City of Ryde Council

Macquarie Park Corridor Parking Study

Final Draft Report

November 2009

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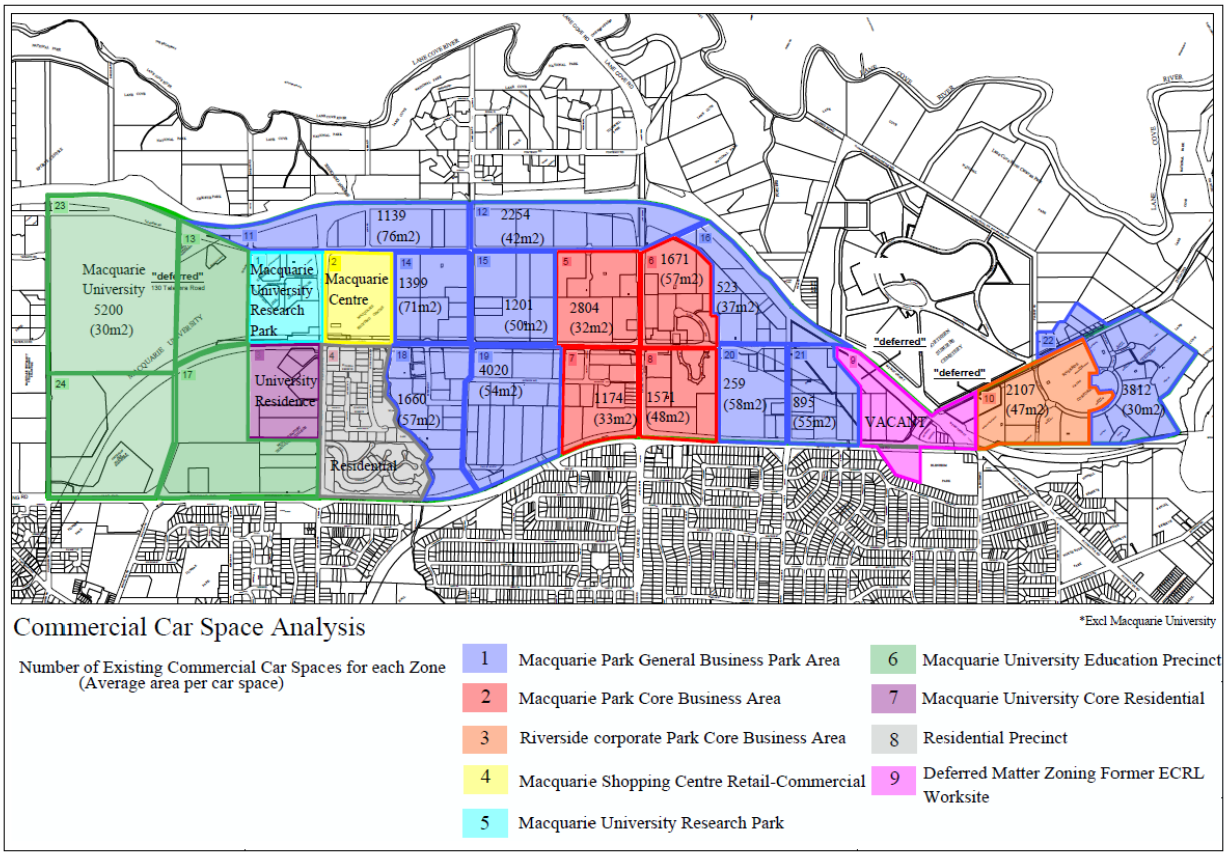
1 Executive Summary

1.1 Introduction

Macquarie Park is a major “specialised” employment centre on the North Shore of Sydney. The centre has in recent years been developed with a technology based research industry focus following on from the original CSIRO and Macquarie University research facilities in the early 1960’s. The area is now developing further into a number of characteristic land use precincts. The existing supply and allocation of commercial car parking spaces in each of these precincts is summarised by the Arup precinct map below.



In the past decade since 1996, the total number of jobs in Macquarie Park has been growing strongly, which is in marked contrast to some of the other more established employment centres in Inner Northern Sydney, where the employment growth has been much slower over the same period and there have even been declines in some centres. The employment growth at Macquarie Park has most recently been further stimulated by the construction and opening in February 2009 of the Epping to Chatswood Rail Line (ECRL) which was a project many years in the making.

The longer term development future for Macquarie Park (which now consists of three core railway station based employment centres at North Ryde-Delhi Road, Macquarie Park and Macquarie University) is bright, with the new railway line and other major transport system improvements likely to further stimulate employment growth and the demand for new commercial office floor space in the centre.

In 2005, the NSW Government Department of Planning (DoP) Sydney Metropolitan Planning Strategy predicted the future employment growth for each of the fifteen major employment centres in Sydney to the year 2031. In the strategy, the Macquarie Park centre has an anticipated increase in the workforce to 55,000 jobs by 2031. The year 2031 time horizon has also been adopted for this study. A more detailed future employment growth strategy for the area has been developed by the City of Ryde in consultation with DoP,

based on detailed master planning for the area in 2007/2008. This strategy which is based on identified feasible building development sites and footprints, predicts an even higher future employment total level of 78,000 jobs in the area by the year 2031, including a substantial contribution (+16,000 future jobs) from the predicted Macquarie University research related employment growth over this period.

1.2 Study Objectives and Aims

This study report responds to the City of Ryde's Project Objectives, which are:

- To evaluate the current impact of amended/ reduced parking controls in LEP 137 (and other existing parking measures) on the economic viability and sustainability of the commercial sector in Macquarie Park Corridor;
- To recommend parking rate (s) for commercial development in the Corridor that ensures the area remains competitive and economically viable into the future, having regard to comparable, competing commercial centres;
- To recommend actions that promote and support the use of public transport;
- To recommend strategies for the Corridor that provide a balanced suite of parking measures to
    - Reduce car dependency, particularly amongst commuters
    - Ameliorate traffic congestion;
    - Limit impact on affected stakeholders, being commercial property owners/occupiers, government agencies and existing residents;
    - Encourage the implementation of sustainable mechanisms to alleviate identified social, environmental and economic impacts arising from the implementation of parking measures.
    - Support Work Place Travel Planning
    - Facilitate Commuter Car Parking at Rail Stations
    - Encourage Innovative Shared Parking Arrangements for large car parks
    - Support Investigation of Salary Packaging and FBT Implications

1.3 Macquarie Park Transport and Parking Context

The current distribution of the home residential locations of the Macquarie Park Study Area workforce has been investigated by Arup based on Census journey to work travel data from the MoT database for the Study area as an employment destination in the 2006 Census (a total of 32,000 employees approximately).

The distribution of this workforce is almost equally balanced in terms of its travel patterns to and from Macquarie Park from the east and west, with approximately 14 % travelling locally from within the local government area of Ryde, 38% travelling to and from local government areas to the east of Ryde and 48% travelling to and from local government areas to the west of Ryde.

Approximately 59% of the workforce travel relatively long distances (typically 10 kilometres or more) to and from work at Macquarie Park, from their residential locations throughout the Sydney Region. Initial data from the opening of the ECRL rail link shows a preliminary level of rail passenger usage in August 2009 (after the initial free operating period, but before the full introduction of through train movements) of approximately 8,000 persons per day each way entering and exiting at the three new railway stations. Of these new rail passengers approximately 4,000 persons per day arrive in the area during the 6.00 am to 9.30 am morning peak period and are either workers in the area or university students.

1.4 Existing Parking Situation

Parking provision for new commercial buildings in the Corridor now varies with LEP 137, according to the distance from the railway stations and the site floor space FSR ratio, with the amount of parking required related to the location of the development.

Car Parking Provision Rates for New Commercial Developments in Macquarie Park

Macquarie Park Corridor	1 space / 80 sqm – within 400 m of new rail station 1 space / 70 sqm – Waterloo Road Corridor 1 space / 46 sqm – net usable floor space in remaining areas of Macquarie Park

The Commercial precincts of the study area currently have a total of over 31,500 off street car parking spaces on commercial land. However 4,100 of these car parking spaces are located within the Macquarie Shopping Centre where they are primarily intended for retail (and shopping centre staff) usage. This car parking supply nevertheless represents a generous rate of existing parking provision equivalent to almost one car parking space per employee in the study area currently.

In addition to this, the Macquarie University Educational Precinct had until recently a total of approximately 5,200 car parking spaces for university staff and students (excluding the Macquarie University Research Park MURP precinct). However, this total will be progressively reduced in the future to approximately 4,800 car parking spaces for the general University Academic Staff and Student users as a result of the approved University Concept Masterplan building works.

There are also approximately 1,300 on street car parking spaces in the study area, approximately 1,000 on streets within the Macquarie Park commercial business park area, 300 on streets adjacent to the Macquarie University Campus and none on streets within or adjoining the North Ryde – Delhi Road business park area.

1.5 Effect of Parking Availability on Traffic Congestion

The effect of the parking availability in an employment area of the traffic congestion on the surrounding road system is complex and is also significantly influenced by two primary factors.

In an area such as Macquarie Park where historically there has been a high level of availability of car parking and a high level of journey to work car travel, traffic congestion reaches an equilibrium point with commercial development. Employment growth with high levels of provision of car parking (there is virtually one car parking space per employee in the area) increases traffic congestion to the point where the limited accessibility as a result of peak hour road traffic congestion effectively discourages further employment growth.

The ECRL rail services at Macquarie Park now provide a reasonable level of public transport access to and from the area, via the CityRail network, for most residential areas in the Sydney Region. However, there are some remaining areas eg The Baulkham Hills Shire, the majority of Western and South Western Sydney, west of Parramatta and the Northern Beaches sub-region where further regional improvements to public transport access are still required.

Only when all areas of Sydney have a good level of public transport accessibility to Macquarie Park (ie when the public transport travel is comparable in terms of travel time, cost and convenience to private car travel), can the ongoing causal linkage between strong employment growth at Macquarie Park, high levels of parking provision for commercial development and excessive peak hour traffic congestion on the major road network surrounding the area be effectively broken for general employee and visitor travel to the area.

1.6 Parking rates comparison between Business Centres

In this study, the parking availability for new commercial developments in Macquarie Park has been assessed in comparison to the current parking provision rates in a range of competing business centres: eg Parramatta, The Sydney CBD, Rhodes, Chatswood, Norwest, St Leonards / Crows Nest, South Sydney and North Sydney.

Car Parking Provision Rates in Comparable Centres

Business Park Area	Car Parking Provision for New Commercial Developments
Macquarie Park Corridor	1 space / 80 sqm – within 400 m of new rail station 1 space / 70 sqm – Waterloo Road Corridor 1 space / 46 sqm – net usable floor space in remaining areas of Macquarie Park
Norwest Business Park	1 space / 25 sqm of GFA
Parramatta	1 space / 100 sqm GFA
Sydney CBD	The car parking provision rate is based on one space per 50 sqm Site Area, which is equivalent to approximately 1 space per 500 sqm for new commercial buildings with an FSR of 10:1 typically
Sydney CBD Fringe eg South Sydney	1 space / 125 sqm – (20%) allocated to visitors
Homebush Bay, Rhodes	1 space / 35 sqm
Sydney Airport surrounds	1 space / 40 sqm
North Sydney	1 space / 400 sqm
St Leonards	1 space / 400 sqm
Chatswood	1 space / 60 sqm – non railway precincts 1 space / 110 sqm – railway precincts 1 space / 200 sqm – commercial in Chatswood

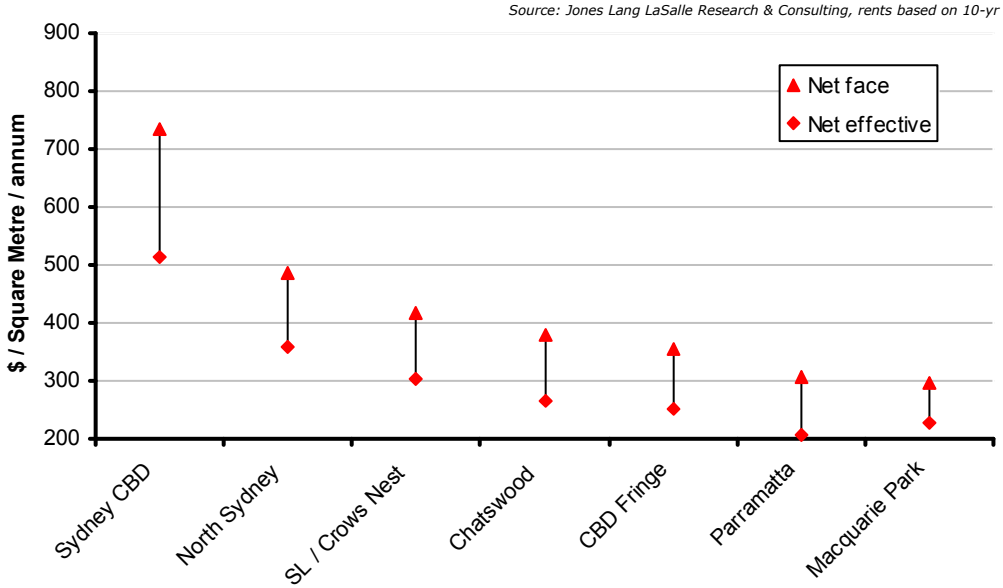
The current car parking provision rates per square metre for new commercial development in Macquarie Park (1 parking space per 46, 70 or 80 m²) are still generous compared to most competing business centres in Sydney and are effectively higher than for all other comparable business centres in Sydney except for Homebush Bay/Rhodes, the Sydney Airport surrounds and Norwest.

1.7 Market Rental Comparison between Business Centres

An important element of this study has been property market analysis of competing commercial centres, which has been undertaken by JLL. It has considered factors such as the industry sector of the principle tenancies, market rental rates, **Figure 1** , office vacancy rates and the ease of accessibility to key related business centres. The current market rentals per m² of commercial floor area in Macquarie Park are significantly below and effectively in a different market sector to the traditional Sydney CBD and North Shore business centres.

Figure 1 Average Prime Grade Office Rents in Sydney (2006-2008)

Source: Jones Lang LaSalle Research & Consulting, rents based on 10-yr lease term



The four business centres in Sydney which are the key competing centres for Macquarie Park in terms of rental yields for the construction and leasing of new commercial office buildings are the Sydney CBD Fringe Centres (eg South Sydney), Parramatta, Homebush Bay/Rhodes, and Norwest.

These four centres effectively compete with Macquarie Park on a number of different levels and are not all generally equivalent in terms of all the identified factors, eg market rental per sqm, parking availability, accessibility for the workforce by either car or public transport and the general availability of other workforce related attractions in the area, such as childcare, shopping, restaurants and other recreation and entertainment facilities.

Of the four centres considered, Homebush Bay does not yet have the critical mass to be a major competitor to Macquarie Park. Rhodes is much smaller and has only limited capacity for further growth. Parramatta attracts mainly government sector clients and Norwest offers a generally different product which is more targeted towards retail and wholesale industry clients. The primary competing commercial centre for Macquarie Park, across all the identified criteria at the current time is effectively the Sydney CBD Fringe Centres, including South Sydney

1.8 Current Commercial Market Conditions in Macquarie Park

There has been a two year spike in recent development activity in Macquarie Park, pre 2009, which was brought about by recent planning changes (new Draft Master Plan and LEP in 2008), new transport infrastructure projects (Lane Cove Tunnel and ECRL), solid demand conditions in 2007 and limited supply in the more established Sydney office markets.

