

Setting directions for Melton's transport system

Moving Melton (the City of Melton Integrated Transport Strategy)

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EMOVING MELTON INTEGRATED TRANSPORT STRATEGY

Setting directions for Melton's transport system

Directions Paper

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Foreword

This Directions Paper has been prepared to outline initial directions to respond to some of the key transport issues in the City of Melton. It forms the second stage of the Moving Melton (the City of Melton Integrated Transport Strategy) study. It outlines directions for Council and the community to consider, and to gather feedback about whether the Moving Melton strategy is on the right path.

In the first phase of the Moving Melton (the City of Melton Integrated Transport Strategy) study, there was community consultation to establish community perspectives on the adequacy and appropriateness of current transport options. This input was organised broadly by mode, and this paper is structured the same way. The public transport network of buses and trains are closely related, and these are considered together as 'Public Transport'. Walking and cycling are also considered together as 'Active Transport'.

There are sections of the road network that Council controls, and sections that the State Government controls. Council does not provide bus and rail services, as these are funded and provided by the State Government. Therefore Council can only advocate to the State Government to make changes to the public transport system. So your responses to the Directions Paper will shape Council's thinking about transport it controls, as well as Council's advocacy regarding transport the State Government controls.

In the community consultation during this stage, the project team will be asking the community and stakeholders for their feedback on the directions for the Moving Melton Strategy. You can provide feedback through the Moving Melton website at <u>www.movingmelton.com.au</u>, or at the two drop in sessions in Melton and Caroline Springs during May 2015. See the website for more details.

1.0 Introduction

1.1 Purpose and structure of this Directions Paper

This Directions Paper has been prepared to outline initial directions to respond to some of the key transport issues in the City of Melton. It forms the second stage of the Moving Melton (the City of Melton Integrated Transport Strategy) study. It outlines directions for Council and the community to consider, and to gather feedback about whether the Moving Melton strategy is on the right path.

The paper is generally structured by mode. The public transport network of buses and trains are closely related, and these are considered together as 'Public Transport'. Walking and cycling are also considered together as 'Active Transport'.

In the community consultation during this stage, the project team will be asking the community and stakeholders for their feedback on these possible directions. You can provide feedback through the Moving Melton website at <u>www.movingmelton.com.au</u>, or at the two drop in sessions in Melton and Caroline Springs during May 2015. See the website for more details.

1.2 What we heard in the first stage of the study

In the first phase of the Moving Melton (the City of Melton Integrated Transport Strategy) study, the development of a Background Report, detailed work was undertaken to assess the adequacy of the City of Melton's transport network for the current community and its ability to meet the community's future needs, in light of growth forecasts for the City of Melton. A literature review was undertaken, resulting in a summary of policy roles and responsibilities. As part of this process, key policies and legislation were identified. Strengths, weakness, opportunities and threats were established with respect to the *Transport Integration Act*. You can find the Background Report on the Moving Melton website www.movingmelton.com.au.

The first phase included community consultation to establish community perspectives on the adequacy and appropriateness of current transport options. Here is a summary of your thoughts about the current transport system.

Best features	Roads	
about the	Car access	
system	Affordability	
	Pathways in some areas	
Poorest features about	Public transport frequency	
the transport	Public transport connections and access	
oyotom	The pathway network in some areas	
Priority things	Bus connections between towns	
to improve	More frequent and widespread bus and train services	
	Better connections between buses and trains	
	More footpaths and pedestiran crossings	
	Better road and public transport maintenance	

Community and stakeholder input during the Background Phase highlighted issues across all modes of transport.

Mode	Community Perspective	Stakeholder perspective
Active transport - Walking - Cycling	 Arterial roads identified as unsafe for cycling More pedestrian crossings were identified as needed in activity centres, close to general stores and shops, and on arterial and collector roads. Despite these issues, the active transport network is considered to be one of the good features of Melton's transport system. More drinking taps, public toilets and lighting suggested. 	 Gaps around activity centres, the 'last 100m' not well provided e.g. to Woodgrove and High Street Broad support for a regional trail network.
Public Transport - Trains - Buses	 Need for more buses to connect Melton's communities to each other and to key destinations outside Melton. Hourly services are not frequent enough to meet community needs, either for trains or buses. Coordination between train and bus services was regularly identified as poor. Punctuality and reliability of both modes was an issue across the municipality. A lack of bus shelters, vandalism, poor signage, potholed carparks, and lack of lighting contributing to a sense of poor personal safety were identified as issues at both train stations and bus stops. 	 Stakeholders support improvements in principle, but raised some practical challenges with the road network, development, and rail infrastructure constraints. The railway is recognised as the backbone of the public transport network and critical to its success. Stakeholders suggested prioritising railway duplication and the provision of increased V/Line services.
Road transport - Cars - Freight	 Congestion hotspots on Coburns Road and other arterials Intersections identified as a safety and congestion concern Schools and railway station surrounds are problematic Risk of a single road to Eynesbury and desire for southern connection raised 	 Importance of regional destinations such as Sunshine, East Werribee and the Western Intermodal Freight Terminal Road and freight network perceived as currently working well. Meeting rapidly increasing demand is a key strategic concern

Table 1 Summary of community and stakeholder perspectives by mode

1.3 Strategic issues and challenges

Major strategic issues and challenges for transport in Melton include:

- Access to work and education is a major challenge in Melton and a focus of many land use plans. Melton is a dormitory suburb and exports its people to work in other suburbs.
- **Making transport more widely available** is the dominant issue of economic and social inclusion. Transport availability in Melton is car-dependent and there is limited availability and use of alternative transport modes.
- Using environmentally sustainable transport more is the most important environmental issue, although reducing the distances travelled to access people, places and goods is nearly as important. Providing alternative forms of transport, and centralising services, could reduce dependence on private motor vehicles.
- **High car dependency**: Melton residents use cars for 85 percent of their weekday trips, either as driver or passenger, both for their journeys to work and for travel generally.
- **Cycling has potential to grow:** Despite the generally cycle-friendly flat landscape of Melton, cycling as a mode of transport is not significant in Melton.
- **Constrained time budgets for travel:** Despite longer distance trips on the weekend, the duration of trips is similar across the week. This shows that average travel speeds are significantly slower on weekdays, highlighting the impact of congestion.

- **Car orientation** is an issue of social and economic inclusion foremost, but with risks around economic prosperity and environmental sustainability. Subdivision layouts and site-specific planning means that many locations are arranged primarily around access by car.
- There is a **weak active transport network and public transport network** because of constraints and gaps in the public transport and active transport networks. This has economic impacts. Employees can't access employment opportunities in Melton itself via public transport. The lack of connections within Melton and to adjacent activity centres like Watergardens limits access to social and economic opportunities, particularly work and education.
- Melton's population is forecast to grow by just over 200% in the next 30 years, increasing in size from around 130,000 residents to 400,000.
- **Population growth is forecast to be rapid, but dispersed** as growth occurs in rural communities and new estates across the growth corridor.
- New infrastructure will be needed to meet the demands of population growth, but funding for infrastructure is uncertain, affecting the development of the rail system, bus networks, arterial roads and grade separation of level crossings.

A summary of the main population information is provided at the back of this Directions Paper as an appendix. There is more detail on these challenges in the Background Report, available at <u>www.movingmelton.com.au</u>.

1.4 Gap analysis

This paper highlights gaps in transport networks and transport outcomes in the City of Melton. The framework this paper uses to analyse the gaps is based on the *Transport Integration Act*, Victoria's overarching legislation that governs the objectives and purpose of transport.

There are three types of gap identified:

- A **network** gap is a missing part of the transport network, for example missing footpaths, areas with no bus services, or locations that freight vehicles need to access but can't.
- A **performance** gap is a location where the transport network is available, but isn't doing what people expect it to do. Examples are locations with congestion, safety concerns, or high noise or pollution impacts.
- A **policy** gap is an area where there is a lack of guidance on how to improve transport and land use. For example, whether or not there should be more development along public transport corridors is a potential policy gap.

The impacts of these gaps are identified, and linked to the economic, social and environmental objectives for transport identified in the *Transport Integration Act*. The impacts listed are those where we think the gap is having the biggest impact on the communities in the City of Melton. The *Transport Integration Act* includes other objectives for the transport system such as 'efficiency, co-ordination and reliability', but the ultimate impact on the community of Melton is the focus of this analysis, so these other transport system objectives are mentioned only when most relevant.

The City of Melton is going to experience very significant growth over the next 25 years as the population increases from about 130,000 to 400,000 people. This Directions Paper considers gaps that are likely to emerge in the future, and also how existing problems may get better or worse with population growth.

- There are two timing factors considered:
 - An immediate gap is already having a negative impact in the City of Melton
 - An emerging gap is one that may have a future negative impact in the City of Melton
- The **trend** describes what is likely to happen if no changes are made to current arrangements. It is recognised that there are many plans already in place for transport in the City of Melton, but if they are not implemented as planned, there could be very serious consequences which this section highlights. Advocacy for delivery of projects that address the gaps is an important role of the Integrated Transport Strategy.

Active Transport





2.0 Active Transport

2.1 Overview and context

The City of Melton is a young community with a lot of opportunity to use active transport to get around within local communities. The consultation in the Background Phase of this study showed that people recognise the investment made in walking and cycling infrastructure, particularly in the eastern part of the municipality. However, gaps in the walking and cycling network, such as missing connections and limited signage, and limited infrastructure to support for cycling at the end of trips, discourage more widespread use of active transport in the City of Melton.

Five main characteristics shape a good active transport network. These are:

- **Connected:** routes should connect each area with other areas and with key 'attractors' such as public transport stops, schools, work, and leisure destinations. Routes should connect at the local and district level, forming a comprehensive network. Routes should be continuous, clearly marked and consistent in design and quality throughout.
- Convivial: Walking routes and public spaces should be pleasant to use, allowing social interaction between people, including other road users. They should be safe and inviting, with diversity of activity and continuous interest at ground floor level. The design and landscape integration of cycle routes should enhance the experience. Clear well-placed signposting should be provided, and centrelines and edgelines should indicate the serious transport intent of the off-road sections of routes. New housing developments should provide easy to use and attractive bicycle transport facilities. The infrastructure should improve road safety for all road users. Intersections should explicitly include footpaths and bicycle paths, and safe and easy road crossings should be provided. Potential conflict locations for cyclists at bus stops and on street car parking should be carefully designed. Paths should also 'design in' personal safety by avoiding blind spots and applying other crime prevention principles.
- **Conspicuous:** Routes should be clear and legible, if necessary with the help of signposting and waymarking. Street names and property numbers should be comprehensively provided.
- **Comfortable:** Walking and cycling should be enjoyed through high quality pavement surfaces, attractive landscape design and architecture, and as much freedom as possible from the noise and fumes and harassment arising from proximity to motor traffic. Opportunities for rest and shelter should be provided.
- **Convenient:** Walking routes should be direct, and designed for the convenience of those on foot, not those in vehicles. This should apply to all users, including those whose mobility is impaired. For cyclists, directness needs to be balanced against the desire to avoid steep hills. Road crossing opportunities should be provided as of right, located in relation to desire lines.

This paper recognises that supporting increased walking and cycling in the City of Melton can potentially provide wideranging economic, environmental and social benefits to residents. Walking and cycling are potentially very affordable, low impact modes of transport that provide health benefits to people who choose to use them, and contribute to making Melton's activity centres more vibrant and attractive places to live and do business. Practical options to walk and cycle as a transport mode should be widely available. The proposed vision for active transport in the City of Melton is that

"walking and cycling should be a real option for everyone who wants to use these modes of transport. This will be achieved by providing safe, connected networks for pedestrians and cyclists."

This objective is supported by the key themes from community input in the Background Phase in respect to walking and cycling in the City of Melton, which are shown in Table 2.

Discussion Questions

What are your thoughts on Council adopting this proposed objective for walking and cycling?

community consultation)				
Good features	- Good footpaths, particularly in the Eastern Corridor			
	- Walking to school is easy because the footpaths and lollypop ladies help out			
	- Generally a good network of cycling paths			
Poor features	 Pedestrian access is needed to bus stops and service 			
	 Not enough pedestrian and bicycle crossings 			
	- Poor lighting of some footpaths			
	Bicycle tracks in poor repair across the City			
Ideas for improvement - Easy pedestrian access at the end of cul-de-sacs				
	 Improve pedestrian access in Diggers Rest 			
	 Improve pedestrian access to stations from townships 			
	- A bike path from Eynesbury to Melton			
	 Footpaths bringing sustainable alternatives 			
	 Need better bike storage on trains 			
	 More drinking fountains along bike paths 			
	 Address lack of bicycle route signage 			
	 Improved network of on-road bicycle lanes and off road paths 			

Table 2 Good and poor features of the walking and cycling network and ideas for improvement (from Background Phase

2.2 Key gaps

There are a number of gaps in the walking and cycling network in the City of Melton. Strategic gaps are highlighted on Figure 1. In addition to the gaps shown on the map, the limited uptake of existing paths and trails has also been identified as a gap.



Numbered box	Gap
1	No off-road connections between Melton's communities.
2	'Leapfrog' development areas with paths that are not connected to the rest of the network.
3	Residential or employment areas with limited footpath provision.



Numbered box

Gap

Poor connections over major barriers like the Western Freeway and railway line.
Poor or missing walking and cycling paths in the 'last 100 metres' to major activity centres.
Adverse perceptions of safety and security from maintenance and infrastructure deficiencies.

2.2.1 Gap 1 - No off-road connections between Melton's communities

What sort of gap is this?

This gap is an existing network gap which is worsening steadily as new communities are established. Key locations affected by this gap are marked on Figure 1.

Strong transport connections between communities ease the development of social bonds and integration between communities. In the case of the City of Melton, the lack of off road connections between communities is a barrier to residents who would prefer to use cycling (in particular) to access other areas in the City of Melton. Residents who do not run a car, for reasons such as age or income, are disproportionately affected by the lack of alternatives. Facilities like dedicated cycle routes would allow for better connection between communities and provide space for recreation for the community. In addition, community adoption of cycling would be supported by providing off-road connections that are commonly perceived as safer than on road routes.

As new communities are established, the lack of active transport connections between them and established areas will become a significant issue.

What are the impacts?

The lack of off-road connections:

- contributes to reduced economic prosperity, because of the reduced access of residents to places for work, education and other activity centres. There are social and economic inclusion consequences as well, with safe access to affordable cycling reduced, meaning that residents have to forego the extensive potential health, wellbeing and transport benefits of access to cycling and instead may have to bear the costs of running additional cars.
- The limited trail network means that opportunities to provide a positive legacy for communities that can also use the network for recreation have been foregone. As a result social cohesion and community wellbeing is not as strong as it could be.
- Transport resource efficiency and environmental sustainability is compromised, due to increased travel distances and increased barriers to use of environmentally sustainable transport.

How does this gap relate to the Transport Integration Act?

Economic	Social	Environmental
 Access to work and education Integration of transport and land use 	 Responding to user expectations Availability of transport Transport affordability Engagement and collaboration in planning and delivery Positive legacy Safety, health and wellbeing 	 Use of environmentally sustainable transport Distances travelled to access people places and goods

2.2.2 Gap 2 - 'Leapfrog' development areas with paths that are not connected to the rest of the network

What sort of gap is this?

This gap is an existing network gap. Currently it occurs in a few places (shown on Figure 1) but this sort of gap could increase in number if not managed by Council and other stakeholders.

Leapfrog development is an isolated but problematic issue in some of the newest estates in the City of Melton. 'Leapfrog' development happens when a new estate is established that is not connected to established areas. Examples include Waterford estate in Melton South and estates in Taylors Hill West. There is also a risk of this kind of development in Woodlea (Rockbank North).

The lack of connection to the rest of the network reduces the usefulness and effectiveness of the footpath network to residents, and residents are likely to find these gaps a significant barrier to using the network. To try to work around the gaps, residents may choose to walk in the road, or on an unmade verge, which has significant safety risks which may discourage walking altogether, pushing people into cars. Those with reduced mobility, such as the elderly, are likely to be disproportionately affected, as are those who rely on networks for active transport as they do not run vehicles. Parents are also less likely to support unsupervised use of footpaths by children.

These footpath network gaps also affect access to public transport, because leapfrog development may not be provided with public transport. The result is that a longer than normal walk is needed, but if paths are not available access to public transport becomes extremely difficult. The impacts of reduced access to public transport are considered in more detail later in this paper.

There is the potential for this problem to increase rapidly in the City of Melton, and with growing traffic volumes the consequences would be severe if pedestrians were forced into walking on roads at more locations. However, the precinct structure plan process and land release program management can help avoid this problem.

What are the impacts?

This gap's impacts include:

- Reduced economic prosperity because of the limitations the missing network connections put on access to recreation or travel to places of work and education such as activity centres.
- social impacts of limited safe access to the affordable transport options of walking and cycling, both short term as outlined above and long term by contributing to car dependent lifestyles.
- Compromised transport resource efficiency and environmental sustainability is compromised, due to increased travel distances and increased barriers to use of environmentally sustainable transport.

How does this gap relate to the Transport Integration Act?

Economic	Social	Environmental	
 Access to work and education Integration of transport and land use 	 Responding to user expectations Availability of transport Transport affordability Engagement and collaboration in planning and delivery Safety, health and wellbeing 	 Use of environmentally sustainable transport Distances travelled to access people places and goods 	

2.2.3 Gap 3- Residential or employment areas with limited footpath provision

What sort of gap is this?

This is an existing network gap, mostly in established parts of the municipality. Although no new suburbs are being built without footpaths, the impacts of this gap are likely to worsen over time as the community ages, assuming people become more reliant on alternatives to driving.

There are areas of the City of Melton, particularly in Melton Township, where suburban streets have no footpaths or footpaths on one side only. Some are short dead end streets, but others are quite long semi-rural streets. Examples include Killarney Lakes, Toolern Downs, Kurunjang Ranch, parts of West Melton and Strathtulloh in Melton Township, and the Sugar Gum estate in the Eastern Corridor. In a similar way, there are employment areas with limited footpaths, such as the lack of a continuous footpath along the northern side of High Street through the industrial estate on the eastern side of Melton township.

These gaps and missing footpaths in the City of Melton reduce the usefulness and effectiveness of the footpath network. Safety conscious pedestrians may choose alternative or extended routes to maximise the share of their journey on footpaths. This could include increasing the number of road crossings, as pedestrians move to the side of the street with footpaths. Some residents may avoid the network altogether due to the safety risks of walking on the road. People who rely on safe and accessible footpath provision can include the elderly, those with reduced mobility, and people who do not have access to passenger vehicles; these users are disproportionately affected. In addition, due to increased safety concerns, parents are less likely to support their children using the footpath network independently.

It is now unusual for streets to be constructed without footpaths, so new estates are unlikely to have this issue. However, as the population of Melton grows, it is also expected that the population of established parts of Melton – particularly some of the suburbs with limited footpath networks – will also age. In this scenario, the lack of footpaths will become a more serious problem as increasing numbers of residents need to use mobility aids but lack the infrastructure to use them safely.

What are the impacts?

Impacts of limited footpath provision include:

- Reduced access to places of work, education and activity centres, which reduce economic prosperity.
- Restricted access to walking as an affordable transport mode, with increased dependence on the ownership and use of cars
- Transport resource efficiency and environmental sustainability is compromised by the barrier to the use of environmentally sustainable transport.

