CITY OF MONASH

Monash Integrated Transport Strategy

2017

MARTYN GROUP

Institute for Sensible Transport
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Message from the Mayor

I am pleased to present to the community Monash's Integrated Transport Strategy 2017-2037. This strategy provides an overarching framework to ensure that our city remains an accessible and vibrant place with sustainable transport choices for years to come.

As Monash's population grows, our community is faced with a series of transport issues, from competing demands for limited on-street car parking to traffic congestion in local roads.

Our transport strategy covers the next 20 years, with its vision being:

"by 2037 Monash will have a highly accessible and sustainable transport network that supports the safety, health and prosperity of all members of the community".

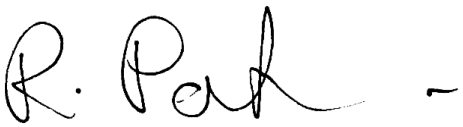
It outlines a range of actions for Council to take to reduce the need for car travel by encouraging more sustainable transport, such as walking, cycling and public transport, and facilitating greater integration between different modes of travel, such as train, bus and cycling.

In this strategy, you will find a set of five specific directions we propose to encourage integrated transport and land use planning within Monash.

Our recommended policy goals and actions address factors such as public safety, public transport service quality, road network efficiency, attractive and accessible walking and cycling routes, parking management, and transport demand management.

Thank you to everyone who contributed their thoughts and ideas to the development of this strategy.

Council looks forward to collaborating with other organisations to tackle the transport issues facing our city.



Mayor Rebecca Paterson

Executive Summary

The Monash Integrated Transport Strategy (ITS) provides a clear framework for the future planning and development of the transport system to 2037 and beyond. The Monash ITS draws on research, data analysis, stakeholder and community input to recommend transport and land use actions to achieve sustainable growth and development within Monash. The document also provides guidance on prioritising and implementing actions and measures of policy success.

The vision for the Monash ITS is:

By 2037 Monash will have a highly accessible and sustainable transport network that supports the safety, health and prosperity of all members of the community.

A set of five specific directions have been proposed to encourage best practice integrated transport and land use planning within Monash. Strategic goals have been recommended under each of these directions to help achieve the document vision. The five directions are:

A. A safer network
B. A more accessible Monash
C. Promote sustainable transport
D. Support productivity
E. Manage car parking

The recommended policy goals and actions address a diverse range of factors, such as public safety, public transport service quality, road network efficiency, provision of effective and attractive walking and cycling routes, parking management, and transport demand management.

The need for new, flexible approaches to travel demand management is a guiding principle for the Monash ITS. It is acknowledged that absorbing additional traffic volumes is challenging, and smarter ways of using the existing transport network, including new technologies, will become increasingly important.

A key focus of the Monash ITS is providing transport choice for all residents and visitors to Monash. This concept is central to providing equitable access to employment, recreation, community services and support. There is a strong recognition of the role of the transport network in contributing to social and environmentally sustainable practices, both locally within Monash, and as part of broader regional, national and global systems.

The Monash ITS has been informed by, and is consistent with, all State and Local policy guidance, and will provide an overarching transport strategy to guide Council transport priority and action over the next 20 years. The range of recommended transport actions have been prioritised to enable Council to focus on both the areas which need immediate attention and actions which will have the most beneficial long term impact. The importance of close collaboration with government, institutional and community stakeholders to effectively deliver the strategic recommendations is central to project implementation.

The Monash ITS sets a path to achieve the 2037 transport network vision and benefit the future Monash community.

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Summary

The Monash ITS is an integrated transport strategy to provide a clear framework for the future planning and development of the transport system to 2037 and beyond. The Monash ITS draws on research, data analysis, stakeholder and community input to recommend transport and land use actions to achieve sustainable growth and development within Monash. The document also provides guidance on prioritising and implementing actions and measures of policy success.

Vision

The vision for the Monash ITS is:

By 2037 Monash will have a highly accessible and sustainable transport network that supports the safety, health and prosperity of all members of the community.

Directions

Specific directions have been proposed to encourage best practice integrated transport and land use planning and guide the Monash ITS document. A set of strategic objectives have been recommended under each of the five directions as below:

a. A safer network

- Eliminate serious injuries and fatalities on Monash roads by embracing the Vision Zero approach in all transport and land use decisions
- Improve safety around public transport, including perceived safety
- Increase real and perceived safety for shared path users
- Create walking and cycling priority zones around schools, to make active transport the mode of choice, for parents and students

b. A more accessible Monash

- Provide a range of viable transport choices for access to and within Monash
- Address social and economic barriers to transport choice, such as travel cost, time and availability of fully accessible services
- Reduce the need for travel and length of trips required to access goods, services and employment
- Achieve higher density mixed development around public transport corridors and hubs

c. Promote sustainable transport

- Advocate for a high quality, safe and effective public transport network to meet future levels of demand
- Improve pedestrian connections and wayfinding through a high quality pedestrian network
- Provide a safe, connected on and off-street bicycle network

d. Support productivity

- Improve safety, amenity and the environment by minimising the impacts of freight and logistics activity
- Support activity centre development and access, provide for freight and servicing requirements
- Support efficiency of freight movements on designated roads, in line with SmartRoads policy
- Address the local impacts of traffic demand exceeding road network supply, through effective travel demand management techniques utilising the Safe Systems approach

e. Manage car parking

- Minimise the impact of vehicle congestion and improve the efficiency of kerbside road space
- Create a balance between provision of sufficient parking capacity at activity centres and transport hubs, and providing a safe and accessible street environment for pedestrians and cyclists
- Support innovation and new technologies in parking management
- Consider alternative future uses for road space currently occupied by car parking
- Provide transparency and consistency in Council decision making on the allocation of kerbside space

1 Why have an Integrated Transport Strategy?

City form and development has a fundamental impact on how people travel. Transport factors such as public transport service quality, road network efficiency, presence of comfortable walking and cycling routes, parking supply, and transport demand management policies can influence where people choose to live; where businesses locate; and where essential services and amenities such as schools, hospitals, fresh food outlets, support organisations and community facilities are provided.

The need for a travel demand management approach in urban areas is now apparent. It is acknowledged that absorbing additional traffic volumes is challenging, and smarter ways of using the existing transport network will become increasingly important. This includes reducing the need for travel, reducing the length of trips and encouraging the most sustainable modes. This is closely linked to the concept of the 20-minute city which remains an important component of Plan Melbourne.

The Monash ITS is committed to addressing transport challenges through the development of a clear framework for the future planning and development of the transport system to 2037 and beyond. The strategy addresses the transport related concerns identified by the community through research, data analysis, and stakeholder and community collaboration. This will be an evidence-based project that integrates a range of transport modes with principles of sustainable growth and development.

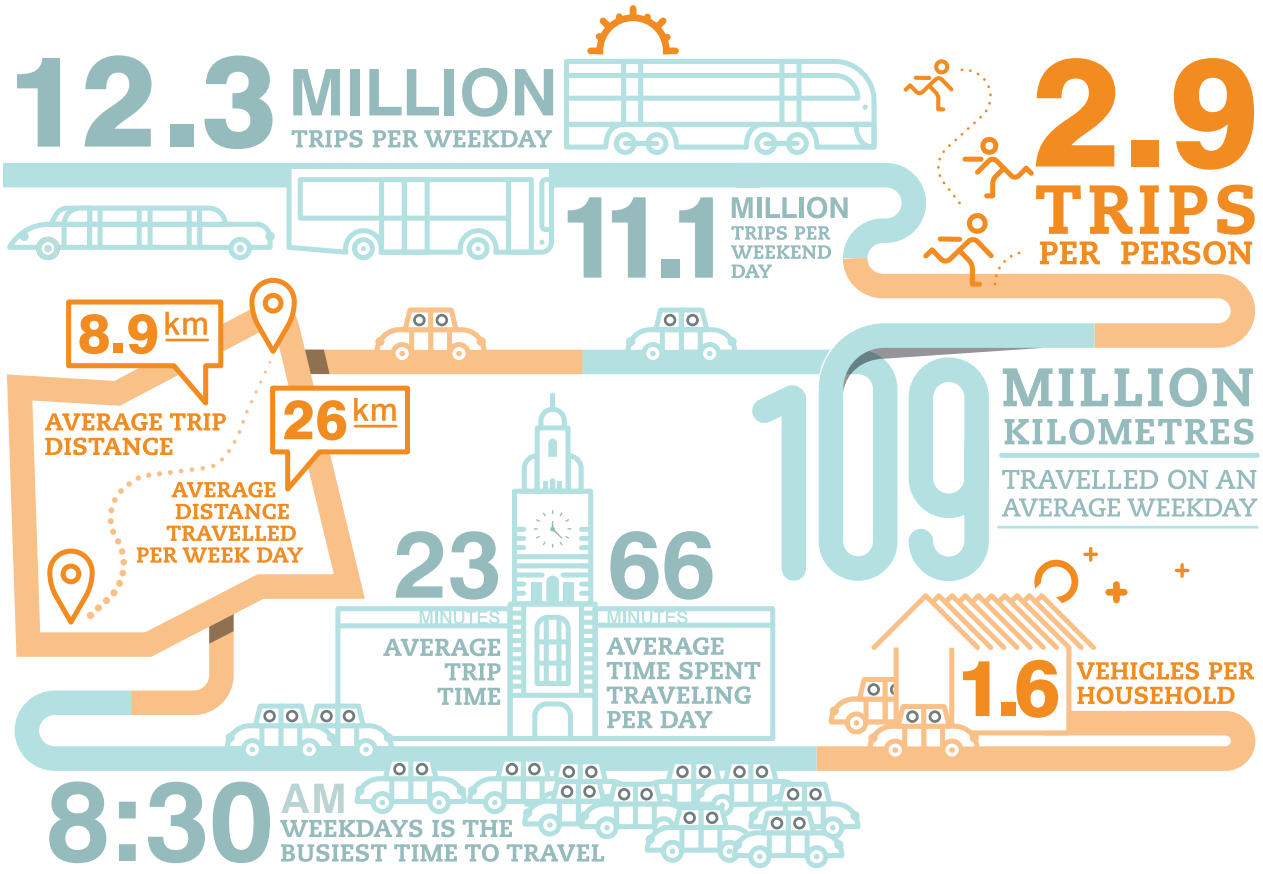


Figure 1. Melbourne travel behaviour (Source. VISTA 2012-2013).

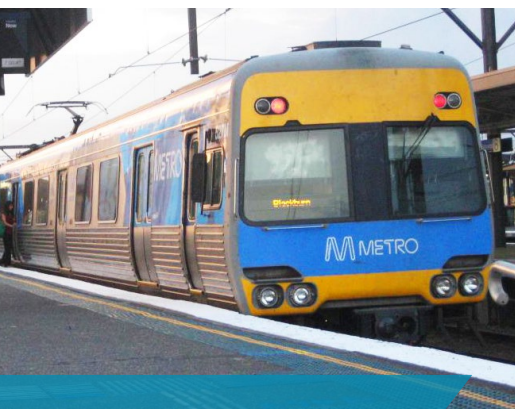
1a. Melbourne growth and transport trends

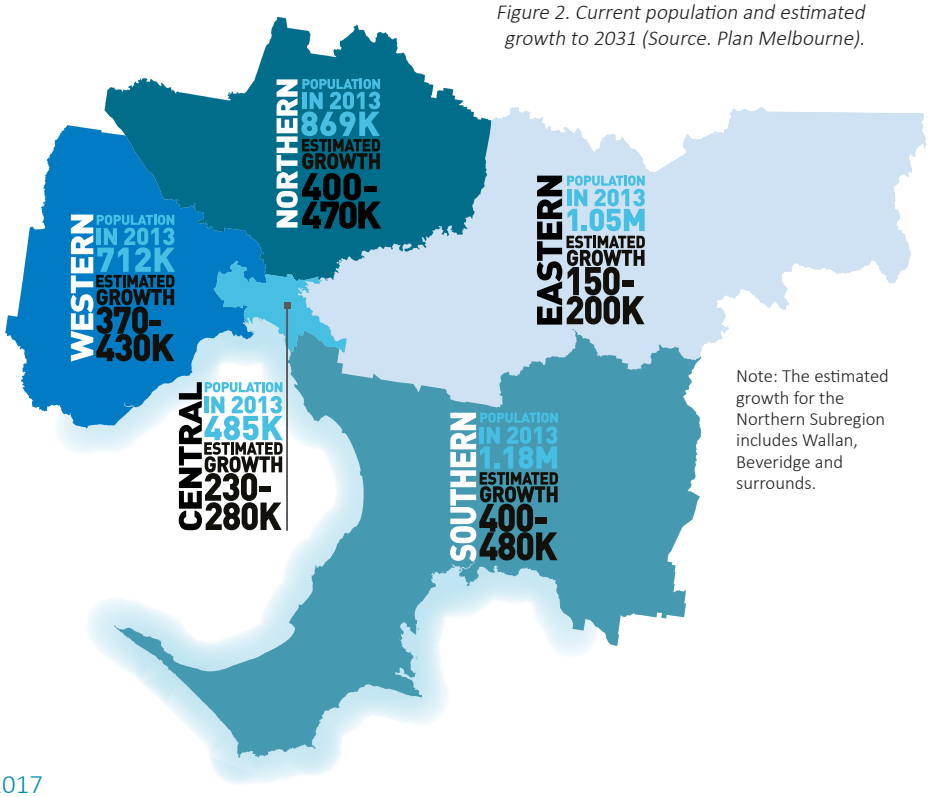
Managing growth and providing the necessary transport responses to increased demand and safety concerns is an ongoing challenge across Metropolitan Melbourne. Population growth both in Monash and in surrounding municipalities to the east and south, historical patterns of development, and a lack of recent investment in the transport network has resulted in high levels of demand on the existing transport infrastructure. This demand has created issues such as road congestion, overcrowding on public transport, lack of adequate walking and cycling facilities, safety concerns and car parking pressures across the metropolitan area.

There are a number of metropolitan and local influences and transport trends that have helped to shape the goals and actions within the Monash ITS, as outlined below.

- *Figure 1* demonstrates some of the latest Melbourne transport trends and the increasing level of travel demand that must be accommodated on the metropolitan transport network. This information provides important guidance for the preparation of the Monash ITS.
- Monash forms part of the Plan Melbourne eastern sub-region as shown in *Figure 2* below. This region is expected to accommodate up to an additional 200,000 residents by 2031 within a context of forecast total growth of almost 2 million additional residents across all metropolitan regions.
- Metropolitan Melbourne transport trends are measured through the Victorian Integrated Survey of Travel and Activity (VISTA), which is an ongoing survey of household travel activity. Randomly selected households are asked to complete the VISTA travel diary for a single specified day. By collecting all personal travel information – from walking the dog, through to interstate travel – the results of VISTA enable an understanding of how travel behaviours are changing as a result of land use change, modern lifestyles and population growth.
- *Figure 3* shows a trend has emerged in which car use is slowly declining while public transport is increasing. On Census day 1996, 63.3% of Monash residents reported driving to work; this reduced to 61% in 2011. In contrast, public transport was the main form of transport to work for 11% of Monash residents on Census day 1996, rising to 15.6% in 2011.
- The weekday trip mode share in *Figure 4* demonstrates the level of reliance on private vehicles for all trips, which increases with distance from the inner city. Monash is positioned in the middle ring suburbs, but experiences transport pressures associated with both inner and outer metropolitan areas.

Figure 2. Current population and estimated growth to 2031 (Source. Plan Melbourne).





Note: The estimated growth for the Northern Subregion includes Wallan, Beveridge and surrounds.

1b. Monash local context

The City of Monash population of 185,041 is forecast to grow to 207,727 by 2036. The demographic profile of Monash is expected to change, with higher growth in older (70+ years old) and younger (under 20 years old) residents than in other age groups, as shown in ***Figure 5***. The number of dwellings is forecast to grow from 66,308 in 2011 to 75,384 in 2026, with the average household size falling from 2.72 to 2.65 by 2026.

Given the areas identified as the Eastern and Southern subregions under Plan Melbourne are forecast to grow between 550,000 and 700,000 residents by 2031, the transport demand and subsequent pressure on the Monash network is expected to grow substantially. The local and regional transport network may struggle to accommodate growing volumes of users, particularly if current high mode share for car use continues.

The distribution of population and economic growth in Monash is anticipated to occur mostly towards the south and west and is likely to place increasing pressure on the road, freight and public transport networks. Demographic trends, including the ageing of the population, and the tendency for younger people driving less, is likely to mark a potential break from past trends in which traffic growth was closely linked to population growth. Increasing evidence suggests the demand for car based mobility, whilst still high, will be less than it has been in previous generations (Goodwin & Van Dender, 2013).

The scale of development within the Monash Employment Cluster (***Figure 7***, page 13) will continue to change transport demand profiles, particularly on the local road network. The increasing demand for urban infill housing and medium and high-density development, much of which is occurring away from areas of strong transport accessibility, is expected to cause a rise in demand for car parking and car-based travel.

Figure 3. Transport mode to work.

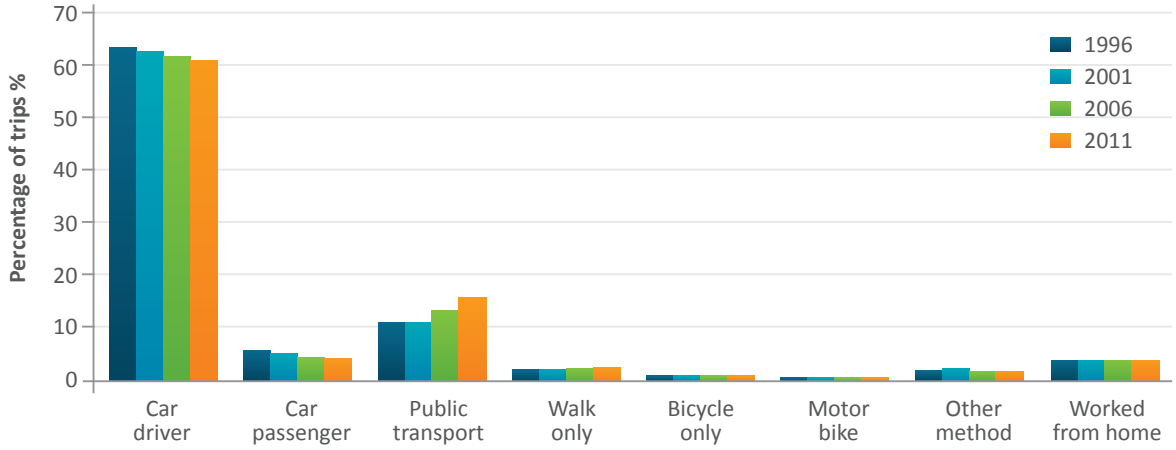
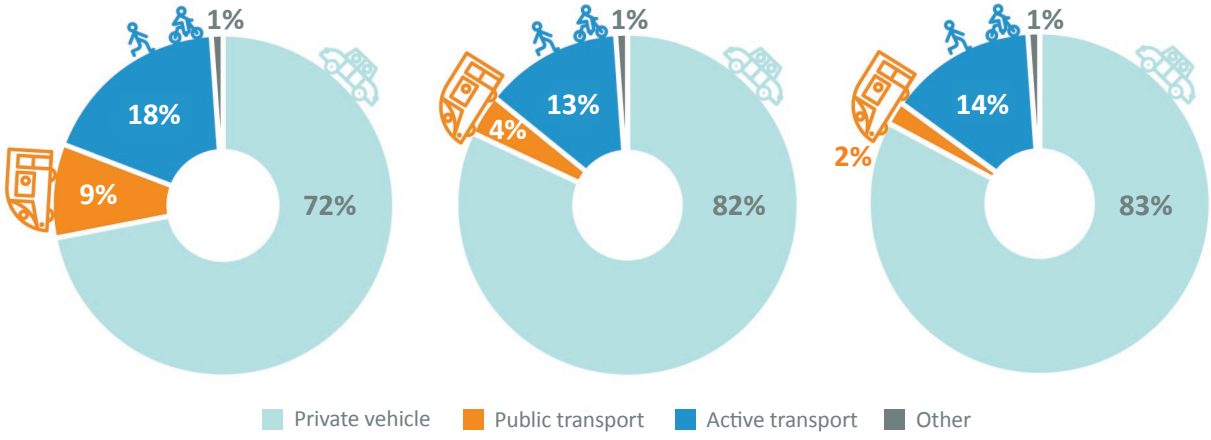


Figure 4. Transport travel methods in inner, middle and outer Melbourne.



1c. Monash transport challenges

Issues associated with access to transport and levels of service on all networks is impacting the environment, quality of life, economic viability, safety, health and wellbeing of local communities. It is often difficult to get around without a car, and for this reason, stakeholder engagement and transport data have shown that addressing reliance on private forms of transport is a high priority within Monash.

Given the existing levels of congestion on the road and public transport networks, and the limited capacity to continue to cater for increasing numbers of vehicles on the roads, a shift in travel decisions toward more space and resource efficient public transport, walking and cycling modeshare will be important to meet future demand for travel and maintain Monash's liveability. Rapid increases in technology are increasing the options available for sustainable mobility, including bike share, ride sourcing applications (e.g. Uber) and driverless vehicles in the future.

There are also a number of external factors contributing to demand on the Monash transport network. Monash is used as a thoroughfare for those living in outer-eastern Melbourne suburbs. Residents to the south and east of Monash travel through the municipality to access inner Melbourne. This places significant stress on the arterial road network.

Road safety is consistently identified as a very high priority by a range of stakeholders in Monash, which is reflected in data which shows older groups are overrepresented in both pedestrian fatalities and serious injury. This will be particularly important in determining the actions for the Monash ITS.

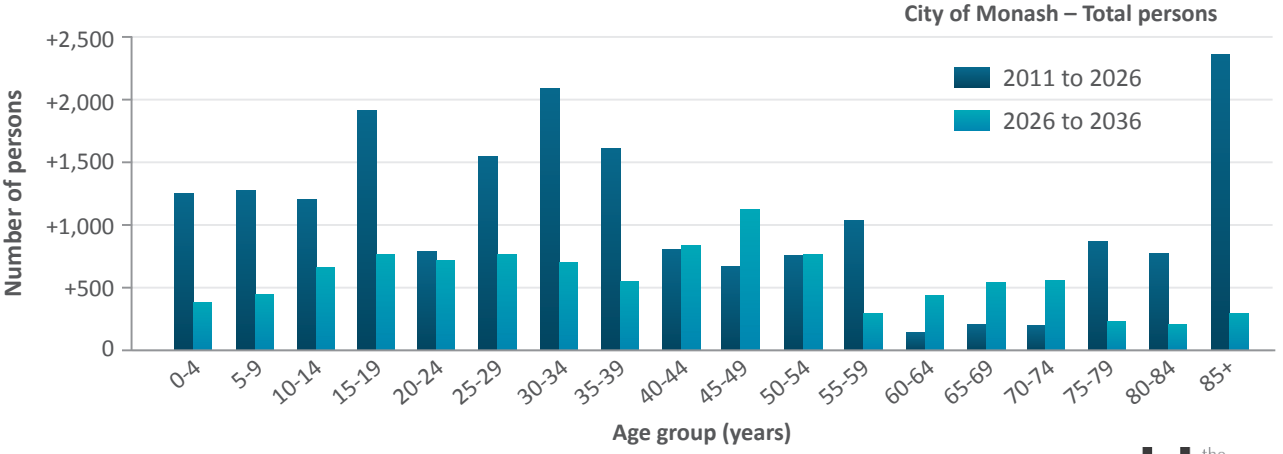
School travel, which was once an area dominated by independent, sustainable modes (walking and cycling) increasingly involves parents driving their children to school and extra-curricular activities. This trend is a significant cause of congestion at peak times and is something identified as an area requiring policy attention.

The Glen Waverley rail stations act as major attractors for commuters accessing the rail network from the east and north of Monash. The predominance of car-based access to these stations creates high demands for long term commuter car parking. Public transport parking along the Glen Waverley and Cranbourne-Pakenham rail corridors is over-subscribed, with parking areas at capacity early in the morning. The impact of parking overspill into local neighbourhoods and activity centres from public transport demand is a key issue for consideration.

A survey of attitudes to transport, (see ***Figure 6***, page 12) shows that Monash residents integrate regular public transport into their daily travel patterns to a less than the Metropolitan Melbourne average. Perhaps unsurprisingly therefore, Monash residents also indicate that they experience difficulty finding available car parking at train stations.

However, growth and land use change also provides momentum for positive changes across the municipality and city. It provides the opportunity to improve infrastructure, increase housing options, support a greater range of jobs and investment opportunities, provide more sustainable transport choices and enhance economic performance.