An additional 397,000sqm of space is now either in development, approved or planned for the Macquarie park area. This is an additional 40% of commercial floor space above what has been developed to date and will create an even more competitive office space market when developed. Current market conditions show a growing vacancy rate in Macquarie Park, which recently reached a peak of 14.5% (Q1 2009), which represented a significant increase from previous vacancy rates of less than 4% during Q1 and Q2, 2007.

Demand for Macquarie Park office space has fallen due to the current global economic climate. Rents have also fallen slightly in Q1 2009, since the previous quarter, and incentives have gone up in order to attract tenants. Tenants are also seeking to sublease any surplus office space due to increasing economic uncertainty and cost cutting activities. These current market conditions have effectively placed a halt on many planned

developments at Macquarie Park until market conditions improve and pre-commitments to leases can be secured.

Macquarie Park rental yields have fallen slightly since the end of 2008, following a significant upswing during 2007 and 2008. However there has been a recent lack of major transactions since the start of 2009 to make a precise assessment of the current situation.

Over the period since 2001 generally, rental yields have been falling steadily at Macquarie Park, due to general increases in property values, above rental income increases. Overall, the commercial market in Macquarie Park is now facing a highly competitive environment, where there is likely to be increased competition for any new tenants active in the marketplace.

Already available parking off street parking or greater ratios of car parking to floor space in existing or planned buildings, can provide a competitive edge for building owners to offer occupiers. At present due to the soft economic conditions, this is likely to be utilised as an incentive to attract occupiers, rather than increasing net effective rents.

The current market situation for commercial office development in Macquarie Park compared to the other major business centres in Sydney currently, is illustrated by the recent vacancy rates for commercial office floor space. As of the final quarter of 2008 (December), the respective commercial office vacancy rates were.

- Sydney CBD, 7.5%
- North Shore, 10.0% (Combined data for North Sydney, St Leonards/Crows Nest and Chatswood)
- Parramatta, 9.8%
- Macquarie Park, 14.5%
- South Sydney, 5.5%

The recent “spike” in the vacancy rate for Macquarie Park has generated concerns for the short term leasing situation for commercial office development in the area. Until future global trading conditions have returned to predictable levels, the extent and timing of any market upturn for commercial office development at Macquarie Park is difficult to predict.

1.9 Commercial Implications of Changes to Car Parking Controls

1.9.1 Short term:

One of the main findings coming out of the study consultations with commercial stakeholders was that new demand for commercial office space in Macquarie Park is currently very weak. Any relaxation of the provision of parking for future developments will adversely affect the marketability of newly constructed developments, particularly in respect to the current vacant supply and the approved development pipeline of office stock. Based on the overall study consultation findings from the full range of government, commercial, institutional and residential stakeholders, it is considered that parking provision rates should be left unchanged in the short term.

1.9.2 Medium term:

As the current market conditions stabilise, and the commercial office space market in Macquarie Park absorbs available stock and any newly developed stock, there is a real opportunity to change the perception of the accessibility of the Macquarie Park area. In the medium term, the newly opened Macquarie Park rail line will have established itself as a full service rail line, and users will adapt their lifestyles to make greater use of it.

There will also be more opportunities to positively influence tenants’ perceptions about transport alternatives by developing a series of public transport and pedestrian friendly initiatives, such as street improvements and more integration of bus and rail ticketing and

services. Other parking facility management measures, such as more “unbundling” of the leasing of office space and car parking in the area, will also help to ease the transition of the area towards operating with lower overall levels of car parking provision for commercial office developments in the longer term.

The increasing implementation of workplace travel plans (similar to Optus and Macquarie University) will also help to reduce the existing strong demand for business related car travel during office hours. In the longer term Macquarie Park is likely to evolve into a more self sufficient mixed use business centre which will further reduce car dependency for major office building tenants and their workforces during work hours.

1.9.3 Longer term:

As the Macquarie Park area grows, the pressure on available road capacity on the major road network in the region will continue to increase, as identified by the City of Ryde traffic Study (Bitzios Consulting, 2008). Current levels of parking provision will need to be reviewed to limit growth in private vehicle travel (particularly for journeys to work during the peak hours) and to bring the Macquarie Park centre parking rates into line with other comparable major business centres in Sydney. This will mean reducing the provision of parking for new commercial office developments. However, this can only be a viable strategy when coupled with improvements to alternative transport modes for the area (public transport, walking and cycling) and raised awareness of these alternatives among the key stakeholders, landholders, employers and employees in the area.

The current accessibility and location based parking provision rates in the Macquarie Park area support both public transport and car access, and similar principles should be supported as new parking provision rates are developed. However it is important that this process is articulated and managed in a way that does not exacerbate competition with other business centres on the basis of parking availability. In the longer term, the future Macquarie Park parking provision rates should be generally comparable with other centres that are serviced by frequent train services and other public transport modes and incorporate major bus-rail interchanges.

1.10 Outcomes of Study Stakeholder Consultation

Following the completion of the study stakeholder consultation workshops and discussion meetings, a broad range of ten potential future car parking strategy and management themes were identified as having broad stakeholder support from at least two of the four stakeholder groups consulted, as summarised in the table below.

Summary of Key Parking Strategies Suggested by Stakeholders	
1	**Maintain existing car parking provision rates for commercial development**
2	**Potentially consider less restrictive commercial car parking provision rates (In the short term) but more restrictive commercial car parking provision rates ultimately.**
3	**Facilitate more adaptive shared use of car parking in the study area**
4	**Provide more off street public car parking in public parking stations**
5	**Provide peripheral car parking stations with bus shuttle services for employees and visitors to the Macquarie Park area**
6	**Provide rail commuter car parking for “Park and Ride” at the Macquarie Park railway stations**

7	**Further extend Resident Car Parking Schemes in the residential areas adjoining the Macquarie Park study area**
8	**Develop Workplace Travel Plans (WTPs) for both existing and new workplaces**
9	**Provide preferential commuter car parking charges in public off street car parks for cars carrying more than one person**
10	**Consider potential future extension of the State Government car parking levy to the Macquarie Park study area in the Medium to Longer Term**

1.11 Summary of Key Study Findings

The study investigations, analysis and consultations have identified a number of key findings in relation to the existing and proposed car parking supply and management in the study area. These key findings, which are important to the development of both short term and long term future car parking strategies for the study area, are as follows.

- The commercial zones of the study area have approximately one off street car parking space for each employee in the area, ie 31,500 car parking spaces vs 32,000 employees (Year 2006 Census Data). There are also a further 5,000 off street car parking spaces currently, for use by the Macquarie University Staff and Students and 1,300 on street car parking spaces
- The great majority of the commercial off street car parking spaces (31,500) are located on private land. Their leasing and occupancy is subject to commercial considerations that are not under the direct control of the City of Ryde Council. In the short term it is not easy for the Council to influence the day to day management and operation of this car parking, except for the Macquarie Shopping Centre car park, where Council has historically had some involvement, eg enforcing car parking time limits.
- The current car parking provision rates for new commercial development in Macquarie Park (1 parking space per 46, 70 or 80 m²) are generous compared to most of the other major business centres in Sydney and are higher than for all other comparable business centres in Sydney, except for Homebush Bay/Rhodes, the Sydney Airport surrounds and Norwest.
- Macquarie Park is a relatively immature, but rapidly growing commercial centre. Its rail link and patterns of public transport usage are not yet fully developed and established to the extent that its car parking supply and management can be considered on a similar basis to other more established commercial centres of similar size such as Parramatta, North Sydney and Chatswood. The current market rentals per m² of commercial floor area in Macquarie Park are significantly below and effectively in a different market sector to the traditional Sydney CBD and North Shore business centres.
- Historically, the area has attracted business occupiers with a high level of car dependency / travel modal split. These businesses often have a large and mobile sales force. The major road access to the area is highly congested with through traffic at peak times. M2 access to the Sydney Orbital Motorway is considered very important. Potential delays to emergency services access at peak periods is also a concern currently.
- The area has a large speculative pipeline of recently approved commercial development (with relatively high parking ratios and large numbers of car parking spaces). The market will need to be absorb these developments first, before new developments (with potentially lower parking ratios and lower numbers of car spaces) will become commercially attractive to investors.

- From market analysis of competing business centre to Macquarie Park, the Sydney CBD Fringe centres, eg South Sydney are considered the most directly comparable competitive centres currently. Homebush Bay / Rhodes have insufficient critical mass yet and Norwest generally offers a different product. Other established commercial office markets on Sydney's Lower north Shore, eg North Sydney and Chatswood now offer substantially different product types such as high rise office towers.
- The existing planning restrictions for occupiers at Macquarie Park reduce the potential market pool of occupants to selected industries only, with a Research and Product Development focus. The current industries have tended to have workers with a high bias towards car use. As Macquarie Park matures into a more mixed use business centre, zoning changes to support relaxation of these industry limitations will allow broader industry uptake of commercial office floor space and access by a wider worker pool, with greater public transport usage and increased commercial competition for leasings.

1.12 Recommended Future Car Parking Strategies

An important aspect of parking management is the need to progressively implement strategies through time. This study proposes introducing more market based approaches to parking provision and utilisation in the study area in the future which allows parking management options to be relevant and competitive.

This approach also encourages current parking users to identify cost effective alternatives to use of the private car. Measures to reduce the dependence on use of the private car for travel to and from the study area will need to be co-ordinated with walking and cycling access, more public transport system improvements, ongoing liaison with key stakeholders and travel demand / travel behaviour change programs.

Future Macquarie Park parking strategy recommendations will need to include initiatives that require modification to the built environment ('hard' infrastructure) as well as initiatives that are intended to modify of user behaviour ('soft' infrastructure). It is further recognised that a combination of these 'hard' and 'soft' initiatives will also be necessary to achieve the overall future integration of sustainable transport alternatives for future access to and from the study area.

The Macquarie Park future transport and car parking strategies should relate primarily to local issues in terms of need but must also recognise regional transport conditions and constraints. In this context, it is noted that the Macquarie Park "Corridor" centre is still a relatively new and developing centre in terms of its public transport accessibility. More established patterns of public transport usage and more effective integration of the public transport systems serving the area (both bus and rail) will be required before major changes to car parking (either supply or management) can be proposed without adversely affecting the overall future transport accessibility of the area.

1.13 Table of Proposed Parking Management and Supporting Strategies

The following table summarises the proposed Macquarie Park study area car parking management recommendations and supporting strategies in terms of their application, focus and timing. Each strategy is categorised under:

- **Implementation Time Frame**: Short Term (0 – 2 yrs), Short-Medium Term (2 – 5yrs), Medium - Long Term (5 -10 yrs)
- **Strategy Focus**, either core strategies which reduce parking demand or supporting strategies which facilitate travel by other travel modes
- **Area Context**, either Local or Regional
- **Priority Level**, High, Medium or Low

1.13.1 Action Plan Summary Short Term Priorities

Strategy	Strategy Focus	Context	Priority
1 Maintain Current LEP 137 Car Parking Provision Rates	Decreases Parking Demand	Local	High
2 Improve Wayfinding and Signage for Pedestrians	Support Strategy	Local	High
3 Improve Safe Walking Routes	Support Strategy	Local	High
4 Promote Car Sharing	Decreases Parking Demand	Local	High
5 Develop Education Campaigns (eg Travelsmart) to Reduce Car Travel	Support Strategy	Local	High
6 Maintain Parking Pricing (eg Parking Meters)	Decreases Parking Demand	Local - Regional	High
7 Development of Transitional Car Parking Which can Later be Converted to Other Uses	Support Strategy	Local	High

1.13.2 Action Plan Summary Short –Medium Term

Strategy	Strategy Focus	Context	Priority
8 Promote Cheaper Parking for Multi Occupant Vehicles	Decreases Parking Demand	Local	Medium
9 Integrate Alternative Modes of Transport to Improve Multi modal travel	Support Strategy	Regional	Medium
10 Improve Local Resident Access to ECRL Rail Stations (North Ryde)	Support Strategy	Local	Medium
11 Improve Bicycle Trip Facilities, Bicycle Network and Bicycle Parking	Support Strategy	Local	Medium
12 Increase Implementation of Business and Institutional Workplace Travel Plans	Support Strategy	Local	Medium
13 Promote Unbundling of Parking Supply from Land Use	Decreases Parking Demand	Local	Medium
14 Further Extend Resident Car Parking Schemes	Support Strategy	Local	Medium

1.13.3 Action Plan Summary Medium - Long Term

15 Further Review Commercial Car Parking Provision Rates	Decreases Parking Demand	Local	Low
16 Implement Metro Wide Parking Policy (by NSW State Government)	Decreases Parking Demand	Regional	Low
17 Develop Pedestrian Focussed Employment Centre Precincts	Support Strategy	Local	Low
18 Assess Potential for Developer Funded Section 94 Car Parking Plan	Support Strategy	Local	Low
19 Provide Peripheral Car Parking & Park and Ride Strategy for Employees and Visitors	Support Strategy	Regional	Low

1 Introduction

The Macquarie Park Study Area is illustrated by the Map in **Figure 1**.

The area currently experiences high car dependency that has significant impacts on traffic and transport issues in and beyond Macquarie Park. City of Ryde Council estimates that almost 85% of commuters currently travel to work to Macquarie Park by car, generating high levels of peak hour traffic congestion in Macquarie Park and along Lane Cove Road, Epping Road and the M2.

Travel demand management and parking policies are identified as investment measures that can be adopted to respond to the traffic and transport issues in Macquarie Park. A fundamental element of travel demand management is measures to reduce the dependence on and use of the private car, where these measures need to be addressed through a coordinated approach – looking at a range of transport system investments and integrated with broader travel demand and behaviour change programs.

