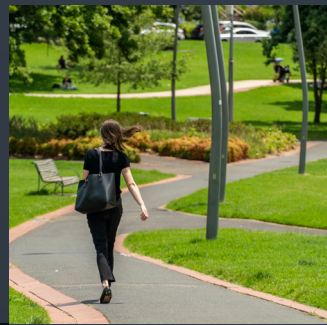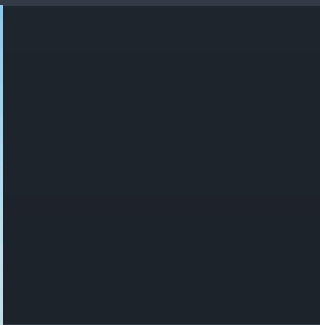
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Executive summary

Background

The Box Hill Metropolitan Activity Centre (MAC) is the largest activity centre in the City of Whitehorse and has experienced substantial development, growth and change over the last decade. Recent approvals of high-rise mixed-use developments are expected to continue the trend of rapid population and commercial growth. In particular, annual average population growth within the MAC is forecast to be double that of metropolitan Melbourne over the next 20 years, leading to a population density in 2040 that will be comparable to that of Melbourne CBD today.

Current and future challenges associated with population growth and other urban constraints generates a need and opportunity to reconsider and change how people move to/from and within the MAC, as well as how people spend their leisure time within the precinct. Whitehorse City Council, along with various State Government agencies and authorities, are tasked with the responsibility to ensure that community transport infrastructure keeps pace with and supports the projected activity within the MAC.

This Integrated Transport Strategy (ITS) establishes a holistic approach toward developing pragmatic solutions to transport challenges within the MAC. It establishes a program of transport infrastructure and policy upgrades aimed at delivering an efficient and sustainable transport future that aligns with Council and State Government's objectives.

Vision and aspirations

Development of this ITS has entailed the articulation of a transport vision for Box Hill which corresponds with the overall liveability goals for the community, focusing on environmental and economic sustainability, equity and safety to guide the future development of local transport. The Vision (right) recognises that conventional means of addressing suburban transport – with its overwhelming reliance on private vehicles and parking – will not be capable of absorbing the expected rise in travel demand in the coming decades.

In other words, the underlying focus on sustainable and more efficient transport modes is not only an environmental responsibility but is also necessary to maintain basic levels of mobility for residents, workers and visitors in light of rapid growth.
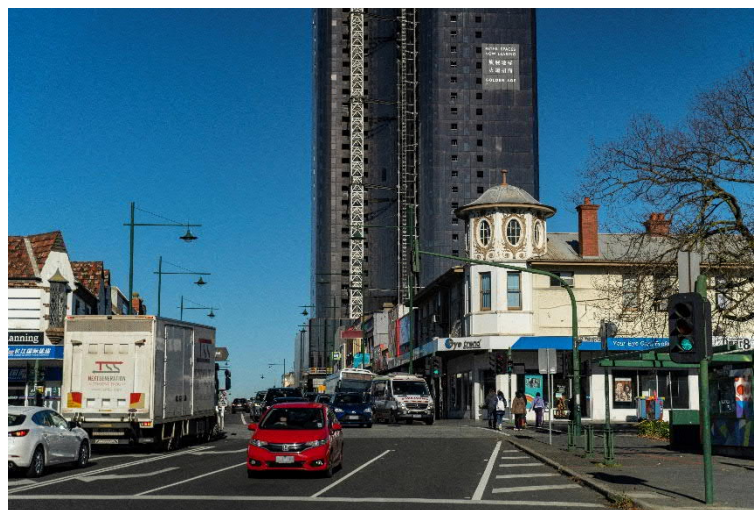
Box Hill MAC transport vision

An integrated, safe and accessible transport system, providing a range of sustainable and efficient ways for people and goods to move around, allowing and promoting Box Hill to thrive as the pre-eminent urban centre for Melbourne's east.

Action plan

The central element of this ITS is the Action Plan, which identifies 21 initiatives with 66 specific actions intended to achieve the desired outcomes as articulated through development of the Vision. These are organised into the following main categories of action, reflective of the evolution of the Box Hill MAC into a sustainable, easily accessed sub-centre with an eye toward a future that draws upon a wealth of travel options and technological advancements:

- Walking and cycling infrastructure
- Public transport
- Traffic and parking management
- Travel behaviour
- Technology and emerging trends.

Each action has been assigned a specific type of Council response, noting that some require multiple responses, for example, some actions require both planning and delivery. From the 66 actions, 23 actions have been identified as delivery, five as policy, 35 as advocacy and 32 as planning.

Delivery > Council has authority and is responsible to design, construct and upgrade infrastructure, or implement programs and initiatives

Policy > Council has authority and is responsible for creation of policy change and strategy documents

Advocacy > Council is required to advocate to and work with others (e.g. State Government) to deliver changes to assets not owned or operated by Council

Planning > Council is required to undertake further investigation in order to better understand options or feasibility of potential future projects and programs

An integral component of the action plan is also the timeframe in which each action should be implemented, noting that some actions involve works that may span across multiple timeframes. Of the 66 actions, 25 are considered as priority actions that should begin in the immediate term (0-2 years).

Priority actions

Each of the actions has been evaluated according to a range of criteria to determine which are best positioned to deliver the greatest possible benefit to the community, and which represent the necessary early steps that enable the realisation of complementary initiatives into the future. The actions identified as the most critical to be implemented in the short-term include:

- Conduct a review of the existing streetscape elements
- Upgrade footpaths to improve accessibility
- Conduct accessibility audit of the public transport interchange
- Construct new pedestrian (zebra) / raised flat top (wombat) crossings
- Improve crossings at all existing signalised intersections and crossings
- Construct raised threshold intersection treatments
- Construct bicycle boulevards / low stress cycling streets
- Improve public end-of-trip facility provision
- Make interim improvements to the bus interchange
- Upgrade tram terminus
- Install tram electrical substation
- Modify traffic signal timings to prioritise active and public transport modes
- Undertake area-wide speed limit reductions
- Investigate sites for improved traffic calming
- Manage use of train station commuter car park
- Review on-street parking in the MAC
- Provide electric vehicle charging points
- Review development parking rates in planning scheme
- Review loading zones
- Introduce car share
- Review car share parking requirements
- Manage food delivery bikes

Background

The Box Hill Metropolitan Activity Centre (MAC) is the largest activity centre in the City of Whitehorse. Over the last decade, the Box Hill MAC has experienced substantial growth and development. This has included the opening of the Australian Tax Office (ATO) building, the redevelopment of the Box Hill Hospital and Box Hill Institute, and significant private investment in developments such as The Chen Hotel and Sky One. Multiple high-rise mixed-use developments have also been approved within the precinct, and further development is expected in coming years.

Whitehorse City Council has undertaken numerous investigations and developed various strategies to ensure that community transport infrastructure keeps pace with and supports expected residential population and commercial activity growth within the MAC.

This Integrated Transport Strategy (ITS) considers all these investigations and strategies and establishes a holistic approach to deal with existing transport related issues and develop pragmatic solutions to capitalise on transport opportunities within the MAC. It identifies a program of initiatives that both address short-term concerns and establish an achievable and sustainable transport future.

The ITS supports the various plans and strategies developed by Council and State Government, and has considered the integration of all transport modes, including access, parking and safety.

Purpose

The purpose of this ITS is to:

- Evaluate transport investment opportunities for all modes against a consistent set of parameters

- Provide a clear narrative that guides staged implementation of a prioritised set of transport planning initiatives for Council, by outlining key roles and responsibilities and a timeframe for action

- Articulate the need and benefits of transport network changes to be delivered in partnership with other stakeholders, including State Government.
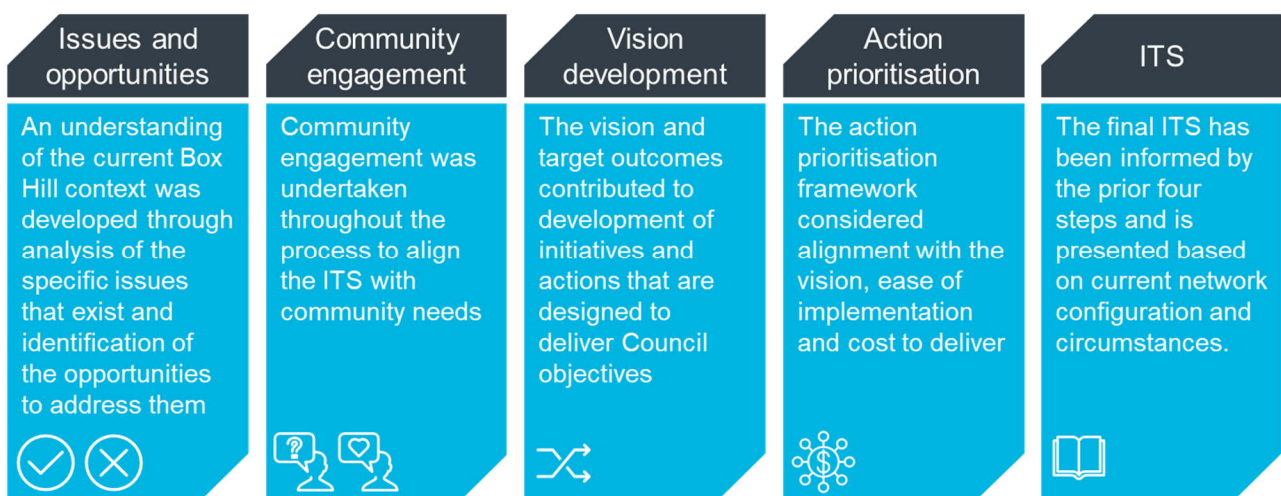
Process

This ITS was developed through a collaborative process, which included engagement with:

- The City of Whitehorse community

- Whitehorse City Councillors and officers

- State Government representatives from key agencies.

A stakeholder reference group (SRG) was established to facilitate open discussion that sought to provide guidance on the key initiatives and actions that should be considered as part of the ITS.

Figure 1   Stages of ITS development

Issues and opportunities	Community engagement	Vision development	Action prioritisation	ITS
An understanding of the current Box Hill context was developed through analysis of the specific issues that exist and identification of the opportunities to address them	Community engagement was undertaken throughout the process to align the ITS with community needs	The vision and target outcomes contributed to development of initiatives and actions that are designed to deliver Council objectives	The action prioritisation framework considered alignment with the vision, ease of implementation and cost to deliver	The final ITS has been informed by the prior four steps and is presented based on current network configuration and circumstances.

Study area

The ITS target area is the Box Hill MAC. Covering an area of approximately 1.3 km², the MAC extends from Severn Street in the north to Albion Road in the south, and from the Box Hill Institute in the west to Watts and William Streets in the east.

The effects and benefits of many of the transport initiatives identified within the ITS extend beyond the MAC's borders, including the surrounding residential areas and wider transport connections.

Figure 2   ITS study area

Legend

- Tram Stop
- Tram Line
- Train Station
- Train Line
- Education
- Health
- Commercial / Retail
- Parkland / Open Space

Box Hill snapshot

Box Hill's population is growing rapidly, with a forecast estimated growth rate of 3.5 percent per annum between 2016 and 2041, compared to just 1.7 percent growth per annum forecast for metropolitan Melbourne over the same period.

This growth will significantly increase the density of Box Hill, from just over 7,000 people per square kilometre currently, to around 15,500 people per square kilometre in 2041.
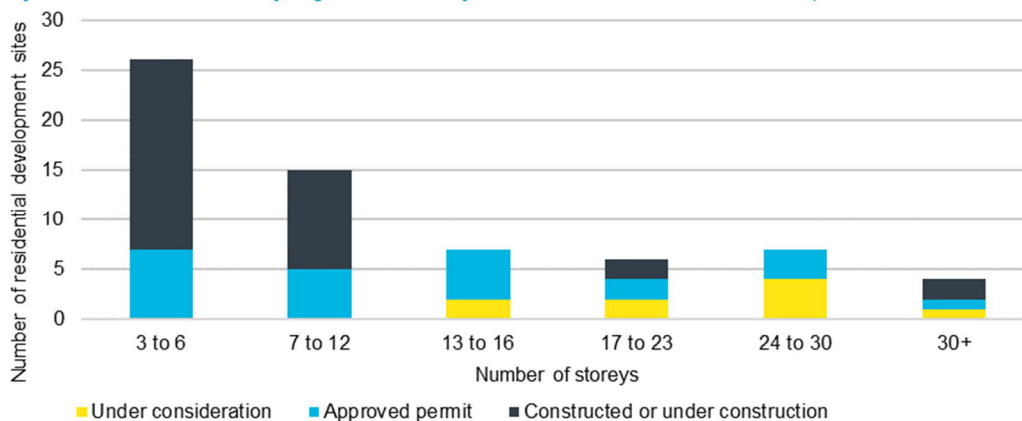
Figure 4   Box Hill population trend line

2001	2016	2031	2036	2041
5,090	8,500	14,520	18,600	20,070
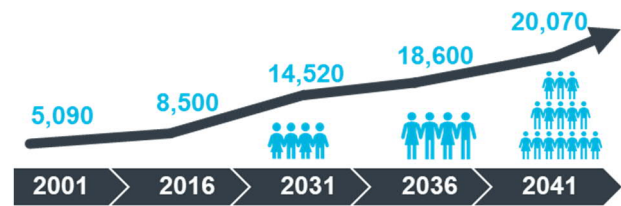
Data source: Box Hill Narrative Report, SGS Economics and Planning, March 2018 and 2019 MGS Structure Plan
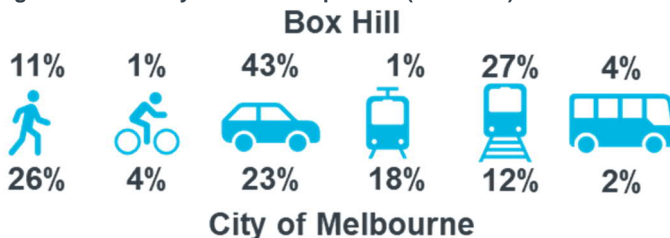
Figure 3   Planned residential projects

Current planned residential projects are expected to result in around 6,800 additional dwellings.

Data source: 2019 MGS Structure Plan

Figure 5   Journey to work comparison (residents)

Box Hill

11%	1%	43%	1%	27%	4%

26%	4%	23%	18%	12%	2%

City of Melbourne

Data source: ABS Census Data

Journey to work data for residents in Box Hill and the City of Melbourne highlights that Box Hill has a comparatively higher proportion of workers who commute by rail and bus. However, there is also significantly higher private vehicle dependency and substantially less active transport.

Figure 6   Summary statistics for five key Box Hill issues

Public Transport	• Over 11,000 people use Box Hill Train Station every weekday • Box Hill Train Station is the fifth busiest train station in Melbourne outside the CBD • Box Hill bus interchange is the fourth busiest in Melbourne
Streets & Public Spaces	• Around half of the cars in Box Hill are through traffic, adding to congestion • Whitehorse Road adjacent to Market Street is around 54 metres wide, with around half of the space allocated to traffic and parking lanes
Walking & Cycling	• Over 7,600 commuters walk to Box Hill Train Station each weekday • A survey of bike riders within Box Hill counted just one female cyclist, compared to over 100 male cyclists
Road Safety	• There have been 127 crashes in the last five years (a rate of one crash every two weeks) within the Box Hill MAC area • Of the 127 crashes, 38 were pedestrian crashes and five involved cyclists
Car Parking	• There are around 9,000 public car parking spaces in Box Hill • 59 percent of all parking in Box Hill is available for long-term parking • Future planned development may add an additional 7,300 private car spaces

Legislative, policy and strategic alignment

Federal

The Department of Infrastructure, Transport, Cities and Regional Development is the relevant Commonwealth Department concerned with national transport objectives. The Department provides strategic policy advice to shape the framework that underpins the integration of road, rail, maritime and aviation in Australia. The Department aims to ensure safe, efficient and sustainable domestic and international transport systems which are vital to Australia's continuing prosperity.

In addition to broader strategic alignment the Federal Government also plays a role by contributing funding to transport projects. As an example, significant funding from the Federal Government is being invested in the North East Link road project, with $1.75 billion made available for this project in 2017. Therefore, key to receiving such funding for the Box Hill ITS lies in ensuring that strategic objectives in Box Hill align with those of the Federal Government.

State

There are numerous Victorian Government plans, strategies and frameworks in place that guide transport investment by local governments. The key ones relevant to the Box Hill MAC include the following:

Transport Integration Act 2010 – The Act is Victoria's principal transport legislation and covers the entire transport portfolio for the Victorian Government. The Act provides a mandate for government departments to share common goals of an efficient, integrated transport network.

Plan Melbourne (2017-2050) – Plan Melbourne identifies that Metropolitan Activity Centres (MACs) such as Box Hill should provide a diverse range of land uses that are well served by good transport connections. 20-Minute Neighbourhoods – the principle about 'living locally', giving people the ability to meet most of their daily needs within a 20-minute walk from home, with safe cycling and local transport options – are also supported by this plan.

Victorian cycling strategy – This strategy sets out how increased bicycle use can be achieved by investing in safer, stress-free connected transport networks that prioritise Strategic Cycling Corridors (SCCs).

Movement and Place Framework – Aligning with Plan Melbourne, the Department of Transport's Movement and Place Framework takes a different approach to network planning, recognising that roads and streets serve not only a transport function but can also serve as destinations in their own right. Finding the right balance is critical in the approach to integrated transport planning.
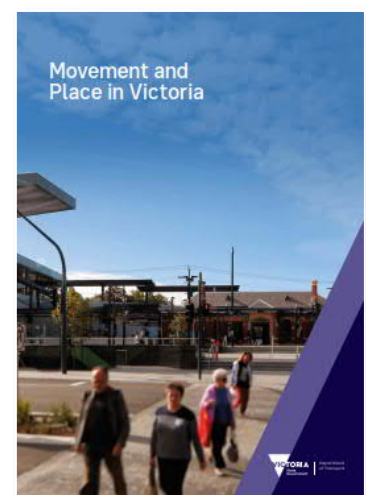
Local

A diverse range of prior documents has informed the development of the Box Hill MAC ITS, including:

- Whitehorse Council Plan 2017-2021
- Whitehorse Council Vision 2013-2023
- Whitehorse Integrated Transport Strategy 2011
- Whitehorse Community Road Safety Strategy 2013
- Whitehorse Cycling Strategy 2016
- Whitehorse Health and Wellbeing Plan 2017-2020
- Box Hill Car Park Strategy Implementation Box Hill Activity Centre 2018
- Box Hill Open Space Strategy Review 2019
- Box Hill Urban Realm Treatment Guidelines 2019
- Box Hill Narrative 2018

In addition, previous Box Hill studies that have contributed to the development of this ITS include:

- Review of Strategic Direction: Box Hill Metropolitan Activity Centre Analysis & Options, 2019
- Box Hill ITS Background Study, 2019
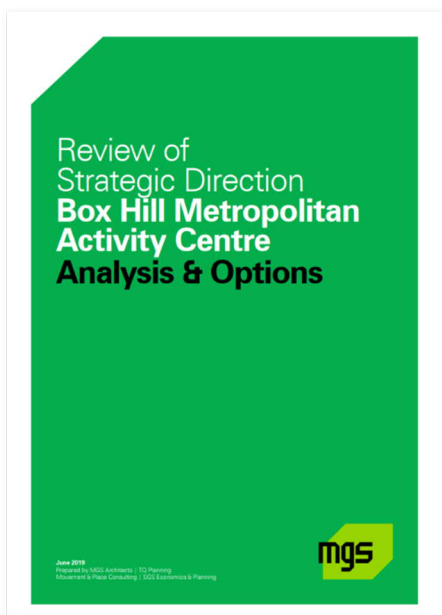
Interface with other projects

In addition to the guiding plans, strategies and documents, there are a number of current or planned projects being undertaken by State Government that will impact on Box Hill, including the following:

- **North-East Link (NEL) –** NEL is an 11-kilometre proposed managed motorway between the Eastern Freeway in Bulleen and the M80 in Watsonia. It is currently in the planning stages with construction expected to start in 2020 and finish by 2027. NEL is expected to result in increased north-south traffic demand through Box Hill, connecting to the freeway, while easing pressure from regional traffic on east-west roads.

- **Suburban Rail Loop (SRL) –** SRL is a proposed new rail network forming a circle around Melbourne's suburbs and connecting every major rail line. The project is forecast to take around 200,000 vehicle trips off major roads by 2051. Box Hill has been identified as a potential new interchange station within the first stage of the project, with construction to commence by the end of 2022, and the first stage operational around the early 2030s. At the time of developing this strategy, SRL is in the early stages of its planning, and key information such as the station location has not yet been identified. However, while there are still many unknowns, the project is expected to greatly increase population, employment, patronage and general activity within Box Hill.