How does this gap relate to the Transport Integration Act?

Economic	Social	Environmental	
 Access to work and education Integration of transport and land use 	 Responding to user expectations Availability of transport Transport affordability Safety, health and wellbeing 	 Use of environmentally sustainable transport 	

2.2.4 Gap 4 - Poor connections over major barriers like the Western Freeway and railway line

What sort of gap is this?

This is an existing network gap, mostly in established parts of the municipality. A key example is Rockbank township where bus stops are located on the Freeway but without safe access across it. This gap is gradually worsening in extent and impact, because more people will be living close to current and planned major roads and railway lines which have the effect of being barriers to walking and cycling.

For residents to use active modes of transport to connect with places of employment, education and leisure, they need to be able to navigate around major transport infrastructure safely. The poor connections over major barriers like the Western Freeway and railway line reduce the ability of residents of the City of Melton to take advantage of alternative and sustainable modes of transport. In the absence of connections, residents need to navigate around major barriers, increasing trip time and reducing convenience. This can mean needing to negotiate the freeway interchanges as a pedestrian or cyclist; these are not amenable places as they lack street activity, shade or visual interest, and are noisy and potentially dangerous due to high speed traffic. In some cases, it becomes effectively impossible to access facilities.

Those with reduced mobility are likely to have their access and use of networks disproportionately reduced. Due to increased safety concerns caused by limited connectivity over major barriers, parents are less likely to support their children using active transport. Safety issues could emerge if residents were to choose to cross these barriers at ad hoc locations.

As the City of Melton grows, the division of the City's growth corridor by major infrastructure will heighten this issue, because more people will be affected by these barriers. Connections across the railway, freeway, Outer Metropolitan Ring and other major roads will be important to access new activity centres (for example connecting Rockbank North to Rockbank), recreational sites (such as Kororoit Regional Park), and employment areas (such as the industrial areas in the south-east of the municipality).

What are the impacts?

The poor connections over major barriers like the Western Freeway and railway line:

- increase journey times and distances, decreasing the convenience of using active transport to travel to sites of work, education, activity centres and other community facilities.
- This in turn reduces economic prosperity and also social and economic inclusion, as it reduces access to cost effective transport.
- reduce transport resource efficiency and environmental sustainability due to the increased distance required to access people, places and goods.

How does this gap relate to the Transport Integration Act?

Economic	Social	Environmental	
 Reduces access to work and	 Reduces transport	 Increases distance travelled to access	
education	affordability	people places and goods	

2.2.5 Gap 5 - Poor or missing walking and cycling paths in the 'last 100m' to major activity centres

What sort of gap is this?

This is an existing network gap in Melton High Street, Woodgrove and Melton Railway Station, and can also be seen in other activity centres in the City of Melton. Activity centres that cover large areas or which are closely related, like High Street and Woodgrove, also experience a similar problem from poor or missing paths within the centre and between them. The urban design principles being used in new developments help to avoid this problem getting more widespread, but the impact of existing missing links is becoming more significant as the population grows.

In Melton Township, the activity centres of Woodgrove and High Street, and Melton Railway Station, are strategically located close to the trail network that runs along the creeklines. But connectivity to these trails is relatively poor, with a lack of priority connections for cyclists and walkers like high quality shared paths or off-road paths into the heart of these centres. As these centres are often car-oriented in design, with extensive car parking around them, this can be a significant safety and amenity problem. These centres can also be difficult and unpleasant to navigate as a pedestrian once people arrive by other modes.

The 'last 100 metres' gap around major activity centres can act as a disincentive to use active transport for travel. Due to the attractiveness of major activity centres as journey destinations or origins, the effect of missing or poor infrastructure is broader than elsewhere in the network. Additionally, as these areas tend to attract high vehicle volumes, community safety concerns associated with missing or incomplete walking and cycling paths are heightened. As with other gaps in the footpath network, residents with lower mobility or reduced access to vehicles will be more strongly deterred from using active transport by these factors.

New major activity centres being planned in the City of Melton are generally based around streets that are planned to have good pedestrian environments. There are also many smaller neighbourhood activity centres for which detailed planning has not been completed. Good practice today recognises that there is no need to significantly compromise walking and cycling access to a shopping centre whilst still making it easy to drive and park, although some types of retail facility don't tend to meet this ideal. As the population grows, though, more people will be affected by difficult access on foot and by cycle to activity centres.

What are the impacts?

Poor walking and cycling paths to the entrances to major activity centres reduce:

- economic prosperity, partly by reducing access to places of work and partly by reducing the attractiveness of the activity centres, discouraging shoppers. As a result, people choose to spend money in activity centres that offer better walking environments as well as easy access by other modes of transport.
- social and economic inclusion, as they limit the ability of residents to safely use the affordable transport options of walking and cycling.
- Transport resource efficiency and environmental sustainability is compromised, due to increased barriers to use of environmentally sustainable transport. When residents seek an alternative route travel distances increase.

How does this gap relate to the Transport Integration Act?

Econ	omic	Soc	cial	En	vironmental
- - -	Access to work and education Business access to markets Transport and land use integration	-	Responding to user expectations Transport affordability	-	Use of environmentally sustainable transport Distance travelled to access people places and goods

2.2.6 Gap 6 - Perceptions of safety and security from maintenance and infrastructure deficiencies

What sort of gap is this?

This is an existing network gap for locations where safety is a known issue, and a performance gap where safety and security is a perceived issue. Locations highlighted by the community in the Background Report are shown on Figure 1. Data to show whether infrastructure is improving or becoming worse is limited, but more people are affected by this gap in the transport network at existing locations as the population grows. This gap mainly affects established areas, with new areas designed differently to reduce this problem.

There is a suite of related issues of safety and security perceptions due to maintenance and infrastructure deficiencies. These include:

- Concern about theft and property damage due to lack of safe and secure bicycle storage
- Road safety concerns due to sharing busy sections of road
- Personal safety concerns at night on paths through parklands

Safety and security concerns are a barrier to residents making full use of active transport opportunities. Where these concerns can be addressed by improving maintenance of existing assets and reducing infrastructure deficiencies, there is an opportunity to increase use of active transport. Issues like missing or poorly maintained footpaths, the lack of off-road connections, and inadequate lighting, act as a barrier to use. The effects are most strongly felt by those with reduced mobility and those without access to motor vehicles. In addition, safety concerns limit the preparedness of parents to let their children use active transport without supervision.

As the population grows in the City of Melton, wear and tear on existing assets is likely to increase with use, which may worsen safety and security concerns due to maintenance deficiencies. On the other hand, a larger population is likely to mean more people around at night, which can help to make streets safer – depending on how their activity is being managed. New subdivisions are planned with more awareness of design principles that help to maximise the security of public areas like parks and waterway reserves, such as avoiding long sections of rear fences that make it difficult to see activities in the public area.

What are the impacts?

Perceptions of safety and security from maintenance and infrastructure deficiencies have a number of effects.

- Safety and security concerns that limit the use of active transport reduce economic prosperity, as they limit travel options for residents to places for work and education. They can also have direct health, safety and wellbeing impacts such as fatalities and injuries which have significant economic and social impacts.
- They reduce social and economic inclusion, as they limit the willingness of residents to walk and cycle, reducing their use of these affordable transport modes.
- Transport resource efficiency and environmental sustainability is compromised, due to increased travel distances as people avoid areas with perceived problems, and perceptions of safety as a barrier to increased use of environmentally sustainable transport.

How does this gap relate to the Transport Integration Act?

Economic	Social Impacts	Environmental Impacts	
 Access to work and education 	 Responding to user expectation Transport affordability Health and safety and wellbeing 	 Use of environmentally sustainable transport Distance travelled to access people places and goods 	

2.2.7 Gap 7 - Limited uptake of existing paths and trails

What sort of gap is this?

This is a policy gap. The City of Melton has active programs to encourage walking and riding to schools, but there is less support for programs targeted to the transport needs of adults to help them make more walking and cycling trips. This is unlikely to change unless a new policy is introduced.

There are real network barriers to walking and cycling in some parts of Melton. But there are also parts of the municipality where a substantial walking and cycling path network is well-established. It is important to maximise the use of this network, which reflects a significant investment over time by many agencies, stakeholders and the community.

Active transport like cycling and walking is associated with a number of positive health outcomes, as well as benefits to the environment. Use of active transport modes can be encouraged by interventions to raise awareness of the opportunity to walk or cycle. Such interventions can have spill over benefits, for example, making motorists more aware of cyclists and pedestrians. Promotions designed to address the perception that these modes are riskier ways to travel can also be effective at lifting penetration, especially if they are combined with upgrades to infrastructure for active investment.

Adopting a broader behaviour change program could require a policy and budgetary decision.

What are the impacts?

The perceived gap in active support programs to encourage people to make more transport trips by walking or cycling could be affecting the uptake of active transport in the City of Melton. There are a number of transport resource efficiency and environmental sustainability implications. For example:

- the use of environmentally sustainable transport is potentially lower than it could be. This means that the footpaths and trails of the City of Melton are not as well used, and provide less value for money, as they could potentially be.
- the ability to make transport activity more resource-efficient and reduce its environmental impact is accordingly constrained.

How does this gap relate to the Transport Integration Act?

Economic	Social	Environmental
 Poor use of transport assets Value for money infrastructure and services 	 Engage and collaborate in planning and delivery Support for others to take action on transport challenges Create a positive legacy Health and safety and wellbeing 	 Use of environmentally sustainable transport Make transport activity more resource-efficient and reduce its environmental impact

2.3 Potential strategic interventions

2.3.1 Establishing a good walking network

This initiative responds mainly to:

Gap 3 – Residential or employment areas with limited footpath provision.

It also contributes to responding to:

Gap 2 – 'Leapfrog' development areas with paths that are not connected to the rest of the network.

Gap 4 – Poor connections over major barriers like the Western Freeway and railway line.

Gap 5 - Poor or missing walking and cycling paths in the 'last 100 metres' to major activity centres.

Walking as a mode of transport focuses on relatively short trips – typically up to 20 minutes, which means a 'catchment' of around 800m. There are often small areas with quite high numbers of pedestrians, in which every street and footpath is equally and highly important, and large parts of the network with low numbers of pedestrians – but still every street and footpath is equally important. The most important walking routes therefore tend to be around the small areas with high numbers of potential pedestrians. In the City of Melton, these could include the main activity centres, the railway stations, and around schools and community facilities.

As described in Section 2.1 there are five characteristics that shape a good active transport network:

- **Connected:** Walking routes should connect each area with other areas and with key 'attractors' such as public transport stops, schools, work, and leisure destinations. Routes should connect at the local and district level, forming a comprehensive network.
- **Convivial:** Walking routes and public spaces should be pleasant to use, allowing social interaction between people, including other road users. They should be safe and inviting, with diversity of activity and continuous interest at ground floor level.
- **Conspicuous:** Routes should be clear and legible, if necessary with the help of signposting and waymarking. Street names and property numbers should be comprehensively provided.
- **Comfortable:** Walking should be enjoyed through high quality pavement surfaces, attractive landscape design and architecture, and as much freedom as possible from the noise and fumes and harassment arising from proximity to motor traffic. Opportunities for rest and shelter should be provided.
- **Convenient:** Routes should be direct, and designed for the convenience of those on foot, not those in vehicles. This should apply to all users, including those whose mobility is impaired. Road crossing opportunities should be provided as of right, located in relation to desire lines.

At the finest scale - the individual link - these criteria mean that:

- Footpaths should generally be provided on both sides of any street that has development along both sides (development includes public open spaces such as council parks¹). This ensures that walking is connected, convivial and convenient. A possible alternative to this approach is to make the whole street a 'footpath' this is discussed below.
- Opportunities should be taken to provide direct footpaths to destinations on routes that are not suitable for cars for example, creeklines and other areas of open space. To make these safe and secure transport routes, particular care may need to be taken to make sure they are safe and inviting, for example by encouraging passive surveillance from houses adjacent to the paths. They also need to be easy to follow with signposts and information. This is a strength of the City of Melton's established walking network, for example the numerous shortcuts through otherwise dead-end streets. Together, these provide conspicuous and convenient routes.
- Footpaths for transport should always be a suitable hard surface, easy to maintain and planned with the needs of street trees in mind. This provides for comfort.

¹ Larger parks, and other special land uses like industrial sites, may need to be assessed individually for opportunities to integrate infrastructure or to avoid potential safety and amenity impacts.

The key walking routes in the City of Melton that best meet the 5Cs are generally those routes along collector streets and through parklands that avoid the major arterial roads but connect to the main activity centres, railway stations, schools, community facilities like libraries and major sporting facilities such as swimming pools and indoor recreation centres. These main routes could form a 'principal walking network'.

In the main activity centres, such as Caroline Springs, Melton High Street and Woodgrove, every street is potentially an important pedestrian route – along with routes that aren't streets, like small walk-throughs between or through buildings. In these locations, a 'pedestrian priority area' would reflect that all pedestrian connections are important.

This paper proposes that local footpaths should be provided on every street within the urban areas of the City of Melton, generally on both sides of the street except in rare circumstances such as where large parks front onto the street.

A possible 'principal walking network' for the City of Melton's established areas is also proposed. A concept plan for it is shown in Figure 2. The principal walking network connects a wide range of important destinations, avoiding major roads where practical. In major activity centres, all pedestrian routes would be recognised as important. Council could potentially focus on this 'principal walking network' with its development and improvement programs.

In the growth corridor, identifying the 'principal walking network' is a task that needs to be done as part of precinct structure planning. The same general '5Cs' principles apply, in that the principal walking network should:

- connect a mixture of important destinations within the precinct structure plan area and nearby destinations outside it, so that it can meet a wide range of transport trip needs
- avoid major roads where possible, but use moderately busy roads, preferably with active land uses along them like shops and medium density housing
- Selectively use cut-throughs such as parks and laneway connections, particularly where they provide direct and convenient routes to major destinations like activity centres, major schools and community facilities, and railway stations
- Provide safe and convenient crossing points where the principal walking network crosses roads.

Good practice features that help make newly planned areas walkable include:

- Having public squares in activity centres close to where public transport services meet
- Short street blocks with lots of connections
- Few dead end streets
- Avoiding slip lanes and choosing pedestrian friendly intersection designs
- A network of walking routes connecting key destinations
- Separate off road routes on busier roads for pedestrians and cyclists

There are some features where success will depend on detailed planning. In activity centres, shared paths can be successful, and they are planned in new suburbs like Rockbank town centre. But if there are many pedestrians, then this may result in conflicts. Also, the distance between signalised crossings of main roads is longer than the planned street grid, at around 400 metres, which means that mid-block pedestrian crossings may be needed.

This paper proposes that Council will continue to advocate for the development of pedestrian networks in new suburbs in line with the principles outlined in this paper. This will include supporting wider footpaths and provision of mid-block crossing points of busy roads at locations where the main pedestrian routes cross.

For regional scale connections, walking is unlikely to be a principal mode of choice because of the distances, but the regional trail network can provide a 'backbone' for regional walking. These regional trails are discussed further below.

Discussion question:

Do you support the proposed approach to developing the walking network? Does the 'principal walking network' reflect the main areas and routes for walking in the established parts of the City of Melton? Are there other routes that should be included?

Figure 2 A possible principal walking network



2.3.2 What makes a good footpath?

This initiative responds mainly to:

Gap 4 – Poor connections over major barriers like the Western Freeway and railway line.

Gap 5 - Poor or missing walking and cycling paths in the 'last 100 metres' to major activity centres.

Gap 6 - Adverse perceptions of safety and security from maintenance and infrastructure deficiencies.

Walking networks need to have good footpaths. Under the standard road design Australian guidance, a footpath can be as narrow as 1 metre, and needs only to be lit in accordance with road standards rather than pedestrian requirements. However, these are minimal standards and not reflective of a growing, active community. There are many attributes that need to be considered in making a good footpath. Some of these are outlined below.

This paper suggests that Council adopt a higher standard 'basic' footpath that provides a better pedestrian experience, in line with the suggested characteristics below.

Attribute	Desired condition	Desired characteristics
Wide	 Adequate Useable Unobstructed 	- A 'through-route' width that is kept unobstructed
Smooth	- Consistent - Safe - Stable - Smooth	 Grates and covers set flush to the path. Surfaces must be slip resistant. Minimal vertical difference between sections of footpath (<0.5 cm)
Clear	 Unobstructed Well drained Accessible 	 Suitable vertical clearances to avoid overhead obstructions. Provide a crossfall on paths to help them drain. Footpath design should continue through driveway crossovers. Suitable universal design features (such as tactile ground surface indicators) should be provided.
Pleasant	 Secure Effective Amenable Safe 	 Locate in areas with good natural surveillance e.g. along collector streets Paths should be on pedestrian desire lines, not overly compromised by traffic engineering Light paths with white overhead lamps, in accordance with Australian standards

Table 3 Potential features of a well planned footpath

Some of these desired characteristics might require trade-offs in design, increased maintenance spending, or may not be possible in some areas of the City of Melton. For example, design guidelines recommend lighting all footpaths that are expected to be regularly used at night at least as well as the street network. This is a higher standard than usually used for footpaths. Street trees might be desirable to provide shade during the day, but could compromise footpath widths and safety at night. This can be avoided by carefully selecting appropriate plants. A 'premium' footpath could include various improvements compared to a standard footpath, and could be used on the 'principal walking network'. Particular areas where improvements over a basic or standard footpath could be made include:

- Width: wider than standard footpaths to provide more space for groups and better comfort.
- **Road crossings:** Where principal footpaths cross an arterial road, a safe crossing location could be provided. At collector and local streets, consider raising the road to footpath level to reduce vehicle speeds.
- Surfaces: selection of a more attractive surface such as stone rather than use of asphalt or concrete.
- **Street furniture:** use of more attractive and additional street furniture such as seats, water fountains and lighting poles.
- **Wayfinding:** provision of fingerboard and other signs along the route to facilitate easy navigation to key destinations.

This paper proposes that Council develop general standards and design principles for footpaths and develop a Principal Walking Network plan for the municipality, taking cues from the desired characteristics outlined above in Table 3. Major footpaths, which would be on the Principal Walking Network, would be prioritised for improvement to these standards.

Provision of improved footpaths might be a suitable solution to addressing the 'last 100m' problem as well. In this Directions Paper, we are interested in your thoughts about how these different approaches compare and their suitability for addressing Melton's walking network gaps.

Discussion questions:

Would developing a network of high quality or 'premium' footpaths make you more likely to walk in the City of Melton?

What particular issues do you think are important in designing improved footpaths?

2.3.3 Walkable streets, walkable networks

This initiative responds mainly to:

Gap 5 - Poor or missing walking and cycling paths in the 'last 100 metres' to major activity centres.

In some cases, perhaps instead of building footpaths, an alternative strategy might be to change the whole street into a 'living street' or 'shared space'. In a 'living street', the usual separation between cars and pedestrians is blurred and everyone uses the same space. This can create a space people can enjoy together and creates more space for trees and for recreation.

These types of streets have been popular in more densely developed cities where parks are scarce. Implementing them in suburban areas is unusual, but there are examples of suburban shared streets in regional Australian centres (Figure 3).