This Study seeks to make recommendations for future improvements to the area to support Macquarie Park's transition from a car dependent, homogenous, commercial centre into a sustainable, vibrant, attractive, pedestrian and public transport orientated mixed use business centre. To respond to the City of Ryde brief, the recommendations discussed within this report have been developed through an investigation into:

- Issues and considerations surrounding the parking situation in Macquarie Park
- Planning framework
- A comparison with similar Business Parks
- Current travel behaviour to Macquarie Park
- Targets for influencing travel behaviour
- Strategies to reduce car dependency

2 Aims and Objectives of the Study

2.1 Objectives and aims

The Study responds to the City of Ryde's Project Objectives:

- To evaluate the current impact of amended/ reduced parking controls in LEP 137 (and other existing parking measures) on the economic viability and sustainability of the commercial sector in Macquarie Park Corridor;
- To recommend parking rate (s) for commercial development in the Corridor that ensures the area remains competitive and economically viable into the future, having regard to comparable, competing commercial centres;
- To recommend actions that promote and support the use of public transport;
- To recommend strategies for the Corridor that provide a balanced suite of parking measures to;
    - Minimise car dependency, particularly amongst commuters
    - Ameliorate traffic congestion;
    - Limit impact on affected stakeholders, being commercial property owners/occupiers, government agencies and existing residents;
    - Encourage the implementation of sustainable mechanisms to alleviate identified social, environmental and economic impacts arising from the implementation of

parking measures. This will include (but should not be limited to) analysis and preparation of recommendations for measures such as

- Work place travel planning
- Commuter car parks (location, number)
- Innovative shared parking station arrangements (stand alone – or within existing buildings)
- Potential use of a parking levy and/ or fee
- Salary packaging (including an analysis of FBT implications)

2.2 Considerations

Following consultations with the City of Ryde Council and further research, we have flagged the following considerations that will impact on the Macquarie Park study area in the future in relation to parking:

- Generous parking provision has been highly regarded by the commercial sector and is seen to have contributed to the past growth of the business park
- Car parking in surrounding areas – Macquarie University and the Macquarie Shopping Centre have traditionally provided extensive parking at little to no cost.
- Residents in the area are concerned about overflow parking in surrounding residential precincts
- Developing alternative future travel options away from the private vehicle based on underlying sustainability principles that relate more broadly to sites delivering benefits to the environment, economy and society.
- Impact of Fringe Benefits Tax issues for companies relocating to Macquarie Park. Historically, the exemption has saved companies significant amounts of money in operating their workplaces in the area. Developers use this as an incentive to attract building tenants.
- Oversupply of space (with existing approved DAs) acts as a disincentive to further redevelopment of the area – Developers are wary of falling rents and yields. (FBT concessions and abundant parking are one way developers may offset this risk).
- High level of scepticism over continuing future public transport improvements to the area.
- Macquarie Park may nevertheless develop a competitive advantage with better public transport provision in the near future.

Proposed consultation boundary for residential parking schemes

Macquarie Park Area

Resident Parking Scheme

Zoning

<all other values>

TAG

R2 Low Density Residential

RE1 Public Recreation Regional Open Space

SP2 Infrastructure

Figure 1: **Study Area and Adjoining Residential Areas**

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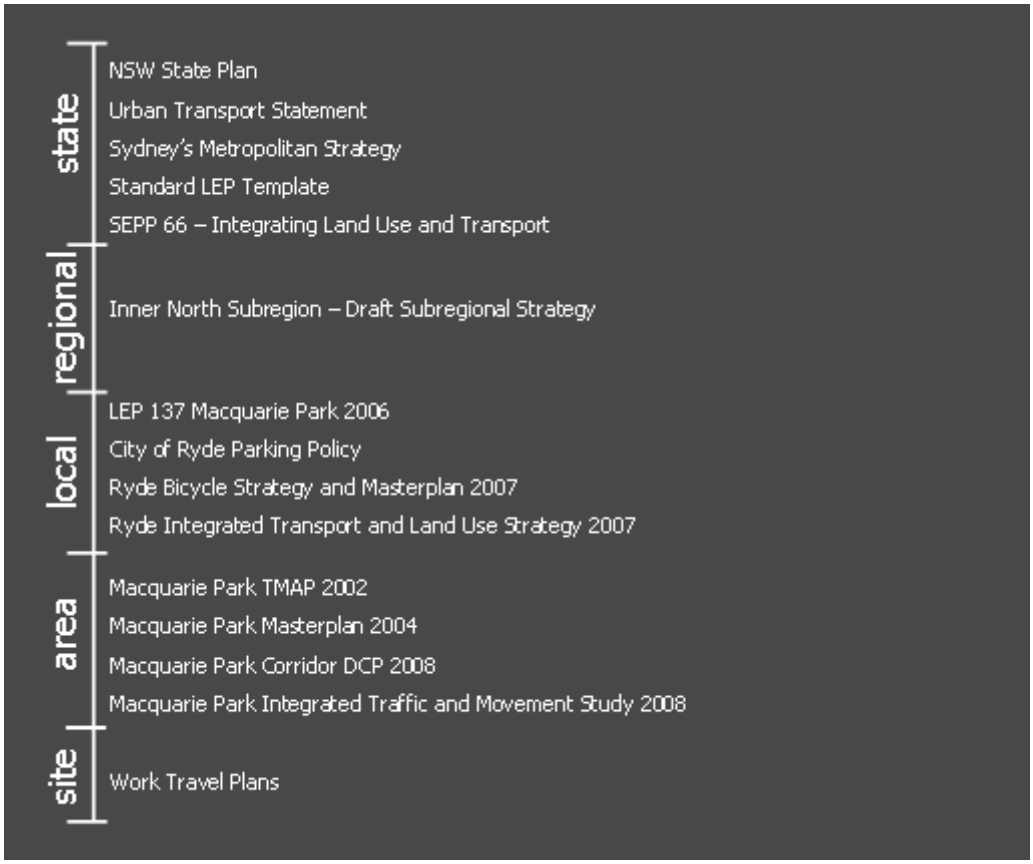
0 0.5 1 2 Kilometres

3 Planning Policy and Strategic Framework



3.1 State Plans and Policies

3.1.1 NSW State Plan

The NSW State Plan, 2006 sets out goals and priorities under five strategic directions:

- rights, respect and responsibility
- delivering better services
- fairness and opportunity
- growing prosperity across NSW
- environment for living

The NSW State Plan relates to the Macquarie Park Corridor Parking Study through the objectives of:

- S6 Increasing share of peak hour journeys on a safe and reliable public transport system
- P1 Increased business investment
- E3 Cleaner air and progress on greenhouse gas reductions
- E5 Jobs closer to home

3.1.2 Sydney's Metropolitan Strategy, 2005

The Sydney Metropolitan Strategy (Metro Strategy) identifies Macquarie Park within the Inner North Subregion as a specialised centre, within the North Sydney to Macquarie Park global economic corridor that houses occupations related to:

- general and specialist managers
- business
- information technology
- science
- arts and media professionals

The global economic corridor links Macquarie Park, Chatswood, St Leonards, North Sydney, Sydney City and Pyrmont Ultimo.

As a specialised business centre, the Metro Strategy highlights that business centres should be sustainable from a transport perspective and strategies for business parks should:

- support existing centres
- have high quality design outcomes
- reduce environmental impacts
- build on existing concentrations and clusters of knowledge based activity such as universities or hospitals

The Sydney Metropolitan Strategy forecasts employment numbers in the Inner North Subregion to remain constant at 12% of the Sydney metropolitan region's job share by 2031. With the forecast growth in employment in Sydney overall, there is an expected growth in the number of jobs to 55,000 at Macquarie Park to maintain the constant share of jobs in the region. The Macquarie Park Corridor is expected to experience significant jobs growth from 2001 – 2031 of an additional 23,100 jobs, a change + 70% approximately.

Within this jobs growth forecast, Macquarie Park is identified as a specialised centre to contribute to more self contained sub-regions within Sydney which need upgraded public transport links that provide more efficient transport connections than cars.

A further initiative to come from the Metro Strategy is the Stronger Corridors Initiative that will involve:

- preparation of land use and structure plans examining the future distribution of residential and employment activities in the corridor;
- an access and parking plan, analysing internal movement and access, maximising existing and proposed infrastructure investments
- an economic development plan, examining ways to maximise networks and clusters of economic activity, including strengthening precincts, improving centre management
- an infrastructure plan supporting and underpinning the above land use, access and economic development directions

Actions for transport under the Sydney Metropolitan Strategy highlight influence to encourage more sustainable travel choices by developing and implementing:

- Integrated Transport and Land Use Plans
- Planning Guidelines for Walking and Cycling at a local government level
- Metropolitan Parking Policy
- Travel Smart behaviour change program

3.1.3 Standard LEP

The NSW Government has implemented reforms to the local planning process to create one plan per Local Government Area, reduce the layers of planning instruments and enable LEPs to better reflect the targets for dwellings and employment from subregional plans and the aims of the Metropolitan Strategy. The City of Ryde Council is in the process of translating their planning ordinance scheme into the Standard LEP template, as discussed under section 3.3 of this report.

3.1.4 Draft SEPP 66

Draft SEPP 66 gives guidance for the preparation of an Environmental Planning Instrument to achieve better Integration of Land Use and Transport (ILUT) planning at the local level.

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 Draft SEPP 66 and the ILUT objectives are addressed through the Section 117(2) Ministerial Direction 3.4 under the new directions of the planning legislation on the content of Council LEPs.

3.2 Regional Plans and Policies

3.2.1 Draft Inner North Sub Region: Subregional Strategy

The Draft Subregional Strategy provides an intermediate policy between the Metropolitan Strategy and local government areas that outlines local concerns of:

- coordinated planning
- funding and development contributions
- local transport
- open space networks
- biodiversity

Macquarie Park lies within the Inner North Subregion where it is defined as a ‘strategic centre’ and a ‘metro wide business park’

The Draft Subregional Strategy highlights:

- State Government and City of Ryde to encourage greater use of public transport for Macquarie Park Specialised Centre with the opening of the Epping – Chatswood Rail Link
- ‘City of Ryde should investigate a range of measure to encourage an increase in public transport and review of parking provisions’
- Increase bus connections and cycle and pedestrian access to and through the centre

The Draft Subregional Strategy identifies Macquarie Park as 'a unique economic space, with clustering of high technology businesses and a campus type working environment and amenities.' The Strategy highlights that the rail infrastructure of the Chatswood to Epping line along with the implementation of the metropolitan wide parking policy will encourage greater use of public transport to the area.

The Strategy outlines a future potential total of 1,700,000 m² of commercial/office floor space with a potential employment capacity target of 55,300 jobs in the centre by 2031.

The Draft Subregional Strategy highlights that car dependence in Macquarie Park is currently high due to the limited public transport alternatives and the quantity of off street parking. Along with the development of the Epping- Chatswood Rail link, the Strategy indicates that 'The Government will also fast track completion of bus priority works to improve bus travel times and reliability on the strategic bus corridors linking Macquarie Park to its surrounding Strategic Centres. It will need to be complemented by a consistent and strict parking policy to influence the travel behaviour of employees.'

Macquarie Park Corridor is flagged as an area where 'local government needs to review the off street parking provisions' and where 'State Government, in partnership with local government and the community, needs to implement TravelSmart sustainable transport programs with the opening of the Epping – Chatswood Rail Link.'

Other potential economic connections for Macquarie Park include the extension of the "global" economic corridor from Macquarie Park to Westmead over the next 25 years.

3.3 Ryde Council Plans and Policies

3.3.1 LEP 137

The objectives of this LEP aim to guide Macquarie Park towards a globally competitive Specialised Centre. The objectives include:

- Ensure Macquarie Park Corridor matures into a premium location for globally competitive businesses with strong links to the university and research institutions and an enhanced sense of identity;
- Ensure that the employment and educational activities within the Corridor are integrated with other businesses and activities within Sydney's global economic crescent;
- Ensure the Corridor will be characterised by a high-quality, well-designed and safe environment that reflects the natural setting, with three accessible and vibrant railway station areas providing focal points;
- To provide a new street network that will, inter alia:
    - Achieve a more comprehensive network allowing for greater permeability or linkages between land uses and the station nodes.
    - Reduce pressure from existing road intersections.
    - Create additional street frontages providing opportunities for new business addresses.
- Provide a transition from the more intense development and street activity focused at the station precincts and the central boulevard spine to the peripheral areas characterised by the lower scale development and greater landscaped elements through:
    - More urban "activated" streetscapes near the transport nodes with a safe and convenient pedestrian environment that encourages public transport use and social interaction.

  - A more sensitive orientation of the employment areas to the adjoining residential areas, in particular south of Spring Road and the Lane Cove National Park, incorporating a lesser scale of development and greater landscape opportunities.
  - A variety of business addresses attractive to different business types to provide a more mature employment area, more robust to economic changes.
- Incorporate the principles of ecologically sustainable development.

In relation to parking provisions, off street parking objectives align with the state and regional planning framework:

- to acknowledge accessibility by foot, bicycle and public transport
- to support management and supply of parking as the primary means to influence travel behaviour of employees,
- to provide greater reliance of public transport
- to assist in the management of increased car usage and traffic congestion in the Corridor
- and to encourage a greater mode shift towards public transport

The Current Ryde LEP137 – parking restrictions are shown on the Macquarie Park Corridor Parking Restrictions Map. The locations of each part of the study area where the current commercial car parking controls apply are shown by the attached map in **Figure 2**

3.3.2 Draft City of Ryde LEP 2008

Under the Draft City of Ryde LEP 2008, the study area is predominately zoned B3 – Commercial Core, B4 – Mixed Use and B7 – Business Park. These have separate but complementary development objectives. There are also small areas of environmental and recreational zoning.

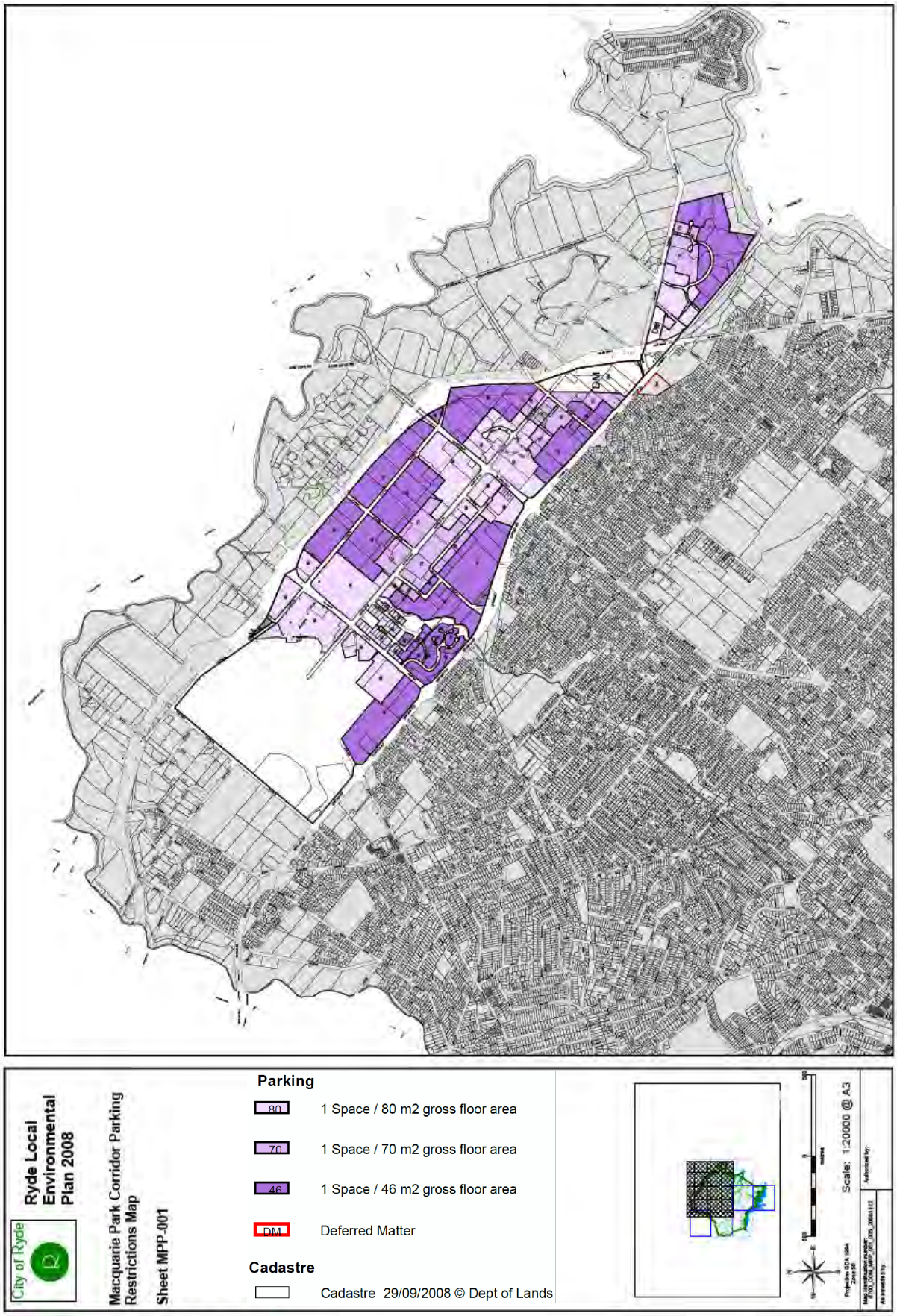
Objectives for the B3 – Commercial Core zone:

- To provide a wide range of retail, business, office, entertainment, community and other suitable land uses that serve the needs of the local and wider community.
- To encourage appropriate employment opportunities in accessible locations.
- To maximise public transport patronage and encourage walking and cycling.
- To ensure the zone is characterised by high-quality well-designed buildings that enhance and encourage a safe environment.
- To encourage industries involved in scientific research and development.