- **Level Crossings Removal Project (LXRP) – Mont Albert / Surrey Hills –** The Victorian Government is committed to removing 75 level crossings across Melbourne by 2025. The level crossings at Mont Albert Road in Mont Albert and Union Road in Surrey Hills will be two of eight crossings removed along the Belgrave and Lilydale lines, with both currently in planning stage. The removal of these level crossings will include the construction of new Mont Albert and Surrey Hills stations, which could impact on passenger demand and access at Box Hill Station. When complete, there will be no more level crossings between Box Hill and the CBD.

While not directly involved in delivering these projects, this ITS recognises the importance of planning for and integrating these strategic projects into the local context, as well as the role of Council in advocating for these projects to deliver good outcomes for Box Hill.

Roles and responsibilities

Successful delivery of this ITS is dependent on the following groups:

Councillors are responsible for listening to the community and communicating key issues and desires back to Council. They also play a key role in advocating to the community about the benefits of policies and actions contained within this ITS, particularly how individual actions are part of an overall plan to deliver a more connected, sustainable and resilient transport network.

Council teams and departments. Council is the closest level of government to the community, and as such have multiple responsibilities, including:

- Driving planning and investigation works, which require communication and engagement with community members

- Initiating and delivering projects and programs that are within their remit and jurisdiction

- Applying appropriate legislation and regulations to deliver a safe and equitable transport system that empowers community members to consider or change their behaviour as it relates to transport

- Advocating to Victorian Government departments and agencies to plan for or deliver projects and programs that are within the Victorian Government's jurisdiction. This could include leveraging the efforts of the Eastern Transport Coalition (ETC), or a more involved role working in collaboration with ETC to advocate for sustainable transport.

Assigning a dedicated Council staff to focus on the delivery of this ITS could be an effective approach to managing, coordinating and streamlining these responsibilities.

The **Victorian Government** is responsible for arterial roads and the public transport network. This means that Council cannot independently plan for or deliver works that impact arterial roads, nor can it adjust public transport routes or increase service frequencies. Victorian Government departments and agencies and associated private enterprises that will be relied upon to contribute to delivering the outcomes of this ITS include:

- The Department of Transport (DoT) incorporating Public Transport Victoria (PTV) and VicRoads

- Metro Trains Melbourne, Yarra Trams, VicTrack and local bus operators

- Suburban Rail Loop Authority (SRLA).

Together, **Council** and the **Victorian Government** are required to plan and deliver projects and programs that consider the objectives and decision-making principles of the Transport Integration Act.

Finally, the **community** plays an integral role in supporting Council's vision for the Box Hill MAC transport network. The vision and associated initiatives identified within this document are intended to reflect the feedback of the community in an effort to deliver a more equitable, sustainable, safe, efficient and reliable transport network. The community's role is not only in endorsing this strategy, but also in actively planning and choosing more sustainable transport modes in line with the strategy.

Community feedback

The purpose of community engagement was to encourage participants to consider the trade-offs associated with project opportunities. Online engagement was undertaken via Whitehorse City Council's OurSay Platform, while face-to-face engagement included two pop ups within Market Street Pedestrian Mall.

Engagement materials were translated into core languages and multilingual translators were available at the street stands.

248 members of the community provided their input, the results of which are summarised at right and detailed in **Appendix B.**

Improved safety – 74 percent support a decrease in the speed limit to 40 kilometres per hour where there is a mix of pedestrians and cyclists.

Public transport – 93 percent support increasing public transport use in and around the centre, including dedicated bus lanes along major roads and bus priority at traffic lights.

Walking – 89 percent support prioritised walking infrastructure (e.g. new pedestrian zebra crossings and more green signal time to cross roads) even if there are minor car delays.

Transit oriented design – 66 percent support giving new buildings near the transport interchange the opportunity to reduce their parking requirements by providing alternatives such as car share and bike parking.

Car parking – 75 percent support increasing footpath widths and public space to allow for more outdoor dining, seating, planting and places to meet others, even if it means removing some on-street car parking.

Mode share – The majority of respondents access the Box Hill MAC via non-vehicle modes, with only 44 percent using private vehicles, while 34 percent walk, 29 percent use the train, 23 percent cycle, 23 percent use the bus, 8 percent use the tram, and 2 percent take a taxi or rideshare. 54 percent of respondents noted using at least two modes to access Box Hill.

Figure 7   Community feedback participation

Online 85

Face-to-face 163
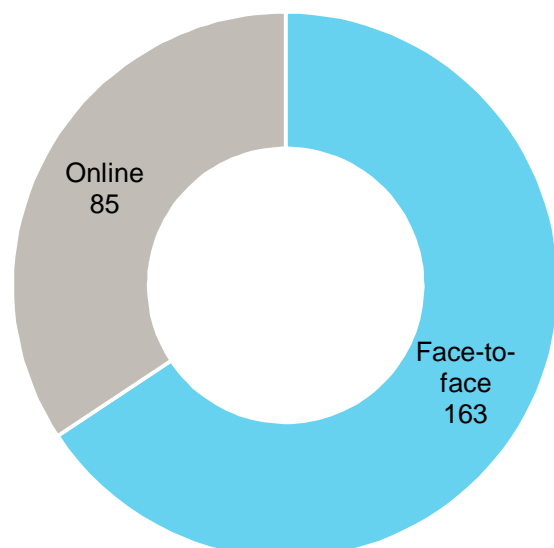
National and global challenges

Cities across Australia and the world are rapidly evolving, driven by numerous factors including population growth, technology change, and broad ranging social, economic and environmental considerations. Multicentric cities have arisen to help channel these growth forces into areas best served by transport infrastructure, a model that can best help describe Box Hill's emergence as a major activity centre. The following challenges are considered as generally consistent background factors to consider in the further development of the infrastructure of cities and regions.

A **background study** of the Box Hill MAC is included within **Appendix A,** discussing the demographic and statistical factors that form the baseline for development of this ITS.

Population growth – Box Hill MAC's population density in 20 years' time is forecast to be comparable to that of Melbourne CBD today. Current approved residential developments are expected to deliver an additional 6,800 dwellings and 7,300 car parking spaces to the ITS' target area. Increased density directly impacts travel demand and is considered both a challenge and opportunity within this ITS.

Road congestion – Road congestion is a growing issue throughout greater Melbourne, as well as most other growing cities across the world. While the conventional transport planning approach has been to relieve congestion through widening of roads, spatial constraints have led many recent transport planning efforts to focus on reducing car dependence through prioritisation of public and active transport.

Urban heat island (UHI) effect – An UHI is an urban area that is noticeably warmer than its surrounding parklands or rural areas due to the insulating and heating properties of materials used to construct buildings and transport infrastructure. The greening of urban areas and transport corridors, including maintaining and protecting green spaces and trees, can help alleviate the UHI effect also while enhancing the natural environment and amenity of the public realm and improving air quality.

Obesity, health and wellbeing – Studies have found that high levels of car ownership have contributed to poor health outcomes in comparison with less car dependent communities. The provision of enhanced active transport infrastructure as envisioned in this ITS can help support a shift in travel behaviour toward increased participation in walking and cycling, contributing to improved health levels.

Universal access – Universal access seeks to ensure that all people, regardless of age or disability, have safe and efficient access to all areas within the public realm, including public transport modes, and is one of the key planning drivers of the initiatives proposed in this ITS.

Socio-economic equity – Car dependent design and high car ownership, operation and parking costs can lead to social and economic exclusion, particularly when combined with inadequate public and active transport infrastructure. Improving access via more freely accessible modes of transport could provide more equitable access to social and employment opportunities within the MAC.

Economic activity – Improved transport connectivity and an enhanced public realm can contribute to the realisation of attractive places that people may wish to visit for leisure, shopping and dining. Furthermore, fulfilling the concept of 20-minute neighbourhoods can create the demand for a diverse range of economic opportunities.

Safety and security – Unresolved conflicts between travel modes can contribute to crashes that can cause injuries and extensive network delays. Personal security along walking corridors and at public transport stations/stops is also an important element of an effective integrated transport network.

Resilience to pandemic – At the time of preparing this ITS, the impact of the global COVID-19 pandemic on long term transport needs is still uncertain. However, it is likely that the need for social distancing will continue to impact travel choices, and therefore active transport networks have a significant role to play in enabling people to safely travel without adding to road congestion. This is discussed further on the next page.

The COVID-19 pandemic

The coronavirus has significantly impacted the world in many ways; one of which is how people move around our cities and communities.

Worldwide, physical distancing measures and lockdown restrictions have been imposed to hinder the spread of the coronavirus, drastically reducing travel demands. Importantly, this reduction is not only a consequence of government-imposed restrictions, which have **reduced people's ability to travel**, but the pandemic has also changed the way people view transport, with individual reactions also resulting in a **reduced willingness to travel**.

The public transport sector in particular has experienced massive patronage reductions, and while this was somewhat predictable, Melbourne could be facing a lasting change as many choose private vehicle use for the daily commute. Historically, private vehicle usage has represented 73 percent of journeys to work in the greater Melbourne area, with active transport and public transport comprising only 6 percent and 18 percent of trips respectively as shown in Figure 8.

As physical distancing measures are retained for the short–medium term, it is anticipated public transport mode share across Melbourne will drop to well below pre-pandemic levels, from 18 percent to potentially as low as three percent. In this instance, up to 15 percent of commuters will be looking to travel by alternate means, and without viable alternatives there is a strong possibility that many will turn to private vehicles.

If realised, there is a great risk of increased urban congestion and heightened levels of car use as commuters adopt a car-centric approach. It will

then be increasingly difficult to encourage mode shift back away from cars in the future, with long-lasting effects on the wider network and on urban liveability and productivity. In Box Hill, where the (pre-pandemic) public transport mode share is higher than the metropolitan Melbourne average, the risk and consequences of this trend towards cars is likely to be greater and more apparent.

This situation has seen active transport modes, in particular cycling, become a more attractive transport option. This presents challenges and opportunities in terms of facilitating these new travel patterns, which reflect the latent, underlying demand for cycling not previously supported by investment in infrastructure. A recent survey conducted by Bicycle Network shows cycling volumes in Victoria have, on average, grown by 270 percent compared to volumes recorded in November 2019. This indicates the need and opportunity for improved active transport infrastructure, not only to accommodate current demands but also to facilitate and support future growths in demands.

At the time of finalising this ITS, metropolitan Melbourne has just entered Stage 3 restrictions for a second time, having been under some level of restrictions since late March 2020 when the Stage 1 restrictions were first imposed. While still in the early stages of this 'second wave', this experience has led to further uncertainty and may potentially exacerbate the challenges discussed here. It is therefore critical that in the implementation of this ITS, that the role of active transport modes in addressing the transport challenges within the Box Hill MAC is considered carefully and expeditiously.

Figure 8   Existing and predicted mode split for commuters in Melbourne[1]

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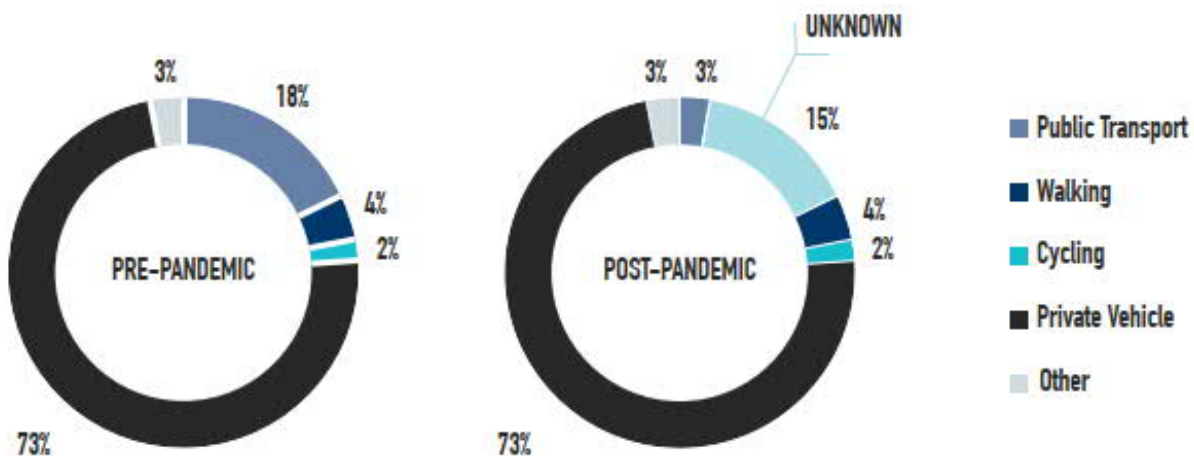
[1] *Rethinking Mobility: The role of cycling in the post-pandemic recovery*, Without Limits, AECOM, 2020

Local issues and opportunities

The transport network in Box Hill represents a complex interconnected system of both static and moving infrastructure. The location where these assets converge is one of the most active and congested sub-centres in metropolitan Melbourne. Pedestrians, cyclists, cars, trucks, trams and buses all compete for space on the already congested street network.

Extensive background analysis and community and stakeholder consultation have distilled **five key transport issues** relating to the MAC. It is important to note that these are not specific to any one mode of transport, but rather relate to various themes and the interactions of multiple modes in the congested Box Hill context.

It is the resolution of these issues that offer the greatest opportunity for an improved transport experience in Box Hill. These five main issues also encapsulate many of the key outcomes expressed in the transport vision presented in the following section.

The five key issues each address a combination of the main transport considerations listed below.

A detailed **Issues and Opportunities Report** for Box Hill MAC is included as **Appendix A,** discussing each of the key issues listed below and offering case studies and illustrations of how similar issues have been addressed in other communities.

Figure 9   Key issues in Box Hill

Transport elements

- Pedestrian
- Cycling
- Bus
- Tram
- Rail
- Private vehicle
- Freight
- Road safety
- Parking

Key issues and their main components

The **existing transport interchange** is difficult to access and move within and a generally unattractive place.

The **car parking requirements** for new developments are not sustainable with the anticipated population and employment growth.

The **street network infrastructure** does not reflect priority nor allocate sufficient space for more efficient and sustainable modes of transport.

Active transport participation amongst residents, workers and visitors is very low.

The number and frequency of **road and pedestrian crashes** is too high.

Vision and aspirations

To help guide the development of specific actions for the ITS, it is necessary to articulate a vision to which the strategy will aspire.

The vision has been derived based on the *Review of Strategic Direction: Box Hill Metropolitan Activity Centre Analysis & Options, 2019* – particularly as it relates to transport and movement. It has been adjusted accordingly to account for the community and stakeholder feedback gathered as part of developing this ITS.

The overarching transport vision statement is supported by 12 desired outcomes arranged according to three critical themes.

A number of indicators will be used to measure success of this ITS against the outcomes, as outlined later in the Implementation Plan.

Box Hill MAC transport vision

An integrated, safe and accessible transport system, providing a range of sustainable and efficient ways for people and goods to move around, allowing and promoting Box Hill to thrive as the pre-eminent urban centre for Melbourne's east.

Theme 1

A transport network that supports a safe, healthy, inclusive community

Outcome 1

Accessible and integrated walking, cycling and public transport network

Outcome 2

Safe and secure transport network accessible to all

Outcome 3

Increased walking, cycling and public transport participation

Outcome 4

Improved physical and mental well being

Theme 2

A transport network that supports a sustainable and liveable community

Outcome 5

Allocation of street space to more efficient and sustainable modes of transport

Outcome 6

Efficient and reliable public transport

Outcome 7

A *greener, cleaner environment*

Outcome 8

Minimal non-essential private vehicle trips

Theme 3

A transport network that supports a vibrant local economy

Outcome 9

An efficient and reliable transport network encouraging travel to, not just through

Outcome 10

Efficient and adaptable purposing of land assets

Outcome 11

A welcoming, safe and vibrant activity centre

Outcome 12

Efficient functioning of local freight corridors

ACTION PLAN

Action plan approach

The action plan has been structured to meet the targeted outcomes, themes and vision that were developed as part of this ITS.

Twenty-one initiatives have been developed, each of which are supported by one or more actions.

For the purpose of this ITS, initiatives have been allocated into one of five categories, noting that some of the initiatives could be considered to deliver outcomes associated with multiple categories. The five categories are described below.

Walking and cycling infrastructure

Initiatives within this category are integral to development of a sustainable transport network that supports local communities. Eight initiatives and 19 actions have been grouped into this category.

Public transport

Public transport will become increasingly important as residential and commercial activity within the Box Hill MAC continues to grow. Improved public transport could provide opportunities for residents and workers to change their travel behaviour and rely less on private vehicles. This would alleviate road network congestion and improve urban amenity. Three initiatives and nine actions have been grouped into this category.

Traffic and parking management

The road network is the core transport asset type within the Box Hill MAC, with private vehicles representing the dominating mode share. Seven initiatives and 27 actions have been grouped into this category.

Travel behaviour

Travel behaviour of residents and visitors impacts upon all transport modes and types, and as such the initiatives which target travel behaviour warrant their own separate category. Changing travel behaviour has capacity to deliver significant changes to the efficiency and effectiveness of the transport network, without the significant cost associated with new or adapted infrastructure. One initiative and four actions have been grouped into this category.

Technology and emerging trends

Technology and emerging trends have significant potential to influence how a large proportion of the population travel, as well as how Council and other levels of government can collect data that will inform future transport network planning. Two initiatives and five actions have been grouped into this category.

Council response to actions

A specific Council response has been assigned to all actions within the plan. Council's response reflects the asset type and/or work required and action complexity. There are four possible Council actions, as shown below. Note that some actions require multiple responses, for example, some actions require both planning and delivery. The icons shown below have been referenced throughout the action plan to specify Council response.

Figure 10   Types of Council action

01 Delivery — Council has authority and is responsible to design, construct and upgrade infrastructure, or implement programs and initiatives

02 Policy — Council has authority and is responsible for creation of policy change and strategy documents

03 Advocacy — Council is required to advocate to and work with others (e.g. State Government) to deliver changes to assets not owned or operated by Council

04 Planning — Council is required to undertake further investigation in order to better understand options or feasibility of potential future projects and programs

Summary of initiatives

A summary of the proposed initiatives and their contributions to the key desired outcomes is shown below.