Figure 3 A shared space in Bendigo



In the City of Melton, these sorts of spaces might have a role particularly in activity centres and in addressing the 'last 100 metres' of access to shopping centres. The wide streets around Melton High Street activity centre, like Smith Street, McKenzie Street, Alexandra Street, Wallace Square and Bakery Square are currently dominated by car parking. Some of these streets have low levels of traffic and could be suitable for a 'living street' although these would need to be subject to further study.

There are a number of practical issues that would need to be carefully considered to determine if they are a worthwhile option supported by the community, and where they might be appropriate. These include:

- Vehicles and services: careful consideration would need to be given to parking and how service vehicles like garbage trucks use the space.
- **Safety:** these sorts of streets work best when they are quite short and have good visibility, so they would only be suitable for some locations.
- **Cost / value for money**. This type of street improvement costs considerably more than providing footpaths.

This paper proposes that Council investigate the feasibility of implementing this kind of treatment, considering the costs and benefits of a shared space street, subject to community support.

Discussion question:

Do you think these shared streets which restrict car use and provide more space for people to walk and cycle, could help improve transport in the City of Melton?

If so, can you suggest particular streets in the City of Melton that might be suitable for a 'shared space'?



2.3.4 Sharing paths

This initiative responds mainly to:

Gap 1 - No off-road connections between Melton's communities

Gap 5 - Poor or missing walking and cycling paths in the 'last 100 metres' to major activity centres.

Gap 6 - Adverse perceptions of safety and security from maintenance and infrastructure deficiencies.

In some areas, it is likely that the principal walking and cycling networks will be in the same place – for example, attractive, direct off road routes are appealing for both walking and cycling. In both the established and developing parts of Melton, some of the most direct pathways to the activity centres are the shared paths in the creeklines and along the main roads that form a grid. This means that conflict between bikes and pedestrians is a possible challenge. The principles for choosing shared paths versus separated paths are summarised below.

Table 4 When shared paths should and should not be used

Where shared paths should be used	Where shared paths should not be used		
 Access to employment, education, transport, activity centres, health centres and recreation facilities Local access commuter and shopping trips Recreational and tourism areas Areas with relatively low or medium speeds At constrained points in a corridor with low pedestrian and bicycle volumes (constraints include utility poles/columns, electricity sub boxes and drainage manholes) Locations or routes with restrictions and delays for pedestrians and cyclists at intersections 	 High speed routes typically used by experienced commuter, utility and sports cyclists Major pedestrian areas e.g. city centre Routes with high volumes of people only at peak times/infrequently Locations where pedestrians (and other path users e.g. skaters, roller-bladers and fishermen) can have an impact on the level of service for cycling e.g. commuter cyclists 		

Where a shared path is appropriate, it is then necessary to think about how wide it should be. The minimum width for a shared path is 2.5 metres; paths with commuter traffic at least 3.0 metres; paths with heavy commuter and recreational traffic at least 3.5 m; and the maximum width is 4.0 metres.

In general, shared paths need to be wider when there is a greater mix of users (commuter, recreational, cyclists, walkers) and more two-way traffic.

This paper proposes that Council consider developing shared paths to meet the following needs:

- Combined recreation and transport trails in creeklines and regional trails, such as the proposed Melton Werribee trail and other parts of the West Trails network
- Access routes to (but not within) activity centres e.g. in the side streets off High Street in Melton, connecting to the regional trail network, including between High Street and Woodgrove
- Off-road along arterial and collector roads with regular intersections, but not along roads with widely spaced intersections where an on-road cycle lane would be more appropriate to allow cyclists to maintain a high speed

Discussion questions:

What are your views on some paths in the City of Melton being shared by pedestrians and cyclists?

Where do you think shared paths should be provided in the City of Melton?

Are there potential connections where cyclists and pedestrians should be separated?

2.3.5 Cycling for recreation and cycling for transport

This initiative responds mainly to:

Gap 1 - No off-road connections between Melton's communities

Gap 5 - Poor or missing walking and cycling paths in the 'last 100 metres' to major activity centres.

Gap 6 - Adverse perceptions of safety and security from maintenance and infrastructure deficiencies.

With its generally flat landscape, numerous low-traffic streets and open space network, there is opportunity to increase the role of cycling for transport in the City of Melton.

There are four essential requirements to support cycling:

- 1. Infrastructure is built in the right places and designed appropriately for the users
- 2. People feel safe and secure when cycling
- 3. Facilities enable people to be able to choose cycling as a viable mode of travel
- 4. Cycling is integrated with other modes of transport

In Melton, the recreational trail network connects reasonably well – apart from the gaps identified earlier – with the main activity centres. High Street is close to the Toolern Creek trails, Woodgrove to Arnolds Creek, and Caroline Springs Town Centre to Kororoit Creek. Future activity centres including Rockbank North and Plumpton are also close to creeks that could support trails. So in the City of Melton, there may be an opportunity to use the recreational trail network for transport. But this raises a number of issues around the different needs of recreational and transport cyclists.

Generally, as you move from more skilled and confident cyclists to less skilled and confident cyclists, riding speeds slow down, reaction times get slower, distances get shorter, and users become more vulnerable. The choice to make a cycling trip will also be influenced by distance, journey time and safety on the route. In line with these factors, and the different changing skills, experience and trip purpose of riders, the need for infrastructure varies, as summarised below.

Key considerations	Recreation - Sports, fitness, leisure and social trips	Commuter - Journeys to work or school or work- based trips	Shopping and other local trips
Time and distance	Low	Medium/High	Medium
Risk/safety tolerance	Low	Medium/High	Medium
Modal competition	Low	Medium/High	High
Environment/amenity	High	Low	Medium
Infrastructure / network needs	 Avoiding major climbs Smooth path surface Minimise road crossings Visibility of other users and physical objects Landscape integration Narrow paths can be OK 	 Directness Safety Clarity and consis Attractiveness Comfort Wider paths for hi 	tency of route gher volumes

Table 5	Considerations in choosing cycling for various types of trips
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This paper proposes that commuter, shopping and other local trips are priorities in the City of Melton, as enabling people to make these trips on bicycles can contribute to improved congestion, environmental outcomes and community health. This suggests that the City of Melton's transport strategy should focus on these kinds of trips. However, we would like to confirm whether this is the right emphasis for the Strategy.

Discussion questions:

What sort of cycling trips should the City of Melton's transport strategy focus on to maximise the positive impact on residents' lives?

Features that are important to form a good transport network for cyclists are:

- 1. Clarity and consistency networks should link popular destinations with local residential streets via regional routes and local routes, be continuous, clearly marked and consistent in design and quality throughout. The network should be of such a density that there is always a choice of nearby routes available to the user.
- Directness Routes should be as direct as safely practicable, but balanced against the problems of topography; a slightly longer route may work better if it avoids steep hills. Likely delay locations like major road crossings should be avoided.
- 3. Safety The infrastructure should improve road safety for all road users. Intersections should explicitly include bicycle paths, and safe and easy road crossings should be provided. Potential conflict locations at bus stops and on street car parking should be carefully designed. Paths should also 'design in' personal safety by avoiding blind spots and applying other crime prevention principles.
- 4. Attractiveness The design and landscape integration of cycle routes should enhance the experience. Clear well-placed signposting should be provided, and centrelines and edgelines should indicate the serious transport intent of the off-road sections of routes. New housing developments should provide easy to use and attractive bicycle transport facilities.
- 5. Comfort The bicycle network has to be easy to use, with smooth well-maintained surfaces and separation from incompatible uses where required.

This paper proposes that the above principles be adopted by Council as guidelines for bicycle network development.

Discussion questions:

Do you support the proposed design principles for cycling infrastructure? Are there other principles that you think should be adopted?

On the basis of prioritising commuter, shopping and other local trips, but recognising the extent of the proposed regional trail network (which will serve many recreational trips), Figure 4 shows a proposed principal bicycle network for the City of Melton, using shared paths where the criteria above are met.

Discussion questions:

What are your thoughts on the proposed cycle network? Are there other connections that need to be provided?



2.3.6 Supporting the start and end of trip, and the decision to use active transport

This initiative responds mainly to:

Gap 6 - Adverse perceptions of safety and security from maintenance and infrastructure deficiencies.

Gap 7 - No active support programs to encourage people to use active transport.

There are a number of guiding principles to consider in the provision of end of trip facilities for cycling and cyclists. Facilities should be:

- Visible, easy to find and well signed.
- Accessible, close to the final destination and consistently available
- Covered, safe and secure
- Easy to use, manage, maintain and regularly monitored
- Connected to the active transport network and linked to other services such as trains and buses
- Attractive, because high quality always makes a statement about commitment!
- Comply with the requirements of the Disability Discrimination Act 1995

There are a range of cycle facilities that could be considered to support cycling. They range from large, dedicated facilities to more modest infrastructure.

	Cycle Centre	Cycle Cage	Covered Cycle Racks	On street cycle racks
Infrastructure	Comprehensive range of bicycle- related services	Day to day cycling needs	Basic storage	Basic storage
Security	Staffed, secure access	Unstaffed, secure access	Unstaffed, BYO lock	Unstaffed, BYO lock
Purpose / target audience	Commuters	Commuters, students	Tourists, local trips, recreational trips	Tourists, local trips, recreational trips
Parking duration and costs	All day, user pays	All or part day, user pays	Short term, free	Short term, free
Typical locations	Major facilities, employers and transport nodes	Major facilities, employers and transport nodes	Activity centres, schools, stadiums	Local shops, parks
Advantages	Safe, secure, high level of service, size	Lower cost, secure	Low cost, easy to use	Low cost, low maintenance
Disadvantages	Capital, operational and maintenance costs	Footprint requirement, registration and administration, limited storage	Weather protection, limited safety and security	Limited safety and security

These facilities provide the infrastructure many people feel is needed for them to be able to make their trip by bicycle.

This paper proposes that Council should investigate ways to provide at least one higher quality cycle facility – such as a cycle cage – in each of its major activity centres. This could be through direct provision, or by working with developers to establish a facility. We would like your thoughts on whether Council has a role in providing this infrastructure.

Sometimes, additional support to encourage people to walk or cycle might be appropriate. People who decide to use active transport generate their own personal benefits like better physical and mental health and often a quicker commute. But their decision to walk or cycle can also create wider community benefits, like more active

and interesting streets that become better places to visit, reduced congestion on the roads, and less burden on the community's health care system. For these reasons, it could be appropriate to consider a financial reward for people who choose to use active transport, or to provide financial support so that people can actually make that choice – for example, by buying themselves a bicycle or safety equipment.

This kind of behaviour change program could range from a TravelSmart programme, which provides personalised advice to people on their transport options to help them understand that walking or cycling is often a realistic option, through to direct financial support programs.

Given the low levels of current walking and cycling in Melton, this paper proposes that Council partner with State Government and other interested parties to develop a pilot program to provide financial incentives to encourage more walking and cycling. The pilot program would run for around three years and include an evaluation to determine its effectiveness and value for money. It would likely be operated in a part of the municipality that has relatively good existing infrastructure, but could be integrated with an infrastructure improvement programme as well.

Discussion questions:

What cycling needs should be prioritised by Council in order to maximise the number of people who choose to cycle as a mode of transport?

What steps do you think Council can take to encourage people to walk and cycle?

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3.0 Public Transport

3.1 Overview and context

Public transport service levels, quality and access are key issues in the Melton community. While residents recognise that some of the existing services are reasonably efficient, the consultation from the Background Phase of this study revealed some broad concerns, including:

- Lack of services in many areas
- A need for more frequent public transport services
- Problems with a lack of connectivity between transport modes and between communities

This report recognises that improving the number and frequency of public transport services over time is critical in supporting the anticipated population growth of the City of Melton over coming decades, as well as making Melton a more attractive place for businesses to invest and create local jobs.

A good public transport system has seven main attributes:

- It takes people where they want to go. This is achieved through where stops and stations are located, and how lines are connected to each other.
- It takes people when they want to go. This comes from frequency and service span.
- It is a good use of time. Travel time is a mixture of frequency, closeness of stops and speed, and the quality of the time on-board is also important.
- It is a good use of money, as determined by the fare.
- It is safe and secure for customers to use.
- It is reliable and punctual.
- It provides people with flexibility and the ability to change their travel. This is mostly a result of simple networks and good information.

Public transport can play a number of important roles in Melton's transport system. This paper proposes that the most important roles to prioritise are:

- Access to and from work, education, social and recreational opportunities, particularly those in activity centres. This includes connections within Melton to places like Caroline Springs, Melton Township, Toolern and the south-eastern employment area, major nearby centres like Sunbury, Bacchus Marsh, Watergardens, Sunshine, Footscray, and Werribee, and the CBD and inner city. To meet this role, public transport services need to be frequent and direct.
- A practical transport alternative that community members can access so that people can reach local and major services such as education, community services, health facilities and shops. To meet this role, public transport services need to be close to home, connect to local facilities and run at a range of times of day and week to meet different community needs. This sort of service is particularly important in communities such as Eynesbury, which currently have no public transport provision.

In all cases, public transport should be safe and secure, and good information should be available.

Council doesn't directly provide public transport services, but can advocate to the State Government for improvements to services. With this in mind, the proposed vision for public transport in the City of Melton that Council will advocate for is that:

"public transport will provide a reliable, safe, affordable and simple to use transport option, accessible to all, with frequent well connected services to the places Melton's residents most often visit."

This objective is supported by the key themes to emerge from community consultation which are outlined below.

consultation)	
Good features	- The new bus routes are good
	- Trains and buses are good
	- The train service is very efficient
	- Services from Diggers Rest are good
Poor features	- There is no bus service in Eynesbury
	- Many roads are not wide enough for buses
	- Many new estates don't have buses and you need to walk a long way to get a bus
	- Buses not lining up with trains
	- Buses are not accessible for the mobility impaired
	- Buses do not keep to the timetable
	- Bus stops are in the wrong location
	- Lack of connections between communities
	- Trains and buses are not frequent enough
Ideas for improvement	 Make community buses easier to access for clubs/social use
	- Bus service to more remote communities
	- More trains stopping at Rockbank
	 An electrified train system between Melton and Melbourne
	- More trains outside of peak hours

Table 7 Good and poor features of the public transport network and ideas for improvement (from Background Phase community consultation)

Discussion Questions

What are your thoughts on Council adopting this proposed objective for public transport?

In this section, trains and buses dominate the issues identified, but some issues also touch on the roles of taxis and community transport.

3.2 Key gaps

There are many issues with the public transport network in the City of Melton. They can be grouped together into six main themes, shown in Figure 5. Each gap is discussed in detail below.



Numbered box	Gap
1	No direct public transport services on routes connecting Melton's communities to each other and nearby destinations.
2	Poor connections between buses and trains.
3	Poor pedestrian access to bus stops and services.

04-May-2015 Prepared for – City of Melton – ABN: 22 862 073 889



Numbered box

Gap

4 5 6 Poor bus terminal and stop facilities, and taxi rank provision. Risk of worsening bus travel times and punctuality due to traffic growth and congestion. Performance of the Melton railway line.

04-May-2015 Prepared for – City of Melton – ABN: 22 862 073 889

3.2.1 Gap 1 - No direct public transport services on routes connecting Melton's communities to each other and nearby destinations

What sort of gap is this?

This is an existing network gap that affects many communities in Melton. It is rapidly becoming a critical problem as populations grow and new suburbs are established.

The lack of direct public transport connections within the City of Melton and between the City of Melton and surrounding areas means that residents without access to their own transport face lengthy and circuitous journeys by public transport. This increases the time required to visit other communities or nearby destinations and consequently reduces accessibility. This inconvenience acts as a barrier to sustainable travel within the city and to its surrounding areas. In particular, the lack of public transport economically disadvantages residents, with poor connectivity reducing access employment or training opportunities by public transport.

Some of the key bus routes which are currently missing from the network are:

- Melton Township to Watergardens (limiting access to a major regional shopping centre and rail services)
- Melton Township to Bacchus Marsh (limiting access to a local hospital)
- Melton Township to Werribee (limiting access to a major employment area)
- Eynesbury to Melton Township (limiting access to education, shopping centres, rail services and other important services).

As the population of the City of Melton grows, the need for links between the communities and nearby destinations will increase. If no additional services are provided to new growth areas, the impact of the lack of direct public transport services on routes connecting Melton's communities to each other and nearby destinations will become significantly worse. In particular, it will be critical to connect the large areas of new residential land with employment opportunities, as well as regional scale cultural, social and recreational facilities. This is because in the new growth plan residential and employment lands are often in separate precincts; there are not enough local jobs in residential areas for all residents to work close to home.

The cause of this gap is lack of investment in the bus network's coverage. There is a need for new routes and connections to meet existing and future demand.

What are the impacts?

The impacts on the Melton community include:

- economic prosperity is reduced, as residents are restricted in their ability to use public transport to access
 places of work and education in nearby communities or destinations, and are more likely to experience
 'forced car ownership' with its associated higher transport costs;
- social and economic inclusion is also reduced because of the limited ability of residents to safely access nearby areas using affordable transport;
- transport resource efficiency and environmental sustainability is compromised, as the lack of effective services limits the use of sustainable transport. The indirect connections require people to travel further, or use cars to make single-person trips, meaning that opportunities for more efficient use of transport systems and services are foregone. Where there is no public transport, community transport often has to try to fill the gap, resulting in inefficient use of resources that are better targeted at specific groups of people with specialised transport needs. This has been happening in Eynesbury.

How does this gap relate to the Transport Integration Act?

Economic	Social	Environmental
 Reduces access to work and education 	 Failure to meet user expectation Transport not widely available Reduces transport affordability 	 Increases distances travelled to access people, places and goods Makes transport activity less efficient Reduces use of environmentally sustainable transport

3.2.2 Gap 2 - Poor connections between buses and trains.

What sort of gap is this?

This is an existing performance gap experienced when passengers change between services at railway stations in the City of Melton – notably at Melton railway station. The gap is slightly improving with new timetables emphasising providing better connections, but options to improve the situation are constrained by rail infrastructure. Poor connections will increasingly affect more people as the City of Melton's population grows.

The current connections between buses and trains act as a barrier to residents seeking to complete a door-todoor journey on public transport by increasing journey time. Poor connections (exacerbated by infrequent service times) also increase the risk that delays in one service will result in missing access to the subsequent service, reducing the reliability of travel. Delays and unreliability resulting from long waits for connections may result in residents choosing to use passenger vehicles for part or their entire trip. Residents who do not have access to vehicles are disadvantaged by poor connections.

There are many constraints on bus and train scheduling in the City of Melton. Key issues include low frequency services, and single track operations on the Melton train line. But the out-of-town location of train stations makes connections vitally important in Melton.

For trains travelling through stations on the Melton Line, there are four possible connections. They are from bus to train going to Melbourne; from train to bus coming from Melbourne; from bus to train going to Ballarat / Bacchus Marsh; and from train to bus coming from Ballarat / Bacchus Marsh. Figure 6 on the next page show how trains and buses are currently coordinated at Melton Station. Connections to and from Melbourne are prioritised over connections to and from Bacchus Marsh and Ballarat. The result is that passengers making that connection have to wait almost a full hour to complete their trip. Although Ravenhall (Caroline Springs) Station hasn't opened yet, there will be a similar challenge there because it has the same constraints as Melton Station.

The strategic problem is that if both stations have connections towards Melbourne, then it will be inconvenient to travel within the City of Melton on the rail corridor, because the connections will not work efficiently for passengers making connections heading away from Melbourne (e.g. from a city-bound train to a bus at Caroline Springs, to get to the town centre).