Objectives for the B4 – Mixed Use Zone

- To provide a mixture of compatible land uses.
- To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.
- To create vibrant active and safe communities and economically sound employment centres.
- To create safe and attractive environments for pedestrians.
- To recognise the topography, landscape setting and unique location in design and land-use.

Figure 2: Existing Commercial Area Parking Controls



Objectives for the B7 – Business Park Zone

- To provide a range of office and light industrial uses
- To encourage employment opportunities
- To enable other land uses that provide facilities or services to meet the day to day needs of the workers in the area
- To ensure the zone is characterised by high quality well designed safe environment that reflects its natural setting
- To provide a zone with strong links to Macquarie University and research institutions and an enhanced sense of identity
- To encourage industries involved in scientific research and development

The Draft Ryde Local Environmental Plan LEP 2008 was exhibited from the 12 November 2008 to 9 January 2009. The draft LEP amalgamates approximately 100 amendments to the Ryde Planning Scheme Ordinance and translates these into the Standard LEP format. The LEP consolidates information from the current Ryde Planning Scheme Ordinance and necessary development standards from the Development Control Plan 2006.

The Draft Ryde LEP 2008 comprises new zones, definitions and clauses and is in a different format to the Ryde Planning Scheme.. On 5 May 2009 Council resolved that Draft Ryde LEP 2008 be adopted and that the amended Plan be forwarded to the Department of Planning under Section 68 of the EP&A Act 1979 requesting the Minister make the Plan. The Minister will form an opinion and decide on the gazettal of the plan.

3.3.2.1 City of Ryde Draft LEP 2008, Amendment 1

City of Ryde Council resolved to amend the Draft LEP 2008 to support Macquarie Park's growth. The amendment is to establish a system of FSR and height incentives to facilitate the re-development of large blocks to achieve improvements to locality access, the public domain, public infrastructure and community facilities. An application was made to the Department of Planning to assess the proposed amendment in April 2008, prior to the introduction of the LEP Gateway review process under the Environmental Planning and Assessment Amendment Act 2008. The Department is reviewing the LEP amendment to to determine whether to issue a certificate pursuant to s65 of the EP&A Act 1979 and allow the public exhibition of the amended LEP (under s66).

3.3.3 Ryde Planning Scheme Ordinance, Macquarie Park Corridor

Section 98 (Part 10) of the Ryde Planning Scheme Ordinance contains directives regarding the requirements and provision of off-street parking:

1. The off-street parking requirements for commercial and industrial development on land within Macquarie Park Corridor must not exceed the rate shown for the land on the map marked "Ryde Local Environmental Plan No 137-Macquarie Park Corridor-Parking Restrictions" deposited in the office of the Council.

2. Off street parking controls in the Macquarie Park corridor

- *to recognise accessibility by foot, bicycle and public transport*
- *to support the management and supply of parking as the primary means to influence travel behaviour of employees*
- *to encourage greater reliance on public transport*

- *to assist in the management of increased car usage and traffic congestion in the corridor*
- *to effect a greater mode shift to public transport*

Under the Ryde Planning Scheme Ordinance, the supply of off street parking is now being limited to encourage a greater mode shift towards public transport for journey to work travel.

There are several other measures to reduce parking demand:

- Clause 99 – reduces demand for private motor vehicle travel by allowing convenience retail or commercial activities on the ground floor of developments zoned for 3 (f)
- Bonus floor space ratios are permitted when streets and pedestrian access are developed in accordance with the proposed access network.
- Off street parking should not exceed the rate shown on the map – LEP 137 – Macquarie Park Corridor Parking Restrictions.

As discussed above, the Draft Ryde LEP 2008 consolidates information from the current Ryde Planning Scheme Ordinance and includes necessary development standards from the Development Control Plan 2006, as required under the Standard LEP. The Draft Ryde LEP 2008 comprises new zones and definitions that comply with the Standard LEP template.

3.4 Local Area Plans and Policies

3.4.1 TMAP 2002

This report was prepared jointly for City of Ryde and Planning NSW by consultants Maunsell and PBAI in 2002. It provided the initial background and recommendations towards developing a more public transport access and pedestrian oriented future development focus for the area. Much of the plan's recommendations have now been superseded by subsequent more detailed work and future development projections. The TMAP proposed the following range of measures to encourage public transport use:

- Develop a Transport DCP
- Reduce Parking Provision Rates
- Make pedestrian / cyclist planning issues fundamental priorities
- Improved bus services in Lane Cove to Ryde Road Corridor
- Way finding

3.4.2 Macquarie Park Corridor Masterplan – City of Ryde Council 2004

The Macquarie Park Corridor Master Plan recognises the need to give increased priority to pedestrians and cyclists in the design of the road network, including on Waterloo Road. The masterplan also encourages the implementation of Work Place Travel Plans and other plans to encourage public transport use. The proposed street layout also allows permeability between surrounding land uses to better connect residential areas and station nodes.

The key features of this plan include:

• An emphasis on strategic policy-driven solutions

• Improved facilities for pedestrians and cyclists

• Recognition of the importance of passenger interchange in achieving higher levels of public transport use

• Improved linkages to surrounding residential areas

• Reallocation of road space to favour public transport, pedestrians and cyclists, as well as improving the local environment.

Masterplan vision:

- A premium location for globally competitive businesses with strong links to the university and research institutions;
- Accessible and vibrant mixed use precincts around the three proposed stations;
- A high quality, well designed, safe and liveable environment that reflects the natural setting;
- Better integrated residential and business areas;
- An enhanced sense of identity for the area; and
- Better lifestyles for all those who live, work and study in the area.

The key objectives of the Masterplan are to guide the quality of future development following the opening of the Epping-Chatswood Rail Line (ECRL) and its new stations at Macquarie Park. Some of the concepts from the Masterplan include:

- Establish a fine grain street network allowing for greater permeability or linkages between land uses in the corridor and surrounding residential areas with the station nodes;
- Take pressure off the limited number of existing streets and road intersections to redistribute and circulate traffic;
- Create additional street frontages providing opportunities for land owners to subdivide and create new business addresses and facilitate smaller tenancies;
- Provide additional opportunities for bus network planning;
- Provision must be made for bus stops, taxi ranks and kiss and ride as close to the station entries as practically possible;
- Bus shelters should be provided at all bus stops and taxi ranks;
- Easy and direct pedestrian and wheelchair movement must be enabled between the station entry and bus stops, taxi ranks and kiss-and-ride locations at each plaza;
- Signalised pedestrian crossings must be provided across each street adjoining a station plaza, incorporating pram crossings. Where possible, road pavement areas should be minimised and pedestrian pavement areas maximized near stations;
- The off-road cycle path along Waterloo Road must terminate at the entry to each plaza;
- Cycle lockers and racks must be integrated within each station entry building, visible and accessed directly from the plaza (Note – it is RailCorp policy to locate cycle lockers at least 50m from the station entry for security reasons.)

3.4.3 DCP 55 – Macquarie Park Corridor 2006

The DCP outlines a wide range of development controls for future development in the Macquarie Park study area, including the following:

- Character area development controls

- Corridor – wide development controls
- Development controls for the public domain
- Parking objectives

  - to minimise car dependency for commuting and recreational transport use, and to promote alternative means of transport – public transport, bicycling and walking

  - to minimise traffic congestion in the Corridor

  - to provide adequate car parking for building users and visitors, depending on the building use and proximity to public transport

  - to integrate the location and design of car parking with the design of the site and the building

3.4.4 Ryde Integrated Transport and Land Use Strategy 2007_Centre Report for Macquarie Park

The Strategy 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.

The following table outlines the future commitments in the strategy for the transport elements of Macquarie Park. The implementation of these commitments by the City of Ryde and the other relevant government agencies is now substantially complete.

Transport Element	Commitments	Status
Rail	Three new stations are planned to pass through the Macquarie Corridor as part of the Epping to Chatswood Rail Link: - Macquarie Uni - Macquarie Park - North Ryde The Rail Link will provide direct rail access to the North Ryde/Macquarie Park area and create capacity for 12,000 passengers / day. The train services will run every 15 mins both ways.	Completed
Bus	Existing bus services: - There are 24 bus services on the Weekday – with bus frequency servicing mostly the AM and PM peak periods on Monday – Friday - Macquarie Centre Shuttle Bus 'Biz Park Shuttle' connects Macquarie Park businesses and the Macquarie Centre – Monday to Friday from approximately 11 am – 3 pm every 20 mins.	STA Bus Service Review – proposed changes exhibited in September 2009

	There are plans by MOT to enhance bus movements that reflect the new rail line.	
Taxi	Taxi ranks are to be provided at new rail stations	Taxi ranks now provided
Walking	An off road combined cycle and pedestrian path is proposed at the Shrimpton Creek/Epping Rd crossing. A more permeable street network is proposed by the Masterplan	Only limited improvements. The future permeable street network is not yet implemented
Cycling	The Ryde Bicycle Strategy and Masterplan 2007, outlines upgrades to bicycle routes to connect to regional bike routes passing through Macquarie Park and Gladesville.	Only limited cycleway improvements implemented to date
Parking	Following upon the recommendations of the Macquarie Park Corridor Parking Demand Study, parking meters have been installed in selected streets in the Macquarie Park Business Corridor. No additional public car parking facilities are proposed by Council for this area.	Council may now consider additional public car parking facilities in appropriate locations

3.4.5 City of Ryde Integrated Traffic and Movement Study 2008/9

The City of Ryde Council has recently completed two significant traffic and transport planning studies which together comprise the Integrated Traffic and Movement Study.

The outcomes and recommendations of these two studies are discussed and summarised in detail in Chapter 5 of this report. These two studies have confirmed the need for a more fine grained grid of local roads and a new footpath network for the area to improve local traffic permeability, pedestrian amenity and accessibility within the area, which is also endorsed by the most recent City of Ryde DCP and LEP amendments for the Macquarie Park area in 2008 and 2009.

3.4.6 Review of the Implementation and Operation of Resident Parking Schemes in the Areas Surrounding Macquarie Park

The City of Ryde has undertaken consultations with local residents twice, in 2005 and 2008/9 to review the operation and the effectiveness of the residents parking scheme restrictions which have been introduced to control the overflow parking demand from Macquarie Park commercial uses, Macquarie University educational uses and the new railway stations

The increased competition for on street car parking in the study area following the post LEP137 reductions in the amount of car parking which is now permitted for new commercial developments and the recent changes to parking controls for all day parking in the Macquarie Shopping Centre car park have also been causing some concerns to residents in the adjoining residential areas.

The results of these resident consultations are summarised in detail in Chapter 8 and also in **Appendix A** of this report. In general the consultation responses indicate that the majority of the residents are happy with the residents parking schemes but there were some requests for extension of the restricted parking areas further south as far as Kent Road and more intensive enforcement of the parking restrictions in the most affected streets, eg Paul Street and McGregor Street, which are closest to the commercial areas.

4 Existing Parking Situation

4.1 Existing Parking Controls

4.1.1 Controls

Parking Controls in the Macquarie Park Corridor now vary according to distance from the railway stations.

The parking rates for Macquarie Park are set by the Ryde Planning Scheme Ordinance and LEP 137, which refer to the rates specified in the map of the area, basing the parking rates on distances from new railway stations (as shown by the map in **Figure 2**). As specified in the Ryde Planning Ordinance and LEP 137, the main objectives for the provision of parking in the Macquarie Park Corridor are:

- To acknowledge accessibility by foot, bicycle and public transport, and
- To support the management and supply of parking as the primary means to influence travel behaviour of employees, and
- To provide greater reliance on public transport, and
- To assist in the management of increased car usage and traffic congestion in the Corridor, and
- To ensure a greater mode shift to public transport.

Car parking provision in the Macquarie Park Corridor is further controlled by a number of City of Ryde development controls. In City of Ryde Development Control Plan 2006, Part 4.5, Macquarie Park Corridor, specifies three options for determining the appropriate rate of parking provision for a development in the corridor:

- Car parking for commercial and industrial activities is to be provided for in accordance with the rates contained in the Ryde Planning Scheme Ordinance.
- All other development should comply with the City of Ryde Development Control Plan 2006.
- Industrial and commercial development may seek to apply the transitional parking rates detailed in the City of Ryde Development Control Plan 2006. These transitional rates provide a mechanism to allow parking supply at a higher rate initially, and progressively reduce parking supply as dependence on motor vehicle use by building tenants is reduced.

The following transitional parking arrangements apply to industrial and commercial developments which are approved between the year 2008 and the year 2015.

Timing of DA Submission	Type of Car Parking Permitted	Commercial / Industrial FSR 2:1 and 3:1	Commercial / Industrial FSR 1.5:1	Commercial / Industrial FSR 1:1
D.A pre 1.1.08	Permanent (max)	1 space / 80 m²	1 space / 70 m²	1 / 46 m²
	Temporary (max) Difference to rate of 1 space/ 46 m²	1 space / 110 m²	1 space / 135 m²	Nil
D.A 1.1.08 – 2015	Permanent (max)	1 space / 80 m²	1 space / 70 m²	1 / 46 m²
	Temporary (max) Difference to rate of 1 space/ 60 m²	1 space / 240 m²	1 space / 420 m²	Nil

The transitional car parking rates allow development to provide permanent parking spaces at a rate consistent with the long term maximum parking rate (As specified in LEP 137), plus to provide additional temporary parking above the long term maximum rate in a way that allows the removal of the extra parking at a future specified date. As part of the development application process, the extra car parking spaces for future conversion/phasing out need to be identified as part of a site parking management strategy and the future uses of this land specified once the temporary spaces are converted.

