City of Ryde

Integrated Transport and Land Use Strategy

City Wide Strategy Report

August 2007



## pbai australia

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## **1** Executive Summary

## 1.1 Executive Summary

The Ryde Integrated Transport and Land Use Strategy (ITLUS) will inform Council policy and lead towards an improved transport future for the City of Ryde (CoR).

The objectives of the ITLUS are:

- To achieve a more sustainable, accessible, amenable, equitable, safe and integrated transport and land use system which balances social, environmental, health, economic and strategic objectives;
- To reduce car dependency, the growth in vehicle kilometres (VKT) travelled and greenhouse gas emissions;
- To increase the share of trips made by public transport, walking and cycling and reduce the number of trips made by private vehicles; and,
- To provide a long term vision for the CoR and a series of City wide and centre based actions which Council can implement or lobby for in order to satisfy these objectives.

In addition, the ITLUS will help CoR meet its Emission Reduction Goals set as part of the CoR's Draft Greenhouse Gas Abatement Reduction Plan 2007-2010.

**Actions** applicable across the whole of Ryde have been identified in order to meet the objectives. These are summarised within this report as follows:

- A1 Public Transport, Community Transport, Personal Public Transport and Taxi Actions;
- A2 Walking and Cycling Actions;
- A3 Road Management Actions;
- A4 Integrated Land Use Planning Actions; and,
- A5 Travel Demand Management Actions.

Three key transport and land use development corridors within Ryde have been identified, and specific actions have been identified for the six centres that make up these corridors.

Centre specific actions are summarised in separate centre based reports for: Macquarie Park; Eastwood Town Centre; West Ryde Town Centre; Meadowbank Centre; Victoria Road; Ryde Town Centre; and, Gladesville

## 2 Introduction

## 2.1 Introduction

In recent years government has recognised the need to reduce the growth in car use due to the negative impacts of congestion and reduced air quality. The promotion of other more sustainable modes of transport, the integration of land use and transport planning, and a general reduction in the need to travel have all been recognised as contributing to the solution.

There is clear political support for a reduction in car use in Ryde and increased use of more sustainable modes, such as public transport, walking and cycling. A series of policy documents and plans have been produced by Council since 2000 emphasising the need to promote and plan for alternatives to the private car.

The preparation of the ITLUS was identified as one of the key actions of Council's Management Plan 2007/2010, which identifies key outcomes for the Environment (pages 36 and 37) and lists the production of this strategy as a principal activity (Page 58). An improved transport future is required to help achieve the City Vision i.e. that Ryde will be 'an innovative city, a leader in environmental, economic and social sustainability'.

The CoR is ideally placed to provide leadership in integrated transport planning given the work in this area which has already been done through existing planning strategies and the future transport infrastructure enhancements to be developed within the Local Government Area (LGA).

## 2.2 Objectives

The ITLUS will inform Council policy and it's implementation will lead towards an improved transport future for the CoR.

The **objectives** of the ITLUS are:

- To achieve a more sustainable, accessible, amenable, equitable, safe and integrated transport and land use system which balances social, environmental, health, economic and strategic objectives;
- To reduce car dependency, the growth in vehicle kilometres (VKT) travelled and greenhouse gas emissions;
- To increase the share of trips made by public transport, walking and cycling and reduce the number of trips made by private vehicles; and,
- To provide a long term vision for the CoR and a series of City wide and centre based actions which Council can implement or lobby for in order to satisfy these objectives.

On order to meet the objectives, six **commitments** for Ryde have been developed.

These are:

- The CoR will pursue actions and activities that increase the percentage and absolute number of trips with an origin and/or destination in Ryde made by public transport, walking and cycling;
- The CoR will actively develop local connections to facilitate movement within Ryde LGA;

- The CoR will seek opportunities to reduce the need for travel within Ryde by residents and employees of local businesses;
- The CoR will pursue actions, including in partnership with others, to improve connections between Ryde and external trip attractors and generators;
- The CoR will actively advocate for and support regional transport links that reduce car dependency; and,
- The CoR will pursue land uses and development activities that support the Strategy's objectives.

## 2.3 City Wide and Centre Actions

The ITLUS is structured around a series of *city wide* and *centre based* actions which combined will meet the Strategy's Objectives.

The key transport and land use development corridors within Ryde are identified as Macquarie Park (Epping Road, M2, Epping to Chatswood rail link), the Northern Line rail corridor, and Victoria Road.

Within these three areas, six centres have been identified (Figure 2.1).

Macquarie Park

1. Macquarie Park

Northern Line:

- 2. Eastwood Town Centre
- 3. West Ryde Town Centre
- 4. Meadowbank Centre

Victoria Road:

5. Ryde Town Centre

6. Gladesville

This City Wide Report includes a discussion of the current transport and land use planning context for Ryde (Section 3) and Opportunities and Constraints (Section 4)

Actions that can be applied across the City of Ryde are discussed, including:

- A1 Public Transport, Community Transport, Personal Public Transport and Taxi Actions (Section 5);
- A2 Walking and Cycling Actions (Section 6);
- A3 Road Management Actions (Section 7);
- A4 Integrated Land Use Planning Actions (Section 8 and 9); and,
- A5 Travel Demand Management Actions (Section 10).

An action plan summary is included at the end of each section.

Following the action plan summary is an **implementation plan (Section 11) that** brings all the identified actions together.

This is followed by a **monitoring plan (Section 12)**, through which the outcomes of the ITLUS will be monitored to ensure progress is made. It will be important to regularly review the ITLUS against the implementation plan and monitoring targets.

For each of the six centres identified, specific actions that can be applied to each centre are summarised, for each transport mode. These Actions are summarised in separate reports, for each centre.

A glossary of acronyms and terms is included at the end of this report.

## 2.4 Targets

The following targets and performance measures have been adopted in principle by Council and will be used to monitor the outcomes of the ITLUS:

 Journey-to-work modal split targets - Decrease in car driver use (for 2011), with a corresponding increase in use of non-car modes (based on 2001 Census data).

-		
Mode	Current Mode Split Percentages (2001 Census)	Target Mode Split (2011)
Public Transport	10.2 %	20.8 %
Car (as driver)	78.2 %	58 %
Car (as passenger)	6.1 %	10 %
Bicycle	0.5 %	3 %
Walk	3.6 %	7 %
Other	1.2 %	1.2 %

#### Table 2.1: Journey to Work Mode Split Targets

All-trips modal split targets - 10% decrease in car driver use (for 2011), with a corresponding increase in use of non car modes (based on 2001 Census and HTS data).

#### Table 2.2: All-trips Mode Split Targets

Mode	Current Mode Split Percentages (2001 Census)	Target Mode Split (2011)
Public Transport	7 %	17 %
Car	93 %	83 %

- Accessibility targets Targets to be developed such as increased walking and cycling infrastructure within agreed accessible catchment areas.
- Level of Service and volume to capacity ratio targets that integrated measures are considered that enable intersections and roads to achieve Level of Service rating not worse than D (intersections operating close to capacity as reflected through time delay through an intersection) and Volume to Capacity Ratio rating not worse than 1 (at capacity) by 2011.
- To review the appropriateness of the base year for modal split targets when the 2006 ABS Census Data becomes available.
- To promote community awareness of other alternatives to motor vehicle use within the community and to highlight the negative aspects of motor vehicle use.

Targets should be reviewed by Council annually. Indicators for these targets and monitoring methods are discussed in **Section 11**.

## 2.5 Previous Work

## Working Paper 1 – Context

Working Paper 1 (April 2006) provided Council with a summary of the current integrated transport context in Ryde. Based on Ryde's existing strategic position, the Working Paper reconfirmed Council's aims and objectives with the view to developing supporting performance measures and targets for Council's consideration.

Working Paper 1 included an analysis of existing and future transport needs, strategic context and future direction, community and stakeholder expectations, key constraints and opportunities.

### Working Paper 2 – Consultation

Stakeholder consultation has been undertaken to inform the development of the ITLUS. Notes of consultation workshops, meetings, conversations and emails are contained in Working Paper 2 (May 2006).

## Figure 2.1: Ryde ITLUS Centres



## 3 Transport and Land Use Planning Context

## 3.1 Introduction

In recent years, Sydney's continued growth has put pressure on its roads and public transport infrastructure. Growing dependence on private cars in cities has the potential to damage the planet's atmosphere, and destroy local amenity and quality of life. Climate change, air quality, impact of rising oil prices and the economic impacts of congestion are key issues for the future.

Increasingly, all levels of government are recognising the need to develop policies which address the issue of car dependency, and the City of Ryde is very active in doing its part.

The strategic context for the ITLUS is informed by the range of state, regional and local strategies and initiatives which will impact directly on Council's ability to achieve its transport planning objectives.

This section of the report is based on a review of the current relevant strategic directions of State Government, to:

- Identify the higher order goals and objectives to which any local transport strategy should contribute;
- Determine the strategic land use and transport directions which will define the parameters for Ryde's integrated transport planning;
- Identify proposed trends or changes, at the state and local level, which are likely to affect Ryde's strategy; and,
- Identify the relevant State Government programs and policies which may assist Ryde to achieve its local transport objectives.

## 3.2 State Context

3.2.1 The Integrated Land Use and Transport (ILUT) package – Draft SEPP 66, 2001

The Draft State Environmental Planning Policy (SEPP) 66 seeks to provide more equitable access to jobs and services by proactive land use planning to reduce the need for car trips and promote opportunities for walking, cycling and public transport.

The Draft SEPP 66 package includes a series of research, policies and guidelines. The policy recognises the crucial role played by planning and development decisions in managing the demand for travel and providing transport choices. It aims to create urban environments that seek to:

- Improve access to housing, jobs and services by walking, cycling and public transport;
- Increase the choice of available transport modes and reduce dependence on cars;
- Reduce travel demand including the number of trips generated by development and the distances travelled, especially by car;
- Support the efficient and viable operation of public transport services; and,
- Provide for the efficient movement of freight.

The policy focuses on a number of key areas in order to achieve these objectives, including:

- Assessing the transport implications of developments rather than focusing solely on traffic;
- Locating businesses and services to ensure that trip-generating activities are near to one another and therefore support a network of mixed use centres;
- The use of parking as a travel demand management tool; and,
- Taking advantage of the opportunity to 'get it right from the start' with new residential developments.

#### 3.2.2 Metropolitan Strategy for the Sydney region: City of Cities, 2005

*City of Cities: a Metropolitan Strategy for Sydney* (the Metro Strategy) was released in November 2005. It provides a framework for the development of Sydney over the next 25 years, with the aim of achieving economic, social and environmental sustainability.

The strategy is presented in seven themes:

- Economy and employment;
- Centres and corridors;
- Housing;
- Transport;
- Environment and resources;
- Parks and public places; and,
- Implementation and governance.

The philosophy of the Strategy is to manage growth by a combination of consolidated development at existing urban centres and transport nodes with infrastructure capacity, or where infrastructure can be provided, and limited but carefully planned greenfield development.

A hierarchy of centres is adopted which, in theory, will guide investment and policy decisions of government and private sectors. Sydney/Nth Sydney is identified as the dominant "Global City" centre, with Parramatta, Liverpool and Penrith performing "regional city" roles.

In addition, most of the "district centres" from previous strategies have been rebadged "major centres", and these include Hornsby, Chatswood and Burwood in Ryde's broader catchment.

The Metro Strategy identifies key economic corridors. North Sydney to Macquarie Park is identified as a major part of the 'global arc' which includes Macquarie Park, North Ryde, the Lower North Shore, Sydney City, and south Sydney as far as the airport and Port Botany. This corridor provides a large proportion of the region's employment, and, by implication, generates much of its employment-related travel.

The Metro Strategy recognises that existing and new infrastructure investment in identified corridors will be used more efficiently by concentrating new development in these areas to support their primary role.

Macquarie Park is identified as a specialised centre, which is an area which contains 'major airports, ports, hospitals, universities, research and (or) business activities that perform vital economic and employment roles across the metropolitan area'. A target for growth in employment of 70% from 2001 to 2031 has been set for Macquarie Park, which will increase employment from 32,308 to 55,000. Sydney Olympic Park

(SOP)-Rhodes to the immediate south of Rhodes is another specialised centre relevant to Ryde.

Interestingly, the Strategy identifies Ryde as the pivot of a potential new economic corridor, linking Westmead-Parramatta-Sydney Olympic Park-Rhodes-Ryde-Macquarie Park and University, with connections to Western Sydney and the global arc at either end. This corridor is already identified as a key strategic bus corridor, and also for (see below) measures to maintain consistency of traffic speeds. Ryde Town Centre, located where this corridor bisects the Sydney-Parramatta via Victoria Road corridor, must therefore be planned in this context.

Victoria Road is identified as a potential enterprise corridor, a place where traffic volumes are likely to impact on amenity for residences, but whose accessibility and "passing trade", and potentially lower rents, makes them preferred locations for lower order activities such as mechanics and workshops, bulky goods and even smaller start-up service businesses.

### 3.2.3 Subregional planning for the Inner North

The strategic framework is to be supplemented by a series of subregional strategies, developed by the Department of Planning with input from councils. Ryde is included in the Inner North sub-region, along with Hunters Hill, Lane Cove, Mosman, North Sydney and Willoughby LGAs.

The Draft Inner North Subregional Strategy was released in July 2007. The subregional strategy identifies 30,000 extra dwellings and 60,100 new jobs as the growth target for this subregion as a whole. The growth targets for Ryde LGA are 12,000 extra dwellings and 21,000 extra jobs by 2031.

The subregional strategy identifies the most desirable locations for growth, based on an assessment of accessibility, service provision, infrastructure constraints and development potential. A focus on placing growth in existing centres, such as Macquarie Park (identified as a *Specialised Centre*) and Ryde and Eastwood (identified as *Town Centres*) is a feature of the Department of Planning's approach to these strategies.

It is still unclear to what extent the subregional strategies will inform or determine the Government's priority for infrastructure investment and service provision. This is especially the case in the transport area, where State Government funds are already heavily committed, and where the priorities, for example, for improvements to the rail network are unlikely to change in the short to medium term.

### Summary

The key land uses trends affecting transport in Ryde are:

- Major jobs growth in the CBD, Lower North Shore and CBD-Airport corridor,
- Rapid, major jobs growth in Macquarie Park,
- Jobs and other growth in Sydney Olympic Park/Rhodes, Parramatta and Burwood,
- Potential new Westmead-Parramatta-Sydney Olympic Park/Rhodes-Ryde-Macquarie Park economic corridor,
- Residential growth in the Inner North, including Ryde, and Central West, and,
- Major residential growth in the North West.

## 3.2.4 Transport Challenges – Transport for Ryde

Ryde's transport challenges are primarily a function of its location along the key transport corridors connecting major growth centres with the CBD and global arc. Ryde "hosts" a major array of transport infrastructure, including rail lines, the orbital road network, bridges etc – the challenge is to make the infrastructure and services not just in Ryde, but, at least to some extent, *for* Ryde and, at the same time, reduce the impact of through traffic on places *in* Ryde.

Key transport corridors are identified below:

## Figure 3.1: Ryde Transport Corridors



A number of key infrastructure projects are relevant. The Epping-Chatswood Rail Link is due for completion in 2008. This will increase accessibility to Macquarie Park and Macquarie University, and should provide increased capacity along the Northern and Western Rail lines into the CBD.

The Metro Strategy contains the commitment to 'plan, and as appropriate, construct the North West–CBD–South West Rail Link'. The new North West–CBD–South West Rail Link would provide a continuous rail link between Rouse Hill and Castle Hill in the North West, the global economic corridor centres from Macquarie and Chatswood to North Sydney and the Sydney CBD, and Leppington in the South-West. A target date for completion of 2015 for the section to Rouse Hill has been adopted. The Rail Clearways program is designed to increase the sectorisation of Sydney's rail network, increasing reliability and over time contributing to increased capacity.

The issue of rail freight is very important in Ryde, with the Northern Line part of the link between Sydney, Newcastle and Brisbane. Rail freight is expected to increase by 40% over the next 5 years, and major works to segregate the freight and passenger rail networks include improvements to the Southern Sydney Freight Line, Botany Freight Line and possible future connections in Western Sydney. Whilst the environmental benefits of increasing the amount of freight by rail are acknowledged, the impact of noisy freight trains on established centres such as Eastwood and West Ryde also requires attention.

The Lane Cove Road Tunnel opened in April 2007, and should result in reduced traffic congestion in some areas of Ryde. The Metro Strategy was adopted almost at the same time as the opening of the M7 orbital toll road linking the M5, M4, and M2. This road is attracting economic activity, such as transport, logistics, and warehousing uses at key nodes along the route. This is likely to have major implications for the traffic on the M2, including freight, journey to work and other trips. It is also likely to increase pressure to link the M2 and F3, via one of a series of routes which were examined in recent State/Commonwealth studies, effectively to bypass Pennant Hills Road.