INITIATIVE		1	2	3	4	5	6	7	8	9	10	11	12
WALKING AND CYCLING INFRASTRUCTURE													
1	Upgrade primary walking routes	✔	✔	✔	✔	✔		✔	✔	✔		✔	
2	Improve accessibility and DDA-compliance	✔	✔	✔	✔							✔	
3	Provide additional and improved road crossings	✔	✔	✔	✔				✔			✔	
4	Formalise and upgrade primary cycling corridors	✔	✔	✔	✔	✔		✔	✔			✔	
5	Provide new walking/cycling bridge over the railway line	✔	✔	✔	✔	✔			✔			✔	
6	Create attractive laneways	✔		✔	✔	✔				✔		✔	
7	Improve bicycle end of trip facility provision	✔		✔				✔	✔	✔		✔	
8	Increase wayfinding	✔		✔	✔				✔	✔		✔	
PUBLIC TRANSPORT													
9	Upgrade Box Hill transport interchange	✔	✔	✔			✔	✔	✔	✔		✔	
10	Improve train and bus services	✔		✔		✔	✔	✔	✔	✔	✔		
11	Upgrade and extend the tram line	✔		✔		✔	✔		✔	✔	✔	✔	
TRAFFIC AND PARKING MANAGEMENT													
12	Modify the road network to reduce through traffic on Whitehorse Road and Station Street	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔
13	Reduce vehicle speeds		✔	✔				✔		✔		✔	
14	Manage parking supply and demand		✔	✔		✔		✔	✔		✔	✔	
15	Repurpose space allocated to vehicles and enhance public space	✔		✔	✔	✔		✔	✔	✔	✔	✔	
16	Improve parking wayfinding							✔	✔	✔			
17	Review development parking requirements			✔					✔				
18	Review loading zones												✔
TRAVEL BEHAVIOUR													
19	Implement behaviour change programs			✔	✔			✔	✔	✔			
TECHNOLOGY AND EMERGING TRENDS													
20	Implement car share schemes			✔				✔	✔		✔		
21	Support emerging and niche transport types		✔						✔			✔	

THEME 1 – SAFE, HEALTHY AND INCLUSIVE

Outcome 1 Accessible and integrated walking, cycling and public transport network

Outcome 2 Safe and secure transport network accessible to all

Outcome 3 Increased walking, cycling and public transport participation

Outcome 4 Improved physical and mental well being

THEME 2 – SUSTAINABLE AND LIVEABLE

Outcome 5 Allocation of street space to more efficient and sustainable modes of transport

Outcome 6 Efficient and reliable public transport

Outcome 7 A greener, cleaner environment

Outcome 8 Minimal non-essential private vehicle trips

THEME 3 – VIBRANT LOCAL ECONOMY

Outcome 9 An efficient and reliable transport network encouraging travel to, not just through

Outcome 10 Efficient and adaptable purposing of land assets

Outcome 11 A welcoming, safe and vibrant activity centre

Outcome 12 Efficient functioning of local freight corridors
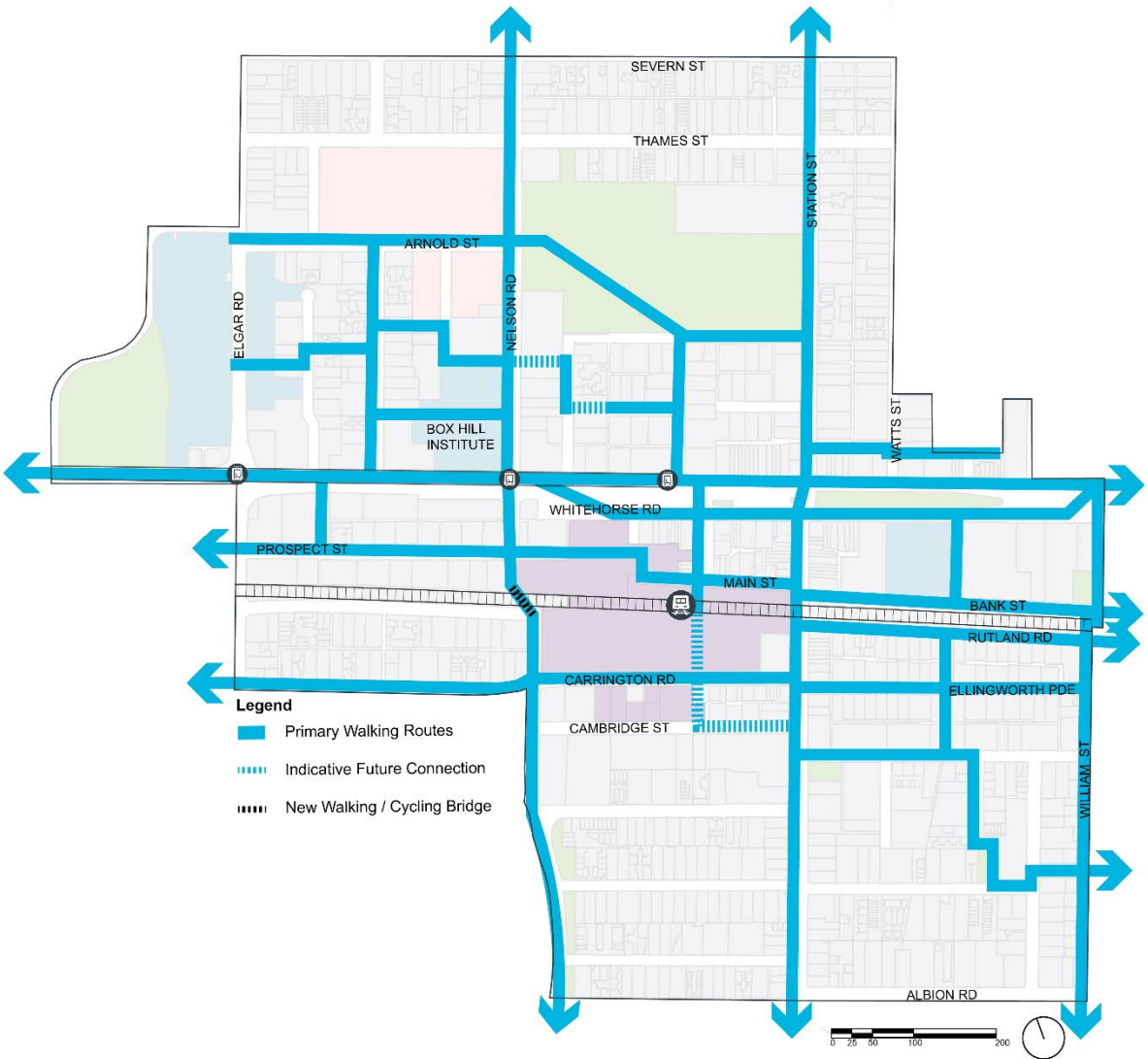
Walking and cycling infrastructure

1. Upgrade primary walking routes

A walkable environment contributes to a vibrant and sustainable urban realm, and supports economic activity through facilitation of increased interaction between people and businesses.

Key transport benefits of walkable streets include alleviation of congestion and enhanced transport network safety. Benefits for the community also include improved health and wellbeing outcomes, and greater social opportunities.

Most key destinations within the Box Hill MAC are within a 15-minute walk of the train station, bus interchange and tram terminus. There is a key opportunity to promote public transport as the key mode of transport to and from the MAC, and walking as the primary transport mode within the MAC. Creating wider and connected footpaths for comfortable and safe movement of people, as well as improved urban amenity through provision of public seating and enhanced urban greening, will be key to realising this opportunity.

Figure 11   Primary walking corridors

Outcomes supported by this initiative

THEME 1 – SAFE, HEALTHY AND INCLUSIVE

1. Accessible and integrated walking, cycling and public transport network
2. Safe and secure transport network accessible to all
3. Increased walking, cycling and public transport participation
4. Improved physical and mental well being

THEME 2 – SUSTAINABLE AND LIVEABLE

5. Allocation of street space to more efficient and sustainable modes of transport
6. Efficient and reliable public transport
7. A greener, cleaner environment
8. Minimal non-essential private vehicle trips

THEME 3 – VIBRANT LOCAL ECONOMY

9. An efficient and reliable transport network encouraging travel to, not just through
10. Efficient and adaptable purposing of land assets
11. A welcoming, safe and vibrant activity centre
12. Efficient functioning of local freight corridors

WALKING AND CYCLING INFRASTRUCTURE

While Box Hill's primary walking routes are largely adequate for the current population, rapid residential and commercial growth will see increased demand that puts pressure on the capacity of existing assets, particularly around peak periods when there are heavy pedestrian traffic flows in multiple directions. Furthermore, as Box Hill's role as a MAC is increasingly realised, more people are expected to visit the area for leisure activities, including at night time. This will amplify the importance of wide and connected footpaths. Public places, including local streets, public squares and parks, will become ever more important to the long-term liveability and attractiveness of the Box Hill MAC. It is integral that these places are well connected via the primary walking network.

Action 1.1 – Widen footpaths

Review all primary walking routes and develop a works package to widen and upgrade footpaths to a minimum width of 2.0 m or wider where required to accommodate peak pedestrian volumes, prioritising high foot traffic areas within the centre. This may involve the reconfiguration of some road cross-sections and reallocation of road space to pedestrian paths, such as Whitehorse Road and Station Street (see actions 12.4 and 12.5).

Action 1.2 – Improve pedestrian environment in the Box Hill Mall

Plan and implement improvements to the pedestrian environment in Main Street and Market Street within Box Hill Mall. This should include:

- Improvements in line with the Box Hill Urban Realm Treatment Guidelines

- Reduction of streetscape elements to improve the movement of pedestrians through the mall

- Creating spaces for people to meet and dwell.

Implementation could be linked to other redevelopment opportunities (Vicinity Centres' redevelopment of Box Hill Central or the Suburban Rail Loop Project).

Action 1.3 – Conduct a review of the existing streetscape elements

Review all primary walking routes and develop a staged works package aimed at improving the public realm. The work should respond to the following:

- Consistency with the Box Hill Urban Realm Treatment Guidelines (BHURT)

- The changing role and function of the public realm in relation to increased densities and diversity of function

- Creating human-centric public space that increases liveability

- Creating enhanced pedestrian environments that encourage safe, enjoyable and efficient movement

- Opportunities to contribute to filling gaps in the urban tree canopy in line with the Urban Forest Strategy, to help shade and cool streets and make them more comfortable for walking

- Suitable amenity and locations for street furniture, lighting, tree planting, street art and other streetscape elements that interact with people in the space

- Suitable streetscape functionality and amenity for day and night time use where people can meet, gather, dine, pause and rest.

The works should prioritise high foot traffic areas (including Main Street and Market Street) and key walking links including along Bruce Street from Whitehorse Road to Box Hill Gardens (linking to Box Hill Hospital).

Figure 12   Existing pedestrian environment in Box Hill Mall (Main Street)
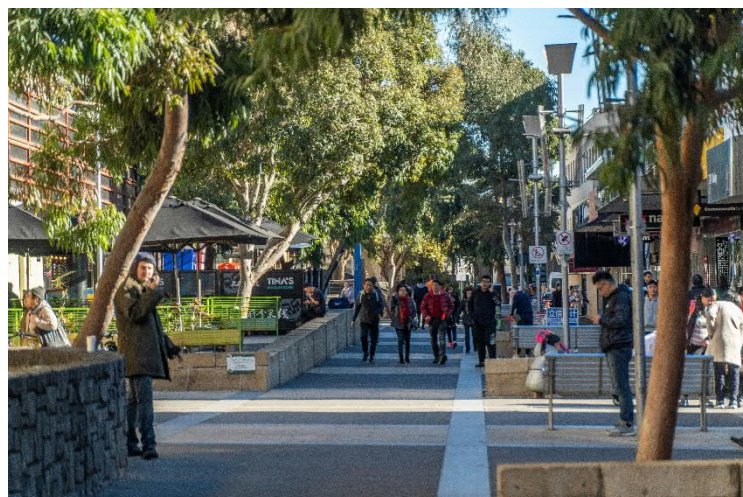
2. Improve accessibility & DDA compliance

The Victorian Department of Health and Human Services reports that people with a disability form nearly 20 percent of the Victorian population, and that around one in three of these have a profound or severe disability.

The Disability Discrimination Act (DDA) makes it against the law for public places to be inaccessible to people with a disability.

Within the context of transport, public places include public footpaths and walkways and public transport. It also includes ensuring access to public facilities, such as educational institutions, parks, pedestrian malls, libraries and hospitals.

Living with a disability can have wide-ranging implications on liveability and accessibility.

Disability access is inconsistently provided across the Box Hill MAC. For example, within the Box Hill train station, lift access is not available for all platforms, with only escalators and long ramps provided for access to platform 4. For the bus interchange, the lift is not conveniently located and is only available for use during the opening hours of the Box Hill Central shopping centre food court – after hours, assistance from station staff must be sought.

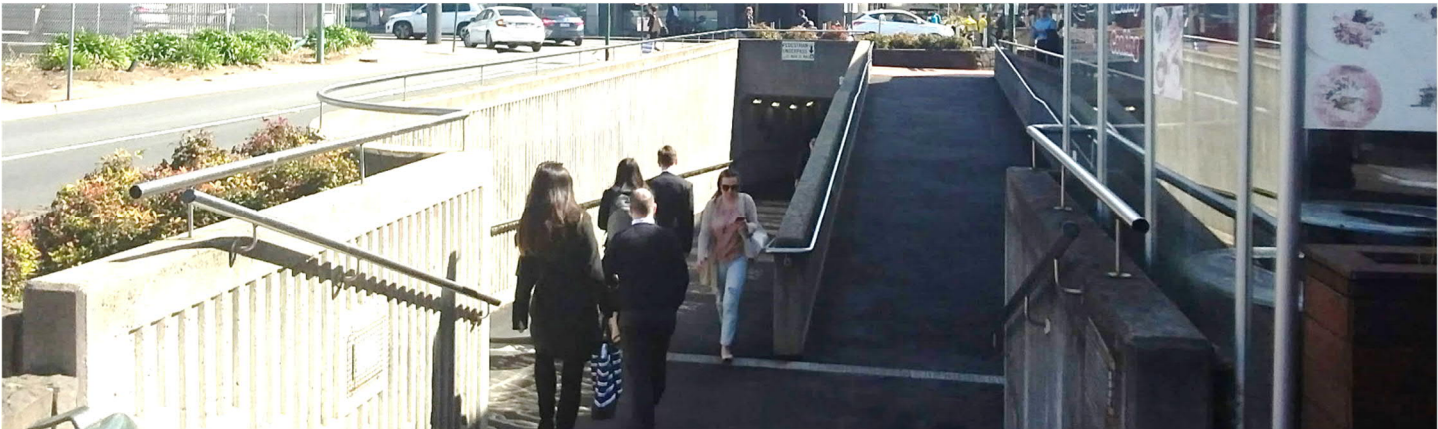## Action 2.1 – Upgrade footpaths to improve accessibility

Ensure that footpaths offer improved accessibility when:

- Streetscapes are modified by developers or utilities, including compliance with the Access to Premises Standards and the Disability Discrimination Act (DDA), where applicable

- Paths are maintained, upgraded or re-constructed by Council (including as part of action 1.1)

- Issues identified by the community are investigated and improved where possible.

Action 2.2 – Conduct accessibility audit of the public transport interchange

Work with the Victorian Government to conduct an audit of the public transport interchange in terms of its accordance with the DDA, and deliver a works package to make it DDA compliant (see initiative 9). This includes the train station, bus interchange and tram terminus, and the connections between them. It is noted that State Legislation requires that all public transport must be accessible by 31 December 2022.

Figure 13   Gradients at the underpass are not DDA compliant

● **Outcomes supported by this initiative**

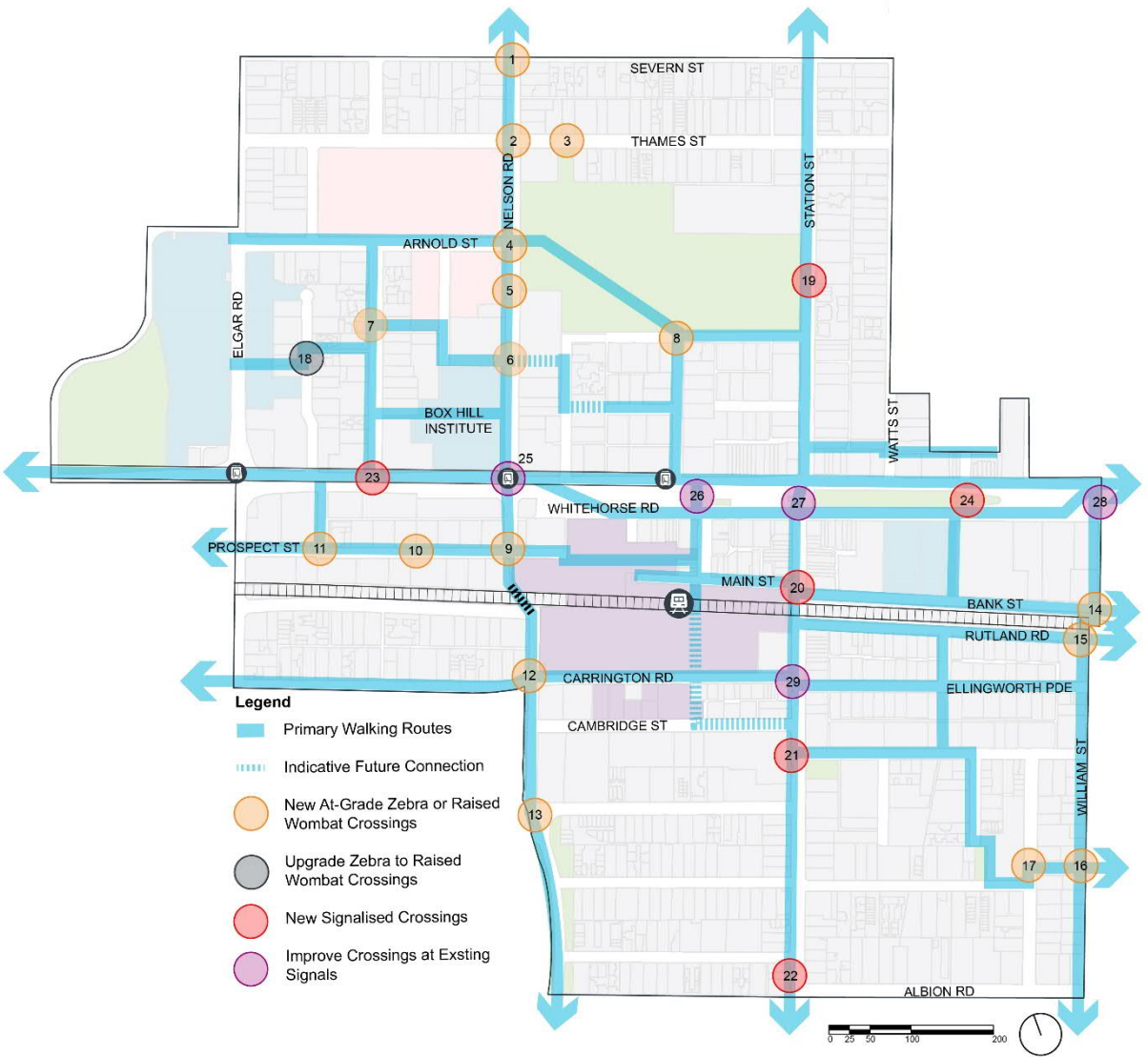| THEME 1 – SAFE, HEALTHY AND INCLUSIVE		THEME 2 – SUSTAINABLE AND LIVEABLE		THEME 3 – VIBRANT LOCAL ECONOMY	
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2 ●	Safe and secure transport network accessible to all	6 ○	Efficient and reliable public transport	10 ○	Efficient and adaptable purposing of land assets
3 ●	Increased walking, cycling and public transport participation	7 ○	A greener, cleaner environment	11 ●	A welcoming, safe and vibrant activity centre
4 ●	Improved physical and mental well being	8 ○	Minimal non-essential private vehicle trips	12 ○	Efficient functioning of local freight corridors

3. Provide additional and improved road crossings

In the last five years, there have been 127 reported road crashes in the Box Hill MAC, of which five involved cyclists and 38 involved pedestrians. This equates to a rate of over one crash involving a pedestrian or cyclist every six weeks.

With the forecast increase in the numbers of people walking and cycling around the Box Hill MAC, it is imperative that more frequent and safer road crossing opportunities are provided.

Vulnerable road users (children and elderly) are over-represented in serious injury crashes. Box Hill is designated as a health and education precinct in Plan Melbourne, with two major hospitals and other health facilities located within the activity centre, translating into a high number of vulnerable road users in the area. Furthermore, it is forecast that the number of vulnerable road users will more than double by 2041. Safer streets will therefore become a more prevalent and critical priority as Box Hill grows.

Figure 14   Opportunities for improved road crossings

Legend

- **Primary Walking Routes**
- **Indicative Future Connection**
- New At-Grade Zebra or Raised Wombat Crossings
- Upgrade Zebra to Raised Wombat Crossings
- New Signalised Crossings
- Improve Crossings at Exsting Signals

● **Outcomes supported by this initiative**

THEME 1 – SAFE, HEALTHY AND INCLUSIVE	THEME 2 – SUSTAINABLE AND LIVEABLE	THEME 3 – VIBRANT LOCAL ECONOMY
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Additional crossings should be prioritised at locations with high foot traffic as well as near the hospital where vulnerable road users are more prevalent. Nelson Road is identified as a primary walking and cycling north-south route, connecting to the hospital, which should provide additional crossings. Station Street has also been identified as a comparably high-risk road for pedestrian crossings, with eight pedestrian crashes recorded in the last five years. Although a pedestrian underpass is provided across Station Street between Main Street and Bank Street, a significant number of people still cross informally at street level. A new at-grade signalised crossing provided here with appropriate surface treatment will not only help to reduce jaywalking but can also help to act as an entry gateway to the pedestrian mall on Main Street (see action 3.2).

Action 3.1 – Construct new pedestrian (zebra) / raised flat top (wombat) crossings

Construct new formalised pedestrian crossings in the form of zebra or raised flat top (wombat) crossings as appropriate at the crossing locations shown in Figure 14 and at other designated locations within walking distance to the station:

1. Nelson Road / Severn Street intersection
2. Nelson Road / Thames Street intersection
3. Across Thames Street at the northern entrance to Box Hill Gardens
4. Nelson Road / Arnold Street intersection
5. Across Nelson Road linking Epworth Eastern to Box Hill Gardens
6. Nelson Road / Spring Street intersection
7. Across Wellington Road between Arnold Street and Whitehorse Road
8. Bruce Street / Irving Avenue intersection
9. Nelson Road / Prospect Street intersection
10. Across Prospect Street between Young Street and Nelson Road
11. Young Street / Prospect Street intersection
12. Thurston Street / Carrington Street intersection
13. Thurston Street / Oxford Street intersection
14. Linsley Street / Bank Street intersection
15. William Street / Rutland Road intersection
16. Across William Street at Glenmore Street Reserve
17. Across Glenmore Street at Glenmore Street Reserve
18. Across Poplar Street linking to Box Hill Institute (upgrade from zebra to wombat)

If zebra or wombat crossings are not suitable, consider other treatments such as pedestrian refuges, kerb outstands or the installation of pram ramps. This may require the removal of some on-street car parking bays at some locations.