Figure 5. Population forecast for the next 5 years (Source. Melbourne ID).



Population and household forecasts, 2011 to 2036, prepared by .id the population experts, August 2014.

1d. Community benefits

Effective strategic integrated transport and land use planning will enable more residents to easily access their daily needs by walking, cycling, public transport and shorter car trips and for those travelling through Monash to be less reliant on car travel. The Monash ITS aims to contribute to the aims and objectives identified in the overarching Monash 2021 policy vision in the following ways:

i. A fair and healthy community

- Enabling and encouraging more active travel to improve health and wellbeing
- Managing transport network development, operations and congestion to minimise economic and overall liveability impacts

ii. A planned and connected city

- Providing a transport system with coordinated and efficient mobility to existing and new employment areas and businesses that support local job creation and economic development
- Providing a transport system that meets the needs of a rapidly changing population and urban area
- Providing a transport network that can respond to rapidly growing freight activity and changing logistics requirements, including last kilometre local freight solutions
- Providing a transport system that connects people in a coordinated and efficient manner to major regional destinations by multiple modes

iii. An inclusive and safe community

- Matching transport to a broad range of users with varying travel requirements and mobility levels, including provisions for improved accessibility and affordability

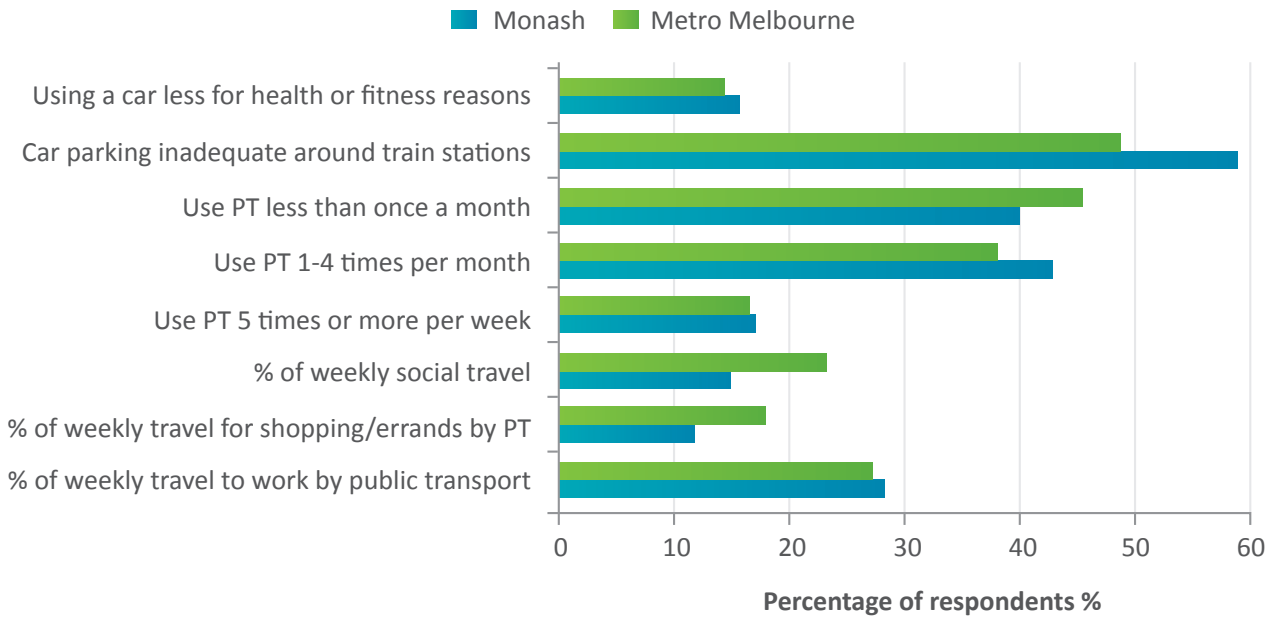
iv. A green and naturally rich city

- Minimising transport impacts on the environment and encouraging people to travel more by environmentally sustainable modes

What is sustainable transport?

As with its related broader notion of sustainability, sustainable transport is designed to help society meet its needs now by doing so in a manner with the least impact on the ability of future generations to meet their needs. It does this by considering social, economic and environmental factors in decision making about transport matters, as set down in the framework of the Victorian Transport Integration Act, 2010.

Figure 6. Attitudes towards transport of Monash residents.



1e. Legislative and policy context

The Transport Integration Act (2010)

The Transport Integration Act (2010) requires that the Victorian State Government prepare and give effect to an overall state transport plan. This Act requires that transport and land use be effectively integrated so as to improve accessibility and transport efficiency with a focus on:

- Maximising access to residences, employment, markets, services and recreation;
- Planning and developing the transport system more effectively;
- Reducing the need for private motor vehicle transport and the extent of travel; and
- Better access to, and greater mobility within, local communities.

State planning policy

The objectives of the Transport Integration Act (2010) are supported by the State Planning Policy set out in clause 18 of the Monash Planning Scheme, which also promotes the integration of transport and land use.

Clause 18 of the State Planning Policy Framework (SPPF) requires planning to consider the publication 'Public Transport: Guidelines for Land use and Development' (Department of Transport, 2008). Clause 11 of the SPPF requires planning to consider Plan Melbourne (2014), which in turn references 'Smartroads' and 'Network Operating Plans' as tools to guide the management of road space. These are all important tools to help transport planners and network managers and operators plan the transport network and where necessary make trade-offs between different use groups at different times of day.

Figure 7. Monash employment cluster (Source. Plan Melbourne).

Monash Employment Cluster

Source: Department of Transport, Planning and Local Infrastructure, 2014

[Map 13, Page 52 from Plan Melbourne]

- Road network
- Potential road
- Rail network (including stations)
- Potential Rowville rail extension
- Cranbourne-Pakenham Rail Corridor Project
- Key bus route
- Key bicycle route
- Health node
- Education node
- Activity centre
- Research and commercial node
- Industrial land
- Station upgrade
- Level crossing removal

NOTE 1: INVESTIGATION AREA AND POTENTIAL BOUNDARY TO BE DEVELOPED BY THE METROPOLITAN PLANNING AUTHORITY IN CONSULTATION WITH LOCAL GOVERNMENT.

NOTE 2: DESIGNATION OF THIS AREA AS A NATIONAL EMPLOYMENT CLUSTER DOES NOT CHANGE THE STATUS OF PARKLAND, OPEN SPACE OR RESIDENTIALLY ZONED LAND.

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Policy guidance

A review of the relevant state, local, and national policy indicates the following key directions in relation to transport and land use for the Monash ITS:

1. 'Transport choice' is central to providing equitable access to employment and services. Transport choice means that there are a number of viable and attractive options, such as walking, cycling, public transport or private vehicles. Transport choice is also intrinsically linked to urban form. Providing higher density development close to activity centres with a range of employment, retail, educational and community services means that people will have more transport choices.
2. Promoting sustainable transport (walking, cycling and public transport) is considered best practice and can help recognise the following benefits:
    - **Safety –** Increased sustainable and active transport improves safety and perceptions of safety.
    - **Healthy, active communities –** there is a strong link between active transport and health.
    - **Socially connected, liveable communities –** places where people walk, cycle and use public transport more often are likely to perform better on a range of social indicators.
    - **Transport efficiency –** increased use of sustainable transport has environmental and economic benefits through reduced greenhouse emissions and reduced space required for vehicle movement and storage.
    - **Access for all members of the community –** a large number of people in the community don't or can't drive, and the provision of attractive and viable alternative means of transport is a key factor in whether a community is affected by transport disadvantage (such as through social isolation, or not being able to make choices for access to employment, education or other services).
3. Planning for new development must consider providing for and promoting sustainable and active transport modes in accordance with the road user hierarchy. This includes a requirement for major developments to integrate with the transport network, including public transport and cycling.
4. The City of Monash recognises the importance of sustainable transport modes in meeting future transport demands within the municipality, and has a number of specific policies and strategies to promote increased walking, cycling and public transport modeshare.
5. There is a strong recognition of the role of the transport network in contributing to environmentally sustainable practices, both locally within Monash, and as part of broader regional, national and global system.
6. Emerging technologies will play a major role in addressing both contemporary challenges and the transport requirements of future generations. The potential role of technology is constantly evolving, and any new long term strategy needs to incorporate flexibility to accommodate new innovations and approaches.

1f. Implementing the Monash ITS

The Monash ITS focuses on the areas Council has responsibility for, including:

- Local pedestrian and cycle facilities – safe crossings, pathways, infrastructure
- Traffic management and safety on the local road network
- Improved access to public transport hubs through local initiatives
- Car parking management
- Built form and land use controls

Some areas are outside the control of Council and require cooperation with other stakeholders, such as:

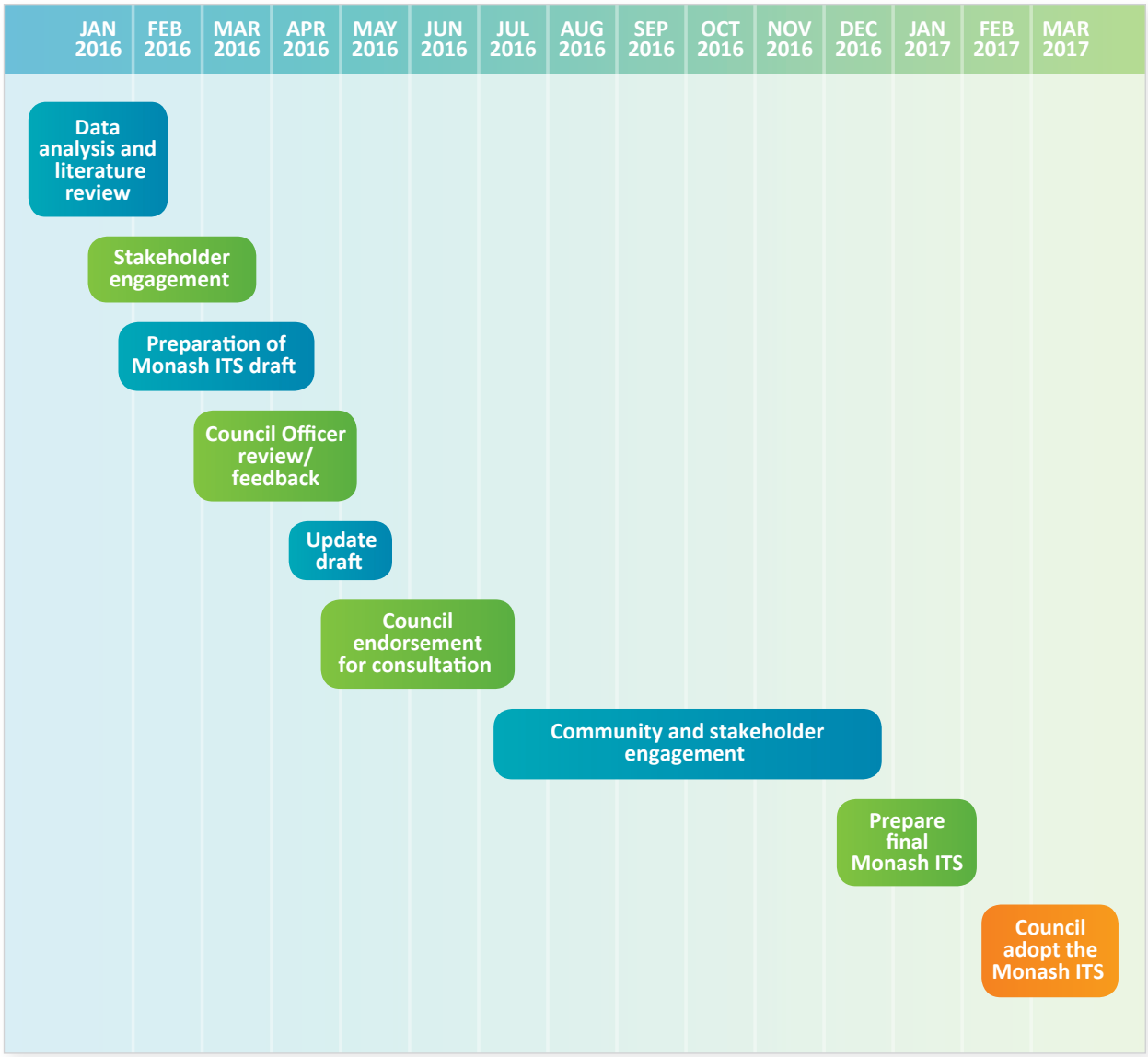
- Public transport infrastructure and services (including public transport associated parking)
- Management and priority on the arterial road network
- Monash Employment Cluster planning

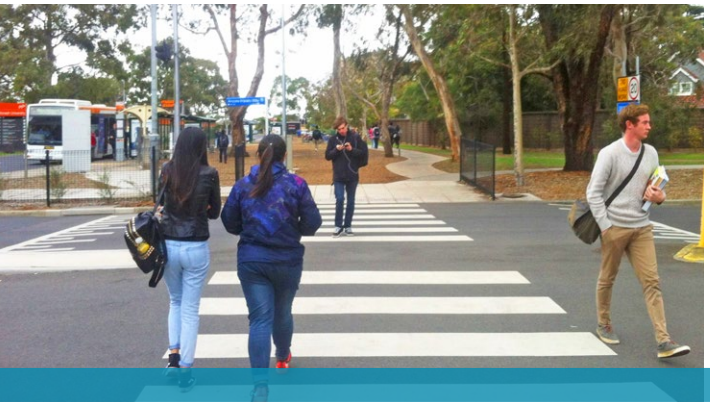
Council can take action in several ways:

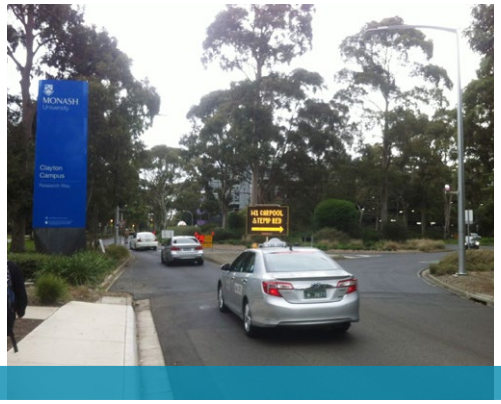
1. **Planning and Coordination –** Corporate planning and directions given across Council which flow through to strategies and policies on a range of complementary portfolios. Setting the strategies and plans can better leverage partnerships.
2. **Delivery –** where Council has full responsibility for planning and implementing the action (for example walking and cycling infrastructure on local streets) along with monitoring and compliance.
3. **Representation and Advocacy –** actions where Council works to promote benefits of an action and influence other stakeholders to implement specific initiatives (for example Level Crossing Removal Authority, Public Transport Victoria).
4. **Partnerships –** actions where Council works directly with other stakeholders to achieve the desired outcome (for example, installation of safe pedestrian crossing points within Activity Centres on the VicRoads network).

2 Developing the Monash ITS

Project plan and activities







2a. Stakeholder engagement and feedback

An extensive stakeholder and community engagement process has been central to the preparation of the Monash ITS. This consultation has provided an opportunity for all members of the Monash community to have their say via public forums and online engagement.

Five different consultation platforms were adopted to engage a wide cross section of the Monash community and project stakeholders. The engagement platforms and methodology are summarised below:

Stakeholder engagement workshops

An initial round of workshops with industry and community stakeholders was held in March and April 2016 to identify transport issues and opportunities relevant to the Monash ITS and allocate priority to these issues. To ensure a broad range of feedback across all aspects of the transport system, workshops were organised around four transport theme areas:

i. **Public transport –** service frequency, quality and coverage, interchange, train stations, bus stops and taxis

ii. **Walking and cycling –** off-road and on-road infrastructure and networks, amenity, safety and accessibility

iii. **Land use –** impact of development of all scales on transport and travel choices, car parking, activity centres and servicing

iv. **Traffic network –** traffic volumes, congestion, management, safety and speed, freight movement and modal priority

This feedback was combined with the quantitative analysis of transport trends, population growth and characteristics, best practice transport planning and local transport demand and informed the key context, directions and actions included in the draft ITS. This level of early stakeholder input assisted in the draft ITS being endorsed by Council for public consultation on 28 June 2016.

A second round of stakeholder workshops were held in September 2016 to present the draft Monash ITS document and enable feedback on the proposed responses to issues identified at the earlier workshops.

Participants in these workshops were asked to focus on the following tasks and questions:

- Review of the five theme areas identified in the Draft ITS, Directions and Actions
- Has the project team incorporated all feedback?
- Are actions appropriate and realistic?
- Is anything missing?
- What are the considerations for project delivery?

There were a total of 117 participants over the two rounds of workshops with many stakeholders participating in both rounds.

Community drop in sessions

The community was given the opportunity to engage directly with the consultant team and Council staff through a series of drop-in sessions at four sites across the municipality. The aim of these sessions was to increase the public exposure of the project, and the number and profile of people who become involved. To provide the most effective geographic spread and opportunities for the community to attend, sessions were held in July and August 2016 in Oakleigh, Mulgrave, Clayton and Glen Waverley. Twenty eight people attended these sessions.

Social Pinpoint online engagement

The online component of engagement was undertaken though the Social Pinpoint platform hosted by the City of Monash website. Social Pinpoint is an intuitive drag and drop mapping tool for engaging the community which allowed community members to add categorised feedback to a live map. The portal was live and open to feedback from Monday 11th July until Monday 3rd October 2016.

A total of 274 responses were received through the Social Pinpoint online engagement.

Figure 8 shows the proportion of total feedback received against each theme area.

The ability to demonstrate transport issues spatially and focus on a particular area has enabled the project team and Council to quickly identify parts of the network that require attention and/or attracted a particularly high proportion of feedback. For example, as shown on the summary map of Social Pinpoint responses shown in *Figure 9* it is clear that pedestrian issues are particularly prevalent around activity centres such as Hughesdale and the Monash University campus, issues relating to public transport (bus) services were prevalent on Wellington Road and more generally in the east of the municipality, and strategic ideas were clustered around the western and north-eastern part of the Monash transport network.

Although the ITS is not the means to address every site-specific issue raised, the themes and priority set within the document will ensure the strategic direction adopted by Council can address existing local demands and needs, while retaining flexibility for changing transport conditions.

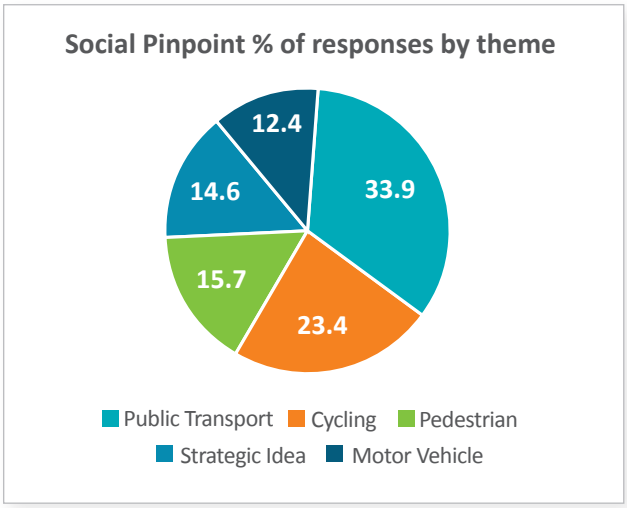


Figure 8. Social Pinpoint responses by theme.

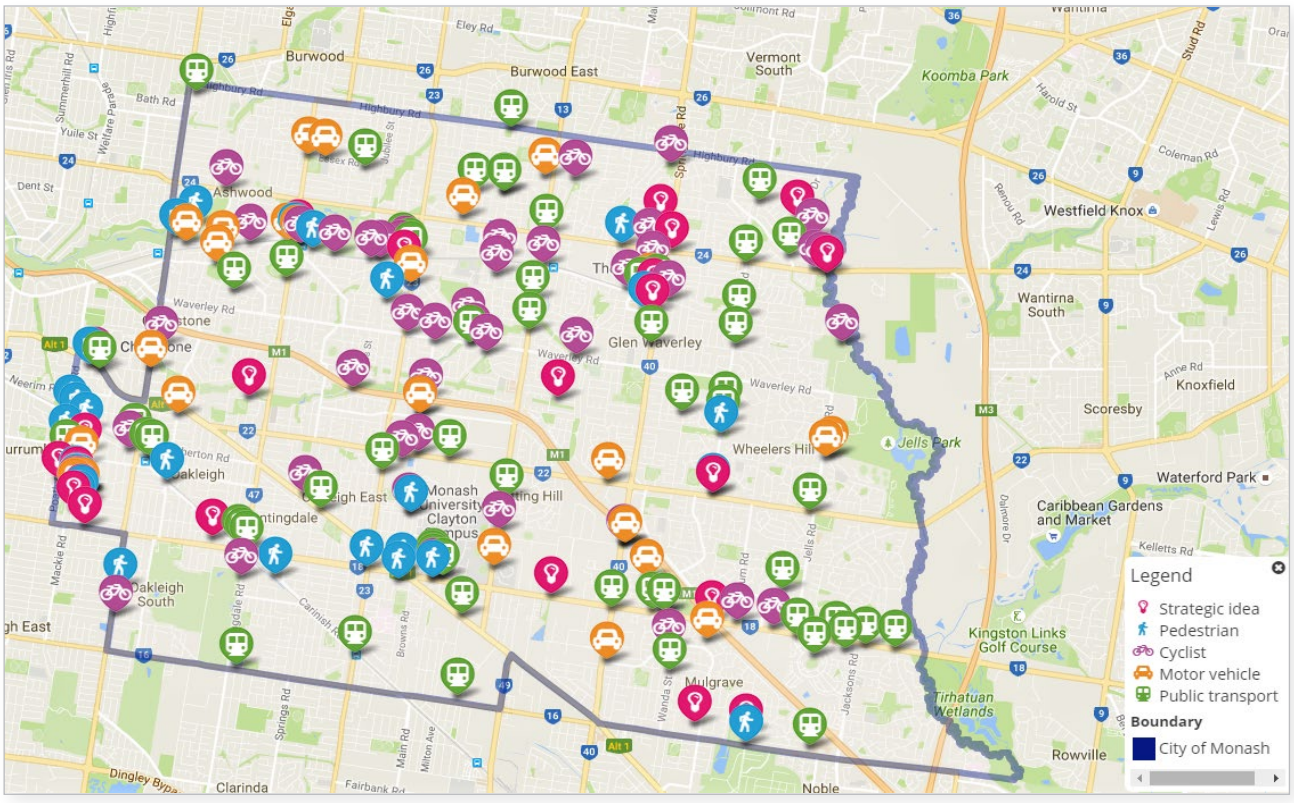
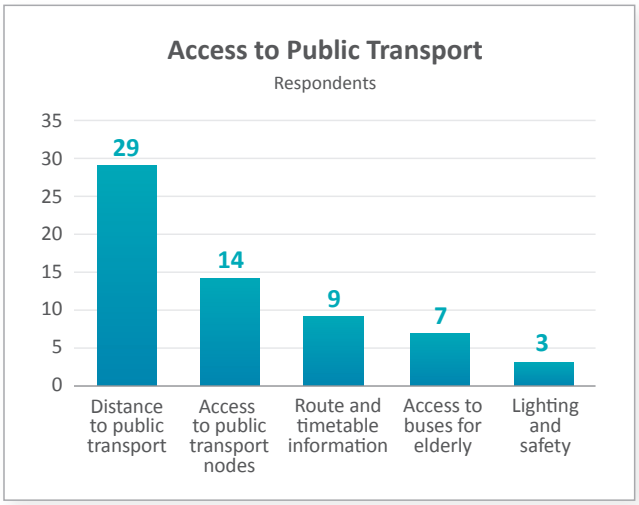
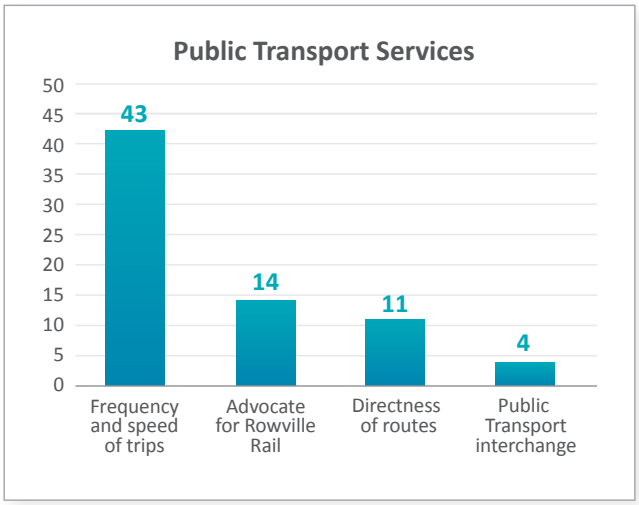
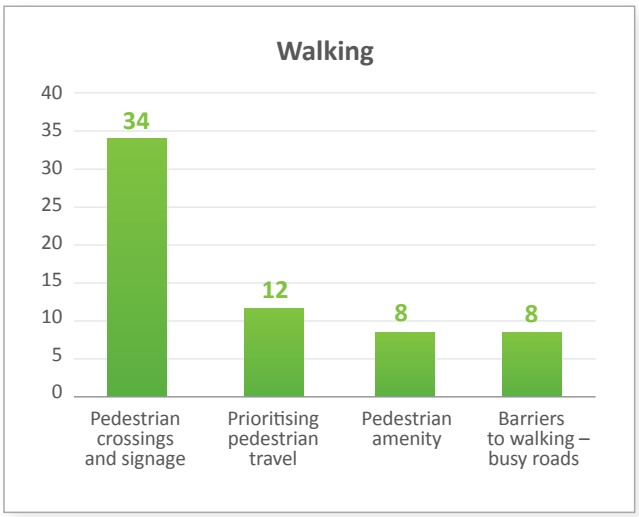


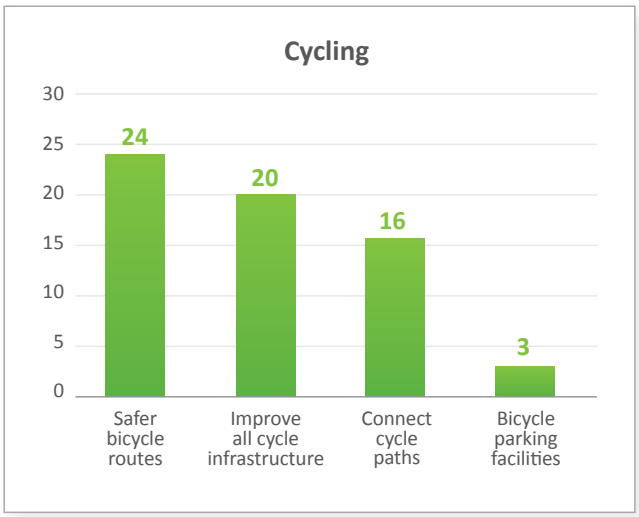
Figure 9. Social Pinpoint Response Map.