Similarly, investigations continue into medium-term options for extending the M4 eastwards, some including new north-south routes linking to the Airport and Port Botany, and possibly even additional harbour crossings west of the CBD. The local impact of these schemes is unknown, but some changes to traffic conditions in Ryde, especially along major arterial roads, would be expected.

A November 2006 transport statement committed the Government to improving bus priority along Victoria Road east of Gladesville, which should have benefits for bus users in Ryde. The strategy also identified major road corridors where initiatives would be undertaken to smooth traffic flow, including the "Ring Road 3" corridor of Church and Devlin Streets and Lane Cove Road. The Victoria Road Working Party (including Sydney Buses) are currently examining tidal flow and Iron Cove Bridge widening options.

The November 2006 statement also suggested that investigations could occur into application of metro rail technology (generally single level high frequency services with shorter station spacing). The Western Rail corridor to Penrith was identified as a priority for investigation, but other potential corridors could include the so-called River Line, connecting Parramatta with the CBD along Parramatta River, and the Parramatta-Macquarie Park Corridor.

Bus reform and implementation of strategic bus corridors continues, with services in Ryde to be reviewed in late 2007. The Victoria Road corridor has already been discussed. The Burwood-Macquarie Park corridor will now also include the emergence of Sydney Olympic Park as a specialised centre, providing a first trunk service along a key section of the "potential new economic corridor" identified above. The bus network will be supported by improved passenger facilities at bus stops such as shelters, information, signage and lighting, improved walking access to bus stops, and interchanges.

The Metro Strategy recognises that each centre will have particular access issues to resolve, especially Macquarie Park, which traditionally has been car-based. To maximise the benefits of the rail investment and to protect the amenity of these centres, complementary improvements such as strategic bus corridors will be implemented, and growth in parking will need to be reduced. A Metropolitan Parking Policy has been developed during 2006, and could be released for discussion in mid-

2007. Currently, each council decides to restrict or manage parking in its centres, either to accommodate or to discourage parking.

Other crucial measures to manage travel demand to and in Ryde include improvements to walking and cycling infrastructure, and travel plans for major centres and sites. Many short trips are undertaken by car, often for shopping purposes. Walking and cycling to existing centres, such as large villages like West Ryde and Eastwood, provides important health and environment benefits, and also increase the economic competitiveness of retailing in these centres. In some places, this may require augmentation of networks that have developed to support recreational trips.

Travel plans are increasingly important in influencing travel behaviour, especially for major concentrations of trip ends e.g. centres like Macquarie Park. Travel plans complement infrastructure and service provision, land use and parking strategies, to work with employers, employees, visitors etc to develop measures to support more sustainable travel choices. One important example is the Travel Plan being developed by Singtel Optus for its relocation to Macquarie Park. Initiatives include a major rideshare program, comprehensive employee car parking (including charging) strategies, and extra shuttle buses carrying both Optus staff and members of the public until the opening of the Epping-Chatswood rail link.

The Government is slowly introducing its integrated ticketing system, T-card, which has been trialled on selected (school) bus routes. Implementation problems appear to be continuing. Fare products different to those already available have not yet been unveiled.

## 3.3 Local Transport Responses - Transport for Ryde

Recognising the land use trends affecting Ryde, and the broad strategic transport planning context, a number of transport strategies emerge. The key purpose of these is to identify clusters of activities that Council can initiate, to manage the impact of transport on Ryde, and to capitalise on Ryde's relative accessibility.

The nominated strategies are:

- The CoR will pursue actions and activities that increase the percentage and absolute number of trips with an origin and/or destination in Ryde made by public transport, walking and cycling;
- The CoR will actively develop local connections to facilitate movement within Ryde LGA;
- The CoR will seek opportunities to reduce the need for travel within Ryde by residents and employees of local businesses;
- The CoR will pursue actions, including in partnership with others, to improve connections between Ryde and external trip attractors and generators;
- The CoR will actively advocate for and support regional transport links that reduce car dependency; and,
- The CoR will pursue land uses and development activities that support the Strategy's objectives.

Council's activities to support these strategies include:

- Council's local transport networks;
- Walking and cycling;
- Public transport infrastructure;
- Public transport services (lobby);
- Community transport;

- Land use and planning;
- Parking management; and,
- Behavioural change programs/education.

Detailed translation of these strategies and activities to action plans for Macquarie Park, Ryde Town Centre, Eastwood, West Ryde, Meadowbank and Gladesville follows in the centre based reports.

## 3.4 Environmental Context

In Ryde, of the 1,624,556 tonnes of CO2 equivalent<sup>1</sup> produced from the community sector in 2001, transport accounted for approximately 13.5% (219,720 tonnes of CO2-e). With projected increases in vehicle kilometres travelled the transport sector's contribution to greenhouse gas emissions is also expected to increase (see **Table 3.1**). If current trends continue under a "business as usual" scenario it is expected that by 2010, 1,758,719 tonnes CO2-e will be produced of which transport is estimated to account for 18% (330,171 tonnes CO2-e)<sup>2</sup>. CoR recognises the importance of reducing the growth vehicle kilometres travelled as an effective measure for reducing greenhouse gas emissions.

# Table 3.1: Total Carbon Dioxide Emissions and Energy Use Forecast for the Community Sector in Ryde<sup>3</sup>

	Year 2001 (Equivalent CO2 Tonnes)		Years 20 (Equivalent CO		
Sector	Tonnes	Percent	Tonnes	Percent	Percent Change
Residential	320,112	20%	319,083	18%	-1%
Commercial	322,609	20%	371,946	21%	+2%
Industrial	726,978	45%	701,972	40%	-4%
Transport	219,720	14%	330,171	18%	+4%
Waste	35,137	2%	35,547	2%	0%
Total	1,624,556	100%	1,758,719	100%	

### 3.4.1 Ryde's Response - Current Greenhouse Gas Reduction Policies

CoR joined the Cities for Climate Protection (CCP) program in 2005, in a commitment to address the issue of global warming. As part of the CCP program Council has set the following Emission Reduction Goals:

- 1. A 30% reduction in corporate emissions on 2003/04 levels by 2012/13, which would require reduction of 4,596 tonnes  $CO_2$  equivalent emissions.
- 2. A 20% reduction per capita of Community emissions at 2001 levels by 2010 which require a reduction of 324,911 tonnes CO<sub>2</sub> equivalent.

<sup>&</sup>lt;sup>1</sup> Carbon dioxide equivalent of greenhouse gas emissions means the mass of carbon dioxide measured in tonnes that has the same global warming potential as the unit mass of gas emissions.

<sup>&</sup>lt;sup>2</sup> City of Ryde, 2007, Draft Greenhouse Gas Reduction Action Plan 2007-2010

<sup>&</sup>lt;sup>3</sup> City of Ryde, 2007, Draft Greenhouse Gas Reduction Action Plan 2007-2010, figure 8, page 11.

Although Council has noted it has minimal influence over community energy use, initiatives such as the ITLUS, which focuses on sustainable transport and reducing car dependency, can contribute towards achieving their emissions reduction goals.

Based on a population of 100,000 people, this equates to a reduction goal or 3.25 CO<sub>2</sub> equivalent tonnes per capita by 2010.

## 3.4.2 Greenhouse Gas Abatement Reduction Plan 2007-2010

The Greenhouse Gas Reduction Action Plan outlines CoR actions for the corporate and community sector and a performance monitoring and review schedule for reducing greenhouse gas emissions. The Action Plan was adopted by Council in June 2007.

The Action Plan sets out sustainable transport actions for Council to undertake including; preparation of Transport Access Guide for Council administration buildings, staff travel survey, Staff Public Transport Assistance Policy that offers incentives for staff to use public transport, car sharing facility and promotion of working from home policy.

Action Number COMM23 of the Plan relates to the development and implementation of the Integrating Land Use and Transport Plan which is stated as being a high priority.

# **4 Opportunities and Constraints**

## 4.1 Introduction

In analysing the existing and proposed transport infrastructure and services in Ryde (Working Paper 1), a number of opportunities and constraints have been identified.

These are summarised in the following Tables 4.1 to 4.5.

 

 Table 4.1: Public Transport (including community transport, personal public transport and taxis)

 In analysing the existing and proposed public transport infrastructure and services in Ryde, a number of opportunities and constraints have

 been identified.

Constraints	Opportunities
<ul> <li>Low density residential and employment development reduces the viability of public transport (see Figure 5.1 and 6.1).</li> </ul>	<ul> <li>The opening of the Epping to Chatswood Rail Line in 2008 will provide access to the rail network from the northern area of Ryde.</li> </ul>
<ul> <li>State Government funding for interchanges and wharves is not available as Parking Space Levy funds are is fully allocated elsewhere.</li> </ul>	<ul> <li>The Epping to Chatswood Rail Line provides an opportunity to intensify low density land uses near stations over time.</li> </ul>
<ul> <li>State Government rail infrastructure funds are fully committed to the Epping – Chatswood Rail Line, Clearways, North West and South West Rail Lines). It is unlikely that the Parramatta to Epping Rail Line, or any other transport facilities will receive funding in the short-medium term.</li> </ul>	<ul> <li>A new time table for Northern Line services will be introduced in 2008, in order to integrate the rail network with the opening of the Epping Chatswood Rail Link (ECRL).</li> <li>There is demand for more interchange facilities in Byde including model.</li> </ul>
<ul> <li>Inadequate bus interchange facilities at Ryde Town Centre.</li> </ul>	interchanges at rail stations such as West Ryde, Eastwood and on the new
<ul> <li>Traffic volumes on arterial roads such as Victoria Road, Devlin Street, etc., make future bus priority measures problematic.</li> </ul>	<ul><li>Epping Chatswood line stations.</li><li>The existing Northern Line rail corridor between West Ryde and the Parramatta</li></ul>
<ul> <li>Ryde Council is not empowered to effect or affect public transport provision, and must lobby to influence other players.</li> </ul>	River is likely to be affected by the proposed Main North Line track amplification (announced in the NSW State Plan, 2006). The proposal aims to increase rail capacity for freight and passenger services and to improve the reliability of rail
<ul> <li>A number of agencies will necessarily be involved in making improvements to the public transport services, and co-ordination is an issue.</li> </ul>	services by providing capacity to segregate fast passenger services from slower passenger services and freight services.
<ul> <li>There are reduced bus services in the evenings and at weekends (see figure 5.2 and 5.2).</li> </ul>	<ul> <li>Western Ryde is serviced by a good rail service to Hornsby and the CBD. This rail line also links some activity centres in Ryde.</li> </ul>
<ul> <li>There is a lack of effective bus priority.</li> </ul>	Sydney Buses is currently developing an Integrated Network Plan in
<ul> <li>There is no direct rail interchange between the Northern Line and Cumberland and Carlingford Lines.</li> </ul>	conjunction with MoT. The plan is designed to reflect changing land use patterns and the impact of the ECRL.
	<ul> <li>There are opportunities to provide new bus services to both existing and new rail stations to increase accessibility to the rail network. This could be provided through new/improved mock interchanges at key stations.</li> </ul>
	<ul> <li>Good access to stations (pedestrian and bus) could increase accessibility by Ryde residents to public transport and employees into Ryde.</li> </ul>
	<ul> <li>An interchange is planned to be built at Ryde Town Centre as part of proposals for the Town Centre.</li> </ul>
	<ul> <li>Linkages between bus and ferry services could be improved.</li> </ul>
	<ul> <li>Bus priority on Epping Road will be improved as part of the Lane Cove Tunnel works.</li> </ul>

- There are opportunities at the local level to enhance interchanges including: provision of information, improving access to stations for all modes, improving the cleanliness and comfort of trains and enhancing station environments.
   Local bus operators are currently developing future servicing plans for the Macquarie Park area to cater for growth in the area and to integrate with the new railway stations.
  - Frequency of services to Meadowbank rail station and ferry wharf to cater for increased demand due to residential developments could be increased.
  - There is an opportunity for Council's advocacy role to be enhanced through regular meetings with public transport operators, RTA, MoT etc.
  - The development of the North West Rail Link could occur sooner than 2017.

## Table 4.2: Walking and Cycling

In analysing the existing and proposed walking and cycling facilities in Ryde, a number of opportunities and constraints have been identified

	Constraints		Opportunities
•	Local topography, arterial roads with high traffic volumes and speeds and rail lines act as barriers to pedestrians and cyclists.	•	Extensive range of fringe benefits to increased walking and cycling – improved health, low cost, increased social interaction and environmental benefits.
•	No city wide bicycle parking standards are in place for the City of Ryde, excluding those for Ryde Town Centre.	•	A review of the 1994 Ryde Bike Plan is currently underway which will improve cycle access and facilities in the area.
•	The propensity to walk and cycle will always be affected by the weather and seasonal impacts such as dark nights.	•	The development of local Pedestrian Access and Mobility Plans (PAMPs) will improve pedestrian access and facilities in the area.
•	The existing low profile of walking and cycling as modes of travel does not promote them locally.	•	RTA 50:50 funding is available for PAMPs and their recommendations and is also available for regional bike routes that may be included in the Ryde Bike
■ Wa	Walking and cycling are also constrained by negotiating main roads such as Lane Cove Rd, and Victoria Rd which run through villages and town centres.		Plan which is currently under review.
		•	Council can link the provision of infrastructure to travel demand management programs such as Green Travel Plans.
		•	The development planning system offers a means of providing facilities for cyclists as part of new developments.
		•	A local bicycle user group is already active in the area and will provide invaluable support in developing cycling initiatives and promotional campaigns.

## Table 4.3: Traffic

In analysing the existing traffic situation in Ryde a number of opportunities and constraints have been identified.

	Constraints		Opportunities
•	Council has limited control of arterial routes and a number of agencies will be involved in planning and implementing solutions.	•	The ITLUS seeks to promote public transport and a mode shift reducing the growth in car travel, making the most effective use of existing arterial roads without the need for new/wider roads
•	Potential solutions are likely to be limited by the existing urban environment. Existing road patterns are difficult to change.	•	Bus, bicycle and pedestrian facilities will be provided on Epping Road with the opening of the Lane Cove Tunnel April 2007.
•	Level of through traffic is high.	•	A number of strategic bus routes are being developed throughout the area.

## Table 4.4: Parking

In analysing the existing and proposed parking provision in Ryde, a number of opportunities and constraints have been identified.

Constraints		Opportunities		
•	There has been a negative reaction from some community members to tighter management of parking supply.	•	Car parking management offers a powerful policy tool to achieve the objectives of the ITLUS.	
•	Many parking spaces are not within the control of Council, particularly State Government owned station parking, commercial employee parking and retail	•	The Metro Parking Group is currently developing a coordinated parking strategy for specialised centres as identified in the Metro Strategy.	
•	parking. Restrictive parking controls may affect the competitiveness of CoR's	•	The RTA is currently revising the Guide to Traffic Generating Developments including the guideline parking rates.	
	commercial centres in relation to those in neighbouring municipalities, if developed independently of a sub regional parking strategy.	-	The Car Parking DCP requires lower car parking rates for residential developments within 400m of a major transport corridor or railway station. This concept could be adopted for other land uses.	

## Table 4.5: Transport and Land Use Planning

Constraints	Opportunities
<ul> <li>The Metro Strategy indicates for the sub region - that the region currently has 129 256 dwellings and it proposes that in 2013 this will be 140 808 and 159 000 in 2031.</li> <li>Victoria Road Corridor to be larger bus artery – impacts on Gladesville, Ryde Town Centre, West Ryde centres.</li> </ul>	<ul> <li>Ryde located within the "global arc".</li> <li>Macquarie Park – planned massive employment growth.</li> <li>Ryde's current planning instruments have identified growth for both residential and employment in the following centres:-         <ul> <li>Gladesville Town Centre and Victoria Road Corridor - town centre</li> <li>Ryde Town Centre</li> <li>West Ryde Town Centre</li> <li>Meadowbank Employment Area - town centre</li> <li>Eastwood Town Centre</li> <li>Macquarie Park - specialised centre</li> <li>Gladesville - controls are in the process of being developed</li> </ul> </li> <li>The development of Ryde Rehabilitation Centre is a state significant development and was approved by the Minister of Planning in March 2006. The approval is for just under 800 dwelling and hospital facilities.</li> <li>Development of Macquarie University (state significant development) to become major education and business hub.</li> <li>Potential Macquarie Park to Parramatta/SOP/Rhodes corridor.</li> </ul>

## 5 Public Transport Action Plan (A1)

## 5.1 Introduction

Public transport, including **community transport**, **personal public transport** and **taxis**, is a key part of the ITLUS and will play a central role in the achievement of the ITLUS aims. This action plan seeks to develop a range of related projects to support and promote public transport in Ryde. Council will have to work closely with the public transport operators and State Government in implementing this action plan, recognising that partnerships are required to effect improvements.