WALKING AND CYCLING INFRASTRUCTURE

Action 3.2 – Construct new signalised crossings

📢

Work with the Victorian Government to provide new signalised crossings at key locations shown in Figure 14:

19. Across Station Street north of Irving Avenue, connecting to Box Hill Gardens

20. At the Station Street / Main Street intersection crossing Station Street for the entire width of Main Street, to improve connectivity and provide an entry gateway to the Box Hill Mall. Investigate repurposing the underpass for other uses, or whether it should continue to be in use.

21. Across Station Street at Harrow Street

22. Across Station Street between James Street and Albion Road

23. Across Whitehorse Road near Wellington Road

24. Across Whitehorse Road near the Box Hill Town Hall and Box Hill library.

Action 3.3 – Improve crossings at all existing signalised intersections and crossings

📢

Work with the Victorian Government to reconfigure or upgrade all existing signalised intersections to improve the crossings, including physical infrastructure upgrades (such as kerb extensions) and/or modifying signals to prioritise pedestrian/cyclist crossing movements. In particular, this could include providing protected pedestrian crossing movements (i.e. pedestrian scramble phases, or red turning arrows for vehicles during pedestrian green phases) and other complementary measures such as bike lanterns on primary cycling routes, and 'Watch for Pedestrian" LED signs. Priority should be given to key signalised crossings including:

25. Whitehorse Road / Nelson Road intersection

26. Whitehorse Road pedestrian crossing at the tram terminus / Market Street

27. Whitehorse Road / Station Street intersection – as an interim solution prior to the major road upgrades (see action 12.4 and 12.5)

28. Whitehorse Road / Linsley Street intersection

29. Station Street / Carrington Road intersection

Figure 15 Example of a wombat crossing in Docklands

Figure 16 Pedestrians crossing the intersection of Bruce Street and Irving Avenue informally

Figure 17 Zebra crossing on Nelson Road connecting to the hospital

Action 3.4 – Construct raised threshold intersection treatments

Deliver raised threshold treatments at all unsignalised intersections of local roads along Station Street and Whitehorse Road.

Action 3.5 – Investigate installing signalised crossing countdown timers

Work with the Victorian Government to investigate the installation of countdown timers for pedestrians at selected signalised intersections and crossings. This should include consideration of both 'red walk countdowns' (showing the time remaining during the flashing red walk phase) and 'green walk countdowns' (showing the time remaining before the green walk phase starts).

Action 3.6 – Investigate opportunities to install illuminated DDA ground tactile markings linked to traffic signals

The Victorian Government are trialling illuminated ground surface tactile markings linked to traffic signals to reduce the risks associated with pedestrians distracted by their mobile phones. The trial has been taking place on Swanston Street/Little Collins Street in the CBD.

Figure 18   Example of raised threshold intersection treatment – City of Boroondara

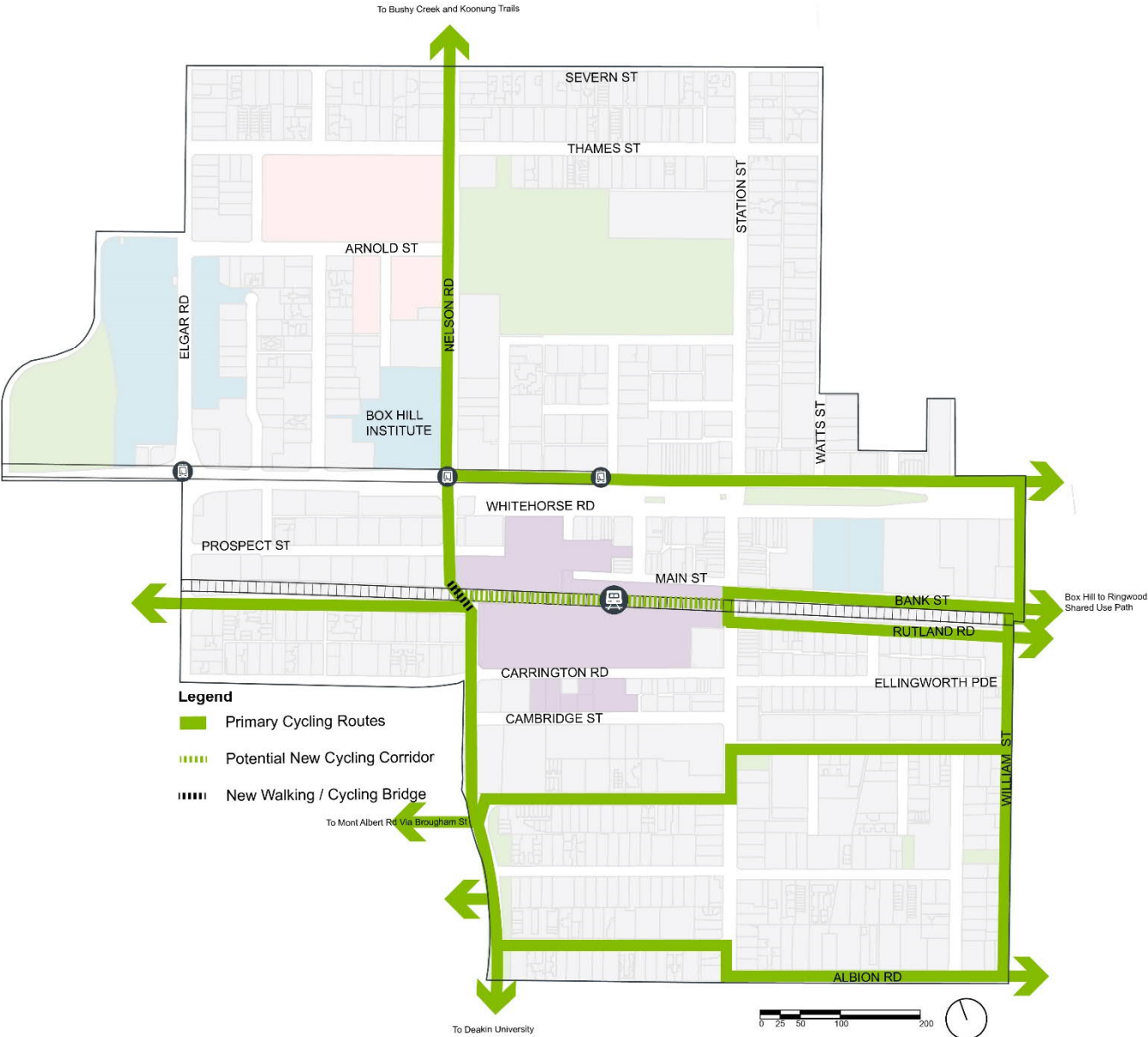Figure 19   Example of signalised countdown timer

4. Formalise and upgrade primary cycling corridors

There is significant untapped potential in cycling as a transport mode to alleviate traffic congestion in the Box Hill MAC. It is also a zero-carbon transport option which can bring broader health and social benefits to the community.

Cycling is a highly time-efficient option for short trips within the MAC, as well as for medium to long range trips when combined with public transport. All internal trips within the Box Hill MAC are accessible within a short cycle of six minutes or less.

Figure 20   Key cycling corridors

Legend
- Primary Cycling Routes
- Potential New Cycling Corridor
- New Walking / Cycling Bridge

● **Outcomes supported by this initiative**

THEME 1 – SAFE, HEALTHY AND INCLUSIVE	THEME 2 – SUSTAINABLE AND LIVEABLE	THEME 3 – VIBRANT LOCAL ECONOMY
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4 ● Improved physical and mental well being	8 ● Minimal non-essential private vehicle trips	12 ○ Efficient functioning of local freight corridors

A good cycling network includes a combination of strategic corridors allowing cyclists to ride at high speeds for longer distance trips, as well as local routes connecting to key local destinations. Within Box Hill, this should include cycling routes to the MAC as well as through it to neighbouring areas.

The safety of cyclists – actual and perceived – is paramount to encouraging and maintaining cycling as an attractive transport mode for all users. Therefore, one of the key components to achieving a mode shift to cycling is through providing a 'low-stress' cycling environment, comprising a network of direct and well-connected routes with safe cycling facilities.

Action 4.1 – Construct physically separated paths

Construct physically separated paths on primary cycling corridors:

- An extension of the shared use path along Bank Street from its current terminus, westward 50 m to Station Street, to link to the new Station Street / Main Street signalised crossing (see action 3.2)

- Along Whitehorse Road between Nelson Road and Box Hill Town Hall (as part of the reconfiguration of Whitehorse Road (see action 12.4)

- An off-road path or protected on-road lanes along Nelson Road (an SCC route), connecting to the walking/cycling bridge over the railway line.

Figure 21   Example of shared path including continuity across driveways in Bentley, WA

Figure 22   Example of protected on-road bike lanes in the City of Yarra

Image source: Yarra City Council

Action 4.2 – Construct bicycle boulevards / low stress cycling streets

Plan and construct bicycle boulevards / low stress cycling streets that provide an alternative route bypassing Box Hill Central. The types of treatments may include sharrows, advisory bike lanes, coloured pavement treatments, wayfinding and other calming treatments that reduce vehicular traffic volumes and cycling stress. The exact routes should be determined during the planning stage. Possible routes to be investigated to and through Box Hill include the following:

- **East-west routes.** Oxford Street and James Street between Surrey Drive and Station Street, as well as Albion Road and Harrow Street between Station Street and William Street

- **North-south routes.** William Street and Linsley Street utilising the railway level crossing, as well as the Thurston Street and Surrey Drive corridor connecting to the new walking/cycling bridge over the railway line at Hopetoun Parade (see action 5.1). This corridor is identified as a Strategic Cycling Corridor (SCC) and follows an identified Easy Ride Route, North-South 2, which provides a connection to Deakin University to the south.

A pilot project could be undertaken to trial the effectiveness of treatments, demonstrate the benefits to the community and gain levels of support before implementing on other parts of the network.

Action 4.3 – Implement Strategic Cycling Corridors in Box Hill

Advocate for the Victorian Government to fund and implement the remaining SCCs in Box Hill, as shown in Figure 20. Immediate term focus should be placed on the Hawthorn to Box Hill SCC, which is currently in the planning stage. As part of this, investigate the feasibility of converting the unused fourth rail track corridor (platform 1) into a cycling corridor through the Box Hill Central area. Ensure a safe crossing for pedestrians and cyclists is provided at Elgar Road.

Figure 23   Example of a bicycle boulevard in Leederville, WA

Figure 24   Example of traffic calming treatment along a bicycle boulevard in Leederville, WA

Figure 25   Example of sharrows in Flemington, City of Melbourne

5. Provide new walking/cycling bridge over the railway line

There are limited north-south connectivity options to cross the railway line which acts as a major barrier that runs across the Box Hill MAC.

There are limited opportunities to cross the railway line, with only two north-south roads (Elgar Road and Station Street) crossing over the railway line within the MAC study area (1.2 km east-west span). An additional level crossing (for pedestrians and cyclists only) is located near Linsley Street, on the eastern boundary of the study area, 400 metres east of Station Street. While the limited north-south connectivity affects all modes, pedestrians and cyclists are most impacted due to the effort required to divert to indirect routes.

This initiative is to pursue a new bridge across the railway line to generate network wide benefits for pedestrians and cyclists, however it is an advocacy action that requires working closely with multiple stakeholders and delivery partners.
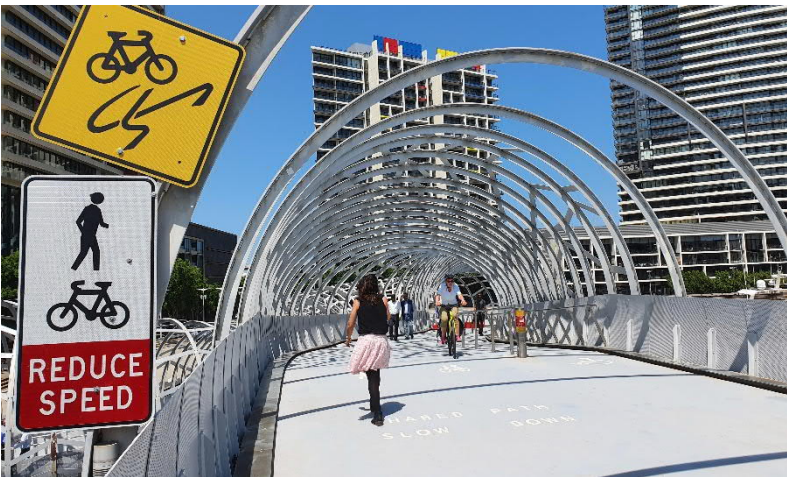
Action 5.1 – Provide new walking/cycling bridge over the railway line

Work with the Victorian Government and Vicinity Centres to provide a pedestrian and cyclist connection across the railway line between Prospect Street and Hopetoun Parade, aligning with the Nelson Road and Thurston Street corridor.

Figure 26   Location for proposed new walking/cycle bridge across the railway line aligning with the Nelson Road and Thurston Street corridor

Figure 27   Example walking/cycling bridge in the City of Melbourne

● **Outcomes supported by this initiative**

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6. Create attractive laneways

Laneways have the potential to boost diversity of the urban realm, alleviate footpath congestion, improve permeability and enhance economic and social opportunities.

Box Hill's laneways are currently primarily used for rear shop access, loading, and shop owner and staff car parking. There is an opportunity to convert these laneways into vibrant spaces for people to meet, relax and enjoy, including through improved hospitality offerings that celebrate Box Hill's unique identity and public art installations.

Figure 28 Example of an attractive, activated laneway (Centre Place) in the City of Melbourne

Figure 29 Example of an inactive laneway (Birds Lane) in Box Hill

● **Outcomes supported by this initiative**

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Action 6.1 –Revitalise laneways

Investigate opportunities to create new or revitalise existing laneways into active, pedestrian environments that are destinations in their own right. This should include minimising vehicle access and a focus on creating laneways as pedestrian priority spaces, where suitable. This includes:

- **Named laneways:** Gatters Lane, Paynes Lane, Hiltons Lane, Bamfords Lane, Birds Lane, Hodges Lane

- **Unnamed laneways:** Between Wellington Road and Poplar Street north of Whitehorse Road; between Bruce Street and Shipley Street just north of Whitehorse Road; between Whitehorse Road and Main Street just west of Market Street; and between Carrington Road and Cambridge Street.

Figure 30   Laneway enhancement opportunities

Legend
- Primary Walking Routes
- Indicative Future Connection
- Laneway Revitilisation

WALKING AND CYCLING INFRASTRUCTURE

7. Improve bicycle end-of-trip facility provision

End-of-trip facilities are dedicated places that support people using active transport modes. Typically, they include secure bicycle lock up areas and change rooms where people can shower, change clothes, and store their belongings securely.

End of trip facilities are a critical aspect to encouraging and supporting the cycling mode share for trips within and to/from the MAC, especially for those who work within the MAC and live within the cycling catchment (typically less than around 10 kilometres).

High quality, abundant, secure and well-located end-of-trip facilities within the MAC could assist in reducing emissions of CO_2 and other pollutants associated with motorised vehicle travel. They also reduce the need for car parking and, through encouraging and enabling active transport, can have a positive impact on economic productivity through improved worker health and wellbeing.

Figure 31   Public art identifying end of trip facility

Figure 32   Example of 'bike repair station' facilities for public use

● **Outcomes supported by this initiative**

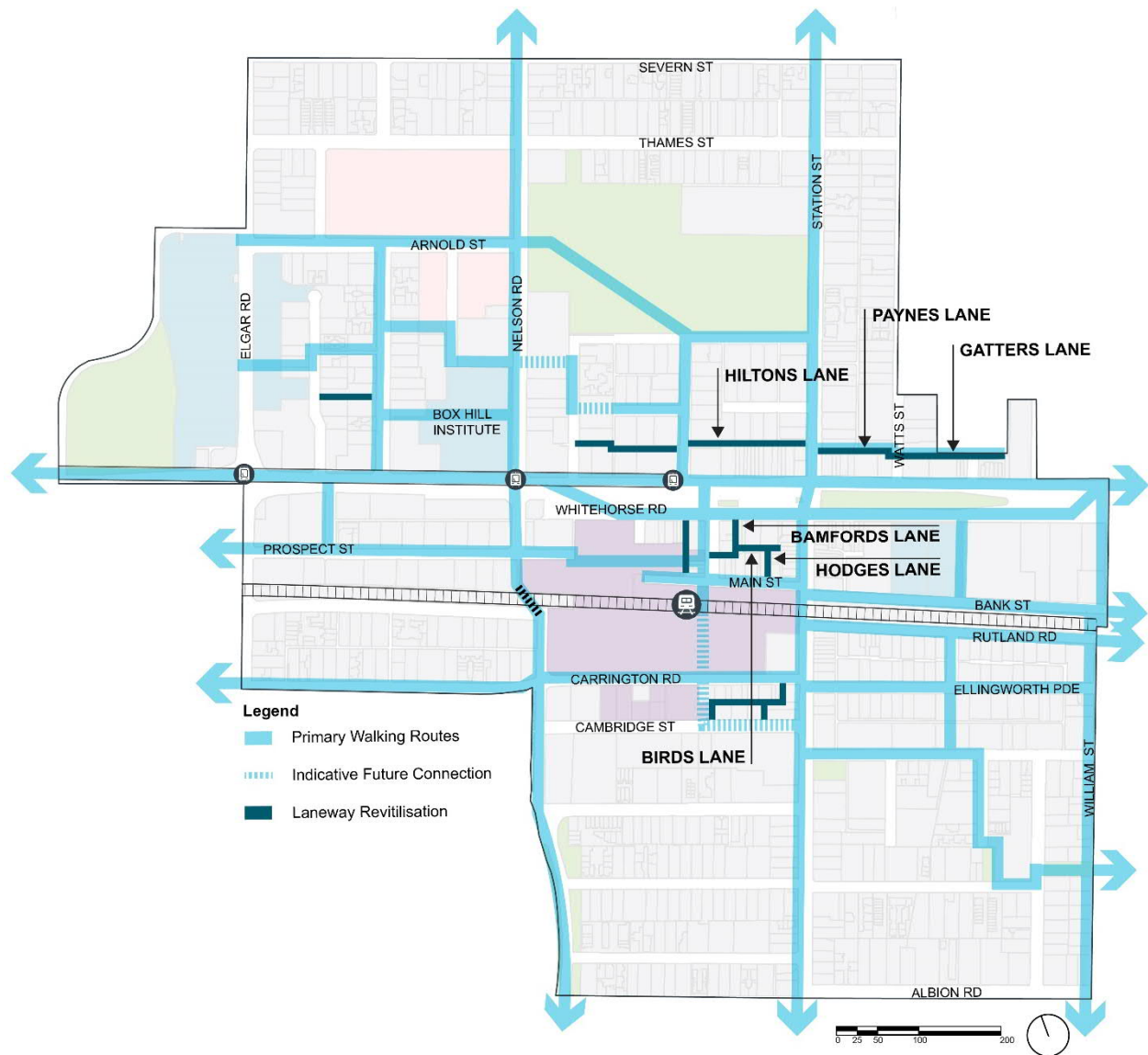| THEME 1 – SAFE, HEALTHY AND INCLUSIVE	THEME 2 – SUSTAINABLE AND LIVEABLE	THEME 3 – VIBRANT LOCAL ECONOMY
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Action 7.1 – Provide end-of-trip facilities within key destinations

Advocate for improved, high quality and increased bicycle end-of-trip facilities at key destinations such as Box Hill train station (see action 9.3). This should include high quality, secure bike parking, showers, lockers and bike repair stations for staff, which could be located within an on-site 'bike hub'. Separate facilities should also be provided for visitors. Consideration should also be made to accommodate e-bikes.

Action 7.2 – Improve public end-of-trip facility provision

Provide improved and increased public bicycle end-of-trip facilities including bicycle parking and repair stations at key locations within the MAC.