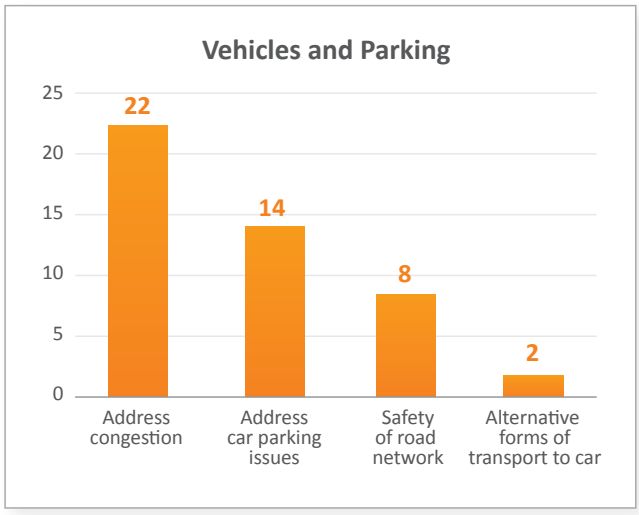
The graphs below demonstrate the highest responses received through Social Pinpoint against each transport category.











Online Survey

The City of Monash online engagement portal also provided a link to a transport user survey. As with Social Pinpoint feedback, the survey was open to all members of the Monash community and was hosted on the Council website from 11th July until 3rd October 2016.

A total of 76 participants completed the online survey. The level of support for transport initiatives relevant to the ITS is set out in ***Figure 10*** below. Many of the comments address a specific location or area, which can be more effectively addressed through ongoing Council and VicRoads operations. This feedback was supported by comments justifying levels of support for each initiative, which has been fundamental to guiding strategic priority within the ITS.

Direct Feedback via email and phone contact

Direct feedback consisted of phone calls and emails received by Council staff over the community engagement period. A total of 13 email comments and phone calls were received addressing a wide range of concerns and feedback from the community.

Initiative	Percentage of respondents to this initiative who are in support	Yes	No	Nil response
Encourage schools to prepare Green Travel Plans	100%	45	0	31
Construction of Rowville Rail line	92%	45	4	27
Increase funding for cycle paths	85%	44	8	24
Green Travel Plans: new developments – sustainable transport	90%	43	5	28
Small buses for greater local service coverage	85%	40	7	29
More Pedestrian Operated signals	76%	37	12	27
Audit of lighting conditions	89%	31	4	41
Car share policy	64%	29	16	31
Lower time-based speed limits	80%	28	7	41
Retain on-site visitor parking	90%	27	3	46
Charging stations for electric vehicles	87%	27	4	45
Completion of Westall Road	95%	21	1	54
Off-street parking – maximise use	75%	21	7	48
Potential for paid parking	56%	18	14	44
Parking space allocation on local streets	58%	15	11	50

Figure 10. Online survey responses.

Summary of Feedback

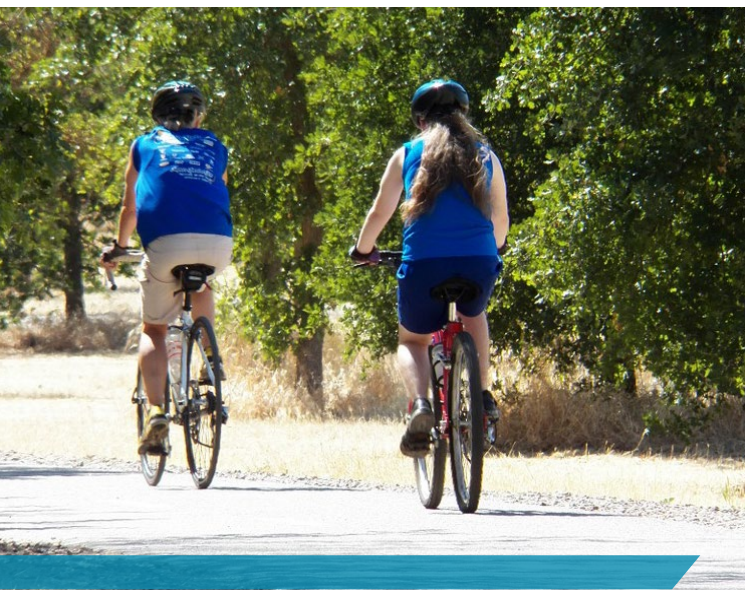
Over 400 community and stakeholder representatives participated in the project consultation across all platforms. The feedback provided strong direction and assisted in identifying relevant strategic issues and project priority across the range of transport initiatives.

Feedback received in response to the Draft Integrated Transport Strategy was generally supportive of the directions and actions proposed. Comments and feedback received through the engagement process has enabled the project team to ensure the final ITS document addresses a comprehensive range of transport and land use planning issues and focuses on areas of highest priority within Monash.

The consultation also provided the opportunity for the team to test project actions for deliverability and informed the implementation plan. Many of the transport issues raised through the consultation had also been identified by the project team through earlier qualitative and quantitative analysis and already incorporated into the draft ITS document.

Any new issues arising from the engagement were assessed for relevance to the Strategic document and either included in an updated version, or responded to in another way.

The ITS has been updated in several areas to reflect other feedback, with some of the key updates including:



1. Greater emphasis given to the theme areas of strongest feedback which included cycling network connectivity, pedestrian safety and public transport services.
2. Additional commentary around improving public transport access,service frequency, comfort and safety for all members of the community (those who do not have access to private transport, such as the elderly or those with disabilities).
3. Further recognition of the current and future impact of broader regional transport influences such as volumes of commuters originating in areas to the east of Monash passing through the municipality either by road or on rail service.
4. Careful consideration of the impact of future policy directions relating to parking around public transport hubs and activity centres.
5. Additional emphasis on the importance of safety around schools and protection of vulnerable road users (including cyclists and pedestrians).
6. Additional commentary on the likely influence of known and emerging technologies, and building flexibility into the transport system to enable the adoption of new technologies and innovations in future.

The engagement process sought feedback that addresses the strategic direction of transport in Monash. A broad range of other comments were received regarding site specific issues such as localised traffic congestion, footpath condition and pedestrian desire lines.

Feedback of this nature is greatly valued but is most appropriately dealt with through current Council and other stakeholder operations and programs rather than included in a long term strategic document. Such responses will be recorded and forwarded to the appropriate operations area of Council for action as appropriate.

3 Achieving the vision

VISION

By 2037 Monash will have a highly accessible and sustainable transport network that supports the safety, health and prosperity of all members of the community.

DIRECTIONS

1. A safer network
2. A more accessible Monash
3. Promote sustainable transport
4. Support productivity
5. Manage car parking

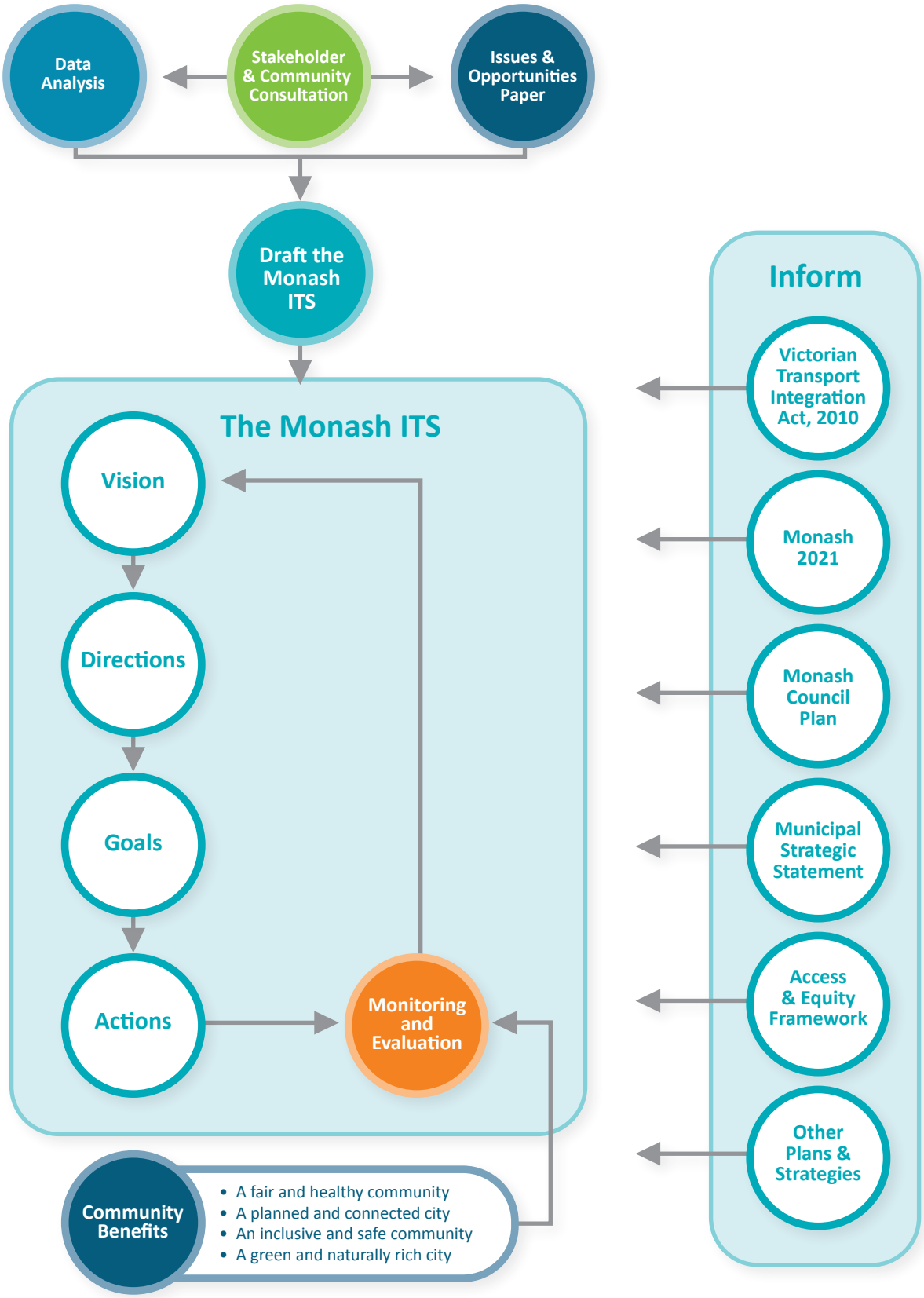
GOALS & ACTIONS

COMMUNITY BENEFITS

- A fair and healthy community
- A planned and connected city
- An inclusive and safe community
- A green and naturally-rich city

3a. Monash policy framework

The Monash 2021 document sets the strategic, long-term direction for Monash and sits above the Monash Council Plan and other Council policies. The Monash ITS sits within and is informed by this broader Monash planning framework as demonstrated by the figure below.



4 Directions

4a. Creating a safer transport network

Road trauma is the single biggest killer of young Victorians aged 18 to 25. The estimated economic cost of road trauma in Victoria is over $3.0 billion a year. For every person involved in a crash, there are many more that are deeply affected, which creates a high social cost difficult to quantify.

Road crashes in Monash for the five-year period from September 2010 - September 2015 resulted in 19 fatalities, 111 seriously injured resulting in hospitalisation over 14 days, and 803 injured resulting in hospitalisation 14 days or less (Transport Accident Commission, 2016). The data shows older groups are strongly overrepresented in both pedestrian fatalities and serious injury.

Public transport safety is also an important consideration. Public transport users can experience crimes against persons and property, often accentuated by the media, which creates a poor perception of this facility and reinforces a sense of fear. The result is that people make less use of public transport, and may either abandon journeys they might have made or choose modes of transport that are often more expensive and less convenient.

In 2013/14 Victoria Police reported a total of 10,550 detected and reported crimes on and around public transport across metropolitan Melbourne. However, when this figure is considered in context of a total of over 530 million passenger trips on public transport in 2013/14, it becomes clear that the probability of being a victim of crime on public transport is relatively small (less than 0.1%). But it is also clear that safety considerations are also a barrier to public transport use.

Considerations for creating a safer transport network are discussed to the right.

Transport safety

Some 90% of all road trauma (serious injury and death) is the result of human error. Most road trauma is preventable and policy makers and the community have an important role in improving road safety.

Governments can make roads safer through engineering, enforcement and education. The Australian government allocates infrastructure resources and regulates safety standards for new vehicles. The State government manages licensing, registration, enforcement, and education programs in addition to delivering safer road infrastructure. Monash Council delivers a wide range of road safety initiatives including: safer road infrastructure, local area traffic management, education and awareness.

Individual road users can make a significant difference by using the road system responsibly and making the right choices, including compliance with speed limits and eliminating distracted driving (e.g. mobile phone use).

Many Australian jurisdictions are adopting the 'Safe System' approach as a guiding framework for delivering road safety outcomes. This is a holistic view that aims to minimise the risk of death or serious injury by factoring the interaction between roads, vehicles, speeds and road users (Transport Accident Commission, 2015).

The key principles underpinning and driving a safe system approach are that:

- People make mistakes
- People have a limited tolerance to injuries
- Safety is a shared responsibility

One of the challenges of truly adopting safe system thinking within road safety is informing and engaging the community regarding the concept. 'Safety is a shared responsibility' is one of the key principles of the system so the community needs to be engaged for this to be possible. Road trauma should not be accepted as inevitable. Within the safe systems model, if a mistake is made on the road the impact is severely reduced or negated by safer roads, safer vehicles, safer speeds and safer people (TAC, 2015).

Towards Zero

Towards Zero is a State Government initiative to achieve a vision for a future free of deaths and serious injuries on our roads.

The approach refers to transport policies seeking to reduce fatalities to zero and is based on international best practice. These policies have been most extensively implemented in Sweden and the Netherlands, which have the best performing transport systems from a safety perspective. This approach understands that human error is inevitable and that roads must be forgiving enough such that an error of judgement does not result in death or serious injury.

Along with efforts to improve driver behaviour and encourage the uptake of safer cars, Towards Zero supports roads and roadsides designed to be more forgiving; technology to make cars and roads safer; more enforcement effort and new measures where the evidence shows it will save the most lives.

Changing behaviour

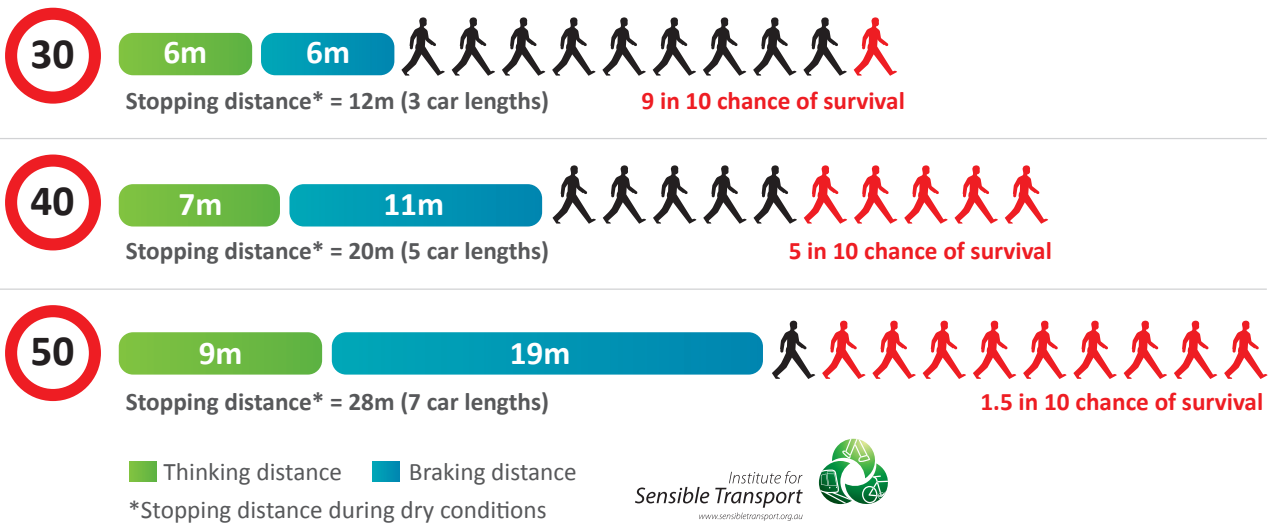
Education programs that are sustained, and encourage a safer culture in the community help to achieve positive outcomes for road safety. Speed management is another crucial tool in reducing the number of fatalities and serious injuries. Lowering motor vehicle speed is a commonly applied and effective strategy to achieve a 'Safe System' transport network. Reducing speeds to 30km/h and below in instances in which the traffic mix includes motorised vehicles, cyclists and crossing pedestrians is known to be effective. *Figure 11* demonstrates the relationship between vehicle speed, stopping distance and the chances of survival for pedestrians hit by a vehicle at each speed. As shown, each 10km/h reduction in speed has a dramatic effect on the chances of a pedestrian surviving their injuries.

Currently a high percentage of primary and secondary school students in Monash are driven short distances to school. This leads to traffic congestion during peak pick-up and drop-off times around schools. Another common issue is illegal parking obstructing the flow of traffic, blocking vision for other drivers and forcing children onto the road. It is important to encourage sustainable modes of travel to schools for students to address the impact of local congestion and improve safety around schools, and to establish good transport habits early in life.

Vehicle speed

Road environments that encourage a lower speed and the enforcement of appropriate speed limits are an important component of road safety. Providing consistency with speed limits, and minimising the number of speed limit changes is also known to have effective road safety outcomes. Areas that have high known crash risk require infrastructure changes, to design the road to encourage safe behaviour. This may include devices to slow motor vehicle speed, or treatments that provide separation between cyclists and motorists.

Figure 11. Effect of speed on stopping distance and pedestrian injury severity.



Perceptions of safety

Community safety is not only about reducing and preventing injury and crime; it is about building strong, cohesive, vibrant, participatory communities. A safe community is a place that is attractive to live, work and visit; it is a liveable community, where people can go about their daily activities in an environment without fear, risk of harm, or injury.

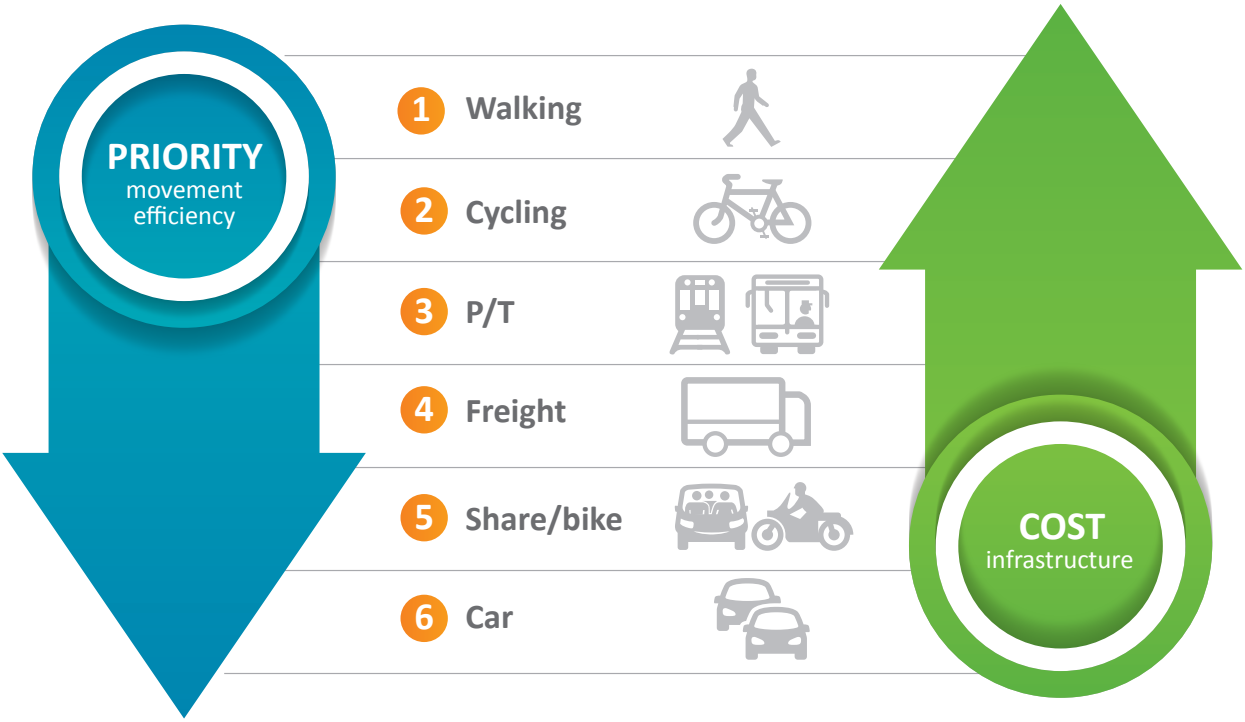
Fear of crime is now widely recognised as a barrier to public transport use. This fear is often not a reflection of actual risk and is influenced by a range of factors, including gender, age, ethnicity and socioeconomic status. Research in the UK has identified that an additional 10.5% of rail trips would be generated if people felt more secure when travelling and waiting at stations. A majority of car drivers in inner Los Angeles claimed they would use transit if public buses were perceived as safe and clean (Carrie, Delbose & Mahmoud).

Monash 2021 recognises the importance of an inclusive and safe community, and through promoting a safe transport network, the Monash ITS will assist in achieving this goal.

