Northern Maribyrnong Integrated Transport Strategy

transportation planning, design and delivery

Maribyrnong CITY COUNCIL

GTAconsultants

Northern Maribyrnong

Integrated Transport Strategy

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Executive Summary

The Highpoint Activity Centre, as defined in the *Highpoint Activity Centre Structure Plan* (2008), is earmarked for significant land use development intensification over the coming decades.

The development is envisaged to incorporate the retention and expansion of the existing retail uses within the Activity Centre, together with the addition of significant residential and commercial land uses. The level of land use development being contemplated is expected to make Highpoint Activity Centre one of the largest Principal Activity Centres in Melbourne.

The works and initiatives outlined in the Northern Maribyrnong Integrated Transport Strategy (NMITS) seek to align the likely transport requirements of each land use stage in a coordinated manner using information available on their likely realisation at the time of preparing this report.

It must be emphasised, however, that the recommendations contained within this report must not be viewed as being prescriptive given the indicative nature of the land use assumptions and the associated "coarseness" of the subsequent modelling completed using the Melbourne Integrated Transport Model (MITM). Moreover, it is not the intent of this report to undertake a review of every possible development scenario.

In order to successfully implement the recommendations outlined in this report, it will be necessary for Maribyrnong City Council to continue to liaise and engage with the various government authorities and third parties (including developers) through which the works and initiatives will ultimately be delivered.

To ensure this liaison and engagement occurs as efficiently as possible, it is recommended that a high level steering committee be formed. This committee should incorporate members of all stakeholders consulted through the process of preparing the NMITS and include persons of a level of seniority sufficient to facilitate the implementation and/or advocacy of its various transport recommendations.

To monitor and review this strategy, it will also be important to continue to understand the transport characteristics of the Activity Centre as they change over time and, ideally, become less dependent on the use of the private motor vehicle. It is recommended that this be formally reviewed every 2 to 5 years so that it maintains its relevancy, consistency with policy and transport works and land use developments, and can be modified and improved as required. In particular, the strategy should remain flexible enough to adapt to changes in planning policy, transport / infrastructure developments, or land use changes, and their delivery timeframes.

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1. Introduction

1.1 Background

The Highpoint Activity Centre, as defined in the *Highpoint Activity Centre Structure Plan* (2008), is earmarked for significant land use development intensification over the coming decades.

The development is envisaged to incorporate the retention and expansion of the existing retail uses within the Activity Centre, together with the addition of significant residential and commercial land uses. The level of land use development being contemplated is expected to make Highpoint Activity Centre one of the largest Principal Activity Centres in Melbourne.

As part of an objective of fostering the use of sustainable travel modes for access to and circulation around the Activity Centre (by improving walking, cycling and public transport provision and diversifying land use), the Highpoint Activity Structure Plan recommends the preparation of an Integrated Transport Strategy for Northern Maribyrnong.

Specifically, the Structure Plan outlines that:

> *"A comprehensive 'Integrated Transport Strategy' is needed to assist Council, the state government and interested parties in understanding the transport and access implications of potential development patterns in the activity centre. This will need to take into account a number of major transport and development projects under consideration in the wider area, including heavy rail options, which will influence the opportunities for sustainable travel to and around the centre."*

In 2009, GTA Consultants (GTA) was commissioned by Maribyrnong City Council to assist the preparation of the Northern Maribyrnong Integrated Transport Strategy (NMITS), including the completion of associated transport modelling using the Melbourne Integrated Transport Model (MITM)[1] and comprehensive liaison with the relevant stakeholders outlined in Section 1.3 of this report.

The study brief for the NMITS mandated an outcome which reflected the use of best practise sustainable transport planning principles in order to optimise the use of modes of transport other than the private motor vehicle. In this regard, the NMITS examines the existing and future requirements of all modes of transport, which have been grouped within the report under categories of "active" (cycling and walking), "public" and "private (road-based)", and how these transport modes can best be integrated with one another and the proposed land uses.

1.2 Purpose of this Report

This report sets out an assessment of the transport requirements of the future Activity Centre.

In doing this, the report examines the existing deficiencies of the transport network within and around the Activity Centre and how these can be best addressed to ensure that the current and future access needs of the Activity Centre are met in a consistent and integrated manner. It considers all modes of transport, as outlined above, with a focus on encouraging the use of sustainable transport modes.

The report also seeks to create accountability of the various stakeholders with respect to the recommendations so that works and initiatives, including the relevant planning activities, are administered satisfactorily during implementation.

1 Since this transport modelling was completed, MITM has been superseded by the Victorian Integrated Transport Model (VITM).

1.3 Structure of this Report

The NMITS contains seven sections, including:

- **Section 1: Introduction** (this section)
- **Section 2: Strategic Policy Context**
  This section outlines the strategic policy support for the development of the Activity Centre having regard to State and Local Government policy and other strategic documents. It reviews the Victorian Transport Plan, amongst other documents, and examines infrastructure works that may impact upon the development of the Activity Centre.
- **Section 3: The Existing Activity Centre**
  This section examines the existing location of the Activity Centre, its various and surrounding land uses, and their active, public and private (road-based) transport characteristics. It outlines existing constraints and opportunities in these travel characteristics and sets the base for the recommendations of this strategy.
- **Section 4: The Future Activity Centre**
  This section outlines the land uses anticipated within the Activity Centre, and its surrounds, under the following three stages:
  i *Stage 1 (or short term), corresponding to development anticipated up to 2015;*
  ii *Stage 2 (or medium term), corresponding to development anticipated between 2015 and 2020; and*
  iii *Stage 3 (or long term), corresponding to development anticipated beyond 2020.*
- **Section 5: Integrated Transport Recommendations**
  This section examines the anticipated transport characteristics of the various land use stages detailed in the previous section and outlines a number of active, public and private (road-based) transport recommendations to achieve the desired transport and land use planning outcomes set out earlier in this study.
- **Section 6: Implementation**
  This section presents an overview of how the strategy should be implemented.
- **Section 7: Monitoring and Review**
  This section presents an overview of how the strategy should be monitored and reviewed to ensure that it remains up-to-date and effective.

1.4 Consultation Process

The NMITS has been developed following significant consultation with various Activity Centre and authority stakeholders, including:

- Maribyrnong City Council
- Moonee Valley City Council
- VicRoads
- Department of Transport
- Department of Planning and Community Development
- Department of Defence
- Yarra Trams
- Places Victoria
- Bicycle Victoria
- various land owners, including Highpoint Shopping Centre, Harvey Norman and Bunnings
- local residents.

In the first instance, each stakeholder was met individually to establish and understand their future vision for the Activity Centre. The group as a whole was then engaged through a series of workshops, including an "ideas and solutions" workshop attended by most of the above stakeholders, to discuss and gain input into each component of the ITS process.

2. Strategic Policy Context

2.1 Section Overview

This section outlines the strategic policy support for the development of the Activity Centre having regard to State and Local Government policy and other strategic documents.

It reviews the Victorian Transport Plan, amongst other documents, and examines infrastructure works that may impact upon the development of the Activity Centre. This review provides an ability to consider possible implications to the Activity Centre and ensure that it is developed in a manner consistent with established strategic planning benchmarks for the area and broader Melbourne. Further discussion regarding the implications of the policies outlined below is presented in Section 4.3.1 of this report.

It is acknowledged that although many of the following documents were introduced and empowered by the former Government, the nominated documents are nevertheless considered to represent those most applicable to the Activity Centre and its surrounds having regard to the unknown status of equivalent policy documents by the current Government.

2.2 State Policy

2.2.1 Transport Integration Act 2010

The Transport Integration Act sets out a vision, for transport in Victoria, as well as objectives under social and economic inclusion, economic prosperity, environmental sustainability, integration of transport and land use, efficiency, coordination and reliability, and safety, health and wellbeing.

The Act highlights that the transport system needs to be integrated and sustainable and, as such, requires all Victorian transport agencies - including the Department of Transport, VicRoads, VicTrack, V/Line and the Linking Melbourne Authority – to work together towards the common goal of an integrated and sustainable transport system.

The Act sets out a platform which, in the case of this study, has facilitated the provision of input from various and diverse transport stakeholders, as outlined in Section 1.3 of this report.

2.2.2 Victorian Transport Plan

The Victorian Transport Plan ('VTP') provides clear strategic direction for the development of Victoria's transport network with over $38 billion planned in projects to meet the ever increasing population and service expectations.

Although the list of projects outlined in the VTP is not exhaustive, it outlines a number of large scale projects that will have beneficial transport planning implications on the Maribyrnong municipality (although none within the confines of the NMITS study area).

The most notable of these projects is *WestLink* which includes the construction of a tunnel linking Dynon Road and Footscray Road to Geelong Road and Sunshine Road and has the potential to ease congestion on key routes between the CBD and western suburbs.

It is also noted that while the VTP does not include any currently entertained proposals for the provision of a train line to the Activity Centre, it is understood that the document is being reviewed at present and that an update is expected in the coming 1-2 years. It is therefore evident that ability exists in the short-term to seek modifications to the VTP and include more works within the study area (such as heavy rail).

2.2.3 Meeting Our Transport Challenges

Meeting our Transport Challenges preceded the VTP and aimed to build Victoria's transport system with a substantial programme to invest more than $10.5 billion over the next 25 years.

The document identified current constraints within the Victorian Transport System and provided an action plan to address these constraints.

Such actions included the provision of the SmartBus network across metropolitan Melbourne and improvements to traffic priority for trams and buses. The document has guided the creation of specialist public transport programs such as VicRoads' *ThinkTram* program[2] which seeks to improve tram travel times, reliability, accessibility and safety along the busiest parts of Melbourne's tram network.

The recommended actions of these programs continue to be implemented across metropolitan Melbourne.

2.2.4 Melbourne 2030

Melbourne 2030 is a strategic plan prepared to manage growth and change across metropolitan Melbourne and its surrounding region.

The document established the centre as a Principal Activity Centre which seeks to have the following characteristics:

- *"a mix of activities that generate high numbers of trips, including business, retail, services and entertainment*
- *being generally well served by multiple public transport routes (many being on the rail network), and on the Principal Public Transport Network or capable of being linked to that network*
- *a very large catchment covering several suburbs, and attracting activities that meet metropolitan needs*
- *the potential to grow and support intensive housing developments without conflicting with surrounding land uses."*

2.2.5 Melbourne @ 5 Million

Melbourne @ 5 Million strengthens the aims of the strategic land use patterns outlined in Melbourne 2030 to better cater for the future population growth expected within the Melbourne Metropolitan area.

This document outlines various policy directions relevant to the Activity Centre, including a focus on locating more intense housing development in and around activity centres, and along tram routes and the orbital bus routes on the Principal Public Transport Network. In particular, this document seeks to link transport, jobs and land use planning and hence address the imbalance between where people reside and work (which equates to 3 local jobs for every 1 resident of working age in the Melbourne CBD albeit only 0.7 local jobs for every 1 resident in the western suburbs).

2.2.6 State Planning Policy Framework (Clauses 10 to 19 of Maribyrnong Planning Scheme)

The State Planning Policy Framework contained within the Maribyrnong Planning Scheme sets out a range of objectives and implementation strategies to guide development within the entire State of Victoria. Embedded within the Framework is a range of policies with the overall objective to increase the facilitation and integration of sustainable transportation.

[2] This program is managed by VicRoads in partnership with the Department of Transport (DoT) and Yarra Trams, and in consultation with local government and local communities.

2.3 Local Policy

2.3.1 Amendment C82 to the Maribyrnong Planning Scheme

In June 2010, Maribyrnong City Council exhibited Amendment C82 to its Planning Scheme.

The amendment applies to all land in the municipality and seeks to revise the Local Planning Policy Framework (LPPF) to include a new Municipal Strategic Statement at Clause 21 and revisions to Clause 22. The revisions are based on the recommendations of Council's 2005 and 2008 Planning Scheme reviews, as well as the Highpoint Activity Centre Structure Plan.

2.3.2 Clause 21.04-6 and Clause 21.04-8 of the Maribyrnong Planning Scheme

The Local Planning Policy Framework contained within the existing Maribyrnong Planning Scheme sets out a range of objectives and implementation strategies to guide development with a more local focus within the City of Maribyrnong.

Clause 21.04-6 of the Maribyrnong Planning Scheme sets out the direction and objectives of Activity Centres within the municipality with a particular focus on Footscray and Highpoint Activity Centres. These objectives include developing Highpoint Activity Centre with a range of land uses and providing a more community-based focus while remaining a regional destination. The policy also calls for complementary, rather than competitive, development of all Activity Centres within the municipality.

In addition, Clause 21.04-8 of the Maribyrnong Planning Scheme seeks to address the transport issues and requirements of the municipality. It recognises that expansions to the transportation systems within the municipality will require the cooperation of a number of State agencies both in terms of planning and additional development funding. The Clause also outlines a number of objectives including the following relating to the Activity Centre and its surrounds:

- *"Reduce reliance on car based transport especially in the housing and population growth areas in the north and north-west precincts of the city, and to the major activity centres such as Footscray Business Centre and Highpoint.*
- *Encourage improved, more attractive and safer train stations, bus/tram shelters and pedestrian access.*
- *Improve arterial and local road access to the core industrial areas, mixed activity areas and the larger activity centres.*
- *Encourage and support the further development, growth, efficiency, service and use of the public transport networks.*
- *Promote good access by a range of transport modes to all activity centres and other places such as schools, industrial areas, streams, and open space areas.*
- *Improve intersections on Ballarat Road and arterial roads north of Ballarat Road.*
- *Provide a new/upgraded north-south road linking the Westgate Freeway, Geelong Road, Sunshine Road, Ashley Street, Churchill Avenue, and Hampstead Road with possible extension to the City of Moonee Valley.*
- *Extend the riverside pathway system and links to activity centres and new residential developments."*

2.3.3 Highpoint Shopping and Entertainment Centre Incorporated Plan Overlay

Schedule 1 to the Incorporated Plan Overlay of the Maribyrnong Planning Scheme outlines specific conditions and requirements for permits associated with the development of the Shopping Centre.

These include that the leasable floor area of shop uses shall not exceed 100,000sqm without the permission of the responsible authority (unless the leasable floor area includes two shops of at least 14,000sqm) and that the total floor area of all uses within the Shopping Centre must not exceed 156,000sqm.

The IPO also outlines specific guidelines with respect the provision of car parking, although notes that the responsible authority may grant a permit to reduce the car spaces required for a particular use if it is satisfied that the number of car spaces is not warranted, could aggravate traffic congestion in the locality, can be provided on nearby land, or will be provided at a later stage of development.

2.4 Strategic Studies

In addition to the policy documents outlined above, a number of strategic studies have been prepared by or on behalf of Maribyrnong City Council over recent years, and are typically embedded within the local policy documents described above. The studies which have direct relevance to the Activity Centre include the following[3]:

- Maribyrnong Integrated Transport Strategy (2002 and 2012)
- Maribyrnong Strategic Bicycle Plan (2004)
- Highpoint Activity Centre Structure Plan (2008)
- Highpoint Urban Design Framework (2010, draft)
- Northern Maribyrnong Directions Plan (1999).

These studies, together with the aforementioned State and Local policies and other relevant documents, have been referenced and examined in the preparation of this report.

[3] It is noted that other relevant studies are currently underway (including for the Maribyrnong Defence Site, Airport Rail Link, etc). At the time of publication of this report however, the findings of such studies had not been completed or released.

3. The Existing Activity Centre

3.1 Section Overview

This section examines the existing location of the Activity Centre, its various and surrounding land uses, and their active, public and private (road-based) transport characteristics. It outlines existing constraints and opportunities in these travel characteristics and sets the base for the recommendations of this strategy.

3.2 Location

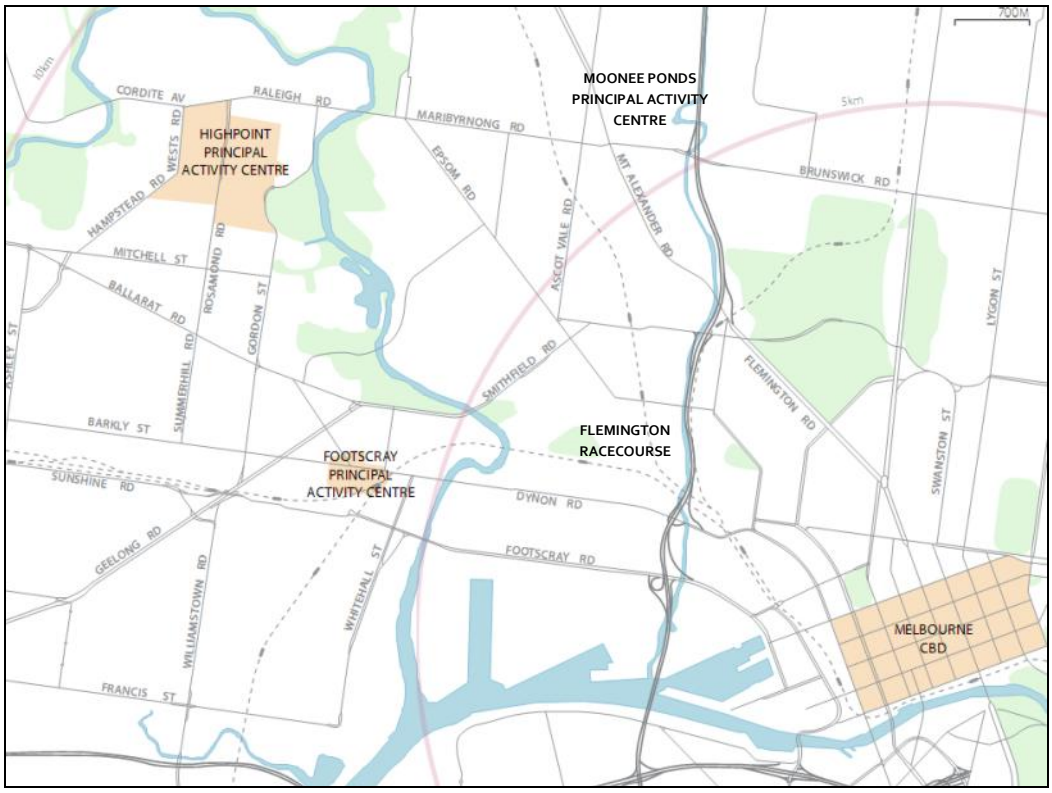
The Activity Centre is located approximately 7km northwest of the Melbourne CBD and is one of 25 Principal Activity Centres within metropolitan Melbourne.

It is located within the municipality of Maribyrnong and consists of an area of approximately 960,000sqm. The Activity Centre is bounded by Raleigh Road to the north, Warrs Road and Gordon Street to the east, River Street and Wattle Road to the south and Hampstead Road and Wests Road to the west. The location of the Activity Centre and its immediate surrounds are shown in Figure 3.1, with Figure 3.2 on the following page showing the location of the precinct in terms of its proximity to the central business district of Melbourne and other key destinations.

Further information regarding the wider Activity Centre, including its related transport and access infrastructure (such as tram connections to the Footscray CAA and Moonee Ponds PAC), is presented in the following sections of this report.

Figure 3.1: Activity Centre and Its Environs

Figure 3.2: Activity Centre in Metropolitan Context



Source: *Highpoint Activity Structure Plan 2008*

3.3 Land Uses

3.3.1 Activity Centre Uses

The principal land use within the Activity Centre is the Highpoint Shopping Centre, which is one of seven 'super regional centres' in Melbourne.

The Shopping Centre currently comprises of approximately 125,400sqm of floor area with around 93,500sqm of 'shop' use and around 31,900sqm of 'other' floor area (including Hoyts cinemas). The expansion of the Shopping Centre has recently been approved which will increase the available floor space to approximately 156,000sqm.

The other significant land uses within the Activity Centre are as follows:

- Homemaker Centre (21,600sqm approx.)
- Bulky Goods Stores (13,500sqm approx.)
- Maribyrnong Aquatic Centre
- Maribyrnong Secondary College
- commercial and light industrial land uses to the northwest and southwest.

These land uses could all be considered as "major" attractors (with an estimated 16 million visitors per annum) which generate a catchment far beyond the Activity Centre and even the municipality of Maribyrnong. In contrast to the predominant retail uses outlined above, the Activity Centre contains no significant residential development and little commercial floor space.

For reference, the existing land uses within the Activity Centre are shown in Figure 3.3 on the following page.

Figure 3.3: Existing Land Uses within Activity Centre

Source: *Highpoint Activity Structure Plan 2008*

3.3.2 Surrounding Uses

The surrounding land uses are predominantly residential, with the notable exceptions including the Maribyrnong Defence site to the north of Raleigh Road, recreational parkland to the east and industrial land to the southwest.

The Maribyrnong Defence site represents a significant 'brown-field'[4] land parcel of some 127 hectares which, located to the immediate north of the Activity Centre, is expected to be developed to provide in the order of 3,000 plus dwellings, 20,000sqm of commercial and 8,000sqm of retail floor area. With the site bounded on its north, west and east sides by the Maribyrnong River, it has a single road frontage to Raleigh Road/Cordite Avenue and will therefore most likely require all transport access via the Activity Centre's northern boundary. The development of this site can be expected to have a significant impact on the Activity Centre and therefore will require comprehensive transport modelling (amongst other studies) to ensure appropriate measures are adopted to accommodate the future resident population. This modelling will need to occur in conjunction with the further development of the Activity Centre.

This site, in particular, will have a significant influence over the planning and transport outcomes for the overall area.

[4] Land that has previously accommodated a use which is now no longer active.

3.4 Travel Characteristics

3.4.1 Preamble

The existing transport characteristics for the municipality of Maribyrnong, the Activity Centre and Highpoint Shopping Centre have been sourced from the Department of Transport's 2007 *"Victorian Integrated Survey of Travel and Activity"* (VISTA), modelling undertaken by GTA in 2010 using the Melbourne Integrated Transport Model (MITM) and surveys undertaken by GTA in 2008, respectively. These characteristics are shown in Figure 3.4.

Figure 3.4: Existing Transport Characteristics (Mode Splits)

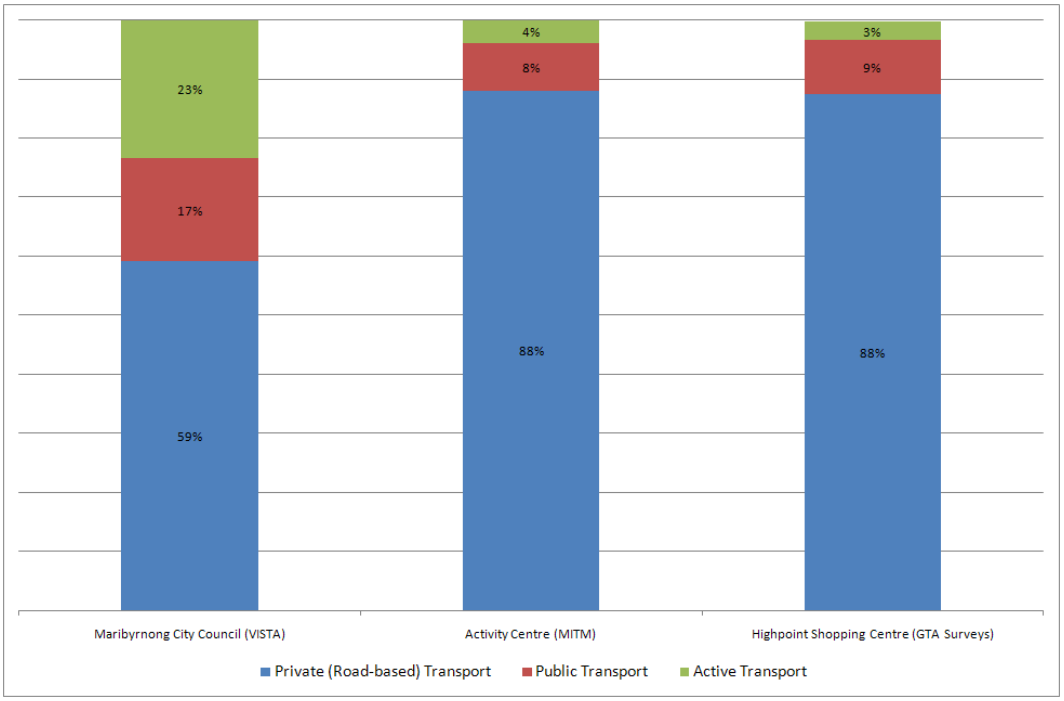


Figure 3.4 indicates that travel to the Activity Centre is predominantly undertaken by private (road-based) vehicles.