## 5.2 Objectives

The Public Transport Action Plan (A1) objectives are:

- To improve the quality of all public transport facilities and infrastructure, providing the best bus stops, interchanges and stations possible;
- To raise the profile of all existing public transport services in Ryde and promote any future improvements;
- To maximise the opportunities to access existing and future transport by all members of the community;
- To maximise opportunities to interchange between services and between modes;
- Increase priority for public transport relative to private motor vehicles; and,
- To effect improvements to bus and rail services in Ryde.

Actions and Outcomes are outlined in detail in Section 5.3. The Action Plan, including stakeholders, timescales, and likely costs to CoR, is summarised in **Table 5.1**.

## 5.3 Actions and Outcomes

## 5.3.1 Mutually Beneficial Partnerships

There are opportunities for Council to form partnerships with bus operators to realise infrastructure and service improvements. Council could provide better bus infrastructure, such as accessible bus stops on certain routes, and in return bus operators could guarantee all vehicles operating the service will be fully accessible. Other outcomes could include higher service frequencies or extended evening or weekend services on specific routes. This has already occurred with the planned bus interchange at the Top Ryde shopping centre redevelopment.

It is recommended that Council liaise with Ministry of Transport (MoT) to identify a bus route to pilot this partnership approach.

Council can also form mutually beneficial partnerships with developers to realise improved public transport infrastructure. These partnerships could be developed as part of the DA process through negotiations with developers. For example, the proposed bus interchange at Ryde Town Centre to be provided through developer agreement linked to the DA process and approval. The developer will gain through increased accessibility of the development. A good example of partnerships between councils and developers is the redevelopment of the Westpoint Shopping Centre in Blacktown. As part of the redevelopment of the shopping centre a public transport tunnel and bus station was provided below the centre.

#### 5.3.2 Public Transport Information

Typically public transport information is most accessible to those who already use public transport services and there is a need generally to extend this knowledge within the community. Many people who do not use public transport have little awareness of where to find information about services.

Public transport information is available in hard copy, on the internet and by phone (131 500), however, there is considerable scope for improvements in the presentation and delivery of the information. This is an area Council can progress.

Good, legible public transport information is an important aspect of encouraging use of bus and rail services. Delivery of that information to households, placement in shopping centres, on bus and rail services and general promotion is also very important.

It is recommended that Council bring all bus and rail information together in a single booklet, supported by individual timetables if required.

This will increase the accessibility of information and awareness of services available. A good example of local public transport information booklet for Illawarra is attached in **Appendix B**. The development of a spider diagram showing all public transport routes for the area should also be explored.

The opening of the new Epping to Chatswood Rail link in mid-2008 with the corresponding changes to the bus network will provide an excellent opportunity to launch a new public transport information initiative.

This action will support actions identified within the Travel Demand Management and Educational Strategies Action Plan (below).

### 5.3.3 Demand Responsive Transport / Personal Public Transport

Analysis of bus services has shown that bus services in the Ryde area are considerably reduced in the evening and at weekends. Typically demand is low during these times and issues such as perceptions of poor personal safety can further suppress demand. Demand Responsive Transport (DRT) can provide an opportunity to deliver improved public transport services during these off peak periods. DRT has, in some parts of the UK, developed public transport demand to levels where traditional fixed route services have been reintroduced.

DRT is an innovative form of public transport that delivers a flexible, user oriented bus service. Typically DRT uses small vehicles, such as mini buses, in order to access smaller streets and cover a wider geographical area. Potential customers book their journey through a dedicated call centre in advance and this information is then passed on to the vehicle so that the customer can be picked up at their chosen location, allowing them greater flexibility in travel choice.

DRT can be run in a number of ways depending on the specific requirements of Council and intended customers. One suggestion is to have individual house pick ups in residential areas but to have dedicated pick up points at main destinations, e.g. hospital entrances, existing bus stop in a town centre, hotel entrance etc.

Willoughby Council has launched a DRT project called CouncilCab. This project is a good example of how councils can respond to demand for public transport in their

area. This project uses taxis to provide DRT during the week from 10am to 4pm. This is an off peak period for taxis so the scheme is mutually beneficial. More detail on the Willoughby CouncilCab project is attached in **Appendix C**.

The opportunity to use community transport vehicles for DRT at weekends and in the evening in Ryde should be explored. This would be a mutually beneficial arrangement as this is an off peak time for community transport and would provide revenue for them.

It is recommended that CoR develop a program similar to Willoughby's CouncilCab and extend the service to evenings and weekends through the use of taxis and community buses.

It is recommended that CoR seek to work with venues that are attractive to younger people to provide safe after hours transport options.

The ice skating rink and cinema at the Macquarie Centre are two such possible venues. In this way CoR can proactively encourage public transport use and reduce the need for parents to make car trips to pick up their children. Extending this type of scheme to hotels and clubs in the Ryde area will also seek to reduce the potential for drink driving by offering patrons a safe alternative to driving.

Following the bus service review, Council should consider any gaps in the public transport network, resulting from low demand, with the view to operating fixed route maxi cab services (similar to those operating in Brisbane).

## 5.3.4 Taxis

Taxi's compliment other forms of available public transport, and complete the full suite of available alternative transport options. Taxis can decrease the need for car parking and offer a quick and convenient form of transport for people, particularly those who are mobility impaired or elderly.

Taxis can help to fill the gaps in the traditional public transport market by serving members of the community for whom buses and train are difficult to use or in areas poorly served by public transport

Taxis in Sydney are licensed to operate anywhere within the metropolitan area, so drivers are free to work wherever they prefer throughout Sydney. Therefore the availability of Taxis is significantly affected by the attractiveness of an area to taxi drivers. Factors that affect the attractiveness of a location, and therefore the availability of taxi services, include:

- The availability of taxi rank spaces;
- The availability of legal pick-up and drop-off locations;
- Anticipated demand for taxi services;
- Traffic congestion; and,
- Ease of access.

Council is able to influence each of these factors to an extent, and therefore the level of taxi services in the LGA.

It is recommended that CoR undertake a review of how taxis are provided for within the LGA, in particular considering:

- The application of parking controls in a manner that facilitates taxi provision;
- The provision of taxi-ranks and legal drop-off and pick-up locations, particular at shopping centres, town centres, railway stations and major commercial buildings; and,

 The use planning provisions for new trip-generating developments to ensure taxi access is provided for.

The provision of legal pick up and set down areas in Ryde should be explored with the RTA and NSW Taxi Council. These areas do not necessarily have to be taxi ranks, a solution could be similar to that used in Sydney CBD, where taxis are allowed to stop for 1 minute in no stopping zones to set down/pick up passengers.

5.3.5 Bus Infrastructure

The quality of bus infrastructure is an important factor in encouraging people to travel by bus. Bus stops should be accessible and attractive to all members of the community including those with mobility constraints, travelling with young children or shopping.

At a minimum a bus stop should include:

- Pole and flag;
- Hard surface access and waiting area;
- Footpaths connecting to a footpath network and road crossings as appropriate;
- Information on bus services servicing the stop;
- Shelter;
- Seating; and,
- Lighting at the bus stop and approaching it.

The provision of accessible bus stops is particularly important with regard to the requirements of the Disability Standards for Accessible Public Transport 2002. An outline design guide on the design of accessible bus stops is attached in **Appendix D**.

It is recommended that CoR audit all bus stops within the LGA and develop a plan to make all stops accessible.

It is likely the implementation plan will be influenced by:

- Available funding;
- Needs of specific users; and,
- Routes where accessible vehicles are operated.

This action links with the development of partnerships above.

## 5.3.6 Train Station Infrastructure

Train station infrastructure and facilities are an important factor in people's decision to travel by train. During the development of the ITLUS the facilities at the existing train stations in Ryde were analysed. At a minimum all train stations in the Ryde area should have:

- Wheelchair access;
- Bicycle parking (including stands and lockers);
- Bus stop close by;
- Taxi rank; and,
- Kiss and ride bays.

It should be a short term aim for Council to ensure that all train stations have the facilities outlined above.

It is recommended that Ryde develop an implementation plan to upgrade station facilities in consultation with CityRail.

Given the need to upgrade existing and implement new facilities on rail land and within areas under Council control, a partnership approach will be required.

5.3.7 Lobby for Improved Public Transport Services

Council does not have a direct role in the provision of public transport services. However, Council is ideally placed to work with operators and State Government agencies (particularly MoT) to promote improved services. Council can facilitate communication between transport operators to improve and increase services, making interchange easier.

Council should lobby for the following transport improvements in particular:

Ferry

Increased frequency of ferry services to Meadowbank wharf to service the expanding residential population there. There are currently 7 services to the city in the AM peak period (0700 - 1000) and 5 services from the city during the PM peak period (1600 - 1900). Sydney Ferries have found that they can not economically justify providing increased peak hour services to Meadowbank.

It is recommended that Council lobby for increased peak period services to a 15 minute frequency to the city during the AM peak and from the city in the PM peak period.

It is understood that there are a variety of constraints in providing ferry services to Parramatta. However, Council should encourage debate on this subject with a view to resolving existing issues. Parramatta is identified as a regional City in the Metropolitan Strategy and as such transport links between Ryde and Parramatta are important.

### Buses

Analysis carried out during the development of the ITLUS has shown that Ryde is well serviced by buses during peak periods, however during evenings and at weekends service levels become significantly lower.

It is generally accepted that pedestrians will walk approximately 400m to a bus stop. Accessibility mapping showing a 400m buffer around bus routes in Ryde has been developed for weekday and Sunday services, see **Figures 5.1 and 5.2** respectively. **Figure 5.1** shows that, during the week, practically the whole LGA area is within walking distance of a bus route with the exception of Denistone, which has a train station, and a small section of East Ryde. However as can be seen in **Figure 5.2**, on Sundays there are reduced bus services. On Sundays a large area Meadowbank and East Ryde are not serviced by buses.

Due to the future opening of the Epping to Chatswood Rail Line and the awarding of a new bus contract for the area bus routes in the area will change over the next year or so. Council can influence these changes through the regional planning forum organised by MoT for consultation on new bus contract areas.

It is recommended that Council lobby for new services to the new railway stations in Ryde and in particular to Epping Station.

Epping is the closest major transport interchange to Ryde and will provide the best variety of both bus and train routes for Ryde residents. Therefore it is recommended that Epping becomes the focus to ensure that Ryde residents are linked to one of Sydney's major transport interchanges.

The lack of existing public transport in the Hills district / Kellyville area increases the level of commuter parking and through traffic in Ryde. Council should lobby for direct bus routes from these areas to Epping to link to the new Epping to Chatswood Rail line. Commuter parking and feeder buses at the start of these newly established bus routes should also be lobbied for.

Increased frequency of bus routes during the evening and at weekends should also be sought. Bus services at Meadowbank are particularly poor at the weekend and in the evening. As Meadowbank is a developing residential area additional services during these periods should be lobbied for. This is particularly important to ensure that the land use and transport planning in growing areas is integrated.

Council should also advocate for a greater number of accessible (low floor) buses (all Victoria Road based services are already accessible). This could be done through both lobbying and a partnership approach as outlined above.

The RTA and MoT should also be lobbied to ensure the timely implementation of the following strategic bus routes planned for the area:

- Castle Hill City (via Macquarie);
- Hornsby Macquarie;
- Parramatta City (via Macquarie);
- Parramatta City (via Macquarie);
- Macquarie City (via Chatswood); and,
- Burwood Macquarie.

Particular emphasis should be placed on the Burwood to Macquarie route due to the congestion and space constraints currently experienced on this corridor.

### Rail

The North Western Rail Line is scheduled, in the Metropolitan Strategy, for completion by 2017. Council should lobby to bring the opening of this rail line forward. This could be done in conjunction with other local Councils as it will have a positive impact on the whole of the north western region.

Budgetary constraints and perceived inadequate passenger demand led the Government to abandon plans to provide a rail link from Parramatta to Epping and only proceed with the Epping to Chatswood section of the planned link. Parramatta is identified as a regional City in the Metropolitan Strategy and as such transport links to Parramatta are crucial. Council should lobby for the resurrection of the Epping to Parramatta Rail Link.

### 5.3.8 Action Plan Summary

The Action Plan, including stakeholders, timescales, and likely costs to CoR, is summarised in **Table 5.1**.



## Figure 5.1: Pedestrian Accessibility – Weekday Bus Routes



## Figure 5.2: Pedestrian Accessibility – Sunday Bus Routes

Table 5.1: Public Transport, Community	Transport,	Personal Publi	c Transport and	l Taxis
Actions Plan (A1) - Summarv				

Action	Primary Stakeholders	Secondary Stakeholders	Timescale	Cost to CoR
Mutually Beneficial Partnerships	CoR, STA, Sydney Ferries, CityRail, Developers	RTA, MoT, community	Short Term (Pilot project)	Low
			Medium - Long Term	
Public Transport Information	CoR, Community.	STA, Sydney Ferries, CityRail	Short Term	Low
Demand Responsive Transport	CoR, Community.	MoT, STA, Community Transport, Taxi operators	Short Term	Medium
Taxis	CoR, Taxi Council	RTA, community	Short Term	Medium
Bus Infrastructure	CoR, STA	RTA, MoT	Short – Medium Term	Low - High
Train Station Infrastructure	CoR, CityRail		Short Term	Low - High
Lobby for improved Public Transport Services				Low
Increase Meadowbank ferry frequencies	CoR, Sydney Ferries	Community	Short Term	
Provide ferry services to Parramatta	CoR, Sydney Ferries	Community	Medium Term	
Epping bus services	CoR, STA, MoT	RTA, CityRail, Community	Short Term	
Hills District bus services	CoR, Hills Bus, MoT	RTA, CityRail, Community	Short Term	
Increased off peak frequencies	CoR, STA, MoT	Community	Short Term	
Accessible buses	CoR, STA, MoT	Community	Short Term	
Strategic Bus Routes	CoR, STA, MoT, RTA	Community	Short – Medium Term	

## 6 Walking and Cycling Action Plan (A2)

## 6.1 Introduction

Walking and cycling have a valuable role to play in any integrated transport and land use strategy. Walking and cycling are accessible to a large proportion of the community and have minimal environmental impacts and positive social benefits. A pleasant walking and cycling environment needs to be provided to encourage people to use these modes. Encouraging an increased uptake of walking and cycling has positive health and environmental benefits and through reducing trip lengths people support local businesses and services within their community.

## 6.2 Objectives

The Walking and Cycling Action Plan (A2) objectives are:

- To widely promote the benefits of walking and cycling within Ryde;
- To increase the mode share of walking and cycling;
- To make streets and roads safe and conducive to walking and cycling;
- To integrate the needs of pedestrians and cyclists into all new developments and to ensure new developments are permeable for pedestrians and cyclists;
- To ensure that the recommendations of the Ryde Bike Plan currently under review are taken forward to implementation, reviewed periodically and revised as necessary; and,
- To develop a Pedestrian Access and Mobility Plan (PAMP) for the City of Ryde.

Actions and Outcomes are outlined in detail in **Section 6.3**. The Action Plan, including stakeholders, timescales, and likely costs to CoR, is summarised in **Table 6.1**.

## 6.3 Actions and Outcomes

### 6.3.1 Improved Safety at Pedestrian Crossings

In order to improve safety at signalised intersections and reduce conflict, it is recommended that the following facilities are provided at every signalised intersection:

- Separate pedestrian phasing i.e. no shared green time between pedestrians and vehicles;
- Pedestrian crossings on all arms of the intersection (not just on three arms as currently occurs); and
- Drop kerbs designed correctly and the full width of the crossing.

Given the level of pedestrian accidents at signalised intersections in Ryde it is recommended that these measures are provided as a priority. Council should provide these treatments at all signalised intersections under their control and lobby the RTA as a priority to provide these treatments at all signalised intersections on arterial roads.

Given the number of accidents which have recently occurred around schools and involving school children, flashing lights should be installed at zebra crossings and in school zones to increase driver awareness. The RTA is currently trialling such lights, and will subsequently make recommendations based on the outcomes. High friction surfacing (50m in length) on approach to a zebra crossing or in school zones should also be considered to improve visibility of the crossing and reduce skidding accidents in these areas.

## 6.3.2 Walking and Cycling Treatments

A number of generic treatments can be applied in the local area by CoR to make the Ryde LGA safer and more conducive to walking and cycling. These and other cycling treatments would be discussed at the Ryde Council Bicycle Users Group prior to possible implementation. These treatments are outlined briefly below.