Goals

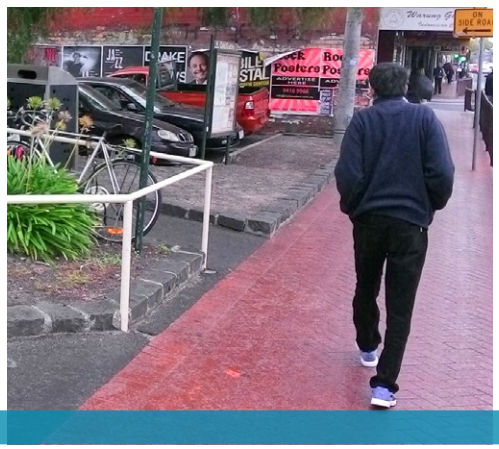
- Implement education, infrastructure, enforcement and advocacy actions to reduce the severity and incidence of road trauma in the community
- Improve safety around public transport, including perceived safety
- Increase real and perceived safety for shared path users
- Create walking and cycling priority zones around schools, to make active transport the mode of choice, for parents and students

Road User Hierarchy



Actions

A.1	Adopt a Vision Zero/Safe Systems approach to all transport policy and investment decisions, consistent with the TAC, VicRoads and other state agencies.
A.2	Implement lower, time-based speed limits on appropriate local streets such as around schools, Activity Centres and areas of high pedestrian activity.
A.3	Seek VicRoads approval to implement appropriate speed limit signs on all arterial road service lanes to improve cyclist safety.
A.4	Advocate for VicRoads to introduce time-based 40km/h speed limits on arterial road shopping strips.
A.5	Conduct precinct/catchment based safety reviews around schools and implement measures to eliminate perceived and real safety risks, with the goal of both increasing active travel to school and reducing crashes.
A.6	Perform review of local road locations with a record of serious crashes and apply a Safe Systems approach to reducing identified risks.
A.7	Continue a local area traffic management approach for residential neighbourhoods based on the Safe Systems approach, and encourage vehicles to use major roads. This could include lower speed limits, traffic calming measures such as road humps, and intersection treatments.
A.8	Continue assessment of speed limit non-compliance and where appropriate work with VicRoads and Victoria Police to implement strategies to increase compliance, such as the use of advisory speed trailers in areas where speed has been identified as a problem, or areas with recently lowered speed limits.
A.9	Review conditions (such as lighting, sightlines, activation, public surveillance, vegetation) affecting perceived safety around public transport hubs. Use the results of the review to make improvements where required, increasing perceptions of security and crime deterrence.
A.10	Develop an audit program for Council shared paths and links, commencing with the Scotchmans Creek and Gardiners Creek shared paths, with regard to width, vegetation, smoothness, corners, gradient, lighting and signage, recognising both the recreational and transport function these paths provide. Implement recommendations arising from audit.



4b. A more accessible city

Well-developed and efficient transportation systems offer high levels of accessibility. Accessibility is based on the concepts of location and distance between locations, which is influenced by time, cost and ease of travel.

Some areas of Monash are more accessible than others, which creates a level of social and economic inequality. There are important differences between the north and east of Monash, which are more dependent on car travel, and the south and west, which have greater sustainable transport uptake. This can be partly attributed to greater access to transport choices.

An accessible and well integrated transport network meets the requirements of a diverse range of users, including the elderly, children and those with mobility or cognitive impairments. A strong network can assist in enhancing people's ability to access jobs, shops, and local services. Local government has a vital role in assisting residents in making local trips by foot or bicycle and promoting travel forms which are sustainable from a social, environmental and economic perspective.

Considerations for planning an accessible network are discussed further below.

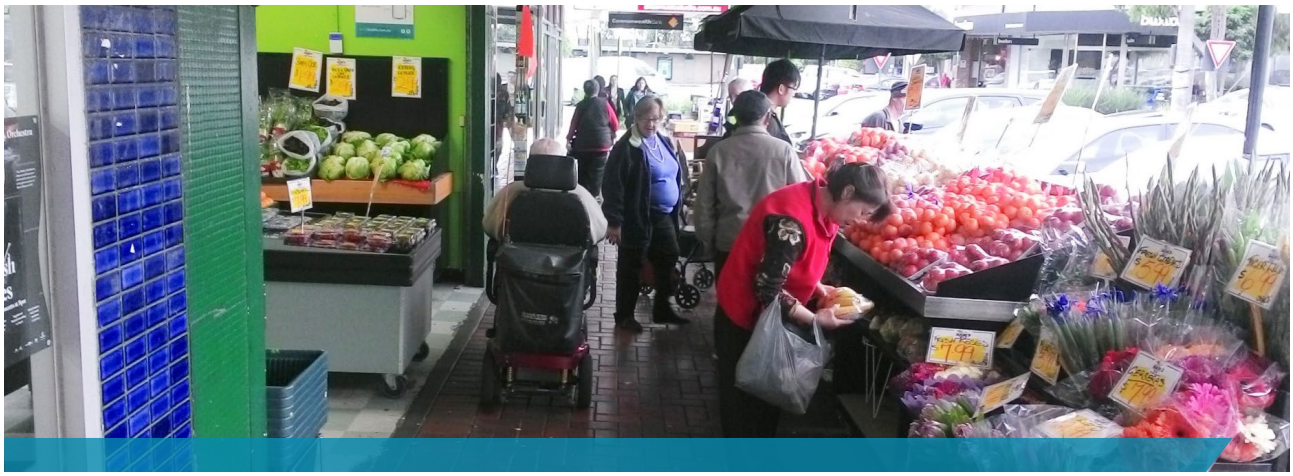
Transit Oriented Development (TOD)

Transit Oriented Development (TOD) is the functional integration of land use and transport through the creation of compact, well connected, mixed use communities within walking distance of transit corridors or nodes. TOD brings together people, jobs, and services and is designed to reduce the number and length of trips and make it efficient, safe, convenient and attractive to use public transport services.

Since the 1970s Transit-Oriented Development (TOD) has emerged as a popular and influential planning concept. Physical design is an important aspect of making TOD projects work as it is a crucial means of coordinating relatively intensive land uses and multiple transport modes. Economic influence is also an important consideration around TOD, as it is often easier to bring more people closer to services through higher density housing development and choice, rather than establish services in new areas.

Reducing the number of trips

The need for a travel demand management approach is apparent. It is acknowledged that the road network in Monash two decades from now is likely to look very similar to what currently exists. There is little capacity therefore to absorb additional traffic volumes without exacerbating congestion. It is therefore necessary to adopt smarter ways of using the existing transport network. This includes reducing the need for travel, reducing the length of trips, combining different reasons for travel into one trip (i.e. weekend sports trips and shopping) and encouraging the most sustainable modes. This is closely linked to the concept of the 20-minute city which remains an important component of Plan Melbourne.



Urban form and accessibility

Monash is facing demand for infill development of medium density multi-unit occupancy in established areas of single family houses, combined with more intensive growth within Activity Centres. The existing low-density character of much of the municipality means it is challenging to provide cost effective public transport with sufficient frequencies and coverage to be a viable alternative to driving for most people, thus the rate of car use is very high in Monash. Bus Association Victoria Inc. (2015) suggests that densities of about 35 to 40 people (jobs and residents) per hectare are likely to support a public transport mode share of at least 10%, or higher. In addition, if jobs, shops, services and other destinations are too far apart, walking and cycling rates will also be lower.

The designation of appropriate areas for higher density development, taking pressure off other well-established areas less likely to accommodate greater development intensity, to provide a well-planned city form may prove more feasible than seeking a uniform increase in density across the municipality.

Sites can be designed to enhance the safety and attractiveness of walking, cycling and public transport, while retaining efficiency for cars. In retail or commercial areas for example, buildings located close to the street with a consistent setback and parking in the rear, provides a better pedestrian environment and active surveillance than buildings with parking lots fronting the street.

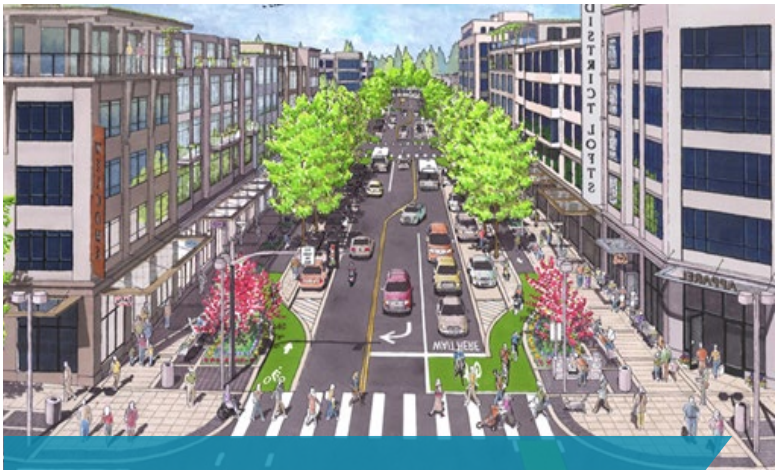
Street design also influences the use of sustainable transport. For example, streets with wide cross-sections and wide lane widths usually encourage higher traffic speeds and lower volumes of pedestrians and cyclists. In commercial areas, this tends to attract 'car oriented' businesses like 'big box' retail, drive through restaurants, and strip malls. Streets with narrow cross-sections and narrow lane widths can provide a better environment for pedestrians and attract businesses that encourage more walking and social interaction, like cafes, restaurants, local shops and services.

Complete Streets

A "complete street" is one that serves a variety of functions, for a range of transport modes. The "complete streets" movement emerged from the United States in response to the prevalence of heavily trafficked arterial road networks that failed to produce vibrant, safe streetscapes that served a multitude of roles (transport, commercial, liveability, social, environmental). A typical Complete Streets design incorporates motor vehicle traffic lanes, car parking, separated bicycle paths, generous footpaths, street furniture and trees, as well as active street frontages.

Connectivity

Connectivity affects the degree to which transportation networks such as streets, walking and cycling paths, connect people to their destinations (including intermediate destinations such as public transport services). Good connectivity provides easy access to key destinations for pedestrians. Excellent connectivity actively seeks to discourage car use by making local trips easier and more pleasant by foot than by car.



8-80 design

8-80 is an international design movement which recognises that we need to design cities to accommodate a society with changing needs from young children to the elderly. Important challenges are facing our society as the population globally ages thanks to higher life expectancy, better housing and living conditions and improved healthcare. This will place pressure on services to support the ageing population as it becomes more dependant.

Accessibility planning needs to consider designing cities, neighbourhoods, places and spaces that can adapt to these changing needs. Cities need to be inclusive, accommodating people with disabilities but also limited mobility. This means we need to design transport systems that can accommodate a society with changing needs across a lifetime.

20-minute neighbourhoods

A principal objective of Plan Melbourne is the continued development of neighbourhoods and communities that offer access to services and facilities via public transport, walking or cycling, within 20 minutes of a person's home. By creating places that allow people to live, shop and interact locally, road congestion and greenhouse gas emissions may be reduced, and the benefits of active transport on health, social and economic outcomes can be enjoyed by the community.

The plan provides some details how this can be achieved; through improved cycling and pedestrian infrastructure and improvements to public transport, in addition to the provision of retail, services and facilities in appropriate locations. Plan Melbourne aims to support local governments in planning their neighbourhoods as they have the most knowledge of the needs of their community (Victorian Government, 2014).

Wayfinding

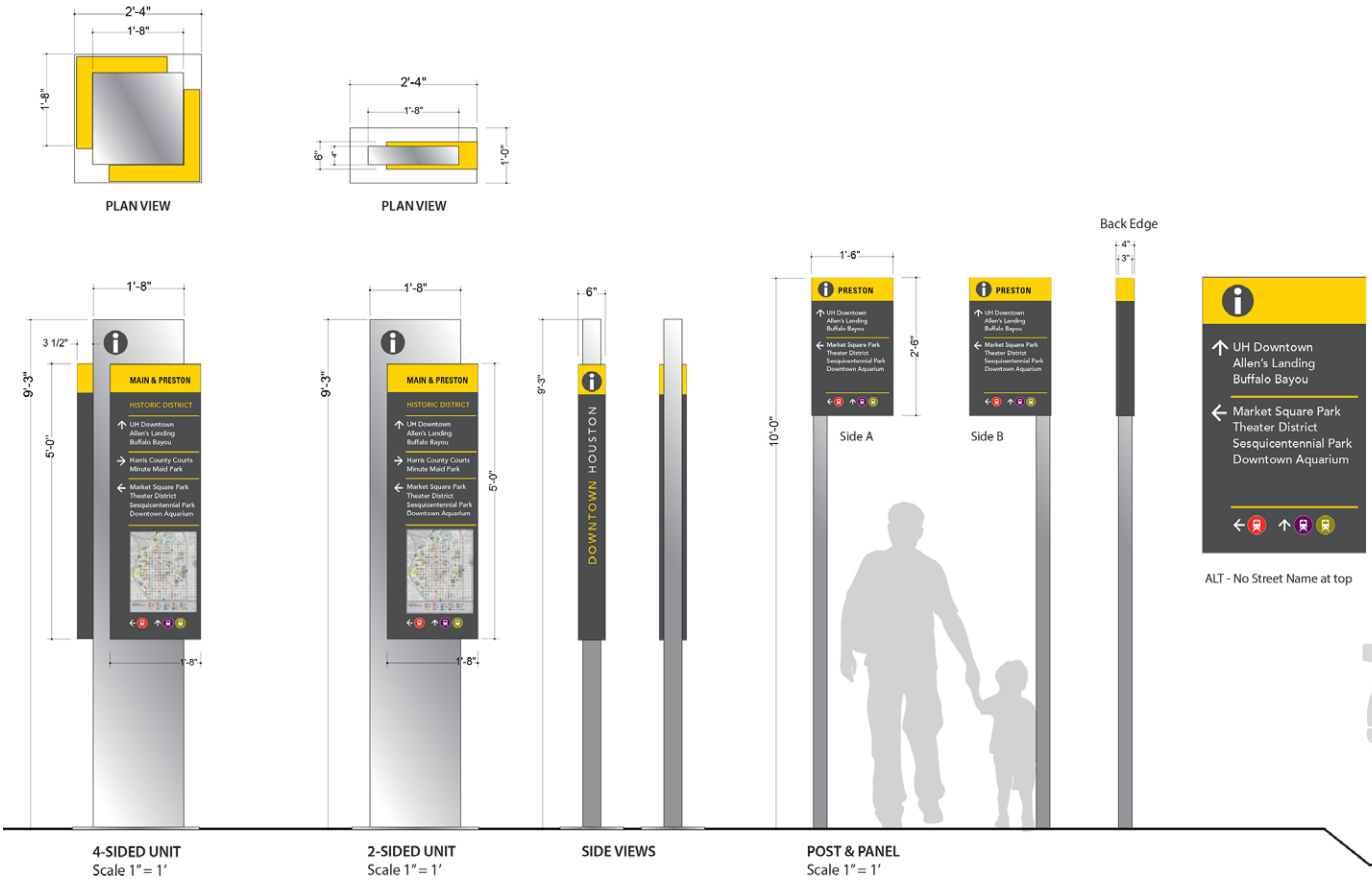
Wayfinding is a critical requirement to allow people to navigate successfully through complex urban environments and access intermediate destinations or stopping points. Wayfinding is a means by which a more legible public domain can be created by using visual, verbal and/or auditory clues such as materials, patterns, signs, maps, landmarks and other signals ***(Figure 12)***. Visitors, tourists, residents and workers have different wayfinding needs.

Implementation of an effective wayfinding strategy for Monash would assist in reducing the existing barriers to North-South movement, and ensure the permeability and access benefits of the local street network (either side of the arterial road corridors) can be realised. A successful wayfinding system instils confidence in a wide variety of users and encourages walking and cycling for transport and recreation.

Figure 12. Wayfinding signage.

Goals

- Provide a range of viable transport choices for access to and within Monash
- Address social and economic barriers to transport choice, such as travel cost, time and availability of fully accessible services
- Reduce the need for travel and length of trips required to access goods, services and employment
- Achieve higher density mixed development around public transport corridors and hubs
- Provide a safe, high amenity public realm that encourages walking, cycling and street activity
- Make the most efficient use of existing street space
- Promote connectivity through applying transit oriented design (TOD) and pedestrian oriented design (POD) principles around transport demand generators such as activity centres, transport interchanges and service nodes



Actions

B.1	Identify key origins and destinations and travel demand generators across Monash to inform accessibility priorities and requirements.
B.2	Continue to implement a comprehensive, consistent wayfinding strategy, based on best practice, to assist all users in seeking out the simplest and most direct route between locations and transport mode across the municipality, and invite a collaborative approach with adjoining Councils.
B.3	Consider needs of all users of the network and continue to advocate for and provide DDA compliant infrastructure and services across Monash to increase transport accessibility, access and choice for all members of the community.
B.4	Investigate the number, location, accessibility and capacity of Council's taxi ranks throughout the municipality, and upgrade as required.
B.5	Explore options for an extended transport service comprising of local bus routes utilising small buses to connect residential areas in Monash with activity centres, regional transport hubs and services, medical and leisure facilities.
B.6	Explore best practice processes in using and monitoring Green Travel Plans as part of planning permit conditions, with a view to determining the criteria of appropriate development to which Green Travel Plans would be required.
B.7	Encourage DDA compliant public-access links (walking and cycling) within Activity Centre boundaries and the Monash Employment Cluster (including through new development sites) to contribute to improved local permeability and access.
B.8	Implement mechanisms to increase the number and quality of public space connections and capacity for priority walking and cycling routes within and to Activity Centres.
B.9	Improve public realm and connectivity and promote high intensity of mixed land use around grade separation projects.
B.10	Investigate options to improve the availability and condition of pedestrian and bicycle routes and facilities, and public transport services for each activity centre in Monash to address barriers and improve access.
B.11	Support and promote working from home for employees in Monash, and promote to businesses located in Monash.
B.12	Encourage and support schools to prepare Green Travel Plans for students and staff. Prepare a Green Travel Plan template to help schools encourage sustainable travel behaviour.

4c. Promote sustainable transport

A sustainable transport system is designed to encourage less reliance by individuals on the private car to meet their daily needs. It does this by increasing the attractiveness of other transport options, such as walking, cycling and public transport.

The Transport Integration Act (2010) is the primary transport statute for Victoria, and promotes consideration of how transport can contribute to economic prosperity, social and economic inclusion, and environmental sustainability. These three areas are known as the triple bottom line.

Social and economic inclusion means that everyone is able to participate fully in society. Transport plays an important role in developing social and economic inclusion by removing barriers to the use of the transport system, through how we plan and provide transport infrastructure and services. It also has a capacity-building role where opportunities for social and economic participation are maximised in partnership with communities.

Council needs to prepare for future changes in climatic conditions that have the potential to disrupt the economy, damage the environment and diminish quality of life.

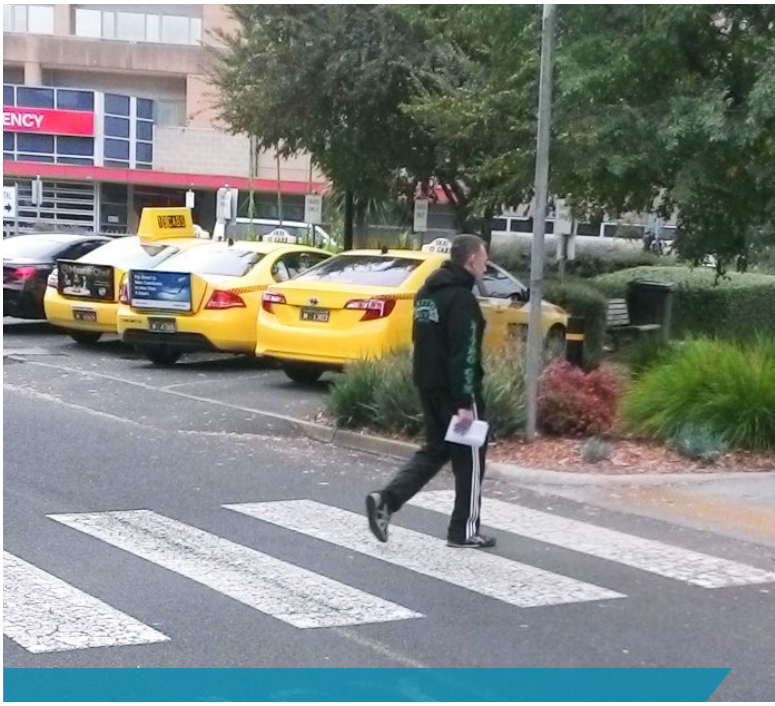
The transport sector is a significant consumer of energy, the major source of urban air pollution, and the second largest source of greenhouse gas emissions. For these reasons it is important to minimise the resources used by transport. The transport system also needs to be resilient in the face of climatic extremes, recognising that what has been appropriate in the past may not meet the needs of the future. In striving for intergenerational equity, Victorians must be able to meet the needs of the present without compromising the ability of future generations to meet their needs. Issues to consider in promoting sustainable transport are outlined below.

Think globally, act locally

To contribute to regional and national goals related to triple bottom line sustainability, the Monash community should be encouraged to understand and adopt sustainable transport behaviour. A shift towards greater public transport, walking and cycling mode share will be important to meet future demand for travel and maintain Monash's liveability.

Council will be assisted in this task by factors including rapid increases in technology increasing the options available for sustainable mobility, including bike share, ride sourcing applications (e.g. Uber) and driverless vehicles in the future. To achieve sustainable network goals, Council can adopt a road user hierarchy in which sustainable modes are prioritised over private car use. The modal hierarchy is demonstrated on page 26.

This hierarchy can be supported through a range of measures such as ensuring that capital works budgets focus on projects that recognise pedestrians as the most important road user, planning new traffic engineering projects to provide for the accessibility and safety of walkers and bike riders, reallocate road space used for parking where pedestrians, cyclists and public transport users will benefit.



Environmental sustainability

The transport sector is the second largest producer of greenhouse gases in Victoria. Total emissions from this sector grew by 41.2 per cent from 1990 to 2012 and accounted for 18.72 per cent of Victoria's total greenhouse gas emissions in 2011-12.

Passenger cars are responsible for approximately 60 per cent of Victoria's transport-related greenhouse gas emissions. While total emissions from public transport are significantly lower than from both passenger and freight vehicles, in Victoria trams and trains are particularly greenhouse gas-intensive modes as they rely primarily on electricity produced from brown coal. Transportation noise is also of community concern, particularly in residential areas, where exposure to high noise levels can have adverse health and social consequences.

Typical approaches for reducing transport emissions include:

- Reducing the demand for travel
- Increasing the use of non-vehicular modes
- Leveraging new technologies
- Reducing emissions from transport infrastructure.

The Transport Integration Act 2010 requires transport agencies to manage the transport system in a way that actively contributes to environmental sustainability. This includes minimising transport related emissions, promoting less harmful forms of transport and improving the environmental performance and energy efficiency of all transport modes. Plan Melbourne also promotes an efficient and more environmentally sustainable city shape based on modelling that shows a smaller number of larger activity centres, with contained fringe growth, will increase carbon efficiency.

The Monash ITS recognises the role transport holds in helping to achieve the vision of the Monash Environmental Sustainability Strategy, which is to achieve an innovative and environmentally sustainable garden city: *resilient, diverse* and *thriving.*

Transport technology

Disruptive technology in transport has emerged as a rapidly growing field, encompassing technologies such as Uber and other ride sourcing applications, autonomous vehicles and multimodal travel Apps (e.g. Moovel). This sharp increase in technologically driven transport innovation comes during a period in which decades long transport trends are beginning to change.

Vehicle ownership rates and even the proportion of young people with a driver's license, once a rite of passage, are beginning to decline. Since 2004, per capita vehicle kilometres travelled has also begun to decline. This is happening not just in Australia, but is recognised as a trend in a number of developed countries.

Traffic impact assessments for new and infill development across Melbourne are also starting to recognise that due to the range of travel choices and options in the area, the previously employed formula and assumptions linking car parking rates to traffic generation through daily car usage are rapidly changing.

Grade separation

The proposed grade separation through elevated rail at Clayton Road, Centre Road and Poath Road provides an important opportunity for improved access both along the rail corridor in the form of updated high quality shared paths, and across the rail corridor. Shared paths that meet industry best practice standards including 3.0m width, high quality surfaces and lighting, clear sight lines, overlooked by active frontages on adjacent land uses where possible, pause points with seating and strong wayfinding should be delivered as part of the current grade separation and elevated rail project which will remove all level crossings in Monash.