The figure further suggests that this outcome is likely driven by the travel patterns of customers visiting Highpoint Shopping Centre; which represents the major land use in the Activity Centre and has surveyed mode splits almost identical to those predicted by MITM for the overall Activity Centre.

The figure also highlights that the transport characteristics of the Activity Centre are notably inconsistent with the characteristics of the overall municipality of Maribyrnong, which features a mode split to car of approximately 59% (rather than 88% as measured for both the Activity Centre and Highpoint Shopping Centre). This municipal mode split represents the fourth lowest across metropolitan Melbourne and thus indicates that the residents of and visitors to Maribyrnong have a high willingness to use travel modes other than private motor vehicle.

While this characteristic is not evidenced within the Activity Centre at present, it is evident that an opportunity clearly exists to reduce the proportion of car based trips to be closer to the municipal average. This reduction should be sought by better integrating land use and transport planning within the Activity Centre (as discussed in Sections 4 and 5 of this report) and by addressing existing active and public transport, as well as private (road-based) transport, shortcomings of the Activity Centre.

In doing this, it is considered that whilst private (road-based) transport will remain the predominant transport mode to/from the Activity Centre, the achievement of a split to this mode of approximately 75% may be achievable and should be sought by encouraging investment in public and active transport modes (including, but not limited to, the introduction of heavy rail to the Activity Centre).

This mode split would sit marginally above the midpoint of the Maribyrnong municipality average (59%) and that experienced within the Activity Centre (88%) at present. It would also result in a mode split to public and active transport of approximately 25% which would be consistent with State aspirations.

In this regard, an overview of the active, public and private (road-based) transport characteristics for the Activity Centre is presented in the following sections, with each section including a summary of the key opportunities for the mode.

3.4.2 Active Transport

Pedestrians

Mode Split Overview

Information provided in recently completed transport studies for Maribyrnong Secondary School and the Maribyrnong Aquatic Centre indicate that travel to these uses is predominantly completed via private motor vehicles. Indeed, the assessments indicate that pedestrian trips to these uses equate to approximately 6% and 14% of total trips respectively. For the School, the assessments further outline that limiting factors for pedestrian use include the proximity of the School to the trip origin, unpredictable or poor weather conditions, lack of time and worries about personal safety.

Door count data and surveys undertaken at Highpoint Shopping Centre also indicate that pedestrian trips for this use are low, with the mode split to pedestrians (excluding internal trips between cars or public transport services and the Shopping Centre) equal to approximately 3%. In light of the significance of this land use in the context of the existing Activity Centre, this finding suggests that a relatively small proportion of pedestrian trips occur between destinations or attractors external to the Activity Centre or from attractors, such as residential dwellings, within the Activity Centre.

Network & Infrastructure

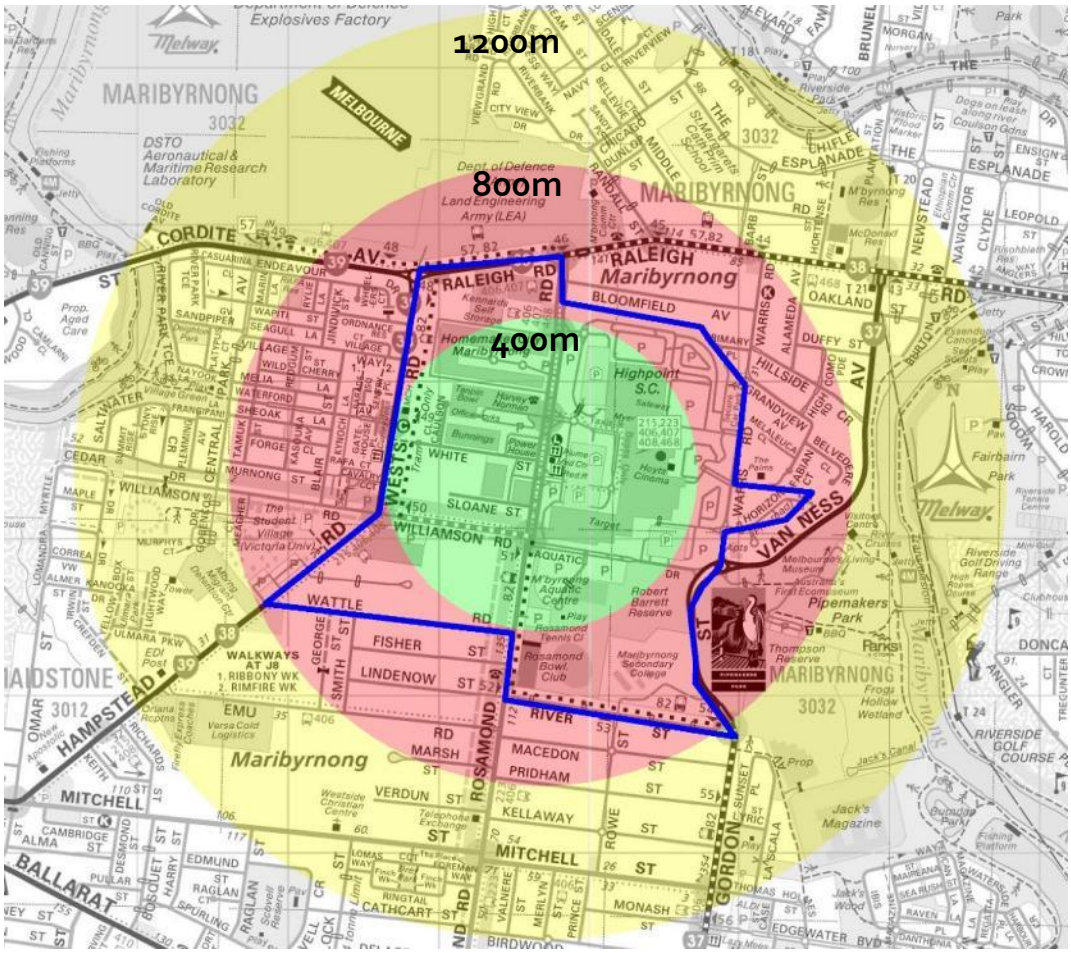
In the main, pedestrian access to/from the Activity Centre and its surrounds is provided via footpaths along abutting main and local roads (which connect to neighbouring residential and industrial areas).

These pathways are supplemented by off-road connections through Pipemakers Park to the southeast (which link to shared pathways along the eastern and western side of the Maribyrnong River – as discussed in Section 3.4.2) and Village Green to the west (which also link to Maribyrnong River shared pathways). At this time, no off-road pathway is provided within the Maribyrnong Defence site although such pathways are to be expected following the development of this site.

For reference, a map of the of the Activity Centre, together with 400m, 800m and 1200m walking distance radii from its centre, is shown in Figure 3.5 on the following page. These catchments represent distances that are considered to be readily walkable, including trips by young children.

Within the confines of the Activity Centre, sealed pedestrian pathways are provided along both sides of a number of roads, including Rosamond Road north of Williamson Road, Williamson Road and Aquatic Drive. Off-road pedestrian pathways are also provided within the Activity Centre, including those linking to Maribyrnong Aquatic Centre and Maribyrnong Secondary College in Robert Barrett Reserve and those running between car parks and the various land uses. These latter pathways are typically not clearly delineated or signed (e.g. way-finding signage).

Figure 3.5: Activity Centre and Walking Catchement Radii



Issues & Opportunities

Notwithstanding the provision of the pathways outlined above, a number of roads within and around the vicinity of the Activity Centre incorporate limited pedestrian pathways. Rosamond Road south of Williamson Road, Raleigh Road, Van Ness Avenue, Gordon Street and Warrs Road opposite the Shopping Centre, for instance, generally only provide footpaths on one side of the carriageway.

Pedestrian connections between the Shopping Centre and Pipemakers Park, where off-road shared paths are provided along the Maribyrnong River, are also limited (potentially due to the topography of the area including the steep descent into the parkland).

The roads located within the Activity Centre, particularly Rosamond Road and Raleigh Road, create significant barriers to pedestrian movements as crossing points of these roads is only permitted at signalised intersections. Moreover, with pathways typically only provided through the Activity Centre along these roads (rather than being complemented by additional off-road paths), limited connection is provided between the eastern and western precincts of the Activity Centre.

While the recent construction of Aquatic Drive (and associated shared pathways) has improved pedestrian connectivity between retail land uses along Rosamond Road to the tram stop located at the intersection of Rosamond Road and Aquatic Drive, pedestrian network and infrastructure between origins and destinations located within the Activity Centre, and its surrounds, is nevertheless considered to be moderately successful albeit capable of improvement.

As the Activity Centre is immediately surrounded by existing or proposed residential areas and with research[5] indicating that retail customers are typically willing to walk at least 400m, it is considered that a significant opportunity exists to increase the mode split to walking to the Activity Centre by providing improved pathways to these surrounding residential areas to reduce the need for car-based trips. In particular, this should include the provision of improved pedestrian connections to and from the Maribyrnong Defence site to the north and the residential development to the west of the Activity Centre (both of which are considered to be poor at present).

Cycling

Mode Split Overview

The transport studies and surveys undertaken at Maribyrnong Secondary School, the Maribyrnong Aquatic Centre and Highpoint Shopping Centre also indicate that the mode split to bicycle is low, with mode splits for all of these uses being 3% or less. This data indicates that travel to the Activity Centre by bicycle is particularly limited at present.

Network & Infrastructure

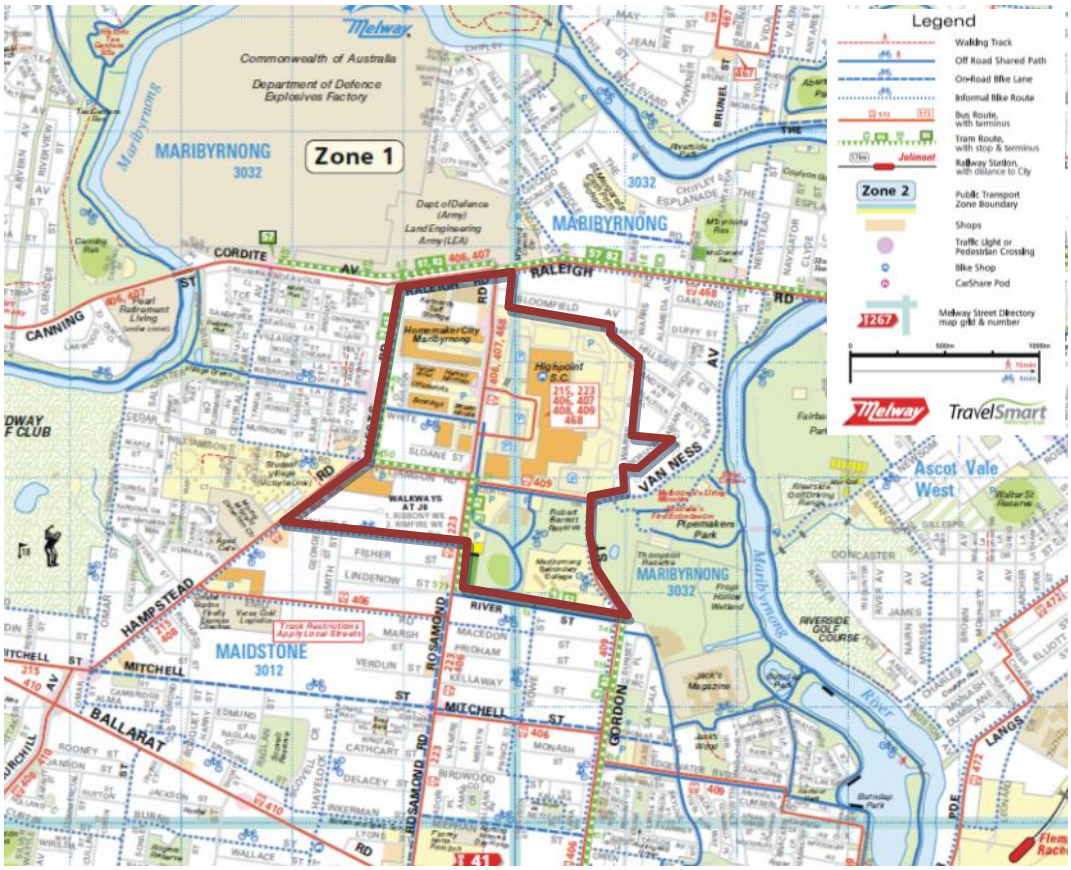
The Activity Centre is located within close proximity to shared paths provided along both sides of the Maribyrnong River. These pathways are connected by a pedestrian and bicycle bridge opposite Pipemakers Park, as shown in the photograph below.

Within the Activity Centre, shared paths also exist at key locations, such as in close proximity to the Maribyrnong Aquatic Centre, although these pathways are generally segmented and lack continuity. In addition to these pathways, limited end-of-trip facilities, including bicycle storage racks and showers, are provided within the Activity Centre, noting that statutory requirements for such facilities were included in the Maribyrnong Planning Scheme after the development of much of the existing land uses. In general, signage to both network connections and the location of end-of-trip facilities is also limited.

The existing bicycle network within and immediately surrounding the Activity Centre is most clearly shown within the Maribyrnong TravelSmart map. A portion of this map is reproduced in Figure 3.6.

[5] The Victorian Transport Policy Institute paper on Shared Parking dated 4 September 2007

Figure 3.6: Maribyrnong TravelSmart Map (Excerpt)



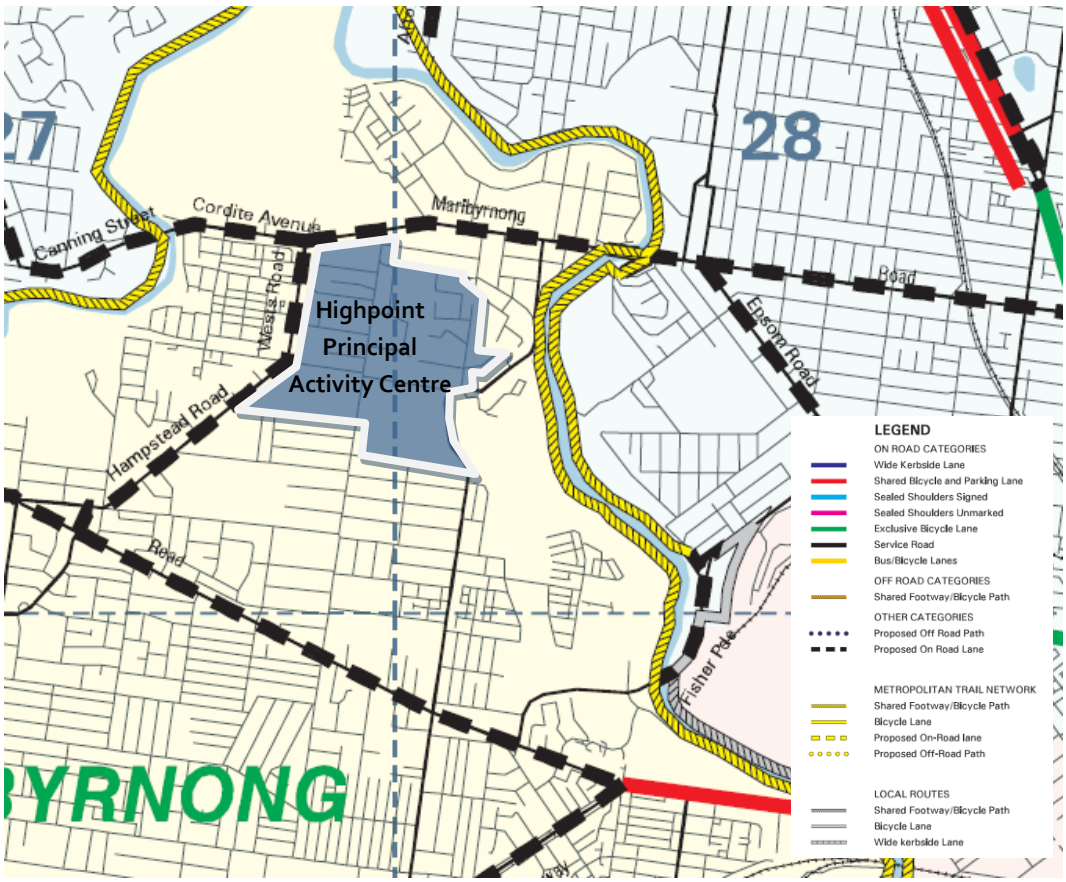
Moreover, the bicycle network within and surrounding the Activity Centre is poorly represented in VicRoads' Principal Bicycle Network (PBN), as shown in Figure 3.7 on the following page. Indeed, this figure indicates that with the exception of the aforementioned shared paths along the Maribyrnong River and paths proposed along Raleigh Road and Wests Road, no other bicycle paths are included in the PBN.

Reference to VicRoads' website indicates that the PBN is currently being reviewed, with the following advice provided:

"The PBN is currently under review and the network will change substantially. Completion of the review is anticipated in mid-2011, and the website updated soon after. The new PBN will differ from the original PBN in a number of key ways:

- *more 'destination-focused', connecting activity centres, Central Activity Districts and the CBD to their cycling catchments*
- *design principle of maximising separation between cyclists and motorists, as well as other priority treatments*
- *increased use of local roads*
- *increased use of off-road paths…".*

Figure 3.7: VicRoads' Principal Bicycle Network



Issues & Opportunities

The above discussions indicate that a significant opportunity exists to notably increase the mode split to bicycle by providing improved linkages to surrounding pathways, providing additional end-of-trip facilities within the Activity Centre and by actively promoting cycling as a mode of transport.

The provision of improved connections to the pathways along the Maribyrnong River and the recently constructed bicycle pathway between Waterford Green and Edgewater represent potential examples of such opportunity. These improved connections should include pathways to the Maribyrnong Defence site and potentially at least one additional north-south 'green' transport bridge over the Maribyrnong River.

Moreover, an opportunity exists to better incorporate the Activity Centre bicycle paths into VicRoads' Principal Bicycle Network (which is being updated at present having specific regard to being more destination-focused and including more local roads). It is expected that the better representation of the bicycle pathways in the vicinity of the Activity Centre will better position this infrastructure for funding and help facilitate cycling as a mode of transport.

Finally, it is considered that the better "promotion" of cycling as a mode of transport to visitors of the Activity Centre, including the facilities provided and the routes available, can also be expected to increase the use of this mode.

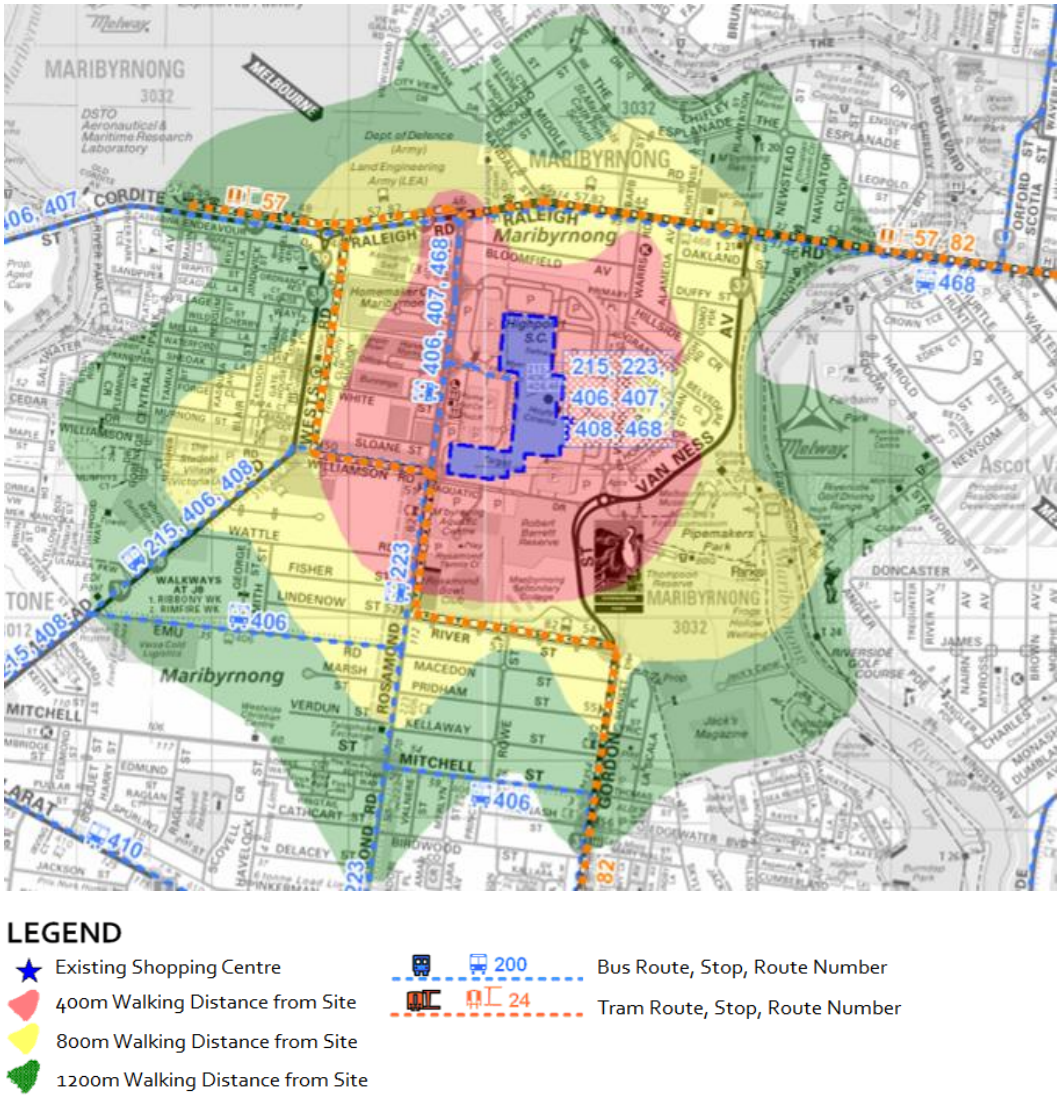
3.4.3 Public Transport

Preamble

Within the Activity Centre, Highpoint Shopping Centre is provided with excellent bus public transport services, with a central bus interchange located within its frontage to Rosamond Road. These services are supplemented by two tram routes at the northern and southern boundaries of the Activity Centre.

For reference, Figure 3.8 shows the proximity of existing public transport services from the Highpoint Shopping Centre (which generally represents the midpoint of the Activity Centre and is the location of the central bus interchange).

Figure 3.8: Public Transport Map



Bus

Mode Split Overview

The mode split to public transport for the Activity Centre is estimated to be in the order of 9% (based on MITM modelling and GTA questionnaire surveys), with the proportion attributable to bus travel equal to approximately half of this split (i.e. 4.5%). This proportion is considered to be low for the Activity Centre,

although it is interesting to note that MITM modelling suggests that approximately equivalent public transport mode splits could be expected at Chadstone and Southland Shopping Centres.

Network & Infrastructure

As outlined above, a number of bus routes currently service the Activity Centre; all of which currently interchange at the bus terminal located on the western side of Highpoint Shopping Centre off Rosamond Road.