With growth in the number of residents, the number of people affected by the poor connections between buses and trains is likely to increase if there is no investment to address this issue.

What are the impacts?

The impacts on the Melton community are that:

- Economic prosperity is reduced, because the limited connections between buses and trains reduce the ability of residents to use public transport to access places of work and education.
- Social and economic inclusion is reduced because of the additional time and cost involved in getting around if connections cannot be relied on.
- Transport resource efficiency and environmental sustainability is compromised, as the lack of connections limits the use of sustainable transport and use of transport assets.

How does this gap relate to the Transport Integration Act?

Economic	Social	Environmental	
 Access to work and education Efficiency, coordination and reliability 	 Responding to user expectations Transport affordability 	 Use of environmentally sustainable transport Use of transport assets Distance travelled to access people places and goods 	





3.2.3 Gap 3 - Poor pedestrian access to bus stops in many suburbs due to indirect walking routes and bus and walking network gaps.

What sort of gap is this?

This is an existing network gap that is widespread across the municipality. There are two related problems – sometimes the walking distance is long because of the way streets are laid out; in other cases the bus stops are difficult or unsafe to access. This gap is steadily getting worse in its impacts as the population grows, and there is a risk it will rapidly become more widespread if new estates develop without bus access.

Poor pedestrian access to bus stops is a barrier to residents using bus services. Services need to be within a reasonable walking distance of homes, places of work and study.

Usually, an area is considered to have access to a bus service if it is within 400m 'as the crow flies' of a bus route. However, measuring from bus stops, and measuring actual walking distances, can highlight that where pedestrian networks aren't complete, then access to public transport is seriously affected.

Case study: Access to bus stops in Rockbank

Although mapping shows Rockbank has access to public transport, with Route 456 buses operating every 30 to 55 minutes, access to public transport is actually very difficult.

The bus stops are located on the freeway and the Leakes Road interchange ramps. Pedestrians need to risk crossing the freeway where traffic is travelling at high speeds, or walk a long way to get to the safer stop at Leakes Road (Figure 7). Whilst many residents live within 400m of the stop, it would require them crossing the four lane freeway. If a safe walking route is used, this journey can increase to 2.7km (or more) even though they are shown to be living right by a bus stop.

Figure 7 Rockbank bus stop on far side of freeway (left); Leakes Road stop with town in the distance (right).



In Figure 5, the purple colouring shows the areas within 400m walk of bus stops as estimated using a GIS analysis, compared to the orange areas that are within 400m straight line of bus routes. The analysis calculated actual walking distances along Melton's footpath and street network, and the number of land parcels ('properties') as provided in GIS datasets, and then calculated the number of properties that are mostly within the 400m walk. The GIS data generally includes footpaths at the ends of dead-end streets, where they are provided.

It is estimated that only half of properties in the City of Melton's growth areas have actual walking distances of less than 400m to bus stops, compared to over 70 percent using the 'as the crow flies' from a bus route method. This highlights the importance of locating bus stops where they are accessible by as direct a walk as practical.

Table 8 Access to bus services

Number of properties inside urban growth boundary	Estimated number of properties	Assumed coverage
Total	48,305	n.a.
Within 400m 'straight line' from bus route	37,119	77 percent
Within 400m 'straight line' from bus stops	34,762	72 percent
Within 400m actual walk from bus stops	22,749	47 percent

As the population of the City of Melton increases, the effect of poor pedestrian infrastructure is expected to worsen if nothing is done. Over time, increased public transport patronage from population growth will mean that more people experience the impact of the poor access in established areas. Increased vehicle traffic will increase the inconvenience experienced by those walking to bus stops, as they elect to take longer but safer routes. However, this problem will mainly be experienced in established areas. In newer growth areas, the planned estates and streets will generally help to avoid this problem because they are generally laid out on grids with good walkability, and with footpaths on both sides of streets that are planned to have bus services. Even in newer areas, however, avoiding this issue depends on the timely provision of bus services and footpaths.

What are the impacts?

The impacts of poor pedestrian access to bus stops include:

- People are deterred from using public transport to access places of work and education.
- Social and economic inclusion is reduced, because the poor access limits the ability of residents to safely access affordable transport. If the distance to access services is too great, many people will not be able to use them, particularly residents with reduced mobility and residents on low incomes. These users may find the lack of bus services within a reasonable walking distance prevents them from accessing community services, employment opportunities and other benefits of living in Melton. Due to perceived safety risks from incomplete networks, safety conscious residents may not use services, for example, parents may restrict children from accessing public transport.
- Transport resource efficiency and environmental sustainability is compromised, as the poor access to bus stops and services reduces use of sustainable transport and use of transport assets. Where there is no public transport, community transport often has to try to fill the gap, resulting in inefficient use of resources that are better targeted at specific groups of people with specialised transport needs.

How does this gap relate to the Transport Integration Act?

Economic		Social		Environmental	
-	Access to work and education Integration of transport and land use	- - -	Availability of transport Responding to user expectations Transport affordability Health and safety and wellbeing	-	Use of environmentally sustainable transport Use of transport assets Distances travelled to access people places and goods

3.2.4 Gap 4 - Poor bus terminal and stop facilities, and taxi rank provision

What sort of gap is this?

This is an existing performance gap. This reflects that even where bus stops are provided, there are community concerns about their quality and maintenance. It is assumed that this gap is neither improving nor getting worse, but more people will be affected by poor facilities as the population grows and ages.

Poor facilities for residents seeking to use bus services and taxi ranks in the City of Melton increase the inconvenience of public transport. For example, a lack of suitable shelters may result in user discomfort during inclement weather, and other weather events like heatwaves. For some residents, the lack of suitable facilities may result in safety concerns, especially on high traffic streets. Improving bus terminal and stop facilities and would increase the physical presence of the bus network, which could lead to increased resident awareness and use, and improvements to taxi ranks could improve perceptions of safety and security.

Community input during the Background Phase identified the bus interchanges at Woodgrove and Caroline Springs as inadequately equipped for their importance as key public transport access points, and identified a lack of an identified taxi rank at Woodgrove.

As the population of the City of Melton increases, poor bus terminal and stop facilities, and a lack of taxi facilities, will affect more potential users, so their effect on potential public transport patronage and taxi use will increase.

What are the impacts?

Some of the impacts of this gap include:

- Economic prosperity may be reduced by passengers being unwilling to use services to access places of work, education and shopping.
- Social and economic inclusion is compromised by increased inconvenience for residents seeking to use affordable transport, with poor infrastructure acting as a barrier.
- Transport resource efficiency and environmental sustainability are compromised, as the infrastructure discourages use of sustainable transport and use of transport assets.

How does this gap relate to the Transport Integration Act?

Economic		Social		Environmental		
-	Access to work and education	-	Responding to user expectations	-	Use of environmentally sustainable transport Use of transport assets	

3.2.5 Gap 5 - Risk of worsening bus travel times and punctuality due to traffic growth and congestion.

What sort of gap is this?

This is an emerging performance gap, with localised congestion affecting bus services at Christies Road already and more locations likely to experience this issue as the population grows. It has the potential to become a critical issue if no action is taken.

A risk to the future performance of buses in Melton will be growing traffic congestion. At the moment, there is localised congestion that can affect bus services. For example, the important intersection of Christies Road with the Western Highway affects bus routes connecting Caroline Springs to Sunshine and the City, as well as being on the way to the proposed Ravenhall (Caroline Springs) Railway Station. Careful planning will be needed during the construction and operation of the railway station to ensure that buses do not get help up in the traffic heading to and from the station and the freeway.

As the population of Melton grows, even with a more sustainable transport network, it is likely that many more intersections will experience localised congestion. It is also possible that long queues will cause congestion to spread away from the intersections. This could cause significant worsening of bus travel times as well as making bus travel generally less reliable.

Strategic transport modelling for the Western Growth Corridor has indicated that most roads are expected to be uncongested in the long term, provided that the planned infrastructure in the Growth Corridor Plan is provided. Despite the general uncongested conditions expected, there are some sections of the Western Freeway, Melton Highway, Taylors Road, Derrimut Road and Leakes Road and around activity centres and railway stations.

What are the impacts?

Increased delays to buses will affect:

- economic prosperity by reducing the effective use of transport assets and reducing people's ability to access work and education. It will also make it more expensive to provide the current level of service.
- Transport resource efficiency and environmental sustainability, as the worsening services will discourage use of sustainable transport and use of transport assets.

How does this gap relate to the Transport Integration Act?

Economic	Social	Environmental	
 Efficient use of transport assets Access to work and education Efficiency, coordination and reliability 	 Responding to user expectations 	 Use of environmentally sustainable transport Use of transport assets 	

3.2.6 Gap 6 - Performance of the Melton railway line: inadequate infrastructure and services to meet demand, resulting in long gaps between services, irregular and difficult to remember timetables, overcrowding, and delays.

What sort of gap is this?

This is an existing performance gap which is already a significant problem and a clear risk of becoming a critical constraint on the City of Melton.

The poor performance of the Melton line servicing the City of Melton, currently acts as a barrier to residents seeking to use public transport. Inadequate services relative to demand mean that many in the community experience inconvenience, such as long wait times or overcrowding, when trying to use public transport. Issues include long service gaps and delays that reduce the usefulness of the service. The single track means that there are long periods of the day with no services at all, for example from Melton towards the city on weekday afternoons. The effect of these problems is to reduce the connectivity of the City of Melton with other sites of employment, education and recreation. This adversely affects residents, especially those who rely on public transport to access jobs and education.

The railway lines' deficiencies are an immediate issue affecting residents and businesses. The trend, as the population of the City of Melton grows towards 400,000, will be for the performance of the railway lines to rapidly deteriorate if no action is taken. The gaps in the timetable will make it impossible for people to access work and education within or near Melton. Overcrowding will become unacceptably high and many people who would prefer to use the service will be unable to do so. Station crowding as people attempt to board full trains will quickly lead to operational delays and the timetable will become extremely unreliable. The result is that many people will be forced to rely on car travel for longer distance east-west trips. The lack of adequate rail services will discourage residents and businesses from establishing in new suburbs along the rail corridor, and isolate people in their suburbs.

By contrast, the upgrading of the Sunbury line has led to significant improvements in transport outcomes in Diggers Rest, including improved connections to nearby regional centres at Sunbury and Watergardens, providing better access to employment and services.

What are the impacts?

The substandard performance of the railway line has a number of effects:

- Economic prosperity is reduced because of the limitations placed on the ability of residents to use public transport to access places of work and education.
- The performance of the railway line reduces social and economic inclusion, limiting the ability of residents to safely access affordable transport to reach economic and social activities.
- Transport resource efficiency and environmental sustainability is compromised, as the performance of the railway limits use of sustainable transport and use of transport assets.

How does this gap relate to the Transport Integration Act?

Eco	nomic	Soc	ial	Env	rironmental
-	Access to work and education Transport and land use integration Efficiency, coordination and reliability		Responding to user expectation Transport affordability		Use of environmentally sustainable transport Use of transport assets

3.3 Potential strategic interventions for buses

Council doesn't directly provide public transport services, but can advocate to the State Government for improvements to services. This section outlines Council's proposed advocacy about bus services in the City of Melton, considering the type of future bus services and the network they form, innovative ways to improve access to buses, and improvements to connections and bus priority.

3.3.1 Building a better bus network

This initiative responds to:

Gap 1 - no direct public transport services

Gap 3 - poor pedestrian access to bus stops and services and

Gap 4 - Poor bus terminal and stop facilities

The City of Melton has many different sorts of communities within it: a rural hinterland, small townships, existing established suburbs, and a large growth area which will encompass some existing townships. The City of Melton has complex connectivity needs. Its communities need to be connected internally and to other areas like Sunbury, Bacchus Marsh, Sunshine, and Melbourne's CBD. Buses will play a key role in most of these connections.

The key challenge for getting a better bus network for communities in the City of Melton is to decide what balance Council should advocate for between *frequent* services, *nearby* services, and *direct* services.

Direct services are generally more popular with customers. They are cheaper to provide, so can be more frequent for a given budget. They are more likely to warrant better facilities like bus priority. These characteristics help make them easier to use, which tends to make them more popular, in a 'virtuous circle' of improvement. But buses need to go where people live and work. In Melton, some areas are difficult to provide with a 'direct' service because of inefficient or missing road connections, so buses have to travel a long distance to collect passengers. Gaps in the pedestrian network also mean that buses running on 'direct' routes are sometimes hard to access from nearby areas due to missing footpath links, indirect roads and a lack of crossing locations.

There is a direct trade off between frequency of services, how direct the route is, and how well the overall community is covered by public transport services. The more that is invested in one aspect of service, the less is available for other aspects. It is usually better to prioritise frequency improvements on the direct services, but this can limit the number of people who have convenient access to frequent services. In the long term, more housing and jobs can be provided on the direct, frequent routes, but this takes many years and doesn't address the question of appropriate services for the rest of the City of Melton.

The arterial road structure of the City of Melton provides a grid of fairly straight streets which would make it easy to form a grid public transport system of direct routes in many parts of the municipality. The locations of employment in relation to housing and major activity centres shape a possible future public transport network.

This paper recommends that Council proposes to advocate for a *hierarchy of services* in the bus network. The key feature of a hierarchy is that each type of service focuses on a specific role. Bus routes that are mainly connecting activity centres won't also divert to serve a housing estate, for example. A typical hierarchy usually has two or three levels in it.

This paper recommends that Council advocates for a long term three-level network as shown in Figure 8:

- 'Principal' routes (shown in orange) run directly between major centres, frequently (ultimately every 10-15 minutes), using only main roads, with bus priority at traffic lights and congested areas. The principal routes will be quite long, connecting many destinations without the need to change services.
- 'Neighbourhood' routes (shown in blue) are less direct, perhaps using residential streets, and running less frequently. Connections between neighbourhood routes and principal routes will enable people to get to most places they regularly visit. Some neighbourhood routes might also form part of the proposed grid network, but the priority is to ensure that the whole urban area shaded blue is intended to have a route within 400m. Some 'neighbourhood' routes might also use more flexible services, discussed below.
- 'Regional' routes (shown in green) connect the smaller outlying settlements, and also provide connections to key nearby areas outside the City of Melton. Initially, these would run four to six times a day (including opportunities for school children to travel) but eventually they could run as neighbourhood or principal routes if areas grow.

The detail of individual routes and how they fit together is a Public Transport Victoria planning responsibility, however this paper recommends that Council advocate for a network of principal and neighbourhood routes that form a grid, with some targeted regional services (particularly in the short term). In many cases, these will replace existing services – how this could be implemented is discussed below.

Figure 8 shows Council's proposed hierarchy of services. Immediate priorities are shown in Figure 9 and discussed below, with Table 9 showing more details of places, types of route and Council's proposed timing.

The orange highlighted lines are the 'principal' routes that this paper recommends that Council advocates for. These routes form a grid connecting Melton's activity centres, and connecting residential areas to employment areas and the railway line. In addition to the routes in the West Growth Corridor Plan, this paper recommends that Council will advocate for a Principal route between the proposed Hopkins Road railway station and Plumpton Activity Centre, as well as for additional Principal routes in Melton Township. This paper recommends that Council will advocate for principal routes to include:

- A service connecting Melton Railway Station with Woodgrove and High Street, to provide better access to the main activity centres of Melton Township from train connections
- A service connecting Ravenhall (Caroline Springs) Railway Station with Caroline Springs Town Centre, to provide better access to the main activity centre in Caroline Springs from train connections

This paper recommends that Council will also advocate for other arterial roads to have a 'neighbourhood' route. This helps to form a grid network that provides a high level of general access to public transport. Neighbourhood routes also connect to some train stations. Most residents would be within walking distance of either a principal route or a neighbourhood route on an arterial road. This paper recommends that Council will also advocate for additional 'neighbourhood' routes as required so that almost all houses inside the Urban Growth Boundary have a bus within 400 metres.

This paper recommends that Council proposes to advocate specifically for the following routes to address immediate needs:

- A service between Melton Township and Watergardens, with connections to Diggers Rest and Sunbury. This
 would run non-stop on the Melton Highway as an interim service, and ultimately be replaced by a principal
 route through Plumpton. This is needed to provide connections between the major activity centre at
 Watergardens and Melton Township, as well as for train connections to Diggers Rest, Sunbury and towards
 central Melbourne.
- A 'regional' service between Melton Township and Eynesbury, including a service available for school children, to meet basic local access needs in Eynesbury to services provided in Melton Township, including the railway station.
- A 'regional' service between Melton Township and Bacchus Marsh, providing access to the hospital in Bacchus Marsh and to overcome the issues with train and bus connections at Melton and Bacchus Marsh which mean this journey can currently take almost two hours.

These priority initiatives are shown on Figure 9.

Buses on the Melton Highway

This paper recognises that the Melton Highway could provide a vital connection needed now by the City of Melton community if it had a regular bus service on it between Melton and Watergardens.

However, the Melton Highway is not a good public transport route, because development is only planned on one side. The future public transport route will be along Tarleton Road, but most of this road has not been built.

This paper proposes that Council should advocate for a bus service to be provided in the interim, but also that Council may need to educate the community that long-term plans do not support the major bus service on this corridor being on the Melton Highway.

Table 9 The City of Melton's proposed bus network hierarchy

Indicative route (details determined by PTV)	Needs	Principal	Neighbourhood	Regional
Melton Railway Station & Woodgrove & High Street connections	Train connections, activity centre	1	1	
Toolern & High Street & Melton Railway Station	Major activity centre, employment area, expanding residential area	S		
Rockbank North and Rockbank	Train connections, activity centre	М	S	
Ravenhall (Caroline Springs) Railway Station - Caroline Springs Town Centre	Train connections, activity centre	1	1	
Caroline Springs Town Centre – Ravenhall (Caroline Springs) Railway Station & Watergardens	Train connections, activity centre	1	1	
Kororoit – Railway line	Train connections, activity centre	М	Μ	
Plumpton – Railway line	Train connections, activity centre	М	Μ	
Hopkins Road Employment Area	Employment area		М	
Melton – Watergardens (connections to Sunbury)	Train connections, activity centre, regional connections	Μ	S	1
Melton - Eynesbury	Local access			I
Caroline Springs - East Werribee (via Werribee)	Employment area	L		М
Bacchus Marsh town centre - Melton	Hospital access			S
All households and employment areas in the City of Melton (90% within 400m)	Local access		1	

I = Immediate need, within three years; S = Short term, within five years; M = Medium term, within ten years

L = Long term, within twenty years







Neighbourhood bus services may not always need to be run with bus vehicles. Innovative systems like flexible, roaming services could provide access to parts of Melton that are difficult to serve with conventional buses, because the streets are too narrow or poorly connected for buses (for example, James Melrose Drive estate in Brookfield) or when demand is low, such as late at night. Services like this operate in Gowanbrae, Rowville and parts of Croydon elsewhere in Melbourne, as well as in parts of Adelaide and other Australian cities.

This paper proposes Council advocate for Public Transport Victoria to trial a 'flexible bus' service in Melton Township. A bus or a taxi would meet each late night train at Melton Railway Station. It would then take each customer as close as practical to their destination anywhere within the built-up area of Melton Township. This innovation would improve access to services, and is potentially a cost effective way to provide services at times where demand is lower.