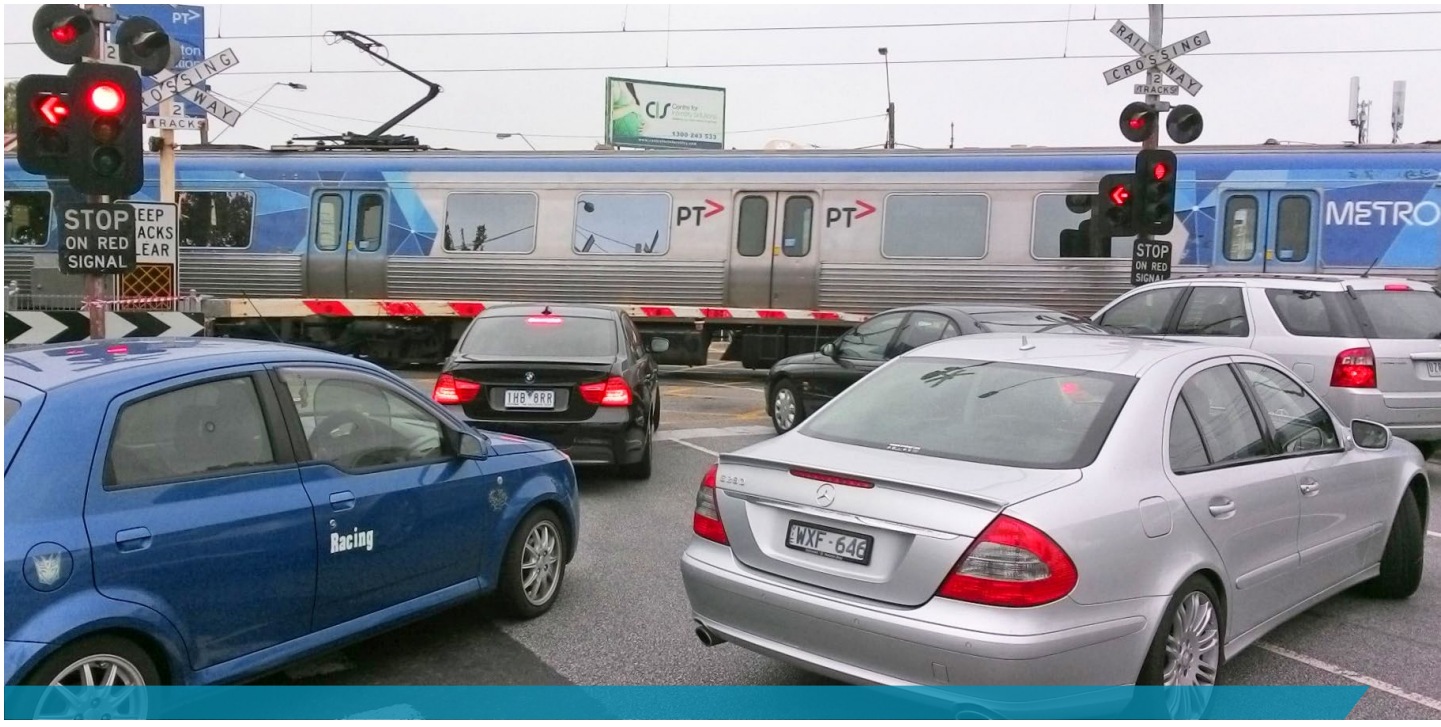
Car ownership and usage

There is a continual need to evaluate the role of the car in Monash and how limited street space can be most effectively used. It is becoming apparent that as roads reach capacity and demand for trips continues to rise, the number of additional journeys able to be made by cars will be limited. Other transport modes, such as walking, cycling and public transport, will need to take a larger share of this increasing trip demand.

Car based transport is the dominant mode for both journey to work (over 60% car) and other trips within Monash as shown in ***Figure 3*** (see page 10). Current travel behaviour can be partly attributed to the development and settlement patterns of Monash in the 1950s and 60s and past investment prioritising private transport modes.

Journey to work travel data also identifies growth in public transport use in Monash. There are important differences between the eastern section of Monash (much more dependent on car travel) compared to the south-west which has greater sustainable transport uptake. This can be partly attributed to the west and south having greater access to transport choices.

There is a rising trend in inner city areas to plan for and encourage breaking the association between car ownership and car use. Technology is now making it possible to have access to a car when required (through car share schemes such as FlexiCar, GoGet) without needing to own. Car share has become increasingly widespread within Australian cities, and Sydney is currently leading the way with many new developments incorporating significant numbers of car share parking spaces at the expense of dedicated resident spaces.



Cycling

Cycling is one of the most sustainable and efficient forms of transport. It is an effective way to improve fitness and reduce risk of common health problems such as diabetes and cardiovascular disease. Providing a safe and efficient cycling network in Monash is integral to achieving a sustainable transport system that enhances quality of life for all residents.

Addressing barriers to greater cycling uptake, such as safety, comfort and end of trip facilities should be the priority in Monash. Whilst there are no widely accepted minimum service levels for cycling in Australia, some work has been completed recently that helps to define what they might involve. Cycling Aspects of Austroads Guides (Austroads, 2014) provides a summary of the design guidance and criteria for both on and off road bicycle infrastructure. This guide includes some features of bicycle network planning that might aide Monash's strategic objective of encouraging more cycling. These features include:

- **Safety:** Minimal risk of traffic related injury, low perceived danger, space to ride, minimum conflict with vehicles.
- **Coherence:** Infrastructure should form a coherent entity, link major trip origins and destinations, have connectivity, be continuous, signed, consistent in quality, easy to follow, and have route options.
- **Directness:** Route should be direct, based on desire lines, have low delay through routes for commuting, avoid detours and have efficient operating speeds.
- **Attractiveness:** Lighting, personal safety, aesthetics, integration with surrounding area, access to different activities.
- **Comfort:** Smooth, skid-resistant surface, gentle gradients, avoid complicated manoeuvres, reduce need to stop, minimum obstruction from vehicles.

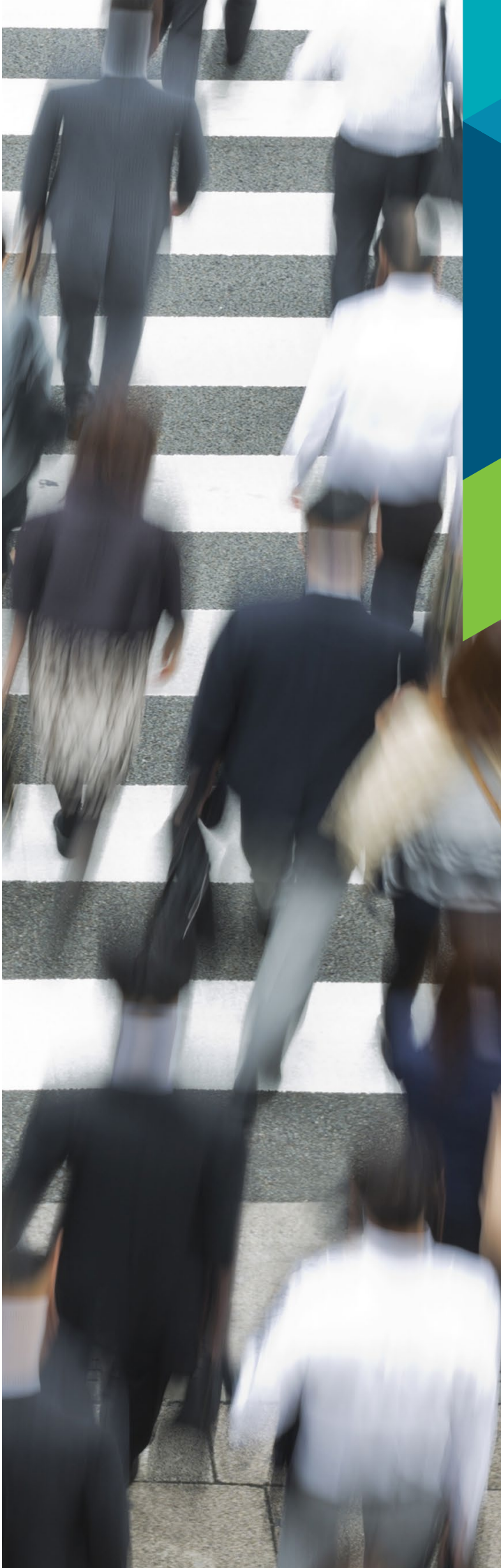
Commute distance from Monash to central Melbourne may be too far for most cyclists, but a significant proportion of Monash's urban population is within three kilometres of a railway station, which is an easy cycling distance for most people. To encourage this activity, Bicycle Victoria in partnership with Public Transport Victoria is funding the provision of storage facilities at railway stations through the implementation of Parkiteer Bike cages.

Walking

Strong and well-functioning pedestrian links are predominantly related to the measure of how pedestrian friendly and accessible an area is. The level of walkability depends on both the physical quality of the walking paths and the availability of pedestrian oriented destinations alongside the paths and determines the level of accessibility.

There are a range of best practice principles designed to promote walking that can be integrated into local pedestrian network planning, including:

- **Amenities near transport interchanges –** Locating local convenience services around transport hubs establishes a strong connection and opportunities for integration between the transport network and other land uses.
- **Alternative street connections with active and vibrant street frontages –** Street connections between transport modes provide scope for active frontages to capture the commercial opportunities, help to create on-street activity and enhance property values.
- **Frequent and safe pedestrian crossings –** Establishing pedestrian priority through well designed ground level pedestrian crossings along pedestrian desire lines allowing access from all directions.
- **Information boards and wayfinding –** Providing good wayfinding signage and other directional signals, such as pavement markings, assists interchange users in seeking out the simplest and most direct route between modes.
- **Landscaping and street lighting –** The pedestrian network must incorporate safe design measures such as clear sight lines, well-lit pathways, surveillance by surrounding land uses and provision for mobility and vision impaired users.
- **Waiting and seating areas –** Informal meeting and resting points, gathering places and landmarks all play an important role in providing a comfortable, usable pedestrian network.
- **Indoor connection through buildings –** Indoor pedestrian links to provide protection from the elements, increased user safety and amenity and commercial opportunities. Such pathways can also increase permeability through urban block structures and offer greater route choice.



Mobility scooters

In Victoria, the frequency of emergency department presentations has increased significantly over the last decade with an estimated annual increase of 13.5% and an overall estimated increase of 255% in 10 years. As this estimated increase is based on the mobility scooter fall hospitalisation data, increases in all mobility scooter hospitalisations may be greater. Analysis of the injury severity related to Victorian motorised mobility scooter hospitalisations suggests that a significant proportion of the injuries will have a serious effect on the patient in terms of persisting health problems and follow-up health care.

As the Monash population ages and a greater number of people require mobility support, it will be important to recognise and plan for the footpath network to safely accommodate a growing number of mobility scooters. Ensuring the network meets DDA (1992) requirements in areas of high demand around activity centres and where there is a greater concentration of elderly residents will assist in achieving a safer environment for all.

Public transport

An important component of the Monash ITS is minimising the barriers to increased public transport use. The stakeholder engagement process and other data analysis has identified issues associated with service coverage, frequency, perceptions of safety, travel time and passenger amenity as preventing a greater utilisation of public transport in Monash.

A good public transport system provides vital access to services and employment beyond an immediate walking or cycling range. This includes community transport which takes the form of a Council supported bus for the elderly and people with limited mobility who are unable to access mainstream public transport.

Bus routes operating within local neighbourhoods to provide access between areas of high demand such as retirement homes, schools, public transport hubs, activity centres and health services on a limited demand-based timetable would provide a range of social and economic benefits within the community.

A strong public transport service can be established and measured through the following components:

1. Service coverage

- Percentage of households within 400m walking distance of public transport services
- Provision of a range of service types to meet passenger demand in different areas at different times of the day
- Higher level services around key origins and destinations, such as the MEC and activity centres

2. Service frequency and capacity

- Access to a 'turn up and go' network with 10-15min frequency across all services
- Effective and coordinated interchange between modes
- Timetables that reflect passenger demand (i.e. more services in AM/PM peaks) and late night services
- Appropriate services and capacity to meet future passenger demand

3. Travel time and reliability

- On-street public transport priority measures such as bus lanes, bus priority signal phases at intersections
- Improved train reliability through removal of at-grade crossings

4. Passenger amenity

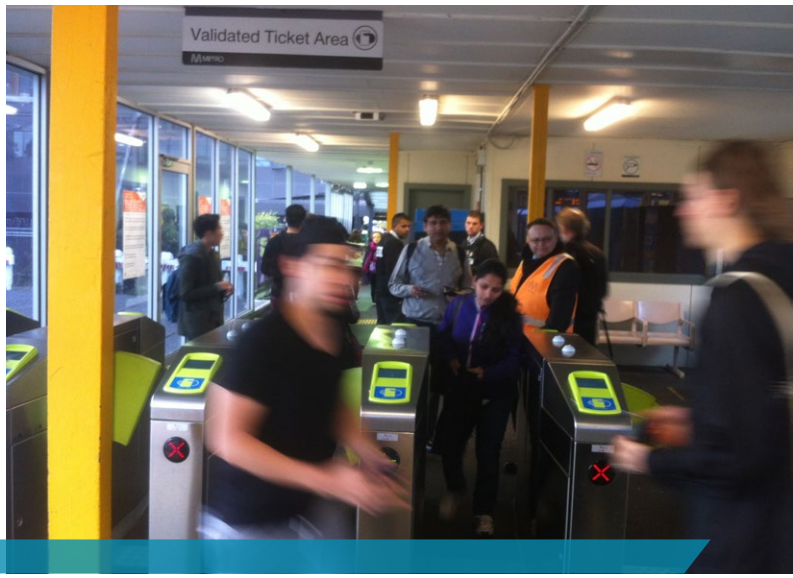
- Proportion of stops and infrastructure meeting DDA requirements
- Real-time service information and passenger information displays at stops
- Strong pedestrian accessibility to stop locations on arterial roads
- Driver behaviour and travel comfort
- Passenger loading levels which meet industry standards
- Vehicle type and cleanliness
- Clear information on and access to ticketing options
- Availability of car parking and provision of convenience retail at public transport hubs

The public transport network is the responsibility of Public Transport Victoria and State Government departments and agencies. However, Council has an important role in ensuring public transport stops and services are accessible to local communities, meet local demand and can operate in the most efficient way possible through local streets and on the arterial road network.

Recognising the factors outlined above that contribute to a high quality public transport network and working in close collaboration with State Government stakeholders to deliver such a network is one of the most effective ways to address the adverse impacts of the transport network in Monash.

Goals

- Encourage the use of more sustainable transport modes within the road infrastructure and decrease reliance on private vehicles
- Increase the attractiveness of walking, through implementing Pedestrian Oriented Design (POD)
- Apply Road User Hierarchy principles to complement the SmartRoads designations, which prioritises active and public transport modes
- Increase public transport mode share by making it a more attractive and reliable option for all residents of Monash
- Increase bicycle mode share across Monash, for all trip purposes
- Eliminate 'missing links' and 'missing connections' in cycle and walking network, creating a cohesive integrated active transport network across Monash
- Encourage the use of walking and cycling as the 'default mode' to access public transport and optimise intermodal transfers
- Recognise and plan for the role technology will play in lowering car ownership requirements and increasing the diversity of transport options in the future
- Reduce car dependence and usage through the provision of compelling alternatives
- Encourage a move from petrol and diesel to low-emission fuels through promoting the establishment of infrastructure such as charging stations within new developments, or as part of existing fuel station businesses



Actions

C.1	Conduct an assessment of current and emerging transport technologies, their likely impacts on Monash and actions Monash can take to capitalise on their benefits and opportunities. This may include App based ride services (e.g. UberX and Uber Pool), autonomous vehicles (including on demand public transport), electric vehicles and App based, multimodal journey planning. These technologies are likely to reduce the need for vehicle ownership, with substantial impacts on future car parking requirements.
C.2	Advocate to PTV to investigate implementing a trial of mini-buses to act as a feeder service to a train station in Monash. Use the trial to draft a policy determining the future role mini-buses or other alternatives could play in providing a public transport feeder service within City of Monash's mile-grids.
C.3	Adopt a Road User Hierarchy, giving priority to active and public transport where practicable, and use this hierarchy to help guide policy and infrastructure planning decisions.
C.4	Work with State Government to plan for the expansion of the Monash Employment Cluster (MEC) by developing transport plans that prioritise access by walking, cycling and public transport.
C.5	Work with VicRoads to coordinate pedestrian crossing cycles on divided arterial roads in line with current industry guidelines around integrated transport and land use planning.
C.6	In conjunction with VicRoads, create safer crossings at unsignalised locations that have high pedestrian demand or a history of serious injury/fatality.
C.7	Develop and implement minimum Levels of Service for the pedestrian network based around footpath width, lighting levels, crossing points, and DDA (1992) standards of access. Review existing footpaths against this standard, and make improvements where necessary.
C.8	Continue to invest a minimum of $10 per resident, per year on the pedestrian network.
C.9	Advocate to VicRoads to increase the number of pedestrian priority crossing links across the municipality, connecting Activity Centres, public transport nodes with residential areas, based on existing and expected demand.
C.10	Advocate for VicRoads to include future potential use in their criteria for increasing pedestrian priority at signals where demand can be induced.
C.11	Work with VicRoads to progress the installation of on-demand Pedestrian Operated Signals on arterial roads.
C.12	Work with VicRoads for longer pedestrian crossing times at signals where particular needs are identified.
C.13	Ensure new developments encourage walking by requiring developers to increase permeability and connectivity to the surrounding area, and integration with nearby existing pedestrian corridors.

C.14	Support local schools in participating in VicHealth's annual 'Walk to School' programme and promoting ride to school initiatives, drawing on successful actions and campaigns from other municipalities.
C.15	Embark on an 'urban forest' strategy which prioritises tree planting along convenient pedestrian routes, providing increased visual amenity and shade from the sun during summer months.
C.16	Identify convenient walking routes to local schools and identify and promote these routes through wayfinding such as footpath markings.
C.17	Continue to increase funding for bicycle infrastructure by at least 10% per annum, from $515,000 in 2015/16.
C.18	Review the existing bicycle infrastructure network, for gaps and safety issues, in line with best practice standards and connection to Activity Centres, public transport hubs, shopping centres, schools and major employment centres.
C.19	Update Walking and Cycling Strategy to specifically encourage and promote walking and cycling modeshare.
C.20	Create high quality protected bicycle infrastructure within 2km of train stations to encourage cycle access to public transport.
C.21	Increase bicycle parking opportunities at key destinations across Monash and engage with the community to understand the level of demand for bicycle parking not currently being met.
C.22	Collaborate with PTV to review bicycle parking at train stations, and increase supply in locations in which demand is high relative to supply.
C.23	Advocate to VicRoads to hasten the implementation of bicycle infrastructure consistent with the Strategic Cycling Corridors, Bicycle Priority Routes (BPR) and PBN routes running along declared roads to create a cohesive set of interconnected routes and address missing links in the cycle network.
C.24	Enter a dialogue with Monash University regarding the prospect of expanding their bike share program to cover neighbouring Activity Centres, railway stations, and the Monash Medical Centre. If successful, the scheme would, in collaboration with Monash University, become an important additional transport mode for accessing the Monash Employment Cluster.
C.25	Work with PTV to implement bus interchange upgrades at Glen Waverley and Oakleigh Rail Stations.
C.26	Advocate for improved bus services and routes into key commercial and industrial employment areas, particularly the Monash Employment Cluster and Notting Hill.
C.27	Advocate to PTV for a bus network review in collaboration with key stakeholders, to identify where routes could be altered to provide more direct routes and better connectivity, and where new routes could be implemented.
C.28	Advocate for PTV to improve the frequencies of SmartBus routes 703 and 900 to provide fast, frequent connections between Monash University and Huntingdale, Clayton and Syndal railway stations.
C.29	Advocate for PTV to upgrade existing, heavily patronised routes to SmartBus standards of service and stop infrastructure.

C.30	Work with VicRoads and PTV for increased bus priority along congested roads marked as 'Bus Priority Routes' in VicRoads SmartRoads mapping, and at major intersections. Improvements could include bus lanes and bus priority signals.
C.31	Advocate to PTV to increase frequencies and operating hours of buses, especially on major arterial roads, aiming for a maximum 10-minute wait during peak hours and a maximum 20-minute wait off-peak.
C.32	Work with PTV, Metro Trains Melbourne and local bus operators to minimise passenger waiting times by coordinating timetables at key interchange points, including: Chadstone Shopping Centre; Oakleigh Station; Huntingdale Station; Monash University; Clayton Station; Waverley Gardens Shopping Centre; and Glen Waverley Station and Activity Centre. This will increase the attractiveness of public transport, and reduce the strain on existing parking infrastructure at railway stations.
C.33	Perform a review of bus stops and use the results to advocate to PTV to improve conditions at bus stops. Improvements would take the form of increased accessibility and safety for those boarding and enhancing waiting facilities including shelters, lighting and real-time passenger information displays at bus stops.
C.34	In conjunction with PTV and local bus operators, investigate installing kerb extensions in shopping strips and activity centres, to improve accessibility for public transport users.
C.35	Continue to advocate to the State Government for the provision of a heavy or light rail service on the corridor to Rowville with stations at Monash University, Mulgrave, Waverley Park and Rowville. This is consistent with recommendations of the Rowville Rail Study and is included in the PTV Network Development Plan.
C.36	Advocate to the State Government for financial support to implement a TravelSmart programme for households, schools and workplaces across Monash.
C.37	Encourage the development of a Car Share Policy for Monash, which will provide additional transport options in areas of high car demand, such as Activity Centres and within new developments. This policy should also recognise the role of peer-topeer carshare services.
C.38	Advocate to VicRoads as part of the Westall Road completion for improved bicycle routes and bus improvements along or parallel to Blackburn Road, Springvale Road and Clayton Road.
C.39	Advocate to PTV for a high frequency Smart Bus / shuttle service that links Knox with Glen Waverley Station providing a seamless connection and reducing parking demand.

4d. Supporting productivity

There has been significant interest in recent years in the wider economic benefits of transport, driven by a desire to increase the economic productivity of cities.

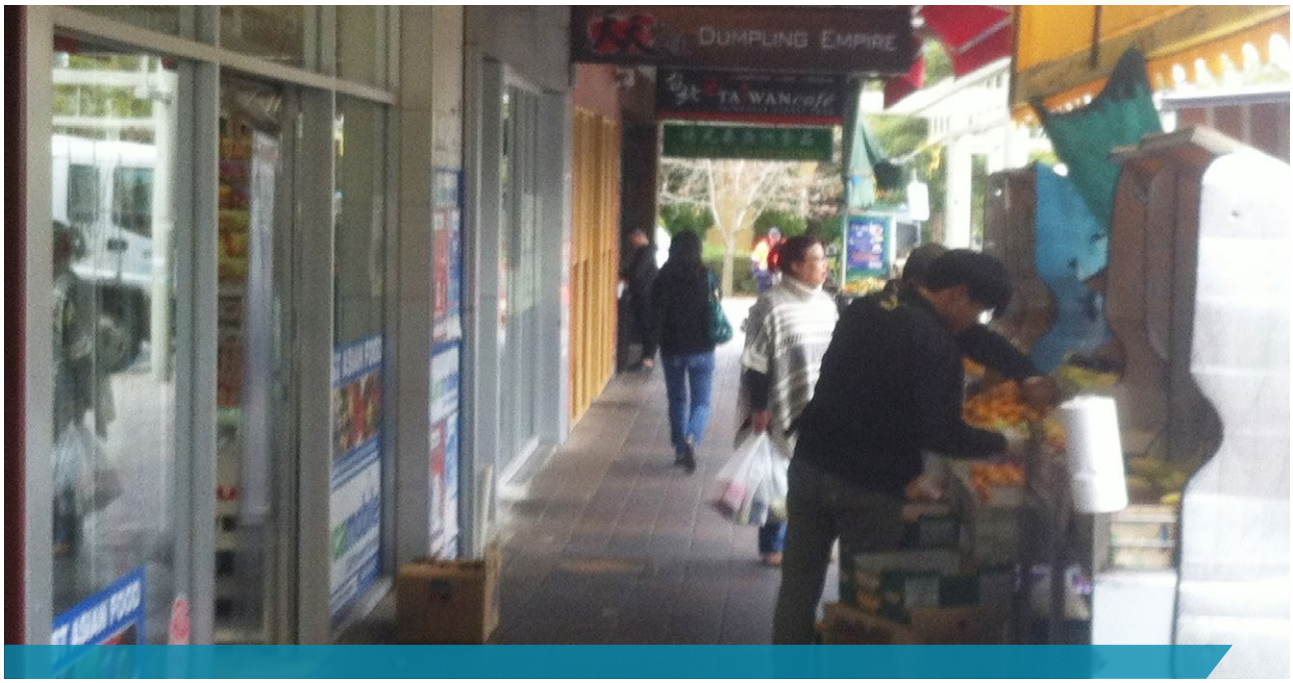
Monash has a mature road network for motor vehicles, linking every address within the municipality. This ability to use the car to access all destinations both within and beyond Monash offers unrivalled accessibility for those travelling by motor vehicle. The car generally offers superior comfort and privacy and this, in combination with very competitive travel times for most trips, has led to the car being the dominant mode of transport for all trip purposes.

The road network in Monash is experiencing significant pressure, both from local traffic as well as a large amount of through traffic, owing to the municipality's position as a middle ring area of Greater Melbourne and the existing transport network. Whilst average vehicle speeds have reduced slightly over the last decade, traffic volumes have either decreased or remained stable on the arterial road network in Monash (VicRoads, 2016).