- Drop kerbs / Pram ramps: A drop kerb or pram ramp provides a smooth change in level between the footpath and the road pavement. Drop kerbs are particularly important for pedestrians with mobility disabilities, especially wheelchair users, and parents with prams.
- Pedestrian refuges: Pedestrian refuges can provide a safe haven for pedestrians trying to cross wide and busy roads.
- Tactile paving: Tactile paving is an important indicator for people with impaired vision of the presence of a major crossing point or obstruction.
- Storage boxes: Cyclist are vulnerable at intersections, storage boxes allow cyclists to position themselves in front of queuing traffic at intersections making them more conspicuous and allowing them to negotiate the intersection quickly.

It is recommended that CoR adopt consistent design guidelines for the range of treatments that support walking and cycling.

### 6.3.3 Accessibility Mapping

Accessibility mapping for walking and cycling catchments has been undertaken. This accessibility mapping exercise will help to identify the areas in the LGA where improvements to walking and cycling facilities should be focused. There are different accepted distances for walking and cycling as a single mode and as a mode to access public transport. Therefore separate accessibility maps have been developed for walking and cycling as a single mode and as a mode to access public transport.

### Pedestrian and Cycle Accessibility to Major Attractors

It is generally accepted that a distance of up to 4km for walking and 10km for cycling is considered a reasonable distance to travel to reach a destination by walking or cycling only.

As shown in **Figure 6.1** a 4km radius around major destinations such as town centres and educational facilities in Ryde covers the whole LGA; 2km and 1km catchment areas have also been mapped. The RTA document *'How to Prepare a Pedestrian Access and Mobility Plan'* suggests that the improvement and development of pedestrian facilities should be concentrated in a 1.5 to 2km radius from pedestrian concentrations, such as town centres. This document suggests that the 4km pedestrian radius be applied to recreational walkers.

It is recommended that initially the consistent improvement of pedestrian facilities within a 1km radius of major destinations, as shown in **Figure 6.1**, is the focus for CoR.

In the medium term this can be extended to a 2km radius of major destinations.

With regard to cycling the 10 km radius referred to above covers the whole LGA and beyond. The current review of the Ryde Bicycle Strategy will look at new routes and improvements to existing routes in the area. An important focus of the strategy should be to link major generators and attractors and provide trip end facilities at major destinations.

### Pedestrian and Cycle Accessibility to Public Transport

It is generally accepted that a pedestrian will walk approximately 400m to a bus stop and 800m to a train station. **Figures 5.1 and 5.2** show 400m catchments around bus routes and **Figure 6.1** shows 800m catchments around train stations.

**Figure 5.1** shows that practically the whole LGA area is within walking distance of a bus route with the exception of Denistone (which has a train station) and a small section of East Ryde.

It is recommended to ensure ease of access to bus transport that the condition of bus stops in the area is concentrated on.

An outline design guide on the design of accessible bus stops is contained in **Appendix D**.








**Figure 6.2** shows that the existing and proposed train stations in Ryde are accessible by walking alone by a relatively small area of the LGA. Pedestrians within this catchment area should be well catered for. An obvious barrier to walking to train stations, particularly to the new stations at Macquarie Park, is crossing arterial roads. The catchment area for the train stations in the area would be reduced if the distance to pedestrian crossings on arterial routes was taken into account.

Focus should be on pedestrian facilities in the 800m catchment areas around train stations. Pedestrian treatments as outlined above should be developed to encourage pedestrian access to the stations. These treatments could also be used to improve crossing opportunities on arterial roads in the vicinity of stations.

Cycle links to train stations, together with trip end facilities should be a major focus of the cycle strategy currently under review. Denistone Station currently has cycle lanes adjacent to it but no cycle parking facilities; this should be addressed in the short term particularly as this area is less well served by buses than the rest of the LGA.

## 6.3.4 Accessibility Audits

Accessibility audits should be carried out in existing areas where there is a history of pedestrian or cyclist accidents or where community complaints have been received.

It is recommended that all proposed new developments undergo an accessibility audit as part of the DA process to ensure that any new development is fully and safely accessible and permeable for all users and that appropriate pedestrian and cyclist facilities are provided.

Accessibility audits should be carried out by an accredited road safety auditor with experience in the design/planning of pedestrian and cycle facilities. An important element of the audit is to ensure that the area being audited is accessible from / to surrounding public transport facilities.

Example pedestrian and cyclist audit check lists are outlined in Austroads Guide to Traffic Engineering Practice Part 13 and Part 14, however it should be noted that these checklists and any checklists are not exhaustive and should not be used as merely a 'ticking off' exercise. Pedestrian and cyclist audits are also referred to in Austroads Road Safety Audit guidelines. This document emphasises the need for specialist audits, such as accessibility audits, to be carried out from the point of view of the user.

## 6.3.5 Pedestrian Access and Mobility Management Plan (PAMP)

A number of pedestrian issues have been identified through the development of the ITLUS. These issues need to be addressed in a holistic and consistent manner throughout the entire LGA.

It is recommended that local Pedestrian Access and Mobility Plans (PAMP) are prepared for centres within the Ryde LGA, on a centre by centre basis.

A PAMP is a comprehensive strategic and action plan to develop pedestrian policies and build pedestrian facilities. PAMPs aim to co-ordinate investment in safe convenient and connected pedestrian routes.<sup>4</sup> An important element of the PAMP is to co-ordinate with other plans being developed by the City of Ryde such as the cycle strategy.

A PAMP will not only address the issues identified in the development of the ITLUS, including safety issues, but will also encourage the take up of walking.

<sup>&</sup>lt;sup>4</sup> How to Prepare a Pedestrian Access and Mobility Plan, RTA 2002

A project brief for the preparation of a PAMP has been prepared and is attached in **Appendix E.** 

6.3.6 Accident Analysis

During the development of the ITLUS pedestrian and cyclist accidents were mapped for a five year period (2000 – 2004) as shown in **Figures 6.3 and 6.4** respectively.

It can be seen in **Figure 6.3** that there a number of pedestrian accident clusters in Ryde at the following locations:

- Devlin Street / Lane Cove Road;
- Devlin Street / Blaxland Road; and
- West Ryde / Station Street.

An accident cluster is also shown on Herring Road near Macquarie shopping centre. However a signalised pedestrian crossing has recently been provided at this location.

As part of the redevelopment of Ryde Town Centre a pedestrian overbridge is proposed over Devlin Street in the vicinity of the civic offices and shopping centre. This treatment may not necessarily be the best solution as the merits of grade separation are unclear. Grade separated crossings have generally poor patronage on roads where traffic is interrupted by traffic signals which is the case on Devlin Street<sup>5</sup>.

A hotel is located in the vicinity of the West Ryde / Station Street accident cluster which may contribute to the accidents at that location.

There are also groups of linear pedestrian accidents on arterial roads in the area, particularly on Epping Road and Victoria Road. Three fatal pedestrian accidents occurred on Epping Road over the five year study period. With the opening of the Lane Cove tunnel pedestrian and cycle improvements are planned on Epping Road. These improvements may go some way to improving the pedestrian situation on Epping Road.

As part of the PAMP proposed to be developed for centres in Ryde, the occurrence of accident clusters should be analysed in detail and remedial treatments implemented.

The pedestrian treatment examples outlined in **Appendix D** should also be considered as mitigating measures.

**Figure 6.4** shows the accidents involving cyclists over the five year period. As can be seen a number of accidents occur at signalised intersections especially on arterial roads. Storage boxes as referred to in **Appendix D** should be provided to increase the safety of cyclists at intersections.

6.3.7 Action Plan Summary

The Action Plan, including stakeholders, timescales, and likely costs to CoR, is summarised in **Table 6.1**.

<sup>&</sup>lt;sup>5</sup> AustRoads Guide to Traffic Engineering Practice, Part 13 - Pedestrians









## Table 6.1: Walking and Cycling Action Plan (A2) – Summary

Action	Primary Stakeholders	Secondary Stakeholders	Timescale	Cost to CoR
Improved Safety a Pedestrian Crossings	t CoR, RTA	Community	Short Term	Medium
Walking and Cycling Treatments	CoR, RTA	Community	Short – Medium Term	Low – High
Accessibility Mapping	CoR,	STA, CityRail, Sydney Ferries	Short – Medium Term	Medium
Accessibility Audits	CoR, RTA, developers	Community, STA, CityRail, Sydney Ferries	Short Term (existing areas) Ongoing (DA approvals)	\$3,000 per site*
PAMP	CoR, RTA	Community, STA, CityRail, Sydney Ferries	Short Term	Medium
Accident Analysis	CoR, RTA	Community, STA	Short term	Medium - High

\* Accessibility audits requested as part of the DA process will be supplied by the applicant.

## 7 Road Management Action Plan (A3)

## 7.1 Introduction

The road network in Ryde consists of a large number of arterial routes as well as collector and local roads. One of Sydney's main motorways, M2, is situated in the north of the LGA.

This mix of arterial routes and local roads, together with local amenities, results in a number of conflicting roles for the road network within Ryde which has to be balanced. On the one had arterial routes have to move strategic traffic through Sydney while still allowing access and amenity for the local community.

## 7.2 Objectives

The Road Management Action Plan objectives are:

- To reduce the impact of arterial roads on activity centres and on residential areas;
- To reduce the barrier effect of arterial routes;
- To effect a reduction in the number of accidents occurring in the City of Ryde and improve overall safety for all road users;
- Increase bus priority on main roads with a positive result on bus travel times and reliability; and,
- Reduce vehicle speeds in residential areas.

Actions and Outcomes are outlined in detail in **Section 7.3**. The Action Plan, including stakeholders, timescales, and likely costs to CoR, is summarised in **Table 7.1**.

## 7.3 Actions and Outcomes

7.3.1 Improvements on Arterial Roads

The RTA has plans to change or make improvements to some arterial roads in the Ryde area.

## Space Reallocation on Epping Road

The Lane Cove Tunnel opened in 2006. As part of the tunnel works, modifications to Epping Road to provide improved facilities for cyclists, pedestrians and public transport are planned. It is vital that these planned changes in road space reallocation are actually provided when the tunnel opens. Recent planned changes to road space reallocation planned as part of the Cross City Tunnel works were removed due to public controversy. This situation should not be allowed to occur with the Lane Cove Tunnel.

## Pedestrian Crossing on Epping Road at Lyonpark Road

There have been discussions regarding the provision of a pedestrian crossing on Epping Road in the vicinity of Lyonpark Road after the opening of the Lane Cove Tunnel. The provision of this crossing should be lobbied for as a priority especially considering the pedestrian accident history in this area which involved a fatality. A pedestrian crossing in this location would also increase pedestrian access to the Macquarie Park business area and new train stations.

## Improvements to Lane Cove Road between M2 and Epping Road

Discussions are ongoing between the RTA and Council regarding improvements to Lane Cove Road between the M2 and Epping Road. The introduction of a right turning slip road from Talavera Road north into Talavera Road West is being proposed. This improvement should be lobbied for in the near future. Any improvements in this area should improve the situation for pedestrian and cyclists as well as vehicles, especially considering its proximity to the new Macquarie Park train station.

## Potential New M2 Slip Lanes

There is potential to provide on-ramps at Christie Road and Lane Cove Road and an off-ramp at Lane Cove Road, in order to improve traffic access to and from Macquarie Park. These are discussed further in the **Macquarie Park Centre Report**.

The RTA may consider these potential ramps in the future, however the impact on the M2, Lane Cove Tunnel and surrounding arterial road network would have to carefully considered by RTA and Transurban (the motorway operator) and supported by modelling.

## M2 – F3 Link

The M2 – F3 link is the only missing link in the C ring road network around Sydney. In July 2003 the Federal Government announced the completion of a preliminary assessment of corridor options. The report identified three broad corridors and four route options for the link. The new link would enable motorists to travel directly between the Central Coast and West Sydney. It is anticipated that this will take freight traffic off other arterial routes and local streets and improve the amenity of local communities including Ryde.

The M2 – F3 link is not included in the Metropolitan Strategy as it is a Federal project. There is currently no definite funding or time scale available for the link. Council, in conjunction with other councils in the area, should lobby for the implementation of this link.

## Improved Safety at Pedestrian Crossings

As outlined above in the walking and cycling action plan, given the level of pedestrian accidents at signalised intersections on arterial roads, the RTA should be lobbied as a priority to provide the following at signalised intersections on arterial roads:

- Separate pedestrian phasing i.e. no shared green time between pedestrians and vehicles; and,
- Drop kerbs designed correctly and the full width of the crossing.

The RTA should also be lobbied to:

- Install pedestrian count down displays (discussed above) at all busy intersections, particularly those with pedestrian accident history;
- Install flashing lights at all school zones to increase driver awareness; and,
- Provide high friction surfacing (50m in length) on approach to school zones.

## Walking and Cycling Treatments

As discussed above in the walking and cycling action plan there are a number of locations on arterial roads that cause problems for pedestrian and cyclists. A number of improvements could be used to improve safety at these locations including: Drop

kerbs; pedestrian refuges; kerb extensions and storage boxes. Outline design guides on a number of these treatments are attached in **Appendix D.** 

On arterial roads in the area there appears to be a trend towards grade separated pedestrian crossings. An overbridge on Epping Road in the vicinity of Delhi Road is currently being constructed; there is an existing overbridge on Epping Road east of Lyonpark Road and an overbridge on Devlin Street is proposed as part of the Top Ryde redevelopment. Grade separated pedestrian crossing may not necessarily be the best solution as these crossings have generally poor patronage on roads where traffic is interrupted by traffic signals which is the case on Devlin Street and Epping Road<sup>6</sup>.

As part of this action it is recommended that Council to ensure the following are completed or lobby for their development:

- Review the demand for pedestrian crossings on arterial roads and the relationship with accident clusters;
- Lobby for the provision of a pedestrian crossing on Epping Road in the vicinity of Lyonpark Road (This intersection is likely to be signalised in the futute);
- Maintain talks with the RTA with regard to improvements to the Lane Cove Road / Talavera Road intersection;
- Lobby Federal and State Government for the provision of the M2 F3 road link;
- Provide pedestrian only phases and pedestrian crosses on all arms at signalised intersections; and,
- Provide treatments on arterial roads to improve safety for pedestrians and cyclists.
- 7.3.2 Improvements on Council Roads

A number of improvements on Council roads can be actioned by Council.

## *LATM*s

Due to the high percentage of through traffic using Ryde the use of local streets as rat runs should be discouraged. Any problem areas should be identified and Local Area Traffic Management Plans (LATMs) should be developed for these areas. As part of the Lane Cove Tunnel Works an LATM will be developed for Wicks Road, Badajoz Road and Pittwater Road. It is vital that this LATM is developed as there is already a high percentage of through traffic using Ryde. The level of traffic on local roads through out Ryde road should be monitored and reviewed after the opening of the Lane Cove Tunnel to ensure that no adverse effects on local roads are experienced.

All road users should be considered when developing LATM proposals. Roundabouts are commonly implemented as part of LATM measures, however, they are problematic for pedestrians and cyclists. Roundabouts can also be difficult for buses to negotiate and even if located on streets off the bus network, may preclude future public transport network changes and improvements.

## Improved Safety at Pedestrian Crossings

As outlined above in the walking and cycling action plan, given the level of pedestrian accidents at signalised intersections In Ryde, Council should as a priority provide the following at signalised intersections on council roads:

 Separate pedestrian phasing i.e. no shared green time between pedestrians and vehicles;

<sup>&</sup>lt;sup>6</sup> AustRoads Guide to Traffic Engineering Practice, Part 13 - Pedestrians

- Pedestrian crossings on all arms of the intersection (not just on three arms as currently occurs); and
- Drop kerbs designed correctly and the full width of the crossing.

Council should also consider providing the following:

- Pedestrian count down displays (discussed above) at all busy intersections, particularly those with pedestrian accident history;
- Set the maximum wait time for pedestrian at signals to 60 seconds;
- Flashing lights at all school zones to increase driver awareness; and,
- High friction surfacing (50m in length) on approach to school zones.

It is recommended that Council give serious consideration to providing these facilities as a priority.

If Council provide these facilities as a priority they will have a better case to lobby for these treatments to be provided by the RTA on arterial roads.

## Treatments for Walking and Cycling

To increase pedestrian safety and cycle safety, treatments as shown in **Appendix D** for drop kerbs, pedestrian refugees, kerb extensions and storage boxes should be also be applied to council roads.

#### Reallocation of Road Space

Where possible on Council roads space should be reallocated to pedestrians, cyclists and public transport. Reallocation of space will encourage people to get out of their cars and walk, cycle or use public transport.

7.3.3 Road Network Performance Standards

A road network performance target has been identified. This target has been developed to understand better the performance of the road network, especially from a congestion perspective. Congestion, and the economic costs associated with it, is becoming an increasingly important issue as Sydney's population continues to grow. Level of Service (LOS) targets are a common tool used in transport planning to prioritise traffic proposals.