These parking controls are based on the concepts contained in the Macquarie Park Corridor (North Ryde) Masterplan 2004, which specifies the need to reduce car parking rates in a staged manner in consideration of the ECRL rail line, which was opened in 2009 and will establish itself as a major transport mode for commuters in the next few years.

4.2 Existing Parking Capacity – Inventory

A detailed inventory of the study area car parking supply has been prepared with existing totals of commercial floor space and car parking for each street block. The street block numbers have been defined by Arup as street blocks 1-10 corresponding to the “inner core” 400 metre walking distance zones of the three railway stations, street blocks 11-22 corresponding to the intermediate 400-800 metre walking distance zones of the railway stations and street blocks 23 -24 corresponding to the other zones (both within the Macquarie University site) which are generally beyond the 800 metre walking distance of any railway station. The floor space and parking inventory data is derived from City of Ryde data and other sources. The existing car parking inventory analysis is summarised by the following maps,

- **Figure 3** Arup Street Block Inventory Map of the Study Area
- **Figure 4** Existing Commercial Floor space Inventory
- **Figure 5** Car Parking Inventory – Off Street Parking
- **Figure 6** Car Parking Inventory – On Street Parking

The 17 commercial precincts of the study area currently have a total of over 31,500 off street car parking spaces in commercial areas. There are also approximately 1,300 on street car parking spaces, which are approximately 1,000 spaces within or adjoining the Macquarie Park commercial business park areas, 300 spaces on streets adjacent to the Macquarie University Campus and no parking spaces anywhere on streets within or adjoining the Riverside Corporate Park (North Ryde Railway Station) business park area.

The Macquarie University Educational Precinct in early 2008 had a total of 5200 car parking spaces for general academic and student use, excluding the Macquarie University Research Park (MURP) precinct, where there was a further total of 900 car parking spaces.

However the MURP parking is included in the general study area total of 31,500 off street commercial car parking spaces.

4.3 Existing Parking Capacity - Analysis

The majority of the total study area car parking supply is privately controlled off street car parking, the day to day leasing and operation of which is not under the direct control of the Ryde City Council.

A detailed breakdown of the current distribution of this off street car parking supply (which represents approximately 97% of the total study area commercial car parking supply) within nine “existing land use precincts” of the study area is summarised in the following section of this Chapter.

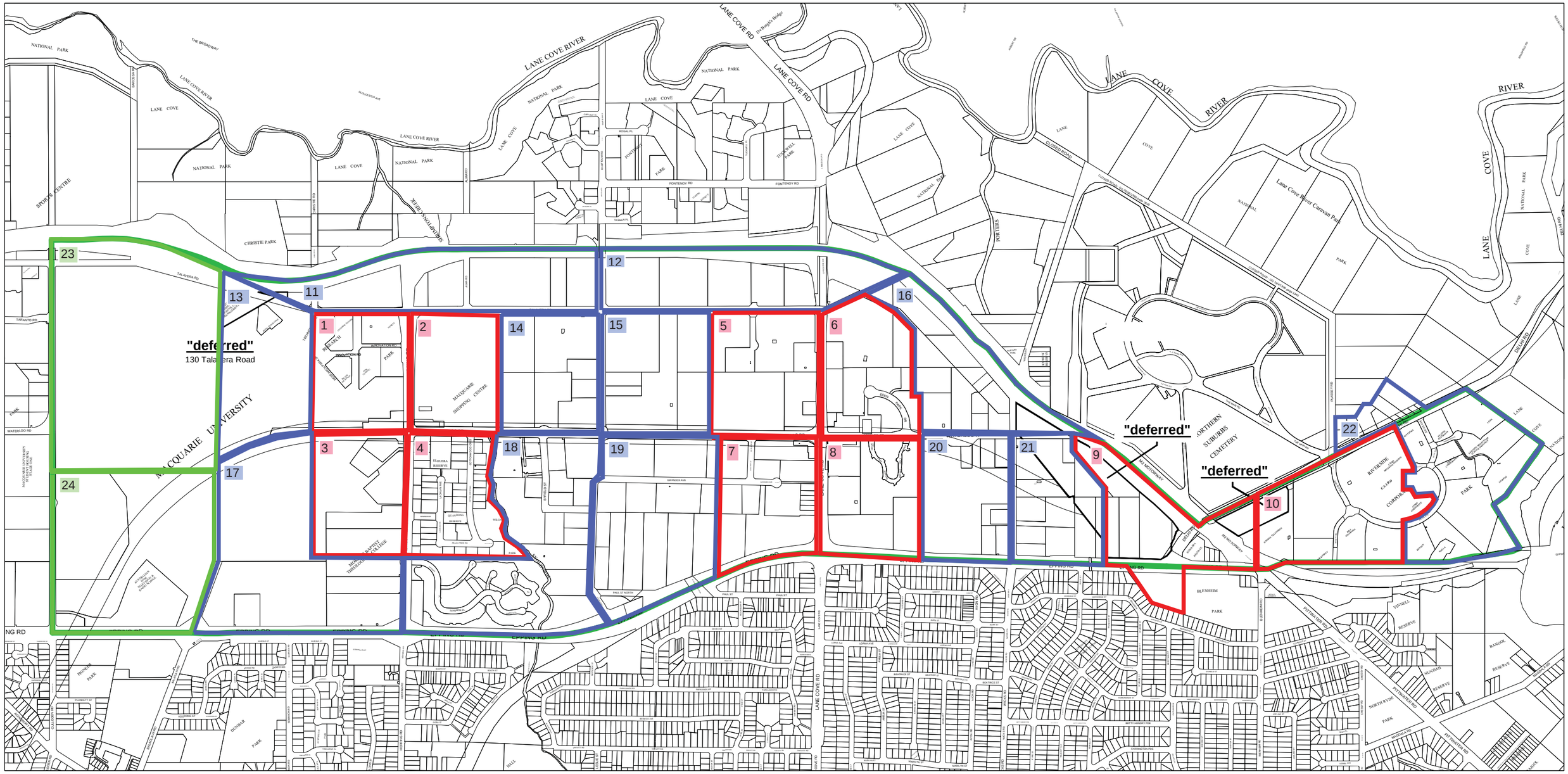


Figure 3

Arup Definition of Street Block Precinct for the Macquarie Parks Study Area

- Core Commercial Precincts
- Other Commercial Precincts
- Other University Precincts

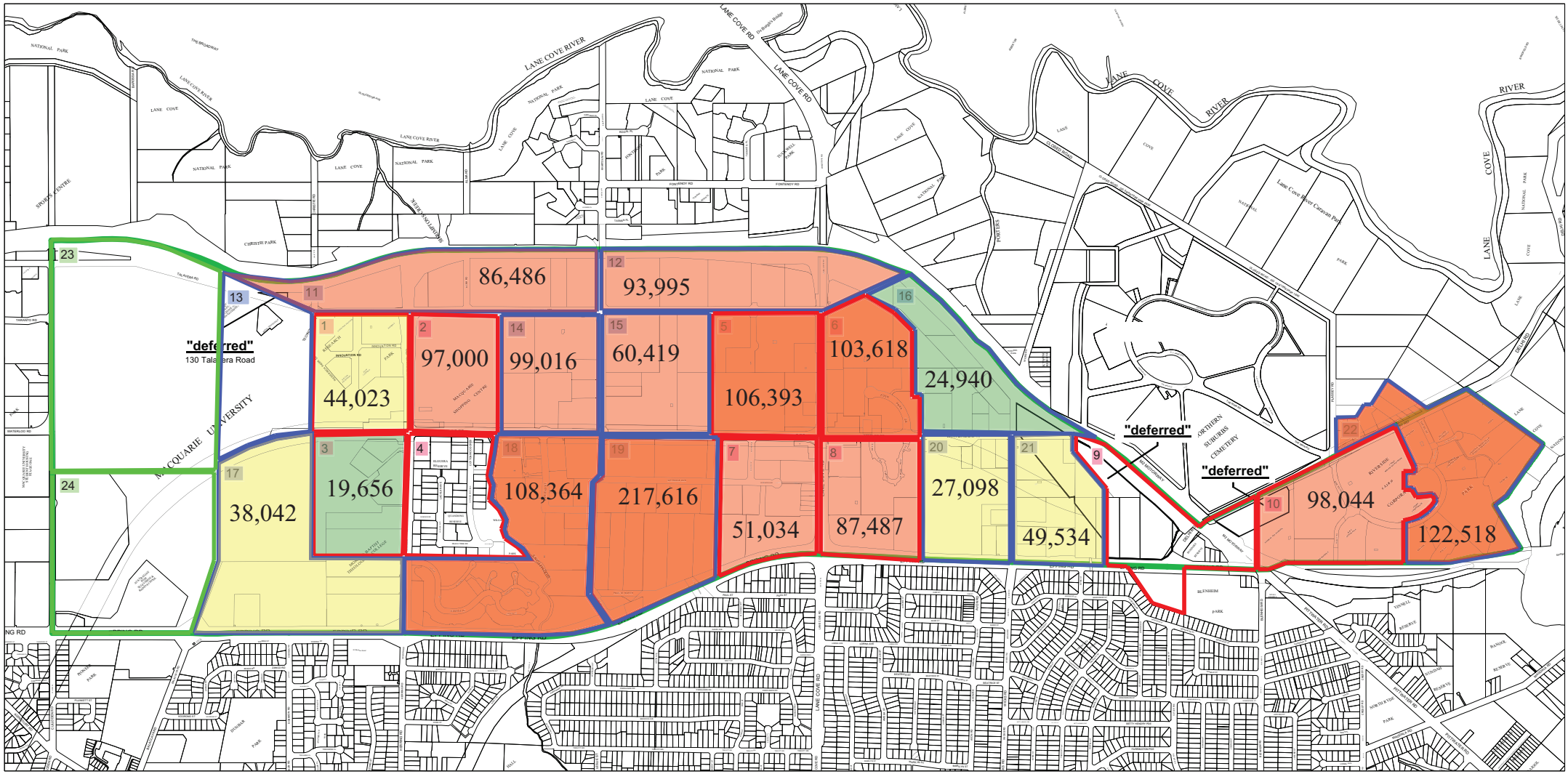


Figure 4

Existing Commercial Floor Space

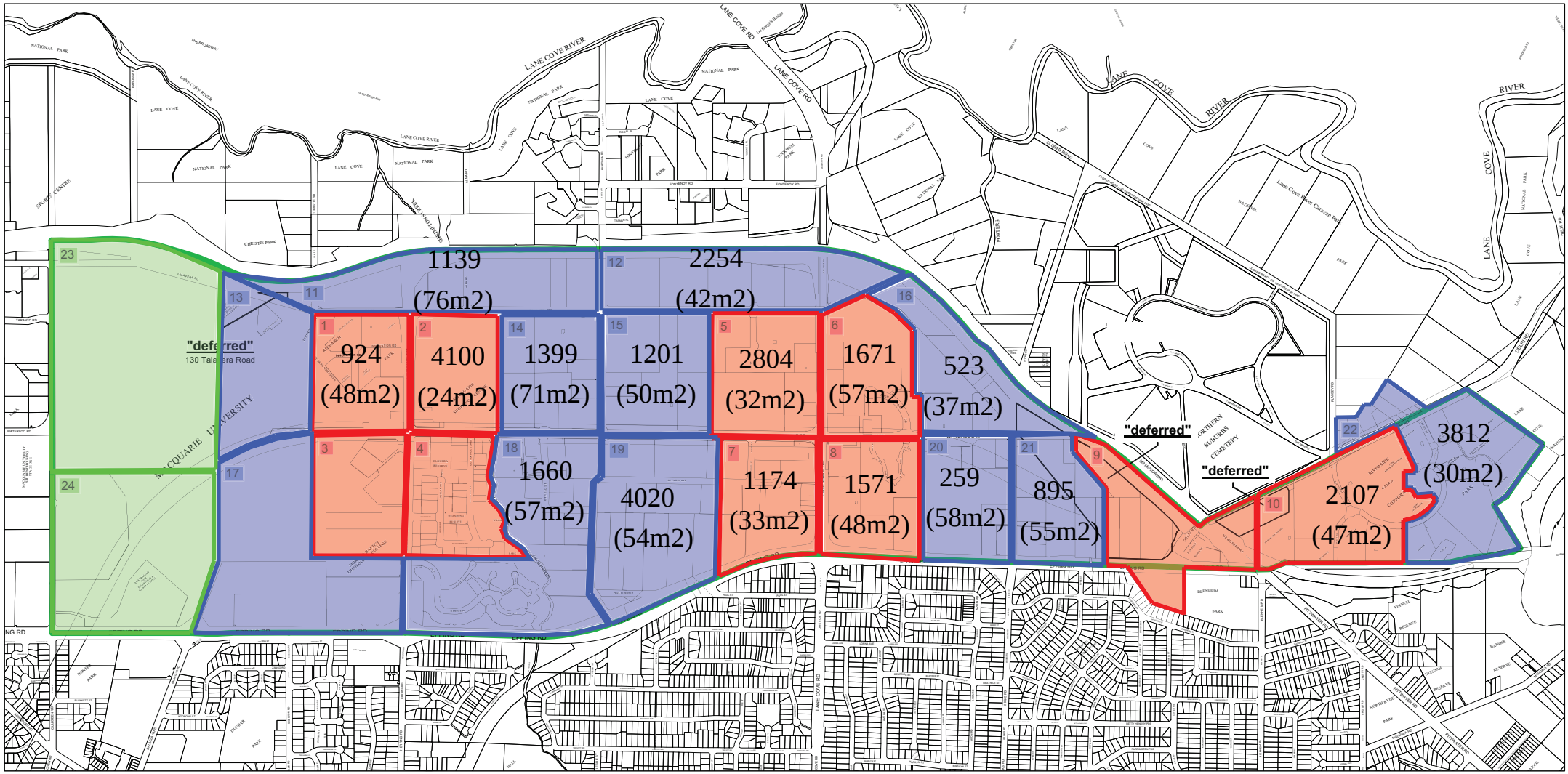
City Of Ryde

Total GFA - 1,535,281 m2

ARUP

Existing m2
- 100,000 m2 and Over
- 50 - 100,000 m2
- 25 - 50,000 m2
- 12.5 - 25,000 m2
- 0 - 12,500 m2
- 0
- Corridor Area

* Excl Macquarie University



*Excl Macquarie University

Figure 5

Parking Inventory - Off Street Parking

Number of Existing Car Spaces for each Precinct
(Average area per car space)