Moving from the current bus services to the proposed future network may involve changes to existing services. Current indirect routes may need to be reviewed so that the new principal routes integrate well with revised neighbourhood routes. This paper recommends that Council will continue to advocate for neighbourhood buses to serve community facilities, aged care centres and the like as part of the network review.

There will also need to be a renewed focus on delivering roads ready for buses early in the life of new developments. This paper proses that buses should begin to operate their long term routes sooner rather than later, so that bus services can be extended incrementally as suburbs grow and services can start in new suburbs as soon as possible when residents move in. This paper recommends that Council will aim to facilitate this in its work with developers who are providing infrastructure.

This paper recommends that Council advocate for Public Transport Victoria to review the existing bus network with a view to putting in place the foundations for the longer term network. This will include making principal routes more direct, establishing new neighbourhood routes in new areas, and planning routes that can be incrementally extended towards their ultimate destinations as suburbs develop, to help bus services to be provided earlier in new suburbs.

Building better bus stops

Once the shape of the bus network is confirmed, this paper recommends that Council will work with Public Transport Victoria to prioritise bus stop upgrading to the appropriate accessibility and amenity standards. Demand at the stop is a good indicator of relative priority for upgrading, but stops that serve community facilities, aged care centres, shopping centres, railway stations and other similar important destinations should also be prioritised.

Bus stops, even larger facilities that handle many bus routes, should generally be provided on-street, as close to the heart of activity centres as practical, in locations that have other activities, not just public transport passengers waiting. Off-street 'bus interchanges' are appropriate at railway stations and mall-style shopping centres, but would not be appropriate elsewhere in the City of Melton. At major stops, key facilities include network, route and local area maps and timetables, shade and weather protection shelters with seating, access to a public toilet, clearly marked bus stop boarding points, accessibility features like tactile ground surface indicators, and adequate lighting. In the longer term, major bus stops could have electronic next bus displays and audio announcements.

Local stops need to have at a minimum a level boarding area with footpath connection and tactile ground surface indicators, a bus stop flag with map and timetable. Shelters should be prioritised based on special need locations such as libraries, hospitals, community centres, sporting facilities, aged care homes, and schools, as well as on the basis of demand.

This paper recommends that Council advocate for Public Transport Victoria to review the existing bus network with a view to putting in place the foundations for the longer term network. This will include making principal routes more direct, establishing short new neighbourhood routes in new areas, and ensuring that all routes can be incrementally extended towards their ultimate destinations as suburbs develop. This will help to enable bus services to be provided earlier in new suburbs.

Once PTV has completed this review, this paper recommends Council use the detailed plan as part of its prioritisation of roads and infrastructure in new developments so that bus services can be provided as soon as practical.

It would also be used to prioritise upgrading of bus stops and connecting footpaths in established areas to meet Disability Discrimination Act standards and customer needs.

Discussion Questions

- What are your thoughts on the bus network improvements Council should advocate to the State Government as your priorities to support more public transport use in the City of Melton?
 - Do you agree with the proposed implementation priorities?

3.3.2 Planning for bus priority

This initiative responds to Gap 5 – worsening bus travel times and punctuality.

It also indirectly responds to Gap 2 - Poor connections between buses and trains.

A potential strategic intervention to ensure that bus services continue to operate quickly and effectively in the City of Melton is to provide them with more priority on the roads.

Priority can be provided by dedicating road space. For example, bus lanes could be provided along an entire road, or a shorter 'queue jump' bus lane at intersections that allows buses to get to the front of the traffic.

Priority can also be provided by allocating time to buses. This could include changing traffic lights to favour roads with bus services, or providing various forms of technology and special traffic light signals. These can ensure that buses get green lights as they arrive at intersections, or give buses a special bus-only opportunity to move through an intersection.

Given that most of the roads that will have buses in the future are not expected to be congested, bus priority should be targeted.

Sites where bus priority should be investigated in the short term are the intersections on Christies Road at the Western Highway and Freeway access points on the way to Ravenhall (Caroline Springs) Railway Station.

This paper recommends that Council advocate for the State government to plan for future bus priority to be readily provided:

- Along 'Principal' bus routes
- On the approach to activity centres and railway stations (but putting the needs of pedestrians and cyclists first in the activity centres themselves)

Generally, Council believes the priority measures should be targeted at congestion hotspots, most likely intersections. However, this paper recommends that Council will advocate for sufficient bus priority to be provided to ensure that connections can be reliably provided on the two key corridors between:

- Melton Railway Station, Woodgrove and High Street
- Ravenhall (Caroline Springs) Railway Station and Caroline Springs Town Centre

Discussion Questions

Do you support providing bus priority on key bus routes and roads?

3.3.3 Improving connections between services

This initiative responds to Gap 2 - Poor connections between buses and trains.

Until major improvements are made to the rail corridor's service frequency, the existing issues with bus and train connections are expected to continue. However, in the meantime, there are some possible strategic changes that could be considered to improve bus and train connections.

- A frequent principal route could be introduced between Melton Station, Woodgrove and High Street. By being frequent, it would have a reasonable connection to Melbourne and Ballarat trains. The same approach could be taken with a service between Caroline Springs Town Centre and Ravenhall (Caroline Springs) Station. The 'neighbourhood' routes could continue to meet primarily with Melbourne-direction trains. The main disadvantage of this approach is that only the route between the main activity centres and the station would have the regular connections; it would not be easily available in areas served only by neighbourhood buses.
- A neighbourhood route could be timetabled so that it always meets the Ballarat-direction train, but never the Melbourne-direction train. This would mean that there would always be a connection from the station to the town centre for trips within the City of Melton, as well as connections to the important services and facilities in Bacchus Marsh in particular. It would also mean that passengers on that particular bus route would not have good connections to Sunshine, Footscray and the City. However, other routes in the area could provide that connection. If a bus route that serves a large part of the neighbourhood is selected, then many people would have this option. It would be important to clearly communicate which route connects to which trains.

This paper recommends that Council advocate for the State government to provide 'principal' bus routes between the stations and the activity centres to address this problem.

Discussion Questions

 What way of providing bus / train connections would make it easiest for you to make more use of public transport?

3.4 Potential strategic interventions for trains

Council doesn't directly provide public transport services, but can advocate to the State Government for improvements to services. This section outlines Council's proposed advocacy about rail services in the City of Melton, about the type of future train service on the Melton Line, how the infrastructure should be upgraded, and provision of future stations.

3.4.1 Getting the right train service for the future

This initiative responds to Gap 6 – performance of the railway line. It also indirectly supports Gap 2 – poor connections between buses and trains.

More frequent services, more regular services, with more consistent departure and arrival times, services earlier and later on some days of the week and more capacity for passengers on trains have all been requested by the Melton community.

A key strategic task for the City of Melton is to advocate for the State Government to develop an effective train service on the Melton rail corridor. This is vitally important because the railway is the backbone of the Western Growth Corridor public transport network. It is important to consider what sort of railway service will best meet the needs of residents and workers in the City of Melton.

As the population grows towards 400,000, the existing limitations on the Melton rail corridor will become unworkable. At the moment, the Melton rail corridor has what is sometimes called an 'intercity' service with some additional peak-hour 'commuter' services. In the future it will be necessary to move to a 'rapid rail' or 'metro' service. The general differences between these types of services are summarised in Table 10. It's important to appreciate these are not strict categories and hard rules. For example, some stations might be closer together or further apart, because the decision about where stations should go is a complex one based on local land use and strategic network connections as well as rail planning requirements.

Characteristic	Intercity / Regional	Commuter	Rapid Rail	Metro
Frequency	Low (e.g. hourly)	High in peak, low or none at other times	High (six or more trains an hour)	High (six or more trains an hour)
Maximum speed	High to very high (160kph or more)	High (100-160kph)	Medium (80 to 130 kph)	Low to medium (30-115 kph)
Train capacity	All seated – 300 to 1000 people per train	All seated – 300 to 1000 people per train	Seats and standing room: 800 – 1000 people per train	Some seats, mostly standing: 800 – 1200 people per train
Approximate stop spacing	Long: 10 to 50 kms	Medium to long: 5 - 10 kms	Medium: 2 to 5 kms	Close: 0.5 to 3 kms
Demand pattern	Most passengers are going between major centres	Most passengers are going to a central point	Most passengers are going to the city centre or a few major centres on the way	There are many passenger destinations along the line
Australian examples	V/Line Ballarat service	V/Line Bacchus Marsh service	Outer part of Sunbury line	Inner part of Sunbury line

Table 10 The typical characteristics of four main types of train services that could be used on the Melton rail corridor

As explained in the Background Report, the current combination of 'intercity' and 'commuter' services on the Melton line is already struggling to meet demand, provide a reliable service and meet people's need and expectation of a frequent service. The existing infrastructure is not able to support a significantly more frequent service, so improvements will be needed.

It is important to think about both the infrastructure needed for the type of train service desired, as well as the strategic features of a future service. An important strategic concept in thinking about train services is the 'path'. A path is the timing of a train's movement between two locations. A timetable is built up of train paths. Train paths and timetables can be strategically planned with powerful practical consequences for transport outcomes. For example, where train paths cross, trains are in the same location at the same time, which makes connecting

buses more efficient – but then the infrastructure and signalling needs to be able to enable this to happen. The world's best rail networks emphasise getting the strategic service design right.

This is particularly important in Melton, where the major railway stations at Melton and (soon) at Ravenhall (Caroline Springs) are located away from the main areas they are designed to serve.

This paper proposes that Council advocate for the State Government to commit to upgrade the Melton rail corridor to a 'rapid rail' service with these features:

- Extra trains in peak hours, stopping at major stations only.
- Easy to remember basic intervals between services, providing regular services at the same times every hour, all day and every day, to make the timetable easy to remember and for better connections. A service every 20 minutes initially would ultimately become so frequent that a timetable isn't really needed by most passengers.
- Trains arriving and departing at Ravenhall (Caroline Springs) Station in both directions at around the same time, as far as practical. At Melton Station, desirably trains would arrive from Melbourne and depart to Melbourne at around the same time. This would be helpful to the community by enabling the widest range of efficient bus connections.
- Convenient connections at Deer Park to and from Geelong.
- Ballarat trains to stop at Toolern or Melton Station as the major stop in the City of Melton, to maintain convenient access to Bacchus Marsh, Ballarat and regional Victoria. These longer distance trains would also run a simple, easy to remember, service.

The upgrading of the rail service to Diggers Rest has already provided many of these positive features. This paper recommends that Council will advocate for the Sunbury line to continue to have peak express services as part of a 'rapid rail' style service. Council will advocate for peak services to be increased over time in line with demand, for a 20 minute regular daytime service to be extended from Watergardens to Sunbury, and for convenient connections between rail services at Sunshine Railway Station.

Discussion Question

Would the proposed rail service make you likely to use it?

In the long term, there is a rail line proposed to be built in the centre of the Outer Metropolitan Ring Transport Corridor. This railway line is planned to connect Geelong to Beveridge and is mainly intended as a freight railway bypass of Melbourne.

The Outer Metropolitan Ring corridor runs mostly outside the urban growth boundary. It has been deliberately routed away from activity centres and it doesn't directly connect to any strategic destinations for passenger travel, like Melbourne Airport. Where it crosses existing railway lines there are also proposed large motorway interchanges, which constrain space for potential stations.

In Perth, and some other cities, passenger railways operate successfully down the centre of freeways. The reasons these lines are very successful include:

- They connect suburbs to the central business district directly, which is the role that passenger rail serves most effectively in Australian cities. An OMR railway line would not do this.
- There are some important strategic destinations adjacent to the freeway corridor, such as a University. There are no similar destinations on the OMR route.
- There are few other routes available to provide a high quality road-based service such as the potential public transport priority arterial roads discussed in this paper. By contrast, the Western Growth Corridor has this potential.
- They have widely spaced stations that serve a large residential area with feeder buses, because stations in the centre of freeways are relatively difficult to walk to, which reduces their effectiveness. This could potentially be provided on an OMR railway, but the primary connection would need to still be the Melton or Sunbury lines, so connections may not be able to be scheduled conveniently.

Other cities that have developed 'orbital' passenger railway lines have used older railway lines that have had activity centres build up over time around their stations. The London Overground is a good example of this approach. The Outer Metropolitan Ring Transport Corridor will not provide this opportunity.

For these reasons, this paper recommends that Council does not prioritise advocating for a passenger train in the Outer Metropolitan Ring Transport Corridor.

3.4.2 Upgrading Melton's train lines

This initiative responds to Gap 6 – performance of the railway line.

There are a number of challenges to achieving the required 'rapid rail' service on the Melton train corridor:

- Melton line trains share tracks with other services closer to the city, which have their own timetable restrictions and requirements. This constraint is a major limitation on service planning.
- Combined with the single track, this makes it impossible to operate frequent services reliably.
- The planned Ravenhall (Caroline Springs) and Melton Stations are slightly more than 10 minutes apart for stopping trains. In the short term this will make it difficult to have trains meeting in both directions at both stations with an easy-to-remember timetable.

To overcome these limitations will require a staged program of investment in the infrastructure on the Melton railway line. Table 11 outlines Council's proposed advocacy.

Stage	Service and Infrastructure Advocacy	Other Benefits
1	 20 minute regular services during the day Duplication from Deer Park to Melton Provision of Toolern and Ravenhall Station Train yard near Melton 	 More evenly spaced services More punctual services without waiting for trains in the other direction More trains to Melton in the morning peak and from Melton in the afternoon / evening peak A regular, simple to remember, timetable Improved access to employment precinct
2	 10 minute daytime service Direct service to City Loop / Melbourne Metro Electrification Separate regional train tracks Grade separation (see the Road Transport section of this paper for more discussion) 	 Potentially faster services Higher capacity trains

 Table 11
 A possible pathway to improving the Melton train line – stage and benefits.

To run more frequent services on the Melton line, duplication of the railway will be needed. Without a second track, it isn't possible to run frequent services in both directions reliably.

There is little opportunity to add new peak period services efficiently because opportunities to allow trains to pass are mostly already being used in the current timetable. In the peak hours, passengers travel predominately in one direction. Peak hour demand is a key decider of train length and frequency; some railways use a strategy that sees long trains heading regularly to the city without any services returning to the suburbs in order to provide the maximum capacity possible. This strategy is already used in the afternoon peak on the Melton Rail Line, and is why there are no trains towards Melbourne in the afternoon.

This paper takes the view is that it is critically important that trains run regularly in both directions, so that community members can access employment, education, social and recreational opportunities and appointments. This role of the railway is as important as its peak hour commuting role. Additional stations, particularly ones that provide access to local jobs, are also critically important. The development of Toolern Station is a priority because it will be an important destination for people coming from the east as the town centre and employment area grows. Toolern's location means that duplication should extend all the way from Deer Park to Melton so that reliable access can be provided right along the railway corridor.

If the railway is not duplicated soon, the planned development of the entire Western Growth Corridor will be compromised because of the lack of adequate services in both directions in the corridor. In particular it will be difficult to develop employment areas along the rail corridor because of the difficulty in bringing workers to the available jobs, or to accommodate increasing numbers of residents in new developments west of Caroline Springs because of the lack of transport capacity to employment areas.

This paper proposes that Council advocate to the State Government for a regular, all day service in both directions serving stations located in existing and future communities on the Melton rail line, and that duplication of the railway is an urgent priority in order to run this service.

Council will advocate that the improved service and increased access to it will provide immediate economic, social and environmental benefits that mean duplication and new stations should be prioritised. This will address many of the immediate issues and provide capacity for growth until electrification is required.

Council recognises that duplication by *itself* does not bring the improvements that are essential for the West Growth Corridor to be successful. It is the *service frequency* that will be the critical improvement that brings greater access, and as a result, economic and social benefits. To deliver the service frequency, duplication is required.

It isn't necessary to electrify the line to run more services – but it will be necessary to electrify the line to run genuinely frequent services, for example every ten minutes. Adelaide runs a suburban train service using diesel trains on most lines. However, diesel trains have less acceleration than electric trains, so they aren't as efficient users of paths if they are providing a 'rapid rail' service of stopping trains mixed with express trains. For this and other technical reasons, it is usual to electrify train lines that have frequent services and many stations.

Electrification of the train line improves the acceleration and stopping capability of trains. It would therefore have bigger benefits when there are more stations on the line. Electrification would be required to provide direct services to underground rail lines in central Melbourne (for example the City Loop or the proposed Melbourne Metro). Based on current and proposed Melbourne trains, electric trains would likely have around 50 percent more passenger capacity than diesel trains. However, electrification doesn't necessarily mean 'suburban trains'. There are many examples worldwide of electrified regional train services, so an electrified Melton service could potentially also run just to and from Southern Cross as the current V/Line services do. In any case, electrification is likely to be needed by 2027; otherwise there is likely to be insufficient capacity for passengers and the service will become inefficient to operate with diesel trains.

Duplication and electrification would likely only go to Melton, for various reasons:

- Bacchus Marsh is outside the urban growth boundary. Metropolitan services would be inconsistent with it being outside the metropolitan area.
- There are high cost bridges and earthworks needed between Melton and Bacchus Marsh if the line is duplicated or electrified. This means the additional distance to Bacchus Marsh compared to Melton is relatively expensive for the benefits it could provide.
- Current plans propose providing separate tracks for 'intercity' (Ballarat) and 'rapid rail' (Melton) services, so that there would be four tracks between Melton and the City in the long term. Extending this to Bacchus Marsh would increase the costs of running electric trains there.
- Land has been set aside in the West Growth Corridor Plan for a train yard near Melton, but not near Bacchus Marsh. A train yard near the terminus of the line is highly desirable to efficiently run a frequent suburban train service.
- Once Melton to Sunshine has an electric service, there would be spare capacity on Ballarat trains. So in the future train services would run Ballarat Ballan Bacchus Marsh Melton / Toolern (drop off / pick up only) and into the city, rather than run express through Bacchus Marsh as they currently do in the peak.

As more services are provided, it becomes necessary to grade separate the railway line so that road traffic isn't unacceptably delayed at rail crossings. This can be a major cost, but doesn't usually become necessary until services are running every few minutes, or a railway corridor increases from two tracks to four tracks. In the City of Melton, grade separation is an issue for vehicle traffic and urban development impacts more than a railway development issue. It is discussed further in the Road Transport section of this paper.

The pathway outlined above is broadly in line with Public Transport Victoria's Network Development Plan for metropolitan rail, which proposes duplication during the same stage of network development as construction of the Melbourne Metro rail tunnel. As this has been committed for delivery from 2018, duplication is now appropriate. Electrification is expected to follow within five years.

This paper proposes that Council should advocate to the State Government for electrification of the railway as a subsequent improvement, enhancing a duplicated railway that will already be running a regular and frequent diesel train service.

Council will be advocating to the State Government that land be set aside around each level crossing for future grade separations, in a way that allows them to be built in the future with little disruption to traffic and trains.

Discussion Questions

- What are your thoughts on Council advocating to the State Government to take a staged approach to the improvement of services on the Melton railway line?

3.4.3 Future stations

This initiative responds to Gap 1 – no direct public transport services connecting Melton's communities to each other and nearby destinations.

Access to rail services is a strategic gap in the City of Melton's transport network. Providing new stations will help to fill this gap.