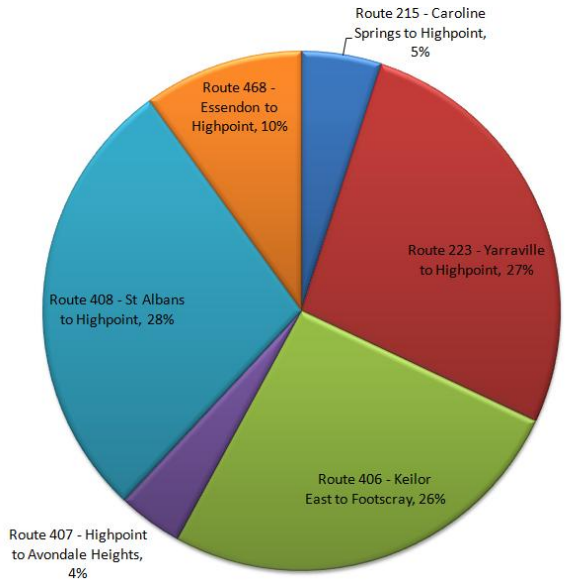
These services are outlined in Table 3.1, with a breakdown of the usage of these bus routes provided in Figure 3.9 (based on information provided by DoT for October 2006). This latter figure indicates that routes 223, 406 and 408 represent more than 80% of the bus patronage to/from the Activity Centre.

Table 3.1: Bus Services Operating in Activity Centre

Service	Route No.	Route Description	Operating Times (Frequency During Peak Hour)		
			M-F	Sat	Sun
Bus	215	Caroline Springs – Highpoint SC	6:56am-8:57pm (30 mins - hour)	8:35am-6:38pm (hourly)	9.21am-6.07pm (hourly)
	223	Yarraville – Highpoint SC	6.34am-12:14am (15 mins)	6:30am-12:24am (15 mins)	7:09am-11:29pm (20-30 mins)
	406	Keilor East – Footscray Station	7:20am-10:05pm (15-20 mins)	7:25am-8:45pm (20 mins)	8:45am-8:45pm (40 mins)
	407	Highpoint SC – Avondale Heights	7:22am-7:26pm (35 mins)	9:11am-5.21pm (35 mins)	No service
	408	St Albans Station – Highpoint SC	6:31am-8:59pm (20 mins)	8:48am-9:59pm (20-30mins)	9:08am-9:59pm (hourly)
	409	Highpoint SC – Yarraville Station	6:00am-9:20pm (40 mins)	8:40am-9:20pm (40 mins)	8:40am-9:20pm (40 mins)
	468	Essendon Station – Highpoint SC	7:45am-9:15pm (40 mins)	8:30am-5:13pm (40 mins)	No service

Source: Metlink website.

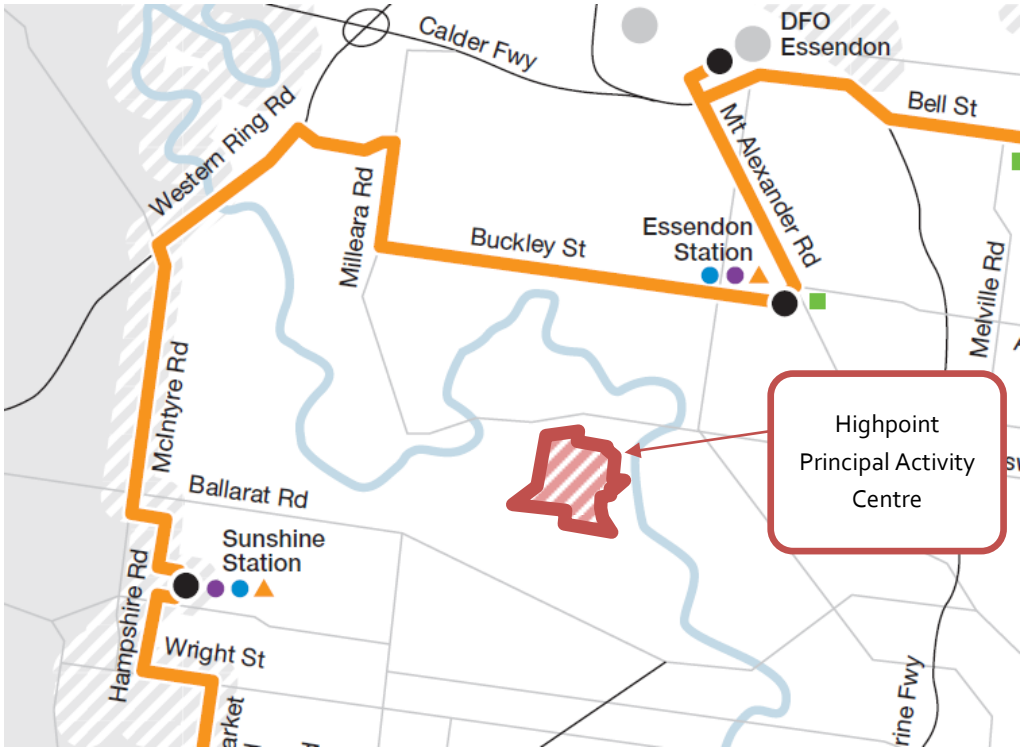
Figure 3.9: Breakdown of Patronage by Bus Route



Note: Figure may exclude information for some bus routes that operate to/from the Activity Centre.

It is also noted that the Activity Centre is presently not serviced by a SmartBus route[6], with the closest route being #903 (Altona to Mordialloc) as shown in Figure 3.10.

Figure 3.10: SmartBus Route #903 in the vicinity of the Activity Centre



Issues & Opportunities

Notwithstanding discussions with the Department of Transport which suggest that the existing bus interchange at Highpoint Shopping Centre is a prime example of a centralised facility which operates well, it is evident that overall bus usage as a mode of transport to the Activity Centre is relatively low – albeit potentially consistent with Chadstone and Southland.

It is considered that this usage could be increased by providing greater priority to bus movements in and around the Activity Centre, as has recently been required by the Department of Transport for the Highpoint Shopping Centre Northeast Expansion, and by providing a centralised public transport interchange, including tram services. In addition, it expected that bus usage could also be increased by providing real-time timetable information at both the bus interchange and within the Shopping Centre.

Finally, it is evident that the operation of the bus services at more frequent intervals and for longer periods of the day (both on weekdays and weekends) represents another opportunity to increase the use of this mode.

Tram

Mode Split Data

Similar to the bus services outlined above, the mode split to tram services operating in the vicinity of the Activity Centre is approximately 4.5%.

[6] SmartBus is a premium, high frequency bus service that was developed to complement Melbourne's radial public transport system by providing 'cross-town' connections along major arterial roads to railway stations, tram lines, schools, universities, hospitals, shopping centres and other activity centres. The service runs more often and for longer periods than normal bus services and incorporates road priority treatments, upgraded bus stop infrastructure and additional passenger information displays (including live timetable information).

Network & Infrastructure

There are two tram routes that operate in the immediate vicinity of the Activity Centre; route 82 (Footscray to Moonee Ponds) operating along Gordon Street, River Street, Rosamond Road, Williamson Road, Wests Road and Raleigh Road, and route 57 (West Maribyrnong to CBD) operating along Raleigh Road.

These services are outlined in Table 3.2, noting that surveys undertaken by GTA at Highpoint Shopping Centre suggests that route 82 attracts approximately 67% of the tram patronage to/from the Activity Centre.

Table 3.2: Tram Services Operating in Activity Centre

Service	Route Nos	Route Description	Nearest Stop Location	Operating Times [1] (Frequency)		
				M-F	Sat	Sun
Tram	57	West Maribyrnong – City	Raleigh Road, opposite Rosamond Road	5:29am-11.23pm (12:20am Fri) (5-20mins)	5:32am-12:19am (7-20 mins)	6:59am-11:00pm (8-30mins)
	82	Footscray – Moonee Ponds	Rosamond Road, immediately south of Aquatic Drive	4:39am-12:09am (1:09am Fri) (10-30 mins)	5:02am-1:08am (13-30 mins)	7:18am-12:08am (15-30 mins)

[1] Source: Metlink website.

It is noted that although both tram routes provide access to nearby railway stations (as discussed below), only tram route 57 continues directly to the Melbourne CBD (Flinders Street Railway Station) with a journey time on a typical weekday AM peak hour of at least 46 minutes.

This journey time is notably longer than that possible by travelling to Footscray Railway Station, via tram route 82 or bus, and then riding the train to the CBD (at least 32 minutes). It is envisaged that this comparison represents a key factor for the strong preference towards route 82. For reference, maps showing each respective journey into the CBD are presented in Figures 3.11 and 3.12.

Figure 3.11: Tram Route 57 to Melbourne CBD

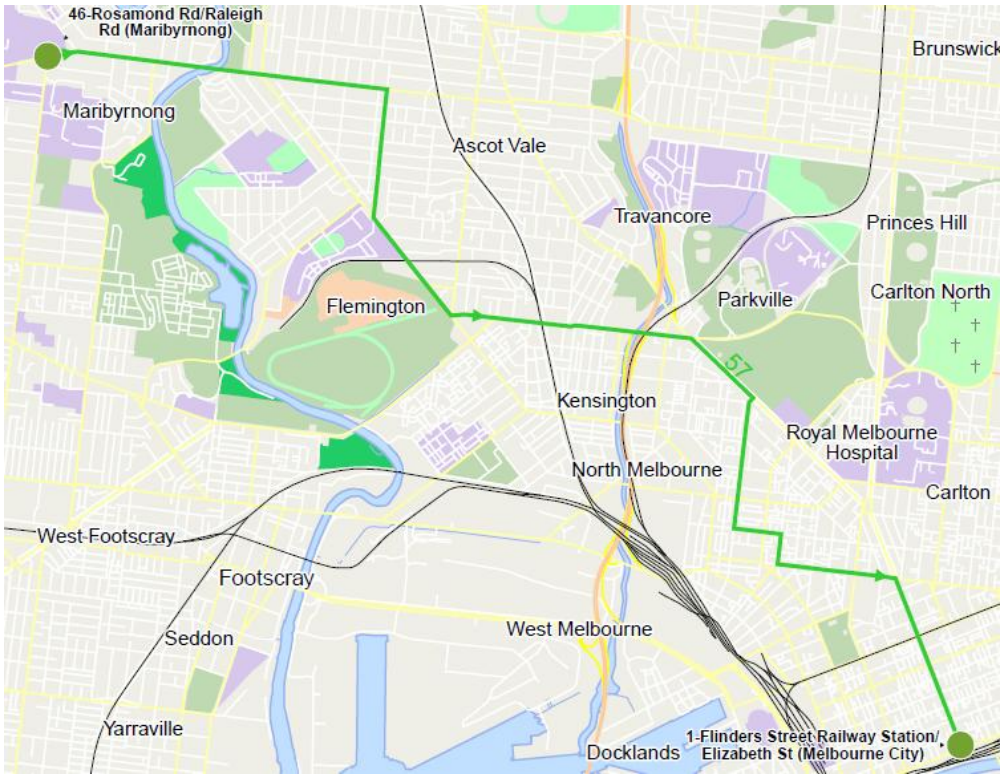
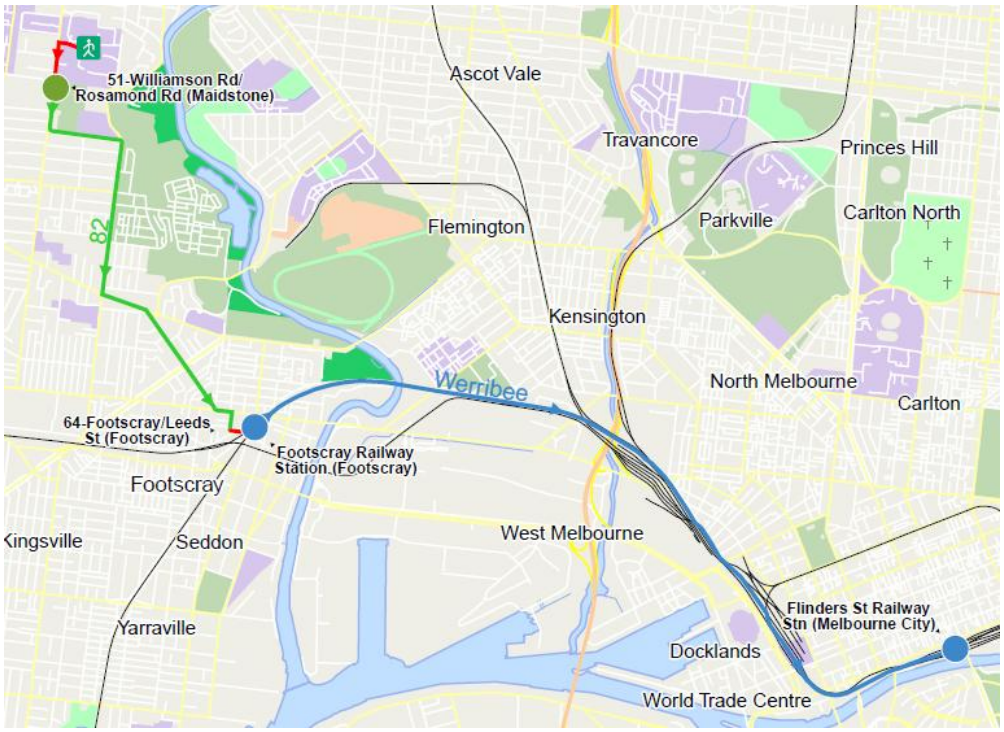


Figure 3.12: Quickest Public Transport Route to Melbourne CBD (including tram route 82)



Issues & Opportunities

The tram services to/from the Activity Centre predominantly share their carriageways with private (road-based) traffic, with only small sections provided within their own tram reserve. It is considered that this represents a key factor to the relatively low mode split to tram travel for the Activity Centre, as it increases tram travel times.

In this regard, it is evident that a significant opportunity exists to improve the mode split to tram to/from the Activity Centre by providing more priority to trams (and buses) along these routes or, ideally, providing longer sections of tram only reserves. It is expected that such priority measures could be implemented following the completion of an appropriate study, through VicRoads and *ThinkTram* programs.

It is also expected that the attractiveness of trams as a mode of transport would be increased by better integrating tram stops located at the periphery of the Activity Centre with the bus interchange at the heart of the Activity Centre. These connections are poor at present and would require the provision of better pedestrian pathways as well as way-finding signage.

It is evident that an opportunity also exists to potentially extend tram services into the Maribyrnong Defence site to the north of the Activity Centre. This will reduce the need for car-based trips between the Activity Centre and Maribyrnong Defence sites. As part of the redevelopment of the Maribyrnong Defence site, consideration should also be given to providing at least one 'green bridge' across the Maribyrnong River for pedestrians, cyclists (as well as potentially buses and/or trams if possible) linking with the Avondale Heights / Essendon areas.

Similar to the bus services, the operation of the tram services at more frequent intervals and for longer periods of the day (both on weekdays and weekends) represents another opportunity.

Train

Mode Split Overview

It is anticipated that a proportion of visitors to the Activity Centre would utilise the rail network as part of a trip which also included a bus, tram or active transport trip. At the time of preparing this report, however, information was not available to estimate this mode split.

Network & Infrastructure

As outlined in Figure 3.13 and discussed on previous pages, train access to the Activity Centre is currently limited, with the closest railway stations located some 3.2km east and 3.5km south of the centre (Ascot Vale and Footscray stations, respectively).

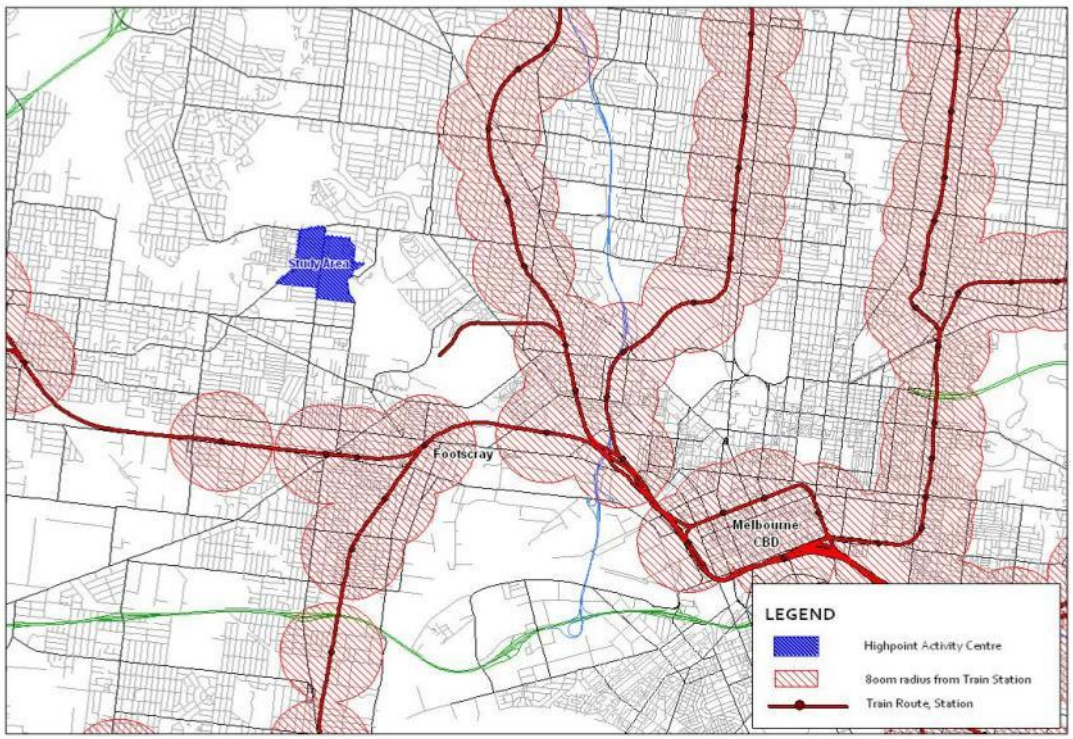
As a consequence of this isolation, persons wishing to utilise train services from the Activity Centre must first travel to one of the above stations by the bus or tram services (and vice versa for travel to the Activity Centre). In this regard, Table 3.3 presents the closest rail stations to the Activity Centre, including travel times to these railway stations during a typical weekday AM peak hour (departing after 7:30am).

Table 3.3: Train Services operating in vicinity of Activity Centre

Railway Station	Train Line	Fastest Public Transport Route from Activity Centre to Station	AM Peak Hour Travel Time [1]
Footscray	Sydenham, Werribee, Williamstown	Tram (Route 82) Bus (Route 223)	≥18min ≥13min
Ascot Vale	Craigieburn Line	Tram (Route 82) Tram (Route 57)	≥15 min ≥18 min
Sunshine	Sydenham Line	Bus (Route 408)	≥20 min
Showgrounds	Flemington Racecourse	Not applicable	

[1] Includes walk time at Railway Station but excludes walk and wait times at tram or bus stop within the Activity Centre.

Figure 3.13: Location of Heavy Rail Infrastructure in Relation to Activity Centre



Issues & Opportunities

The absence of rail services in closer proximity to Northern Maribyrnong represents a significant transport limitation at present and one that is likely to require resolution as more residential and commercial land uses are provided within the Activity Centre and at the Maribyrnong Defence site.

It is also noted that significant planned redevelopment of the Footscray Station Precinct and the Regional Rail Link will provide further opportunities to improve connection to and from the Activity Centre and Footscray.

Strategically, it is evident that strong efforts need to be made to broaden the "palette" of public transport opportunities to/from the Activity Centre, particularly into and out of the Melbourne CBD. In this regard, it is considered that primary consideration should be given to the extension of heavy rail services. It is considered that this extension could logically occur as part of an extension from the Principal Public Transport Network.

It is envisaged that this option may be feasible and could form part of a rail line that extends beyond Highpoint Shopping Centre to Melbourne Airport and/or as part of the fast rail connection between Melbourne and Sydney.

3.4.4 Private Road-Based Transport

Mode Split Overview

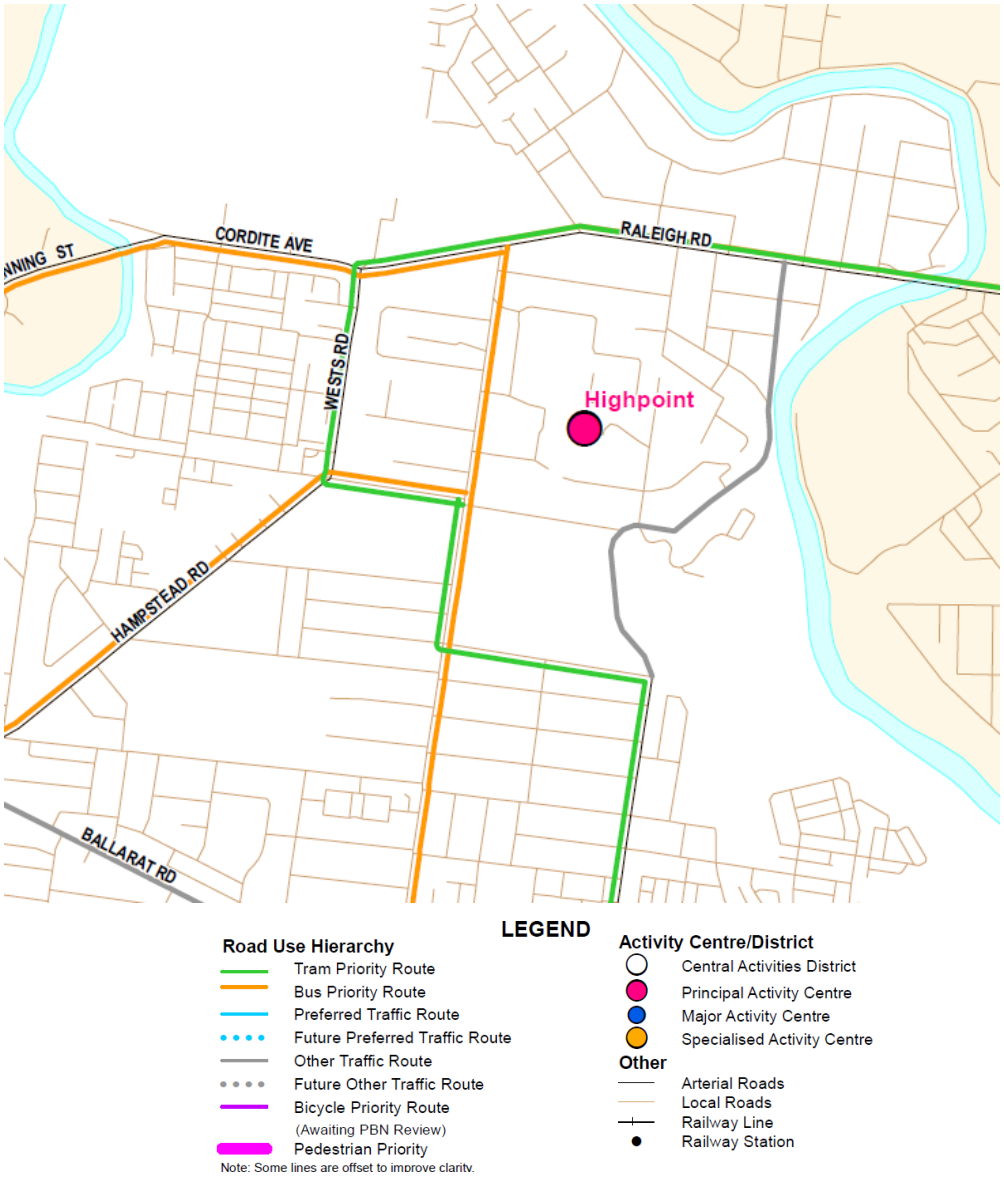
As outlined earlier in this report, travel to and from the Activity Centre at present occurs primarily by private (road-based) vehicles, with the mode split to cars equal to approximately 88%.