ARUP

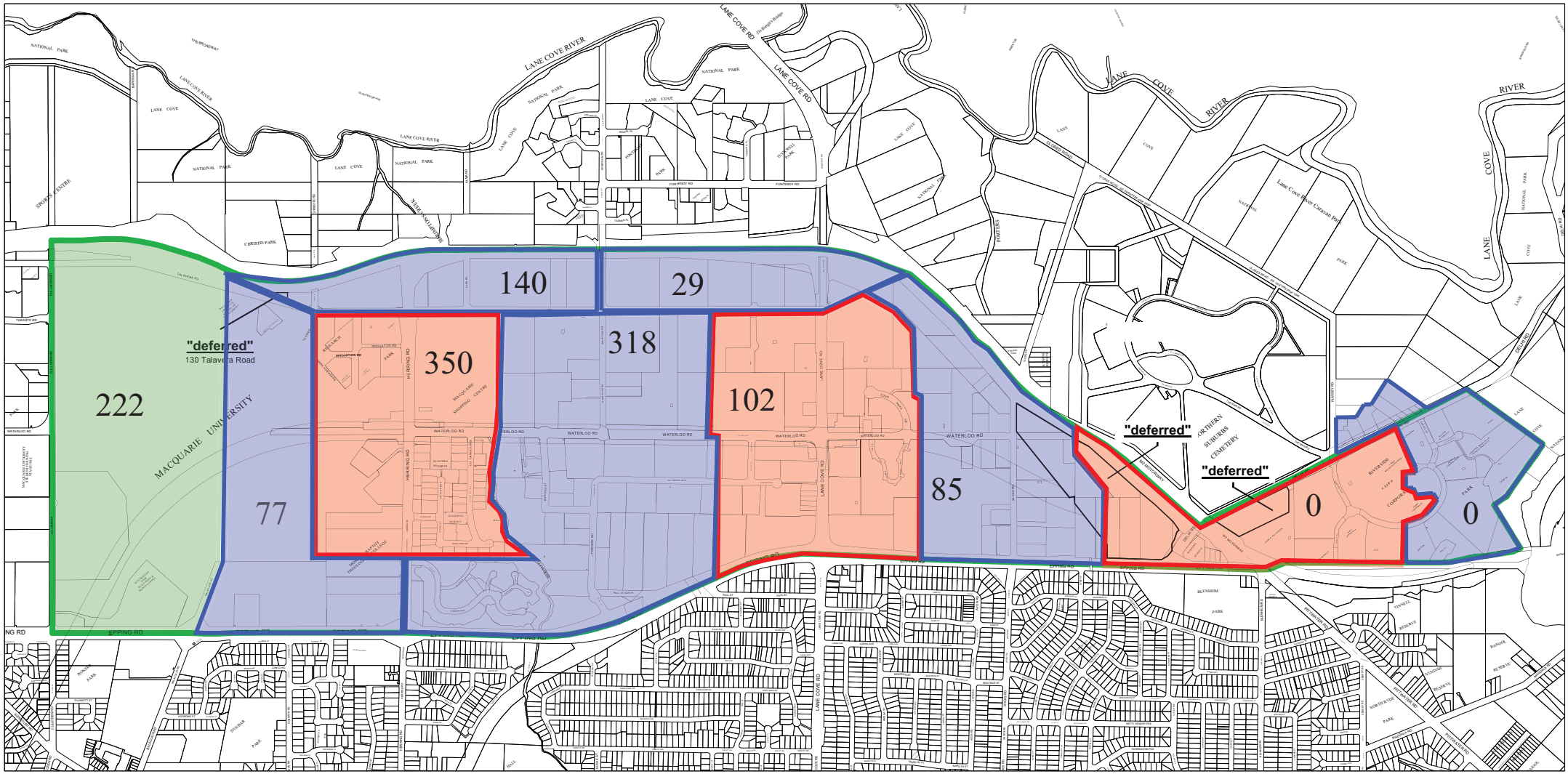


Figure 6

ARUP

Parking Inventory - On Street Parking

Number of existing car spaces for each zone

4.3.1 Precinct 1 - Macquarie Park General Business Park Commercial Area

In terms of land area, this is the largest land use component of the Macquarie Park study area. This area comprises ten of the twenty four "street blocks" of the Arup car parking inventory map, namely blocks 11, 12, 14, 15, 16, 18, 19, 20, 21 and 22.

The existing total development floor space in this area is 889,986 sqm of which approximately 849,736 sqm is commercial business park type development. The total parking supply of 17,162 car parking spaces represents a current car parking supply rate of 1 car parking space per 49.5 sqm of commercial floor space.

4.3.2 Precinct 2 - Macquarie Park Railway Station Core Business Area

This area represents the future "commercial core" of the higher density business precinct which is proposed to be developed, centred on the new Macquarie Park railway station. It includes four of the twenty four "street blocks" of the Arup car parking inventory map, namely blocks 5, 6, 7 and 8.

The existing total development floor space in the area is 348,532 sqm of which approximately 298,284 sqm is commercial business park type development with a total parking supply of 7,220 spaces which represents a current car parking provision rate of 1 car parking space per 41 sqm of commercial floor space. This area has historically been underdeveloped and still includes many vacant or under developed sites eg the former ECRL worksite. As this area has more "older style" developments with historically more generous car parking provisions, it has a higher current level of parking supply than the other more recent commercial developments in most of the other Macquarie Park business precincts

4.3.3 Precinct 3 - Riverside Corporate Park Core Business Area

This area comprises one of the twenty four "street blocks" of the Arup car parking inventory map, namely block 10.

The existing total development floor space in the area is all commercial at 98,044 sqm with a total parking supply of 2,107 spaces which represents 1 car parking space per 47 sqm of commercial floor space.

4.3.4 Precinct 4 - Macquarie Shopping Centre Retail – Commercial

This area comprises one of the twenty four "street blocks" of the Arup car parking inventory map, namely block 2.

The existing total development floor space in the area which comprises retail / commercial floor space is 97,000 sqm and has a total parking supply of 4,100 spaces which represents 1 car parking space per 23.6 sqm of commercial floor space.

4.3.5 Precinct 5 - Macquarie University Research Park / Station North Precinct

This area comprises one of the twenty four "street blocks" of the Arup car parking inventory map, namely block 1.

The existing total development floor space in the area which is in research based commercial uses is 44,023 sqm. The total parking supply of 924 spaces represents 1 car parking space per 48 sqm of commercial floor space.

4.3.6 Precinct 6 - Macquarie University Future Commercial / Station South Precinct

This area comprises one of the twenty four "street blocks" of the Arup car parking inventory map, namely block 3.

The existing total precinct floor space of 19,656 sqm is university residential uses with no commercial uses and therefore no commercial car parking.

4.3.7 Precinct 7 - Macquarie University General Academic / Business Park South Precinct

This area includes four of the twenty four "street blocks" of the Arup car parking inventory map, namely blocks 13, 17, 23 and 24.

The existing development in this area comprises primarily university teaching and residential uses, with an approximate total building floor area of 152,000 sqm and 5,200 car parking spaces (in early 2009) which were available for the University academic staff and student usage. There is currently only a relatively small commercial building component of 38,042 sqm in this precinct.

4.3.8 Precinct 8 - Existing Residential Precinct (East of Herring Road)

No future commercial development is currently proposed within this precinct so no floor space and car parking inventory analysis has been undertaken.

4.3.9 Precinct 9 - Deferred Matter Zoning (Former ECRL Worksite)

No future commercial development strategy is yet determined for this precinct, although the area is likely to be developed in the future for a combination of commercial and residential uses. However, there is no existing commercial development currently to enable floor space and car parking inventory analysis to be undertaken.

4.3.10 Summary of Existing Parking Inventory Analysis

This analysis shows that in all of the "commercial office" type business park precincts of the study area, with the exception of the Macquarie Shopping Centre, the average current provision of off street car parking for office users over all sites is generally within the range of 1 car parking space per 40 - 50 sqm of commercial floor space.

This range indicates that the recent DCP 55 / LEP 137 reductions in the rate of parking provision for new commercial office development have yet to have any real effect in terms of reducing the overall study area car parking supply and utilisation.

Also, some of the older commercial and commercial / industrial type developments in the precinct were developed under an earlier car parking standard which required one car parking space per 30 sqm of commercial floor area. The precincts of the study area with more of these older style developments tend to have the highest overall parking ratios currently.

4.4 Sites with Significant On Grade Car Parking Currently

A number of examples of commercial development in the study area have significant areas of on grade car parking currently. This parking supply can in principle be considered as temporary car parking that has potential to be consolidated or redeveloped for other uses in the future.

A sample range of these existing commercial buildings is summarised in the table below. Approximately 43% of the car parking provision for commercial buildings on these sites is currently provided by means of on-grade car parking which can be redeveloped for other uses in the future.

Address of Building	Year of Construction	GFA Floor Area	On Grade Parking Spaces	Structure Parking Spaces	Total Parking Spaces
26 Talavera Road	N/A	22529	164	410	574
12 Talavera Road	2003	23080	133	551	684
73 Talavera Road	1999	9256	120	165	285
112 Talavera Road	1988	37112	295	165	460

27 Waterloo Road, inc 1 Eden Park Drive	1998	8760	43	137	180
17 Waterloo Road	1996	5399	50	264	314
26 Waterloo Road	N/A	44801	300	256	556
10 Khartoum Road	N/A	29530	260	42	302
1 Khartoum Road	N/A	20607	386	72	458
7 Khartoum Road	N/A	4877	74	0	74
4/4A Julius Avenue, inc 4 Richardson Place	2000	19718	86	576	662
10 Julius Avenue	2000	8617	35	0	35
4 Research Park Drive	1999	7788	81	55	136
Total	**N/A**	**242074**	**2027 (43%)**	**2693 (57%)**	**4720**

4.5 Macquarie University Masterplan Developments

4.5.1 2006 Concept Masterplan

The Macquarie University Masterplan "Concept Plan" Part 3A Planning Application was initially prepared by Architects Cox Richardson in 2006. A traffic and transport assessment report by consultant Cardno was prepared in February 2008 and an Environmental Assessment report for the Masterplan by CRI and consultants JBA was exhibited by the NSW Government Department of Planning during May-June 2008. The Concept Plan was formally approved on 13 August 2009.

The Masterplan sets out a year 2031 development plan for approximately 400,000 sqm of commercial "Research Park" floor space. This could in the future accommodate up to 16,000 additional research-related jobs. In addition, the size of the University "Academic Core" is projected to expand from 151,850 sqm currently to 214,200 sqm over the same period.

The total university staff (academic and other) is predicted to increase from 1,570 now to 2,420 in the year 2031. The total student enrolments is also projected to increase from approximately 28,000 now (17,900 full time equivalent enrolments) to 42,000 by 2031(25,200 full time equivalent enrolments) and the total student accommodation is predicted to increase from 1,550 beds now to 5,000 by 2031.

The future university "Research Park" related commercial development is proposed to occur primarily within the areas of the university campus, the "Station North" and the "Station South" precincts which are closest to the Macquarie University Railway Station. These are the areas of the university campus which have the greatest level of public transport accessibility and therefore can support higher development densities.

In the terms of the Arup street block and precinct definitions, which have been adopted for this report, the future University commercial "Research Park" floor space development is distributed as follows

- Approximately + 65,000 sqm within the Arup "Station North" precinct within 400 metres of the railway station, which includes the existing MURP research buildings of Goodman Fielder, Dow Corning, Nortel and Siemens (Arup street block 1).
- Approximately +119,000 sqm within the Arup "Station South" precinct within 400 metres of the railway station, which is currently a University residential precinct containing the Robert Menzies College and Dunmore Lang College buildings (Arup street block 3),

- Approximately +146,000 sqm within the Arup "General University - Business Park South" precinct, but generally within the 400-800 metre walking distance contour from the railway station (Arup street block 17) and
- Approximately +70,000 sqm in the south western corner of the university site, near Epping Road, generally beyond the 800 metre walking distance contour from the railway station (Arup street block 24).

The approval for the Concept Plan which was issued by the Minister for Planning on 13 August 2009 imposes a future "Ceiling" on the total Macquarie University Academic and Research Park related uses car parking of 10,800 car parking spaces. This upper limit of car parking provision effectively supersedes the previous planning controls in relation to car parking (eg the City of Ryde LEP and DCP planning controls) which have been applicable to the University land up till now and permitted higher parking supply (1 space per 46 sqm) outside the "Station North" and "Station South" precincts (Arup street blocks 1 and 3 respectively).

Development applications have already been submitted and approved for some of the new development on university land and the development of two sites is now under construction, namely the Macquarie University Private Hospital and the Cochlear HQ Office development, see details below.

4.5.2 Macquarie University Private Hospital

The Macquarie University Private Hospital is located at the north western corner of the MURP precinct on Technology Place near Christie Road.

The approved development is a 150 bed private hospital with basement car parking for 286 cars. The future traffic generating and car parking utilisation characteristics of this development will be different from most commercial office type developments as it will have a higher proportion of its traffic movements from staff, patient and visitor travel occurring outside the normal weekday morning and afternoon commuter traffic peaks such that these future traffic and parking movements will be of a lesser concern to peak hour road traffic congestion in the area than future commercial office development traffic.

4.5.3 Cochlear HQ

The approved Cochlear HQ Building (24,343 sqm commercial floor area with 544 car parking spaces) is located partially on the site of existing university car parking on the south side of University Avenue. It has already resulted in a small but significant reduction in the university "Educational Uses" car parking supply which was previously available for use by the university students and academic staff.

In the case of the approved Cochlear HQ Building, the car parking is being mostly provided at the higher "Historic" City of Ryde Council car parking rate of 1 parking space per 46 sqm for commercial developments. These controls were still applicable to this site at the time of its development approval as it is located just outside the university "Station South" precinct where the more restrictive City of Ryde Council car parking rate of 1 parking space per 80 sqm would otherwise have applied.

The corresponding reduction in the general university car parking supply is part of the planned reduction of this car parking supply, from approximately 5,200 car parking spaces in early 2009 to approximately 4,800 parking spaces in the future.

5 Road and Transport Network Capacity Analysis

5.1 Macquarie Park Workforce Travel Patterns

The current distribution of home residential locations of the Macquarie Park Study Area workforce has been estimated by Arup based on 2006 Census data for the MoT travel zones in the Study area as an employment destination. The data shows a total of 32,000 employees "based in" the study area in 2006. The distribution of the home residential LGA's of origin of this workforce is illustrated by the attached map in **Figure 7**.

The distribution of this workforce is almost equally balanced in terms of its journey to work travel patterns to and from the east and west, with

- 14 % travelling locally to and from within the local government area of Ryde.
- 38% travelling to and from other local government areas to the east of Ryde and
- 48% travelling to and from other local government areas to the west of Ryde.

Approximately 41% of the total study area workforce is relatively locally based, being either residents of the Ryde local government area (14%) or being persons who travel to and from the six immediately adjoining LGA's (a further 27%) eg

- 10% from Hornsby
- 6% from Parramatta
- 5% from Ku ring gai
- 3% from Willoughby
- 2% from Lane Cove
- 1% from Hunters Hill

The remaining 59% of the workforce travel relatively long distances to and from work at Macquarie Park, from residential locations throughout the Sydney Region. Prior to the opening of the ECRL rail link in February 2009, the vast majority of these persons would normally have used a private car, as either a driver or passenger, to travel to and from work. However, since the opening of the rail link, public transport travel will have become much more feasible to and from these areas, with the exception of the Northern Beaches region of Sydney and the Baulkham Hills LGA, which remain relatively remote from the Sydney metropolitan rail network.