The road network performance targets adopted as part of the ITLUS are:

- Maximum of Level of Service D for intersections; and,
- Maximum volume to Capacity (V/C) ratio of 1.0.

LOS D is the level where an intersection is operating close to capacity as reflected through time delay through an intersection. Level of Service E is heavily congested and Level of Service F is complete standstill conditions.

A VC ratio of 1.0 indicates that an intersection or road link is at capacity. A new or redesigned intersection would be designed to have a maximum V/C ratio of 0.85. The capacity on road links in urban areas is controlled by the intersections that link them.

Many intersections in Ryde currently exceed these targets. Level of Service ratings for intersections in Macquarie Park, Ryde, West Ryde and Meadowbank centres are summarised in **Appendix M**. Many studies have previously adopted the view that the best way to ease congestion is to develop traffic engineering solutions that increase the capacity of the road network. Unfortunately, history shows that these solutions only reduce congestion temporarily. In the longer term, they encourage increases in car use due to the initial improvement to car travel time relative to other modes.

Ryde need to identify intersections that are over capacity, however it should be noted that frequently intersections are only over capacity for a small period of time during

the AM and PM peak periods. This level of congestion is acceptable for vehicles for this relatively short period of day. However, this level of congestion is not acceptable for public transport users.

To ensure that improved intersections do not simply attract more traffic it is suggested that problem intersections are improved by providing increased bus priority within an expanded intersection or roadway, thereby improving bus travel times and encouraging a modal shift away from car use. This may then, in time, result in a physical reduction in the amount of cars through the intersection or roadway, which subsequently improves LOS and the V/C ratio.

7.3.4 Action Plan Summary

The Action Plan, including stakeholders, timescales, and likely costs to CoR, is summarised in **Table 7.1**.

## Table 7.1: Road Management Action Plan (A3) – Summary

Action	Primary Stakeholders	Secondary Stakeholders	Timescale	Cost
Improvements on Arterial Roads				
Space Reallocation on Epping Road	CoR, RTA	STA, Community	Short Term	Low
Pedestrian crossing – Epping Road / Lyonpark Road	CoR, RTA	Community	Short Term	
Lane Cove Road between M2 and Lane Cove Road	CoR, RTA	STA, Community	Short Term	
Potential New M2 Slip Lanes	CoR, RTA, TransUrban	Community	Long Term	
M2/F3 Link	CoR, State Government, Federal Government, RTA	Community	Long Term	
Improved safety at pedestrian crossings	CoR, RTA	Community	Short Term	
Walking and cycling treatments	CoR, RTA	Community	Short – Medium Term	
Improvements on Council Roads				
LATMs	CoR	STA, Community	Short Term	Medium - High
Improved safety at Pedestrian Crossings	CoR, RTA	Community	Short Term	
Walking and cycling treatments	CoR	STA, Community	Ongoing	
Reallocation of road space	CoR	STA, Community	Ongoing	
Road Network Performance Standards	CoR, RTA	STA, Community	Ongoing	Medium - High

# 8 Transport and Land Use Planning Action Plan (A4)

## 8.1 Introduction

Integrated land use and transport planning aims to balance land use development and transport provision. Integrated land use and transport will maximise accessibility to land uses and reduce the reliance on cars. This will not only promote increased use of public transport, walking and cycling but will protect the environment and improve air quality.

Parking is a critical part of an integrated transport system. It has a significant influence on car use in that, if parking is not available at the destination, car use is minimised. The aim of parking policy is to balance the supply of and demand for parking spaces with the objective of minimising additional traffic generation through restraining car use, while ensuring the economic viability of each centre / development is maintained. Parking is discussed in detail in **Section 9**.

## 8.2 Objectives

The Transport and Lane Use Planning Action Plan objectives are:

- Increased land use densities around transport nodes to allow a more effective use of public transport;
- Increased use of mixed land uses especially around transport nodes;
- Developments that support walking, cycling and public transport use through the mix of land uses, permeable, legible and accessible street networks and good public transport accessibility; and,
- Management of parking to discourage long stay commuter parking, particularly in public transport accessible locations.

Actions and Outcomes are outlined in detail in **Section 8.3**. The Action Plan, including stakeholders, timescales, and likely costs to CoR, is summarised in **Table 8.1**.

## 8.3 Actions and Outcomes

## 8.3.1 Public Transport Accessibility Levels (PTALs)

A PTAL is a measure of public transport accessibility<sup>7</sup>, reflecting:

- Access time (by walking) from the point of interest to public transport service access points (SAP), such as bus stops, rail station within a catchment area;
- The number of different services operating at the SAP; and,
- Level of service (average waiting time) with an adjustment for the relative reliability of the mode.

<sup>&</sup>lt;sup>7</sup> Definition from, London Travel Report, TfL (2005)

These components are used to calculate a public transport accessibility index that is then allocated into bands from 1 to 6, where 1 indicates very poor accessibility and 6 indicates excellent levels of accessibility.

Within London (UK) the PTAL is used as a development planning tool to determine permitted parking standards and development densities. Parramatta City Council has based their emerging Residential Development Strategy on PTALs. It is anticipated that a future land use and parking strategy based on PTALs would result in:

- An ability to direct future residential and commercial development to the most accessible locations within Ryde, resulting in increased density in these locations;
- A basis for reducing parking required at new developments where public transport accessibility is high and thereby encouraging mode shift through targeted demand management; and,
- An opportunity to reflect the relative accessibility of centres through on street parking management, including the introduction of paid parking at locations most accessible by public transport.

In order to provide a sound basis for future land use and parking policy based on public transport accessibility it is recommended that CoR undertake a PTAL analysis and mapping exercise.

A brief for a PTAL analysis and mapping study covering Ryde LGA is included in **Appendix J**.

The PTAL analysis will act as a basis for a range of transport planning and land use decision making, including the setting of parking standards in accordance with accessibility. It is expected that the identified *transport and land use zones* will demonstrate relatively good levels of accessibility to support increased levels of activity in these zones.

8.3.2 Mixed Land Use Development

Mixed land use development supports walking and reduces the need for car travel through the co-location of services and residences. As commercial land uses and residential areas tend to generate activity at different times of the day and on different days of the week, mixed land use areas can result in more active streets and greater levels of passive surveillance, improving perceptions of safety.

Co-located residential and commercial developments can also provide greater demand and therefore support for public transport which can result in improved service levels, making public transport more attractive. Residents and employees will generate trips in both the peak and counter peak directions and residents will require a greater level of evening and weekend services. Providing a mix of land uses around transport nodes ensures that the maximum use of the transport node is achieved. If only one land use type is provided this creates a tidal flow in one direction during peak periods.

For example the new stations in Macquarie Park will service commercial and educational land uses only. This will result in a tidal flow with arrivals into the area in the morning and departures from the area in the afternoon peak periods. If mixed land use was developed around the stations residential occupants would balance out the directional demand at the stations. This will ensure that maximum use of public transport is used in both directions in the morning and evening peak periods.

The domination of a single land use in Macquarie Park results in a desolated area after 6pm during the week and at weekend. This is not a very attractive place for shift

or after hours working. A more mixed use land use would provide a more pleasant and well used environment. Newsagents, dry cleaners and other local service providers will be more easily attracted to a mixed used environment, providing a better outcome for all those working and living in the area.

It is recommended that CoR place a focus on mixed use development within the context of a PTAL defined land use development strategy.

## 8.3.3 Cycle Parking and Facilities

The provision of cycle parking and facilities at destinations and residential buildings is a key factor in encouraging cycle use. Shower and change facilities can also encourage employees to exercise more, including running or walking to and from work and exercising at lunchtimes.

There are no accepted cycle parking and facility standards within NSW, however, an amendment to the Victorian Planning Scheme, Clause 52.34, sets out requirements for a range of land uses. Clause 52.34 is contained in **Appendix K**. Cycle use is generally higher in Metropolitan Melbourne than in Metropolitan Sydney due to the relatively level topography and the greater provision of cycle paths and lanes, in part facilitated by the Yarra River and creek network. If CoR adopt cycle parking and facilities standards based on Clause 52.34, it is considered that cycle facility provision will adequately meet local demand.

It is recommended that CoR adopt the standards set out in Clause 52.34 of the Victorian Planning Scheme for all new development within the Ryde LGA. It is further recommended that CoR review the cycle facilities standards on a regular basis to ensure they adequately meet local demand.

## 8.3.4 Street Networks

Street networks and block sizes are important in encouraging access and movement.

"Grid spacing of 80-100m provides an optimum network for pedestrian and vehicular needs in most circumstances. The size of resulting development blocks has to be checked against proposed uses and building types and adjusted to suit. In central areas with intensive pedestrian activity, grid spacing of 50-70m provides an optimum circulation network."<sup>8</sup>

Block sizes are also important to determining levels of access and pedestrian activity.

"In considering the optimum block size, a trade off has to be struck between:

- Ease of access;
- The ability to sustain a variety of building types and uses;
- The ability to change and adapt over time.

A useful rule of thumb is that block widths 0f 80-90m enable this trade off to be achieved in a variety of different urban locations and circumstances, reducing to 60-80, in town/city centres."<sup>9</sup>

Streets that are straight and aligned with major routes assist in wayfinding. The orientation of streets with existing landmarks and the creation of new landmarks and views also assists in creating a legible urban space. Straight streets and small block sizes create an accessible urban framework. Curvilinear street networks are difficult to follow and frequently inefficient in terms of travel distance versus actual 'as the

<sup>&</sup>lt;sup>8</sup> Urban Design Compendium, English Partnerships & The Housing Corporation <sup>9</sup> Ibid.

crow flies' distance. As a pedestrian, an extra 100m can make a bus stop or local store inaccessible.

To support the objectives of the ITLUS and this action plan, it is recommended that CoR define acceptable street networks based on block size and accessibility, recognising:

- Smaller block sizes promote walking and street based pedestrian activity;
- Straight streets and grid street patterns promote legibility and way finding for pedestrians and cyclists; and
- Public transport (buses) has certain requirements in terms of street widths and turning circles and these should be accommodated to facilitate future public transport access.

Again the PTAL analysis outcomes can be utilised to inform the recommendations on block sizes. Blocks should be at their smallest in the most accessible locations (PTAL 6), recognising and promoting increased pedestrian activity. Small block sizes in these locations will also support public transport services and therefore drive accessibility upwards.

## 8.3.5 Parking

Parking restraint is seen as a central component of travel demand management. Restricting the ability to park at the trip destination has an impact on the travel choices available including modes and destinations. Simply, if you cannot park at your intended destination you either choose to travel by an alternative mode, for example, public transport, or choose an alternative destination with parking.

**Draft SEPP No 66** identified and promotes the opportunity to manage the location, supply and availability of parking to discourage car use.

Although Draft SEPP No 66 was not adopted, it offers useful best practice guidance that is likely to form the basis the proposed new metropolitan-wide parking policy, when it is developed, including:

- Parking policies and codes are part of, and consistent with, broader transport and land use strategies and plans;
- Variable parking requirements and changes are applied, depending on public transport accessibility;
- Parking requirements are reduced in concentrated activity centres with good public transport access; and,
- Parking incentives, such as cheaper rates or reserved spaces, are provided for high occupancy vehicles, including car pools and community buses.

It is recommended that consideration be given to:

- Reducing parking requirements for development in areas with good public transport; and,
- The location and design of parking areas.

## 8.3.6 Action Plan Summary

The Action Plan, including stakeholders, timescales, and likely costs to CoR, is summarised in **Table 5.1**.

Parking is discussed in greater detail in **Section 9**.

## Table 8.1: Integrated Land Use Planning Action Plan (A4) - Summary

Action	Primary Stakeholders	Secondary Stakeholders	Timescale	Cost
PublicTransportAccessibilityLevels(PTALs)	CoR	STA, CityRail, MoT	Short Term	Low
Encourage Mixed Land Use Development	CoR	Developers, Community	Medium – Long Term	Low
Cycle Parking and Facilities	CoR	Developers	Shrot – Medium Term	Low
Street Networks	CoR	Community, Developers	Short Term	Low
Public Car Parking	CoR	Community	Short – Medium Term	Low
Private Car Parking	CoR	Developers	Short – Medium Term	Low
Motorcycle / Scooter Parking	CoR	Community	Short Term	Low

## 9 Parking Review (A4)

## 9.1 Introduction

This section discusses CoR's current parking policies for centres, and new residential and commercial developments, and how parking policy can support the objectives of the ITLUS.

Currently, CoR restricts or manages parking in its centres in a more or less restrictive or permissive way either to accommodate or to discourage parking. Given the competition between commercial and shopping centres, and the perception that parking should be available, it is sometimes difficult for one centre or one council to take a stand to contain parking in order to favour other modes than cars.

The *Transport* section of the Metropolitan Strategy proposed a Metropolitan Parking Policy. The aim is to develop and implement a metropolitan-wide parking policy that encourages the use of public transport to centres and to ensure a consistent approach across centres.

The Metropolitan Strategy recognises that availability and cost of car parking has significant impact on peoples' travel choices. Excess parking in locations with good public transport accessibility can undermine public transport use. Requirements for parking in areas close to good public transport can also place a cost burden on development that is not necessary.

The NSW Government will develop a new metropolitan-wide parking policy that supports the use of more sustainable parking modes. This policy will build on existing policy such as the *Improving Transport Choice Guidelines* in the Draft SEPP 66. This policy advocates reducing parking requirements for development in areas that have good existing public transport. It also ensures that parking does not detrimentally affect access by other modes. Any generation of traffic from development should be located within areas of good accessibility, however if this can not be achieved mechanisms that reduce parking levels should be adopted.

## 9.2 RTA Guidelines for Parking Provision

The New South Wales Road and Traffic Authority (RTA) provides guidelines for all developments, based upon surveys and research that they have undertaken. The RTA's Guide to Traffic Generating Developments states:

- Adequate provision of off-street parking discourages on-street parking, thereby maintaining the existing levels of service and safety of the road network; and,
- As adequate parking also contributes to the economic viability of a development.

The RTA recommends the following parking provisions for residential developments. All recommendations refer to a minimum number of spaces required:

Dwelling Type	RTA Standards - Minimum		
Dwelling houses	A minimum of 1 parking space (preferably two)		
	If there is dual occupancy on a residential lot, a minimum of two parking spaces is recommended		
Medium density residential flat (between 2 and 20 dwellings)	A minimum of 1 space for each unit, plus an additional 1 space per each 5 times 2 bedroom unit or part thereof		
	Additional 1 space per each 2 times 3 or more bedroom unit or part thereof		
	An additional one space per each five units for visitor parking		
High density residential flat buildings (20 or more dwellings)	Recommended minimum number of off-street resident parking spaces:		
Metropolitan Regional Centres (Centre Business	Metropolitan Regional (CBD) Centres:		
as well as access to rail and bus services and	0.4 spaces per 1 bedroom unit		
therefore may have less parking requirements	0.7 spaces per 2 bedroom unit		
	1.20 spaces per 3 bedroom unit		
	1 space per 7 units (visitor parking) Metropolitan Sub-Regional Centres: 0.6 spaces per 1 bedroom unit		
	0.9 spaces per 2 bedroom unit 1.40 spaces per 3 bedroom unit		
	1 space per 5 units (visitor parking)		
	1 visitor space for every 5 to 7 dwellings		
	Councils may wish to reduce this requirement for buildings located in close proximity to public transport, or where short term unit leasing is expected		

#### Table 9.1: RTA Parking Guidelines

It should be noted that the RTA Guidelines recommend less than 1 space per unit for 1 and 2 bedroom units within Metropolitan Regional Centres (Centre Business District), which are defined as areas that provide high levels of local employment as well as access to rail and bus services and therefore may have less parking requirements (e.g. Parramatta CBD).

## 9.3 Ryde Guidelines for Parking Provision for New Developments

Parking provision within Ryde is determined by:

- Ryde Planning Scheme Ordinance (whole of LGA);
- Development Control Plan 2006, Section 9.3 (including specific rates for Eastwood – 4.1. Meadowbank – 4.2, West Ryde – 4.3); and,
- Ryde LEP 137 and Draft DCP No. 55 (for Macquarie Park).

These are summarised in Table 9.2.

These Guidelines have been developed on the bases of the RTA Guidelines (discussed above), whilst also taking into account public transport accessibility (for centres with rail access) and the specific issues associated with Macquarie Park.