Figure 33   Opportunities for cycle parking and end-of-trip facilities

1 Box Hill Institute - Elgar Campus
2 Box Hill Hospital
3 Epworth Eastern
4 Box Hill Institute - Nelson Campus
5 Prospect Street / Young Street
6 Prospect St Shopping Centre Entrance
7 Train Station and Bus Interchange
8 Market St Mall Entrance
9 Tram Stop
10 Main Street Mall Entrance
11 Carrington Rd Shopping Centre Entrance
12 Box Hill Town Hall
13 Box Hill Library
14 Centrelink

Legend

Primary Cycling Routes

Potential New Cycling Corridor

New or Improved Bike Parking

New or Improved End of Trip Facilities

8. Improve wayfinding

The Box Hill MAC is a complex urban environment, with all public transport modes (train, tram and bus), a medical precinct, education facilities, retail and hospitality destinations, and several large public parks. Wayfinding infrastructure is important to connect these places. It also directs users of various transport modes along preferred routes, which can enhance the safety, amenity and efficiency of the entire transport network.

There is currently a lack of wayfinding infrastructure within the MAC, which can, at times, lead to a sense of uncertainty and unease about the MAC for some people, especially for visitors who are not familiar with the area.

Wayfinding within the shopping centre and between modes of transport is particularly poor and unclear. For example, no clear signage exists directing transit users between the train station, tram terminus and bus interchange. Real time information informing interchanging passengers of the arrival time of connecting public transport services is also absent.

Installation of consistent and clear wayfinding would assist visitors to move around the MAC efficiently and easily. Wayfinding infrastructure can also promote tourism, leisure and commercial attributes of the MAC and lead to extended visits.
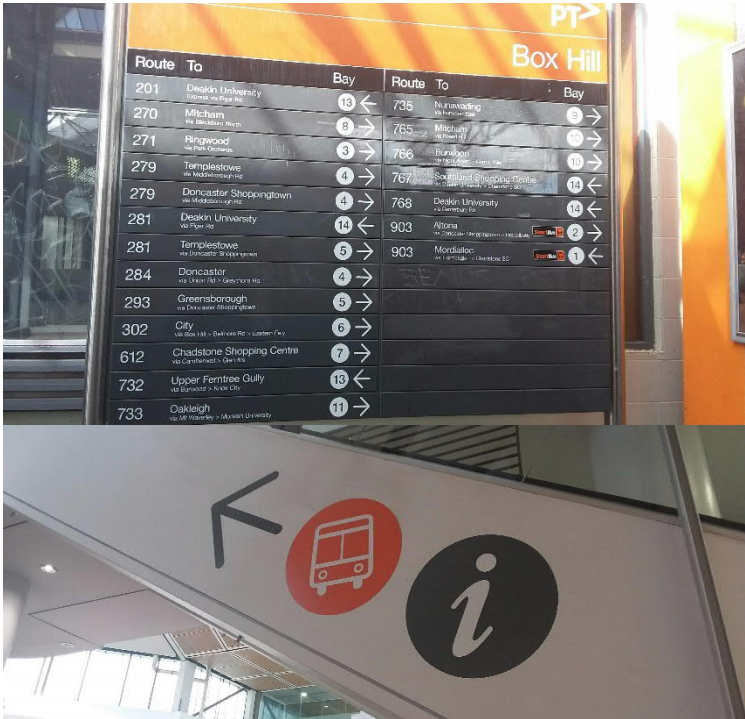
Action 8.1 – Improve area-wide wayfinding

Deliver cohesive and improved multilingual wayfinding across the MAC, including but not limited to providing:

- Maps of the MAC at key locations, including clear delineation of strategic and safe active transport routes, as well as end-of-trip facilities, bike parking, bike repair areas, etc.

- Fixed signage, indicating travel distance to key locations (including between travel mode stops/stations), as well as travel time by foot and bicycle

- Interactive signage, showing real time travel information

- Pavement stickers, indicating travel distance to key locations, as well as travel time by foot and bicycle

- Online maps / apps.

Figure 34 Existing wayfinding signage near the train station

Outcomes supported by this initiative

THEME 1 – SAFE, HEALTHY AND INCLUSIVE	THEME 2 – SUSTAINABLE AND LIVEABLE	THEME 3 – VIBRANT LOCAL ECONOMY
1 ● Accessible and integrated walking, cycling and public transport network	5 ○ Allocation of street space to more efficient and sustainable modes of transport	9 ● An efficient and reliable transport network encouraging travel to, not just through
2 ○ Safe and secure transport network accessible to all	6 ○ Efficient and reliable public transport	10 ○ Efficient and adaptable purposing of land assets
3 ● Increased walking, cycling and public transport participation	7 ○ A greener, cleaner environment	11 ● A welcoming, safe and vibrant activity centre
4 ● Improved physical and mental well being	8 ● Minimal non-essential private vehicle trips	12 ○ Efficient functioning of local freight corridors

Public transport

9. Upgrade Box Hill transport interchange

Box Hill is known as a major public transport hub, serviced by trains on the Belgrave and Lilydale lines, tram route 109, and 18 bus routes. Outside of the CBD, Box Hill Station is the fifth busiest in Melbourne with over 11,000 travellers per day, while the bus interchange is the fourth busiest in Melbourne.

The Box Hill transport interchange offers a poor user experience and is difficult to access and move within. Although it is well utilised by residents, commuters and visitors, its amenity and capacity does not reflect its importance in Melbourne's public transport network, nor Box Hill's reputation as a growing activity centre. Community consultation has led to the following conclusions:

- Forty percent of the community felt that enhanced linkages between transport modes were *essential* to improving public transport in the MAC.

- Reasons to update the interchange include poor safety (lighting, visibility and platform space), poor pedestrian accessibility, outdated facilities and poor bus accessibility.

- Connection between the bus and train is unclear and indirect. Travellers need to walk around Box Hill Central when it is closed or walk through crowds of shoppers when it is open.

- Upgrades to the transport interchange would need to support disability access. For example, as described in initiative 2 (improve accessibility & DDA compliance), the lift to the train station is only accessible during Box Hill Central opening hours.

Action 9.1 – Make interim improvements to the bus interchange

Advocate to the Victorian Government to make improvements to the bus interchange to ensure it is fit for purpose in the short-medium term, before a major bus interchange upgrade (see action 9.5). The interim improvements should include those identified in the Box Hill Transit Interchange Steering Committee Report (2019), including improving information displays, passenger amenity and personal safety, and reducing noise and air pollution.

Action 9.2 – Provide real-time service information

Work with the Victorian Government and Vicinity Centres to deliver real-time service information throughout the station precinct, as identified as part of the Box Hill Transit Interchange Steering Committee Report. This information should be visually displayed at alighting points for the train, bus and tram stops to inform passengers transferring between the various modes. The information should include distances and walking times between the train platforms and bus/tram stops, to allow passengers to plan their transfer effectively.

● **Outcomes supported by this initiative**

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Action 9.3 – Deliver high quality end-of-trip station facilities

Work with the Victorian Government to deliver high quality and secure bicycle end-of-trip facilities that are integrated with Box Hill train station, as envisioned as part of the Box Hill Transit Interchange Steering Committee Report. This facility should cater for the future growth of cycling in the area, including the future demand expected from SRL. It should also include direct and easy access from the surrounding cycling network.

Action 9.4 – Upgrade Box Hill Station

Advocate to the Victorian Government to upgrade Box Hill Station. The improvements should include making it DDA-compliant (see action 2.2), upgrading access such as stairs and escalators to accommodate larger numbers of passengers moving through the station, and improving overall comfort and amenity.

Action 9.5 – Relocate and upgrade Box Hill bus interchange

Work with the Victorian Government, Suburban Rail Loop Authority and Vicinity Centres to relocate the bus interchange and reconfigure it into a series of new on-street bus stops located along Whitehorse Road (either side of Market Street) and along Station Street (north of Main Street). Benefits of this include reduced bus dwell times, high quality integration and more direct links with the surrounding area. The new bus stops should include weather protection (from sun, wind and rain). The upgrade should be guided by a review of the Box Hill Transit Interchange Steering Committee Report. An investigation into an alternative bus layover (providing driver amenities) facility should also be undertaken to allow the existing bus interchange space to be repurposed.

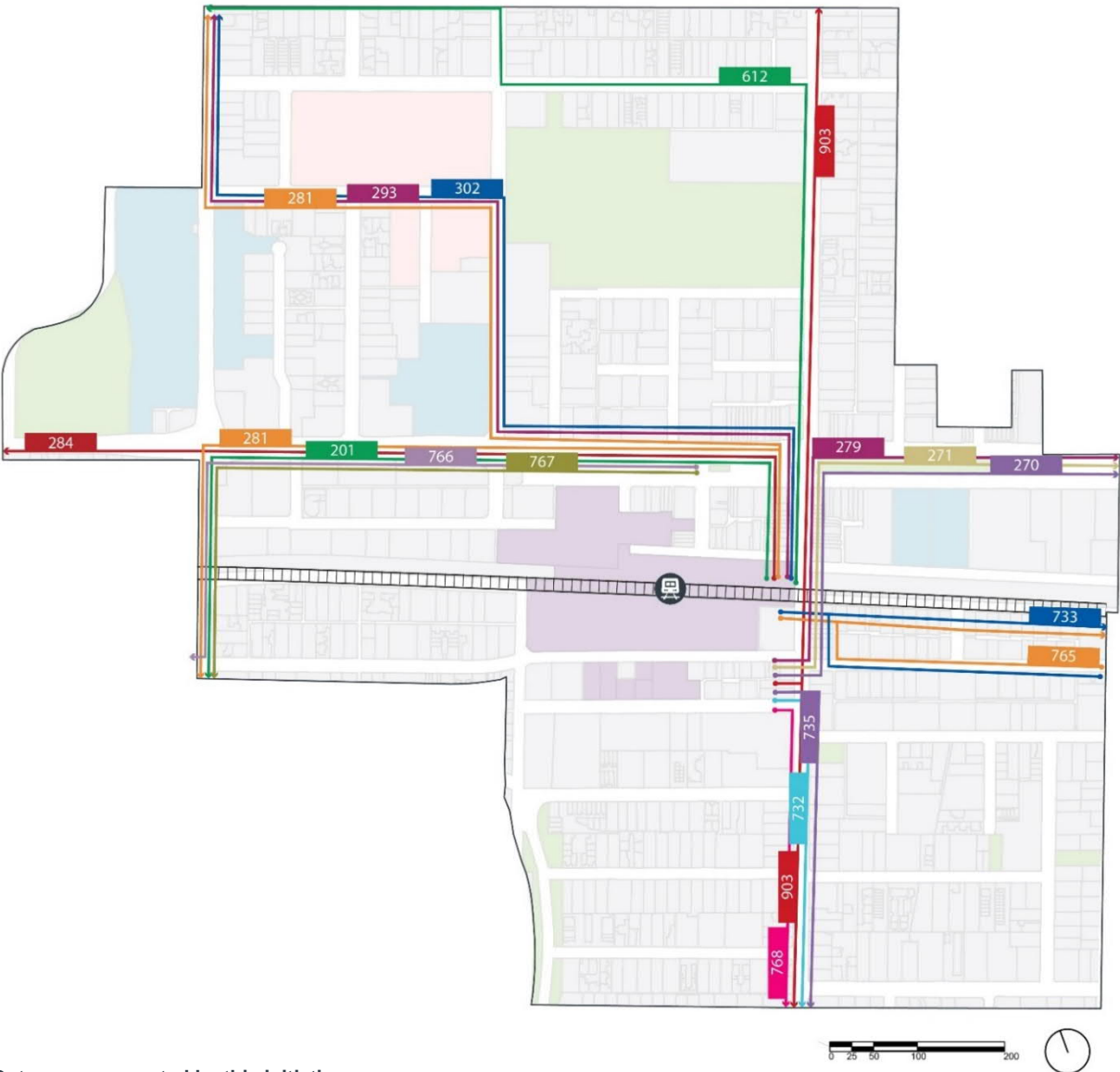**Figure 35   Existing Box Hill bus interchange**

10. Improve train and bus services

A high proportion (27 percent) of residents take the train to work, and a relatively high proportion of residents take the bus to work (four percent mode share, compared to two percent mode share for the Melbourne average). However, 43 percent of residents travel to work by private vehicle, highlighting that train and bus mode share can still be substantially increased.

Box Hill Station is currently one of the busiest train stations in Melbourne, and the MAC is expected to undergo substantial residential and commercial growth over the next decade. However, despite the significant growth expected, PTV's *Network Development Plan* outlines that train headways are not expected to improve until 2030. This will exacerbate crowding on Box Hill Station platforms and the Belgrave and Ringwood lines.

Figure 36   Current bus routes and terminus points

● **Outcomes supported by this initiative**

THEME 1 – SAFE, HEALTHY AND INCLUSIVE	THEME 2 – SUSTAINABLE AND LIVEABLE	THEME 3 – VIBRANT LOCAL ECONOMY
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Access to/from and within Box Hill MAC is further impeded by inefficient bus routing. There is an opportunity to reconsider bus route frequency and routing to relieve congestion in Box Hill and deliver more appropriate and convenient routes for residents, commuters and visitors.

Each of the actions to improve train and bus services to/from and within Box Hill are advocacy undertakings. They will require presenting the existing challenges to agency and stakeholder operators as well as demonstrating expected benefits associated with changes and upgrades.

Action 10.1 – Increase train capacity and service levels

Work with the Victorian Government to deliver higher train passenger capacity in the peak (more frequent and/or longer trains) to manage rail crowding, and more frequent trains in the off-peak (trains run more frequently on weekends compared to the weekday off-peak). It is noted that the removal of the Mont Albert Road and Union Road level crossings (as part of LXRP) will help facilitate the running of additional train services in the peak.

Action 10.2 – Restructure bus routes

Work with the Victorian Government to simplify and rationalise bus routes to create a CBD-like grid of bus services that provide multiple points of interconnectivity. This would re-orient bus services with the needs of customers by increasing the number of destinations across the network. A key opportunity is to combine existing routes to create cross-centre services, rather than separate routes that terminate in the centre. This would help simplify the network, reduce dwell times, and reduce layovers within the MAC. Potential opportunities to modify routes include:

- Combine routes 284 and 271

- Combine routes 765 and 766

- Operate route 281 as a through route on Elgar Road

- Operate route 733 on Middleborough Road and Whitehorse Road

- Alter route 903 to operate on Elgar Road between Riversdale Road and Burwood Highway to provide a better connection to Deakin University.

Action 10.3 – Improve bus service levels

Work with the Victorian Government and local stakeholders to deliver a bus prioritisation framework to ensure that high passenger, low frequency routes are prioritised for improved service levels and longer operational hours. Some specific opportunities for improving bus routes include the following:

a. Work with DoT and tertiary education institutions to implement a high frequency express bus from La Trobe University to Deakin University via Box Hill and Doncaster. This would replicate the connection envisaged by the SRL Project and provide a substantially improved connection forty years in advance of the current SRL schedule.

b. Work with Deakin University, the City of Manningham and DoT to reduce the travel time on bus route 281 between Doncaster and Deakin University by facilitating bus priority on Elgar Road, and removing the need for the route to travel via the Box Hill transit interchange by providing bus stops at Elgar Road that connect to tram route 109. Other passengers in Elgar Road wishing to access the transit interchange would still have many other services from which to choose.

c. Work with Box Hill High School and DoT to realign Route 765 to Middleborough Road and Whitehorse Road, and join it with Route 766 to better connect people in Box Hill, Blackburn South, Mont Albert and Surrey Hills to Box Hill High School. This would also improve connections along Whitehorse Road.

d. Work with the City of Boroondara and City of Maroondah to lobby government to provide a bus route along Canterbury Road from Bayswater to Camberwell to reduce private vehicle traffic on and around Canterbury Road and Whitehorse Road.

Action 10.4 – Improve bus priority

Work with the Victorian Government to improve bus priority as part of a reconfiguration of Station Street (see action 12.5) to reduce delays and improve service reliability. Measures to be considered include bus lanes and signal priority, particularly at intersections.

11. Upgrade and extend the tram line

Box Hill tram terminus is located along the median strip of Whitehorse Road, around 200 metres from the bus interchange and train station. Tram Route 109 operates in Box Hill and connects through to Port Melbourne via Collins Street in Melbourne's CBD.

DoT is currently developing plans to upgrade the Box Hill tram terminus to allow for two tram platforms and longer E-Class trams. As a separate project, DoT is developing plans to install a new electrical substation near the terminus to help power the tram network. Extending the tram line as an additional project would improve accessibility to and from the east of Box Hill and would increase public transport mode share.

Action 11.1 – Upgrade tram terminus

Work with the Victorian Government to upgrade the Box Hill tram terminus to accommodate two tram platforms and the longer E-Class trams. This proposal will also remove the existing tram/pedestrian conflict point, improving pedestrian safety.

Action 11.2 – Install tram electrical substation

Work with the Victorian Government to deliver the tram electrical substation, which will allow for E-Class trams to operate on tram Route 109.

Action 11.3 – Extend the tram line

Work with the Victorian Government to deliver an extension of tram route 109 eastwards along Whitehorse Road to Middleborough Road to provide enhanced accessibility to schools and to community and recreation facilities.

Figure 37   Proposed tram extension

Legend
Existing Tram Route 109
Proposed Tram Extension

● **Outcomes supported by this initiative**

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Traffic and parking management

12. Modify the road network to reduce through traffic on Whitehorse Road and Station Street

Whitehorse Road and Station Street are busy arterial roads that cut through the centre of the Box Hill MAC. They cause visual and physical separation and primarily serve through traffic, while catering poorly for active and public transport users. A strategic, holistic approach to modifying the road network is required to address the needs of all transport users, and to better balance the transport and place functionalities across the MAC.

The Movement and Place Framework, developed by VicRoads (now DoT) in 2018, represents a different approach to planning for the transport network. Traditionally, transport planning has focused on the hierarchy of pedestrians first, cyclists second, public transport users third, and vehicles last. The Movement and Place framework however recognises that *"streets not only keep people and goods moving, they're also places for people to live, work and enjoy"*, and that there is a *"need to balance the needs of both transport users and place users and design a mix of transport modes that are appropriate to how the road and places are used by communities"*.

A Movement and Place workshop was held with key staff from the City of Whitehorse and DoT to apply this framework to key roads within the Box Hill MAC, identifying corridors which should be prioritised for different transport modes and place needs. The general outcomes of this were for Whitehorse Road and Station Street to have a lowered traffic functionality in favour of higher priority for active transport, public transport and open space, with traffic supported on alternative routes including Elgar Road and Middleborough Road.

Six actions are proposed to deliver a vastly different operating context for Whitehorse Road and Station Street, which will contribute to the creation of a more sustainable MAC that provides enhanced support for active and public transport users, whilst supporting vehicle flow on designated traffic corridors.

Action 12.1 – Modify intersections to reduce through traffic within the MAC

Work with the Victorian Government to modify intersections across the road network to reduce non-essential through traffic within the Box Hill MAC particularly on Whitehorse Road and Station Street. This could include road narrowing, reducing turning lanes, or potentially restricting right turn movements for general traffic (buses exempt) at key signalised intersections, including:

- Whitehorse Road / Nelson Road
- Whitehorse Road / Station Street
- Station Street / Canterbury Road

Changes should also be considered at the below intersections, focusing on reducing turning movements into and out from Whitehorse Road throughout the Box Hill MAC, without limiting the capacity of the priority north-south traffic routes:

- Whitehorse Road / Middleborough Road
- Whitehorse Road / Elgar Road

Action 12.2 – Modify traffic signal timings to prioritise active and public transport modes

Work with the Victorian Government to plan and modify traffic signal timings to align with the State's Movement and Place Framework and to give greater priority to sustainable transport. This could include shorter overall cycle times, bus priority phasing, and/or a higher allocation of green time for pedestrians.

**● Outcomes supported by this initiative**

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Action 12.3 – Improve traffic routes along Elgar Road and Middleborough Road

Work with the Victorian Government to provide improved traffic routes along Elgar Road and Middleborough Road from Canterbury Road to Shannon Street/Springfield Road, including a review of on-street parking and consideration of no-stopping zones (peak, daytime or full-time) including weekends.