Not every railway station plays the same role in the overall transport network. Their role can be different based on two main features: how people get to the station, and what sort of land use is around the station. There is often a hierarchy of stations on a line. Examples of different types of stations include:

- Junctions: stations designed to facilitate connections between train lines can have special design
 requirements for concourses and platform layouts. However, there are no junction stations in the City of
 Melton. Deer Park station, in Brimbank, is the nearest junction and connects the Melton and Geelong rail
 services. It uses a simple junction station layout an 'island' platform that allows passengers to simply
 cross to the other track for their connecting train.
- Town Centre stations: these stations are usually staffed for all trains and offer a range of customer facilities like toilets and retail services. In the morning peak, these stations may be significant destinations as well as the starting point of trips, and are busy all day with passengers making a wide range of trips. Normally all 'rapid rail' trains would stop at these stations, and a station of this type would also be where any regional trains would stop in the City of Melton. Access to the station by walking, cycling and bus is often prioritised compared to access by car.
- **Suburban stations:** these stations provide a basic level of access to train services. They may be staffed full-time or only part of the day. They tend to have significantly more demand during the peak commuting period. Express trains may not stop at these stations. No particular access mode is prioritised, but they may have large carparks if land is available.
- **Parkway stations:** these stations are designed mainly as Park and Ride stations, intended for access by car. They are often located close to freeway interchanges. They have large carparks and need a large area of land away from residential or commercial areas.
- **Special event stations:** these stations are built to meet highly specialised needs at locations like showgrounds and stadiums. There is unlikely to be a need for such a station in the City of Melton.

It is important to consider prioritising access to stations. As much as possible, for a sustainable transport system people should be encouraged to walk, cycle and take the bus to stations that are in activity centres. This saves on valuable land around the station as well as improves the amount of activity in the town. Stations that are outside activity centres could quite appropriately favour parking over buses, but pedestrians and cyclists should always have good quality access to stations.

Accordingly, it is good practice to try to plan space around stations with flexibility in mind so that if needs change parking can be changed into development land whilst keeping pedestrians, cyclists and buses in the forefront of station access.

The type of railway planned for the Melton Rail Line would appropriately have stations approximately every two to five kilometres. This is what is planned in the West Growth Corridor Plan.

The stations proposed in the West Growth Corridor Plan are well located to serve nearby land uses. They are planned to form part of integrated activity centres, or are strategically located with respect to the road transport network for connections by principal bus lines to activity centres that are not directly on the railway.

There may be potential for a 'Parkway' style station near Rockbank and Diggers Rest, where the Outer Metropolitan Ring transport corridor crosses the railway. At Rockbank there is extensive urban development, both residential and industrial, planned in the area, so a station with a large car park would not generally be appropriate. Near Diggers Rest, the site is outside the Urban Growth Boundary, which suggests land could be available because urban development is not permitted. This site could be a good location for a major regional park and ride accessible from the OMR and the Calder Freeway. Alternatively, the proposed 'Calder Park' station just outside the City of Melton could also potentially have a large car park to its east, but this land is inside the urban growth boundary and the site would not have as convenient access from the OMR. It is zoned for industrial land use and is a potential employment area. A Diggers Rest Parkway station should not be precluded. Adding stations can only be done after duplication of the line, but should then be aligned with the Precinct Structure Plan and provided early in the life of the new community.

This paper proposes Council advocate to the State Government that future railway stations be provided as shown in Table 12 and Figure 10.

Station location	Station Type Comments			
Melton railway line				
Melton	Town Centre	Opportunity to rebuild as part of new structure plan.		
Toolern	Town Centre	Planning underway as part of structure plan and urban design framework. Supports principal bus route connections.		
Paynes Road	Suburban	Relatively minor station with neighbourhood bus connections. This station fills an otherwise significant gap between stations and generally serves residential areas. The Precinct Structure Plan could consider a small activity centre near the proposed station.		
Rockbank	Town Centre	Planning underway as part of structure plan. Supports principal bus route connections.		
Hopkins Road (Mount Atkinson)	Town Centre	Initial planning underway. Has potential to support principal bus connections.		
Ravenhall (Caroline Springs)	Suburban	Committed station.		
Sunbury railway line				
Diggers Rest	Suburban	Existing station unlikely to require substantial change into the future.		
Diggers Rest Parkway	Possible future 'Parkway' station	Possible large park and ride with Calder Freeway and OMR access.		
Calder Park (Hillside)	Possible future Suburban	Relatively minor suburban station to serve northern end of Calder Park Drive bus route corridor and possible employment area. Would only be needed if the employment zone is successfully established with a significant concentration of jobs, as Watergardens is nearby and easily accessible.		

Table 12	Future stations on the Melton and Sunbury lines serving Melton communities
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Discussion Questions

Are the proposed stations and type of stations suitable for rail services to the City of Melton?

Figure 10 Future rail stations



One of the main strategic distinctions between the current issues faced in the City of Melton, and the approach being taken in the Growth Corridor Plan and Precinct Structure Plans is how activity around the railway line is being planned.

In the planned new suburbs at Toolern, for example, the railway station is intended to be central to the community. Important features of how transport and land use are being integrated here, shown in Figure 11, include:

- High intensity 'Major Activity Centre' uses surrounding the station.
- The station's central position in the Major Activity Centre, located within a grid of streets that can be walked, cycled and used by bus services.
- The central location of the Major Activity Centre in the broader Toolern precinct.

<complex-block>

Figure 11 Toolern Precinct Structure Plan

Note: the Paynes Road precinct bounded by Mount Cottrell Road, Paynes Road, the railway line and the Western Freeway will be residential land, not employment land as shown in Figure 12.

By contrast, land around Melton Railway Station, as shown in Figure 12, is dominated by low density uses, notably at-grade car parking and vacant land. Land around Caroline Springs Station is compromised by how close the Western Freeway is.

The long-term strategic issues caused by station location are a major challenge for the Strategy to address, and a mixture of transport and land use directions are proposed. One of the possible strategies is to intensify development around railway stations, providing a mixture of homes, businesses and community facilities. This is known as transit-oriented development – although in recognition that Melton South is already a well established community, it would be more appropriate here to think about 'transit-oriented redevelopment'.

The potential benefits of transit-oriented redevelopment are that it allows more people to live and work close to the highest capacity transport services and in the location that will ultimately have the best public transport accessibility (that is, it will be the best connected location for public transport).

Figure 12 Melton Railway Station nearby land uses (Source: Google Earth Professional)



The station precinct could be a strategically appropriate location for community facilities that are expected to attract people from across the City of Melton or more broadly across western Melbourne. Any proposal to encourage development here would need to plan around the implications of being a transit-oriented centre. In the case of Melton Railway Station, this includes planning for future grade separation of the railway line on Station Street. This may mean that some desirable land around the station will not be able to be developed because it will be needed for grade separation.

There is a similar situation in Diggers Rest, where the recently electrified train service makes denser development around the railway station more attractive.

It should be recognised upfront, however, that there will continue to be a critically important need to have a good quality connection to High Street, Woodgrove, and in the case of Caroline Springs, to the town centre. More generally, because Caroline Springs and Melton High Street will need to have good bus route connections between them and their Stations, the corridors along which those services will run may be good candidates for more widespread 'transit-oriented redevelopment'. Improved transport access and redevelopment opportunities might have a mixture of positive and negative effects on established residents, especially people experiencing socio-economic disadvantage such as public housing residents.

This paper proposes that, provided that public transport and sustainable transport options are improved as outlined in other parts of this paper, Council could develop a revised land use plan supporting denser transit oriented redevelopment for areas around:

- Melton Railway Station
- the main transport corridors connecting Melton Railway Station, Woodgrove, and High Street
- the main transport corridor connecting Ravenhall (Caroline Springs) Station and Caroline Springs Town Centre

Discussion question:

How should established areas change to provide better transport outcomes in the City of Melton? What parts of the City of Melton might be appropriate for change in the long term?

Road Transport







4.0 Road based transport

4.1 Overview and context

Road transport plays and vital, and appreciated, role in the transport network in the City of Melton. Generally community feedback told us that the road network works quite well in the municipality, with only localised congestion, abundant parking, and effective freight movements for businesses.

The road network is expected to continue to be the main way the movement of people and goods is supported in the City of Melton. The road network will be important infrastructure for the walking, cycling and bus networks and cars will continue to provide the first choice of transport for many trips. But unsustainable supply and use of roads will need to be reduced in order to improve liveability and sustainability.

A key area of concern is car orientation and car dependence. Subdivision layouts and site-specific planning in parts of the City of Melton show many locations were planned primarily around access by car. Much has been learnt about the disadvantages of this, with new suburbs planned around a grid road network, which avoids some of the most problematic layout problems of car orientated thinking. The current plans for new suburbs generally avoid numerous dead end streets with no pedestrian connections, shopping areas accessible only by car with shops set back from the street, and indirect routes between destinations that make travelling by foot, bicycle or bus take so much more effort and time that driving is the only realistic option. However, this potential improvement in car orientation will depend on implementation of these key principles in the current plans.

To reflect the strengths of road transport, and to recognise its impacts, the proposed vision for road transport in the City of Melton is

"road transport will be a reliable, safe, affordable and simple to use transport option. Road transport supply will be managed to maximise its contribution to Melton's liveability, environmental sustainability and economic prosperity."

This aims to align with the feedback provided by the community about how they use cars now and their aspirations for the future, shown in Table 13. They are drawn from individual feedback provided during the Background Phase of this study.

Good features	-	Maintenance of the roads
	-	Car access is generally good within the community
	-	Traffic
	-	The road network
Poor features	-	There are too many trucks on some roads
	-	Maintenance at freeway interfaces is poor
	-	People have to drive to most places
	-	Speeding cars are a problem
	-	Roads need to accommodate agricultural vehicles
Ideas for improvement	-	Various intersections could have safety and congestion improvements
	-	A southern bypass of Diggers Rest
	-	A second southern access point for Eynesbury
	-	Widen roads to facilitate bus movement
	-	Better planning and early delivery of roads
	-	Less dependence on cars

 Table 13
 Good and poor features of the road network and ideas for improvement (from Background Phase community consultation)

Discussion Questions

Do you agree that Council should adopt this proposed vision?

4.2 Key gaps

Key gaps identified by the community and stakeholders with the road transport network in Melton were generally localised intersection and safety concerns along arterial roads, although arterial road management is a key issue to stakeholders.



Reference Strategic gap

- 1 Concerns about safety or congestion along roads
- 2 Concerns about safety or congestion at intersections
- 3 Inappropriate interfaces on freeways (at grade crossings, bus stops)


Reference Strategic gap

- 4 Lack of freeway access
- 5 Missing links
- 6 Roads performing an arterial road function but not declared and managed as arterials
- 7 Expected rapid growth in freight movements

4.2.1 Gap 1 - Concerns about safety or congestion along roads

What sort of gap is this?

This is an existing performance gap, where the existing road infrastructure does not perform to the desired standards. It is likely to become extremely severe with growth in traffic, if no action is taken.

Safety or congestion along roads is considered a performance gap, because the transport asset is not performing to the standard required by users.

There are already problems with Melton Highway (especially where it crosses Kororoit Creek) and the Western Freeway, which was never designed to be an urban road. Once Ravenhall Station is constructed the roads near the intersection of Christies Road and the Western Freeway will become congested very quickly.

If the road networks stay as they are, this problem will only get worse as the population of the City of Melton increases. The growth will put significant pressure on minor rural roads that are ultimately the future arterials, as well as increase demand on existing major road corridors including the Melton Highway, Western Freeway and Greigs Road.

The West Growth Corridor Plan outlines a grid road network of upgraded and new roads in response to this gap.

What are the impacts?

Congestion causes a number of impacts, notably:

- reduced efficiency in the movement of freight and people and reduced access to businesses, shops and community facilities;
- safety concerns have direct social impacts as well as economic impacts from disruptions and insurance costs.
- If roads are congested and unsafe people are less likely to use active transport options, creating a feedback loop where the congestion gets worse.
- This also has negative environmental effects due to people spending more time in cars.

How does this gap relate to the Transport Integration Act?

Economic		Soc	cial	Env	vironmental
	Use of transport assets Access to work and education Business access to markets Transport costs Efficiency, coordination and reliability	-	Responding to user expectation Health and safety and wellbeing	-	Making transport activity more resource efficient and reducing its environmental impact

4.2.2 Gap 2 - Concerns about safety or congestion at intersections

What sort of gap is this?

This is an existing performance gap, where the existing road infrastructure does not perform to the desired standards. It is likely to become extremely severe with growth in traffic, if no action is taken.

Concerns about safety or congestion at intersections are also a performance gap. Intersections which do not perform as expected reduce the effectiveness and efficiency of an otherwise well planned road network. Bottlenecks within the network can create situations where travellers avoid particular areas, meaning local businesses may miss potential trade, and amenity impacts become concentrated at particular locations. Unsafe intersections can be extremely costly both economically and socially due to the rate of traffic collisions.

Some examples of intersections where safety or congestion problems have been identified are:

- Christies Road and Western Freeway (congestion, which will get worse when Ravenhall Station is constructed)
- Exford Road and Greigs Road (unsafe blind corner)
- Melton Highway and Leakes Road (uncontrolled intersection with increasing amounts of traffic)
- At grade intersections of the Western Freeway with Troups Road North, Paynes Road and Mt Cottrell Road
- Old Calder Highway crossing the Diggers Rest railway line (complicated intersection on an angle, which will become congested easily when the population of Diggers Rest increases)
- High Street and Coburns Road (roundabout already struggles to control traffic flow)
- Various grade crossings of railway lines within the City of Melton are a problem.

Similar to the previous concern, congestion is expected to get worse as the population increases and roads become busier.

The West Growth Corridor Plan outlines a grid road network of upgraded and new roads in response to this gap.

What are the impacts?

Congestion causes a number of impacts, notably:

- reduced efficiency in the movement of freight and people and reduced access to businesses, shops and community facilities;
- safety concerns have direct social impacts as well as economic impacts from disruptions and insurance costs.
- If roads are congested and unsafe people are less likely to use active transport options, creating a feedback loop where the congestion gets worse.
- This also has negative environmental effects due to people spending more time in cars.

How does this gap relate to the Transport Integration Act?

Economic		Social		Environmental	
	Use of transport assets Access to work and education Business access to markets Transport costs Efficiency, coordination and reliability	-	Responding to user expectation Health and safety and wellbeing	-	Making transport activity more resource efficient and reducing its environmental impact

4.2.3 Gap 3 - Inappropriate interfaces on freeways (at grade intersections, bus stops)

What sort of gap is this?

This is an existing network gap, where land uses and the transport network are misaligned, resulting in facilities requiring pedestrian access being located on freeways, and formerly rural road intersections becoming at-grade freeway intersections on increasingly busy roads.

Inappropriate interfaces on freeways can create a multitude of problems for all users of the road. First and foremost are the dangers associated with different forms of transport interacting in an unexpected environment. On a high-speed urban motorway, car and truck drivers generally do not expect to encounter bus stops and pedestrians, as these road users are excluded from all other freeways in Victoria. At Rockbank, bus passengers need to cross the Western Freeway to get to the stop. This is an example of a dangerously inappropriate interface.

As the growth corridor urbanises, these features will become increasingly dangerous, with potential for more bus passengers (until the railway is upgraded) and increasing volumes of traffic turning at the at-grade intersections. Traffic queues on the side roads would also increase over time.

In early 2015, VicRoads closed many of the at-grade intersections between Rockbank and Melton for through traffic and turns across the freeway. At the moment while the area is rural few people are adversely affected by this change. However, connections across the freeway will need to be restored as the area urbanises.

What are the impacts?

The impacts of inappropriate interfaces include:

- safety consequences, which have direct social impacts as well as economic impacts from disruptions and insurance costs.
- reduced efficiency in the movement of freight and people due to the need to put in special speed zones;
- reduced access to public transport services.

How does this gap relate to the Transport Integration Act?

Economic		Soc	cial	En	vironmental
	Use of transport assets Access to work and education Business access to markets Transport costs Efficiency, coordination and reliability	-	Responding to user expectation Health and safety and wellbeing	-	Making transport activity more resource efficient and reducing its environmental impact

4.2.4 Gap 4 - Lack of freeway access

What sort of gap is this?

This is an existing network gap, where increased access to existing transport networks is required. This gap is gradually becoming more significant as the population in areas that need freeway access is growing but access points are being reduced.

The City of Melton currently relies heavily on the Western Freeway in particular to support residents' daily commute to work or education, given the gaps in local job availability and the public transport network. To protect the freeway's strategic role to support major freight movements and long-distance travel, it is appropriate to be selective about where freeway access is provided.

Nevertheless, poor access to this asset means people are forced to drive through busier parts of the suburbs and towns to get to the freeway. This increases traffic on local roads, which is undesirable from both a safety and environmental standpoint, as well as the economic and social problems which stem from congestion.

As the City of Melton expands, its population will move into new areas further away from the traditional freeway access points. This means that over time this problem could be exacerbated.

The West Growth Corridor Plan provides for a number of improved interchanges to replace some of the at-grade intersections.

What are the impacts?

The impacts of inadequate access to the freeway network include:

- reduced efficiency in the movement of freight and people with too much traffic on the arterial road network compared to the freeway;
- social and environmental amenity impacts for residents on arterial roads and rat-run streets affected by congestion on freeway access routes and alternatives;

How does this gap relate to the Transport Integration Act?

Economic	Social	Environmental	
 Use of transport assets Access to work and education Value for money infrastructure and services Business access to markets 	 Respond to user expectations Make transport more widely available 	 Makes transport activity less resource efficient and increases its environmental impact 	

4.2.5 Gap 5 - Missing links

What sort of gap is this?

This is an existing network gap, directly reflecting areas where new road links are needed to develop an effective road system.

Missing links within the transport network makes it harder for people to get where they need to go. Similar to the lack of freeway access, this will mean people will spend more time driving in local areas taking indirect routes, which increases overall transport time. This will have negative economic and environmental impacts because of the increased time spent in cars.

For travel within the City of Melton, missing links are already a network gap at some locations where high-cost infrastructure such as bridges or an upgraded road has been deferred. An example of this problem occurs in Burnside where Westwood Drive does not yet cross Kororoit Creek. In other locations, localised amenity issues may become issues of 'missing links'. For example, as Diggers Rest grows, conflicts with through traffic may increasingly be a problem. Stakeholders and residents have already identified this as a potential 'missing link'.

As Melton grows, the limited connections to Melbourne Airport will be a particular strategic weakness in Melton's connectivity and accessibility. The airport can be singled out because of its metropolitan strategic role and the existing problematic access to it from the City of Melton, which requires travelling on narrow arterial roads through Diggers Rest or on the congested Calder Freeway or M80 crossings of the Maribyrnong River.

A similar situation occurs at Eynesbury, where Haul Road could be connected to Mount Mary Road to create a new connection to Werribee that would also provide alternative access to Eynesbury.

For many other destinations, a reasonable direct link is already available, but capacity and congestion may become a problem and new infrastructure could be the most efficient way to address future issues. For example, although existing roads are adequate for immediate needs, another east-west link will be needed to complement the Western Freeway and Melton Highway. The extension of Taylors Road is planned to serve this role. Similarly, additional north-south roads to complement Hopkins Road will be needed, with Mount Cottrell Road planned to be a key connection to Werribee.

What are the impacts?