Network & Infrastructure

Road Network

The road network within the Activity Centre, as sourced from VicRoads' *SmartRoads* website, is shown in Figure 3.14.

Figure 3.14: Road Network and Key Intersections within the Activity Centre



Reference to Figure 3.14 and other relevant information sources indicates the following:

- The road network within the Activity Centre contains three principal north-south routes (being Wests Road/Hampstead Road to the west, Rosamond Road through its middle and Gordon Road/Van Ness Avenue to the east) and a single east-west route (being Cordite Avenue/Raleigh Road to the north).
- This latter road (Cordite Avenue/Raleigh Road) provides a regionally significant east-west route and represents one of few crossings of the Maribyrnong River and the only one in the immediate vicinity of the Activity Centre.
- With the exception of Rosamond Road, all other roads are primary arterials which, under the control of VicRoads, have an allocated priority to 'moving' traffic and a secondary role of providing access to the Activity Centre. In contrast, Rosamond Road has a priority more towards providing access to abutting properties.
- Notwithstanding the traditional role of the arterial roads as described above, the Activity Centre contains bus and tram priority routes but no preferred traffic route (as defined by VicRoads'

SmartRoads program). The priority bus routes include Rosamond Road and Williamson Road, with the priority tram routes including Williamson Road, Wests Road and Raleigh Street.

Traffic Surveys

In order to understand the current purpose of trips within the Activity Centre, origin-destination surveys were completed on Rosamond Road (south of Williamson Road) and Raleigh Road (to the east and west of Rosamond Road).

The purpose of these surveys was to identify the proportion of traffic currently utilising Rosamond Road as a 'through' route, rather than a means to access the Highpoint Shopping Centre or Bulky Goods Retail / Home Maker centres located on Rosamond Road.

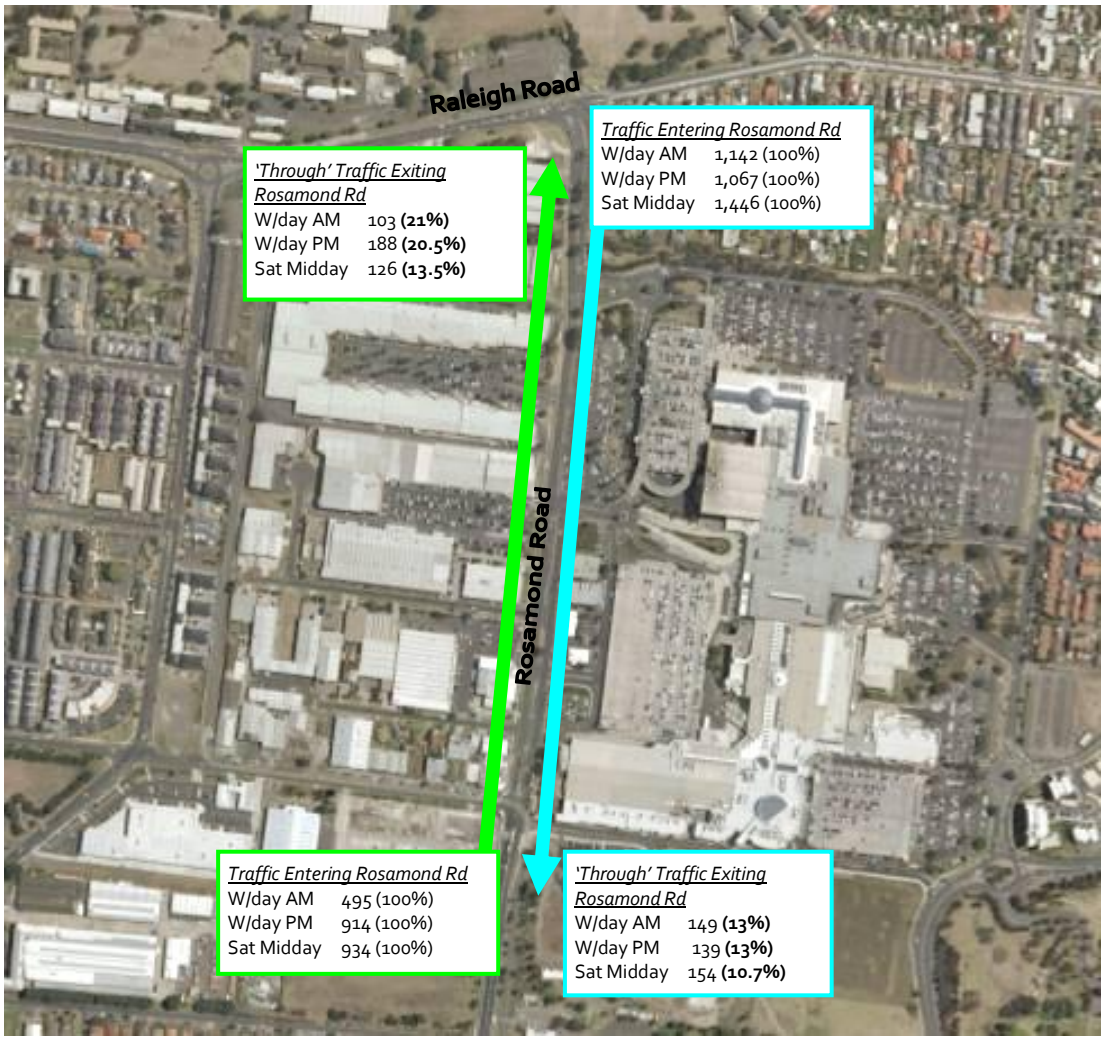
The results of this survey are shown in Figure 3.14 on the following page and indicate that Rosamond Road, between Raleigh Road to the north and Williamsons Road to the south, carries a significantly higher proportion of traffic associated with uses located within the Activity Centre compared to traffic travelling 'through' the Activity Centre (i.e. non-Centre related traffic).

Specifically, the survey suggests that the proportion of 'through' traffic travelling northbound and southbound on Rosamond Road is approximately 1 in every 5 to 8 vehicles and 1 in every 8 to 10 vehicles respectively. As could be expected for the retail biased existing Activity Centre, the figure suggests that the proportion of 'through' traffic is lower on the weekend in both directions, with a higher proportion of traffic on Rosamond Road associated with existing surrounding commercial and retail land uses.

These surveys indicate that an opportunity exists to redirect a level of traffic which currently bisects the Activity Centre, which has neither an origin nor destination within the local area, to another road and increase the pedestrian and public transport priority and function of Rosamond Road.

On the basis of the peak hour traffic volumes shown in Figure 3.15 and an assumed peak-to-daily traffic volume ratio on Rosamond Road of 10%, it is estimated that this redirection could result in approximately 3,000 fewer vehicles using Rosamond Road per day.

Figure 3.15: Rosamond Road Trip Patterns



Note: Traffic volume figures represent hourly peak volumes based on 3-hour sample counts undertaken in December 2009 between 7.00am-10.00am Friday, 4.00pm-7.00pm Thursday, and 11.00am-2.00pm Saturday.

Daily traffic volume estimates for the roads within the vicinity of the Activity Centre are shown in Figures 3.16 and 3.17 below and on the following page.

These figures indicate that average daily traffic volumes within the Activity Centre are generally equal during the week and on the weekend, with the notable exceptions being Hampstead Road, Wests Road and Cordite Avenue on which weekday traffic volumes are around 2,500-3,000 vehicles per day higher than that during a weekend.

This data suggests that these roads are utilised more during the AM and PM weekday peak periods, and are likely to carry a proportion of traffic which is not associated with uses within the study area. In addition, the figures also indicate that Rosamond Road currently carries the highest proportion of north-south traffic through the study area – marginally higher than Wests Road and Van Ness Avenue – on both a weekday and weekend.

Figure 3.16: Daily Road Network Traffic Volumes - Weekday

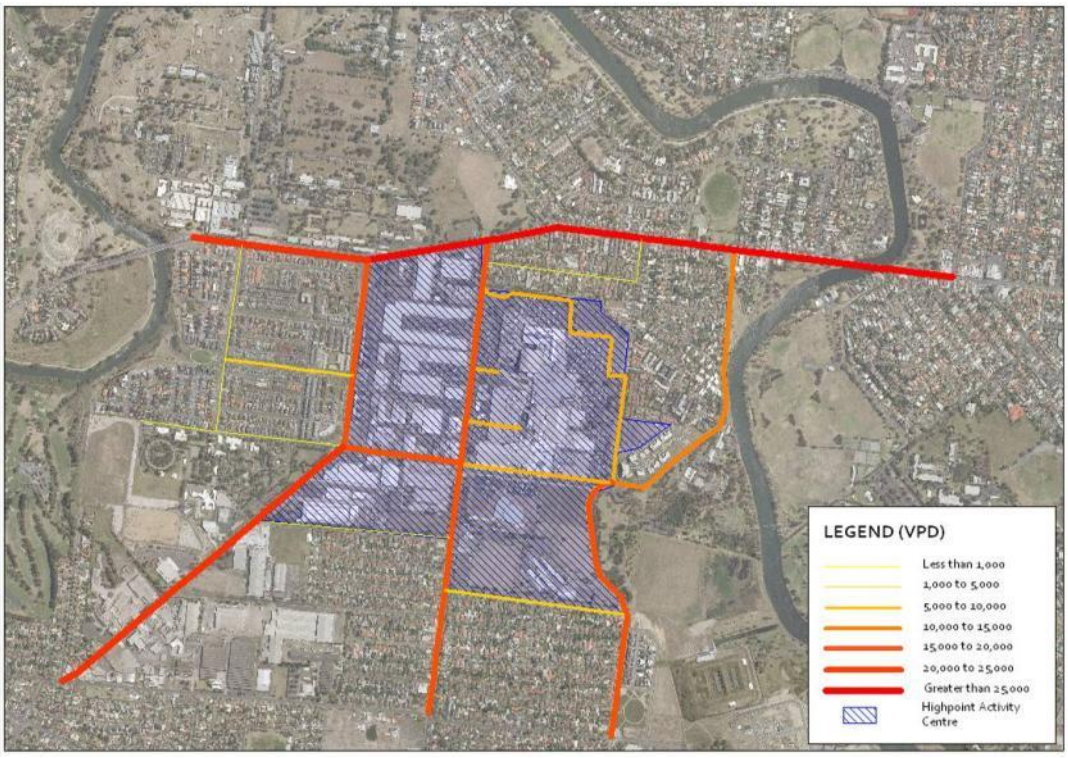
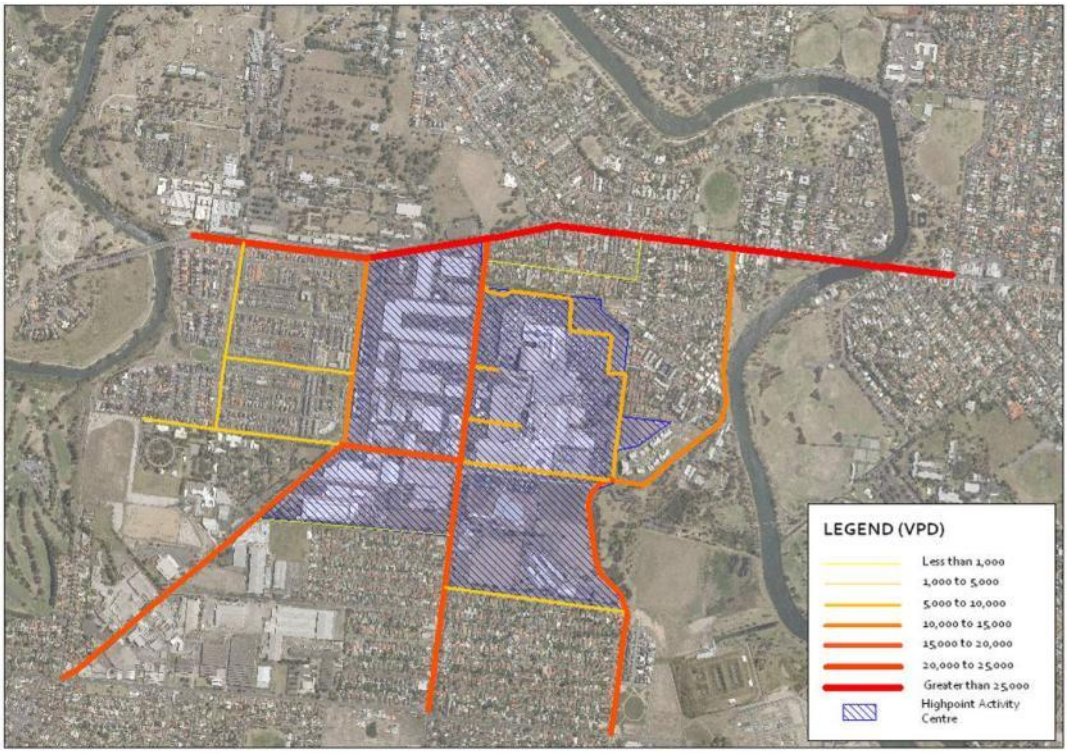


Figure 3.17: Daily Road Network Traffic Volumes - Weekend



Intersection Performance

The key intersection within and around the Activity Centre, including the type of control at each, are summarised in Table 3.4.

Table 3.4: Key Intersections within the Activity Centre

Hampstead Road / Wests Road / Williamson Road	(signalised)	
Raleigh Road / Wests Road	(roundabout)	
Raleigh Road / Rosamond Road	(signalised)	
Rosamond Road / Northern HSC Access Road	(signalised)	
Rosamond Road / Central HSC Access Road	(signalised)	
Rosamond Road / South HSC Access Road	(unsignalised)	
Rosamond Road / Aquatic Drive / Williamson Road	(signalised)	
Van Ness Avenue / Warrs Road / Gordon Street	(roundabout)	
Gordon Street / Aquatic Drive	(unsignalised)	
Warrs Road / HSC Centre Entrance	(roundabout)	
Gordon Street / River Street	(signalised)	
Rosamond Road / River Street	(unsignalised)	
Raleigh Road/Van Ness Avenue [1]	(signalised)	

The operation of the key intersections within the Activity Centre has been assessed using SIDRAIntersection, with a succinct overview of the results of this analysis summarised in Table 3.5.

This analysis has been completed to ascertain the general level of service at each intersection during the weekday AM and PM road network peak hours and the Saturday midday peak hour during which retail activity is at its busiest within the Activity Centre.

It is emphasised that this analysis has been completed for broad level review purposes only and not to determine the exact operation of each particular intersection. Indeed, the assessments have been based on the AM peak hour outputs given by MITM with a proportionate increase applied to PM and weekend peak hours. The outputs are therefore representative of general operational trends only and should not override detailed peak hour assessments of individual intersections.

Table 3.5: Overview of Intersection Performance of Key Intersections (Year 2010)

Intersection	Level of Service [1]		
	Weekday AM	Weekday PM	Saturday Lunchtime
Hampstead Rd/Wests Rd	Good	Good	Acceptable
Raleigh Rd/Wests Rd	Very Good	Very Good	Very Good
Raleigh Rd/Rosamond Rd	Very Good	Excellent	Very Good
Rosamond Rd/Williamson Rd/Aquatic Drv	Excellent	Good	Very Poor
Van Ness Ave/Warrs Rd	Excellent	Excellent	Very Good
Raleigh Rd/Van Ness Ave [2]	Excellent	Very Good	Good

[1] As defined by SIDRA INTERSECTION[7]
[2] Intersection is not located within study area however represents an important link in the local road network.

Notwithstanding the concern of some residents regarding existing levels of traffic congestion within and around the Activity Centre, Table 3.5 indicates that with the exception of the Rosamond Road/ Williamson Road/Aquatic Drive intersection (which operates with a very poor level of service during the Saturday lunchtime peak hour), the other assessed intersections currently operate at, or below, acceptable levels of service during all peak hour periods.

That being said, it is noted that a number of other intersections are approaching the acceptable limit, with these intersections including Hampstead Road/Wests Road and Raleigh Road/Van Ness Avenue (which is located just outside the Activity Centre).

This analysis indicates that although the Activity Centre is subject to high traffic volumes, this traffic is not resulting in conditions that would typically be considered unacceptable. Indeed, the observed levels of traffic congestion are considered to be similar to those experienced at other Activity Centres and shopping centres throughout metropolitan Melbourne.

It is also noted that whilst the daily volumes presented above indicate that daily weekday volumes are generally equal to or greater than weekend daily volumes, the analysis shown in Table 3.5 indicates that greater intersection capacity exists within the Activity Centre during the weekday AM and PM peak hours than during the weekend peak hours. This is consistent with numerous inspections of the Activity Centre and its surrounds.

Future Road Projects

A number of key road projects have either recently been approved or are being investigated which directly impact upon the Activity Centre. These projects include:

- **Highpoint Ring Road** – currently approved as a three-lane carriageway (and ultimately the possibility of a four-lane divided carriageway) this road provides a link between Rosamond Road and Gordon Street, as well as facilitating access to the recently approved and potential further expansions of the Highpoint Shopping Centre. This road will essentially provide a "bypass" to the

[7] SIDRA INTERSECTION adopts the following criteria for Level of Service assessment:

		Intersection Degree of Saturation	
		Unsignalised Intersection	Signalised Intersection
A	Excellent	<=0.50	<=0.60
B	Very Good	0.50-0.70	0.60-0.75
C	Good	0.70-0.80	0.75-0.90
D	Acceptable	0.80-0.90	0.90-0.95
E	Poor	0.90-1.00	0.95-1.00
F	Very Poor	>=1.0	>=1.0

centre of the Activity Centre. For reference, the approved three-lane cross section is shown in Figures 3.18 and 3.19.

- **Hampstead Road** – improvements include formalising line marking and intersection treatments (including Williamson Road/Hampstead Road) as part of land use development along the north-western side of the road. It is understood that these works are to be completed by VicRoads using contributions collected by Council.
- **Ashley Street** – investigations into the potential extension of the street to the west of the Activity Centre include a new connection over the Maribyrnong River to Military Road[8]. This project represents a longer-term aspiration than the road projects discussed above and is considered in detail later in this report.

Figure 3.18: Approved Highpoint Ring Road (Three-Lane) Cross-Section - typical

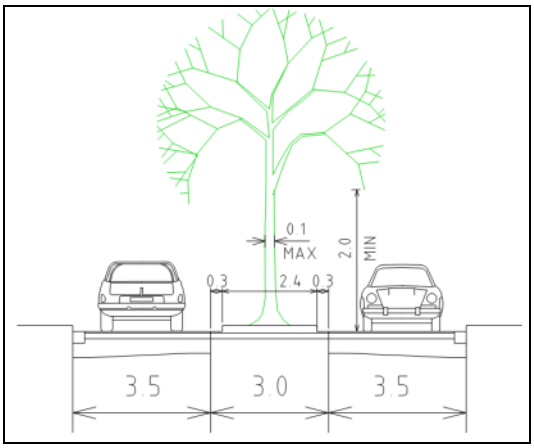
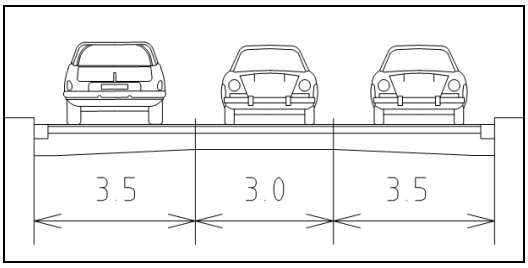


Figure 3.19: Approved Highpoint Ring Road (Three-Lane) Cross-Section – with centre turn lane



Other key road projects which are included in the Strategic Model (MITM) include the M1 upgrade (West Gate Freeway), Kororoit Creek Road duplication and WestLink. Individual scenario testing of the potential impact of these projects on the Activity Centre is outside the scope of this strategy and has not been completed.

Car Parking

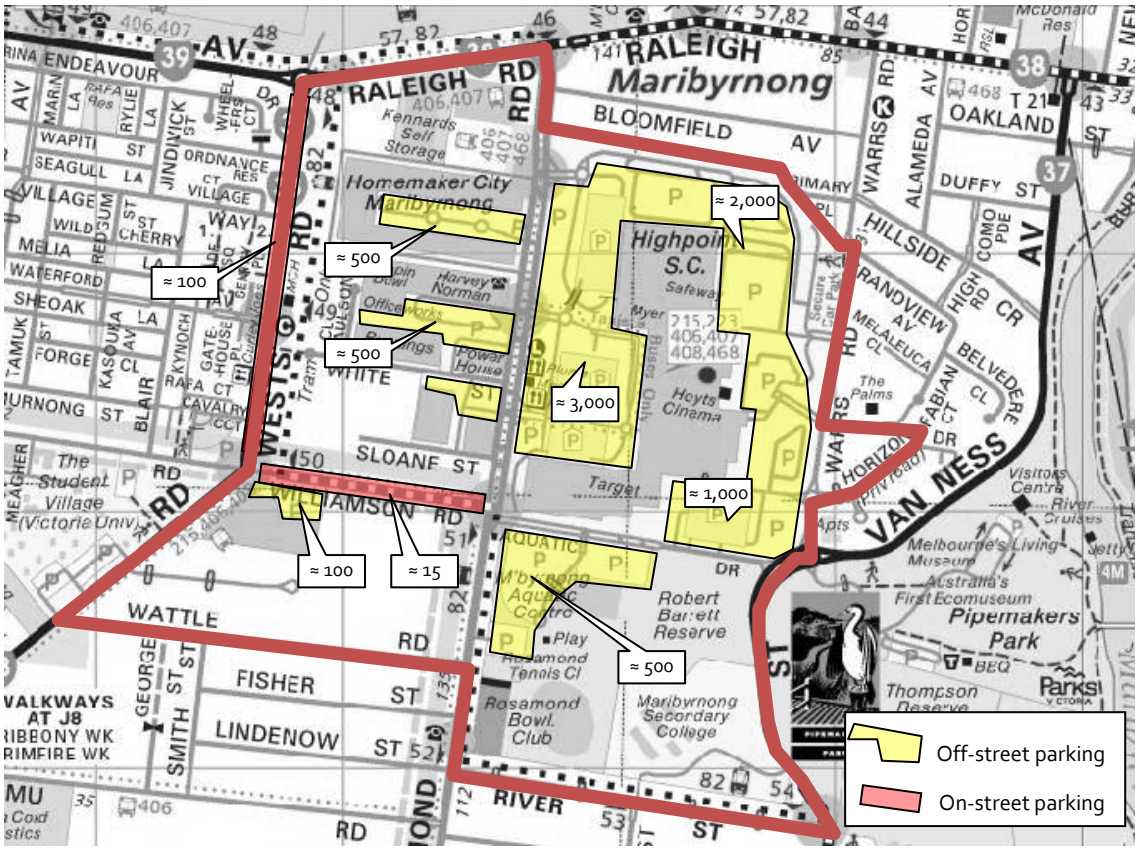
The majority of car parking within the Activity Centre is located in off-street car parks associated with retail and commercial land uses; of which, the majority have public access.

This off-street car parking is supplemented by limited on-street car parking, with such parking generally limited to small sections of Williamson Road, Warrs Road, River Street and Wattle Road (and parking along abutting residential roads).

For reference, the above parking is shown in Figure 3.20.

[8] It is noted that Moonee Valley City Council's position is that no additional road links should be provided across the Maribyrnong River.

Figure 3.20: Existing Car Parking within the Activity Centre



Analysis undertaken by GTA for the Highpoint Shopping Centre Northeast Expansion indicates that the supply of car parking for this use (and by extension the overall Activity Centre) is generally sufficient other than during peak activity times around Christmas. At such times, parking demands can spill into surrounding streets and into the southern portions of the Activity Centre (i.e. the tennis and bowls club). This outcome is not unusual for such centres, as it is uncommon to provide car parking to meet "peak-of-peak" demands (as this would result in the bulk of the car parking being underutilised for the remainder of the year).