Figure 38   Proposed systemic road changes
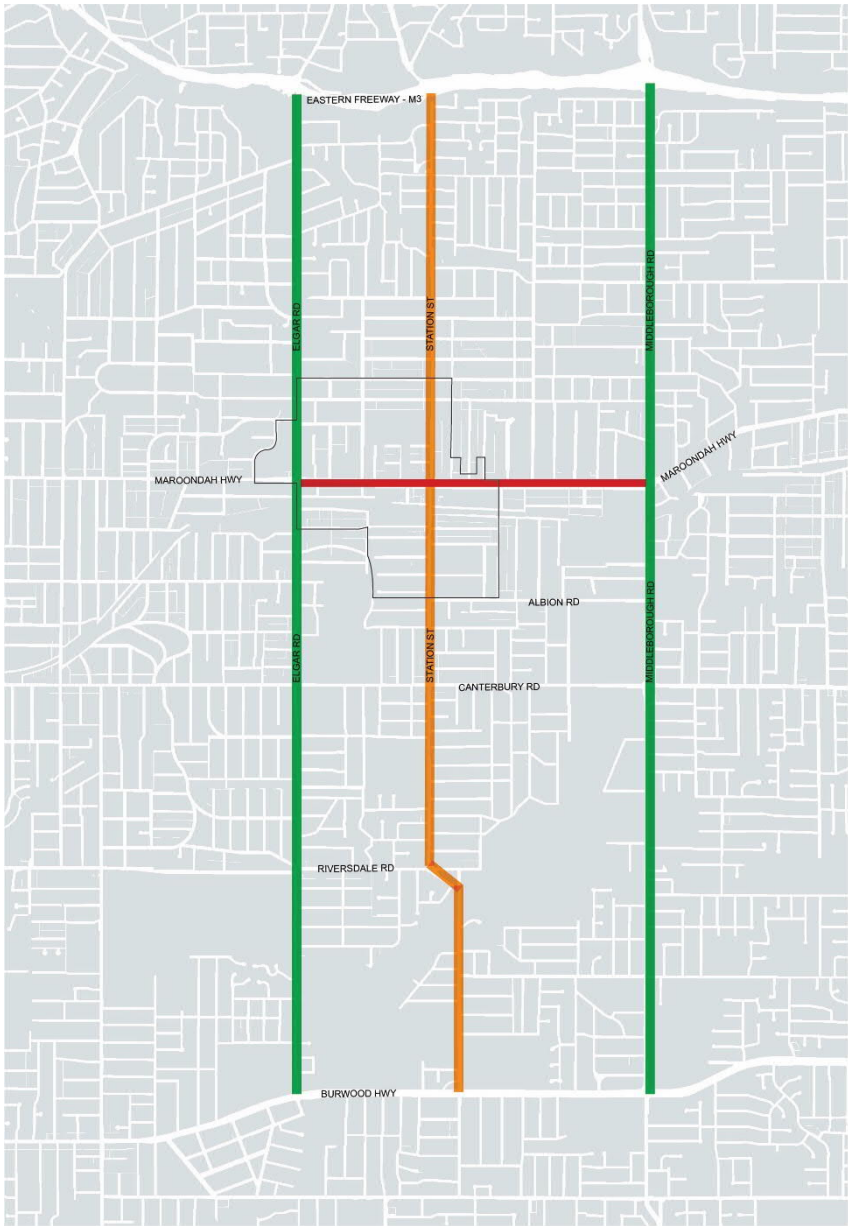
Legend

— Moderate road changes to support safe traffic flow

— Moderate road changes to discourage through traffic

— Major road changes to deter through traffic
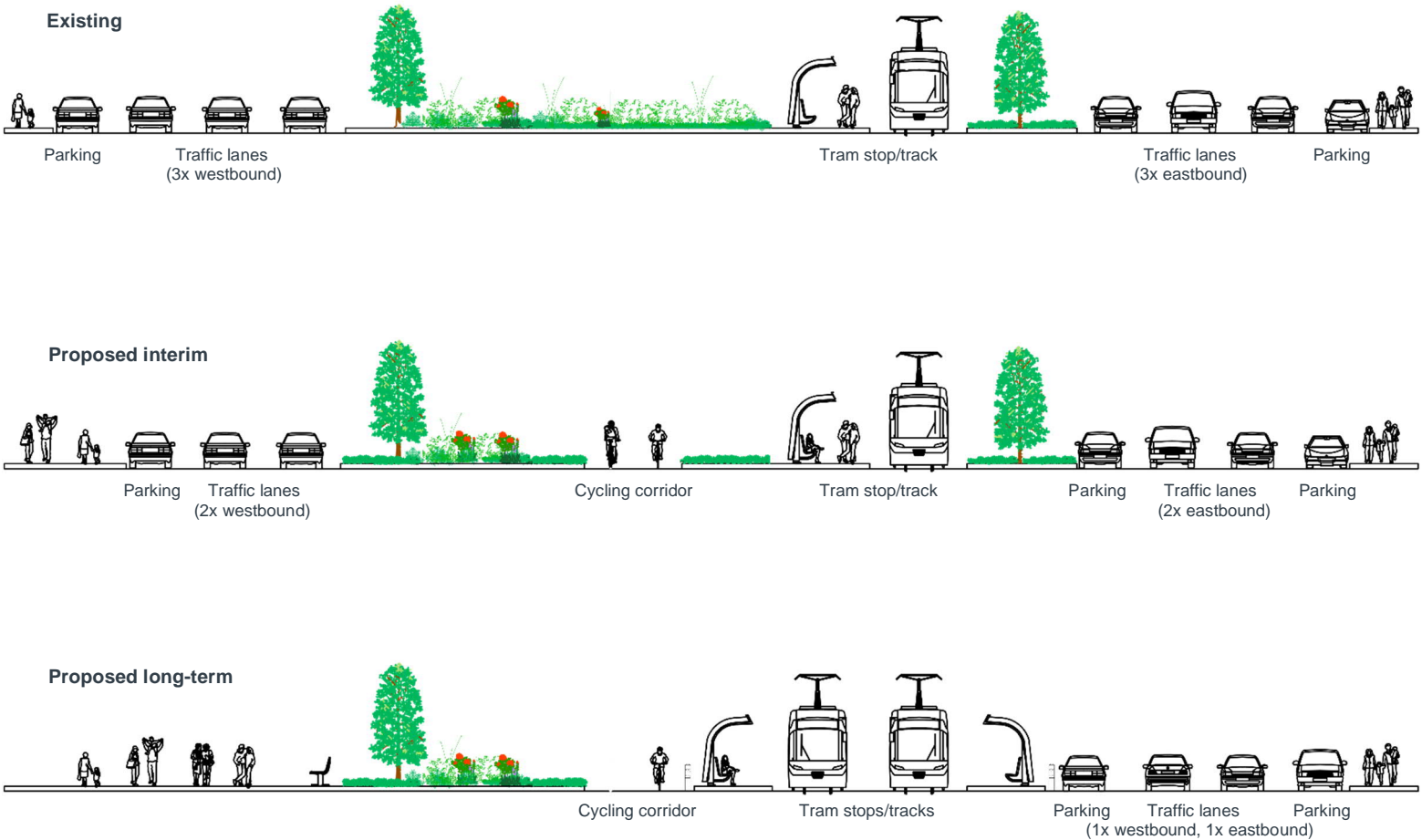
TRAFFIC AND PARKING MANAGEMENT

Action 12.4 – Reconfigure Whitehorse Road

Work with the Victorian Government to reconfigure Whitehorse Road between the Box Hill Town Hall and Elgar Road. The design could include, but not be limited to, the following:

- Peak hour or permanent removal of on-street parking

- Provision of a drop-off/pick-up area

- Wider footpaths and improved urban amenity

- Bus priority infrastructure e.g. including bus lanes and signal priority, particularly for turning movements at intersections, to reduce delays and improve service reliability, as follows:

    - In the interim, restrict parking in the kerbside lanes to outside peak periods along some sections of the road, to allow these to be used as bus lanes in peak periods.

    - In the long-term scenario, if the tram line is extended (see action 11.3), investigate the feasibility of buses using tram tracks.

- Reallocation of road space:

    - In the interim, remove one traffic lane in each direction to enable widening of footpaths.

    - In the long-term scenario, consider shifting traffic lanes to the northern side of the road reserve (eastbound carriageway) to allow the southern side (westbound carriageway) to be used for public space. There would be two lanes during the peak and one lane in each direction during off-peak times to include on-street parallel parking.

- New physically separated cycling facilities.

Figure 39 Proposed changes to the Whitehorse Road typical cross-section in the interim and long-term scenario to reduce traffic lanes, include a cycling corridor, widen footpaths and allow for a tram extension

Existing

Parking | Traffic lanes (3x westbound) | Tram stop/track | Traffic lanes (3x eastbound) | Parking

Proposed interim

Parking | Traffic lanes (2x westbound) | Cycling corridor | Tram stop/track | Parking | Traffic lanes (2x eastbound) | Parking

Proposed long-term

Cycling corridor | Tram stops/tracks | Parking | Traffic lanes (1x westbound, 1x eastbound) | Parking

Action 12.5 – Reconfigure Station Street

Work with the Victorian Government to reconfigure Station Street, to downgrade it from a major to a minor traffic route (through vehicles travelling north-south should be diverted out of the Box Hill MAC and encouraged to use Elgar Road or Middleborough Road instead). This is consistent with Action 4.4.4 of the Whitehorse Integrated Transport Strategy 2011. The design could include, but not be limited to, the following:
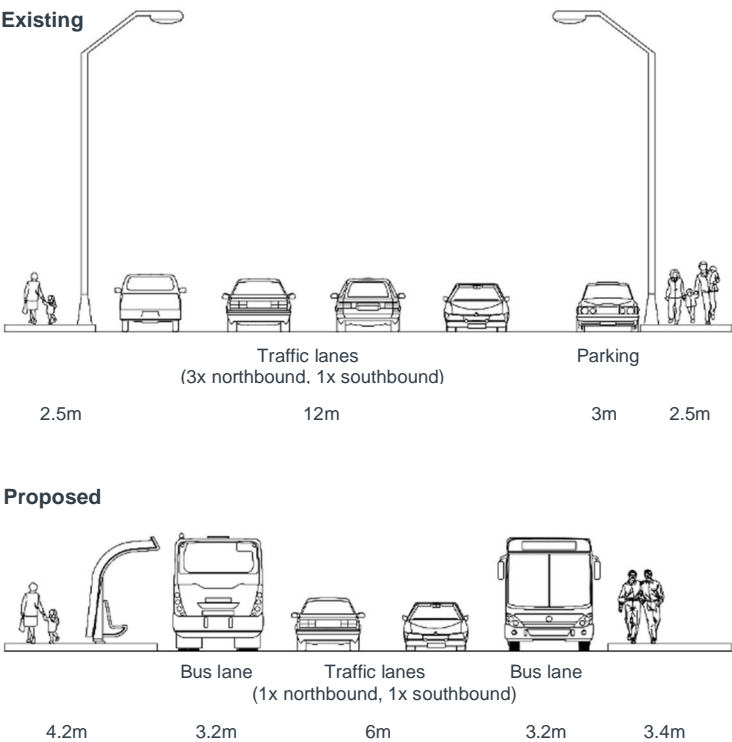
• Removal of on-street parking

• Bus priority infrastructure (e.g. bus lanes and signal priority), particularly for turning movements at intersections, to reduce delays and improve service reliability (see action 10.4)

• Narrowing of the general traffic footprint to one lane in each direction, and reallocation of the recovered space to bus priority lanes or wider footpaths.

Action 12.6 – Improve connections between Elgar Road and Box Hill Central

In conjunction with encouraging use of Elgar Road over Station Street, investigate ways to improve connections between Elgar Road and Box Hill Central. This should include investigating suitable east-west corridors (particularly Hopetoun Parade and Carrington Road) for vehicles and improving access to the shopping centre car park from Elgar Road.

Figure 40 Proposed changes to the Station Street typical cross-section to reduce traffic lanes, remove on-street parking, widen footpaths and include bus lanes
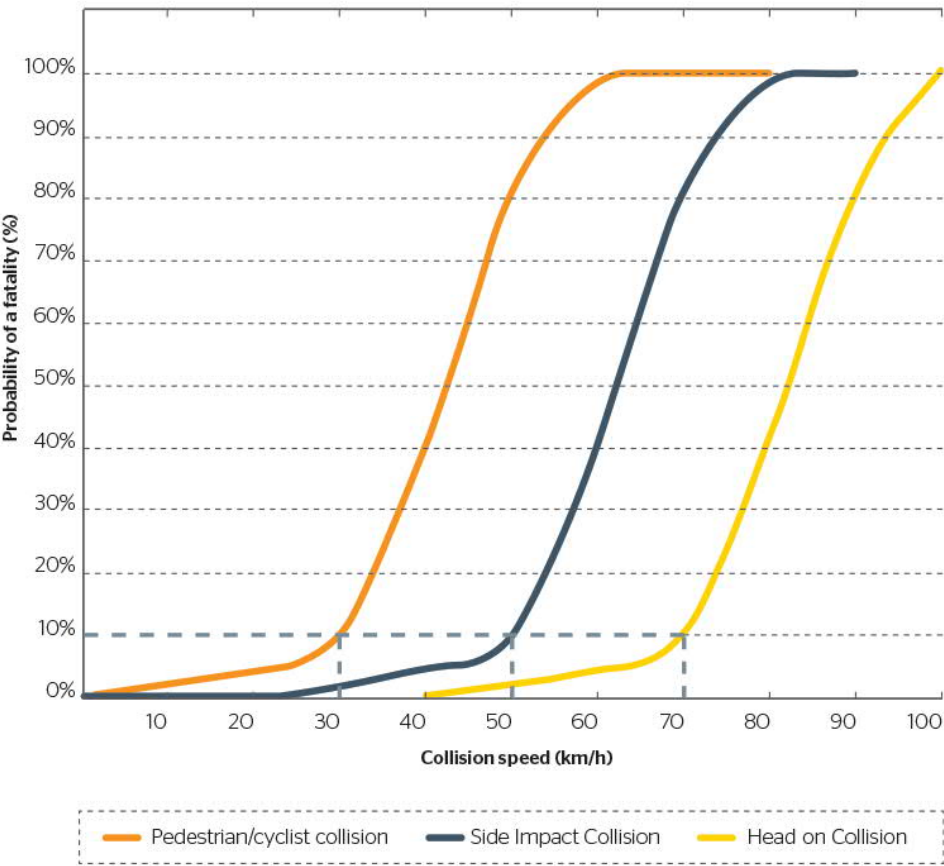

Existing

Traffic lanes
(3x northbound, 1x southbound)

Parking

2.5m   12m   3m   2.5m

Proposed

Bus lane   Traffic lanes   Bus lane
(1x northbound, 1x southbound)

4.2m   3.2m   6m   3.2m   3.4m

TRAFFIC AND PARKING MANAGEMENT

13. Reduce vehicle speeds

There are a number of key arterial roads in the Box Hill MAC where pedestrians and cyclists mix with moderate to high speed traffic, representing one of the highest risk road environments.

One of the main factors in the severity of pedestrian or cyclist collisions with vehicles is the vehicle speed.

Research has shown that the severity of injuries arising from a vehicle impact increases moderately up to 37 km/h, then increases sharply thereafter, with death almost certain at impact speeds of around 55 km/h or higher (refer to Figure 41). As a result, 30 km/h and 40 km/h are often cited as 'safe speeds' for built up areas where there is a mix of pedestrians and cyclists with vehicles, such as the Box Hill MAC.

Figure 41   Wramborg's model for fatality probability vs vehicle collision speeds

● **Outcomes supported by this initiative**

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TRAFFIC AND PARKING MANAGEMENT

Community engagement found that most people support a focus on improving safety for all users, even if it means lowering speed limits. Area-wide speed reduction trials are already taking place elsewhere in Melbourne, with initial community polling demonstrating positive responses to the area-wide trials of 30 km/h speed limits in Fitzroy and Collingwood.

Action 13.1 – Implement 40 km/h speed limits on Whitehorse Road and Station Street

Work with the Victorian Government to deliver a full-time or part time 40 km/h posted speed limit for Whitehorse Road and Station Street for road sections travelling through the MAC. This could include road markings or LED signs to increase visibility and awareness of the reduced speeds on entering the area. Along Station Street, this would be an extension to the 40 km/h speed limit that is currently imposed between Oxford Street and Whitehorse Road on a part time basis.

Action 13.2 – Undertake area-wide speed limit reductions

Undertake area-wide speed limit reductions. Implement a full-time area-wide 40km/h speed limit for the hospital precinct. Using a staged approach, continue to implement 40 km/h area-wide speed limits for all local streets within the MAC.

Action 13.3 – Investigate further speed reductions to 30 km/h

Investigate the potential for further speed reductions to 30 km/h on certain local streets within the MAC, following the implementation and monitoring of 40 km/h speed limits.

Action 13.4 – Investigate sites for improved traffic calming

Investigate potential sites within the MAC for improved traffic calming to support speed reductions and to improve safety of road crossings. These should be focused on identified primary walking and cycling routes, particularly Nelson Road and Arnold Street adjacent to the hospital where vulnerable road users are more prevalent, as well as where bicycle boulevards / low stress cycling streets are implemented (see action 4.2).

14. Manage parking supply and demand

Parking, in particular long term parking, represents an inactive, inefficient use of space, especially within the heart of the Box Hill MAC. There is a need to improve the management and equitability of parking to ensure parking availability is prioritised for those who most need it.

There are approximately 9,000 publicly available car parking spaces provided in Box Hill MAC, including a mix of free, ticketed, time restricted and unrestricted parking, with approximately 59 percent of these car parking spaces considered long term (four or more hours).

Box Hill Station provides 500 parking spaces for public transport users within the shopping centre car park and 75 spaces along Bank Street. However, it has been observed that most of these spaces are not being used by public transport users, but instead often by workers in the area who arrive prior to the commuting peak.

Given that Box Hill is highly accessible as the centre of a major public transport hub, there is an opportunity to better manage and reduce overall parking within the MAC, whilst still ensuring there is equitable access to parking for all users. This includes prioritising parking availability for public transport users and for pick-up and drop-off functions (including for taxi/rideshare), particularly near hotels and the station, along with short-term visitor parking.

There is also an opportunity to improve parking management for motorcycles and scooters, to accommodate and promote these as space-efficient forms of private transport.

Action 14.1 – Manage use of train station commuter car park

Work with the Victorian Government to investigate and implement myki activated boom gates to ensure the commuter car park is only being used by public transport users. This interim action will also allow for the monitoring of actual demand for station parking, which will inform the amount of parking which can feasibly be eventually removed or relocated (see action 14.2).

Action 14.2 – Relocate Box Hill Station commuter parking

Advocate to the Victorian Government for a reduction or removal of all day commuter parking at Box Hill train station. This could instead be relocated out of Box Hill MAC to other nearby train stations, however noting this would need to be investigated as part of network-level planning into station typologies (for access modes) and the overall station parking supply along the rail network. The amount of parking which can be removed or relocated should be based on monitoring the actual demand, which would be possible following enforcement of station parking use by public transport users only (see action 14.1). The investigation should also include benchmarking against the amount of commuter car parking provided at other Metropolitan Activity Centres and inner-city stations. It should also consider links to the Mont Albert / Surrey Hills Level Crossing Removal Project (LXRP), expected to be completed by 2025. A further study could also explore new uses for the 75 on-street commuter car spaces along Bank Street, such as passenger pick-up/drop-off bays during the peak and short term parking during the inter-peak, or potentially converting into other uses such as public space.

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Action 14.3 – Review on-street parking in the MAC

Determine whether on-street car parking restrictions are appropriate within the MAC. This could include a review of disabled parking, loading zones, drop-off/pick-up zones, and timed/paid parking, and their enforcement and effectiveness. This review and enforcement should also extend to local residential streets to ensure parking demand for the activity centre does not overflow and impact on the amenity of adjacent local residential streets.

Action 14.4 – Relocate off-street parking to outer areas within the MAC

Investigate relocating a portion of the current off-street parking within the heart of Box Hill MAC to outer areas within the MAC using a staged approach. Possible locations for these could include near Box Hill Hospital (providing a logical gateway from the north) and near Box Hill Town Hall (providing for people entering from the east). Development opportunities within Council owned sites should consider the provision of public off-street car parking within the development (i.e. Box Hill Bowls site on the corner of Elgar Road and Whitehorse Road).

Action 14.5 – Relocate on-street long term parking and convert to short term zones

Convert on-street long term parking at key locations, such as near hotels and near the existing train station (including the 75 station commuter parking spaces on Bank Street), into short term drop-off/pick-up zones, taxi/rideshare zones, and carshare parking bays. This should also include some larger spaces to accommodate larger vehicles such as tourist buses or the airport transfer shuttle buses (SkyBus). Investigate the capacity of potential off-street parking areas to accommodate relocated on-street parking to ensure no net loss of long-term parking within the MAC.

Figure 42   Parking spaces along Bank Street

Action 14.6 – Manage motorcycle/scooter parking on footpaths

Enforce motorcycle parking laws and apply footpath parking bans where the footpath is not wide enough. These parking restrictions could be offset by improved provision in alternative locations (see action 14.7). Where bans are applied, on-street motorcycle parking should be provided nearby, such as by converting some car parking bays to motorcycle/scooter parking. This should be focused on primary walking routes, particularly Whitehorse Road, Station Street, Bank Street, Rutland Road and Carrington Road.