The impacts of missing links are wide-ranging and include:

- reduced efficiency in the movement of freight and people
- economic impacts of increased asset maintenance requirements and higher transport costs due to a lack of direct routes
- social impacts of increased safety concerns with excessive traffic on roads
- delays to economic development due to lack of suitable transport

How does this gap relate to the Transport Integration Act?

Economic	Social	Environmental	
 Use of transport assets Access to work and education Business clustering Provide value for money infrastructure and services Business access to markets Higher transport costs Integration of transport and land use 	 Respond to user expectations Making transport more widely available 	 Distances travelled to access people, places and goods Making transport activity more resource efficient and reducing its environmental impact 	

4.2.6 Gap 6 - Roads performing an arterial road function, but not declared and managed as arterials

What sort of gap is this?

This is an existing network and policy gap. It happens when an existing road gradually changes its function from a rural road to an urban road, or from a relatively minor road to a major road, because of changes in land use in the areas it connects.

The issue of roads performing an arterial function but not declared means that roads experience a much higher traffic volume than should be managed by the responsible authority. Roads like Plumpton Road, which provides a regional connection between Melton communities and Sunbury, is a good example of a road that has become an important arterial road because of urban growth at each end.

Population growth means that many local roads, particularly in the growth area, will become arterial roads over time. One of the strategic challenges is that this is a gradual transition. The gradual nature of the change means that there is rarely a clear-cut boundary between a road being a local road and being an arterial road. Some sections of a corridor might start to function as arterial roads much earlier than others, depending on the details of connections.

What are the impacts?

The impacts of roads that are not managed as arterial roads when they are functioning as them include:

- reduced efficiency in the movement of freight and people, with the network less able to be managed as a single system
- economic impacts of increased asset maintenance requirements and higher transport costs due to a lack of resources by the managing authority
- social impacts of increased safety concerns with excessive traffic on roads for the infrastructure available
- delays to economic development due to lack of suitable transport

How does this gap relate to the Transport Integration Act?

Economic	Social	Environmental
 Use of transport assets Access to work and education Business clustering Provide value for money infrastructure and services Business access to markets Higher transport costs Integration of transport and land use 	 Respond to user expectations Making transport more widely available 	 Distances travelled to access people, places and goods Making transport activity more resource efficient and reducing its environmental impact

4.2.7 Gap 7 - Expected rapid growth in freight movements

What sort of gap is this?

This is a policy gap. There has been significant planning to protect the City of Melton's amenity and allow the City to benefit as freight demand grows, but the plans need to be implemented to avoid amenity and safety issues.

State government forecasts suggest that freight movements are expected to more than double between now and 2046. Population growth will require more local freight deliveries in the City of Melton. A major established freight route along the Western Freeway passes through the centre of the municipality and another along the edge (the Calder Freeway).

A significant area of land is proposed for freight and related uses in the south-eastern corner of the City, where the Western Intermodal Freight Terminal is planned near Boundary Road. The facility, associated land use, and the truck and rail movements that they will generate and attract will significantly change freight movements in the western suburbs and the City of Melton. Together, these factors mean Melton will be significantly affected by the growth in freight movements.

The expected rapid growth in freight movements will have both positive and negative effects for the City of Melton. There are positive economic effects, including the better use of transport assets and improving local business' access to markets, making transporting goods cheaper and easier.

However, the forecast rapid increase in freight movement needs will create more traffic, which will increase problems with congestion and road safety. The rapid growth in freight movements is required to sustain the growing population, however if the road network stays as it is, the already present issues will increase.

The City of Melton's connections to current and future freight precincts are largely provided on high-capacity road and rail links that are already established or securely reserved. However, delay in the delivery of the major infrastructure to address residential amenity impacts could lead to the emergence of issues similar to those experienced in the Inner West.

What are the impacts?

The impacts of the rapid growth in freight movements include:

- reduced efficiency in the movement of freight and people
- an increased risk of local amenity and safety concerns if truck traffic starts using transport routes not intended for freight
- local amenity issues where new freight infrastructure will need to be provided

How does this gap relate to the Transport Integration Act?

Economic	Social	Environmental
 Use of transport assets Business clustering Provide value for money infrastructure and services Business access to markets Higher transport costs Integration of transport and land use 	- Making transport more widely available	 Use of environmentally sustainable transport Distances travelled to access people, places and goods Making transport activity more resource efficient and reducing its environmental impact

4.3 Potential strategic interventions

4.3.1 Developing an arterial road network

This initiative responds to

- Gap 1: Concerns about safety or congestion along roads
- Gap 2: Concerns about safety or congestion at intersections
- Gap 4: Lack of freeway access
- Gap 5: Missing links

- Gap 6: Roads performing an arterial road function but not declared and managed as arterials

Establishing an arterial road grid

Melton's established areas, and the growth corridor between Melton Township and the Eastern Corridor, are planned around a grid of arterial roads. The grid isn't perfect; features like existing roads and railways, reserves and creeklines mean compromises have to be made. Nevertheless, generally the Growth Corridor Plan has north-south and east-west arterial roads generally fairly evenly spaced about every 1.6 kilometres – a mile grid. This spacing has historical roots but modern benefits: the planned future arterial roads are generally today's gravel rural roads laid on the mile grid, and with bus services on the arterial roads and an intermediate collector road, the grid approach can provide 400m walking access to public transport efficiently.

To efficiently manage and develop the main road network, arterial roads should be formally designated and declared. There are four main purposes that can support making a road an arterial road:

- It serves a regional function, connecting widely spaced activity centres to one another. These may be regional or metropolitan areas.
- It has an important role for on-road public transport.
- It is an important freight route.
- It is none of the above specifically, but carries generally high levels of traffic. The volume of traffic that makes a road an arterial is different for metropolitan and rural roads.

This directions paper proposes that Council will advocate for the future proposed arterial road network shown in Figure 14, and that these roads should be managed by State Government roads authorities. Each of the roads identified has a planned purpose in the transport network that Council will advocate makes them appropriately developed and managed by the State Government as arterial roads.

This is a long term view of the entire network, based on the Growth Corridor Plan, current guidelines for arterial roads, and adjustments to reflect the finer grained Precinct Structure Planning process. This stage of planning may involve changes to the road alignments, so the lines shown are often indicative. Some sections of arterial road will also serve more than one of these purposes; Figure 14 shows how the arterial road network is built up by focusing on particular purposes to create an overall network.

However, there are some roads that are already working as arterial roads in line with their expected purpose, and need to be declared appropriately.

This directions paper proposes that Council will advocate for the prompt declaration of Robinsons Road and Westwood Drive from Deer Park Bypass to Ballarat Road and Plumpton Road from Plumpton to Diggers Rest as state managed arterial roads.

Discussion question:

Do you think the proposed arterial road network shown in Figure 14 would effectively meet Melton's future transport needs?

Improving freeway access

The review process to identify this network and purpose of arterial roads highlighted a number of locations where further work should be considered to improve the road network's strategic layout. At the highlighted locations the connections between roads creates series of intersections that would be difficult to manage and result in awkward land parcels.

One key area for refinement is where Western Freeway interchanges should be provided. A major function of freeways is to provide for long-distance traffic so interchanges need to be quite widely spaced – preferably two kilometres apart or more. Detailed studies are required to resolve interchange locations, but strategic observations are that:

- Bulmans Road has a major school complex along it which makes it less desirable as a freeway access route, compared to the opportunity to plan afresh for an interchange at Harkness Road.
- Bulmans Road serves Woodgrove more effectively.
- Harkness Road would effectively serve both east and west Melton and, by being on the Urban Growth Boundary, will not have as extensive amenity impacts from increased traffic as Bulmans Road.
- Mount Cottrell Road is planned as the bypass of Toolern and a regional route to Werribee. To fulfil this
 role, it would be desirable for it to have a full diamond interchange with the Western Highway so that
 traffic from Melton can avoid unnecessary trips through Toolern.

This directions paper proposes that Council will advocate for planning studies, and use the Precinct Structure Planning process, to seek additional freeway interchanges as outlined above, and adjusted arterial road links as shown on Figure 14 and summarised in Table 14, in order to provide a better transport network and land use integration.

Addressing immediate issues

There are a range of immediate improvements that need to be made to address existing problems with the arterial road network. These include:

- Upgrade the Western Freeway to full freeway standard between Hopkins Road and Ferris Road, including removing the at-grade access to freeway and the bus stops in Rockbank
- Improving the Christies Road intersection at Ravenhall by signalising the freeway ramps so that queues do not extend onto the freeway
- Installing a roundabout on Melton Highway at Leakes Road
- Removing the roundabout at High Street and Coburns Road in Melton and replacing it with a signalised intersection
- Installing a roundabout at Gisborne Melton Road and Kirkton Drive
- Improving the intersection of High Street and Norton Drive by signalising the intersection
- Improving the intersection of High Street and Reserve Road by signalising the intersection

This directions paper proposes that Council will advocate for project funding for the locations above in order to provide a better transport network and land use integration.



Table 14	Locations for strategic refinement of the arterial road network
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Number	Location	Proposed refinement
1	Diggers Rest	A new arterial road connection as a southern bypass of Diggers Rest is sought. The impacts on the urban growth boundary would need detailed assessment.
2	Melton East	The public transport arterial road from Watergardens (Hume Drive – Tarletons Road corridor) should connect seamlessly into Melton High Street and Toolern, without two closely spaced intersections.
3	Melton West	The need for a western arterial road along Melton's edge will depend on resolution of a third interchange with the Western Freeway. This in turn requires a detailed assessment.
4	Rockbank Rockbank South	The purpose-based analysis identifies Leakes Road as a key access route for road based public transport to Rockbank Station. How this is balanced with the general traffic movements east-west on Greigs Road corridor, and how far south the public transport route extends, warrants further consideration in the Rockbank South PSP.
5	Kororoit	Management of east-west movements from Greigs Road into Rockbank Middle Road may need to use the short north-south connection through the freeway interchange. This will require special consideration to manage the potentially conflicting movements.
		The Hopkins Road interchange also needs to be upgraded to urban freeway standard.
6	Mount Atkinson Tarneit Plains	There may be too many arterial roads planned in this area, because of constraints on the location of Outer Metropolitan Ring interchanges. The north-south arterial may be more effective located east of the Outer Metropolitan Ring Road, inside the Urban Growth Boundary.
7	Rockbank to Melton	Overpass and interchange locations need to be resolved for the section of the Western Freeway between Leakes Road and Ferris Road. Mount Cottrell Road requires a full interchange to be an effective inter-regional route whereas Paynes Road is less critical.
8	Ravenhall	A corridor planning study for the duplication of Christies Road is required.
9	Hillside to Melton	A corridor planning study for the duplication of Melton Highway is required, in particular the corridor alignment at Kororoit Creek.



Figure 14 A proposed long term State Government managed arterial road network for the City of Melton

Planning for grade separations

As part of the mutual development of the road and public transport network, it would be desirable for as many level crossings to be removed as possible, across the municipality. Future trains will be frequent and fast, representing a significant safety risk and a source of delay. Planning has already protected options for relatively simple 'road over rail' or 'road under rail' bridges to be constructed at many level crossings. This approach has the advantages of avoiding costly and difficult earthworks and train service disruptions compared to options that change the level of the railway, although in the flat landscape of the City of Melton the 'road over' bridges can be visually intrusive and the 'road under' bridges can be flood-prone.

The two crossings in Melton South are a special case. These crossings are close together and Melton Railway Station is in between, which means there are some engineering complexities. Coburns Road is potentially easier to address because it has fewer side streets close to the level crossing, but this crossing is also expected to have fewer train services in the long term. Station Road is a more strategically important road, and will have more train services across its level crossing. The whole precinct provides an opportunity, discussed below, to support transit oriented redevelopment. In this context, it is important to consider options such as raising or lowering the train line, and rearrange how streets connect, to enable development above or below it as well as around the station in the long term.

This paper proposes that Council will advocate for land to be formally set aside so that level crossings can be removed in the future in line with Table 15 and Figure 15. The crossings near Melton Station will be considered as part of the wider station precinct.

Council will advocate for grade separations to be delivered based on demand for the road and development in the area. With land set aside, the grade separation can be initiated by delivering the second carriageway.

Discussion question:

Do you support removing level crossings across the City of Melton, including closing little used crossings where alternatives are available nearby?



Line	Road	Treatment	Timing	Comment
Melton	Robinsons Road	Grade separate	Long term	The nearby Western Freeway provides a grade-separated alternative.
Melton	Hopkins Road	Grade separate	Medium term	This is a complex site with closely spaced intersections and motorway junctions. The level crossing adds complexity which may warrant treating this site as the first on the Melton rail corridor once frequencies increase.
Melton	Troups Road North	Close, preferably when Leakes Road is grade separated	Short / medium term	This is a minor road and will not have access to the Western Freeway in the future. It could be closed soon but may be needed in the short term to enable bus services to be diverted off the Western Freeway.
Melton	Leakes Road	Grade separate	Medium term	This road will be diverted when it is grade separated as part of the Rockbank PSP.
Melton	Paynes Road	Grade separate	Long term	Paynes Road is expected to be a relatively low volume arterial road.
Melton	Mount Cottrell Road	Grade separate	Medium term	This will be a key bypass route around Toolern and an important regional connection.
Melton	Ferris Road	Grade separate	Short / medium term	Grade separation is part of the Toolern town centre masterplan.
Melton	Station Road and Coburns Road	Grade separate at least one	Medium term	Resolve as part of a new structure plan for Melton South
Sunbury	Old Calder Highway, Diggers Rest	Close if a new southern connection between the Freeway and Diggers Rest – Coimadai Road is provided.	Long term	The Calder Freeway and the proposed bypass would replace this crossing, but a grade separated footpath and cycleway should be provided.
Sunbury	Holden Road	Close as part of development of Outer Metropolitan Ring Transport Corridor or Calder Freeway access control.	Long term	Holden Road will be significantly diverted as part of the OMR project and the Calder Freeway access point is not sustainable in the long term. A special solution such as a private level crossing or a 'mini' grade separation to provide access for train drivers' cars to the train stabling yard may be appropriate.
Sunbury	Calder Park Drive	Grade separate	Long term	This is part of a regional north-south route. Grade separation of the railway could be considered for delivery as part of the proposed Calder Freeway interchange in the City of Brimbank.
Sunbury	Melton Highway	Grade separation	Short term	This crossing, located outside the City of Melton but on the critical Melton Highway corridor, is committed for grade separation by 2022.

Table 15 Potential future level crossing treatments



4.3.2 Roads for people, roads for vehicles

This initiative responds to

- Gap 1: Concerns about safety or congestion along roads
- Gap 2: Concerns about safety or congestion at intersections

In planning guidance for new suburbs, 'demonstration example' cross-sections for arterial roads are available. For example:

- A six lane arterial road is 41 metres wide.
- A four land arterial road is 34 metres wide.

When these cross-sections were reviewed by traffic engineers and urban designers, three main issues were identified. They are:

- Although the cross-sections are helpful, the most important locations in planning these roads are often the intersections. The intersections are where bus stops are often located, pedestrians cross the road, and cyclists need to negotiate features like slip lanes. These are not detailed well in planning guidance. In particular, intersections near activity centres where pedestrians will access public transport are critically important.
- 2) Some arterial roads will be primary public transport routes, but there is no cross-section showing how space is allocated to on-road public transport. This could be a wider kerbside dedicated lane for buses (4.2 metres compared to 3.5 metres) or setting aside space for separate lanes.
- 3) 1.5 metre wide footpaths may be too narrow. Footpaths of this width are too narrow for wheelchair or mobility aid users to pass, for groups to walk, or for parents to walk holding a child's hand, unless there are passing places such as driveway crossovers every few metres. However, these won't be available on arterial roads which have limited access. 1.8 metre wide footpaths would be better on public transport routes and near activity centres.

In fact, the planning guidance note suggests that wider footpaths of 2.0 metres should be provided in areas where there are many pedestrians. The cross sections could be improved by showing this.

This directions paper proposes that Council will ask the Metropolitan Planning Authority to:

- Provide improved guidance on intersection design standards, including positions on slip lanes in activity centres, integration of public transport stops close to pedestrian crossing points, and facilitation of on-road and off-road cycling.
- Work with Council and stakeholders (including VicRoads and Public Transport Victoria) to develop a cross section showing priority for on-road public transport, and confirm which roads should be planned with that cross section.
- Adopt wider footpath standards and show how they affect the overall street cross-section.

Discussion question:

Do you think arterial roads reflect a good balance between the different needs of users of the transport system? How could they be improved?

4.3.3 Getting more from our road space

This initiative responds to

- Gap 1: Concerns about safety or congestion along roads
- Gap 2: Concerns about safety or congestion at intersections

The cross section discussion above is technical, but it highlights a very important strategic issue – how can we get the best transport outcome from the limited space we have available?

A typical midblock kerbside traffic lane can move around 900 cars an hour, or around 1,000 people an hour. If it was used as a bus lane, however, the same space can move around 2,000 people an hour – twice as efficient. This of course depends on the service being frequent and well patronised. If used solely by bicycles, a 3 metre wide one-way bicycle lane could move as many as 5,000 people an hour at full capacity – five times more efficient than car use. Parked cars substantially reduce the capacity of a lane – typically from 900 vehicles to 600 vehicles an hour.

In newer areas, arterial road corridors are being planned with off-road bike lanes, so the likely way to get the best from road space will be to prioritise buses at selected locations.

Technology can also play a significant role in getting the best use of road space. 'Managed motorways' use a range of different sensor and information display systems to maximise the capacity of motorways. These systems are in place on the M80 and M1, and may be needed in the longer term on the Western Freeway.

This directions paper proposes that Council will advocate for dedicated lanes for sustainable modes on arterial roads where they are a more effective use of limited road space. These locations will include the busiest areas of the road network – for example:

- in activity centres
- around congested intersections
- around railway stations; and
- particularly on the principal bus routes proposed in the Public Transport section of this paper, such as:
 - High Street
 - Coburns Road
 - Station Street
 - Ferris Road
 - Tarletons Road / Taylors Road
 - Tarneit Road
 - Greigs Road
 - Christies Road / Carolines Springs Boulevard / Gourlay Road

This paper proposes that Council will advocate that a managed motorway project on the Western Freeway should be developed when it is needed to maximise the capacity of the road.

Discussion question:

Do you think allocating more of the road space to sustainable modes, for example by limiting on-street parking and providing bus and cycle lanes, would encourage you to walk, cycle and catch public transport?

What are your thoughts on using technology to make transport more efficient?

4.3.4 Delivering roads

This initiative responds to:

- Gap 1: Concerns about safety or congestion along roads
- Gap 5: Missing links

One of the issues raised in the Background Phase of this study is the timing of road delivery. Which roads should be provided first, how much of the ultimate road should be delivered in an initial stage, and by whom?

Four problems can emerge in the way development is phased:

- Delivering infrastructure in an order that makes only some types of travel possible in the early stages of development.
- Reluctance to use existing infrastructure to provide transport because it isn't consistent with long term plans.
- Wasteful provision of interim infrastructure that isn't needed in the ultimate development.
- Long delays in improving existing infrastructure, despite growth being planned. An example of this issue is the replacement of the Melton Highway bridge over Kororoit Creek.