At present, this car parking is offered free of charge, for both staff and customers, and is generally not supported by signage directing motorists to car parking areas or vacancies. The latter type of signage is provided at shopping centres such as Westfield Doncaster to reduce the time motorists are required to spend on the surrounding road network or within car parks; in turn helping to reduce congestion.

Issues & Opportunities

It is evident that a number of 'carrot' and 'stick' opportunities exist with respect to the road network within the Activity Centre. These include:

i The construction of Highpoint Ring Road to provide access to the approved expansion of Highpoint Shopping Centre and ultimately provide a north-south "bypass" of Rosamond Road.

ii Increasing the pedestrian and public transport priority and function of Rosamond Road given its low 'through traffic' function (approximately 1/8th of existing traffic is not currently associated with the Activity Centre) and to assist in creating an active transport / public transport-orientated environment as the central spine of the Activity Centre)[9].

[9] It is acknowledged that any significant reduction in the vehicular traffic function of this road will be subject to comprehensive traffic modelling and assessment which includes the MDS development.

iii Capacity improvement works at key intersections, such as:

- Rosamond Road/Williamson Road/Aquatic Drive:
  - the potential realignment of Williamson Road immediately west of Rosamond Road (including associated land acquisitions) to provide a traditional cross-intersection and hence improve signal phasing efficiency
  - the potential extension of turn lanes on approaches to the intersection
  - the potential provision of a double left-turn movements from Williamson Road into Rosamond Road (with associated modifications to pedestrian priority if required) and/or through movements in both lanes on the Aquatic Drive east approach
  - the potential modification of existing signal phasing at the intersection to maximise its efficiency
  - the potential inclusion of greater tram and bus priority at the intersection (noting that such works is required as a consequence, and at the expense, of the approved Bunnings development on this corner)
  - the potential provision of "puffin" detectors at all pedestrian crossings to improve phasing efficiency.
- Williamson Road/Wests Road/Hampstead Road:
  - the previously proposed addition/extension of turn lanes on approaches to the intersection (as determined for the Hampstead Road Precinct)
  - the previously proposed addition of left-turn slip lanes on the north and potentially east approaches to the intersection
  - associated land acquisitions to facilitate these changes
  - the potential provision of "puffin" detectors at all pedestrian crossings to improve phasing efficiency.
- Raleigh Road/Van Ness Avenue:
  - the potential provision of left-turn slip lanes on the south and east approaches to the intersection (including associated land acquisitions)
  - the potential banning of the right-turn movement from Raleigh Road into Van Ness Avenue during peak periods to increase phasing efficiency and minimise delays and queuing on the west approach
  - the potential inclusion of greater tram and bus priority at the intersection
  - the potential provision of "puffin" detectors at all pedestrian crossings to improve phasing efficiency.
- Raleigh Road/Rosamond Road
  - the potential provision of a northern approach to the intersection to provide a signalised point of access to the Maribyrnong Defence site (following its development)
  - the potential provision of a left-turn slip lane from Raleigh Road into Rosamond Road
  - the potential widening of Raleigh Road to provide additional through traffic lanes and/or extending turn lanes (particularly for the right-turn into Rosamond Road)
  - associated land acquisitions to facilitate these changes
  - the potential inclusion of greater tram and bus priority at the intersection
  - the potential provision of "puffin" detectors at all pedestrian crossings to improve phasing efficiency.

iv The construction of an additional east-west route through the core of the Activity Centre between Wests Road and Rosamond Road.

v The construction of the Ashley Street extension to provide another north-south crossing of the Maribyrnong River and thereby reduce traffic volumes within the Activity Centre.

From a car parking perspective, it is evident that opportunities also exist to introduce paid car parking within the Activity Centre to reduce the relative attractiveness of the car as a mode of travel and generate funding for the completion of the road works and/or public and active transport improvements.

In addition, the provision of "real-time" parking guidance signage could be provided at Activity Centre access points, and on the surrounding road network, to reduce traffic congestion by minimising the quantum of circulating vehicles and by directing motorists to intersections with greater capacity.

Finally, it is also noted that a car parking strategy should be prepared for the Activity Centre which examines, amongst other items, the potential provision of car parking under a 'maximisation' rather than 'minimisation' policy[10]. It is envisaged that this strategy would ultimately be incorporated within the Maribyrnong Planning Scheme as a Parking Policy (within the Local Planning Policy Framework) or a Parking Precinct Plan (within Clause 52.06-6).

3.4.5 Summary of Existing Opportunities

Table 3.6 on the following page presents a summary of the opportunities identified in the previous sections.

[10] Unlike 'minimisation' car parking policies which exist in Clause 52 of the existing Maribyrnong Planning Scheme (which outlines the minimum rates at which car parking must be provided without otherwise attaining the approval of Council), a 'maximisation' car parking policy identifies rates at which car parking cannot be provided above without Council approval. This helps to restrict the amount of car parking that can be provided and hence assists to also minimise related traffic impacts. This policy exists within the Melbourne CBD, Docklands and certain areas of Southbank. It is also being considered at a number of other activity centres across metropolitan Melbourne, including Footscray and Coburg.

Table 3.6: Summary of Existing Transport Opportunities

ACTIVE TRANSPORT

No.	Opportunity
1	Provide pedestrian pathways on both sides of all roads within the Activity Centre
2	Provide better connections to off-road pathways, particularly those located in Pipemakers Park and Waterford Green, and consider further opportunities to link pathways on both sides of the river through 'green bridges'.
3	Provide better connections between key destinations and origins within the Activity Centre, including retail shopping entrances, public transport stops and car parking areas, and to surrounding land parcels such as the Maribyrnong Defence site and residential development to the west of Wests Road
4	Provide end-of-trip bicycle facilities (parking/lockers/showers) within the Activity Centre
5	Incorporate the bicycle network within the vicinity of the Activity Centre, including any proposed paths, within VicRoads' Principal Bicycle Network

PUBLIC TRANSPORT

No.	Opportunity
6	Undertake a tram improvement study within and in the immediate vicinity of the Activity Centre
7	Provide greater tram and bus priority measures on key routes surrounding the Activity Centres
8	Provide a centralised tram and bus interchange at the "heart" of the Activity Centre
9	Provide longer sections of tram reserves within and to/from the Activity Centre
10	Extend public transport services into the Maribyrnong Defence site and, as part(s) of its redevelopment, consideration should also be given to providing at least one "green bridge" across the Maribyrnong River for pedestrians and cyclists (and buses / trams if possible) linking with the Avondale Heights / Essendon areas.
11	Provide a railway station at the Activity Centre

PRIVATE (ROAD-BASED) TRANSPORT

No.	Opportunity
12	Upgrade Highpoint Ring Road to provide a "bypass" to Rosamond Road
13	Increase the pedestrian and public transport priority and function of Rosamond Road.
14	Undertake capacity improvements at key intersections within and around the Activity Centre
15	Construct an additional east-west roadway between Wests Road and Rosamond Road
16	Construct the Ashley Street extension to provide a north-south crossing of the Maribyrnong River
17	Introduce paid car parking, "real-time" parking guidance signage and potential car parking provision maximums within the Activity Centre

4. The Future Activity Centre

4.1 Section Overview

This section outlines the vision sought for the Activity Centre and examines the land uses anticipated within the Activity Centre, and its surrounds, under the following three stages:

- Stage 1 (short term), corresponding to development anticipated up to 2015
- Stage 2 (medium term), corresponding to development anticipated between 2015 and 2020
- Stage 3 (long term), corresponding to development anticipated beyond 2020.

It is noted that these land use stages must be viewed as being indicative, as the ultimate development of the Activity Centre, and the timing of this development, will be dependent on numerous factors outside of the control of the relevant stakeholders (including Council). The land uses are accordingly presented solely to guide the examination of the likely transport requirements of the Activity Centre and must not be viewed as being so prescriptive as to suggest that the development anticipated in each stage cannot occur in earlier or later stages if so required by these factors.

4.2 Vision

The Highpoint Activity Centre Structure Plan (2008) outlines the vision for the area as follows:

> *"The Highpoint Activity Centre will be a place with high amenity and a mix of vibrant activities that provides for living, working and recreation for people from across the western suburbs. Regional comparison retail will continue to be the primary economic mainstay of the activity centre. The Highpoint Activity Centre has at its heart a town centre, and is defined by visible, bold and high quality architecture. The area is integrated and accessible through a well defined pedestrian, cycle, street and public transport system. The Highpoint Activity Centre has a strong sense of place and respects its heritage, the Maribyrnong River and its spectacular setting".*

This vision is consistent with the views shared at the "ideas and solutions" stakeholder workshop; where the following attributes were identified as being critical to the success of the Activity Centre:

- economically viable
- inclusive of a variety of interconnected land uses and dwelling types and sizes
- inhabited by healthy people
- inclusive of a range of transport options, including active and public transport alternatives, which make the most of existing infrastructure, tie in with surrounding transport requirements and assist to generate a mode split shift away from the private motor vehicle
- inclusive of improved private (road-based) transport infrastructure.

4.3 Anticipated Land Uses

4.3.1 Implications for Land Use/Transport Planning

Although introduced under the former Government, the VTP nevertheless provides the strategic direction to the development of the Victorian transport network, with over $38 billion invested in projects to meet the ever increasing population and service expectations. The VTP covers all forms of transport and aims to address historical imbalances and bottlenecks between the east and west of Melbourne, while also broadening opportunities for suburban and regional Victoria to share in future growth.

The VTP anticipates that Melbourne's population will pass the original *Melbourne 2030* projections before 2020 and regional Victoria will attract a further half million residents by 2036. The *Melbourne @ 5million* document further supports this expectation and indicates that Melbourne will require an additional 600,000 dwellings over the next 20 years to cater for projected population growth.

The population growth projections anticipate that over 50% of all new dwellings will be located in Melbourne's inner and established areas and the balance in Melbourne's growth areas. The Highpoint Activity Centre is clearly categorised as an inner urban area which is geared to contribute to the delivery of projected housing requirements. This gearing includes high levels of accessibility to public transport services, as well as proximity to retail uses.

Beyond the residential growth expectations, the VTP also seeks *"to integrate transport and land development"* so that more people live closer to places of employment and other lifestyle opportunities. As stated in the VTP, *"people should not have to drive as far as often";* thereby reducing pressures *"on road and public transport capacity, while building better connections to more places."* This integrated approach represents an important cornerstone towards planning for the Activity Centre and highlights the significance of delivering a vibrant mixed-use precinct which diminishes the need to rely on both motorised and public transport trips for the broad cross-section of day to day trip types.

The delivery of complementary land uses within such precincts is also particularly significant, as they assist to create the added benefit of distributing peak traffic movements more evenly across the day. This occurs as such uses experience peak activity levels at different times of the day and therefore also generate peak traffic movements at different times. This pattern can be seen in Figures 4.1 and 4.2 on the following page, which present a summary of the typical activity levels of various land uses within the municipality of Maribyrnong (as sourced from the VISTA database).

The provision of complementary land uses within the precinct will therefore assist to balance travel demands and avoid a concentration of activity during a similar period. This in turn will assist to ensure that the capacity of the transport network is able to be utilised in an even and efficient manner. With respect to the Activity Centre, for instance, it is evident that uses which generate peak traffic levels outside of peak retail periods should be encouraged. Such uses include residential and office land uses, which generate low to negligible levels of traffic during Saturday lunchtime periods (i.e. the period of peak traffic levels for the existing retail-dominated Activity Centre).

Figure 4.1: Land Use Activity (City of Maribyrnong) - Weekday

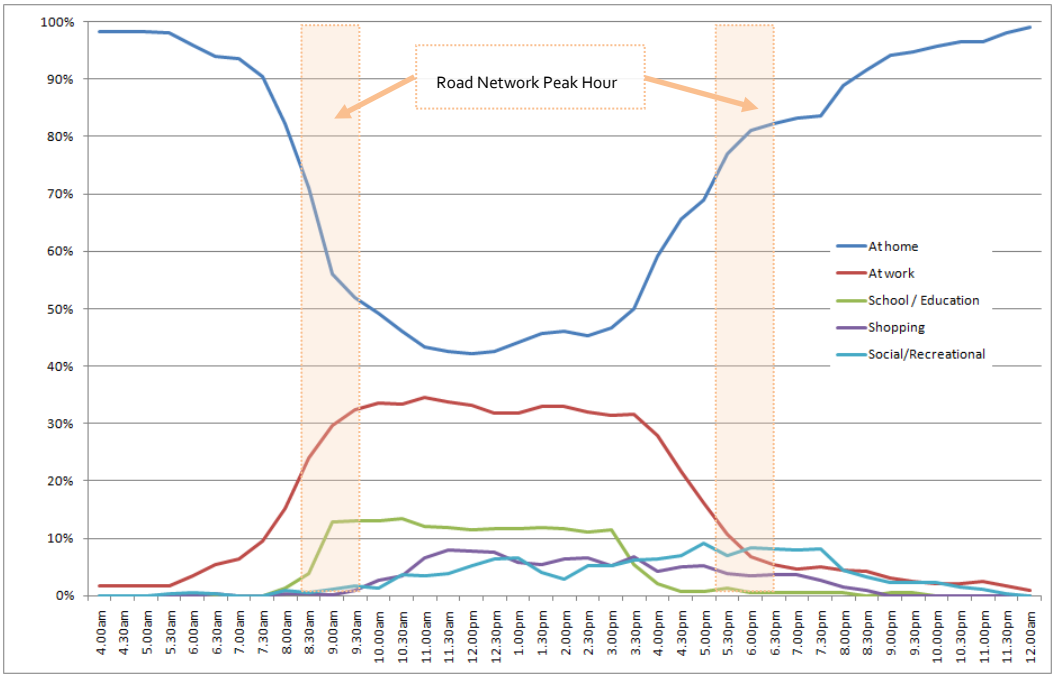
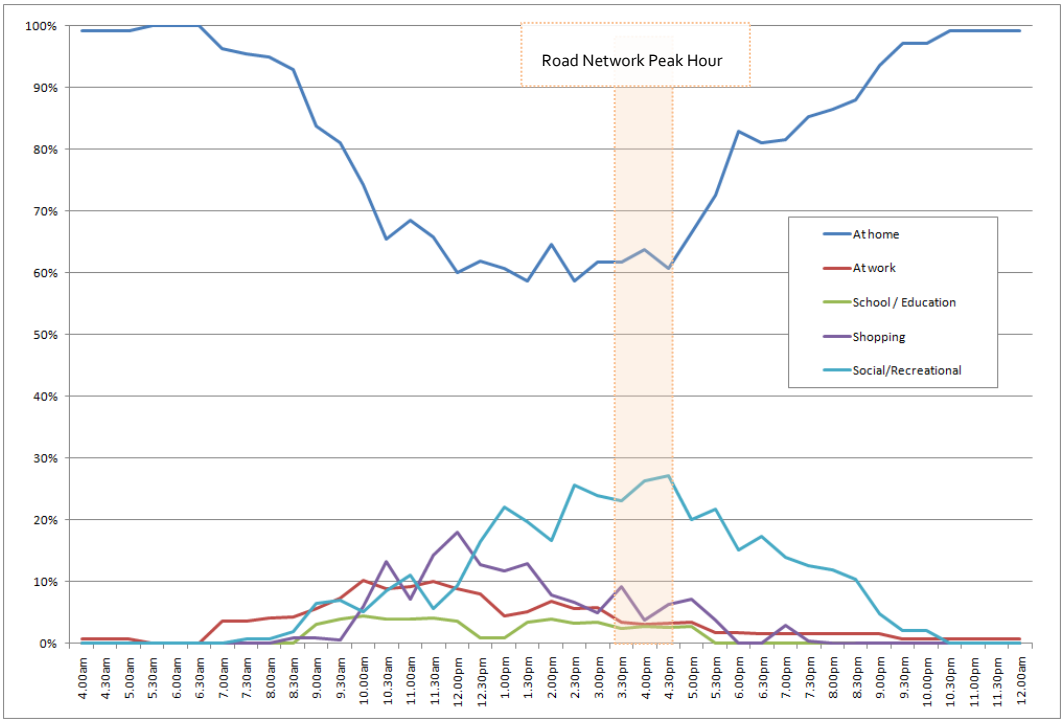


Figure 4.2: Land Use Activity (City of Maribyrnong) - Weekend



4.3.2 Activity Centre Uses

With the land use and transport planning principles in mind, three indicative land use stages have been developed under the direction of Maribyrnong City Council for the Activity Centre. These stages address the indicative development anticipated under short, medium and long-term planning horizons and are summarised in Table 4.1.

Table 4.1: Additional Development Yields per Stage

	Stage 1 (Short Term ≈ <5 years)	Stage 2 (Medium Term ≈ 5-10 years)	Stage 3 (Long Term ≈ >10 years)
Retail	+34,650sqm	+64,450sqm	+104,700sqm
Bulky Goods Retail	+22,300sqm	+84,950sqm	+133,200sqm
Office	+1,500sqm	+45,500sqm	+111,250sqm
Small Business	-	+4,561sqm	+9,272sqm
Dwellings	+300	+1,450	+6,350

Table 4.1 indicates that the first stage will predominantly incorporate additional retail and bulky goods uses (as has recently been approved in the Highpoint Shopping Centre Northeast Expansion and Bunnings Highpoint developments); the second stage incorporating a mixture of additional retail, bulky goods retail, office and residential uses; and the third stage predominantly incorporating additional office and residential uses, amongst others.

For reference, the three indicative land use stages are presented diagrammatically (as sourced from David Lock Associates) in Figures 4.3 to 4.5 below and on the following page.

Figure 4.3: Stage 1 Land Use Assumptions (Indicative Only)

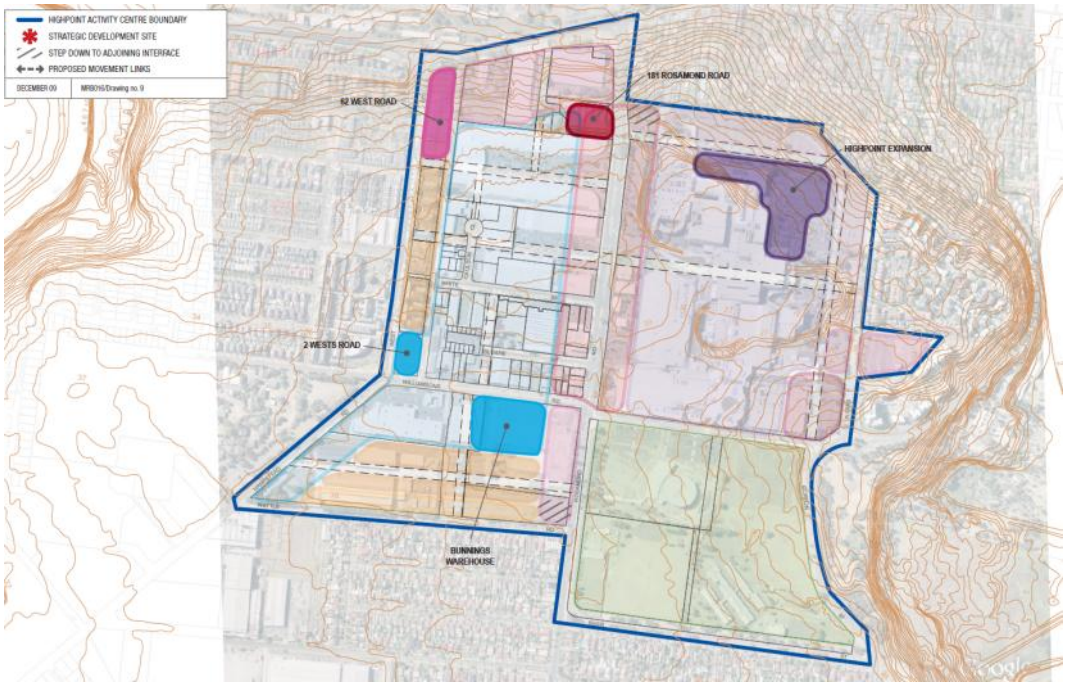


Figure 4.3 outlines that the short-term development of the Activity Centre is expected to include the Highpoint Shopping Centre Northeast Expansion and the Bunnings Warehouse development (both of which have been approved by Council), as well as other limited land use additions.

Figure 4.4: Stage 2 Land Use Assumptions (Indicative Only)

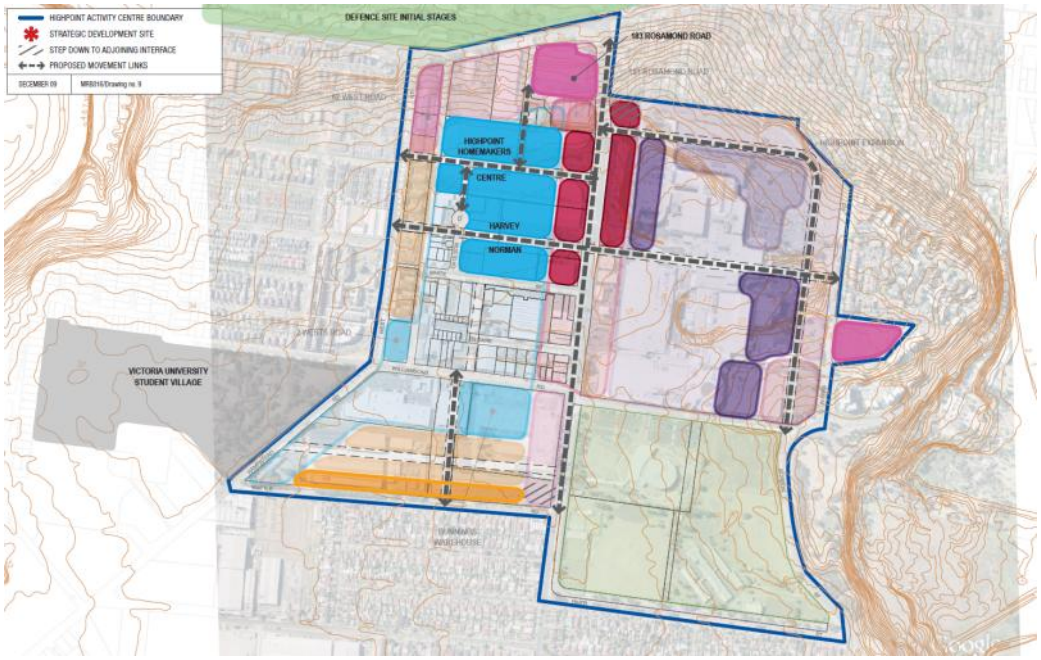


Figure 4.4 outlines that the medium-term development of the Activity Centre is expected to include the creation of the civic hub and public transport interchange, the redevelopment of the Homemaker Centre, additional land use development within Highpoint Shopping Centre and other areas, and the provision of enhanced east-west and north-south vehicle and pedestrian connectivity.