Action 14.7 – Provide motorcycle/scooter parking within multi-level car parks

Identify appropriate locations to safely provide undercover motorcycle/scooter parking within existing multi-level car parks, which may include conversion of some car parking to motorcycle parking bays. Improved parking provision for motorcycles and scooters will help to complement the enforcement of parking bans on footpaths (see action 14.6).

Action 14.8 – Provide electric vehicle charging points

Support the provision of electric vehicle charging points, through the following:

a. Working with private car park owners, undertake an investigation into providing electric vehicle charging points within off-street electric vehicle parks at key locations (such as Box Hill Hospital, Box Hill Institute and Vicinity Centres).

b. Working with developers to provide electric vehicle charging infrastructure into their car parking facilities. At a minimum, encourage developers to provide the electrical wiring and circuits so that retrofitting costs are minimised in the future.

c. Consider a planning permit condition for large developments to require electric vehicle charging points via a Parking Management Plan.

Figure 43   Example electric vehicle charging in Harrow Street car park

TRAFFIC AND PARKING MANAGEMENT

15. Repurpose space allocated to vehicles and enhance public space

Like laneways, attractive and active public spaces have the potential to draw people, boost diversity of the urban realm, and add to the vibrancy of the Box Hill MAC.

In line with making more efficient use of parking spaces within the heart of the Box Hill MAC, there is opportunity to repurpose idle, underutilised spaces into active public spaces to improve the public amenity and bring vibrancy to the centre.

Public space is limited in Box Hill, and community consultation has found that there is support and desire for more and improved public spaces and amenity. However, it is acknowledged that like most busy centres, there are various competing demands for the limited space available within the Box Hill MAC to allocate to transport infrastructure and public spaces. As such, part-time or temporary repurposing of roads, parking and other spaces can be implemented to test and gauge community acceptance of potential changes.

Action 15.1 – Create parklets

Convert on-street parking spaces to other uses such as parklets, either on a temporary or permanent basis, which could include public seating, extended alfresco areas and/or bicycle parking. These should begin as temporary trials in areas such as along the south side of Carrington Road outside restaurants or along the east side of Station Street, moving towards the eventual removal of on-street parking as part of the reconfiguration of Station Street (see action 12.5).

Figure 44   Example parklet in the City of Darebin

Image source: Victoria Walks

Figure 45   Example parklet in the City of Yarra

Image source: Victoria Walks

● **Outcomes supported by this initiative**

THEME 1 – SAFE, HEALTHY AND INCLUSIVE

1 ● Accessible and integrated walking, cycling and public transport network

2 ○ Safe and secure transport network accessible to all

3 ● Increased walking, cycling and public transport participation

4 ● Improved physical and mental well being

THEME 2 – SUSTAINABLE AND LIVEABLE

5 ● Allocation of street space to more efficient and sustainable modes of transport

6 ○ Efficient and reliable public transport

7 ● A greener, cleaner environment

8 ● Minimal non-essential private vehicle trips

THEME 3 – VIBRANT LOCAL ECONOMY

9 ● An efficient and reliable transport network encouraging travel to, not just through

10 ● Efficient and adaptable purposing of land assets

11 ● A welcoming, safe and vibrant activity centre

12 ○ Efficient functioning of local freight corridors

TRAFFIC AND PARKING MANAGEMENT

Action 15.2 – Convert off-street vehicle spaces to community uses for temporary periods

Temporarily convert off-street vehicle spaces, such as the Ellingworth Parade off-street car park, to public spaces for community uses, which could occur as part of events (such as Chinese New Year celebrations). These uses could include family-friendly spaces which promote a playful interactive environment, such as an outdoor giant chess set or pop up play centre.

Action 15.3 – Relocate or reduce Carrington Road taxi/rideshare facility

Work in partnership with the Victorian Government and Commercial Passenger Vehicles Victoria (formerly the Taxi Services Commission) to investigate alternative locations for a taxi/rideshare pick-up/drop-off facility to enable a removal or reduction of the existing Carrington Road taxi zone, which will help to provide greater public space and reduce traffic along Carrington Road.

Action 15.4 – Investigate temporary closures of Carrington Road to vehicles

Investigate temporary closures of a section of Carrington Road (between the vehicle accesses to the Box Hill "South" Shopping Centre) to vehicles at certain times of the day to activate the space and enable night events. This would require investigation and implementation of an event traffic management plan to ensure two-way access is allowed for on both sides of the road closure.

Action 15.5 – Investigate decking over the railway line to create new public space

Work with the Victorian Government to investigate the feasibility of decking over the railway line east of Station Street to convert into public space.

Figure 46   Example of repurposing road to open space: 2019/20 Altona Beach Precinct Trial by Hobsons Bay City Council

TRAFFIC AND PARKING MANAGEMENT

16. Improve parking wayfinding

Parking wayfinding helps to take circulating cars off the road, enable more efficient use of parking supply, and reduce overall congestion on the road network.

Research has shown that 30 percent of congestion is caused by people looking for parking spaces, with an average cruise time of eight minutes. Lack of wayfinding to determine the location of free car spaces leads to difficulty in navigating the road network and circulating within multi-level car parks. This is particularly true for those unfamiliar with an area (e.g. tourists or other non-regular visitors) who may not know of available parking areas.

Parking wayfinding is most effective when a strategic area-wide approach is taken. This ensures consistent signage and allows real-time information on parking availabilities to inform the messaging.

Area-wide parking wayfinding will also become more significant when implemented in conjunction with proposed conversion and relocation of off-street car parks and on-street parking types (see actions 14.4 and 14.5).

Action 16.1 – Provide area-wide parking wayfinding

Review existing parking directional signage around the MAC and deliver improved parking wayfinding signage, directing motorists to the alternative car park locations such as the Watts Street and Harrow Street off-street car parks. This can help to reduce the level of circulating traffic searching for parking within the Box Hill Central area.

Action 16.2 – Implement a parking wayfinding app

Investigate opportunities for an app to provide real-time information on current and predicted available parking spaces within the various car parks in the MAC, to enable drivers to make informed choices on which car park to go to. This could include promoting the existing "Pay Stay" app and investigating opportunities for developing this further to also include real time information for all off-street car parks. This digital wayfinding would support the parking directional signage provided around the MAC (see action 16.1).

● **Outcomes supported by this initiative**

THEME 1 – SAFE, HEALTHY AND INCLUSIVE	THEME 2 – SUSTAINABLE AND LIVEABLE	THEME 3 – VIBRANT LOCAL ECONOMY
1 ○ Accessible and integrated walking, cycling and public transport network	5 ○ Allocation of street space to more efficient and sustainable modes of transport	9 ● An efficient and reliable transport network encouraging travel to, not just through
2 ○ Safe and secure transport network accessible to all	6 ○ Efficient and reliable public transport	10 ○ Efficient and adaptable purposing of land assets
3 ○ Increased walking, cycling and public transport participation	7 ● A greener, cleaner environment	11 ○ A welcoming, safe and vibrant activity centre
4 ○ Improved physical and mental well being	8 ● Minimal non-essential private vehicle trips	12 ○ Efficient functioning of local freight corridors

17. Review development parking requirements

If no changes are made to current development parking requirements, the planned 6,800 new dwellings will result in an additional 7,300 car parking spaces within the Box Hill MAC.

As cities across the world begin to prioritise city living that does not require using a car for every trip, many local governments are moving away from blanket policies of providing abundant parking. Many are adjusting planning rules and parking prices to discourage driving when other options are available, and in some cases even prohibiting new parking spaces from being built in congested or sensitive locations.

There is precedence of other activity centres in Melbourne that have imposed maximum statutory parking rates on developments, including Footscray, which like Box Hill, is designated as a Metropolitan Activity Centre.

Applying similar changes to the planning scheme will enable Box Hill to slow the growth of the number of private vehicles and congestion within the MAC.

Action 17.1 – Review development parking rates in planning scheme

Review parking rates and investigate replacing parking rate minimums with maximums for new developments, as part of a planning scheme amendment to alter the existing car parking overlay. In the long term, this could also allow for the decoupling of the sale of parking spaces from apartments. This would include a review of parking management policy and how parking restrictions are applied and enforced in local streets (see action 14.3). Reduced car ownership could also be offset by the introduction of car share schemes (see action 20.1).

● **Outcomes supported by this initiative**

THEME 1 – SAFE, HEALTHY AND INCLUSIVE

1 ○ Accessible and integrated walking, cycling and public transport network

2 ○ Safe and secure transport network accessible to all

3 ● Increased walking, cycling and public transport participation

4 ○ Improved physical and mental well being

THEME 2 – SUSTAINABLE AND LIVEABLE

5 ○ Allocation of street space to more efficient and sustainable modes of transport

6 ○ Efficient and reliable public transport

7 ○ A greener, cleaner environment

8 ● Minimal non-essential private vehicle trips

THEME 3 – VIBRANT LOCAL ECONOMY

9 ○ An efficient and reliable transport network encouraging travel to, not just through

10 ○ Efficient and adaptable purposing of land assets

11 ○ A welcoming, safe and vibrant activity centre

12 ○ Efficient functioning of local freight corridors

18. Review loading zones

Servicing and deliveries are an essential component to activity centres. Ensuring these movements are accommodated and supported is key to maintaining the economic livelihood of the Box Hill MAC.

With the proposed road network modifications and reduced capacity of some roads to improve the safety and urban amenity within the Box Hill MAC, there is potential for this to adversely impact on servicing and delivery movements. Therefore, as part of managing traffic and parking within the MAC, there is an opportunity to also review and improve the efficiency of loading zones.

Action 18.1 – Review loading zones

Review the number and location of existing loading zones to determine if they could be consolidated into one or more 'freight-friendly' areas, with the aim of improving the efficiency of loading movements whilst maintaining the amenity and function of the Box Hill MAC for other users. Work with local businesses to review time limits on loading bays to restrict deliveries to early morning or overnight periods.

● **Outcomes supported by this initiative**

THEME 1 – SAFE, HEALTHY AND INCLUSIVE	THEME 2 – SUSTAINABLE AND LIVEABLE	THEME 3 – VIBRANT LOCAL ECONOMY
1 ○ Accessible and integrated walking, cycling and public transport network	**5** ○ Allocation of street space to more efficient and sustainable modes of transport	**9** ○ An efficient and reliable transport network encouraging travel to, not just through
2 ○ Safe and secure transport network accessible to all	**6** ○ Efficient and reliable public transport	**10** ○ Efficient and adaptable purposing of land assets
3 ○ Increased walking, cycling and public transport participation	**7** ○ A greener, cleaner environment	**11** ○ A welcoming, safe and vibrant activity centre
4 ○ Improved physical and mental well being	**8** ○ Minimal non-essential private vehicle trips	**12** ● Efficient functioning of local freight corridors

Travel behaviour

19. Implement behaviour change programs

Provision of high-quality infrastructure and services is a key component to enabling mode shift to sustainable transport. It is also beneficial to support infrastructure improvement efforts through soft measures such as travel behaviour change programs.

Behaviour change programs are implemented to encourage and support people in using alternative transport modes. This can encompass a variety of forms including community and promotional events, travel plans or, in some cases, financial reward or incentives. These programs help to educate, increase awareness, and provide the information, resources and community support required to encourage people to change their behaviour.

Timing the implementation of these programs is also key to achieving the most benefit, e.g. promotions during community events where people are more likely to show interest and get involved. In addition, community consultation found that many people felt that improvements to alternative modes were needed before they could consider reducing their car use. As such, behaviour change programs should be timed to occur in accordance with the construction and completion of infrastructure upgrades.

Action 19.1 – Run active transport community events

Organise and run community events such as 'car-free days' to help re-emphasise active transport priority over traffic. This could include closing off-street car parks and/or sections of roads to cars for a period of time – as occurs with the closure of the westbound lanes of Whitehorse Road for Lunar New Year festivities – and hosting complementary 'pop-up' activities or events promoting sustainable transport use.

Action 19.2 – Run travel behaviour change program

Lead and run a travel behaviour change campaign and education program in Box Hill, or possibly Council-wide, promoting the health and environmental benefits of using active and public transport.

Action 19.3 – Support active transport promotional events

Encourage and support the community and local organisations to partake in third party walking and cycling promotional events e.g. ride to work/school days, walkathon, and 'Steptember'.

Action 19.4 – Develop workplace and school travel plans

Work with large businesses, key stakeholders and schools to develop green travel plans for their staff and students, as well as other community programs to encourage residents across the MAC to increase walking and cycling participation.

● **Outcomes supported by this initiative**

THEME 1 – SAFE, HEALTHY AND INCLUSIVE	THEME 2 – SUSTAINABLE AND LIVEABLE	THEME 3 – VIBRANT LOCAL ECONOMY
1 ○ Accessible and integrated walking, cycling and public transport network	5 ○ Allocation of street space to more efficient and sustainable modes of transport	9 ● An efficient and reliable transport network encouraging travel to, not just through
2 ○ Safe and secure transport network accessible to all	6 ○ Efficient and reliable public transport	10 ○ Efficient and adaptable purposing of land assets
3 ● Increased walking, cycling and public transport participation	7 ● A greener, cleaner environment	11 ○ A welcoming, safe and vibrant activity centre
4 ● Improved physical and mental well being	8 ● Minimal non-essential private vehicle trips	12 ○ Efficient functioning of local freight corridors

Technology and emerging trends

20. Implement car share schemes

With the densification and reduced parking availability proposed within the next 15-20 years, it will be important to start planning now for the future implementation of car share in Box Hill.

A number of car share schemes currently operate across Melbourne. Car share offers users a flexible and often lower cost alternative to car ownership, particularly for those who do not use a car on an everyday basis. Instead of each person privately owning a car, car share users pay a membership fee which contributes to the shared ownership and maintenance of a communal car. This provides users with convenient occasional access to a car when public or active transport may not be an efficient option.

With the level of intensification set to occur in Box Hill, and particularly with the added convenience of being highly accessible by public transport, there is significant opportunity to introduce car share schemes to complement and assist with reducing the level of private car ownership.

Action 20.1 – Introduce car share

Review and investigate car share schemes and work with operators (such as GoGet and Flexicar) to introduce public car share schemes within Box Hill. This may also require reallocating some public car spaces for car share spaces.

Action 20.2 – Review car share parking requirements

Introduce a planning permit condition for large developments to provide dedicated on-site car share parking spaces.

Figure 48   Example of Flexicar car share in Docklands

Figure 47   Example of GoGet car share in Docklands

● **Outcomes supported by this initiative**

THEME 1 – SAFE, HEALTHY AND INCLUSIVE	THEME 2 – SUSTAINABLE AND LIVEABLE	THEME 3 – VIBRANT LOCAL ECONOMY
1 ○ Accessible and integrated walking, cycling and public transport network	5 ○ Allocation of street space to more efficient and sustainable modes of transport	9 ○ An efficient and reliable transport network encouraging travel to, not just through
2 ○ Safe and secure transport network accessible to all	6 ○ Efficient and reliable public transport	10 ● Efficient and adaptable purposing of land assets
3 ● Increased walking, cycling and public transport participation	7 ● A greener, cleaner environment	11 ○ A welcoming, safe and vibrant activity centre
4 ○ Improved physical and mental well being	8 ● Minimal non-essential private vehicle trips	12 ○ Efficient functioning of local freight corridors

21. Support emerging and niche transport types

There is an opportunity to capitalise on the growing trend of alternative transport modes to reduce the number of cars on the road.

There is a growing trend in the use of alternative transport modes throughout the world, including a range of micro-mobility options for specific purposes such as food delivery services.

Micro-mobility modes refer to a range of generally very light transport modes, such as e-scooters (although these are currently generally not permitted to be used on footpaths in Victoria, due to safety risks posed by the high speeds they can reach), e-bikes, rollerblades, skateboards and hoverboards. These are becoming increasingly popular transport options, both for commercial and personal mobility purposes. They are a compact transport option where commuters typically travel short trips (less than 3 km), which makes it particularly suitable for undertaking 'last mile' trip movements potentially very applicable throughout the Box Hill MAC where buildings, open space and roads are all competing for land. Micro-mobility modes provide an alternative to walking or cycling – electric modes in particular, offer an 'easier' option which may be attractive to those who are discouraged from walking or cycling due to the level of physical effort required.

Another prominent and growing trend, particularly in Box Hill, is bicycles and e-bikes being used by food delivery operators. Whilst preferable to car-based delivery, the high volume and haphazard parking of these bicycles are becoming a major issue in Box Hill that requires careful management.

In addition to these, it is noted that there are many unknowns regarding the future possibilities and trends in technology, and how this may further change the way in which people and goods move around. For example, cargo bikes, delivery drones and aerial rideshare (e.g. Uber Air) are slowly emerging transport types. It is important to recognise that these emerging and future modes all have different advantages, serve different purposes, and require different interventions – in comparison with the usual transport modes. However, each has a role to play in the overall transport task – both for personal and commercial purposes. As such, these modes should be supported and managed appropriately, now and in anticipation of emerging and future trends.

Action 21.1 – Manage micro-mobility modes

Plan and manage for the different needs of micro-mobility options for personal transport trips (e.g. e-scooters, e-bikes, skateboards, hoverboards, as well as mobility scooters and electric wheelchairs) and develop policy to manage their movements, including a stance on where these transport types are encouraged and discouraged (e.g. on or off-road) and where they can be safely secured.

Action 21.2 – Manage food delivery bikes

Investigate ways to safely accommodate the movements and parking of high volume, short stay food delivery bikes within restaurant areas.

● **Outcomes supported by this initiative**

THEME 1 – SAFE, HEALTHY AND INCLUSIVE	THEME 2 – SUSTAINABLE AND LIVEABLE	THEME 3 – VIBRANT LOCAL ECONOMY
1 ○ Accessible and integrated walking, cycling and public transport network	5 ○ Allocation of street space to more efficient and sustainable modes of transport	9 ○ An efficient and reliable transport network encouraging travel to, not just through
2 ● Safe and secure transport network accessible to all	6 ○ Efficient and reliable public transport	10 ○ Efficient and adaptable purposing of land assets
3 ○ Increased walking, cycling and public transport participation	7 ○ A greener, cleaner environment	11 ● A welcoming, safe and vibrant activity centre
4 ○ Improved physical and mental well being	8 ● Minimal non-essential private vehicle trips	12 ○ Efficient functioning of local freight corridors

IMPLEMENTATION PLAN
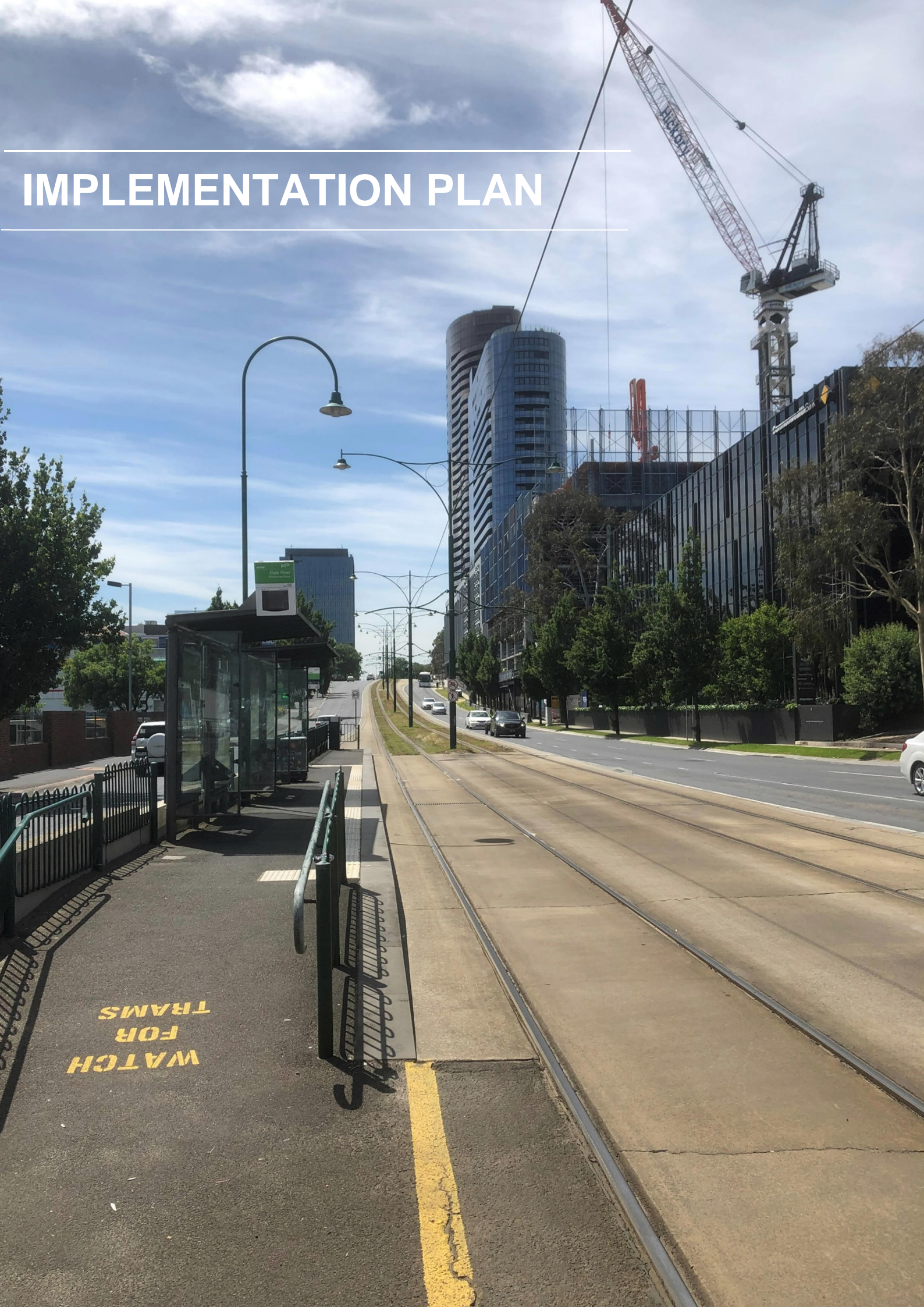
Prioritisation

The recommendations presented in this ITS are aimed at moving the Box Hill MAC toward a future where ongoing increases in population and commercial activity can be absorbed with minimal impact on liveability, or in fact enhance the liveability of Box Hill. The ITS seeks to achieve this by increasing the viability of sustainable travel modes for all types of local and longer distance trips. While the proposed initiatives are intended to work together toward this common goal, a number of the proposed actions can be classified as high priority and for immediate action due to one or more of the following:

- They address significant existing **safety** issues, many of which are at risk of being further exacerbated as more people come to Box Hill to live, work and visit.