This has occurred even with the opening of Eastlink in June 2008, which would have been expected to significantly ease regional traffic movement and congestion on the local arterial road network.

Transport investment can enable an increase in employment and economic activity by making it attractive for firms to move into areas providing access to a large potential workforce, and by increasing the number of jobs that are accessible to workers. Local amenity, air and noise pollution can also be negatively affected by heavy traffic.

The stakeholder feedback to date has made it clear that traffic congestion, and difficulty finding a car park are common frustrations felt by the Monash community. Without seeking to dismiss these concerns, it must be noted that these frustrations are in no way unique to Monash and are in fact an inevitable consequence of high levels of car use in an urban area.



Traffic volumes

Population growth is leading to major increases in traffic volumes across the city and congestion is one of the prominent issues reported through stakeholder engagement.

Congestion not only increases journey times for people in private motor vehicles, it also reduces the speed of road based public transport and its reliability. Freight efficiency is also reduced through congestion. The Monash road network is currently being used in a way that fails to achieve optimum efficiency. The average car occupancy rate is approx. 1.2 people per vehicle at peak times, and private car use is the least space efficient mode of transport. This, combined with the car being the predominant mode of transport, even for short trips, has resulted in congestion and parking issues that reduce the transport system's ability to support productivity in Monash. Congestion on the arterial network, for example near the Monash Freeway and rail crossings, leads to spill over onto local roads. Many of these local roads are not suitable for carrying heavy traffic volumes, reducing both the amenity of local streets, and compromising the safety of local residents.

There are also a number of external factors contributing to demand on the Monash transport network. Monash is used as a thoroughfare for those living in outer-eastern Melbourne suburbs. Residents to the south and east of Monash travel through the municipality to access inner Melbourne. This places significant stress on the arterial road network. Given the areas identified as the Eastern and Southern subregions under Plan Melbourne are forecast to grow between 550,000 and 700,000 residents by 2031, the transport demand and subsequent pressure on the Monash network is expected to grow substantially.

The Monash Employment Cluster is located in the south of Monash and is a key destination for traffic and activity within the municipality. The Metropolitan Planning Authority has provided preliminary draft demographic information for the MEC for two potential dwelling and employment capacity scenarios. The MPA is forecasting significant potential growth in dwellings (in the order of 300-390%) and employment (in the order of 150-230%). The highest growth scenario for the MEC equates to more than 100,000 new jobs and 100,000 new residents in the area (Monash NEC Transport Futures Report 2014).

Latent traffic demand

Building more road capacity has been shown to fail to alleviate pressure on the road network in the long term, by inducing more traffic overall, eliminating any short term benefit that may have arisen due to increases in capacity.

Any initial congestion reduction is eroded by encouraging new car trips that otherwise would not have taken place; shifts from other modes of transport (e.g. public transport); encourage increased trip length (known as hypermobility) and lead to retimed traffic from trips that previous occurred outside of peak. Finally, increases in road volume can lead to land use patterns that are more car-oriented.

Freight

Efficient freight and delivery systems are required to support a vibrant retail, knowledge, food and entertainment economy. As economic activity increases, demand for freight movements increase at a disproportionately higher rate. The likely development within existing activity centres and at key land uses (in particular the MEC area) will place high demands on road based freight within Monash.

Efficient road freight movement relies on fast traffic movement. However, this can have a negative community impact in terms of safety for vulnerable road users, like pedestrians and cyclists. Careful consideration of how the road and transport network accommodate competing demands and priority around movement of people and goods is an essential part of integrated transport planning.

Whilst freight challenges are not generally the responsibility of local government, there may be opportunities to work with others to find innovative methods of meeting future freight challenges. This may include last mile freight solutions, as well as shifting volumes to off peak times where possible.

Project Proposals

A number of infrastructure projects are proposed which will improve the capacity and operation of the road network within Monash in the future, including the Cranbourne-Pakenham line grade separations and signalling and capacity improvements, Monash Freeway upgrades, development of the MEC, Westall Road completion and the Rowville Rail project.

1. Level crossing removals

The proposed removal of the Clayton Road, Centre Road and Poath Road level-crossings and the redevelopment of the Clayton Station, in particular, present an opportunity to review the structure and operation of transport in Clayton and the Clayton Activity Centre. The removal of level-crossings and the building or rebuilding of stations represents a significant infrastructure investment opportunity. Indeed, this project presents a unique opportunity for transformational change of this precinct.

2. Westall Road completion

The proposed Westall Road completion is a new road link connecting Princes Highway, Clayton to the Monash Freeway, Mulgrave. This is to accommodate population and employment growth in the area, and improve network connectivity. The proposed extension passes through the Monash Employment Cluster (MEC) and is expected to remove a large proportion of heavy vehicle and freight movement from the local arterial network, freeing up road capacity which can be reallocated to sustainable transport modes.

Stakeholder feedback, including from Kingston and Dandenong Councils, indicated the project is a high priority for communities in the south and east of Monash.

3. Rowville Rail

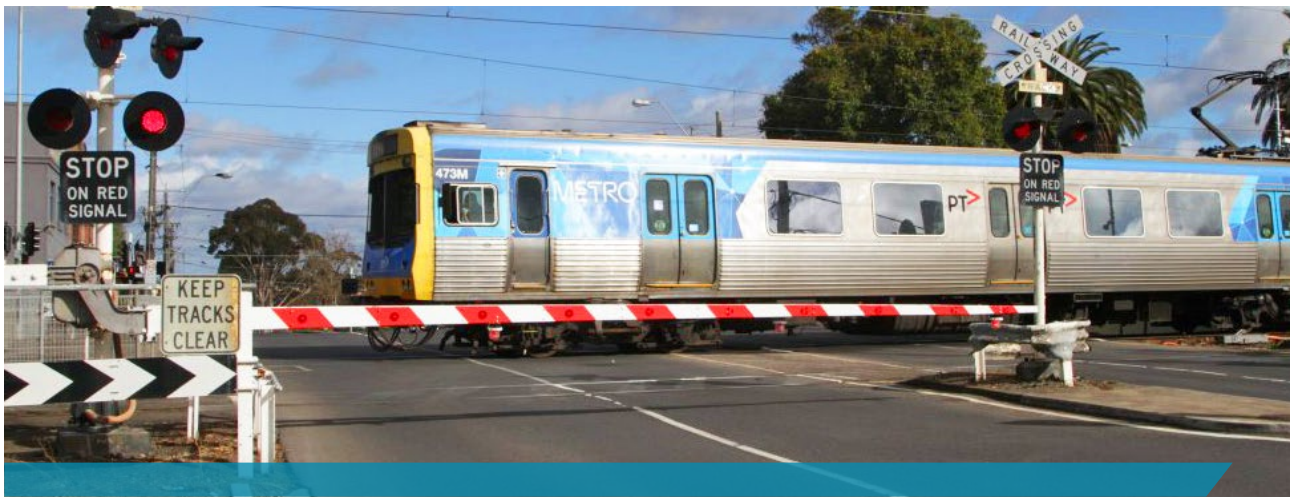
The proposed construction of a 12 kilometre railway line between Huntingdale Railway Station and Rowville will have numerous benefits to Monash, including: increasing vitality to the community and modernising public transport travel in the region; bringing more people into Monash, improving access opportunities and providing more travel choice and user satisfaction; promoting renewal and redevelopment of land uses along the corridor in particular the older Huntingdale area; and reducing car dependency by providing safety improvements, healthier transport and quicker travel times.

Goals

- Improve safety, amenity and the environment by minimising the impacts of freight and logistics activity
- Support activity centre development and access, by providing for freight and servicing requirements
- Maximise efficiency of freight movements on designated roads, in line with SmartRoads policy
- Through collaboration and application of best practice, Monash will continue to grow supported by efficient freight, delivery and waste systems
- Address the local impacts of traffic demand exceeding road network supply, through effective travel demand management techniques utilising the Safe Systems approach

Actions

D.1	Advocate for the construction of the completion of Westall Road to improve road network capacity and freight efficiency.
D.2	Continue to work with State Government stakeholders including the Level Crossing Removal Authority to prioritise and promote the maximum local benefit from the proposed grade separation projects at Clayton Road, Centre Road and Poath Road.
D.3	Work with VicRoads to undertake a review of freight compatible road transport routes and discourage freight and heavy traffic movements in areas allocated as bicycle and pedestrian priority under the SmartRoads designations.
D.4	Promote road network efficiency by encouraging freight movements outside times of peak commuter demand on the arterial road network, such as late at night and early in the mornings.
D.5	Adoption of solutions such as the 'last kilometre' initiatives, street access, scheduling of deliveries, way-finding, vehicle types, mode options and technological advances to assist the distribution of freight within MEC.
D.6	Work with major employers to provide travel demand management programs focused on encouraging sustainable mobility, flexible start/finish times and work from home policies.
D.7	Advocate to PTV for lower off peak fares, to encourage increased travel at off peak times.
D.8	Collaborate with RACV, other councils and state agencies to investigate the impacts of road user pricing, to increase the productivity and efficiency of the road network, including its impact on managing congestion and through-traffic/rat running in City of Monash. The Road User Charge could be introduced as a replacement of vehicle registration fees (State Government) and fuel excise (Federal Government). Advocate to State Government for some proceeds from road pricing be provided back to affected Councils for active transport upgrades.
D.9	Undertake a comprehensive travel survey to gain a greater understanding of travel behaviour and patterns across Monash, including impacts of the growth of the Monash Employment Cluster (MEC) and ongoing residential infill development.



4e. Manage car parking

Difficulty finding a car park is a universal frustration for drivers, in any rapidly growing inner city area. Typically, this difficulty is greater in large cities, and is more pronounced the closer one is to the centre.

Contemporary approach

Australian metropolitan plans have promoted the compact city as a means to achieve greater transport sustainability and housing affordability. They have also retained traditional levels of, and policy approaches to, car parking. Attempts to reduce parking provision are often highly contentious and disruptive at the local scale (Taylor 2014) with existing residents fearing loss of street parking and negative amenity effects from traffic. Resolving questions of how to provide for housing supply in accessible areas while acceptably transitioning away from high mandatory car parking levels is a major challenge for state and local governments.

Monash context

Stakeholder engagement has identified that impacts of car parking are a key concern across Monash. The Glen Waverley railway stations act as a major attractor for commuters accessing the rail network from the east and north of Monash. The predominance of car-based access to these stations creates high demands for long term commuter car parking. Public transport parking along the Glen Waverley and Cranbourne-Pakenham rail corridors is over-subscribed, with parking areas at capacity early in the morning. The impact of parking overspill into local neighbourhoods and activity centres from public transport demand is a key issue for consideration.

The high levels of car dependence in Monash have consequent impacts on car parking demand. A well-recognised feature of successful, productive cities is that demand for car parking exceeds supply. It is estimated that for each car in a city, between 4 and 8 parking spaces are provided. For example, for every car, a car space is provided at home, at an office, in a shopping centre and in an activity centre.

Car parking represents among the least economically productive use of space in urban areas and if not properly managed, can also:

- Generate car travel demand causing congestion;
- Compete for valuable space both on and off-road;
- Have a significant impact on the environment and local amenity; and
- Come at direct financial cost to the community including decreasing housing affordability.

The management of parking within Monash is therefore critical to achieving high levels of amenity, good accessibility and long term sustainability. It is recognised that the provision of free car parking around train stations is a poor use of valuable space. Each car, typically holding 1.2 people, only adds 1.2 train commuters, yet the car occupies 15m^2 of space for between 7-9 hours per day. PTV data shows that access to Monash train stations by car ranges from between 25-50% of passenger boardings. International best practice involves providing excellent access to train stations by foot and bicycle, and a small amount of paid car parking, to deter commuters from driving a short distance.

Existing on-street parking supply

There is an increasing demand for existing kerbside space for parking (resident, commuter and visitor) as well as other uses for the space including public transport zones, cycling lanes, loading zones and public space.

It is therefore necessary to establish clear priorities for the use of the available kerbside space. In order to optimise the performance of a particular area and the overall transport network, some uses are more important than others. For example, public transport vehicles often require access to specific spaces in order to make connections easier, and delivery vehicles need spaces close to their destination in order to facilitate efficient economic activity.

A hierarchy of kerbside space uses has been adopted by some Victorian Metropolitan Councils (Cities of Melbourne, Moonee Valley, Moreland and Yarra). This management tool provides a considered and strategic decision making framework to assist in the allocation of limited kerbside space. The hierarchy is applied by determining how a specific section of road space should be used based on meeting the highest needs first. When each use is considered to be reasonably satisfied in the local area, the space is "offered" to the next use and so on until all the available space is allocated.

In considering which uses have priority to a specific section of kerbside space, consideration is given to the nature of the surrounding land use and the function that the particular road plays in the overall transport network. If all uses can be satisfied without the need for allocation, then the space is not allocated to any particular use (as often happens in residential areas). In some cases, there will be exclusions from the hierarchy, such as the application of clearways. Importantly, these exclusions and the hierarchy itself should be determined in a transparent manner accessible by the general community.

Current management approach

The current Council approach recognises that on-street parking is an asset that cannot remain exclusive to residents of the street although residential needs and amenity must remain a priority. While each situation has its own set of circumstances the principles applied over more recent years when considering parking controls in residential streets are as follows:

- Ensure two-way traffic can operate safely
- Vehicle access is available to all properties
- Residents are reasonably able to park near their property
- Non-residential parking is generally restricted to one side
- Non-residential parking is generally permitted during the day to preserve residential amenity
- Locations such as curves and crests in the road and at intersections are assessed on the individual circumstances
- Consultation – a proposal (with an opportunity to comment) is presented to affected residents before new parking restrictions are installed

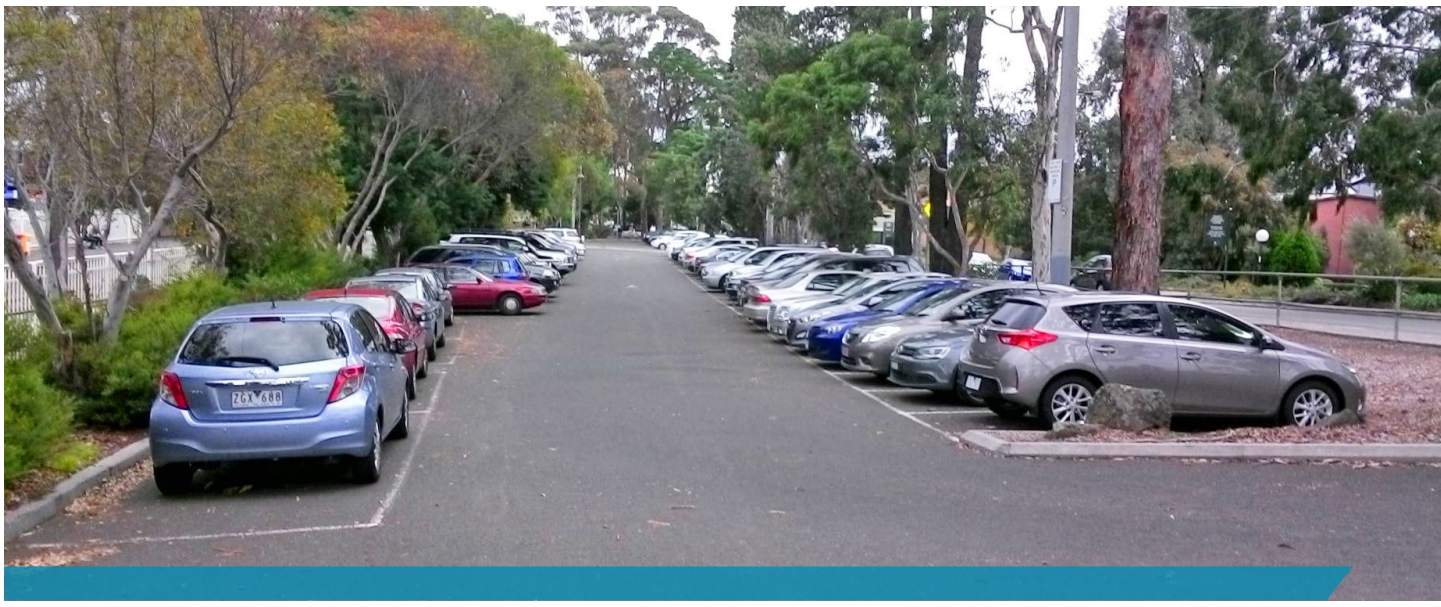
This approach is supported and it is recommended that it is combined with a kerbside road space hierarchy to provide a clear, consistent and transparent strategy to addressing the increasing demand for parking space on local streets.

An example of a kerbside road space hierarchy is provided below. The hierarchy of kerbside space users varies depending on the surrounding environment, Council objectives and community expectations for the area. Four different types of hierarchy have been suggested to assist Council prioritise the allocation of space for kerbside parking as: Residential; Activity Centres; Hospital/ Community Facilities and Higher Education (TAFE, University).

Off-street residential parking supply

Anecdotal evidence suggests that residents are underutilising their available off-street parking, particularly in the use of their garages. Many residents appear to park on the street for convenience, regardless of whether they have access to offstreet facilities. A high usage of existing off-street parking may significantly reduce on street parking demands.

It is recommended Council develop an awareness campaign to better inform and encourage residents to use their garages and driveways to help reduce on-street parking issues. If this approach does not prove to be effective, there is potential to introduce parking restrictions and a charge for residents for onstreet parking permits.



User Category	Priority	Residential	Activity Centre	Hospital/ Community Facilities	Higher Education
Safety Zone	Safety is the highest priority in all situations.	1	1	1	1
Public Transport Zone	Public transport is the second highest priority in all situations for efficiency, environmental and social equity reasons. Typically bus stop. Also includes provision of cycle and bus lanes and bicycle parking on a location specific basis.	2	2	2	2
Disabled Permit Zone	People with disabilities are the third highest priority across all situations for social equity reasons.	3	3	3	3
Car Sharing	On-street parking spaces for car sharing assist in reducing overall parking demand and therefore are encouraged.	4	6	8	4
Residents (including visitors)	Residents are the next highest priority in residential areas. In Major Activity Centres residents should not expect priority access to on street parking.	5	7	4	5
Loading Zone	Loading zones have a medium priority in all areas to support local economic activity. In residential areas loading operations should be conducted on-site wherever possible.	6	5	6	6
Customers	Customers have medium priority in Major Activity centres and residential areas.	7	4	5	11
Local employees	Local employees are encouraged to use alternative modes or use the least convenient car parking, leaving more convenient spaces for customers.	8	8	7	9
Commuters	Commuters have medium-low priority in all areas. They require access to specific locations such as railway stations and bus stops. This also includes park and ride spaces.	9	9	9	7
School Zone	School students have low priority in residential and activity centre areas as most school students are under the legal driving limit and in an attempt to encourage more sustainable transport options to commute to school.	10	10	10	8
Commercial Zone	Using the kerb side for commercial activity is a low priority except in specific circumstances where Council has slowed traffic speeds and is encouraging pedestrian activities.	11	11	11	10

Figure 13. Example kerbside space user hierarchy.

Parking in new developments

Resolving questions of how to provide for housing supply in accessible areas while acceptably transitioning away from high mandatory car parking levels is a major challenge for state and local governments. New developments are generally required to be self-sufficient for parking and not add to the demand for on street parking spaces. Whilst this approach may be justifiable for lower density residential areas, the current Planning Scheme parking rates may require downward revision where land is at a premium, and other transport modes are easily accessible, consistent with best practice.

Council often receives complaints from new residents of multiapartment developments who are not eligible for residential parking permits and were not aware of this restriction on their property when they moved in. The issue of new buyer/renter awareness needs to be resolved, potentially through improvements to the statutory planning and land information certificate processes, in addition to Council information brochures.

Given the importance of using parking management as a tool for transitioning to a more sustainable city, it would appear necessary to investigate ways of reducing car parking requirements, particularly in areas of the municipality with higher levels of access to alternatives to private car use. Moreover, in the period beyond 2020, it is widely anticipated by automotive industry analysts that autonomous vehicles will begin to reduce demand for car parking, as more of the transport task is taken by shared rather than privately owned vehicles (Barclays, 2015).

There are other options that can be investigated by Council through a parking management strategy to address this issue. These options are outlined here:

1. Relocate existing on-street parking into new development forms

There is potential to encourage new large developments within and around activity centres to incorporate additional parking capacity into the built form to enable the relocation of on-street parking capacity into new off-street structures. This would not necessarily increase the overall quantum of car parking, but ensure local streets remain accessible, as well as provide an opportunity to reallocate road space to sustainable forms of transport, such as wider pedestrian pathways or cycle lanes, or open space uses to improve urban amenity.

Were such an approach to be adopted in Monash, a long-term perspective is essential, as it must provide the basis for policy underpinning transport actions over one or more decades. The car parking Monash requires for new developments in 2017 can be expected to be available for the life of the development (40-120 years or more), whether a residential or commercial building.

2. Economic incentive for provision of lower parking rates

Due to the significant costs associated with constructing off-street car parking supply which can be up to $35,000 for an at grade car parking space and $60,000 for other levels of parking space, it may be attractive for developers to have the option to not provide car parking spaces in commercial or residential development. This would have the impact of lowering development costs and complexity, (no need for site access via crossovers, basement construction, lifts and other associated facilities) improving development form and potentially enabling the developer to make similar returns off a lower, or more competitive, rental charge.

Alternatively, some of the space requirements that would otherwise have been taken up by car parking could be incorporated into larger or a higher number of apartment units, increasing yield off the same land area. This would require a significant shift in thinking around the restriction on car ownership for residents.

3. Separate residential unit and car park titles

Implementing strata titles for car parks separate to residential units is a management tool which is being successfully implemented in many major international cities.

The demographics and level of transport choice available within some areas of Monash (particularly in the south-west and around the MEC) means it is likely that a proportion of future residents may choose not to own a car for a variety of social, environmental and economic reasons. Due to the current development form, some of these residents will own apartments in buildings which have provided at least one car parking space per dwelling unit.

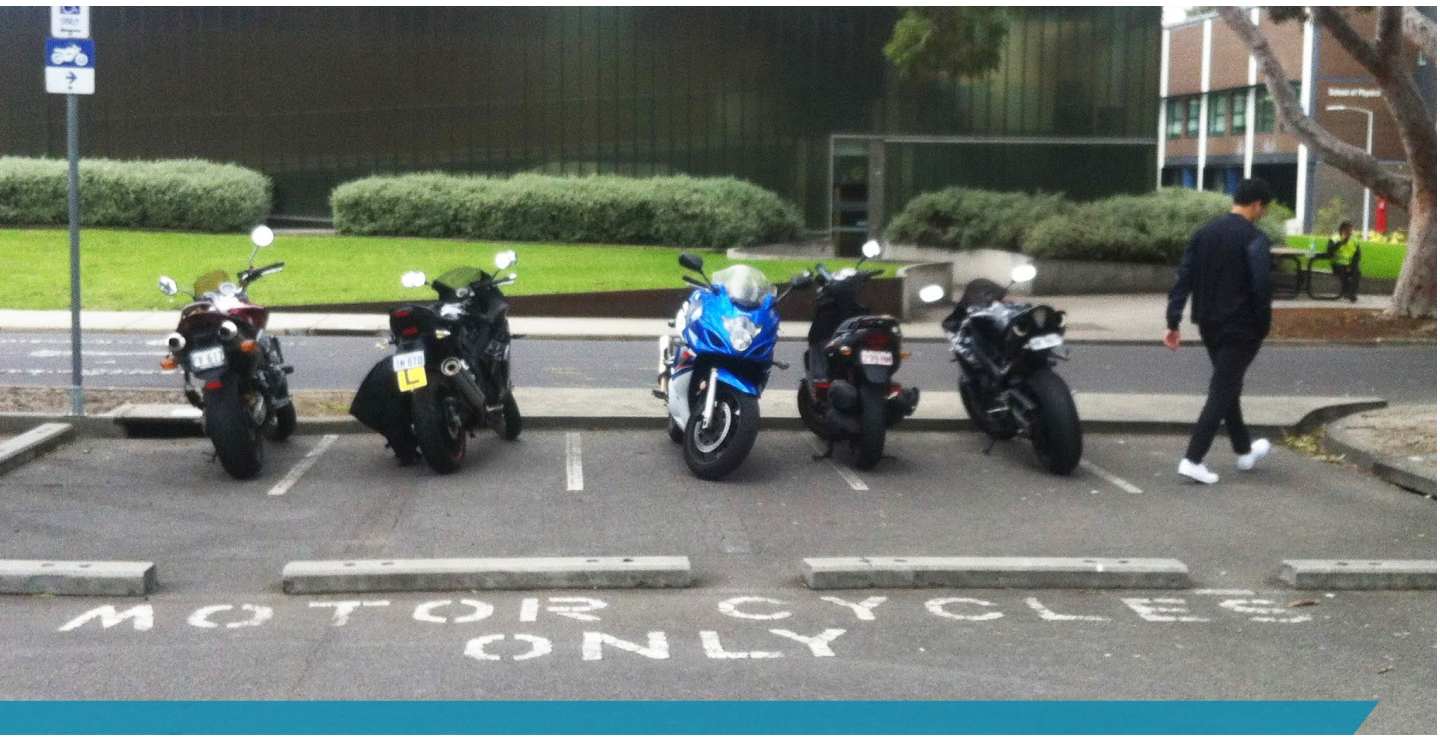
The separation of titles for the dwelling unit and car park would enable property owners to treat unused car parking space as an income generating asset. The car parking space could be leased to provide additional income, which may offset the additional cost of purchasing a new apartment or property with a car space included.