Passenger data from the first month following the opening of the ECRL rail link indicated a significant level of rail passenger usage, 12,000 persons per day each way on weekdays at the three new railway stations, of whom 5,000 persons per day were arriving during the 6.00 am to 9.30 am morning peak period and are probably either workers in the area or university students now using the rail link. In August 2009, after the initial free operating period of the rail link had finished, the patronage declined to approximately 8,000 persons each day on weekdays, of whom approximately 4,000 were probably workers in the area or university students.

Most recently, since October 11 2009, the ECRL train service frequency has been increased and through trains now operate on the line, reducing the need for passengers to interchange at either Chatswood or Epping. No passenger data has yet been released by RailCorp in relation to this most recent change. Also it has not yet been determined which proportion of these rail passengers were previously using either car travel or bus services so it is not possible to clarify precisely how much the overall public transport usage or travel patterns to and from the area have changed as a result of the new ECRL rail services.

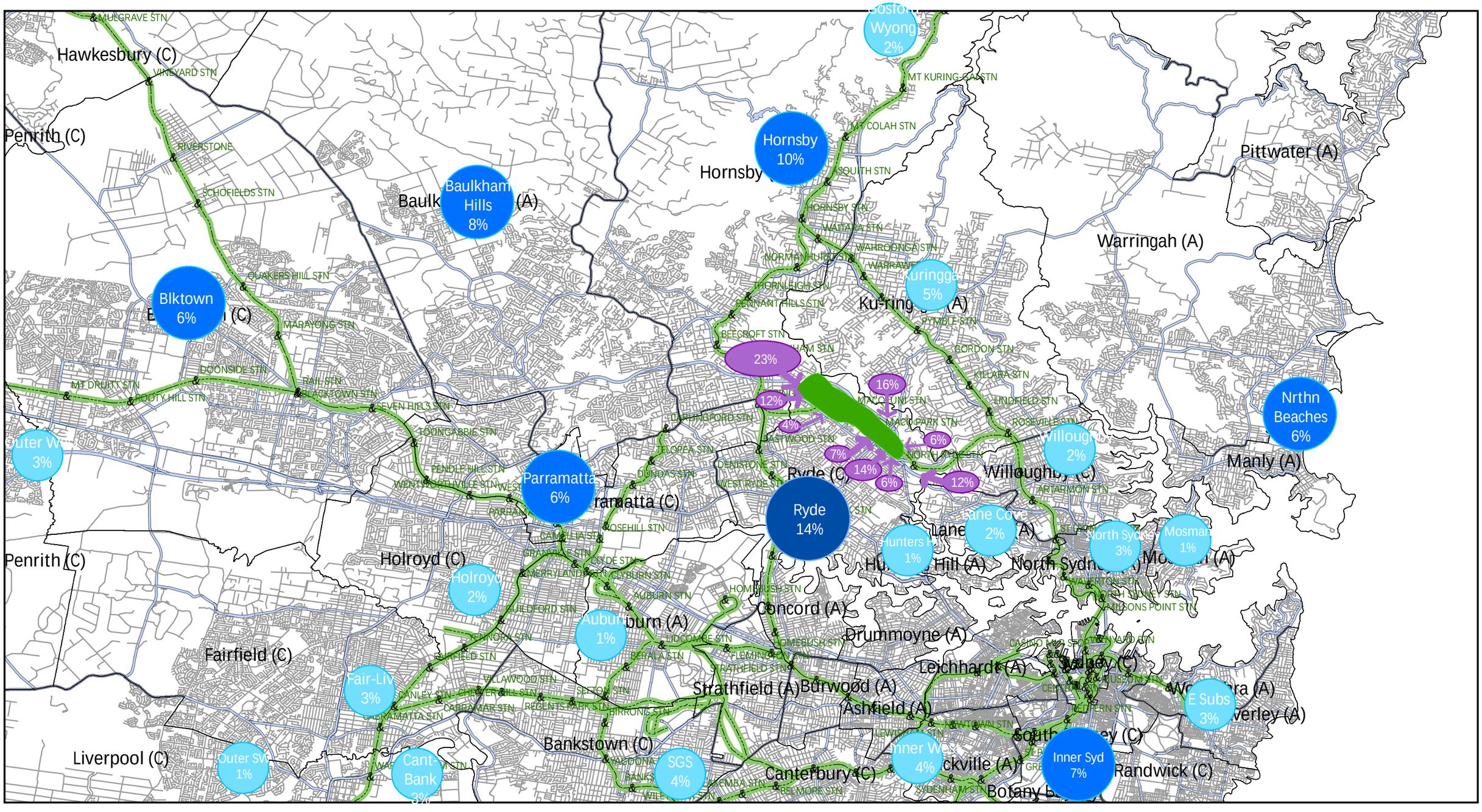


Figure 7: 2006 Census Location of Macquarie Park Residential Workforce

Source: Census 2006

ARUP

5.2 Future Year 2031 Traffic Study Commercial Growth Scenario

The existing and longer term future traffic situation in Macquarie Park has been studied extensively in a recent traffic study which was commissioned by the City of Ryde

The area wide traffic study investigated the "Current Base Year" 2007 traffic conditions and also the traffic situation according to future predicted development in 2031, which was based on a reasonably optimistic future commercial development and employment growth scenario for the study area. This is summarised here in terms of the traffic study quoted figures for gross leasable floor area (GLFA) as follows.

Summary of Traffic Study Year 2031 Development and Employment Growth Scenario

Type of Development	Estimated Growth in Commercial Floor Area (GLFA)	Future Employee Density per sqm (GLFA)	Corresponding Estimated Employment Growth
Macquarie Park Business Park, Commercial Floor Area	+ 750,000 sqm	1 per 36 sqm	+21,000
Macquarie University Research Park, Commercial Floor Area	+390,000 sqm	1 per 25 sqm	+16,000
Macquarie Centre, Retail – Commercial Floor Area	+87,000 sqm	1 per 40 sqm	+2,000
Additional University Student Enrolments (Full Time Equivalent)			+10,300 approx
Additional University residential population			+5,100 approx
Totals	**+1,227,000 sqm (commercial floor areas)**		**+39,000 employees (in commercial areas)**

The combined future 2031 development scenario in the traffic study represents a future total study area employment growth of + 39,000 jobs approximately, corresponding to the future predicted development of + 1,227,000 sqm of commercial floor space in the area.

During this period, the existing 2007 base year employment total of 32,000 jobs will also increase by +7,000 jobs approximately as a result of higher employment densities occurring in the existing buildings with the improved public transport accessibility to the area. The ultimate future total study area 2031 employment estimate is 78,000 jobs approximately including all Macquarie Park and Macquarie University employment areas.

The existing base year 2007 employment estimate of 32,000 jobs for the study area is also an approximate estimate only as there can often be significant differences between the various definitions of employment in an area in different employment databases. For example in some employment databases, jobs are considered to exist in an area if they are jobs which are currently advertised as vacancies but are currently unfilled. These "available" jobs can legitimately be counted in the estimated total employment in an employment area at any given time, but do not show up as actual jobs in other databases, such as the Census Journey to Work travel statistics, which count only employed persons.

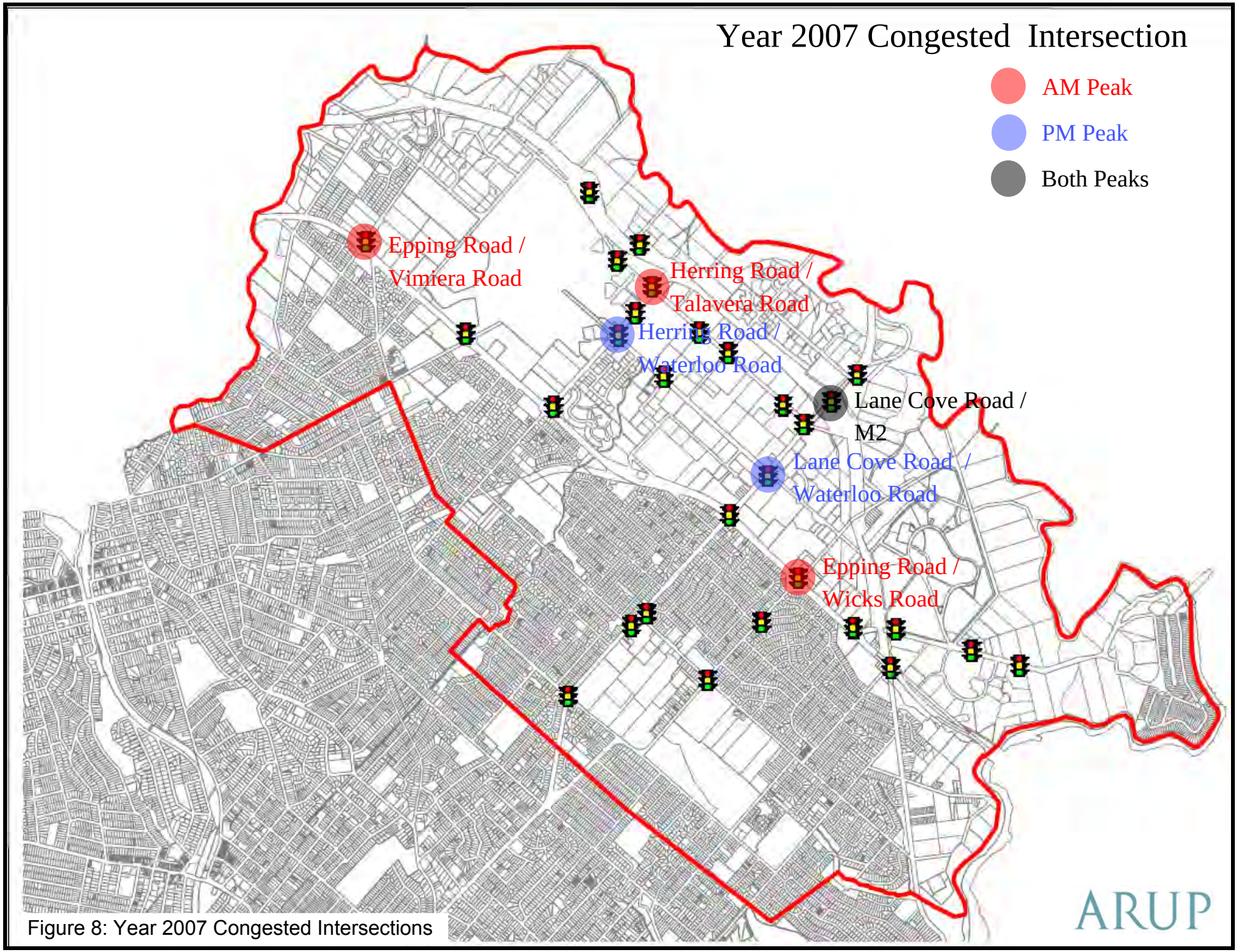


Figure 8: Year 2007 Congested Intersections

5.3 Traffic Access Capacity at Key Intersections

The future road network capacity analysis for the study area undertaken for the Traffic Study (Bitzios Consulting, 2008), investigated the existing and future morning and afternoon peak hour traffic congestion at a total of 29 major traffic signal controlled intersections, the locations of which are illustrated by the map in **Figure 8** .

Of 29 intersections, a total of six were identified as currently being subject to significant traffic delays (Level of Service D, E or F) in either or both of the morning or afternoon peak traffic periods, such that additional traffic capacity is required in the relatively short term future at these intersections, or alternative traffic routes (eg Additional access ramps to and from the M2 Motorway) need to be developed.

The six currently most congested traffic intersections which were identified by the Traffic Study are as follows

- Lane Cove Road / M2 Ramps Intersection
- Lane Cove Road / Waterloo Road Intersection
- Epping Road / Wicks Road Intersection
- Epping Road / Vimiera Road Intersection
- Herring Road / Waterloo Road Intersection, and
- Herring Road / Talavera Road intersection

In addition, three other major traffic signal controlled intersections in the area have also been reported during the stakeholder consultations for this study, as being also subject to major peak hour traffic congestion and delays for traffic either entering or leaving the area, during the morning and afternoon peak traffic periods. These three locations are the

- Lane Cove Road / Epping Road Overpass Ramps Intersection,
- Lane Cove Road / Talavera Road Intersection and
- Epping Road / Delhi Road / M2 ramps Intersection

These nine traffic intersections represent most of the main vehicular access points currently to the Macquarie Park Study area road network, with only a few other locations remaining relatively uncongested at the current time, with spare traffic capacity to accommodate future traffic growth to and from the study area, namely

- Epping Road / Balaclava Road
- Epping Road / Herring Road
- Epping Road / Lyon Park Drive (left turn access only)
- Delhi Road / Riverside Drive and
- Waterloo Road, west of Culloden Road

5.4 Future Predicted Traffic Growth to Year 2031

The Traffic Study (Bitzios Consulting, 2008) examined a range of future traffic and transport access scenarios for the study area in the year 2031 according to the general principle of progressively increasing the assumed study area “motorised public transport” percentage of travel from a default level of 23% initially, to 40% in the final scenario, in combination with progressively increasing the extent of assumed future study area road access improvements

In this manner, a viable future traffic scenario was defined for the study area, whereby the increased future level of road access, in combination with a significantly increased future proportion of bus or rail based public transport travel to and from the study area, was sufficient to accommodate the future traffic growth, maintaining the ultimate year 2031 morning and afternoon peak hour traffic congestion levels, more or less as they are currently.

The traffic study model also included assumed regional traffic growth to the year 2031, in combination with the predicted Macquarie Park and Macquarie University developments, such that the exact future contributions to the study area traffic growth, from Macquarie Park Corridor development and assumed future regional through traffic growth in 2031 were not able to be determined. Nevertheless, some highly significant future traffic growth projections were predicted for the adjoining major road network to the west, east, north and south of Macquarie Park,

- M2 Motorway at Epping-Beecroft Tunnel, + 55,000 vehicles per day
- Lane Cove Tunnel –Epping Road at Lane Cove West, + 34,000 vehicles per day
- Lane Cove Road, at De Burgh's Bridge, +15,000 vehicles per day
- Lane Cove Road, south of Epping Road, + 13,000 vehicles per day

The locations of the future predicted Year 2031 traffic volume increases, together with some of the more significant assumed access improvements to the regional road network are shown in **Figure 9**.

5.5 Likely Arterial Road Network Capacity Improvements

The Traffic Study (Bitzios Consulting, 2008), determined as part of the traffic analysis, the following program of nine major regional road network improvements, which need to be implemented in stages over the period to 2031, in order to maintain current levels of vehicular accessibility, as measured by peak hour traffic congestion, on the major road network. In addition the previously determined network of internal/local road improvements for the Macquarie Park, as recommended by the Council DCP 2008 Masterplan was recommended to be modified.

The proposed works have not yet been fully agreed to or endorsed by the RTA.