## Table 9.2: Summary of Current Off-Street Residential Parking Provision Rates

Land Use	Ryde Planning Scheme Ordinance	Ryde DCP 2006 Section 9.3 Car Parking	Ryde LEP No 137	Macquarie Park Draft DCP No 55 (currently being reviewed)	Ryde DCP 2006 Section 4.1 Eastwood Town Centre	Ryde DCP 2006 Section 4.3 West Ryde Urban Village	Ryde DCP 2006 Section 4.2 Meadowbank Employment Area	RTA Guidelines Rate
Location	Ryde	Ryde	Macquarie Park Corridor	Macquarie Park Corridor	Eastwood Town Centre	West Ryde Urban Village	Meadowbank Employment Area	NSW
Dwelling Houses	-	2 spaces per dwelling	-	In accordance with Ryde DCP 2006 Section 9.3	1 bed - 1 space 2 bed - 1.2 spaces 3 bed - 1.6 spaces	-	-	1 space per dwelling (preferably 2)
Apartments/Residential Flat Buildings								(Medium Density)
1 bed	1 space	1 space		In accordance with Ryde DCP 2006 Section 9.3	1 space	0.75 space	1 space	1 space
2 bed	-	-		In accordance with Ryde DCP 2006 Section 9.3	1.2 spaces	1 space	-	-
2 bed (within 400m of Victoria Rd, Epping Rd or Railway Line)	1.2 space per dwelling	1.2 space per dwelling	-	-	-	-	1.2 space per dwelling	1.2 space per dwelling
2 bed (beyond 400m of Victoria Rd, Epping Rd or Railway)	1.4 spaces per dwelling	1.4 spaces per dwelling	-	-	-	-	1.4 spaces per dwelling	1.4 spaces per dwelling
3 bed	-	-		In accordance with Ryde DCP 2006 Section 9.3	1.6 spaces	1.25 spaces	-	-
3 bed (within 400m of Victoria Rd, Epping Rd, or Railway Line)	1.6 spaces per dwelling	1.6 spaces per dwelling			-	-	1.5 paces per dwelling	1.6 spaces per dwelling
3 bed (beyond 400m of Victoria Rd, Epping Rd or Railway)	1.6 spaces per dwelling	1.6 spaces per dwelling	-	-	-	-	1.6 spaces per dwelling	-
Visitors	1 space per 4 dwellings	1 space per 4 dwellings	-	In accordance with Ryde DCP	1 space per 4 dwellings	1 space per 4 dwellings	1 space per 4 dwellings	-

Land Use	Ryde Planning Scheme Ordinance	Ryde DCP 2006 Section 9.3 Car Parking	Ryde LEP No 137	Macquarie Park Draft DCP No 55 (currently being reviewed)	Ryde DCP 2006 Section 4.1 Eastwood Town Centre	Ryde DCP 2006 Section 4.3 West Ryde Urban Village	Ryde DCP 2006 Section 4.2 Meadowbank Employment Area	RTA Guidelines Rate
Location	Ryde	Ryde	Macquarie Park Corridor	Macquarie Park Corridor	Eastwood Town Centre	West Ryde Urban Village	Meadowbank Employment Area	NSW
				2006 Section 9.3				
Offices	-	1 space per 30m <sup>2</sup>	Must not exceed the rate shown on the Ryde LEP No 137 – Macquarie Park – Parking Restrictions Map	In accordance with Ryde Planning Scheme. Developments can seek to apply the transitional rates**	Not more than 1 space per 46m <sup>2</sup>	-	1 space per 50m <sup>2</sup>	1 space per 40m <sup>2</sup>
Retail	-	1 space per 25m <sup>2</sup>	Must not exceed the rate shown on the Ryde LEP No 137 – Macquarie Park – Parking Restrictions Map	In accordance with Ryde Planning Scheme. Developments can seek to apply the transitional rates**	1 space per 25m <sup>2</sup>	-	1 space per 30m <sup>2</sup>	4.1 to 6.1 spaces per 100m <sup>2</sup>
Industry	-	1 space per 46m <sup>2</sup> or 1 space for every 2 employees (which ever is greater)	Must not exceed the rate shown on the Ryde LEP No 137 – Macquarie Park – Parking Restrictions Map	In accordance with Ryde Planning Scheme. Developments can seek to apply the transitional rates**	-	-	1 space per 60m <sup>2</sup> or 1 space per 3 employees – whichever is lesser	1.3 spaces per 100m <sup>2</sup>

\*\* The transitional parking rates given in the Table 10.3, provide for permanent parking to the maximum rate specified inn Ryde Planning Scheme plus additional temporary spaces that are capable of removal at a future specified date.

## Table 9.3: Provisional Parking Rates for Industrial and Commercial Activities from DCP No. 55

		FSR 2:1 and 3:1	FSR 1.5:1	FSR 1:1
Development Applications lodged prior	Permanent Spaces (maximum) 1 space / 80m <sup>2</sup>		1 space / 70m <sup>2</sup>	1 space / 46m <sup>2</sup>
	Temporary (maximum)	1 space / 110m <sup>2</sup> difference to rate of 1 space / 46 m <sup>2</sup>	1 space / 135 m <sup>2</sup> difference to rate of 1 space / 46 m <sup>2</sup>	Nil
Development Applications lodged	Permanent (maximum)	1 space / 80m <sup>2</sup>	1 space / 70m <sup>2</sup>	1 space / 46m <sup>2</sup>
2015	Temporary (maximum)	1 space / 240m <sup>2</sup> difference to rate of 1 space / 60m <sup>2</sup>	1 space / 420m <sup>2</sup> difference to rate of 1 space / 60m <sup>2</sup>	Nil

## 9.4 Off Street Parking Context

Off street parking is provided in Ryde's town centres by Council and the private sector. In all the centres, with the exception of Gladesville, privately provided parking exceeds Council car parking spaces. This clearly limits Council's control over public car parking in the town centres within Ryde.

Centre	Spaces
Eastwood (Total)	2,234
West Ryde (Total)	1,068
Ryde (Total)	1,211
Gladesville	163
Putney	69
Macquarie Centre	4,100

Source: Ryde Section 94 Contribution Plan

## 9.5: Council Provision of Public Parking within Ryde LGA town centres

Area	Location	Spaces
Eastwood	Glen Street Car Park	480
	Hillview Lane Car Park	52
	Rowe Street Car Park	44
West Ryde	Anthony Road Car Park	181
Ryde	Church Street Car Park	31
Gladesville	John Wilson Car Park	66
	Coulter Street Car Park	111
Putney	Charles Street Car Park	25

Source: Ryde Section 94 Contribution Plan

Generally all privately provided parking for the public is unrestricted, however, it is clear that the introduction of on street parking restrictions by Council is likely to have repercussions on private parking areas. The introduction of paid on street parking in Macquarie Park has recently had this impact on the Macquarie Centre which is now limiting parking use to centre customers, recognising that it's previously unrestricted parking provided plentiful space for local employees and University students.

## 9.5 On Street Parking Context

All town centres in Ryde provide on-street parking. However, in some areas time restrictions or other controls are in place. There is currently no formal record of where restrictions are in place, but a brief summary of on street parking restrictions in the main centres based on site observations is set out below:

- <u>West Ryde:</u> Clearway restrictions on Victoria Road in the morning and evening peak periods. Time restrictions on parking on West Parade in the vicinity of the station ranging from 5 minutes to 2 hours at certain times;
- <u>Ryde:</u> No stopping on Blaxland Road between Lane Cove Road and Tucker Street. No parking during varying times on Blaxland Road east of Tucker Street. Time restricted parking on Church Street ranging from ½ hour to 1 hour at certain times;
- <u>Eastwood:</u> Time restricted parking on West Parade and Railway Parade in the vicinity of the station ranging from ½ hour to 1 hour. Time restricted parking ranging from ½ hour to 1 hour at certain times is also in place on a number of roads in the centre including Ethel Street, Rowe Street and The Avenue; and,
- <u>Macquarie Park:</u> Paid parking through the majority of the corridor west of the Delhi Road/Epping Road intersection.

Council's current policy for on-street parking is summarised in the following Council statement<sup>10</sup>:

- Council has resolved that parking meters cannot be installed in residential or local shopping areas;
- Parking meters are only being installed in selected streets in the Macquarie Park Business Corridor – this is not a retail area. This strategy has been in close consultation with the key stakeholders of the business park who are working to manage excess demand for parking;
- Council is currently conducting community consultation regarding the creation of a Residents Parking Scheme around the Macquarie Park Business Corridor (particularly south of Epping Road). Parking meters will not be installed in these residential areas, or the small shopping areas (eg Trafalgar Place);
- Two-hour parking may be introduced in some residential streets (Monday to Friday only between 8am and 6pm) to ease the excess demand for parking in the surrounding residential streets as the Business Park continues to develop. Parking will still be free and free permits will be offered to eligible residents to exempt them from these time restrictions. There is no revenue raising from this scheme and this will only be introduced if supported by the local residents;
- State Government strategies of restricting on-site car parking and reducing the demand for parking in the Macquarie Park Corridor leave Council no option but to introduce parking controls in the area to protect the residential amenity;
- Creating more off-street parking for businesses in the area is not a viable solution as this can lead to increased traffic congestion and gridlock as more cars attempt to drive into the area;
- Traffic and parking congestion in the area will be eased when the new railway stations open at Macquarie University, Macquarie Park and Delhi Road in 2008; and,
- Council agrees with the 'No Parking Meters' campaign being run by the Chambers of Commerce to ensure that parking meters are not installed in local shopping areas. This Council believes that installing parking meters in these locations would be detrimental to local businesses and shoppers. Council has formally resolved that parking meters cannot be installed in residential or local shopping areas.

<sup>&</sup>lt;sup>10</sup> City Mayor, 1<sup>st</sup> August 2006

While Council has resolved that paid parking will be detrimental to the viability of shopping centres within Ryde, recognising the competition that exists between local centres and the current lack of a metropolitan wide parking strategy, it is essential that on street parking is protected for the use of shoppers. Time limited parking already exists in some centres and essentially prevents on street parking being used by commuters working in the centre or travelling elsewhere by train.

As parking is restricted in centres, through the introduction of charges or time restrictions so there is the possibility that long stay parkers will look for unrestricted spaces around the edge of the controlled zone in residential areas. Where this is deemed to reduce local residential amenity and curtail residents' ability to park it may be necessary to introduce controls protecting on street spaces for primarily residential use.

## 9.6 Parking as a Travel Demand Management Tool

Parking is recognised as a powerful tool in controlling or redirecting transport demand.

In general parking can be seen in terms of four objectives<sup>11</sup>:

- Vehicular movement should take precedence over parking, particularly on arterial roads;
- Parking policy can be used to support public transport. Good public transport reduces the need for parking. On the other hand reduced parking supply may force a mode shift towards public transport in low density areas. In high density areas parking policy can be used to encourage people to walk or cycle to a station;
- Parking policy can aid in improving local environmental conditions. Limiting parking can improve the aesthetics of an area, reduce the amount of traffic attracted to an area, and ensure parking for local residents; and,
- Parking policy can affect urban developments by making them more or less costly. Similarly the supply of parking can make an area more or less attractive for development.

However, it is also important to recognise the relationship between residential parking provision and car ownership, and the limitations of restraining parking at residential developments as means of restraining car ownership. The relationship between car ownership and use is not clear and is generally poorly understood.

## 9.7 Implementing Parking Policy / Management

Demand for parking is related to the land use or land uses served. Parking rates for various land uses have been developed and are set in local government planning regulations. In mixed use locations, different characteristics are exhibited and parking is effectively shared across different land uses, for example restaurant patrons use parking that serves shoppers during the day. The parking requirement should not be calculated by adding individual land use needs.

Parking, whether free or commercial, is supplied in order to provide a service, enhance local economic values, increase production, reduce street congestion, or attain combinations of these goals<sup>12</sup>. The location, amount of existing parking, appropriate location, expected users, characteristics of facilities (including long or

<sup>&</sup>lt;sup>11</sup> Bennett and Ogden 1984

<sup>&</sup>lt;sup>12</sup> AustRoads Guide to Traffic Engineering, Parking; Part 11

short stay), development cost and the street system should all be considered when designing parking. These are all considerations of parking policy.

The following table summarises how changes to parking policy can be implemented for on-street and off-street parking. The key elements that can be controlled are the price of parking and the quantity or supply or parking.

## Table 9.6: Parking Policy / Management Options

	On-street	Off-street
Price control	<ul><li>Install meters</li><li>Increase meter rates</li><li>Street parking permit</li></ul>	<ul> <li>Parking tax</li> <li>Rate structure to discourage long term use</li> </ul>
Quantity control	<ul> <li>Ban parking, totally or at specific times</li> <li>Ban parking except to specific groups (e.g. residential)</li> <li>Time restrictions</li> <li>Relocate parking</li> </ul>	<ul> <li>Freeze new parking</li> <li>Reduce existing parking</li> <li>Control future parking.</li> <li>Vary time of opening</li> <li>Relocate parking</li> </ul>

Parking policy needs to balance supply and demand. If the restrictions are not correctly applied they can fail to achieve the intended outcome. For example, allowing only 30 minute parking duration for on street space may be insufficient in a shopping centre leading to poor use of the parking and consequent economic impacts on the centre. Allowing people to stay too long can reduce the turnover of parking spaces and reduce opportunities for shoppers to park, again have detrimental impacts.

A reduction of parking in a Central Business District to below demand may be directed at increasing public transport usage. However, for such a policy to be successful, the public transport system must first have the necessary level of service to provide an attractive alternative to the car.

Parking policy and controls can be tailored to encourage and restrict different user groups and achieve a variety of outcomes that may be informed by Council policy, land uses and local issues. In applying parking controls the needs of different user groups must be taken into account. While shoppers may have a choice of several locations, most employees travel to and from a given workplace location and changes in trip destination are generally based on long term decisions such as moving to a different place of employment. Employees are consequently considered to be a relatively captive market and given their contribution to peak hour traffic are usually targeted in travel demand management policies and actions.

## 9.8 Working Examples

At Macquarie Park in Ryde, parking demand from existing and new commercial developments exceeds supply. To address this issue a Parking Demand Review Study for Macquarie Park has been carried out. This review recommended a mix of controls including new time restrictions, meter parking and residential parking zones. Paid parking has now been implemented.

As part of the planning consent for the Optus campus development at Macquarie Park, a condition of planning includes provision for Optus to pay for the implementation of a residential parking scheme adjacent to the campus if the mode split targets identified in the planning consent (maximum 40% motor vehicle use) are not met. The aim of the scheme would be to ensure that employees of the development cannot conveniently park their vehicles in the residential areas at the expense of public transport use.

At Charlestown Square shopping centre in suburban Newcastle, centre staff have free car parking at the centre. Lower areas of the northern car park are closed off with chains prior to 9am to ensure that staff (mostly those working within Myer) park on the upper decks. This practice ensures that the parking spaces on the lower decks, closest to the shopping centre entrances, are available for customers during the day. As there are two parking areas, staff normally park in the parking area nearest to the shop in which they work.

## 9.9 Residential Parking Provision versus Car Ownership

The relationship between residential parking provision and car ownership is complicated. The provision of parking space at a residential development does not necessarily mean a resident will own a car (and if they do own a car, the level of usage may also vary).

Car ownership varies with income, age, household type, type of housing and its location and personal preference. For example, housing for elderly people, students, single people and low income earners where the demand for car parking is likely to be less than for family housing.

In locations, such as town centres, where services are readily accessible by walking, cycling or public transport, the need for a car is also lower.

Whether a household owns a car or not, a car parking space (e.g. garage) can often be used for another purpose, such as storage. A resident may have their own residential space, yet park their vehicle on-street if it is more convenient or if their garage is being used for storage.

The use of car parking for storage can be prevented by prohibiting enclosed parking spaces. Cages or storage rooms can provide additional storage for residents.

A household may also own more then one car, and park one in the residential space, and the second on-street.

Given this complicated relationship, there are limitations in the effectiveness of using parking restraint alone as a means of influencing car ownership within residential developments.

## 9.9.1 Motorcycle / Scooter Parking

Parking for motorcycles and scooters is often over looked. Motorcycles account for only one per cent of road travel in Australia<sup>13</sup>. However, it is anticipated that due to increased congestion motor cycles will become more popular form of transport in urban areas.

Motorcycle parking should be provided free of charge in central areas in town centres. The level of on street motorcycle parking can be determined by analysing the percentage of motorcycles compared to other vehicles in central areas and the number of motorcycles currently parked both legally and illegally. Motorcycle parking use should be monitored and reviewed on a regular basis.

<sup>&</sup>lt;sup>13</sup> AustRoads Guide to Traffic Engineering, Part 15 – Motorcycle Safety

Private developments should also be required to provide motorcycle parking. It is recommended that 2% or a minimum of 2 motor cycle parking spaces are provided as part of developments. These requirements should be incorporated into the parking provision rates for the Ryde area.