Figure 4.5: Stage 3 Land Use Assumptions (Indicative Only)

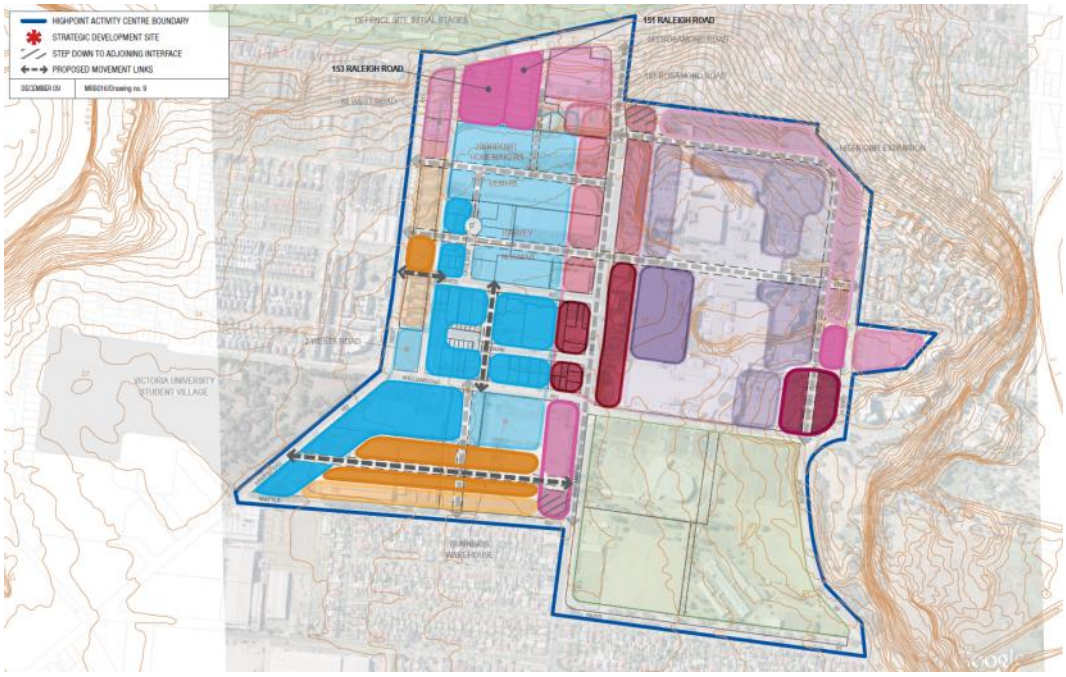


Figure 4.5 outlines that the long-term development of the Activity Centre is expected to include the general intensification of land uses across the Activity Centre, particularly along Williamson Road, Hampstead Road and Wests Road, and the further development of the southern end of Highpoint Shopping Centre.

4.3.3 Surrounding Uses

Maribyrnong Defence Site

As outlined earlier in this report, the Maribyrnong Defence site is a significant 'brown-field' land parcel of some 127 Ha which is expected to be developed to accommodate in the order of 3,000 plus dwellings (with a predicted population of 6,000 residents), 20,000sqm of commercial and 8,000sqm of retail floor area.

It is understood that extensive planning for this development is currently being completed and will include the anticipated active, public and private (road-based) transport requirements of the site following its development.

With respect to this report, it is emphasised that whilst the subsequent traffic modelling makes allowance for this development, it does not specifically consider the likely access arrangements for the Maribyrnong Defence site or its mitigation requirements as is contemplated under VicRoads' policy guidelines. To this end, the completion of this report does not remove the need for a transport impacts assessment of the development

Hampstead Road Precinct

The Hampstead Road precinct, located to the southwest of the Highpoint Activity Centre and bounded by Hampstead Road, Williamson Road and Omar Street, is currently under development. Effectively formed by three separate development parcels, the precinct is ultimately expected to comprise of the following:

- Victoria University site: approximately 500 medium density and detached dwellings (yet to be developed).
- AV Jennings site: approximately 150 medium density and detached dwellings and an aged-care facility (developed).
- JMC site: approximately 500 medium density and detached dwellings (partially developed).

It is understood that this development will be tied to road network improvements to be undertaken by VicRoads using contributions collected by Council. These improvements include formalising line-marking on Hampstead Road and an upgrade to the Hampstead Road/Wests Road/Williamson Road signalised intersection. The development of this precinct has also been included in the modelling discussed later in this report under the medium and long-term land use stages.

Footscray Central Activities District

The Footscray Central Activities District is located some 3km to the southeast of the Activity Centre and comprises of a mixture of retail, commercial, residential and education land uses.

Unlike the Highpoint Activity Centre, the Footscray CAA will be developed within the immediate surrounds of a train station and has direct public transport (bus and train) and road access to the Melbourne CBD. The Footscray CAA provides the fastest route from Melbourne's CBD to the Highpoint Activity Centre, thus emphasising the importance of providing an efficient and reliable link between Highpoint and Footscray. This importance applies not only to the Activity Centre but also the future development of the sites along the route including the Maribyrnong Defence site.

Due to its distance from the Activity Centre, the development of the Footscray CAA has not been specifically included in the MITM modelling discussed in this report. It is noted, however, that the traffic modelling discussed later in this report includes general levels of development which have been estimated across metropolitan Melbourne (which include development of the Footscray CAA).

Notwithstanding this, it is understood that the Footscray CAA is likely to be expanded with additional office and residential land uses over the coming decades and, as such, it is expected that this expansion will

increase the demand for transport trips from Footscray to the Activity Centre (e.g. associated with retail land uses in particular). This expectation further outlines the importance of improving the connection between the Activity Centre and the Footscray CAA.

5. Integrated Transport Recommendations

5.1 Section Overview

This section examines the anticipated transport characteristics of the various land use stages and outlines active, public and private (road-based) transport recommendations to achieve the vision outlined earlier in this report. Due to the critical link between transport and land use, these initiatives have been grouped by time, and subsequently by transport mode, to guide the transport related works that should be pursued under each land use stage.

5.2 Preamble to Recommendations

The works and initiatives outlined in the following sections seek to align the likely transport requirements of each land use stage in a coordinated manner using information available on their likely realisation at the time of preparing this report.

It must be emphasised, however, that the recommendations must not be viewed as being prescriptive given the indicative nature of the land use assumptions and the associated "coarseness" of the subsequent modelling completed using the Melbourne Integrated Transport Model (MITM)[11].

In practice, it is considered likely that anticipated land use development will occur across the three stages in direct correlation with 'market' demand (rather than specifically within each stage as forecast) and that the active, public and transport recommendations will also be completed in a manner which responds to this eventual realisation.

Beyond market demand, some recommendations may fail to be completed within the land use stage forecast in this report due to factors outside the control of Council. This outcome, if it eventuates, should not be seen as a limiting barrier to the development of the Activity Centre but rather as a transport recommendation that should be pursued as soon as practical in the subsequent land use stage.

In addition, the recommendations made in this section should not be seen to 'pigeon hole' works into short, medium, or long term timeframes; that is, the Strategy should maintain flexibility to allow recommendations to be 'brought forward' in time if necessary. For example, it is appreciated that the provision of a rail link to the Centre, the construction of Ashley Street and/or the duplication of Van Ness Avenue are all likely to have significant benefit and hence should be pursued for completion as early as practical (i.e. Stage 2).

Finally, the analysis and recommendations presented in this report should not be seen as removing the need for ongoing transport impact assessments to be completed as part of the planning process of major developments[12] in the Activity Centre.

[11] It should also be noted that the MITM model represents a tool for forecasting the broad implications of proposed transport infrastructure and land use improvements. The model is not a micro-simulation package and, as such, cannot facilitate the specific analysis of individual intersections or recommend intersection-specific mitigating road works. Moreover, although the model considers all transport modes, it cannot model the potential implications of minor improvements to, for example, pedestrian connections within the Activity Centre. In this regard, the model is used to compare the overall network performance due to the proposed development stages and not to forecast traffic volumes and conditions on individual links for specific assessments.

[12] Guidance as to what constitutes a "major" development could be sought from Table 1 of VicRoads Guidelines for Transport Impact Assessment Reports

5.3 Integrated Transport Recommendations

5.3.1 Land Use Stage 1 (Short term)

Land Use Overview

As outlined in Table 4.1 of this report, it is envisaged that the first land use stage will incorporate approximately 35,000sqm of additional retail floor area, 22,000sqm of additional bulky goods retail and 300 additional residential dwellings (i.e. over existing land uses).

This development is expected to occur within the next 5 years, thus representing a 2015 design scenario, and effectively represents proposals approved by Council in late 2010 (e.g. Highpoint Shopping Centre Northeast Expansion and Bunnings Highpoint).

MITM Modelling Results

The MITM modelling completed for this stage has been based on the above land uses assumptions for the Activity Centre. The model also includes increased network capacity for Highpoint Ring Road and its abutting intersections (as has recently been approved for this stage of the redevelopment) and increased public transport frequencies.

This modelling suggests the following transport characteristics can be expected under this stage:

Active Transport

Walk and cycle person trips to, from and within the Activity Centre per day are expected to increase by 30% (i.e. 5,400 daily person trips vs. 4,140 daily person trips (Year 2010)), with the split for this mode expected to increase from 4% to 5%.

Of the active transport trips, approximately 80% of the trips are expected to occur within the confines on the Activity Centre (i.e. to and from internal origins and destinations), with the remaining 20% of the trips (approx.) occurring to and from the Activity Centre from the neighbouring areas. The increase of the former trip type represents a direct consequence of introducing complementary uses within the Activity Centre, particularly residential dwellings, which reduce average transport trip lengths and hence make active transport modes more attractive.

This modelling suggests that improvements to active transport infrastructure should firstly be undertaken within the Activity Centre and, secondly, to better connect the Activity Centre to the wider active transport network.

Public Transport

Public transport person trips to and from the Activity Centre per day are also expected to increase by 30% (i.e. 11,270 daily person trips vs. 8,670 daily person trips (Year 2010)), with the split for this mode expected to increase from 8% to 9%.

For reference, the estimated distribution of these additional trips is shown in Table 5.1 on the following page.

Table 5.1: Anticipated Public Transport Trips per Key Transport Route (Stage 1)

Stage	Measure	Trips per Key Transport Route to/from Activity Centre				
		Rosamond Rd (s)	Raleigh Rd (e)	Cordite Ave (w)	Hampstead Rd (s/w)	Gordon St (s/e)
1	Daily	4,587	2,739	1,736	800	1,409
	Peak Hour [i]	459	274	174	80	141
	Proportion	41%	24%	15%	7%	13%

[i] Assuming a peak to daily ratio of 10%

Table 5.1 indicates that of the public transport trips, approximately 40% and 25% are expected to occur along Rosamond Road to the south of Williamson Road and Raleigh Road to the east of Rosamond Road, respectively. The use of these routes over above the others, such as Cordite Road and Hampstead Road, is expected as they provide the quickest route to railway stations and the Melbourne CBD (which is expected to remain an important destination for the additional residents within the Activity Centre).

This modelling suggests that the public transport improvements should firstly occur along these routes and not necessarily be limited to the extent of the Activity Centre, but rather also include the entire length to these routes to/from key destinations.

Private (Road-based) Transport

Private (road-based) transport person trips to and from the Activity Centre per day are expected to increase by 9% (i.e. 104,050 daily person trips vs. 95,760 daily person trips (Year 2010)), with the split for this mode expected to reduce from 88% to 86%.

The estimated distribution of the private (road-based) trips under this stage is shown in Table 5.2, with a summary of the anticipated operation of the key intersections under this stage also shown in Table 5.3 (assuming no mitigation road works are completed at these intersections).

Table 5.2: Anticipated Private (Road-based) Trips per Key Transport Route (Stage 1)

Stage	Measure	Trips per Key Transport Route to/from Activity Centre				
		Rosamond Rd (s)	Raleigh Rd (e)	Cordite Ave (w)	Hampstead Rd (s/w)	Gordon St (s/e)
1	Daily	23,830	29,970	23,310	17,060	9,880
	Peak Hour [i]	2,383	2,997	2,331	1,706	988
	Proportion	23%	29%	22%	16%	10%

[i] Assuming a peak to daily ratio of 10%

Table 5.2 indicates that traffic under this stage is expected to be relatively evenly dispersed across the surrounding road network, with 29%, 23% and 22% of the Activity Centre traffic expected to travel along Raleigh Road, Rosamond Road south and Cordite Avenue respectively.

This modelling suggests that although road improvement works should seek to address the overall performance of roads and intersections within the Activity Centre, works along Rosamond Road south of Williamson Road and Raleigh Road east of Rosamond Road should be prioritised and/or included in public transport recommendations if possible.

Table 5.3: Overview of Intersection Performance of Key Intersections (Stage 1 – No Works)

Intersection	Level of Service [1]		
	Weekday AM	Weekday PM	Saturday Lunchtime
Hampstead Rd/Wests Rd	Good	Good	Good
Raleigh Rd/Wests Rd	Good	Good	Good
Raleigh Rd/Rosamond Rd	Very Good	Excellent	Good
Rosamond Rd/Williamson Rd/Aquatic Drv	Very Good	Good	Very Poor
Van Ness Ave/Warrs Rd	Very Good	Poor	Very Poor [3]
Raleigh Rd/Van Ness Ave [2]	Excellent	Very Good	Good

[1] As defined by SIDRA INTERSECTION
[2] Intersection is not located within study area however represents an important link in the local road network.
[3] Notwithstanding this, it is noted that this intersection has been assessed by GTA as part of the proposed Highpoint Shopping Centre Northwest Expansion at a more "microscopic" level than is presented within this report. This "microscopic" analysis indicated that the Van Ness Avenue/Warrs Road roundabout can be expected to operate satisfactorily under post-expansion conditions. The analysis presented in this table should accordingly be interpreted with care, having particular regard to the broad level of detail that is possible via use of the MITM modelling to predict particular volumes at individual intersections.

Table 5.3 indicates that planning should be completed under this stage to determine and overcome any barriers (such as additional land requirements) for the potential upgrading of the following intersections under a later stage:

- Rosamond Road/Williamson Road/Aquatic Drive
- Hampstead Road/Wests Road
- Raleigh Road/Wests Road
- Raleigh Road/Rosamond Road
- Van Ness Avenue/Warrs Road
- Raleigh Road/Van Ness Avenue.

This Table also indicates that the Rosamond Road/Williamson Road/Aquatic Drive and Van Ness Avenue/Warrs Road intersections should represent the highest priorities, with mitigating works completed at these as part of stage 1 if possible (or as soon as possible within stage 2).

Transport Recommendations

In this first stage, it is recommended that the principal transport works and initiatives completed are those which either provide immediate benefit at relatively low cost or facilitate the more significant transport requirements of the future development of the Activity Centre.

At the forefront, it is considered that the long-term viability of significantly developing the Activity Centre, particularly with increased residential land uses (as is sought under the subsequent stages), will be dependent on notably improving public transport accessibility to the Melbourne CBD. With this in mind, it is recommended that improvements to the public transport system in and around the vicinity of the Activity Centre should be sought as early as practical.

As the MITM modelling suggests that an increase in public transport frequencies and hours of operation will not yield an increase in the mode split to public transport (although it will assist to increase the overall number of public transport trips), it is recommended that a key initiative in this stage be the investigation and implementation of tram priority measures along the length of route #82 between the Activity Centre and the Footscray CAA.

It is envisaged that these measures would include consideration of the following:

- full or part-time designated tram lanes
- full or part-time bans from lanes including trams
- tram priority phases ("T lights") at signalised intersections

- kerb outstands and/or raised platforms to quicken boarding and alighting times
- improved signage clarifying tram rights
- closed circuit television cameras to monitor key tram bottlenecks.

As these priority measures would be provided outside of the Activity Centre albeit within the confines of the City of Maribyrnong, it is expected that the works will be delivered by VicRoads (*ThinkTram*) and the Department of Transport, with liaison and consultation with Maribyrnong City Council.

To facilitate the future downgrading of Rosamond Road, it is recommend that Highpoint Ring Road also be designed in a manner which not only accommodates the transport requirements of the Highpoint Shopping Centre Northeast Expansion but, more importantly, allows for the future duplication of this road. To this end, it is considered prudent that prior to the construction of the Northeast Expansion, functional layout plans be prepared to outline that the "ultimate" duplicated configuration of this road will be possible. The planning of this road should preferably be completed by the Shopping Centre prior to occupation of the additional floor space approved under its Northeast Expansion development.

In conjunction with diversion of traffic away from Rosamond Road, any freight or commercial vehicle activity should also be directed to the periphery of the Activity Centre (away from Rosamond Road).

It is recommended that significant work also be undertaken by Council and developers in this stage to improve pedestrian and cycling networks and end-of-trip facilities within the Activity Centre. It is recommended that these works be determined following the completion of an audit by Council which includes, but is not limited to, shared paths along Highpoint Ring Road, connections to Pipemakers Park and the Maribyrnong Defence site, and the inclusion of Activity Centre pathways within VicRoads' Principal Bicycle Network.

In addition to the above works, a critical outcome of this first stage will be the commencement of the planning and related design and/or master-planning of the large-scale transport projects expected in subsequent land use development stages. This should include planning for the extension of tram route #82 along Rosamond Road and the creation of a central tram and bus interchange within the heart of the Activity Centre, as well as a potential tram route extension into the Maribyrnong Defence site. With the Victorian Transport Plan currently under review, the potential provision of a heavy rail link to the Activity Centre should also "flagged" and investigated within this stage. In addition, the extension of Ashley Street (including the extension of Williamson Road) should also be progressed within this stage as this project can be expected to provide a key north-south corridor, reduce traffic within the Activity Centre and thus help cater additional traffic volumes generated by development in the area.

Table 5.4 on the following pages outlines the recommended short-term active, public and private (road-based) transport improvement works and initiatives.

It is emphasised that these recommendations include, but are not limited to, the transport works and initiatives included in the MITM modelling (refer to discussion presented under 'modelling results'). For this reason, should all works and initiatives that are recommended in Table 5.4 be completed, it follows that the transport characteristics outlined above would be enhanced above the MITM results and that, for example, the mode split towards public transport could be expected to further increase.

Table 5.4: Transport Recommendations for Land Use Stage 1 (Short term)

ACTIVE TRANSPORT

No.	Recommendation	Responsibility
ST1	Provide a shared pathway along the outer side of Highpoint Ring Road linking Van Ness Avenue and Rosamond Road in line with existing approvals for the north-east extension.	Developers
ST2	Provide footpaths to, from and between car parking area, and to and from external pathways and shopping centre access points.	Developers & Maribyrnong CC
ST3	Ensure that future development proposals within the Activity Centre provide statutory bicycle facilities (including bicycle spaces, lockers & showers)	Developers & Maribyrnong CC
ST4	Provide appropriate way-finding and destination timing signage to accompany the above bicycle facilities and pathways	Maribyrnong CC & Moonee Valley CC
ST5	Provide more clearly delineated pedestrian connections to public transport stops, particularly to the existing tram stop located at the northern end of the Activity Centre	Maribyrnong CC & Department of Transport
ST6	Prepare and implement a Green Travel Plan for existing key users within the Activity Centre. Also ensure that future development proposals within the Activity Centre prepare and update a Green Travel Plan as a Condition of Permit to encourage the use of active transport by staff, residents, customers and visitors.	Developers & Maribyrnong CC
ST7	Provide improved connections to the existing shared paths along Maribyrnong River, including: • a pedestrian crossing across Van Ness Avenue at Warrs Road, • a more clearly delineated connection through Pipemakers Park (which seeks to minimise pathway grades), and • exploring opportunities to link pathways on both sides of the river through 'green bridges'.	Maribyrnong CC, Moonee Valley CC VicRoads & Parks Victoria
ST8	Undertake an audit of on and off-road bicycle and pedestrian paths within the Activity Centre boundary and upgrade facilities as required. This should include consideration of the following: • review of existing path gradients (i.e. Pipemakers Park, Van Ness Avenue) and consider realignment or alternate routes • contrasting coloured on-road bicycle lanes to better delineate bicycle priority at intersections • current DDA compliance of pathways and pram crossings • pathways along desire lines between car parking and pedestrian access locations.	Maribyrnong CC
ST9	Incorporate existing and proposed bicycle paths in the vicinity of the Activity Centre within VicRoads' Principal Bicycle Network, hence facilitating funding for additional and/or upgraded on and off-road bicycle paths	VicRoads & Bicycle Victoria
ST10	Implement appropriate community education programs to outline the proposed and/or completed improvements to active transport facilities and hence increase the use of this mode of transport	Maribyrnong CC

Table 5.4: Transport Recommendations for Land Use Stage 1 (Short term) – continued

PUBLIC TRANSPORT

No.	Recommendation	Responsibility
ST11	Increase frequencies and extend service hours of existing bus and tram services	Department of Transport
ST12	Upgrade existing public transport stops and facilities in the Activity Centre and its surrounding area to ensure DDA compliance and provide "real-time" timetable information	Department of Transport & Maribyrnong CC
ST13	Provide a SmartBus route serving the Activity Centre and its surrounding areas or connect the Activity Centre to the nearby "red" orbital bus route	Department of Transport
ST14	Provide bus priority treatments as part of surrounding intersection upgrades where possible, including the Rosamond Road/Highpoint Ring Road intersection	Developers, VicRoads and Maribyrnong CC
ST15	Undertake detailed planning for the extension of the tram reserve along the eastern side of Rosamond Road north of Williamson Road to continue to a central public transport interchange along the western boundary of Highpoint Shopping Centre before heading west to connect to existing Wests Road tram reserve. This planning should include micro-simulation modelling to test the various options for this extension and increasing the pedestrian and public transport priority and function of Rosamond Road. Planning should also consider tram priority treatments at Gordon Street / River Street intersection.	Developers, Maribyrnong CC & Department of Transport
ST16	Ensure that future planning for Highpoint Shopping Centre and surrounding land uses maintain suitable land to provide for the above tram extension and public transport interchange. This may require the inclusion of a Public Acquisition Overlay in the Maribyrnong Planning Scheme, however other options should also be explored.	Developers, Maribyrnong CC & Department of Transport
ST17	Undertake preliminary planning for the potential extension of tram route 82 into the Maribyrnong Defence site.	Department of Transport & Places Victoria
ST18	Investigate and implement tram priority treatments along tram route 82 between the Activity Centre and Footscray CAA, such as: • full or part-time designated tram lanes, • full or part-time bans from lanes including tram lines, • tram priority phases ("T lights") at signalised intersections, • kerb outstands and/or raised platforms to quicken boarding and alighting times, • improved signage clarifying tram rights, and • closed circuit television cameras to monitor key tram bottlenecks.	VicRoads (*ThinkTram*), Department of Transport, & Maribyrnong CC
ST19	Investigate benefits and anticipated costs of a heavy rail connection to the Activity Centre (and beyond e.g. Melbourne Airport) as part of a potential extension from the Principal Public Transport Network.	Department of Transport
ST20	Explore and consider opportunities to provide at least one "green bridge" across the Maribyrnong River for pedestrians and cyclists (and buses / trams, if possible) as part of the redevelopment of the Maribyrnong Defence site.	Places Victoria, Department of Transport, Maribyrnong CC, Moonee Valley CC

Table 5.4: Transport Recommendations for Land Use Stage 1 (Short term) – continued

PRIVATE (ROAD-BASED) TRANSPORT

No.	Recommendation	Responsibility
ST21	Upgrade Highpoint Ring Road connecting Van Ness Avenue and Rosamond Road, including the intersection with this latter road, as per the use's permit conditions	Developers
ST22	Undertake detailed planning to determine and overcome any barriers (e.g. additional land requirements) for the upgrading of other key intersections such as: • Rosamond Road/Williamson Road/Aquatic Drive • Hampstead Road/Wests Road • Raleigh Road/Wests Road • Raleigh Road/Rosamond Road • Van Ness Avenue/Warrs Road • Raleigh Road/Van Ness Avenue	VicRoads & Maribyrnong CC
ST23	Introduce car sharing in the Activity Centre through operators such as FlexiCar , GoGet or GreenShareCar	Developers & Maribyrnong CC in liaison with private operators
ST24	Ensure new development proposals limit the use of Rosamond Road for access (between Williamson Road and Highpoint Ring Road) by loading vehicles and customer vehicles as far as practical	Maribyrnong CC & VicRoads
ST25	Identify a potential area near the Activity Centre for Local Area Traffic Management	Maribyrnong CC
ST26	Further investigate the benefits and associated costs of an additional north-south crossing of Maribyrnong River (i.e. Ashley Street) and the potential associated extension of Williamson Road	VicRoads, Maribyrnong CC, Department of Transport & Department of Planning and Community Development
ST27	Investigate the benefits and associated costs of the duplication of Van Ness Avenue to extend from Gordon Avenue	VicRoads & Maribyrnong CC
ST28	Undertake road safety audits of key intersection 'black spots' and make improvements where necessary	VicRoads & Maribyrnong CC

5.3.2 Land Use Stage 2 (Medium term)

Land Use Overview

As outlined in Table 4.1 of this report, it is envisaged that the second land use stage will incorporate approximately 65,000sqm of additional retail floor area, 85,000sqm of additional bulky goods retail, 45,000sqm of office and 1450 additional residential dwellings (i.e. over existing land uses).