Stratum subdivision of a building is not limited to large inner-city office towers, it may also be utilised by small land owners such as clubs and other organisations which seek to take advantage of a commercially viable site by selling off commercial or residential units while retaining totally self-contained car parking supply.

4. Flexible development form

Development form that is designed as car parking supply in the short term but can be converted to housing as land use demands change is a new trend in inner urban areas. This type of development form usually accommodates higher ceiling heights in the car parking structure to accommodate the services required and standards for residential dwellings.

This type of development may be suited to locations around the MEC and on the fringes of activity centres with strong access to public transport services such as Oakleigh, Glen Waverley, Huntingdale and Clayton.



Goals

- Review car parking requirements for new developments in locations with good access to public transport, recognising the impact generous car parking provision has on reducing the competitiveness of sustainable mobility
- Minimise the impact of vehicle congestion and improve the efficiency of kerbside road space
- Creating a balance between provision of sufficient parking capacity at activity centres and transport hubs, and providing a safe and accessible street environment for pedestrians and cyclists
- Support high pedestrian and streetscape amenity in areas which are predominantly residential
- Ensure that parking solutions accommodate people with disabilities so that they can participate in day-to-day activities across the city
- Encourage residents to reduce reliance on private vehicle use
- Support innovation and new technologies in parking management
- Consider alternative future uses for road space currently occupied by car parking
- Provide transparency and consistency in Council decision making on the allocation of kerbside space

Actions

E.1	Encourage all property occupiers who have access to off-street parking to maximise its use.
E.2	Prioritise access to car parking for disadvantaged community members.
E.3	Implement a street space management strategy to include roadside kerb space priority.
E.4	Continue to research demand and potential for paid parking/demand responsive pricing.
E.5	Investigate the potential for new car share schemes in new larger residential developments.
E.6	Encourage car parking in all new developments (including off-street parking facilities) to be compatible to electric vehicle charging.
E.7	Ensure restrictions, signage and road marking associated with parking is clear and unambiguous.
E.8	Apply consultative approach to parking management with: • Traffic and parking conditions assessed against Parking Demand Management Framework principles (to be developed) • Facilities which generate specific traffic & parking issues addressed with systematic approach • Specific management around schools & narrow streets
E.9	Provide information to new residents and property owners explaining the permit parking scheme to improve awareness around eligibility for parking permits.
E.10	Investigate incrementally modifying 24-hour permit parking signage to time-based restrictions where resident parking permit holders are exempt. This will improve the efficiency of on-street supply & improve accessibility for other users in times when parking demand from residents is lower.
E.11	Prepare parking database to collate information on total number, location and occupancy of parking spaces in Activity Centres to assist with future planning and assessment.
E.12	Apply a consistent policy for management of parking around construction sites, including such measures as temporary paid permits and/or permit zones.
E.13	Develop guidelines to deal with new development applications for a reduction in the Planning Scheme Visitor Parking Provision, which includes consideration for local parking conditions and expected parking supply and demand.
E.14	Investigate the impacts of paid kerbside car parking in Activity Centres to manage demand and enhance amenity of the street, consistent with best practice.
E.15	Consider policies to reduce the impact of car parking in the future, including within Activity Centres and around key land use hubs within Monash.
E.16	Continue to investigate and invest in new technologies and car parking best practice to promote the most efficient use of space allocated to car parking within Monash.

5 Project Delivery

Governance and Resourcing

Council's main responsibilities are to set the overall directions and goals for the municipality and then monitor their implementation and success. The tools for setting these directions and goals are the major strategic plans, such as the Monash ITS.

A key component of the successful realisation of the goals and vision of the Monash ITS will be Council establishing the appropriate governance structures and committing to the level of resourcing required to effectively deliver and monitor project actions. The advocacy required for many of the recommended actions will be much more influential through Council demonstrating leadership and commitment to the process.

To achieve such an outcome, it is recommended that Council provide a dedicated staff resource with the primary role of delivering, monitoring and reviewing Monash ITS projects. Such a resource should be supported by a steering committee made up of senior Council staff members able to guide and direct the delivery of actions, and enlist the assistance of other Council departments as necessary.

It is also recommended that Council establish and maintain regular dialogue and a meeting schedule with external stakeholders who are important partners in the delivery of the Monash ITS actions. Such groups would include representatives of VicRoads, Public Transport Victoria, Department of Economic Development, Jobs, Transport and Resources, neighbouring Councils, Monash University and other key stakeholder groups.

In order to assist in project monitoring, there is a need for greater understanding of travel behaviour and patterns across Monash. This can be achieved through conducting regular travel surveys, and documenting the impacts of the growth of the Monash Employment Cluster and ongoing residential infill development.

Project Prioritisation

The range of recommended transport actions set out in Chapter 4 of the Monash ITS will be prioritised to enable Council to focus on both the areas which need immediate attention and actions which will have the most beneficial long term impact.

Prioritisation of actions will be influenced by a number of factors including; project work already underway; the ability to deliver the most significant sustainable transport outcomes; safety and amenity impacts; feasibility of implementation; and the ability to deliver the best possible community benefits within Council's resources.

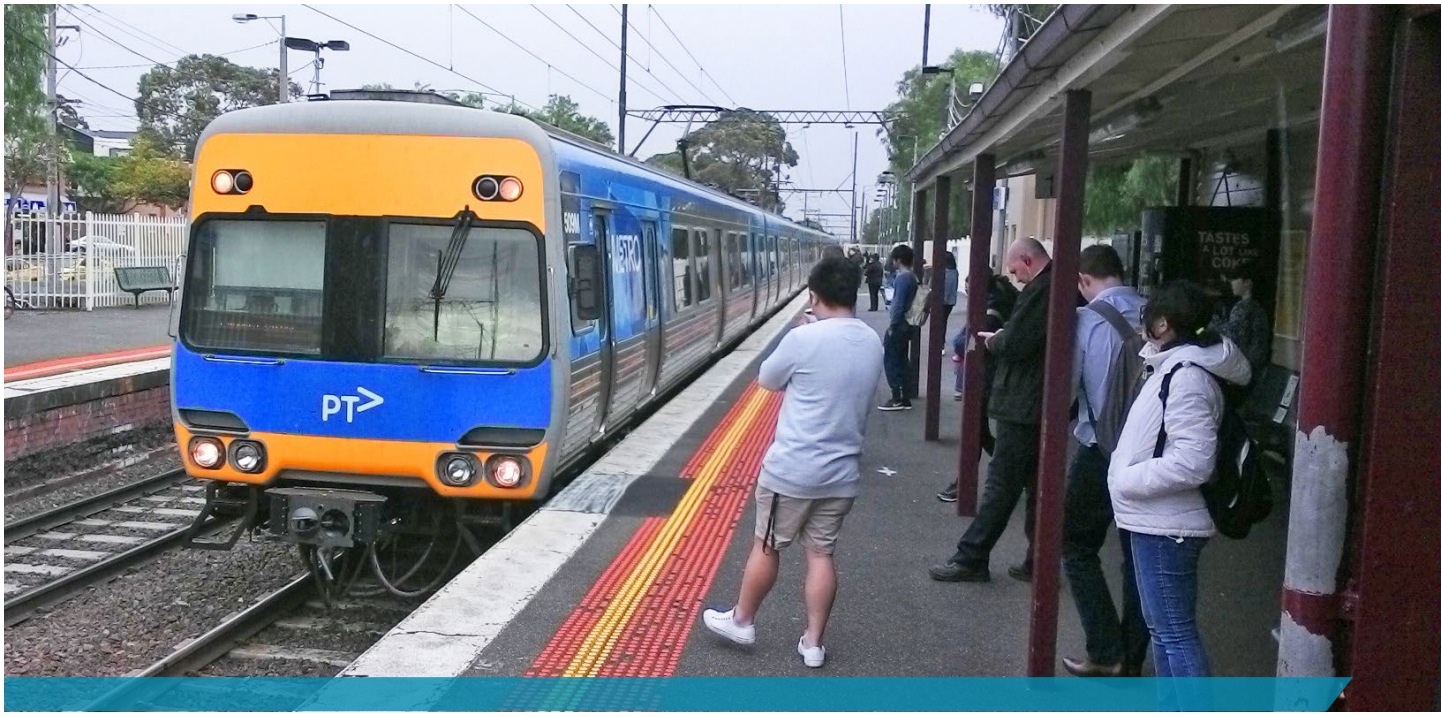
Project priority will also take into account the potential for the action to contribute to the four areas of community benefits identified in Monash 2021 and outlined in Section 1.

Measuring project success

Due to the range of social, economic and environmental factors which influence strategic integrated transport and land use planning, measuring the successful identification and implementation of actions can prove difficult. However, to assist in effective business case development and demonstrating the benefits of investment in transport infrastructure, a number of performance measures will be incorporated into the project implementation planning.

Monitoring

The Monash ITS will be subject to a review every five years to monitor and evaluate progress and to update the plan as required.



6 Implementation

The Integrated Transport Strategy sets a high level strategic direction for transport planning in Monash over the next 20 years aimed at achieving the Monash 2021 vision of Monash as 'A thriving community now and in the future'. The ITS is complemented by a range of more detailed plans prepared by Council to identify key actions to achieve the overall strategic direction. The plans directly related to the ITS are reviewed in detail in the Literature Review supporting document to the ITS and include:

- Monash Walking and Cycling Strategy 2012-2022
- Monash Road Management Plan 2013
- Monash Residential Parking Scheme 2015
- Monash Road Safety Strategic Plan 2001
- City of Monash: 2013-2017 Economic Development Strategy and Action Plan
- Monash Access & Equity Framework 2013-2017
- Monash Disability Action Plan 2013-2017
- Monash Environmental Sustainability Roadmap 2011-2015
- Monash Environmental Sustainability Strategy 2016-2026, Draft
- Age Friendly Monash: A Positive Ageing Plan 2015-2019
- Monash Health and Wellbeing Partnership Plan 2013-2017
- Activity Centre Structure Plans and Public Transport Advocacy Statements

The role of implementation is performed through these complementary strategies and plans, all of which share Council's vision of a planned, connected and liveable city. The relationship between these and the Integrated Transport Strategy is depicted on Page 23 of the ITS.

All recommended strategic transport actions have been allocated into one of three categories to enable Council to focus on both the areas which need immediate attention and actions which will have the most beneficial long term impact. The categories are:

Short Term

Projects with a high priority that are generally in the control of Council and can be delivered in the next 1-3 years.

Medium Term

Projects that will require a greater level of planning, investment and stakeholder engagement or partnerships which can be delivered in the next 4-7 years.

Long Term

More complex or higher cost infrastructure projects with a delivery timeframe of 7 years +.

All project actions and estimated financial implications for Council and/or external authorities are set out in the tables included below.

Short Term 1-3 years

Action/Governance

Review and update Council's land use framework and ensure integration with strategic transport planning as part of the Monash Planning Scheme review process.

Ref	Element	Financial Implications
A: A safer network		
A1	Adopt a Vision Zero/Safe Systems approach to all transport policy and investment decisions, consistent with the TAC, VicRoads and other state agencies.	Existing resources
A2	Implement lower, time-based speed limits on appropriate local streets such as around schools, Activity Centres and areas of high pedestrian activity.	<$50K
A3	Seek VicRoads approval to implement appropriate speed limit signs on all arterial road service lanes to improve cyclist safety.	<$50K
A4	Advocate for VicRoads to introduce time-based 40km/h speed limits on arterial road shopping strips.	$50K-$250K
A5	Conduct precinct/catchment based safety reviews around schools and implement measures to eliminate perceived and real safety risks, with the goal of both increasing active travel to school and reducing crashes.	$50K/site
A6	Perform review of local road locations with a record of serious crashes and apply a Safe Systems approach to reducing identified risks.	Existing resources
A7	Continue a local area traffic management approach for residential neighbourhoods based on the Safe Systems approach, and encourage vehicles to use major roads. This could include lower speed limits, traffic calming measures such as road humps, and intersection treatments.	$250K+/site
A9	Review conditions (such as lighting, sightlines, activation, public surveillance, vegetation) affecting perceived safety around public transport hubs. Use the results of the review to make improvements where required, increasing perceptions of security and crime deterrence.	$50K-$250K
A10	Develop an audit program for Council shared paths and links, commencing with the Scotchmans Creek and Gardiners Creek shared paths, with regard to width, vegetation, smoothness, corners, gradient, lighting and signage, recognising both the recreational and transport function these paths provide. Implement recommendations arising from audit.	Existing resources
B: A more accessible Monash		
B1	Identify key origins and destinations and travel demand generators across Monash to inform accessibility priorities and requirements.	<$50K
B7	Encourage DDA compliant public-access links (walking and cycling) within Activity Centre boundaries and the Monash Employment Cluster (including through new development sites) to contribute to improved local permeability and access.	Existing resources

Short Term 1-3 years (continued)

Ref	Element	Financial Implications
B: A more accessible Monash (continued)		
B8	Implement mechanisms to increase the number and quality of public space connections and capacity for priority walking and cycling routes within and to Activity Centres.	Existing resources
B11	Support and promote working from home for employees in Monash, and promote to businesses located in Monash.	$50K-$250K
B12	Encourage and support schools to prepare Green Travel Plans for students and staff. Prepare a Green Travel Plan template to help schools encourage sustainable travel behaviour.	Existing resources
C: Promote sustainable transport		
C3	Adopt a Road User Hierarchy, giving priority to active and public transport where practicable and use this hierarchy to help guide policy and infrastructure planning decisions.	Existing resources
C6	In conjunction with VicRoads, create safer crossings at unsignalised locations that have high pedestrian demand or a history of serious injury/fatality.	$250K +
C8	Continue to invest a minimum of $10/resident/year on the pedestrian network.	$250K +
C10	Advocate for VicRoads to include future potential use in their criteria for increasing pedestrian priority at signals where demand can be induced.	Existing resources
C13	Ensure new developments encourage walking by requiring developers to increase permeability and connectivity to the surrounding area, and integration with nearby existing pedestrian corridors.	Existing resources
C14	Support local schools in participating in VicHealth's annual 'Walk to School' programme and promoting ride to school initiatives, drawing on successful actions and campaigns from other municipalities.	Existing resources
C16	Identify convenient walking routes to local schools and identify and promote these routes through wayfinding such as footpath markings.	$50K-$250K
C17	Continue to increase funding for bicycle infrastructure by at least 10% per annum, from $515,000 in 2015/16.	$50K-$250K
C19	Update Walking and Cycling Strategy to specifically address, encourage and promote walking and cycling modeshare.	$50K-$250K
C22	Collaborate with PTV to review bicycle parking at train stations, and increase supply in locations in which demand is high relative to supply.	$50K-$250K
C27	Advocate to PTV for a bus network review in collaboration with key stakeholders, to identify where routes could be altered to provide more direct routes and better connectivity, and where new routes could be implemented.	<$50K

Short Term 1-3 years (continued)

Ref	Element	Financial Implications
C: Promote sustainable transport (continued)		
C35	Continue to advocate to the State Government for the provision of a heavy or light rail service on the corridor to Rowville with stations at Monash University, Mulgrave, Waverley Park and Rowville. This is consistent with recommendations of the Rowville Rail Study and is included in the PTV Network Development Plan.	Existing resources
C37	Encourage the development of a Car Share Policy for Monash, which will provide additional transport options in areas of high car demand, such as Activity Centres and within new developments. This policy should also recognise the role of peer-to-peer carshare services.	<$50K
D: Support productivity		
D1	Advocate for the construction of the completion of Westall Road to improve road network capacity and freight efficiency.	Existing resources
E: Manage car parking		
E1	Encourage all property occupiers who have access to off-street parking to maximise its use.	Existing resources
E2	Prioritise access to car parking for disadvantaged community members.	Existing resources
E3	Implement a street space management strategy to include roadside kerb space priority.	<$50K
E5	Investigate the potential for new car share schemes in new larger residential developments.	Existing resources
E7	Ensure restrictions, signage and road marking associated with parking is clear and unambiguous.	$50K-$250K
E9	Provide information to new residents and property owners explaining the permit parking scheme to improve awareness around eligibility for parking permits.	<$50K
E11	Prepare a parking database to collate information on total number, location and occupancy of parking spaces in Activity Centres to assist with future planning and assessment.	Existing resources
E12	Apply a consistent policy for management of parking around construction sites, including such measures as temporary paid permits and/or permit zones.	Existing resources
E13	Develop guidelines to deal with new development applications for a reduction in the Planning Scheme Visitor Parking Provision, which includes consideration for local parking conditions and expected parking supply and demand.	Existing resources
E14	Investigate the impacts of paid kerbside car parking in Activity Centres to manage demand and enhance amenity of the street, consistent with best practice.	$50K-$250K

Medium Term 4-7 years

Ref	Element	Financial Implications
A: A safer network		
A8	Continue assessment of speed limit non-compliance and where appropriate work with VicRoads and Victoria Police to implement strategies to increase compliance, such as the use of advisory speed trailers in areas where speed has been identified as a problem or areas with recently lowered speed limits.	<$50K
B: A more accessible Monash		
B2	Continue to implement a comprehensive, consistent wayfinding strategy, based on best practice, to assist all users in seeking out the simplest and most direct route between locations and transport mode across the municipality, and invite a collaborative approach with adjoining Councils.	$50K-$250K
B4	Investigate the number, location, accessibility and capacity of Council's taxi ranks throughout the municipality, and upgrade as required.	$50K-$250K
B5	Explore options for an extended transport service comprising of local bus routes utilising small buses to connect residential areas in Monash with activity centres, regional transport hubs and services, medical and leisure facilities.	$250K +
B6	Explore best practice processes in using and monitoring Green Travel Plans as part of planning permit conditions, with a view to determining the criteria of appropriate development to which Green Travel Plans would be required.	Existing resources
B10	Investigate options to improve the availability and condition of pedestrian and bicycle routes and facilities, and public transport services for each activity centre in Monash to address barriers and improve access.	$50K-$250K
C: Promote sustainable transport		
C1	Conduct an assessment of current and emerging transport technologies, their likely impacts on Monash and actions Monash can take to capitalise on their benefits and opportunities. This may include App based ride services (e.g. UberX and Uber Pool), autonomous vehicles (including on demand public transport), electric vehicles and App based, multimodal journey planning. These technologies are likely to reduce the need for vehicle ownership, with substantial impacts on future car parking requirements.	Existing resources
C2	Advocate to PTV to investigate implementing a trial of mini-buses to act as a feeder service to a train station in Monash. Use the trial to draft a policy determining the future role mini-buses or other alternatives could play in providing a public transport feeder service within City of Monash's mile-grids.	$50K-$250K
C4	Work with State Government to plan for the expansion of the Monash Employment Cluster (MEC) by developing transport plans that prioritise access by walking, cycling and public transport.	$50K-$250K

Medium Term 4-7 years

Ref	Element	Financial Implications
C: Promote sustainable transport (continued)		
C5	Work with VicRoads to coordinate pedestrian crossing cycles on divided arterial roads in line with current industry guidelines around integrated transport and land use planning.	Existing resources
C7	Develop and implement minimum Levels of Service for the pedestrian network based around footpath width, lighting levels, crossing points, and DDA (1992) standards of access. Review existing footpaths against this standard, and make improvements where necessary.	$50K-$250K
C9	Advocate to VicRoads to increase the number of pedestrian priority crossing links across the municipality, connecting Activity Centres, public transport nodes with residential areas, based on existing and expected demand.	$250K +
C11	Work with VicRoads to progress the installation of on-demand Pedestrian Operated Signals on arterial roads.	<$50K
C12	Work with VicRoads for longer pedestrian crossing times at signals where particular needs are identified.	Existing resources
C15	Embark on an 'urban forest' strategy which prioritises tree planting along convenient pedestrian routes, providing increased visual amenity and shade from the sun during summer months.	$50K-$250K
C18	Review the existing bicycle infrastructure network, for gaps and safety issues, in line with best practice standards and connection to Activity Centres, public transport hubs, shopping centres, schools and major employment centres.	Existing resources
C20	Create high quality protected bicycle infrastructure within 2km of train stations to encourage cycle access to public transport.	$250K +
C21	Increase bicycle parking opportunities at key destinations across Monash and engage with the community to understand the level of demand for bicycle parking not currently being met.	$50K-$250K
C23	Advocate to VicRoads to hasten the implementation of bicycle infrastructure consistent with the Strategic Cycling Corridors, Bicycle Priority Routes (BPR) and PBN routes running along declared roads to create a cohesive set of interconnected routes and address missing links in the cycle network.	Existing resources
C24	Enter a dialogue with Monash University regarding the prospect of expanding their bike share program to cover neighbouring Activity Centres, railway stations, and the Monash Medical Centre. If successful, the scheme would, in collaboration with Monash University, become an important additional transport mode for accessing the Monash Employment Cluster.	Existing resources

Medium Term 4-7 years (continued)

Ref	Element	Financial Implications
C: Promote sustainable transport (continued)		
C25	Work with PTV to implement bus interchange upgrades at Glen Waverley and Oakleigh Rail Stations.	$50K-$250K
C26	Advocate for improved bus services and routes into key commercial and industrial employment areas, particularly the Monash Employment Cluster and Notting Hill.	<$50K
C28	Advocate for PTV to improve the frequencies of SmartBus routes 703 and 900 to provide fast, frequent connections between Monash University and Huntingdale, Clayton and Syndal railway stations.	Existing resources
C29	Advocate for PTV to upgrade existing, heavily patronised routes to SmartBus standards of service and stop infrastructure.	Existing resources
C30	Work with VicRoads and PTV for increased bus priority along congested roads marked as 'Bus Priority Routes' in VicRoads SmartRoads mapping, and at major intersections. Improvements could include bus lanes and bus priority signals.	Existing resources
C31	Advocate to PTV to increase frequencies and operating hours of buses, especially on major arterial roads, aiming for a maximum 10-minute wait during peak hours and a maximum 20-minute wait off-peak.	Existing resources
C32	Work with PTV, Metro Trains Melbourne and local bus operators to minimise passenger waiting times by coordinating timetables at key interchange points, including: Chadstone Shopping Centre; Oakleigh Station; Huntingdale Station; Monash University; Clayton Station; Waverley Gardens Shopping Centre; and Glen Waverley Station and Activity Centre. This will increase the attractiveness of public transport, and reduce the strain on existing parking infrastructure at railway stations.	Existing resources
C33	Perform a review of bus stops level of service and use the results to advocate to PTV to improve conditions at bus stops. Improvements would take the form of increased accessibility and safety for those boarding and enhancing waiting facilities including shelters, lighting and real-time passenger information displays at bus stops.	Existing resources
C34	In conjunction with PTV and local bus operators, investigate installing kerb extensions in shopping strips and activity centres, to improve accessibility for public transport users.	$50K-$250K
C36	Advocate to the State Government for financial support to implement a TravelSmart programme for households, schools and workplaces across Monash.	$50K-$250K
C39	Advocate to PTV for a high frequency Smart Bus / shuttle service that links Knox with Glen Waverley Station providing a seamless connection and reducing parking demand.	Existing resources

Medium Term 4-7 years (continued)