## 9.10 Actions and Outcomes

The following actions are recommended, however, the release of a metropolitan parking strategy will necessitate a review of all parking related policies and actions in Ryde.

Recommendation	Overview
Review Residential Car Ownership	Undertake a review of car ownership at all medium and high density residential development within Ryde and develop parking standards based on actual vehicle ownership figures for all new development. Consideration should be given to combining PTAL accessibility analysis (above) with the development of residential rates based on vehicle ownership, recognising that commonly vehicle ownership tends to be lower in relatively accessible locations. Residents of medium and high density developments with adeguate off street parking should not be provided with
	residential parking permits.
Review parking rates for development in proximity to Stations and Bus Corridors	Council to consider a reduction of car parking ratios for development within walking distance (400m or less) of a railway station or major bus corridor in order the meet the objectives of draft SEPP66 and the ITLUS mode share objectives.
Off-street Parking in Commercial Areas	Council should not provide off-street parking in commercial areas. Off-street parking should be provided by the private sector through development with Council ensuring appropriate parking is provided recognising the aims and objectives of the Strategy.
	Through the DA process Council should also ensure any off-street parking provided is appropriately managed and controlled to ensure the parking is protected for intended users. Time limits and/or charges should be put in place from the outset to ensure long stay parking does not occur as is common in shopping centres (e.g. Rhodes).
	Off-street parking is expensive to provide and it should be recognised that Council's resources can be better used within the context of the aims and objectives of the Strategy. Through the centre based analysis it is considered that sufficient centre based parking can be provided through improved management of on-street parking.
Protect On-street Parking in Commercial Areas for Shoppers	Policy and parking management should aim to support the economic viability of centres. Council should look to ensure centre based on street parking is available for shoppers and that time restrictions encourage an appropriate level of space turnover. Regular reviews of time limits will allow Council to tailor parking restrictions to each centre and maintain a proportion of available spaces at any given time.
	On-street parking should be enforced at such a level as to ensure both a reasonable level of compliance and

## Table 9.7 - Recommendations

Recommendation	Overview
	sufficient revenue to cover enforcement costs.
	Where the demand for on-street parking exceeds supply restrictions can be managed. Given the sizeable and increasing workforce within the Macquarie Park corridor and the competition for on-street space the introduction of parking charges rather than time limits to manage demand was an appropriate option. This recognises the unique mix of users within Macquarie Park.
	Instances where on street parking may be reduced include the kerb space requirements when extending bus zones to accommodate articulated buses.
Protect Residential Amenity	Residential areas suffer from through traffic and excessive on street parking, leading to reduced social contact amongst neighbours and increased risk of conflict, particularly between pedestrians and cars. Restricting non residential parking in residential areas assists in protecting residential amenity.
	It should also be noted that on street parking on relatively busy through routes that are also residential may actually protect residential amenity. Parking activity slows traffic and parked vehicles act as a buffer between traffic and homes. Parked vehicles also take up road space, reducing through traffic capacity and speeds.
Travel Plans	Council should encourage reduced off street parking at new commercial and residential developments if the development application is accompanied by a travel plan identifying site access options clearly and setting out a strategy to ensure mode share is maintained at a level that can be met by on site parking.
	A reduction in parking at residential developments may increase development density which is desirable in accessible locations and create relatively affordable housing as residents do not pay for parking not required.
	Council should also consider requiring all new developments to develop a travel plan as part of the DA process in order to maximise site accessibility and reduce car dependency, use and emissions.
	Actions focused on travel pans can be linked to the suggested PTAL accessibility analysis (above).

# 10 Travel Demand Management Action Plan (A5)

## 10.1 Introduction

Travel demand management (TDM) initiatives are increasingly being employed within Australia to encourage a take up of more sustainable alternatives to the private car, or more sustainable use of the car through car sharing/pooling and trip linking. The success of TDM initiative does, however, rely on the availability of alternatives to the car. For example, in the absence of a safe walking network people will be unlikely to consider walking to their destination, even if it is within an easy walk distance.

## 10.2 Objectives

The TDM and Educational Action Plan objectives are:

- Encourage a change in travel behaviour resulting in a greater use of public transport, walking and cycling by those people living and/or working in Ryde LGA;
- Reduce car dependency amongst those living and/or working in Ryde LGA; and,
- Increase walking, cycling and public transport use within Ryde LGA.

Actions and Outcomes are outlined in detail in **Section 10.3**. The Action Plan, including stakeholders, timescales, and likely costs to CoR, is summarised in **Table 10.1**.

## **10.3** Actions and Outcomes

It is recommended that City of Ryde develop a series of projects focusing on local communities, schools and workplaces that encourage and support behavioural change leading to a reduced reliance on the private car and a reduction in VKT.

## 10.3.1 Workplace Travel Plans

Workplace Travel Plans (WTPs) focus on initiatives put in place at the workplace, thus focusing on the trip end.

Typically travel plans include information provision, educational initiatives and physical measures aimed at supporting the use of alternatives to the car. Car pooling programs can encourage a more efficient use of cars by increasing vehicle occupancy. The inclusion of incentives can further encourage a behavioural shift.

Council can encourage the take up of workplace travel plans through the introduction of a requirement for land developers to produce and implement a travel plan within the Development Application process (Discussed under Transport and Land Use Action Plan – **Section 8**).

## City of Ryde Travel Plan

It is recommended that as a first step to encouraging local workplaces to establish their own travel plans, Council develop a travel plan for the Civic Centre covering all 157 employees. This will demonstrate Council's own commitment to reducing car travel and the ITLUS.

## Macquarie Park Area Wide Travel Plan

The Macquarie Park area is an important business hub within the Sydney Metropolitan area. In 2008 the Chatswood – Epping Rail Link will open with three stations serving the area. The area already experiences considerable traffic congestion and this is likely to increase as development continues and employment increases.

It is recommended that CoR coordinate an area wide travel plan for Macquarie Park and work with local companies to put in place site specific initiatives. The development of an area wide travel plan offers many advantages within a business park, including:

- Greater potential for initiatives such as car sharing/pooling;
- Opportunity to improve/provide off site facilities such as footpaths, cycle lanes and bus stops;
- Greater bargaining power to secure public transport service improvements;
- Peer support for companies implementing their own site specific travel plans;
- Maps and other supporting material can be provided for several workplaces;
- Provision of central information point;
- Coordinated development of personalised journey plans for local employees; and,
- Supportive environment for the development of site specific travel plans.

## 10.3.2 Residential Travel Plans

A residential travel plan (RTP) is a package of initiatives that are designed to reduce the number and length of car trips generated by a residential development, while also supporting more sustainable forms of travel and reducing the overall need to travel.

A RTP differs from a WTP in that the origin remains the same whilst the destinations vary and can be numerous. The other key difference is there is no single company or institution that can provide ongoing management and organisation for residents. Ongoing management can be part of a lease agreement.

Travel plans can either be provided for existing residential developments or for the implementation of new developments. For new developments, travel plans should be designed during the planning stage and well before residents are in occupation. A local planning authority can require a RTP as part of a planning requirement.

A RTP needs to be measurable and be regularly monitored to ensure that the objectives of the travel plan are achieved and that it remains sustainable in the long term.

## 10.3.3 Travel Plans at New Developments

It is recommended that CoR require new commercial, industrial and residential developments in excess of specified floorspace / units to develop and submit a site specific travel plan as part of the Development Application process.

Site specific travel plans are routinely required for new developments and where an existing development is being extended in the UK. Within NSW, the Minister of Planning has required travel plans to support certain development applications. The development application for the Optus Site in Lyonpark Road (Macquarie Park) has a requirement for a travel plan. In Melbourne the City of Darebin has commenced a year long trial that requires development applications meeting specified criteria to be supported by a travel plan.

Example guidelines for DA applicants from the City of Darebin and a brief for the development of guidelines are contained in **Appendix H**.

## 10.3.4 School Travel Plans

School Travel Plans (STPs) act as a framework for a number of school based transport initiatives that encourage safe and sustainable travel by students travelling to and from their school.

Specifically, the travel plan documents actions formulated by children, parents and staff, aimed at increasing environmentally friendly travel. These actions are supported by a combination of:

- Education within the school, such as walking and cycling safety training;
- Community participation in settling up and coordinating safe and viable student travel options e.g. walking school buses, ride sharing;
- Coordination with transport and safety agencies e.g. Council parking officers, and police to provide enforcement; and
- The local Council engineering, designing and providing infrastructure changes, such as pedestrian crossings and footpath repairs/upgrades.<sup>14</sup>

School travel plans can also contribute to the improved health and safety of pupils, and can potentially improve the reputation of the school.

It is recommended that CoR look to work with schools within the LGA to reduce the proportion of students travelling to and from school by car and increase the proportion travelling by active transport (walking and cycling).

It is recommended that CoR lead the development and implementation of a school travel plan at a primary school within the LGA.

It is recommended that the following criteria be considered when selecting the school:

- Existence of transport problems, in particular congestion at the beginning and end of the school day;
- Safety concerns and/or accident data;
- Nature of catchment a relatively local catchment will support greater levels of walking and cycling;
- Interest from parents, teachers and students;
- The ability for CoR to effect change in the local area and the likely need to involve external stakeholders such as the RTA (i.e. proximity – or not – to arterial road network); and,
- The potential for local linkages to community projects and other traffic and transport initiatives.

<sup>&</sup>lt;sup>14</sup> Stepping schools through travel plans: The school travel plan coordinator's guide (draft) Energy Efficiency and Conservation Authority (NZ) (2005)

Council will necessarily have to work with the school in the development of the travel plan and it is likely that consultation will take some time. The school travel plan should include the following elements:

- Walking School Buses;
- Accessibility Audit (see Walking and Cycling Action Plan);
- Identification of problems in consultation with school;
- Curriculum topics health, environment and transport;
- Accident analysis;
- Events to increase awareness amongst children and their parents;
- Road safety training (including safe cycling) for parents and students; and,
- Traffic management.

A map of primary schools within CoR is included as **Figure 10.4**.



## Figure 10.4: Primary Schools in Ryde

## 10.3.5 Car Pooling

Car pooling (also sometimes known as *ride sharing* or *lift sharing*) is shared use of a car, in particular for commuting to work, often by people who each have a car but travel together to save costs and in the interest of other socio-environmental benefits. Many people car share informally with friends, family members or colleagues. They may car share for all or part of their trip. A car pooling scheme seeks to encourage an increased take up of car sharing amongst employees and offer incentives such as priority car parking spaces.

It is recommended that CoR develop and host an internet based car share site, allowing people living and/or working in the LGA to find a car share partner for regular or occasional trips. Following the development of the site, CoR must publicise the service through a variety of media and via other community services. Members of the community without access to the internet should be able to access the service at Council's offices and at facilities such as libraries.

## 10.3.6 Car Club

Car Club is the concept of sharing a car between a group of people. Commercial organisations allow members to rent a car per hour or for longer, with a designated pick up and drop off location. The benefits of a car sharing scheme is that members have access to a car when they need it, such as for doing the shopping or taking children to functions without having to purchase, park and maintain a private car. It is estimated that only 6 cars are needed to service the needs of 100 people.

A Car Club could be an informal agreement between a group of people to share a car. On a larger scale, there are commercial organisations that deal with car sharing for a wide area. In Australia, GoGet is a car sharing organisation that allows members to book and utilise cars on an hourly basis.

Councils in NSW, such as City of Sydney and North Sydney, and Victoria (City of Darebin) have assisted the spread of GoGet through the allocation of 'pod' parking spaces in convenient locations and the promotion of the scheme amongst residents. There is also the potential to promote car share clubs in conjunction with new residential development as an alternative to vehicle ownership.

It is recommended that CoR support the establishment of a Car Club within the Macquarie Park area of the LGA in the medium term. Consultation with GoGet suggests that mixed use areas, comprising commercial and residential land uses create an environment where GoGet is most likely to succeed. The mix of commercial and residential provides a greater consistency of demand through the week than an area where a single land use type dominates.

At this stage the only possible area within Ryde LGA that will support a Car Club is Macquarie University, with access to commercial premises in North Ryde, staff and students at the University and the medium density residential area of Marsfield.

It is recommended that CoR initiate a partnership with GoGet and Macquarie University to establish a Car Club.

#### 10.3.7 Transport Access Guides

An easy way to reduce the proportion of car travel to a site or venue generated by an organisation or trip generator is to make sure people know how to get to the premises or venue by public transport, walking or cycling.

A Transport Access Guide (TAG) provide customised travel information for people travelling to and from a particular site or venue using low energy forms of transport such as walking, cycling, public transport.

A TAG can take many forms – from a map printed on the back of business cards or on invitations or With Compliments slips, or to more comprehensive information - for example as a brochure, or as part of an induction kit to new employees or as part of a Traveller Information Kit to employees relocating to other office premises.

For employees, customers, clients and other visitors, a TAG can not only provide transport and travel information but also provide information about surrounding services and business including recreational walking and cycling routes.

TAGs have the potential to reduce car travel and reduce associated greenhouse gas emissions and traffic congestion while improving health though active transport choices.

It is recommended that CoR develop TAGs for key transport generators within the LGA, including:

- Civic Centre;
- Ryde Town Centre;
- Macquarie Centre; and,
- Stations (refer to Walking and Cycling Action Plan).

Additional information on Transport Access Guides produced by the RTA, is reproduced in **Appendix F**. An example TAG for the Macquarie Centre has been developed and is contained in **Appendix I**.

## 10.3.8 TravelSmart

TravelSmart is an Australia wide initiative that encompasses community, workplace and school projects in WA, South Australia, Victoria, ACT, NSW and Queensland. The national program is coordinated by the Australian Greenhouse Office (AGO). A comprehensive review of TravelSmart has recently been published.<sup>15</sup>

TravelSmart initiatives fall into three categories: communities, workplaces and schools. TravelSmart focuses on behavioural change through encouragement and information provision and within the currently available transport services and resources. Essentially TravelSmart aims to make better use of existing resources through the provision of targeted information.

TravelSmart employs community based social marketing theory as applied to transport. Social marketing is a process to develop, implement, evaluate and control behaviour change programs by creating and maintaining exchanges. It can be defined as an adaptation of commercial marketing approaches to the analysis, planning, execution and evaluation of programs designed to influence the behaviour of the target audience.

The Department of Planning is currently responsible for developing the NSW TravelSmart program. At this stage it is likely available funds will be directed towards school based projects.

It is recommended that CoR develop a travel behaviour change project portfolio, demonstrating Council's commitment to achieving a mode shift. It is also

<sup>&</sup>lt;sup>15</sup> Evaluation of 26 Australian TravelSmart Projects in the ACT, South Australia, Queensland, Victoria and Western Australia 2001-2005, Report to the Department of the Environment and Heritage and State TravelSmart Programme Managers (2005) (RED Report)

recommended that Council enter into discussions with Department of Planning to identify possible TravelSmart demonstration projects within Ryde.

## 10.3.9 Action Plan Summary

The Action Plan, including stakeholders, timescales, and likely costs to CoR, is summarised in **Table 10.1**.
Action	Target Audience		Primary Stakeholders	Secondary Stakeholdere	Timescale	Cost		
	Community	Schools	Workplaces	Stakenoiders	Stakenoiders			
Workplace Travel Plans			✓	CoR, workplaces	Businesses	Medium term	Medium	
Civic Centre Travel Plan			✓	CoR	Businesses	Short term	Medium	
Macquarie Park Area Wide Travel Plan			$\checkmark$	CoR, workplaces	Businesses	Medium term	Medium	
Residential Travel Plans	$\checkmark$			CoR	Community		Medium	
Travel Plan Guidelines for New Developments	V		$\checkmark$	CoR	RTA, DOP	Short term	Low	
School Travel Plan		$\checkmark$		CoR, school	RTA, community	Short term	Medium	
Car Pooling	√		$\checkmark$	CoR	Car share database provider	Short term	Low	
Car Club			$\checkmark$	CoR, GoGet, Macquarie University		Medium term	Low	
Transport Access Guides	✓			CoR	RTA	Short term	Low	
TravelSmart	$\checkmark$	$\checkmark$		CoR, DOP	RTA, STA	Medium term	High	

## Table 10.1: Travel Demand Management Action Plan (A5) – Summary

# **11 Implementation Plan**

#### 11.1 Introduction

It will take some time to develop each Action Plan and implement the detailed recommendations. The implementation framework sets out a suggested way forward and should be treated as a guide only. Some plans may be delayed as they are dependent on others, while some will be relatively easy for Council to pursue alone.

The implementation plan has identified an outlined timeframe for each action: short term (1-5 years); medium term (5-15 years) and long term (15-30 years). The action plans should be largely completed within the medium term but some will give rise to longer term actions. The action plans will inform policy directions in areas of transport and land use and also other areas of Council activity.