This development is expected to occur within the next 5 to 10 years, thus representing a 2020 design scenario.

MITM Modelling Results

As per stage 1, the MITM modelling completed for this stage has been based on the above land uses assumptions for the Activity Centre. The model also includes additional active transport links within the Activity Centre, increased capacity on Highpoint Ring Road and its abutting intersections, reduced capacity on Rosamond Road between Williamson Road and Highpoint Ring Road, the diversion of tram route 82 to extend further north on Rosamond Road to a central public transport interchange, and further increases to public transport frequencies.

This modelling suggests the following transport characteristics can be expected under this stage:

Active Transport

Walk and cycle person trips to, from and within the Activity Centre per day are expected to increase by 123% (i.e. 9,220 daily person trips vs. 4,140 daily person trips (Year 2010)), with the split for this mode expected to increase from 4% to 7%.

Similar to the stage 1 modelling, approximately 80% of these trips are expected to occur within the confines on the Activity Centre, with the remaining 20% completed to/from destinations and origins external to the Activity Centre. This trend can again be attributed to the significant increase in residential dwellings within the Activity Centre under this stage, which highlights the need for a highly permeable internal pedestrian and cycling network to and from the key residential and commercial uses within the Activity Centre. This modelling supports the benefits of the activity centre land use planning approach.

Public Transport

Public transport person trips to and from the Activity Centre per day are expected to increase by 52% (i.e. 13,160 daily person trips vs. 8,670 daily person trips (Year 2010)), with the split for this mode expected to increase from 8% to 9%.

It is noted that although the stage 2 mode split to public transport is the same as that anticipated under stage 1, the overall quantum of public transport trips increases substantially under stage 2 (i.e. +52% compared to +30% under stage 1).

This modelling suggests that although the number of public transport trips significantly increases under this stage, the relative attractiveness of public transport as a mode of transport does not increase. It is envisaged that this outcome is due in part to the lack of priority provided along the tram and bus routes to/from the Activity Centre (which is not included in the modelling) and partly due to the increase in retail and office floor area which rely on wider catchments and thus a greater relative reliance on private (road-based) transport.

The estimated distribution of the public transport trips is shown in Table 5.5.

Table 5.5: Anticipated Public Transport Trips per Key Transport Route (Stage 2)

Stage	Measure	Trips per Key Transport Route to/from Activity Centre				
		Rosamond Rd (s)	Raleigh Rd (e)	Cordite Ave (w)	Hampstead Rd (s/w)	Gordon St (s/e)
2	Daily	6,210	2,500	1,447	1,197	1,802
	Peak Hour [i]	621	250	145	120	180
	Proportion	47%	19%	11%	9%	14%

[i] Assuming a peak to daily ratio of 10%

Table 5.5 indicates that predominant public transport route under this stage will be Rosamond Road to the south of Williamson Road, with almost 50% of the public transport trips to and from the Activity Centre. This further highlights the importance of this route for any public transport improvements, noting again that these improvements would be required not only within the Activity Centre but along its entire length to key destinations (such as Footscray CAA).

Private (Road-based) Transport

Private (road-based) transport person trips to and from the Activity Centre per day are expected to increase by 20% (i.e. 114,530 daily person trips vs. 95,760 daily person trips (Year 2010)), with the split for this mode expected to reduce from 88% to 84%.

The estimated distribution of the private (road-based) trips under this stage is shown in Table 5.6, with a summary of the anticipated operation of the key intersections under this stage also shown in Table 5.7 (assuming no mitigation road works are completed at these intersections).

Table 5.6: Anticipated Private (Road-based) Trips per Key Transport Route (Stage 2)

Stage	Measure	Trips per Key Transport Route to/from Activity Centre				
		Rosamond Rd (s)	Raleigh Rd (e)	Cordite Ave (w)	Hampstead Rd (s/w)	Gordon St (s/e)
2	Daily	27,030	31,610	26,230	17,640	12,020
	Peak Hour [i]	2,703	3,161	2,623	1,764	1,202
	Proportion	24%	28%	23%	14%	11%

[i] Assuming a peak to daily ratio of 10%

Table 5.6 indicates that traffic under this stage is also expected to be relatively evenly dispersed across the surrounding road network and hence further supports the proposition that road improvement works should generally be sought across the overall road network in the vicinity of Activity Centre (albeit with some priority given to Raleigh Road, Cordite Avenue and Rosamond Road).

Table 5.7: Overview of Intersection Performance of Key Intersections (Stage 2 – No Works)

Intersection	Level of Service [1]		
	Weekday AM	Weekday PM	Saturday Lunchtime
Hampstead Rd/Wests Rd	Good	Good	Good
Raleigh Rd/Wests Rd	Poor	Very Poor	Poor
Raleigh Rd/Rosamond Rd	Very Good	Very Good	Acceptable
Rosamond Rd/Williamson Rd/Aquatic Drv	Good	Good	Very Poor
Van Ness Ave/Warrs Rd	Acceptable	Very Poor	Very Poor
Raleigh Rd/Van Ness Ave [2]	Very Good	Good	Acceptable

[1] As defined by SIDRA INTERSECTION
[2] Intersection is not located within study area however represents an important link in the local road network.

Table 5.7 indicates that the completion of mitigating road works is likely to be required at the following intersections under this stage:

- Rosamond Road/Williamson Road/Aquatic Drive
- Raleigh Road/Wests Road
- Van Ness Avenue/Warrs Road
- Hampstead Road/Wests Road *(prioritised given availability of existing funding)*.

Moreover, Table 5.7 also suggests that planning should be continued or commenced for potential improvement works under later stages at the following intersections:

- Raleigh Road/Rosamond Road
- Raleigh Road/Van Ness Avenue.

Transport Recommendations

In this second stage, it is recommended that significant transport works are completed to reconfigure the appearance and relative attractiveness of the Activity Centre as a destination accessible by modes of transport other than the private motor vehicle.

These works are likely to be dependent on increasing the pedestrian and public transport role and function of Rosamond Road, as supported by the traffic surveys presented within this report, to enable tram route #82 to be extended to a newly constructed bus and tram interchange within the "heart" of the Activity Centre.

This will require significant planning and investigation, as recommended in the first stage, and should consider such traffic calming options as:

- the removal of one through lane in each direction (and/or the allocation of this removed lane as a bus only lane)
- the closure of Rosamond Road at its midpoint to through traffic (where the realigned tram route can cross to/from Wests Road), and/or
- the creation of a shared, "mall-type" roadway at the midpoint of Rosamond Road to encourage greater pedestrian connectivity between the land parcels on the east and west sides of this road.

To support the pedestrian improvement of Rosamond Road, the Highpoint Ring Road will need to be duplicated, including the potential upgrading of its bookend intersections, to provide a "bypass" to Rosamond Road. As this duplication will be dependent on the use of land currently located within the confines of Highpoint Shopping Centre, it is recommended that these works be completed as part of the future development of this land during this stage.

In a similar vein to the works recommended in the first stage, it is also recommended that additional tram priority measures should be investigated and implemented between the Activity Centre and Moonee Ponds along route #57, as well as investigations into an extension of the tram route further west via Military Road (to Avondale Heights). These priority measures should include those implemented for route #82 under the first stage and be delivered by VicRoads (*ThinkTram*) and the Department of Transport, with liaison and consultation with Moonee Valley and Maribyrnong City Councils.

In addition to these public transport works, a number of intersections should also be upgraded during this stage to maintain acceptable levels of accessibility to the Activity Centre for private (road-based) vehicles and public transport vehicles sharing this road space. It is recommended that these works be firstly investigated and implemented, as is deemed to be appropriate, at the following intersections:

i Rosamond Road/Williamson Road/Aquatic Drive
ii Raleigh Road/Van Ness Avenue
iii Rosamond Road/Raleigh Road – potentially completed as part of the redevelopment of the Maribyrnong Defence site.

As outlined earlier in this report, it is noted that as these intersection upgrade works could require third party land acquisitions to facilitate the improvements, the associated planning of the upgrades – including the identification of any public acquisition overlay requirements – should be commenced as early as possible within this stage (if not within the first stage).

Within this stage, it is also recommended that greater consideration be given to managing traffic impacts through initiatives such as the introduction of real-time parking guidance signage on route to, and at vehicle entry points to the car parks within, the Activity Centre. It is expected that this signage will assist to minimise unnecessary vehicle circulation within car parks and direct motorists to routes with the lowest levels of traffic activity; in turn assisting to reduce traffic congestion.

Moreover, it is recommended that the introduction of paid car parking be investigated and implemented within the Activity Centre as a means of reducing the attractiveness of private motor vehicle for travel (particularly for staff who require long-term car parking).

In addition to this investigation, it is recommended that Council also reviews its overall approach to car parking within this stage, including an examination of the warrants and benefits of introducing a parking precinct plan for the Activity Centre which adopts a 'maximisation' policy similar to the Melbourne CBD. Such plans can be expected to further reduce the ability for significant increases in car based travel by physically limiting the availability of car parking in the Activity Centre.

Notwithstanding this, as it is likely that the success of such parking maximums would be dependent on improvements to public transport services, it is recommended that a parking precinct plan is introduced either in tandem or following the completion of the public transport works.

Finally, it is also recommended that Council continues to seek improvements to active transport facilities within and around the Activity Centre within this stage. This should include a wider audit of existing pathway deficiencies and opportunities, together with the potential upgrade of the existing pathways along the Maribyrnong River to improve the attractiveness of this route as mode of travel to/from the Melbourne CBD.

Table 5.8 on the following pages outlines the recommended medium-term active, public and private (road-based) transport improvement works and initiatives.

It is again emphasised that these recommendations include, but are not limited to, the transport works and initiatives included in the MITM modelling (refer to discussion presented under 'modelling results'). For this reason, should all works and initiatives that are recommended in Table 5.8 be completed, it is evident that the transport characteristics explained above would be "improved" and that, in particular, the mode split towards public transport is likely to increase.

Table 5.8: Transport Recommendations for Land Use Stage 2 (Medium term)

ACTIVE TRANSPORT

No.	Recommendation	Responsibility
MT1	Provide improved connections between the Activity Centre and the Maribyrnong Defence site, including (where possible): • the extension of the shared pathway running along the outer side of Highpoint Ring Road, • DDA compliant pram crossings at intersections, and • "puffin detectors" at signalised crossings.	Developers
MT2	Continue to ensure that future development proposals include appropriate footpath to, from and between car parking areas, and to and from external pathways.	Developers & Maribyrnong CC
MT3	Continue to ensure that future development proposals within the Activity Centre provide statutory bicycle facilities (including bicycle spaces, lockers & showers) and seek to encourage developers to retrospectively provide bicycle facilities for existing uses which do not meet current Planning Scheme requirements	Developers & Maribyrnong CC
MT4	Continue to provide appropriate way-finding and destination timing signage to accompany the above bicycle facilities and pathways	Maribyrnong CC & Moonee Valley CC
MT5	Continue to provide more clearly delineated pedestrian connections to public transport stops, particularly to the existing tram stop located at the northern end of the Activity Centre	Maribyrnong CC & Department of Transport
MT6	Continue to ensure that future development proposals within the Activity Centre prepare and update a Green Travel Plan as a Condition of Permit to encourage the use of active transport by staff, residents, customers & visitors	Developers & Maribyrnong CC
MT7	Provide enhanced pedestrian connections across Rosamond Road, as per recommendation MT20, to better integrate land uses on the eastern and western sides of the road. These connections should also link to the central transport interchange, as recommended above, and key pedestrian access points to Highpoint Shopping Centre and other key land uses.	Maribyrnong CC & VicRoads
MT8	Upgrade existing shared pathways along both sides of the Maribyrnong River, including: • consideration of separated paths for cyclists and pedestrians, and • exploring further opportunities to link pathways on both sides of the river through 'green bridges'.	Maribyrnong CC, Moonee Valley CC, Bicycle Victoria & Parks Victoria
MT9	Undertake an audit of other on and off-road bicycle and pedestrian paths within 800m of the centre of the Activity Centre (as defined in Figure 3.5 of this report) and upgrade facilities as required. This should include consideration of the following: • contrasting coloured on-road bicycle lanes to better delineate bicycle priority at intersections, • current DDA compliance of pathways and pram crossings • the provision of pathways on both sides of all roads within the vicinity of the Activity Centre, • the provision of signalised and unsignalised pedestrian crossings as required, and • the provision of "puffin" detectors at key signalised intersections	Maribyrnong CC

Table 5.8: Transport Recommendations for Land Use Stage 2 (Medium term) - continued

PUBLIC TRANSPORT

No.	Recommendation	Responsibility
MT10	Further increase frequencies and further extend service hours of existing bus and tram services	Department of Transport
MT11	Continue to provide bus priority treatments as part of surrounding intersection upgrades where possible	Developers, Maribyrnong CC & VicRoads
MT12	Investigate and implement tram priority treatments along tram route 57 between the Activity Centre and Moonee Ponds, such as: • full or part-time designated tram lanes, • full or part-time bans from lanes including tram lines, • tram priority phases ("T lights") at signalised intersections, • kerb outstands and/or raised platforms to quicken boarding and alighting times, • improved signage clarifying tram rights, and • closed circuit television cameras to monitor key tram bottlenecks.	VicRoads (*ThinkTram*), Department of Transport, Maribyrnong CC, & Moonee Valley CC
MT13	Extend the tram reserve along the eastern side of Rosamond Road south of Williamson Road to a central public transport interchange along the western boundary of Highpoint Shopping Centre before heading west to connect to existing Wests Road tram reserve or, alternatively, along the length of Rosamond Road through to the Maribyrnong Defence Site	Developers, Department of Transport, & Maribyrnong CC
MT14	Install screens throughout Highpoint Shopping Centre with "real-time" public transport timetable information	Developers & Department of Transport
MT15	Following the completion of the related investigation in Stage 1, commence to advocate a heavy rail connection to the Activity Centre (and beyond e.g. Melbourne Airport) as part of a potential extension from the Principal Public Transport Network.	Maribyrnong CC & Department of Transport
MT16	Consistent with the Maribyrnong Integrated Transport Strategy (MITS), work in partnership with DOT to evaluate the potential extension of tram services from Highpoint to Sunshine (MITS – Action 11.2)	Maribyrnong CC & Department of Transport

Table 5.8: Transport Recommendations for Land Use Stage 2 (Medium term) - continued

PRIVATE (ROAD-BASED) TRANSPORT

No.	Recommendation	Responsibility
MT17	Duplicate Highpoint Ring Road between Van Ness Avenue and Rosamond Road to provide a four-lane, divided "bypass" and upgrade bookend intersections as required	Developers
MT18	Undertake intersection upgrades at key locations within the Activity Centre, which include public transport priority where possible. These may include: • Rosamond Road/Williamson Road/Aquatic Drive • Raleigh Road/Wests Road • Van Ness Avenue/Warrs Road • Hampstead Road/Wests Road	Developers, VicRoads & Maribyrnong CC
MT19	Undertake detailed planning to determine and overcome any barriers (e.g. additional land requirements) for the upgrading of other key intersections such as: • Raleigh Road/Rosamond Road • Raleigh Road/Van Ness Avenue	VicRoads & Maribyrnong CC
MT20	Transform the primary role of Rosamond Road into a pedestrian friendly, public transport oriented main street, including consideration of the following potential traffic calming options: • removal of one through lane in each direction, • closure of the road at its midpoint (where trams cross to/from Wests Road), and/or • creation of a shared "mall-type" roadway to encourage greater pedestrian connectivity between the east and west land parcels	Maribyrnong CC & VicRoads
MT21	Conduct Local Area Traffic Management studies for areas identified in ST24 and implement treatments as required	Maribyrnong CC
MT22	Introduce "real-time" parking guidance systems which directs vehicles to car parks and hence reduces avoidable vehicle circulation within the Activity Centre	Developers & Maribyrnong CC
MT23	Continue to promote car sharing in the Activity Centre through operators such as FlexiCar	Maribyrnong CC
MT24	Investigate, and implement where beneficial the introduction of time restricted and paid parking within Highpoint Shopping Centre and the Activity Centre to discourage private road-based transport	Developers & Maribyrnong CC
MT25	Prepare a Parking Precinct Plan (PPP) which includes car parking maximums for the Activity Centre rather than minimums	Maribyrnong CC
MT26	Undertake detailed planning for the introduction of an additional east-west connection road within the Activity Centre between Rosamond Road and Wests Road (White Street)	Maribyrnong CC & VicRoads
MT27	Following on from the investigation in Stage 1, commence advocating for an additional north-south crossing of Maribyrnong River (i.e. Ashley Street)	VicRoads, Maribyrnong CC, Department of Transport & Department of Planning and Community Development
MT28	Following on from the investigation in Stage 1, commence advocating for the duplication of Van Ness Avenue to extend from Gordon Avenue if practical	VicRoads & Maribyrnong CC

5.3.3 Land Use Stage 3 (Long term)

Land Use Overview

As outlined in Table 4.1 of this report, it is envisaged that the third land use stage will incorporate approximately 105,000sqm of additional retail floor area 133,000sqm of additional bulky goods retail, 111,250sqm of office and 6,350 additional residential dwellings (i.e. over existing land uses).

This development is expected to occur within the next 10 to 20 years, thus representing a 2030 design scenario.

MITM Modelling Results

As per stages 1 and 2, the MITM modelling completed for this stage has been based on the above land use assumptions for the Activity Centre. Unlike the previous stages, however, the modelling for this stage has been completed assuming two different road upgrades are completed in addition to the works assumed in previous models. The first model sub-set includes an additional east-west connection at White Street between Wests Road and Rosamond Road, with the second sub-set including this project and the extension of Ashley Street across the Maribyrnong River to the west of the Activity Centre. This latter road project has been assessed under a separate option to estimate the benefit of these works.

This modelling suggests the following transport characteristics can be expected under this stage:

Active Transport

Walk and cycle person trips to, from and within the Activity Centre per day are expected to increase by approximately 280% (i.e. 15,800 daily person trips vs. 4,140 daily person trips (Year 2010)), with the split for this mode expected to increase from 4% to 10% to 11%.

This modelling suggests that a particularly significant increase in pedestrian and cycling trips can be expected under this land use stage (irrespective of whether Ashley Street is constructed). As per previous stages, the overwhelming majority of these movements are expected within the confines of the Activity Centre; a result that presents further justification that the active transport recommendations should focus on the pathways and facilities within the Activity Centre.

Public Transport

Public transport person trips to and from the Activity Centre per day are also expected to increase by approximately 61% (i.e. 13,920 daily person trips vs. 8,670 daily person trips (Year 2010)), with the split for this mode expected to increase from 8% to 9%.

As per stage 2, this modelling indicates that the overall mode split to public transport remains unchanged under this land use stage, noting that the overall quantum increase of public transport trips in this stage is also relatively small (i.e. +61% compared to +52% under stage 2) – particularly given the significant residential increase expected under this stage. This modelling suggests that doubling public transport frequencies (as has been assumed in the models) cannot be expected to yield significant transport usage increases and that, in order to achieve a more substantial increase in public transport usage, significant public transport improvement works need to be completed within and to/from the Activity Centre.

Without such projects and notwithstanding the usage increases likely to be generated by the provision of greater public transport priority to/from the Activity Centre (as has been recommended under the previous stages), it is envisaged that increases to the mode split to public transport will be limited.

For reference, the estimated distribution of the public transport trips is shown in Table 5.9.

Table 5.9: Anticipated Public Transport Trips per Key Transport Route (Stage 3A)

Stage	Measure	Trips per Key Transport Route to/from Activity Centre				
		Rosamond Rd (s)	Raleigh Rd (e)	Cordite Ave (w)	Hampstead Rd (s/w)	Gordon St (s/e)
3A [i]	Daily	6,820	2,420	1,390	1,380	1,910
	Peak Hour [ii]	682	242	139	138	191
	Proportion	49%	17%	10%	10%	14%

[i] Includes Ashley Street extension
[ii] Assuming a peak to daily ratio of 10%

Table 5.9 further nominates Rosamond Road as the key public transport route to/from the Activity Centre, whilst also highlights the growing importance of Gordon Street as a public transport route to/from the Activity Centre which is expected to carry public transport trips at a level near Raleigh Road under this stage (i.e. 14% and 17% of public transport trips respectively).

Private (Road-based) Transport

Under the stage option where the Ashley Street extension is not completed, private (road-based) transport trips to and from the Activity Centre per day are expected to increase by 36% (i.e. 129,750 daily person trips vs. 95,760 daily person trips (Year 2010)), with the split for this mode expected to reduce from 88% to 81%.

In comparison, with the Ashley Street extension completed, these trips are expected to increase by 22% (i.e. 116,620 daily person trips vs. 95,760 daily person trips (Year 2010)), with the split for this mode expected to reduce from 88% to 80%.

This latter mode split figure of 80% compares to the possible target for the Activity Centre of 75% (as discussed in Section 3.41 of this report) and supports that a significant mode split change is possible – particularly given that split of 80% excludes any rail extension to the Activity Centre that would reduce the mode split to private motor vehicle below 80%.

This modelling also outlines that significant traffic volume reductions can be expected within the Activity Centre following the construction of the Ashley Street extension. Indeed, such is the significance of this project that the modelling suggests that the traffic increase under stage 3 with the Ashley Street extension (+22%) can be expected to be similar to the traffic increase under stage 2 (+20%).

The estimated distribution of the private (road-based) trips under this latter stage with Ashley Street is shown in Table 5.10, with a summary of the anticipated operation of the key intersections under this stage also shown in Table 5.11 (assuming no mitigation road works are completed at these intersections).

Table 5.10: Anticipated Private (Road-based) Trips per Key Transport Route (Stage 3A)

Stage	Measure	Trips per Key Transport Route to/from Activity Centre				
		Rosamond Rd (s)	Raleigh Rd (e)	Cordite Ave (w)	Hampstead Rd (s/w)	Gordon St (s/e)
3A [i]	Daily	26,360	34,280	25,660	17,380	12,940
	Peak Hour [ii]	2,636	3,428	2,566	1,738	1,294
	Proportion	23%	29%	22%	15%	11%

[i] Includes Ashley Street extension
[ii] Assuming a peak to daily ratio of 10%

Table 5.10 indicates that the traffic generated by the Activity Centre under this stage is likely to be well distributed across the network, with the highest volumes anticipated on Raleigh Road (29%) and then Rosamond Road south (25%).

In light of the fact that the traffic volume increase under this stage (over existing levels) is expected to be approximately 20,860 vehicle person trips per day (or approximately 2,086 vehicle person trips per hour), it is evident that the maximum peak hour traffic volume increase (on Raleigh Road) can be expected to be in the order of 605 vehicle person trips. Assuming an occupancy of 1.2 persons per vehicle, it is estimated that up to approximately 500 additional vehicle movements can be expected on this road under this stage. Although certainly not insignificant, it is expected that this increase is capable of being accommodated on the road network via the completion of appropriate mitigating road works (as discussed in the following section).

Table 5.11: Overview of Intersection Performance of Key Intersections (Stage 3A – No Works)

Intersection	Level of Service [1]		
	Weekday AM	Weekday PM	Saturday Lunchtime
Hampstead Rd/Wests Rd	Good	Good	Good
Raleigh Rd/Wests Rd	Acceptable	Poor	Acceptable
Raleigh Rd/Rosamond Rd	Good	Very Good	Very Poor
Rosamond Rd/Williamson Rd/Aquatic Drv	Good	Good	Very Poor
Van Ness Ave/Warrs Rd	Very Poor	Very Poor	Very Poor
Raleigh Rd/Van Ness Ave [2]	Very Good	Good	Very Poor

[1] As defined by SIDRA INTERSECTION
[2] Intersection is not located within study area however represents an important link in the local road network.