- They address priority **equity** issues, and work to enable access to various forms of transport for a wider range of the population (in terms of physical ability or socio-economic status).

- They are key **enablers** for other projects; early implementation is critical to ensure that subsequent investments are viable and effective.

- They are important **trend-setters** or 'quick wins' that could have an immediate effect on travel choices, establishing a receptive base for further changes. These will generally include projects that are fully under the control of Council for implementation, as these can typically be more readily deployed than those that require more complex coordination or consultation.

- They require **lead-in time** either as a result of policy reviews or further investigations and thus should begin in the immediate term in order to be implemented within the short-medium timeframe of the ITS.

Based on this reasoning, a number of key actions have been identified for early implementation in the immediate term (within the next two years), listed below and on the following page as priority actions. Also noted is their significance in the context of the full realisation of this strategy.

The remaining actions have been categorised into short, medium or long term projects on the following pages. This has been determined based on the consideration of a number of factors, including level of expected benefits and outcomes achieved, the estimated magnitude of cost, level of planning required, and/or complexity to implement.

It is noted that the implementation timeframe is based on when the action should start, acknowledging that some actions involve works that may span across a number of years – such as upgrades to crossings at numerous locations across Box Hill, or actions for larger projects which may be delivered in the longer term but in which advocacy is required in the immediate term during the planning stage. Thus, while the action may begin in the timeframe as proposed, it may not be fully complete within the same timeframe.

Further details on the prioritisation framework are provided in **Appendix C**.

Priority actions

Action 1.3 – Conduct a review of the existing streetscape elements

Early review of the walking routes will allow the works package to be developed and improvements to the public realm delivered within the short-medium term.

Action 2.1 – Upgrade footpaths to improve accessibility
Action 2.2 – Conduct accessibility audit of the public transport interchange

A key objective of this ITS is to ensure that all aspects of the transport network are safe and accessible for all, and these actions are critical first steps toward achieving this vision.

Action 3.1 – Construct new pedestrian (zebra) / raised flat top (wombat) crossings
Action 3.3 – Improve crossings at all existing signalised intersections and crossings
Action 3.4 – Construct raised threshold intersection treatments

Prioritising pedestrian crossings at key locations is not only critical to reducing crash rates, but also a key step to establishing a shift in mindset to increased active transport participation.

Action 4.2 – Construct bicycle boulevards / low stress cycling streets

The widening of the cycling population through designation of low-stress routes can help build a support base for more progressive measures. In the immediate term, one of the routes could be identified to be undertaken as a pilot or demonstration project.

Action 7.2 – Improve public end-of-trip facility provision

High quality end-of-trip facilities can have an immediate impact on travel choices, establishing a shift in the mindset to increased active transport participation.

Action 9.1 – Make interim improvements to the bus interchange

Longer term transition of the bus interchange to another form or location is a key recommendation of this ITS, however there is also a critical need to address short term safety and accessibility issues.

Action 10.4 – Improve bus priority

Advocacy should begin in the immediate term to ensure bus priority is adequately considered in the planning for the reconfiguration of Station Street.

Action 11.1 – Upgrade tram terminus
Action 11.2 – Install tram electrical substation

Enabling tram Route 109 to accommodate the longer E-Class trams is required to improve operations in the immediate term.

Action 12.2 – Modify traffic signal timings to prioritise active and public transport modes

Working with the Victorian Government to adjust signal timings to favour pedestrian and bus/tram movements is a low cost means of shifting road prioritisation toward active and public transport.

Action 12.4 – Reconfigure Whitehorse Road
Action 12.5 – Reconfigure Station Street

Advocacy for changes to Whitehorse Road and Station Street should begin in the immediate term to enable appropriate planning and staging of works for medium term delivery.

Action 13.2 – Undertake area-wide speed limit reductions
Action 13.4 – Investigate sites for improved traffic calming

Low speed environments are key to enhancing the perception of safety for people on foot or bike.

Action 14.1 – Manage use of train station commuter car park

There is a misperception that Box Hill Station is heavily reliant on commuter parking. Eliminating misuse of this asset by non-commuters could help justify shifting the remaining parking demand to more appropriate stations.

Action 14.3 – Review on-street parking in the MAC

Reviewing the need for and management of on-street parking could open up opportunities for road space reallocation to walking and cycling.

Action 14.8 – Provide electric vehicle charging points

An outcome of the ITS is moving towards a greener and cleaner environment, and catering for electric vehicles signifies the change towards the support of more sustainable options.

Action 17.1 – Review development parking rates in planning scheme

The continuation of current parking requirements for new developments is unsustainable given the limited capacity of Box Hill's streets to absorb further traffic.

Action 18.1 – Review loading zones

Early planning and consideration for services and deliveries is key to ensuring the economic livelihood of Box Hill is not adversely impacted by other traffic and management changes.

Action 20.1 – Introduce car share
Action 20.2 – Review car share parking requirements

Car share schemes are complementary to the review of development parking rates to reduce reliance on private vehicle ownership and requires early planning and coordination to ensure its effectiveness.

Action 21.2 – Manage food delivery bikes

Managing the high volumes of food delivery bikes is critical to mitigating the existing and growing safety issues they present.

Implementation timeframe

Initiatives and actions	Immediate term (0-2 years)	Short term (3-5 years)	Medium term (6-9 years)	Long term (10+ years)
WALKING AND CYCLING INFRASTRUCTURE				
1. Upgrade primary walking routes				
Action 1.1 – Widen footpaths		▓	▓	
Action 1.2 – Improve pedestrian environment in the Box Hill mall			▓	
Action 1.3 – Conduct a review of the existing streetscape elements	▓			
2. Improve accessibility and DDA-compliance				
Action 2.1 – Upgrade footpaths to improve accessibility	▓			
Action 2.2 – Conduct accessibility audit of the public transport interchange	▓			
3. Provide additional and improved road crossings				
Action 3.1 – Construct new pedestrian (zebra) / raised flat top (wombat) crossings	▓	▓	▓	
Action 3.2 – Construct new signalised crossings		▓		
Action 3.3 – Improve crossings at all existing signalised intersections and crossings	▓			
Action 3.4 – Construct raised threshold intersection treatments	▓	▓	▓	
Action 3.5 – Investigate installing signalised crossing countdown timers			▓	
Action 3.6 – Investigate opportunities to install illuminated DDA ground tactile markings linked to traffic signals			▓	
4. Formalise and upgrade primary cycling corridors				
Action 4.1 – Construct physically separated paths		▓		
Action 4.2 – Construct bicycle boulevards / low stress cycling streets	▓			
Action 4.3 – Implement Strategic Cycling Corridors in Box Hill		▓		
5. Provide new walking/cycling bridge over the railway line				
Action 5.1 – Provide new walking/cycling bridge over railway line			▓	
6. Create attractive laneways				
Action 6.1 – Revitalise laneways		▓	▓	
7. Improve bicycle end-of-trip facility provision				
Action 7.1 – Provide end-of-trip facilities within key destinations		▓		
Action 7.2 – Improve public end-of-trip facility provision	▓			
8. Improve wayfinding				
Action 8.1 – Improve area-wide wayfinding		▓		
PUBLIC TRANSPORT				
9. Upgrade Box Hill transport interchange				
Action 9.1 – Make interim improvements to the bus interchange	▓			
Action 9.2 – Provide real-time service information		▓		
Action 9.3 – Deliver high quality end-of-trip station facilities			▓	
Action 9.4 – Upgrade Box Hill Station			▓	
Action 9.5 – Relocate and upgrade Box Hill bus interchange				▓
10. Improve train and bus services				
Action 10.1 – Increase train capacity and service levels				▓
Action 10.2 – Restructure bus routes			▓	
Action 10.3 – Improve bus service levels			▓	
Action 10.4 - Improve bus priority	▓			
11. Upgrade and extend the tram line				
Action 11.1 – Upgrade tram terminus	▓			
Action 11.2 - Install tram electrical substation	▓			
Action 11.3 – Extend the tram line				▓

Initiatives and actions	Immediate term (0-2 years)	Short term (3-5 years)	Medium term (6-9 years)	Long term (10+ years)
TRAFFIC AND PARKING MANAGEMENT				
12. Modify the road network to reduce through traffic on Whitehorse Road and Station Street				
Action 12.1 – Modify intersections to reduce through traffic within the MAC			■	
Action 12.2 – Modify traffic signal timings to prioritise active and public transport modes	■			
Action 12.3 – Improve traffic routes along Elgar Road and Middleborough Road		■		
Action 12.4 – Reconfigure Whitehorse Road	■			
Action 12.5 – Reconfigure Station Street	■			
Action 12.6 – Improve connections between Elgar Road and Box Hill Central			■	
13. Reduce vehicle speeds				
Action 13.1 – Implement 40km/h speed limits on Whitehorse Road and Station Street		■		
Action 13.2 – Undertake area-wide speed limit reductions	■			
Action 13.3 – Investigate further speed reductions to 30km/h			■	
Action 13.4 – Investigate sites for improved traffic calming	■			
14. Manage and reduce Box Hill Station commuter parking				
Action 14.1 – Manage use of train station commuter car park	■			
Action 14.2 – Relocate Box Hill Station commuter parking		■		
Action 14.3 – Review on-street parking in the MAC	■			
Action 14.4 – Relocate off-street parking to outer areas within the MAC				■
Action 14.5 – Relocate on-street long term parking and convert to short term zones		■		
Action 14.6 – Manage motorcycle/scooter parking on footpaths		■		
Action 14.7 - Provide motorcycle/scooter parking within multi-level car parks		■		
Action 14.8 – Provide electric vehicle charging points	■			
15. Repurpose spaces allocated to vehicles and enhance public space				
Action 15.1 – Create parklets			■	
Action 15.2 – Convert off-street vehicle spaces to community uses for temporary periods		■	■	
Action 15.3 – Relocate or reduce Carrington Road taxi/rideshare facility		■		
Action 15.4 – Investigate temporary closures of Carrington Road to vehicles		■		
Action 15.5 – Investigate decking over the railway line to create new public space				■
16. Improve parking wayfinding				
Action 16.1 – Provide area-wide parking wayfinding			■	
Action 16.2 – Implement a parking wayfinding app		■	■	
17. Review development parking requirements				
Action 17.1 – Review development parking rates in planning scheme	■	■		
18. Review loading zones				
Action 18.1 – Review loading zones	■			
TRAVEL BEHAVIOUR				
19. Implement behaviour change programs				
Action 19.1 – Run active transport community events		■	■	
Action 19.2 – Run travel behaviour change program		■	■	
Action 19.3 – Support active transport promotional events		■	■	
Action 19.4 – Develop workplace and school travel plans		■	■	
TECHNOLOGY AND EMERGING TRENDS				
20. Implement car share schemes				
Action 20.1 – Introduce car share	■	■		
Action 20.2 – Review car share parking requirements	■			
21. Support emerging and niche transport types				
Action 21.1 – Manage micro-mobility modes		■		
Action 21.2 – Manage food delivery bikes	■			

Managing disruptions

Some of the infrastructure delivery actions identified in this strategy may result in significant disruptions to the transport network during construction. Management will be required to minimise the impact where possible.

Major projects and disruptions can also provide the opportunity to trial changes in the transport network and, as a result, support changes in travel behaviour. When appropriately managed and accommodated, these behaviour changes during temporary disruptions have the potential to influence long term habits.

Council will take the following steps to proactively manage and minimise impacts as much as possible.

Prioritise pedestrian safety around construction sites

Council will work collaboratively with government agencies and developers to ensure that pedestrian safety is prioritised, and that pedestrians are not overly impacted by the construction activities, by restricting footpath closures for construction or loading/unloading activities at construction sites.

Proactively manage disruptions to the transport networks

Council will work with the Victorian Government, SRLA, Vicinity Centres and other developers to minimise the disruptions to the transport networks by major projects and developments. This could include traffic management, improvement and promotion of alternative transport options, prioritising public transport alternatives, and travel behaviour change programs with larger employers and the community. This could also include coordinating the timing of construction works appropriately alongside other projects to minimise overall disruptions where possible.

Strategic Planning to maximise the public benefit of major projects

Council will undertake investigations/studies to maximise the benefits and improvements that could be achieved in conjunction with major projects, such as the Suburban Rail Loop.

Funding

Council has a capital works budget which will be allocated to implementing the delivery actions. However, it is acknowledged that this budget is limited, and that many actions within this strategy include non-capital works, including policy, advocacy and planning items, all of which require resources, including staff, to implement. Additional funding outside of Council's budget will be required if the benefits of this strategy are to be fully realised.

Given the broad range of benefits that can be achieved from the action plan, there is significant opportunity to explore and seek alternative funding sources. For instance, a development contribution scheme would allow Council to seek funding contributions from the private sector for certain infrastructure or other projects that will directly support the developer's objectives, in addition to providing benefits for the wider community.

Council will therefore investigate opportunities to develop an appropriate development contribution scheme to support future infrastructure works within the MAC, focusing on projects with wide ranging benefits.

Resourcing

The strategy has identified a range of capital works projects, further studies and investigations, as well as advocacy and collaboration with internal and external stakeholders.

For the strategy to have the most impact, it is recommended that a dedicated staff resource is assigned to coordinate all activities related to the delivery of the Action Plan.

Measuring success

It is important to be able to track progress to measure the success of the ITS against the vision, themes and outcomes outlined earlier in this strategy. Council will develop a framework based on setting targets, improving data collection, and monitoring and evaluating results against the strategy outcomes.

Success indicators

Success and progress of the ITS actions will be tracked using success indicators which align to the 12 outcomes outlined earlier in this strategy. The exact indicators and methods of measuring will be developed following endorsement of the ITS, however some potential examples of success indicators to be considered are outlined below.

Outcome	Key Success Indicators
Outcome 1 *Accessible and integrated walking, cycling and public transport network*	• Increased % of walking network that is DDA-compliant • Reduced average wait time at signals
Outcome 2 *Safe and secure transport network accessible to all*	• Reduced crash rates • Reduced vehicle speeds
Outcome 3 *Increased walking, cycling and public transport participation*	• Increased walking, cycling and public transport mode shares • Increased participation at cycling education events • Increased % of female cyclists
Outcome 4 *Improved physical and mental well being*	• Increased community satisfaction (surveys)
Outcome 5 *Allocation of street space to more efficient and sustainable modes of transport*	• Reduced walk time (including signal delays) • Increased area of infrastructure for sustainable modes
Outcome 6 *Efficient and reliable public transport*	• Reduced bus/tram delays • Increased train punctuality
Outcome 7 A *greener, cleaner environment*	• Improved air quality
Outcome 8 *Minimal non-essential private vehicle trips*	• Reduced car mode shares for short trips • Reduced car mode share to work • Reduced long term car parking utilisation • Reduced traffic volumes on key roads
Outcome 9 *An efficient and reliable transport network encouraging travel to, not just through*	• Increased all day visitation
Outcome 10 *Efficient and adaptable purposing of land assets*	• Reduced proportion of land used for car parks • Increased % car share spaces • Increased % DDA spaces
Outcome 11 *A welcoming, safe and vibrant activity centre*	• Increased % active street frontages • Increase night visitation
Outcome 12 *Efficient functioning of local freight corridors*	• Reduced delivery delays • Reduced loading delays due to unavailability • Increased vehicle turnover in loading zones

Setting targets

Setting targets is critical to evaluating how well an action is achieving its objective and in determining whether additional or further actions may be required.

Specific targets for each success indicator will be determined following data collection to establish the base case. However, as an example and trend setter, it is appropriate to set a target for one of the main success indicators that underpins many of the key initiatives proposed in this ITS: mode share.

The mode share to work by private vehicle (driver or passenger) for residents of Box Hill, as determined in the 2016 Census, was **43 percent**.

Through implementation of the initiatives and actions set out in this document, a reduction in private vehicle mode share is targeted. It is proposed to set the 2031 target for private vehicle mode share to **25 percent**, with an interim 2026 target of **35 percent**.

Data collection

An integral component to measuring success is collection and analysis of high quality transport data, to inform Council actions and help monitor outcomes.

Improving this process will first include establishing a framework to collect and use transport data, including with regards to safety (crash statistics), volumes (counts), mode shares, travel times and delays. This could also include more qualitative data sources such as household surveys to gauge level of community satisfaction.

Data will be collected before and after the implementation of various actions to provide a suitable base for measuring progress.

Monitoring and evaluation

Monitoring and evaluation is crucial to the process of measuring success. The results of the data collection and analysis will be regularly evaluated against set targets and outcomes:

- Minor evaluation (at least every 3 months): Qualitative progress on actions

- Major evaluation (every 2 years): Quantitative analysis on success indicators and progress on actions.

The development of a dashboard or portal could allow for the monitoring and evaluation of data and indicators to be undertaken consistently and efficiently.

Progress reports will be prepared for all evaluations. At that time, it would also be appropriate to review the action plan and set targets, to refine and update as required to address any deficiencies which may become apparent through the monitoring and evaluation process.
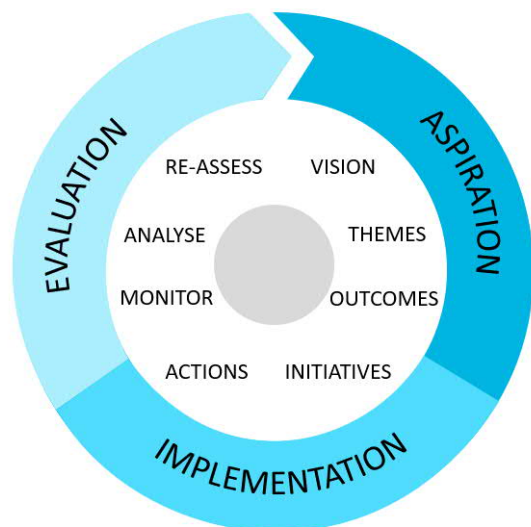
APPENDIX A

Box Hill Issues & Opportunities Report

APPENDIX B

Engagement Summary

APPENDIX C

Prioritisation Framework

CONTACTING COUNCIL

Postal Address:	Whitehorse City Council Locked Bag 2 Nunawading Delivery Centre 3131
Telephone: Fax: NRS:	9262 6333 9262 6490 133 677 then quote 9262 6333 (Service for deaf or hearing impaired people)
TIS:	131 450 (Telephone Interpreter Service. Call and ask to be connected to Whitehorse City Council)
Email: Website:	customer.service@whitehorse.vic.gov.au www.whitehorse.vic.gov.au
Service Centres:	**Whitehorse Civic Centre** 379-397 Whitehorse Road, Nunawading 3131
	Box Hill Town Hall Service Centre Box Hill Town Hall 1022 Whitehorse Road, Box Hill 3128
	Forest Hill Service Centre Shop 275 Forest Hill Chase Shopping Centre Canterbury Road, Forest Hill 3131