The practice in many greenfields development areas is for the developer to agree with local and state government to prioritise particular pieces of transport infrastructure. These may be chosen to allow the development to get under way, but can lead to short-term outcomes that don't support sustainable travel behaviour, such as:

- 'leapfrog development' where an existing road is used as the main access to a new estate, and the developer provides the collector roads - but the existing road is not improved for pedestrians, cyclists, or buses. The result is that the estate is only accessible by car. For example, Waterford Estate on Exford Road in Melton isn't well connected with footpaths to the rest of Melton township.
- 'missed connections' where the initial roads in a development aren't the ones planned to have public transport services, or connect to walking and cycling paths. For example, a development in Taylors Hill West centres on a north-south road, but the main public transport route is intended to run east-west.
- 'missing links' where a high-cost item like a bridge is delayed until the later stages in the development, because at the local level the traffic is manageable, even though it is needed for efficient strategic connections like bus routes.
- 'delayed service provision' where an existing road isn't used to provide a service because it isn't sustainable in the long term. The 'missing' bus service on the Melton Highway between Melton Township and Watergardens could run today. A slightly different problem can occur when road improvements are delayed despite congestion problems.

This approach is particularly problematic for the provision of public transport services, because public transport relies on strategic network connections to provide access to a wide range of destinations.

In an attempt to overcome these challenges, public transport services sometimes adopt 'interim' routes or services. However, when it is time to remove these services, the customers who have found they are useful may object and the end result can be a less efficient overall public transport network.

When planning roads, it is important to recognise that roads occupy a lot of space. Although it is prudent to plan for future widening of roads, it is usually not possible – or appropriate - to try to eliminate congestion by providing ever-wider road reservations. Congestion can be a useful way of encouraging use of alternative modes and reducing speeds in activity centres, for example. As suggested earlier in this paper, urban design and amenity considerations usually mean that all but major freeways should not be more than six lanes wide. Analysis using a strategic transport model has indicated that Melton has enough planned road space to avoid the risk of 'all day' congestion or gridlock.

This directions paper proposes that Council will work with the Metropolitan Planning Authority and other stakeholders to:

- Prioritise the development of roads and other infrastructure needed by 'principal' public transport routes so that these can run on their long-term routes as soon as practical
- Encourage the phased development of new estates starting along existing transport routes that are *also* the planned future main transport routes
- Encourage new estates to start around planned activity centres, so that local services like shops become commercially viable early and can be reached on foot or by bicycle in an early stage of development
- Assist communities to understand the long-term future of any 'interim' infrastructure or services provided to address immediate gaps.
- Work with stakeholders to ensure that appropriate road reservations are in place to allow targeted expansion of road capacity where it is needed to avoid major congestion problems.

Discussion question:

How should road network development be phased to get the best transport outcomes for the City of Melton?

4.3.5 Developing Melton's freight transport network

This initiative responds to

- Gap 4: Lack of freeway access
- Gap 5: Missing links
- Gap 6: Roads performing an arterial road function but not declared and managed as arterials
- Gap 7: Expected rapid growth in freight movements

Three major projects are particularly associated with the expected increase in freight movements.

The Western Intermodal Freight Terminal (WIFT) is proposed in Truganina. Trucks will travel from across Victoria to access the site, where containers will be transferred from road to rail for long distance trips interstate. The WIFT precinct, which is between the Western Freeway and the planned Outer Metropolitan Ring Transport Corridor, is located in the Western Industrial Node, a large area zoned for industrial and business uses. It is expected to be an attractive location for freight-related businesses such as warehouses to locate. These businesses in turn will generate freight and commuter traffic.

To support these activities, the area will need to be connected to the interstate railway network and the main road freight network such as the Western Freeway and the M80 Ring Road.

The West Growth Corridor Plan identifies a freeway link through this area to connect the Outer Metropolitan Ring Transport Corridor to the M80. Given how important efficient freight movement will be for this area's economic prosperity, it may be appropriate to consider making this proposed road a priority truck route so that freight can move reliably and efficiently along it, without the risk of commuter traffic from Wyndham and Geelong causing congestion. There are various ways this could be achieved. Tolls could discourage private cars, truck lanes could be provided, it could be an arterial road rather than a freeway so that it is less attractive to commuters, or it could become a truck-only road that ends at the Western Intermodal Freight Terminal rather than being a through route.

This paper proposes that Council will advocate for:

- The protection of future road and rail corridors to the Western Intermodal Freight Terminal, including consideration of whether the major links should actively prioritise freight movement
- The State Government to prioritise the development of the Western Intermodal Freight Terminal for its employment and transport efficiency benefits

The second major project is the Outer Metropolitan Ring (OMR) Transport Corridor. This is a combined freeway and railway corridor that connects the Princes Freeway to the Hume Freeway, with a freeway-only connection back to the M80 near Epping.

The OMR alignment, which has been set aside in the planning scheme, is a key part of the strategic plan for the city. For much of its length, the OMR is outside or on the edge of the Urban Growth Boundary, which shows that one of its main functions is to be a bypass of greater Melbourne. Its section through the City of Melton is unusual in that it runs through the urban growth area.

Where the OMR has adjoining urban land uses, it is closely integrated with industrial and business land use and major freight terminals in particular. At its southern end, it has connections to the Port of Geelong and could potentially provide access to a new port on the western side of Port Phillip Bay. In the City of Melton, it serves the planned WIFT precinct and Plumpton industrial areas. Towards the north, it provides access to the Calder Freeway corridor, Melbourne Airport and another planned interstate freight rail terminal at Beveridge.

This paper proposes that Council will advocate for:

Delivery of the section of the Outer Metropolitan Ring between the City of Melton and Bulla to be prioritised to improve access to Melbourne Airport.

The third major project is a secondary connection across the Maribyrnong River. In April 2015, as this paper was finalised, the State Government announced it is considering a proposal for an alternative bridge and tunnel crossing of the Maribyrnong River which would connect to the West Gate Freeway but avoid the West Gate Bridge itself. The scheme is shown in Figure 16. Details of the scheme are not yet available, but it is apparent it provides a second river crossing whilst using the West Gate Freeway corridor, M80 and Deer Park Bypass routes for access to the City of Melton.

Figure 16 Overview of Western Distributor project

WesternDistributor



This paper proposes that Council will advocate for:

- The State Government to outline the benefits and impacts the Western Distributor proposal is likely to have on the City of Melton to allow for consideration of its strategic transport impacts.

Local freight movement in the City of Melton, such as freight deliveries to shopping centres, currently work well. The expansion of industrial areas locally in Toolern, Plumpton and around the Western Industrial Node will result in new challenges and increasing demand. To ensure this success continues, it is important that the destinations of trucks in the City of Melton can operate efficiently. Urban design can make sure that loading areas are kept away from residential neighbours. Arterial road development will be required to support the new industrial areas' freight movements.

This paper proposes that Council will work with developers to ensure that the layout of shopping centres, industrial areas and other facilities that require regular freight deliveries ensure that freight can be delivered at all times without unacceptable impacts on neighbouring land.

Discussion question:

Do you think Council should take any particular steps to ensure that freight transport plays a positive role in the City of Melton's economy?

Appendix A

Glossary

Appendix A Glossary

Acronym/ Terminology	Definition
Active transport	Non-motorised forms of transport involving physical activity, such as walking, cycling or running
Activity centres	Centres of service, employment and social interaction, ranging in size and intensity from local neighbourhood shopping strips to major shopping malls
Arterial Roads	High capacity urban road.
Arterial road network	Network of high capacity urban roads.
Bus priority	Systems and strategies designed to allow buses to move more efficiently than other road users, for example dedicated lanes and special traffic signals.
Car dependant	Reliant on cars for all transport needs.
Commuter rail service	See Table 10.
DELWP	Department of Environment, Land, Water and Planning
Duplication (of rail corridor)	Addition of a second rail track where only one track currently exists.
Eastern Corridor	The developed corridor of land that includes the suburbs of Hillside, Taylors Hill, Burnside and Caroline Springs.
Electrification (of rail corridor)	Provision of technical systems to allow trains that operate using electricity rather than diesel.
Employment Area	Geographic concentrations of businesses that provide employment
Established areas	Areas that have been urbanised for several decades
Grade separation	Separation of rail tracks and roads so that they operate at different levels, so there is no conflict between the two.
Growth Areas	Locations on the fringe of metropolitan Melbourne designated in planning schemes for large- scale transformation in the future, typically from rural to urban use.
Growth corridor (West Growth Corridor Plan)	An area of growth under identified under <i>Plan</i> <i>Melbourne</i> incorporating the City of Melton and the City of Wyndham
Growth Corridor Plan (West Growth Corridor)	Plans that are intended to inform the development of precinct structure plans in Melbourne's four identified growth corridors. Under <i>Plan Melbourne</i> , these plans form a strategic framework for transport, land use and likely future activities.
	See Table 10.
	See section 3.4.3
	Developments separated from other urban areas by green belts or undeveloped land
Living Street	See section 2.3.3.
Melton Township	The developed area of Melton that includes Melton, Melton West, Brookfield, Kurunjang and other suburbs.

Acronym/ Terminology	Definition
	Major activity centres identified within Plan Melbourne
Metropolitan Activity Centre	stock, with good transport connections
Metro rail service	See Table 10.
	Authority formed to implement Plan Melbourne, the
MPA (Metropolitan Planning Authority)	Victorian Government's metropolitan planning strateg
	Orbital highway connecting northern and western suburbs to metropolitan, regional and interstate
M80	highways
	A small-scale centre that plays an important community
Neighbourhood Activity Centre	transport services.
Neighbourhood bus route	See section 3.3.1.
	The land set aside for the development of the Outer
OMR (Outer Metropolitan Ring reservation)	Little River to Beveridge and passes through Melton.
Parkway station	See section 3.4.3
PBN (Principal Bicycle Network)	The main bicycle network.
	The State Government strategic transport and land use
Plan Melbourne	plan for Melbourne.
	informed by growth corridor plans. Precinct structure
	plans will be jointly developed by the Metropolitan
Precinct Structure Plans	address transport, town and residential planning
PPTN (Principal Public Transport Network)	The main public transport network.
Premium Footpath	A high standard footpath.
Premium station	See section 3.4.3.
Principal bus route	See section 3.3.1.
Public Transport	Train, tram and bus services.
PWN (Principal Walking Network)	The main walking network.
PTV (Public Transport Victoria)	The statutory authority responsible for managing Victoria's train, tram and hus services
Rapid rail service	See Table 10.
	The network of walking and cycling trails intended
Recreational Trail Network	mainly for recreational use.
Regional bus route	See section 3.3.1.
RRL (Regional Rail Link)	The railway between Deer Park and Wyndham Vale.
Road Based Transport	Transport that uses roads, including cars, motorbikes, and buses.
Shared paths	A pathway used by both pedestrians and cyclists.
Stabling yard	Tracks used for storage of trains when not in use.
Suburban station	See section 3.4.3.
Sustainable transport	Transport modes that use less space and resources than road-based transport. Typically includes public

Acronym/ Terminology	Definition
	transport, walking and cycling.
Transit Oriented Development	Integration of transport and land use development above, and adjacent to, railway stations and high frequency public transport services.
TravelSmart	A program of personalised travel information to encourage people to consider different behaviour.
Urban Growth Boundary	The current geographic limit for the future urban area of Melbourne, set by State Government
VicRoads	Statutory corporation with responsibility for state road and traffic management.

Appendix B

Background information - population

Appendix B Background information – population

This section is a summary of information in the Background Report. The Background Report includes maps displaying detailed information about population and employment. The Background Report can be read at www.movingmelton.com.au.

Current population and employment

Within the City of Melton, there are two well defined centres of population and employment around the Eastern Corridor (Caroline Springs, Taylors Hill and Burnside) and Melton Township (Melton, Melton South, Brookfield and Kurunjang). The different spatial characteristics of the two areas mean they have very different transport needs. Connections between the two along the Western Highway and rail corridor are important for access to work and education opportunities, but also to Melton City's sense of identity and cohesion as a local community.

Employment is concentrated in the activity centres, retail precincts and industrial and business park areas. Only 15 percent of Melton residents work in Melton. There are almost twice as many work trips to central Melbourne as within Melton, and more trips to neighbouring Brimbank than internal to Melton. The need to travel long distances to access employment is a key transport challenge for Melton because of the time and financial costs incurred by residents and the limited range of opportunities that can be accessed without a car.

Although Caroline Springs and Melton account for the vast majority of population, there are a number of small population clusters in the municipality, notably Eynesbury, Rockbank and Diggers Rest, as well as a dispersed rural population in the growth corridor. These areas have different transport needs to Caroline Springs and Melton.

Future population and employment

The 2046 forecast population and employment² shows a transformative increase and spread of both population and employment within Melton. There will still be a high proportion of population and employment within the Melton and Caroline Springs area, but the most striking change is the infill of residential and employment land in the growth corridor between Melton and Caroline Springs. This future development is expected to be at a higher density than previously, with the result that areas such as Rockbank are forecast to have a higher population density than Melton and Caroline Springs in 2046.

The Growth Corridor Plan also suggests that the way Melton will work from a transport perspective could be subtly different to today. There are expected to be three distinct clusters of land uses. The Outer Metropolitan Ring Transport Corridor is one of the most powerful shapers of this change. It is likely to be the strongest north-south connection and will shape the local transport networks on each side into separate networks, because although it will encourage transport movement along it, its width and limited access will make it difficult to cross except at the locations where bridges are provided. In response to this, activity centres are located away from its route.

To the Outer Metropolitan Ring Transport Corridor's west will be a large area of residential land with a central employment area. Melton Township will become the western edge, Toolern its centre, and Rockbank at the eastern edge of this cluster. The Western Freeway and railway corridor is central to this large area of land, and importantly there are broadly similar land uses north and south of this corridor. This part of Melton may become like a small city in its own right, focused on Toolern – just as Melton Township is today but on a larger scale.

On the eastern side of the Outer Metropolitan Ring Transport Corridor, the pattern is different. The land north of the Western Freeway forms an expanded residential area encompassing Caroline Springs. South of the Western Freeway, with the Western Intermodal Freight Terminal at its heart, is a major employment district. Here, the Freeway and railway will serve to separate the residential lands to the north from the employment lands to the south. This contrasts to the approach in the western half of the City of Melton, where they are the central unifying feature.

The major transport characteristics that shape this plan are:

- Melbourne Airport's runways. These set the northern boundary of growth because of the noise impacts. The Melton Highway marks this boundary.

² The forecast is based on the State Government's Victoria in Future projection, with additional input from Melton City Council.

- The Outer Metropolitan Ring Transport Corridor, which will be the highest capacity north-south connection through Melton, a critical freight route, a vital link to other regions, and a constraint on local travel. It will have a major region-shaping effect, stimulating land use change and
- The Western Highway and Melton Railway corridor, and the Calder Highway and Sunbury Rail Corridor. Together, these high capacity corridors become the central 'spines' for the corridors of land extended either side, although as outlined above they are both a unifying and dividing transport feature depending on the adjacent land uses.

Aside from the main population cluster, there are two other population zones within the region at Eynesbury and Diggers Rest. There is also projected to be population spread more thinly across the remainder of the City of Melton.

Demographic overview

In 2011 Melton has a younger average population than metropolitan Melbourne. The comparison between the population age breakdown in Melton and Greater Melbourne is shown in Figure 17.



Figure 17 City of Melton (inner ring) and Greater Melbourne (outer ring) 2011 demographic comparison

Within Melton, there are a greater percentage of residents under the age of 20 (31%) than in Greater Melbourne (25%). By contrast, there is slightly smaller proportion of residents aged 20-24 (7% in Melton compared to 8% in Greater Melbourne) and in the senior age group (4% in Melton compared to 9% in greater Melbourne). These figures suggest that there is a higher proportion of young families in Melton than across Melbourne. Melton is a young community - there is a smaller proportion of seniors residing in Melton compared to the Greater Melbourne region.

The information in Figure 17 represents the population split at a point in time (2011), whilst the forecast population change and age split for the period from 201 until 2046 is shown in Figure 18.



Figure 18 Demographic and population projection, population of the City of Melton to 2046 (Source: Victoria in Future and Council)

Overall, the population of Melton is expected to increase by over 280,000 residents between 2011 and 2046 (from 112,169 in 2011). The population growth is expected to be between 3.5% and 4% annually from 2011 until 2046. Up until 2031, the proportion of the population in each age group is expected to remain broadly constant. However, after 2031, there is a projected shift in the demographic profile of Melton, with growth in the population aged for further study (20-24) as well as the senior population (70 and over). However, the characteristics of Melton as a young community will remain, with only a small proportion of the population forecast to be aged over 70.

The implications of this growth pattern for transport are that the transport system will need to accommodate an increasing number of commuter and education-related trips. Although the transport needs of specific groups such as seniors will be important, the main challenge for growth is to accommodate as many needs as possible in a transport network that will need to be able to accommodate significant peak demands.

Median weekly household incomes

Median income, socio-economic advantage and transport are closely related because of the important role private transport plays in our transport system. People's capacity to afford suitable transport to support their desired lifestyle and provide access to opportunity is a key concern of a socially sustainable transport system.

Melton has a complex pattern of income distribution, but there are two broadly distinct patterns which are mirror images of each other. In Melton Township, the central parts of the town are lower income (up to \$1,000 median household income per week), but the surrounding estates and the hinterland are higher income areas (up to \$2,000 median household income per week, with one estate recorded as greater than \$2,000 median household income per week). In the Eastern Corridor the pattern is broadly the opposite; the suburban estates are higher income and the hinterland lower. But there is also much diversity within the broad clusters, with pockets of lower income in the Eastern Corridor and areas of higher income in Melton Township.

The less densely populated regions are quite consistent in their median weekly household income, with the vast majority in the \$1,000 to \$1,500 per week bracket.

Socio-economic index for areas

The socio-economic index for areas combines a range of indicator of social advantage into a single measure. It allows for broad trends in socio-economic advantage to be identified.

For the socio-economic index, the region can be broken into three very distinct areas; the Eastern Corridor, Melton Township and the hinterland.

For the Eastern Corridor, a major residential and employment zone, there is a spread of index scores between 5 (average) and 9 (most advantaged). Patches within Taylors Hill and Hillside are rated as amongst the most advantaged 20 percent of areas in Victoria. There are only a couple of small zones that have a score less than 5 in the SEIFA ratings.

By contrast, Melton Township has a large area that is rated as amongst the least advantaged in Victoria, scoring 1 in the SEIFA index. In general the majority of the Melton region scores between 1 (least advantaged) and 5 (average), which is the opposite of the ratings of the Eastern Corridor. Melton South, between the town centre, Coburns Road, the railway station and Toolern Creek has the highest concentration of disadvantage. Rockbank township also has a concentration of disadvantage.

In the hinterland region surrounding the Eastern Corridor and Melton, there is a range of scored between 4 and 9, however there are few residents in this zone.

From a transport perspective, one of the most striking features of this distribution is that despite being transport and accessibility 'rich', Melton South has high socio-economic disadvantage. Melton South is close to the train station and the High Street activity centre, which in turn means it has good access to the bus services joining the two. It also has access to the Freeway. However, despite these advantages, the evidence is clear that these suburbs are amongst the least advantaged in Victoria. By contrast, the relatively remote community at Eynesbury experiences relative advantage.

This shows that transport is an important element in broad trends of social advantage but clearly not the sole factor. However, it is important to note that within these broad trends there is substantial diversity amongst individuals and households with regard to transport need.