Ref	Element	Financial Implications
D: Support productivity		
D3	Work with VicRoads to undertake a review of freight compatible road transport routes and discourage freight and heavy traffic movements in areas allocated as bicycle and pedestrian priority under the SmartRoads designations.	<$50K
D5	Adoption of solutions such as the 'last kilometre' initiatives, street access, scheduling of deliveries, way-finding, vehicle types, mode options and technological advances to assist the distribution of freight within MEC.	$50K-$250K
D6	Work with major employers to provide travel demand management programs focused on encouraging sustainable mobility, flexible start/finish times and work from home policies.	Existing resources
D7	Advocate to PTV for lower off peak fares, to encourage increased travel at off peak times.	Existing resources
D8	Collaborate with RACV, other councils and state agencies to investigate the impacts of road user pricing, to increase the productivity and efficiency of the road network, including its impact on managing congestion and through-traffic/ rat running in City of Monash. The Road User Charge could be introduced as a replacement of vehicle registration fees (State Government) and fuel excise (Federal Government). Advocate to State Government for some proceeds from road pricing be provided back to affected Councils for active transport upgrades.	Existing resources
D9	Undertake a comprehensive travel survey to gain a greater understanding of travel behaviour and patterns across Monash, including impacts of the growth of the Monash Employment Cluster (MEC) and ongoing residential infill development.	$50K-$250K
E: Manage car parking		
E4	Continue to research demand and potential for paid parking/demand responsive pricing.	<$50K
E6	Encourage car parking in all new developments (including off-street parking facilities) to be compatible to electric vehicle charging.	Existing resources
E8	Apply consultative approach to parking management with: • Traffic and parking conditions assessed against Parking Demand Management Framework principles (to be developed) • Facilities which generate specific traffic & parking issues addressed with systematic approach • Specific management around schools & narrow streets	Existing resources

Long Term 7 years +

Ref	Element	Financial Implications
B: A more accessible Monash		
B3	Consider needs of all users of the network and continue to advocate for and provide DDA compliant infrastructure and services across Monash to increase transport accessibility, access and choice for all members of the community.	$250K +
B9	Improve public realm and connectivity, and promote high intensity of mixed land use around grade separation projects.	$50K-$250K
C: Promote sustainable transport		
C38	Advocate to VicRoads as part of the Westall Road completion for improved bicycle routes and bus improvements along or parallel to Blackburn Road, Springvale Road and Clayton Road.	$250K +
D: Support productivity		
D2	Continue to work with State Government stakeholders including the Level Crossing Removal Authority to prioritise and promote the maximum local benefit from the proposed grade separation projects at Clayton Road, Centre Road and Poath Road.	$50K-$250K
D4	Promote road network efficiency by encouraging freight movements outside times of peak commuter demand on the arterial road network, such as late at night and early in the mornings.	<$50K
E: Manage car parking		
E15	Consider policies to reduce the impact of car parking in the future, including within Activity Centres and around key land use hubs within Monash.	Existing resources
E16	Continue to investigate and invest in new technologies and car parking best practice to promote the most efficient use of space allocated to car parking within Monash.	Existing resources

A: A Safer Network

Objectives and goals	Action	
	Ref	Element
i. Eliminate serious injuries and fatalities on Monash roads by embracing the Vision Zero approach in all transport and land use decisions ii. Improve safety on and around public transport iii. Increase safety for shared path users iv. Create walking and cycling priority zones around schools, to make active transport the mode of choice	A1	Adopt a Vision Zero/Safe Systems approach to all transport policy and investment decisions, consistent with the TAC, VicRoads and other state agencies.
	A2	Implement lower, time-based speed limits on appropriate local streets such as around schools, Activity Centres and areas of high pedestrian activity.
	A3	Seek VicRoads approval to implement appropriate speed limit signs on all arterial road service lanes to improve cyclist safety.
	A4	Advocate for VicRoads to introduce time-based 40km/h speed limits on arterial road shopping strips.
	A5	Conduct precinct/catchment based safety reviews around schools and implement measures to eliminate perceived and real safety risks, with the goal of both increasing active travel to school and reducing crashes.
	A6	Perform review of local road locations with a record of serious crashes and apply a Safe Systems approach to reducing identified risks.
	A7	Continue a local area traffic management approach for residential neighbourhoods based on the Safe Systems approach, and that encourage vehicles to use major roads. This could include lower speed limits, traffic calming measures such as road humps, and intersection treatments.
	A8	Continue assessment of speed limit non-compliance and where appropriate work with VicRoads and Victoria Police to implement strategies to increase compliance, such as the use of advisory speed trailers in areas where speed has been identified as a problem, or areas with recently lowered speed limits.
	A9	Review conditions (such as lighting, sightlines, activation, public surveillance, vegetation) affecting perceived safety around public transport hubs. Use the results of the audit to make improvements where required, increasing perceptions of security and crime deterrence.
	A10	Develop an audit program for Council shared paths and links, commencing with the Scotchmans Creek and Gardiners Creek shared paths, with regard to width, vegetation, smoothness, corners, gradient, lighting and signage, recognising both the recreational and transport function these paths provide. Implement recommendations arising from audit.

Short Term Medium Term Long Term

B: A more accessible Monash

Objectives and goals	Action	
	Ref	Element
i. Provide a range of viable transport choices for access to and within Monash ii. Address social and economic barriers to transport choice iii. Reduce the need for travel and length of trips iv. Achieve higher density mixed development around public transport v. Provide a safe, high amenity public realm that encourages walking, cycling and street activity vi. Make the most efficient use of existing street space	B1	Identify key origins and destinations and travel demand generators across Monash to inform accessibility priorities and requirements.
	B2	Continue to implement a comprehensive, consistent wayfinding strategy, based on best practice, to assist all users in seeking out the simplest and most direct route between locations and transport mode across the municipality, and invite a collaborative approach with adjoining Councils.
	B3	Consider needs of all users of the network and continue to advocate for and provide DDA compliant infrastructure and services across Monash to increase transport accessibility, access and choice for all members of the community.
	B4	Investigate the number, location, accessibility and capacity of Council's taxi ranks throughout the municipality, and upgrade as required.
	B5	Explore options for an extended transport service comprising of local bus routes utilising small buses to connect residential areas in Monash with activity centres, regional transport hubs and services, medical and leisure facilities.
	B6	Explore best practice processes in using and monitoring Green Travel Plans as part of planning permit conditions, with a view to determining the criteria of appropriate development to which Green Travel Plans would be required.
	B7	Encourage DDA compliant public-access links (walking and cycling) within Activity Centre boundaries and the Monash Employment Cluster (including through new development sites) to contribute to improved local permeability and access.
	B8	Implement mechanisms to increase the number and quality of public space connections and capacity for priority walking and cycling routes within and to Activity Centres.
	B9	Improve public realm and connectivity, and promote high intensity of mixed land use around grade separation projects.
	B10	Investigate options to improve the availability and condition of pedestrian and bicycle routes and facilities, and public transport services for each activity centre in Monash to address barriers and improve access.
	B11	Support and promote working from home for employees in Monash, and promote to businesses located in Monash.
	B12	Encourage and support schools to prepare Green Travel Plans for students and staff. Prepare a Green Travel Plan template to help schools encourage sustainable travel behaviour.

C: Promote Sustainable Transport

Objectives and goals	Action	
	Ref	Element
i. Encourage the use of more sustainable transport modes ii. Increase the attractiveness of walking, through implementing Pedestrian Oriented Design (POD) iii. Apply a Road User Hierarchy principles to complement SmartRoads iv. Increase public transport mode share by making it a more attractive and reliable option v. Increase bicycle mode share across Monash, for all trip purposes vi. Eliminate 'missing links' and 'missing connections' in cycle and walking network vii. Encourage the use of walking and cycling as the 'default mode' to access public transport viii. Plan for the role technology will play in lowering car ownership requirements ix. Reduce car dependence and usage x. Encourage a move from petrol and diesel to low-emission fuels	C1	Conduct an assessment of current and emerging transport technologies, their likely impacts on Monash and actions Monash can take to capitalise on their benefits and opportunities. This may include App based ride services (e.g. UberX and Uber Pool), autonomous vehicles (including on demand public transport), electric vehicles and App based, multimodal journey planning. These technologies are likely to reduce the need for vehicle ownership, with substantial impacts on future car parking requirements.
	C2	Advocate to PTV to investigate implementing a trial of mini-buses to act as a feeder service to a train station in Monash. Use the trial to draft a policy determining the future role mini-buses or other alternatives could play in providing a public transport feeder service within City of Monash's mile-grids.
	C3	Adopt a Road User Hierarchy, giving priority to active and public transport where practicable, and use this hierarchy to help guide policy and infrastructure planning decisions.
	C4	Work with State Government to plan for the expansion of the Monash Employment Cluster (MEC) by developing transport plans that prioritise access by walking, cycling and public transport.
	C5	Work with VicRoads to coordinate pedestrian crossing cycles on divided arterial roads in line with current industry guidelines around integrated transport and land use planning.
	C6	In conjunction with VicRoads, create safer crossings at unsignalised locations that have high pedestrian demand or a history of serious injury/fatality.
	C7	Develop and implement minimum Levels of Service for the pedestrian network based around footpath width, lighting levels, crossing points, and DDA (1992) standards of access. Review existing footpaths against this standard, and make improvements where necessary.
	C8	Continue to invest a minimum of $10 per resident, per year on the pedestrian network.
	C9	Advocate to VicRoads to increase the number of pedestrian priority crossing links across the municipality, connecting Activity Centres, public transport nodes with residential areas, based on existing and expected demand.

Short Term Medium Term Long Term

C: Promote Sustainable Transport (continued)

Objectives and goals	Action	
	Ref	Element
i. Encourage the use of more sustainable transport modes ii. Increase the attractiveness of walking, through implementing Pedestrian Oriented Design (POD) iii. Apply a Road User Hierarchy principles to complement SmartRoads iv. Increase public transport mode share by making it a more attractive and reliable option v. Increase bicycle mode share across Monash, for all trip purposes vi. Eliminate 'missing links' and 'missing connections' in cycle and walking network vii. Encourage the use of walking and cycling as the 'default mode' to access public transport viii. Plan for the role technology will play in lowering car ownership requirements ix. Reduce car dependence and usage x. Encourage a move from petrol and diesel to low-emission fuels	C10	Advocate for VicRoads to include future potential use in their criteria for increasing pedestrian priority at signals where demand can be induced.
	C11	Work with VicRoads to progress the installation of on-demand Pedestrian Operated Signals on arterial roads.
	C12	Work with VicRoads for longer pedestrian crossing times at signals where particular needs are identified.
	C13	Ensure new developments encourage walking by requiring developers to increase permeability and connectivity to the surrounding area, and integration with nearby existing pedestrian corridors.
	C14	Support local schools in participating in VicHealth's annual 'Walk to School' programme and promoting ride to school initiatives, drawing on successful actions and campaigns from other municipalities.
	C15	Embark on an 'urban forest' strategy which prioritises tree planting along convenient pedestrian routes, providing increased visual amenity and shade from the sun during summer months.
	C16	Identify convenient walking routes to local schools and identify and promote these routes through wayfinding such as footpath markings.
	C17	Continue to increase funding for bicycle infrastructure by at least 10% per annum, from $515,000 in 2015/16.
	C18	Review the existing bicycle infrastructure network, for gaps and safety issues, in line with best practice standards and connection to Activity Centres, public transport hubs, shopping centres, schools and major employment centres.
	C19	Update Walking and Cycling Strategy to specifically encourage and promote walking and cycling modeshare.
	C20	Create high quality protected bicycle infrastructure within 2km of train stations to encourage cycle access to public transport.
	C21	Increase bicycle parking opportunities at key destinations across Monash and engage with the community to understand the level of demand for bicycle parking not currently being met.

Short Term Medium Term Long Term

C: Promote Sustainable Transport (continued)

Objectives and goals	Action	
	Ref	Element
i. Encourage the use of more sustainable transport modes ii. Increase the attractiveness of walking, through implementing Pedestrian Oriented Design (POD) iii. Apply a Road User Hierarchy principles to complement SmartRoads iv. Increase public transport mode share by making it a more attractive and reliable option v. Increase bicycle mode share across Monash, for all trip purposes vi. Eliminate 'missing links' and 'missing connections' in cycle and walking network vii. Encourage the use of walking and cycling as the 'default mode' to access public transport viii. Plan for the role technology will play in lowering car ownership requirements ix. Reduce car dependence and usage x. Encourage a move from petrol and diesel to low-emission fuels	C22	Collaborate with PTV to review bicycle parking at train stations, and increase supply in locations in which demand is high relative to supply.
	C23	Advocate to VicRoads to hasten the implementation of bicycle infrastructure consistent with the Strategic Cycling Corridors, Bicycle Priority Routes (BPR) and PBN routes running along declared roads to create a cohesive set of interconnected routes and address missing links in the cycle network.
	C24	Enter a dialogue with Monash University regarding the prospect of expanding their bike share program to cover neighbouring Activity Centres, railway stations, and the Monash Medical Centre. If successful, the scheme would, in collaboration with Monash University, become an important additional transport mode for accessing the Monash Employment Cluster.
	C25	Work with PTV to implement bus interchange upgrades at Glen Waverley and Oakleigh Rail Stations.
	C26	Advocate for improved bus services and routes into key commercial and industrial employment areas, particularly the Monash Employment Cluster and Notting Hill.
	C27	Advocate to PTV for a bus network review in collaboration with key stakeholders, to identify where routes could be altered to provide more direct routes and better connectivity, and where new routes could be implemented.
	C28	Advocate for PTV to improve the frequencies of SmartBus routes 703 and 900 to provide fast, frequent connections between Monash University and Huntingdale, Clayton and Syndal railway stations.
	C29	Advocate for PTV to upgrade existing, heavily patronised routes to SmartBus standards of service and stop infrastructure.
	C30	Work with VicRoads and PTV for increased bus priority along congested roads marked as 'Bus Priority Routes' in VicRoads SmartRoads mapping, and at major intersections. Improvements could include bus lanes and bus priority signals.
	C31	Advocate to PTV to increase frequencies and operating hours of buses, especially on major arterial roads, aiming for a maximum 10-minute wait during peak hours and a maximum 20-minute wait off-peak.

Short Term Medium Term Long Term

C: Promote Sustainable Transport (continued)

Objectives and goals	Action	
	Ref	Element
i. Encourage the use of more sustainable transport modes ii. Increase the attractiveness of walking, through implementing Pedestrian Oriented Design (POD) iii. Apply a Road User Hierarchy principles to complement SmartRoads iv. Increase public transport mode share by making it a more attractive and reliable option v. Increase bicycle mode share across Monash, for all trip purposes vi. Eliminate 'missing links' and 'missing connections' in cycle and walking network vii. Encourage the use of walking and cycling as the 'default mode' to access public transport viii. Plan for the role technology will play in lowering car ownership requirements ix. Reduce car dependence and usage x. Encourage a move from petrol and diesel to low-emission fuels	C32	Work with PTV, Metro Trains Melbourne and local bus operators to minimise passenger waiting times by coordinating timetables at key interchange points, including: Chadstone Shopping Centre; Oakleigh Station; Huntingdale Station; Monash University; Clayton Station; Waverley Gardens Shopping Centre; and Glen Waverley Station and Activity Centre. This will increase the attractiveness of public transport, and reduce the strain on existing parking infrastructure at railway stations.
	C33	Perform a review of bus stops level of service and use the results to advocate to PTV to improve conditions at bus stops. Improvements would take the form of increased accessibility and safety for those boarding and enhancing waiting facilities including shelters, lighting and real-time passenger information displays at bus stops.
	C34	In conjunction with PTV and local bus operators, investigate installing kerb extensions in shopping strips and activity centres, to improve accessibility for public transport users.
	C35	Continue to advocate to the State Government for the provision of a heavy or light rail service on the corridor to Rowville with stations at Monash University, Mulgrave, Waverley Park and Rowville. This is consistent with recommendations of the Rowville Rail Study and is included in the PTV Network Development Plan.
	C36	Advocate to the State Government for financial support to implement a TravelSmart programme for households, schools and workplaces across Monash.
	C37	Encourage the development of a Car Share Policy for Monash, which will provide additional transport options in areas of high car demand, such as Activity Centres and within new developments. This policy should also recognise the role of peer-to-peer carshare services.
	C38	Advocate to VicRoads as part of the Westall Road completion for improved bicycle routes and bus improvements along or parallel to Blackburn Road, Springvale Road and Clayton Road.
	C39	Advocate to PTV for a high frequency Smart Bus / shuttle service that links Knox with Glen Waverley Station providing a seamless connection and reducing parking demand.

Short Term Medium Term Long Term

D: Support Productivity

Objectives and goals	Action	
	Ref	Element
i. Minimise the impacts of freight and logistics activity ii. Support activity centres development and access, provide for freight and servicing requirements iii. Maximise efficiency of freight movements iv. Support efficient freight, delivery and waste systems v. Address the local impacts of traffic demand exceeding road network supply	D1	Advocate for the construction of the completion of Westall Road to improve road network capacity and freight efficiency.
	D2	Continue to work with State Government stakeholders including the Level Crossing Removal Authority to prioritise and promote the maximum local benefit from the proposed grade separation projects at Clayton Road, Centre Road and Poath Road.
	D3	Work with VicRoads to undertake a review of freight compatible road transport routes and discourage freight and heavy traffic movements in areas allocated as bicycle and pedestrian priority under the SmartRoads designations.
	D4	Promote road network efficiency by encouraging freight movements outside times of peak commuter demand on the arterial road network, such as late at night and early in the mornings.
	D5	Adoption of solutions such as the 'last kilometre' initiatives, street access, scheduling of deliveries, way-finding, vehicle types, mode options and technological advances to assist the distribution of freight within MEC.
	D6	Work with major employers to provide travel demand management programs focused on encouraging sustainable mobility, flexible start/finish times and work from home policies.
	D7	Advocate to PTV for lower off peak fares, to encourage increased travel at off peak times.
	D8	Collaborate with RACV, other councils and state agencies to investigate the impacts of road user pricing, to increase the productivity and efficiency of the road network, including its impact on managing congestion and through-traffic/rat running in City of Monash. The Road User Charge could be introduced as a replacement of vehicle registration fees (State Government) and fuel excise (Federal Government). Advocate to State Government for some proceeds from road pricing be provided back to affected Councils for active transport upgrades.
	D9	Undertake a comprehensive travel survey to gain a greater understanding of travel behaviour and patterns across Monash, including impacts of the growth of the Monash Employment Cluster (MEC) and ongoing residential infill development.

Short Term Medium Term Long Term

E: Manage Car Parking

Objectives and goals	Action	
	Ref	Element
i. Review car parking requirements in new developments ii. Minimise vehicle congestion, create a safe environment and improve the efficiency of kerbside road space iii. Balance parking capacity with safe and accessible streets iv. Support amenity in areas which are predominantly residential v. Accommodate people with disabilities vi. Reduce reliance on private vehicle use vii. Support innovation and new technologies viii. Alternative future uses for road space ix. Transparency and consistency in Council decision making	E1	Encourage all property occupiers who have access to off-street parking to maximise its use.
	E2	Prioritise access to car parking for disadvantaged community members.
	E3	Implement a street space management strategy to include roadside kerb space priority.
	E4	Continue to research demand and potential for paid parking/demand responsive pricing.
	E5	Investigate the potential for new car share schemes in new larger residential developments.
	E6	Encourage car parking in all new developments (including off-street parking facilities) to be compatible to electric vehicle charging.
	E7	Ensure restrictions, signage and road marking associated with parking is clear and unambiguous.
	E8	Apply consultative approach to parking management with: • Traffic and parking conditions assessed against Parking Demand Management Framework principles (to be developed) • Facilities which generate specific traffic & parking issues addressed with systematic approach • Specific management around schools & narrow streets
	E9	Provide information to new residents and property owners explaining the permit parking scheme to improve awareness around eligibility for parking permits.
	E10	Investigate incrementally modifying 24-hour permit parking signage to time-based restrictions where resident parking permit holders are exempt. This will improve the efficiency of on-street supply & improve accessibility for other users in times when parking demand from residents is lower.
	E11	Prepare parking database to collate information on total number, location and occupancy of parking spaces in Activity Centres to assist with future planning and assessment.

Short Term Medium Term Long Term

E: Manage Car Parking (continued)

Objectives and goals	Action	
	Ref	Element
	E12	Apply a consistent policy for management of parking around construction sites, including such measures as temporary paid permits and/or permit zones.
	E13	Develop guidelines to deal with new development applications for a reduction in the Planning Scheme Visitor Parking Provision, which includes consideration for local parking conditions and expected parking supply and demand.
	E14	Investigate the impacts of paid kerbside car parking in Activity Centres to manage demand and enhance amenity of the street, consistent with best practice.
	E15	Consider policies to reduce the impact of car parking in the future, including within Activity Centres and around key land use hubs within Monash.
	E16	Continue to investigate and invest in new technologies and car parking best practice to promote the most efficient use of space allocated to car parking within Monash.

Short Term Medium Term Long Term

METRO
metlink

Glossary

Accessibility
The degree to which a place, service or environment is available to as many people as possible.

Active Transport
Transport requiring physical activity, typically walking and cycling.

Activity Centres
Suburban centres that provide a focus for services, employment, housing, transport and social interaction.

Amenity
Attractiveness, comfort or convenience.

Catchment
The area and population from which a transport hub attracts users or customers.

Central Business District
The commercial, geographic and/or civic heart of a city.

Connectivity
The number of connections to and from a particular place, the level and quality of access for transport users.

DEDJTR
Department of Economic Development Jobs Transport and Resources.

Environment
Our physical surrounds, including land, waters, atmosphere, climate, sounds, odours, animals and plants, as well as aesthetics.

Frontage
The part of a building immediately facing a road or footpath.

Housing Density
One of several measures that describe how intensively an urban area is developed usually measured in dwellings per hectare.

Infill
Development of unused or under-utilised land in existing urban areas. Most infill development sites are in inner and middle suburbs, offering the possibility of better utilising existing infrastructure to accommodate population growth.

Infrastructure
Systems and networks (both physical and non-physical) by which public services are delivered to citizens, including water supply, sanitation, energy, and transportation networks (physical), as well as education, healthcare, and business regulations (having non-physical attributes).

Integration
Combining or bringing together two separate entities. For example transport and land use integration.

Interface
A linkage or point of interaction between two separate entities. For example between parkland and a building.

Intermodal
Between transport modes.

Land Use
The different types of economic and social activities undertaken on a specific plot of land, including residential, commercial, government, and green spaces. As a system of categorisation, the concept is used to regulate what activities are permitted in various parts of a city.

Liveability
A measure of a city residents' quality of life, used to benchmark cities around the world. Includes socio-economic, environmental, transport, and recreational measures.

LATM
Local Area Traffic Management.

LXRA
Level Crossing Removal Authority.

Master Plan
A long-term visualisation of a city or other area, to be realised with future development. It uses maps in assigning the intended land use for each part of the city, such as the allocation of residential or manufacturing space, and uses regulatory powers to encourage/enforce such prescriptions.

MEC
Monash Employment Cluster.

MPA
Metropolitan Planning Authority.

Monitoring
The ongoing task of collecting and reviewing program-related information to help determine whether a program's goals and objectives are being achieved.

Open Space
Includes land reserved for natural landscape, parklands, recreation and active sports, as well as waterways and bays.

Permeability
The extent to which urban forms permit (or restrict) movement of people or vehicles in different directions.

Pilot Project
One-off activities to test a new concept and inform policy makers whether it is feasible to roll out on a wider basis, with appropriate modification or improvement in design.

Plan Melbourne
The State Government of Victoria's key strategic planning document for Melbourne to 2050.

Policy
The set of laws, regulations, decisions, and actions taken by government entities to address a public issue.

Project Cycle
The sequence of activities from starting to finishing a project, generally including identification, preparation, appraisal, financing, implementation, monitoring, and evaluation.

Public Interest
The main priorities and objectives of citizens at large, rather than individual private interests, established through any number of legitimate government decisions and democratic processes.

PTV
Public Transport Victoria.

Safe Systems
A guiding framework for delivering road safety outcomes that aims to minimise the risk of death or serious injury in interactions between all road users.

Smart Roads
VicRoads network planning approach to managing the competing demands for limited road space. Different road users and modes are allocated priority, depending on the location and time of day.

Sustainable Development
Considering the long-term environmental, social, financial, and maintenance needs of a project before investing in it. A project should be able to meet the needs of the present without compromising the ability of future generations to meet their own needs.

Transport Modes
Different types of transport, including public transport (train, tram, bus, taxi), private transport (motorcycle, private car, truck) and active transport (walking, cycling).

User Charge
The amount that people pay for consuming a good or service. It helps pay for the production costs of that good or service.

Vision Zero
An international road safety project that aims for no fatalities or serious injuries on the road network.

VISTA
The Victorian Integrated Survey of Travel and Activity is an ongoing survey of household travel activity. A detailed picture of travel is collected through VISTA to help the government make better transport and land-use planning decisions.

CITY OF
MONASH

Monash Civic Centre
293 Springvale Road
Glen Waverley, 3150
Hours: 8.30am to 5pm
Monday to Friday

Oakleigh Service Centre
3 Atherton Road
Oakleigh, 3166
Hours: 8.45am to 5pm
Monday to Friday

Telephone 9518 3555
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