Assuming that mitigating road works are completed at the recommended intersections under each of the previous stages, Table 5.11 indicates that the completion of mitigating road works at the following intersections is likely to be required under this stage:

- Raleigh Road/Rosamond Road
- Raleigh Road/Van Ness Avenue.

Transport Recommendations

In the main, the transport works recommended in this stage represent the long-term requirements of the Activity Centre that have only been investigated and advocated in the previous stages due to their size and hence dependency on State and Federal Government support.

As examined within the previous sections of this report, the most notable of these works includes the provision of a rail line and station at the Activity Centre. The absence of this line in the vicinity of Northern Maribyrnong is considered to represent a significant deficiency, as well as a significant, but not insurmountable, obstacle in the development of the Activity Centre to the extent foreshadowed in the Highpoint Structure Plan.

Notwithstanding the significant associated costs, this link is considered to be possible via an extension from the Principal Public Transport Network and/or as part of a connection to Melbourne Airport or Sydney via a fast rail link (whichever is deemed most feasible and appropriate following the preceding investigations).

Although the benefits of this link would need to be clearly demonstrated as part of any feasibility study for this project, it is expected that if a rail link was provided directly to the Activity Centre, existing and future transport characteristics of the area would change significantly, with notable reductions in the mode split to private motor vehicle usage. This reduction could also be expected to have follow-on improvements to other

public transport modes (i.e. by easing congestion on roads which have shared access with buses and trams), which would further aid the mode change away from private motor vehicle.

In addition to this rail link, the additional north-south Maribyrnong River crossing proposed in the form of the Ashley Street extension is expected to generate a significant reduction in the amount of traffic that passes through the Activity Centre (i.e. compared to the option without this extension). In this regard and notwithstanding the concerns raised by Moonee Valley City Council with respect to this connection, it is recommended that this road project be pursued by VicRoads and Maribyrnong City Council and constructed in this stage (if not sooner).

In a similar vein, if not completed in the earlier stages, it is recommended that tram route #82 be extended into the Maribyrnong Defence site in this stage. This extension can be expected to reduce the need for residents of this development to drive to the Activity Centre by private motor-vehicle for their shopping, employment and recreational requirements.

Table 5.12 outlines the recommended long-term active, public and private (road-based) transport improvement works and initiatives.

It is again emphasised that these recommendations include, but are not limited to, the transport works and initiatives included in the MITM modelling (refer to discussion presented under 'modelling results'). For this reason, should all works and initiatives that are recommended in Table 5.12 be completed, it is evident that the transport characteristics explained above would be "improved" and that, in particular, the mode split towards public transport is likely to increase[13].

[13] It is noted, for instance, that the modelling does not include the construction of a railway station at the Activity Centre which could be expected to increase the use of public transport as a mode of transport to/from the Activity Centre to a level significantly greater than that anticipated in the modelling.

Table 5.12: Transport Recommendations for Land Use Stage 3 (Long term)

ACTIVE TRANSPORT

No.	Recommendation	Responsibility
LT1	Continue to ensure that future development proposals include appropriate footpath to, from and between car parking area, and to and from external pathways.	Developers & Maribyrnong CC
LT2	Continue to ensure that future development proposals within the Activity Centre provide statutory bicycle facilities (including bicycle spaces, lockers & showers)	Developers & Maribyrnong CC
LT3	Continue to provide appropriate way-finding and destination timing signage to accompany the above bicycle facilities and pathways	Maribyrnong CC & Moonee Valley CC
LT4	Continue to provide more clearly delineated pedestrian connections to public transport stops, particularly to the existing tram stop located at the northern end of the Activity Centre	Maribyrnong CC & Department of Transport
LT5	Continue to ensure that future development proposals within the Activity Centre prepare and update a Green Travel Plan as a Condition of Permit to encourage the use of active transport by staff, residents, customers & visitors	Developers & Maribyrnong CC
LT6	Undertake an audit of other key bicycle and pedestrian on and off-road paths within 1.2km of the Activity Centre (as defined in Figure 3.5 of this report) and upgrade facilities as required. This should include consideration of the following: • contrasting coloured on-road bicycle lanes to better delineate bicycle priority at intersections, • current DDA compliance of pathways and pram crossings • the provision of pathways on both sides of all roads within the vicinity of the Activity Centre, • the provision of signalised and unsignalised pedestrian crossings as required, and • the provision of "puffin" detectors at key signalised intersections	Maribyrnong CC

PUBLIC TRANSPORT

No.	Recommendation	Responsibility
LT7	Further increase frequencies and further extend service hours of existing bus and tram services	Department of Transport
LT8	Continue to provide bus priority treatments as part of surrounding intersection upgrades	Developers & Maribyrnong CC
LT9	Extend tram route 82 into Maribyrnong Defence site if practical	Developers, Department of Transport & Maribyrnong CC
LT10	If supported from previous assessments, provide a heavy rail connection to the Activity Centre (and beyond e.g. Melbourne Airport) as part of a potential extension from the Principal Public Transport Network	Department of Transport

Table 5.12: Transport Recommendations for Land Use Stage 3 (Long term) – continued

PRIVATE (ROAD-BASED) TRANSPORT

No.	Recommendation	Responsibility
LT11	Provide an additional east-west connection road within the Activity Centre between Rosamond Road and Wests Road (White Street)	Maribyrnong CC & VicRoads
LT12	Provide an additional north-south crossing of Maribyrnong River (i.e. Ashley Street)	VicRoads
LT13	Duplicate Van Ness Avenue to extend from Gordon Avenue, if practical.	VicRoads
LT14	Upgrade intersections as determined by the assessment completed under the medium-term recommendations. These may include: • Raleigh Road/Rosamond Road • Raleigh Road/Van Ness Avenue	Developers, VicRoads & Maribyrnong CC
LT15	Continue to utilise parking guidance systems and seek to provide associated signage on route to the Activity Centre (rather than on arrival at the Activity Centre)	Developers & Maribyrnong CC
LT16	Continue to implement Local Area Traffic Management treatments as required	Maribyrnong CC
LT17	Continue to promote car sharing and other sustainable transport initiatives in the Activity Centre	Maribyrnong CC
LT18	Review the Parking Precinct Plan (PPP) to reassess the appropriateness of previously adopted car parking maximums.	Maribyrnong CC

5.3.4 Summary of Recommendations

The preceding sections outline a number of active, public and private (road-based) transport recommendations aligned with short, medium and long-term indicative development stages for the Activity Centre. For reference, these recommendations are shown diagrammatically in the figures presented in Appendix A of this report.

6. Implementation

In order to successfully implement the recommendations outlined in this report, it will be necessary for Maribyrnong City Council to continue to liaise and engage with the various government authorities and third parties (including developers) through which the works and initiatives will ultimately be delivered.

To ensure this liaison and engagement occurs as efficiently as possible, it is recommended that a high level steering committee be formed. This committee should incorporate members of all stakeholders consulted through the process of preparing the NMITS and include persons of a level of seniority sufficient to facilitate the implementation and/or advocacy of its various transport recommendations. The formation of this steering committee should represent the first task completed following the finalisation of this report.

Using the tables in Section 5 of this report, this steering committee should seek to implement the recommendations relevant to each land use stage. Of these recommendations, it is expected that the works with relatively low cost, such as the audit of pedestrian pathways within the Activity Centre and associated improvements, will be implemented as a matter of urgency. In comparison, it is expected that the larger-scale, higher-cost projects will be completed in accordance with identified land use "triggers" outlined in this report or as funding is attained for the works.

It is noted that efforts should also be made to elevate projects of State and regional significance, such as the completion of light and heavy rail improvements, to key stakeholder and government agendas. This process should ideally elevate these projects for inclusion in updated State transport planning documents such as the Victorian Transport Plan.

It is emphasised that while the steering committee should maintain an "action focus" to ensure that recommendations are completed within or as close as possible to the forecast land use stage, it must remain vigilant to the fact that the majority of works recommended in stages 2 and 3 will require time-intensive planning and investigation, advocating and financing to see out their delivery. In this regard, the committee must also maintain a focus on the recommendations of the future land use stages to ensure that they do not become unachievable due to a lack of planning in previous stages.

Finally, it is strongly recommended that the committee maintains flexibility in the implementation of the transport recommendations to ensure that other transport opportunities, which may become apparent in time, are not disregarded due to their absence from this report. Similarly, the committee should remain vigilant of key planning projects which may impact upon the recommendations of this report, such as the Maribyrnong Defence Site and Ashley Street extension. Finally, the committee should ensure that opportunity remains to accelerate the implementation of key recommendations, such as the rail link at the Centre.

7. Monitoring and Review

To monitor and review this strategy, it will be important to continue to understand the transport characteristics of the Activity Centre as they change over time and, ideally, become less dependent on the use of the private motor vehicle.

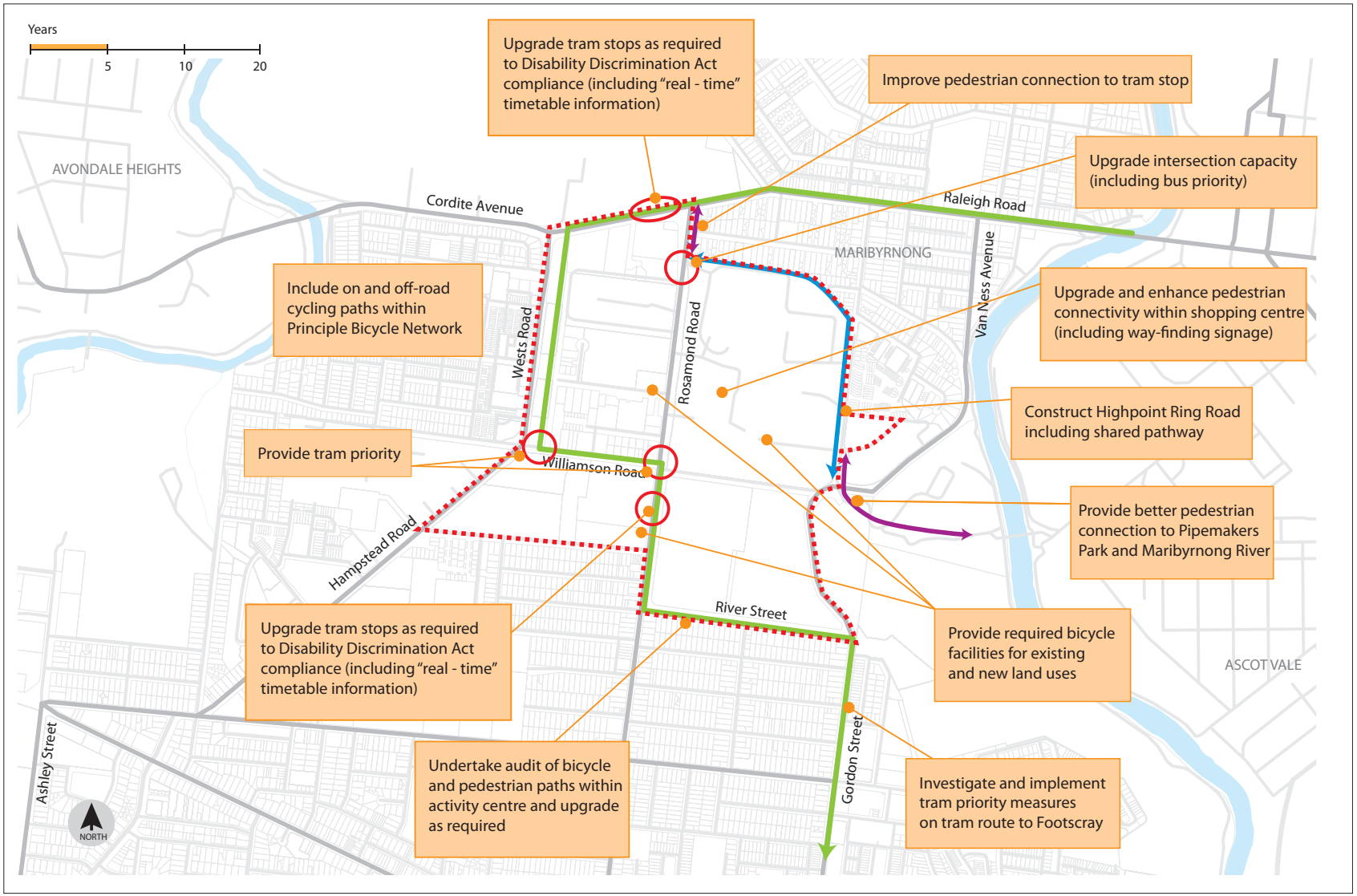
This quantitative data should be collected annually by Maribyrnong City Council such that it is possible to gauge the effectiveness of the various transport recommendations (by comparing them to the baseline mode splits identified in this report) and identify other transport recommendations if necessary. At the same time, qualitative data should also be collected from the various stakeholders involved in the preparation of the NMITS to determine the effectiveness of this document, and the steering committee, and identify any modifications that may assist the implementation of the various recommendations.

With respect to this strategy and report, it is recommended that it be formally reviewed every 2 to 5 years so that it maintains its relevancy, consistency with policy and transport works and land use developments, and can be modified and improved as required.

Appendix A

Transport Recommendation Plans

Transport Recommendations - Stage 1 (Short Term)



Main Roads

Route 82 Tram Line

Activity Centre Boundary

Pedestrian Improvements

Road Improvements

Intersection Improvements

Stage 1 (Short Term) = up to 5 years

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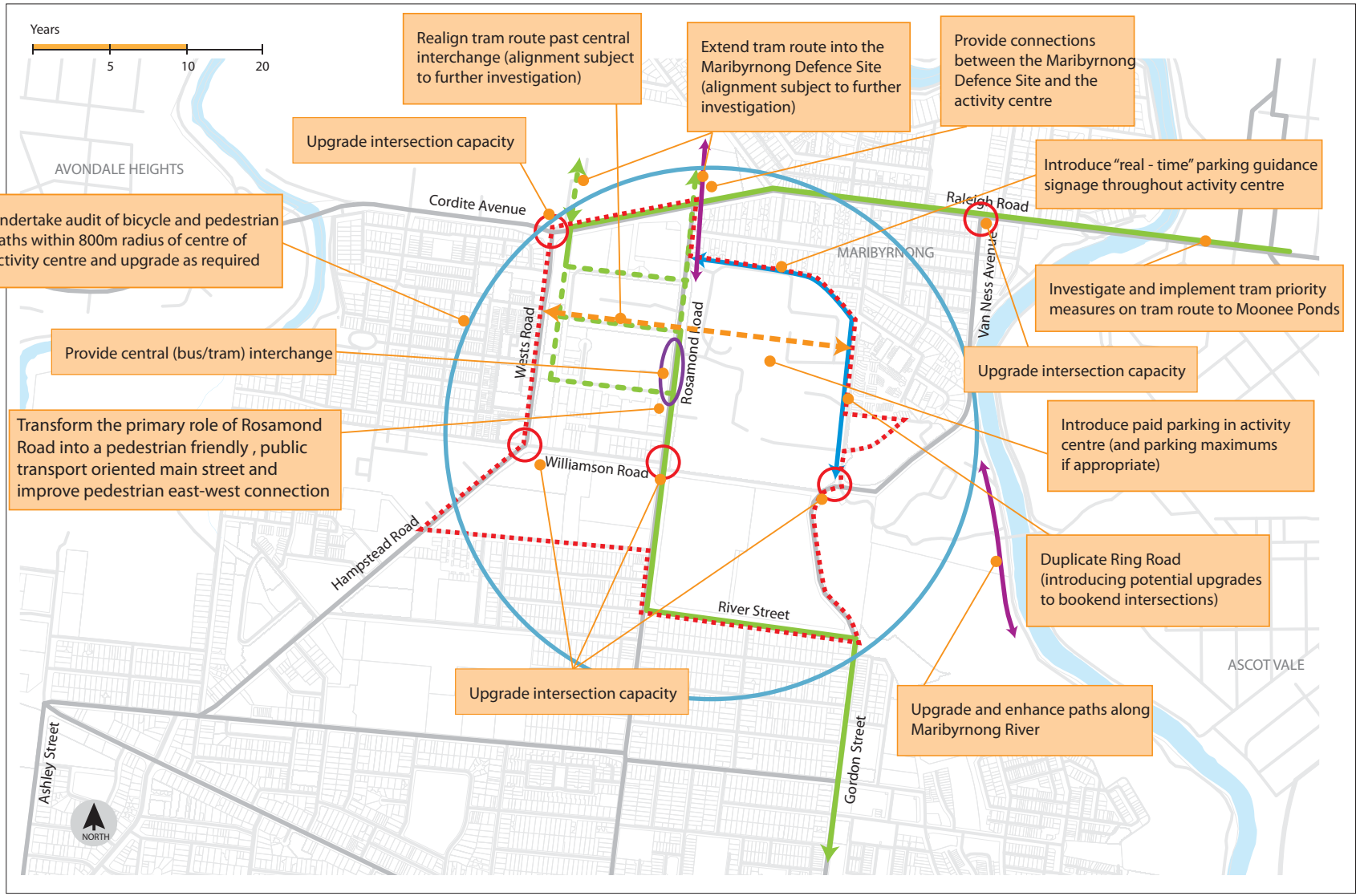
Transport Recommendations - Stage 2 (Medium Term)



Main Roads
Potential New Tram Line Alignment
Route 82 Tram Line
Activity Centre Boundary
Pedestrian Improvements
Intersection Improvements
800m Radius
Road Improvements
East-west movement spine (Highpoint Structure Plan 2008)

Stage 2 (Medium Term) = up to 10 years

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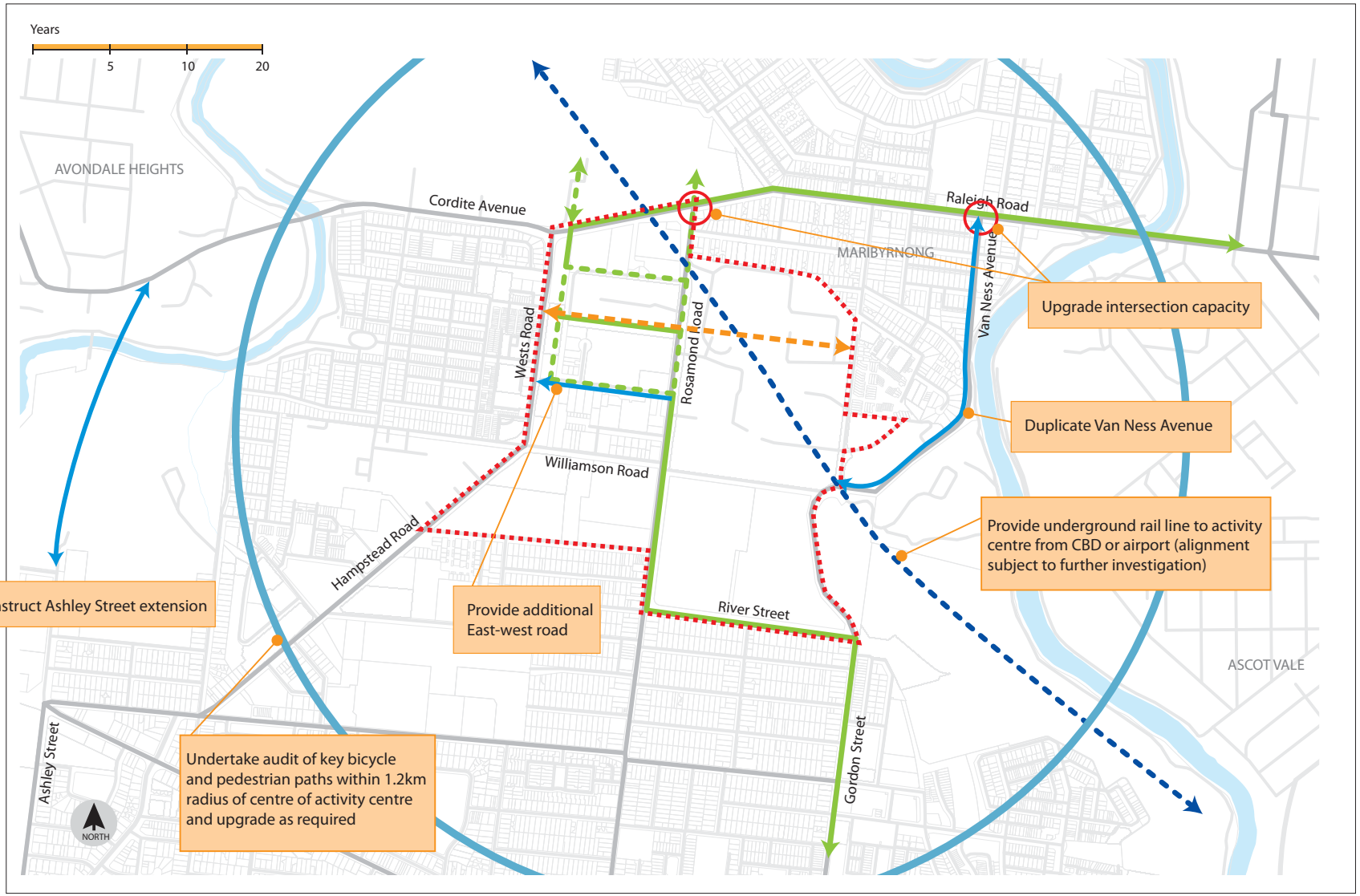
Transport Recommendations - Stage 3 (Long Term)



Main Roads
Potential New Tram Line Alignment
Route 82 Tram Line
Activity Centre Boundary
Pedestrian Improvements
Intersection Improvements
1200m Radius
Road Improvements
East-west movement spine (Highpoint Structure Plan 2008)
Rail Connectivity

Stage 3 (LongTerm) = up to 20 years

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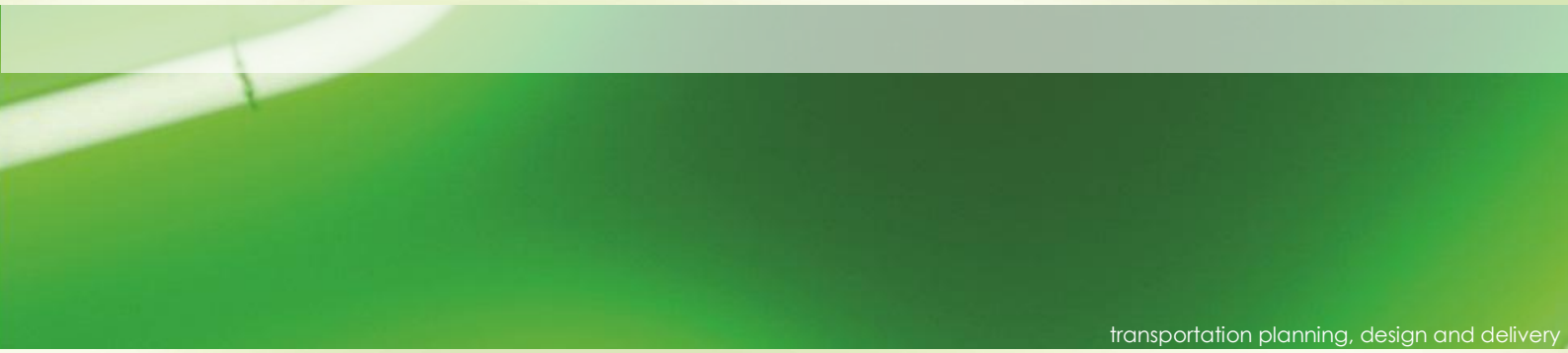

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