An outline cost for each action has been calculated. It is important to note that it is difficult to cost to a high degree of detail at the strategic planning stage. The estimated cost for each action is shown in the Implementation table and is 'banded; as follows:

- Low \$0 \$20,000
- Medium \$20,000 \$100,000
- High \$100,000 +

Funding sources are not identified at this stage, however sources could include:

- Council funding, for example Section 94 contributions;
- Grant funding (Federal, State);
- Key stakeholder funding; and,
- Developer contributions (e.g. s94).

### Table 11.1: Implementation Table

### Action Plan (A1) - Public Transport, Community Transport, Personal Public Transport and Taxis

Action	Primary Stakeholders	Secondary Stakeholders	Timescale	Cost to CoR
Mutually Beneficial Partnerships	CoR, STA, Sydney Ferries, CityRail, Developers	RTA, MoT, community	Short Term (Pilot project) Medium - Long Term	Low
Public Transport Information	CoR, Community.	STA, Sydney Ferries, CityRail	Short Term	Low
Demand Responsive Transport	CoR, Community.	MoT, STA, Community Transport, Taxi operators	Short Term	Medium
Taxis	CoR, Taxi Council	RTA, community	Short Term	Medium
Bus Infrastructure	CoR, STA	RTA, MoT	Short – Medium Term	Low - High
Train Station Infrastructure	CoR, CityRail		Short Term	Low - High
Lobby for improved Public Transport Services				Low
Increase Meadowbank ferry frequencies	CoR, Sydney Ferries	Community	Short Term	
Provide ferry services to Parramatta	CoR, Sydney Ferries	Community	Medium Term	
Epping bus services	CoR, STA, MoT	RTA, CityRail, Community	Short Term	
Hills District bus services	CoR, Hills Bus, MoT	RTA, CityRail, Community	Short Term	
Increased off peak frequencies	CoR, STA, MoT	Community	Short Term	
Accessible buses	CoR, STA, MoT	Community	Short Term	
Strategic Bus Routes	CoR, STA, MoT, RTA	Community	Short – Medium Term	

### Action Plan A2 - Walking and Cycling Action Plan

Action	Primary Stakeholders	Secondary Stakeholders	Timescale	Cost to CoR
Improved Safety at Pedestrian Crossings	CoR, RTA	Community	Short Term	Medium
Walking and Cycling Treatments	CoR, RTA	Community	Short – Medium Term	Low – High
Accessibility Mapping	CoR,	STA, CityRail, Sydney Ferries	Short – Medium Term	Medium
Accessibility Audits	CoR, RTA, developers	Community, STA, CityRail, Sydney Ferries	Short Term (existing areas) Ongoing (DA approvals)	\$3,000 per site*
PAMP	CoR, RTA	Community, STA, CityRail, Sydney Ferries	Short Term	Medium
Accident Analysis	CoR, RTA	Community, STA	Short term	Medium - High

\* Accessibility audits requested as part of the DA process will be supplied by the applicant.

# Action Plan A3 - Road Management Action Plan

Action	Primary Stakeholders	Secondary Stakeholders	Timescale	Cost
Improvements on Arterial Roads				
Space Reallocation on Epping Road	CoR, RTA	STA, Community	Short Term	Low
Pedestrian crossing – Epping Road / Lyonpark Road	CoR, RTA	Community	Short Term	
Lane Cove Road between M2 and Lane Cove Road	CoR, RTA	STA, Community	Short Term	
Potential New M2 Slip Lanes	CoR, RTA, TransUrban	Community	Long Term	
M2/F3 Link	CoR, State Government, Federal Government, RTA	Community	Long Term	
Improved safety at pedestrian crossings	CoR, RTA	Community	Short Term	
Walking and cycling treatments	CoR, RTA	Community	Short – Medium Term	
Improvements on Council Roads				
LATMs	CoR	STA, Community	Short Term	Medium - High
Improved safety at Pedestrian Crossings	CoR, RTA	Community	Short Term	
Walking and cycling treatments	CoR	STA, Community	Ongoing	
Reallocation of road space	CoR	STA, Community	Ongoing	
Road Network Performance Standards	CoR, RTA	STA, Community	Ongoing	Medium - High

### Action Plan A4 - Integrated Land Use Planning Action Plan

Action	Primary Stakeholders	Secondary Stakeholders	Timescale	Cost
PublicTransportAccessibilityLevels(PTALs)	CoR	STA, CityRail, MoT	Short Term	Low
Encourage Mixed Land Use Development	CoR	Developers, Community	Medium – Long Term	Low
Cycle Parking and Facilities	CoR	Developers	Shrot – Medium Term	Low
Street Networks	CoR	Community, Developers	Short Term	Low
Public Car Parking	CoR	Community	Short – Medium Term	Low
Private Car Parking	CoR	Developers	Short – Medium Term	Low
Motorcycle / Scooter Parking	CoR	Community	Short Term	Low

#### Action Plan A5 - Travel Demand Management Action Plan

Action	Primary Stakeholders	Secondary Stakeholders	Timescale	Cost
Workplace Travel Plans	CoR, workplaces	Businesses	Medium term	Medium
Civic Centre Travel Plan	CoR	Businesses	Short term	Medium
Macquarie Park Area Wide Travel Plan	CoR, workplaces	Businesses	Medium term	Medium
<b>Residential Travel Plans</b>	CoR	Community		Medium
Travel Plan Guidelines for New Developments	CoR	RTA, DOP	Short term	Low

School Travel Plan	CoR, school	RTA, community	Short term	Medium
Car Pooling	CoR	Car share database provider	Short term	Low
Car Club	CoR, GoGet, Macquarie University		Medium term	Low
Transport Access Guides	CoR	RTA	Short term	Low
TravelSmart	CoR, DOP	RTA, STA	Medium term	High

# 12 Monitoring Plan

#### 12.1 Introduction

It is important that the outcomes of the strategy and the actions implemented are monitored. This monitoring process will be ongoing and will identify if targets adopted as part of the strategy are being met.

A broad range of data is already collected by Council and others and this can largely be used as the basis of the monitoring program, ensuring that monitoring does not become onerous or take resources that should be utilised in the implementation of the strategy.

**Table 12.1** identifies data sources, authority responsible and how the data can be utilised by Council.

Table 12.1: Monitoring	g Data				
Target	Base Date	Measure	Time Period	Responsible Authority	Outcome / Target
JTW Modal Split Targets	5				
20% decrease in car driver use (for 2011), with a corresponding increase in use of non- car modes.	2001 Census Data JTW Mode Share	ABS Census Household Travel Survey Public Transport Patronage Cycle Counts Footfall Counts	Every five years (2006, 2011) Annually	ABS TPDC STA, CityRail, Sydney Ferries CoR CoR	Year 2011 JTW Mode Share
All-trips modal split targets					
10% decrease in car driver use (for 2011), with a corresponding increase in use of non- car modes.	2001 Census Data All-trips Mode Share	ABS Census Household Travel Survey Public Transport Patronage Cycle Counts Footfall Counts	Every five years (2006, 2011) Annually Annually Annually Annually	ABS TPDC STA, CityRail, Sydney Ferries CoR CoR	Year 2011 All-trips Mode Share
Accessibility Targets					
Increased development Densities within 500m of public transport nodes. (Based on PTAL analysis)	Planning Department Records	Planning Department Records	Ongoing	CoR	Increased development densities around public transport nodes – to be informed by PTAL analysis
Provide more cycling infrastructure	Current on/off road cycle path length.	Measure increase in cycle path network	Ongoing	CoR	More cycling infrastructure in Ryde – to be informed following completion of Bike Plan

Target	Base Date	Measure	Time Period	Responsible Authority	Outcome / Target
Provide more pedestrian infrastructure	Current area of pedestrian facilities i.e. area of footpaths and malls	Measure increase in area of pedestrian facilities	Ongoing	CoR	More pedestrian infrastructure in Ryde
Level of Service and vol	lume to capacity ratio targets				
Develop measures to ensure that roads / intersections achieve no worse than LOS D and V/C 1.0	TPDC traffic model year 2006 base data for road links RTA / CoR information for intersections.	TPDC traffic model year 2011 base data for road links RTA / CoR information for intersections.	Ongoing	CoR / RTA	All intersections / roads no worse than LOS D and V/C 1.0

# 13 Glossary

### 13.1 Acronyms

AADT	Annual Average Daily Traffic Flows
AGO	Australian Greenhouse Office
ССР	Cities for Climate Protection
CoR	City of Ryde
DCP	Development Control Plan
DfT	Department for Transport
DRT	Demand Responsive Transport
ITLUS	Integrated Transport and Land Use Strategy
LATM	Local Area Traffic Management
LEP	Local Environmental Plan
LGA	Local Government Area
LOS	Level of Service
МоТ	Ministry of Transport
PAMP	Pedestrian and Accessibility Management Plan
PTAL	Public Transport Accessibility Levels
RTP	Residential Travel Plan
SATMP	Station Area Transport Management Plan
SEDA	Sustainable Energy Development Authority
SEPP	State Environment Planning Policy
SOP	Sydney Olympic Park
STA	State Transit Authority
STM	Sydney Strategic Travel Model
STP	School Travel Plan
TAG	Transport Access Guide
TDM	Transport Demand Management
TIDC	Transport Infrastructure Development Corporation
TMAP	Transport Management and Accessibility Plan
TPDC	Transport, Population and Data Centre
TZ	Travel Zone
V/C ratio	Volume to Capacity ratio (or Flow Ratio)
VKT	Vehicle Kilometres Travelled
WTP	Workplace Travel Plan

#### 13.2 Terms

**Accessibility** - The extent to which people have access to employment, goods and services, either through proximity or transport links to connect places.

Accessibility Audits - An audit of the level of accessibility in a locality.

**Annual Average Daily Traffic Flows (AADT)** - The total volume of traffic recorded at a specific road location (known as a traffic station) taken over a calendar years and divided by the number of days in that year.

**Bus Priority** - Electronic priority and physical infrastructure to give buses priority over other vehicles. Electronic technology includes bus-activated traffic signals and bus lane enforcement cameras. Physical infrastructure includes bus only lanes and queue-jumps at traffic lights.

**Bus Transitway (T-ways)** - Dedicated roads for the exclusive use of rapid bus services which include the highest level of bus priority.

**Car Pooling** - When two or more people travel together in a car, for all or part of a car trip (also known as ride sharing or lift sharing).

**Centre** - A place where varying concentrations and combinations of retail, commercial, civic, cultural and residential uses are focused near transport facilities (as used in the Metropolitan Strategy).

**Cities for Climate Protection (CCP)** - The Australian programme, run in association with the International Council for Local Environmental Initiatives (ICLEI), assists local governments and their communities to reduce greenhouse gas emissions, improve air quality, and enhance urban liveability and sustainability.

**Community Transport** - Transport to meet the needs of specific transport disadvantaged groups in the community (e.g. including isolated families, the frail aged, younger people with disabilities, and their carers), where conventional public transport systems are not generally considered viable or appropriate.

**Corridor** - An area of one to two kilometres on either side of a strategic road, or linking regional cities or major centres (used in the Metropolitan Strategy).

**Development Control Plan (DCP)** - A detailed guideline that illustrates the controls that apply to a particular type of development or in a particular area. A DCP refines or supplements an LEP or REP and is made according to the Environmental Planning and Assessment Act 1979.

**Demand Responsive Transport (DRT)** - Any form of transport where day to day service provision is influenced by the demands of users.

**Global Arc** - An arc identified in the Metropolitan Strategy, extending from Macquarie Park to Botany Bay, within containing nearly a quarter of all of Sydney's jobs and half of the region's professional jobs. Over the five years to 2001, the Sydney CBD - at the core of this 'global arc' - experienced the strongest rate of job growth of any subregion in Sydney.

**Isochrone** - A mapped line which joins points of an equal value, by either time or distance.

**Kiss'n'ride** - An arrival mode at a bus stop or rail station where a passenger is dropped off by a driver in a vehicle.

**Level of service (LOS)** - An index of the operational performance of traffic on a given traffic lane, carriageway, road or intersection, based on service measures such as delay, degree of saturation, density and speed during a given flow period.

**Local Area Traffic Management Plan (LATM)** - LATM is concerned with planning the usage of road space within a local residential area to achieve goals, determined by affected parties, for the improvement of the residential environment. Together with an acceptable road hierarchy plan, a LATM plan provides a sound basis for the resolution of conflicting traffic and amenity requirements of road and street systems.

**Local Environmental Plan (LEP)** - The principal legal document for controlling development at a council level. The zoning provisions establish permissibility of uses and standards regulate the extent of development. Prepared by councils and approved by the Minister of Planning (after public exhibition).

**Local Government Area (LGA)** - The area administered buy a local council under the Local Government Act 1993 and other legislation.

**Metro Parking Group / Metro Parking Strategy** - Identified in the Metropolitan Strategy 2005 (but not released as yet), this strategy will be set to encourage the use of public transport to centres through the development and implementation of a metropolitan-wide parking strategy.

**Pedestrian and Accessibility Management Plan (PAMP)** - A comprehensive strategic and action plan to develop pedestrian policies and build pedestrian facilities, providing a framework for developing pedestrian routes or areas identified by the community as important for enhanced, sustainable safety, convenience and mobility.

**Public Transport Accessibility Levels (PTAL)** - A calculation/method of assessing the accessibility of areas to public transport.

**Residential Travel Plan (RTP)** - A package of initiatives that are designed to reduce the number and length of car trips generated by a residential development, while also supporting more sustainable forms of travel and reducing the overall need to travel.

**School Travel Plan (STP)** - A package of measures put in place by a school to encourage more sustainable travel to school, and in particular the reduction of parents driving their children to and from school.

**Section 94** - Section 94 of the Environmental Planning and Assessment Act (NSW) provides that, if the consent authority is satisfied that if a development is likely to increase the demand for public amenities or public services in the area, the authority may require the applicant to make a financial payment and/or dedicate land free of cost as a condition of approving the development.

**Social marketing** - The systematic application of marketing alongside other concepts and techniques to achieve specific behavioural goals for a social good.

**State Environment Planning Policy 66 (SEPP66)** - Released as part of the Integrating Land Use and Transport package, the policy aims to ensure that urban structure, building forms, land use locations, development designs, subdivision and street layouts improved accessibility and improved transport choice.

**Strategic Bus Corridors** - Strategic Bus corridors are designed to connect major centres across Sydney, linking important transport, health and educational facilities and other community facilities, and integrating with local bus services. They will provide a network of fast, frequent, direct and convenient bus services (identified in the Metropolitan Strategy).

**Sustainability** - Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

**Sydney Strategic Travel Model (STM)** - TPDC model used to forecast travel demand under different scenarios and plan transport infrastructure. The STM estimates the effects on the transport network of major infrastructure changes or different population/employment growth and distribution scenarios.

**Transport Access Guide (TAG)** - A concise presentation of how to reach a site or venue using low-energy forms of transport.

**Transport Demand Management (TDM)** - A variety of measures used to improve the efficiency of the existing transportation system. TDM products and services include encouragement to use alternatives to the single-occupant vehicle such as carpools, vanpools, transit, bikes, and walking.

**Transport Management and Accessibility Plan (TMAP)** - The identification of a package of appropriate transport measures for a specific are or development (including infrastructure, services and demand management initiatives), which will help to manage the demand for travel to and from the development/ area, and in particular, reduce the demand for travel by private car and commercial vehicle.

**Travel Plan** - A package of measures which aim to encourage changes in travel behaviour, and reduce single occupancy car use. They can be focused upon a popular travel destination, such as a workplace or school (through either a Workplace Travel Plan or School Travel Plan), or focused upon the origin of trips such as a residential building, or community (through a Residential Travel Plan).

**TravelSmart** - A program aimed at reducing reliance on cars and making smart choices about other forms of transport. TravelSmart is essentially a brand that incorporates TDM measures.

**Travel Zone (TZ)** - A small geographic area used as the basis for TPDC modelling and data analysis. There are over 1,100 in the Greater Metropolitan Region. TPDC travel zones are compatible with ABS geographic boundaries.

Vehicle Capacity Ratio (or Flow Ratio) - The ratio of vehicle flow rate to saturation capacity rate.

**Vehicle Kilometres Travelled (VKT)** - A measure of the total distances of travel by car, that is, the number of kilometres travelled by private car (also known as flow ratio).

**Walking School Bus** - A group of primary school children who walk to and from school along a safe and enjoyable set route, accompanied by a minimum of two parent driver/supervisors per 'bus'.

**Workplace Travel Plan (WTP)** - A package of measures put in place by an employer to encourage more sustainable travel whilst commuting to work, and in particular the reduction of single occupancy car use.