The corresponding implementation cost of the modified Council DCP 2008 internal/local road network improvements was not estimated, but a total future cost of $300 million to $500 million was estimated for the recommended program of major regional road network improvements including the M2 widening. More recently, the total cost of the M2 widening alone is now publicly quoted as $550 million (SMH, 13 October 2009)

Traffic Study, 2008, Recommended Major Road Network Improvements (subject to RTA agreement)	**Traffic Study, 2008, Recommended Internal / Local Road Network Modifications (subject to RTA agreement)**
New two lane East Facing on and off Ramps to the M2 Motorway at Herring Road	Proposed new Road 3 intersection with Lane Cove Road to be replaced with cul-de-sacs at either side of Lane Cove Road
A new two lane overpass from Herring Road, across Talavera Road, to the new M2 Ramps	Proposed new Road 9 and Road 11 intersections with Epping Road to be left turn only intersections
M2 Motorway widening to six lanes minimum throughout and 9-10 lanes between the Herring Road and Lane Cove Road Interchange Ramps	Proposed new Road 8, Road 16 and Unnamed new road east of Wicks Road, connections to Epping Road to be replaced with cul-de-sacs

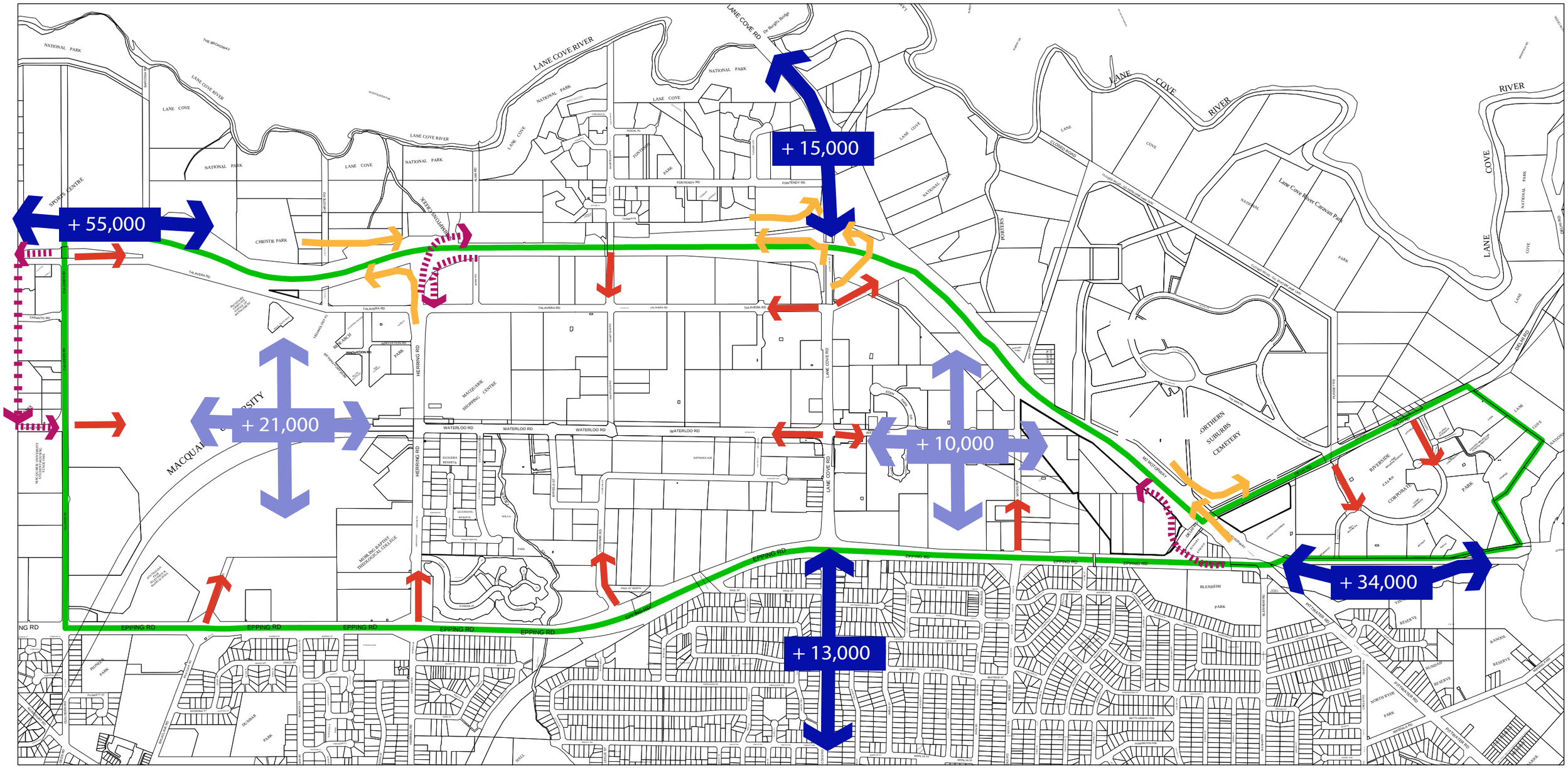
A new westbound off ramp from the M2 Motorway connecting to the western end of Waterloo Road	Proposed new Road 1 and Road 2 intersections with Lane Cove Road to be provided with Traffic Signals
A new grade separated right turn from Epping Road into Delhi Road, also connecting into the westbound on ramp to the M2 Motorway at Delhi Road	Talavera Road is to have six traffic lanes between Herring Road and Christie Road
A new link road is to be constructed from Delhi Road, approximately 150 metres west of Plassey Road, connecting over the top of the M2 Motorway to the Epping Road/Pittwater Road Intersection	Herring Road and both Talavera Road and Waterloo Road, east of Herring Road are to provided with a minimum of four traffic lanes (clear of parking) with additional localised widening at intersections
A grade separated overpass for Epping Road at the Herring Road intersection	Proposed new Road 2 is to have three traffic lanes (clear of parking) between Lane Cove Road and proposed new Road 9
Lane Cove Road to be widened to provide bus lanes in selected sections as per RTA Planning	Lyon Park Road is to have four traffic lanes with no parking lanes from Epping Road to Byfield Street
Delhi Road to be widened to seven lanes between Delhi Road and Plassey Road to cater for future intersection turn pockets	

5.6 Future Local Road and Pedestrian Network Improvements

More detail of the proposed program of internal / local road network improvements which was originally proposed for the Macquarie Park area under the City of Ryde DCP 2008 and subsequently modified by the Traffic Study report's recommendations (Bitzios Consulting, 2008) is illustrated by the following three maps and figures

- **Figure 10**, Spatial Layout – Existing Streets
- **Figure 11**, Spatial Layout – DCP 2008 Streets, and
- **Figure 12**, Proposed Streets and Pedestrian Only Lanes

The three maps illustrate firstly, the spatial layout of the existing internal / local road layout at Macquarie Park, secondly the indicative locations of new building development footprints with the additional new proposed local roads (as originally proposed under DCP 2008 by City of Ryde before being reviewed by the Traffic Study report) and finally the additional proposed fine grained pedestrian network for the Macquarie Park Study area including a number of proposed public squares and "through site" pedestrian links.



Macquarie Park Study area

External vehicle movements

Internal vehicle movements

Existing access points to and from M2

Existing access points to and from other roads

Proposed additional ramps on and off M2

Figure 9: PREDICTED FUTURE GROWTH IN INTERNAL AND EXTERNAL VEHICLE AADT FROM 2007 TO 2031

Source: Macquarie Park Traffic Study, Traffix and Bitzios, 2008

ARUP

Scale: 1:12000 approx.

100 0 100 200 300 400 500 600 700 800

Metres

Spatial layout Existing streets

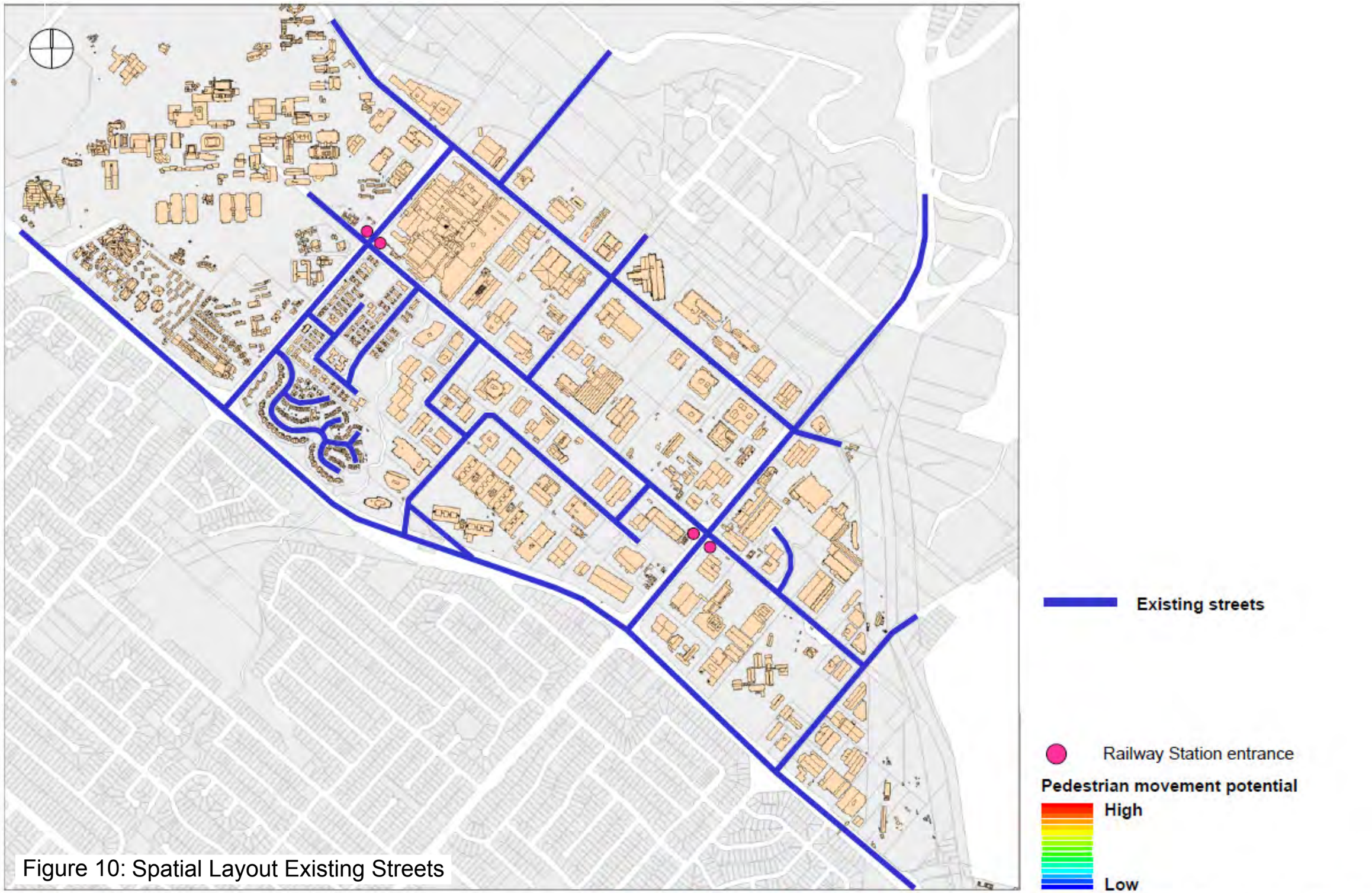


Figure 10: Spatial Layout Existing Streets

Spatial layout DCP 2008 streets

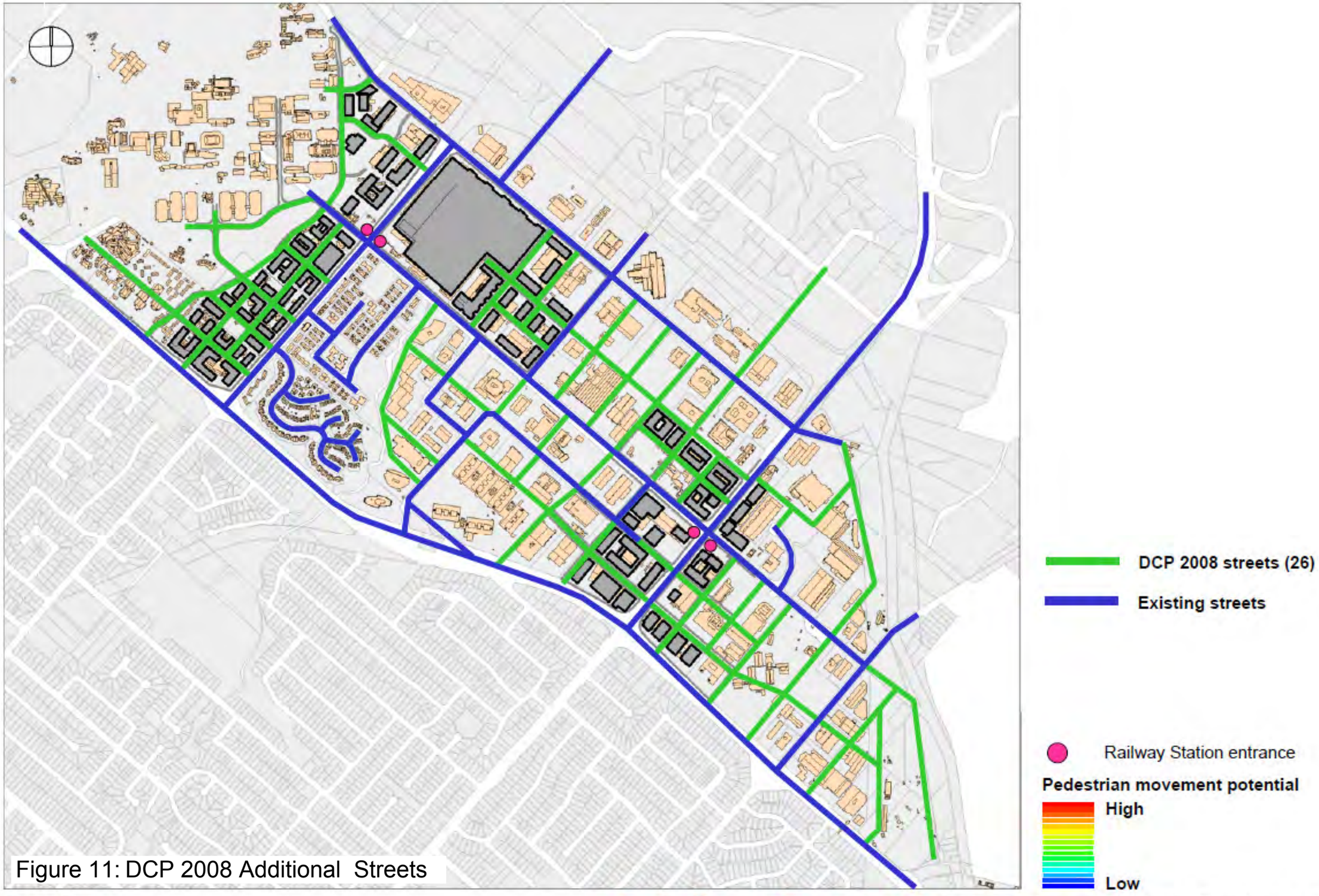


Figure 11: DCP 2008 Additional Streets

Proposed Pedestrian Structure Plan

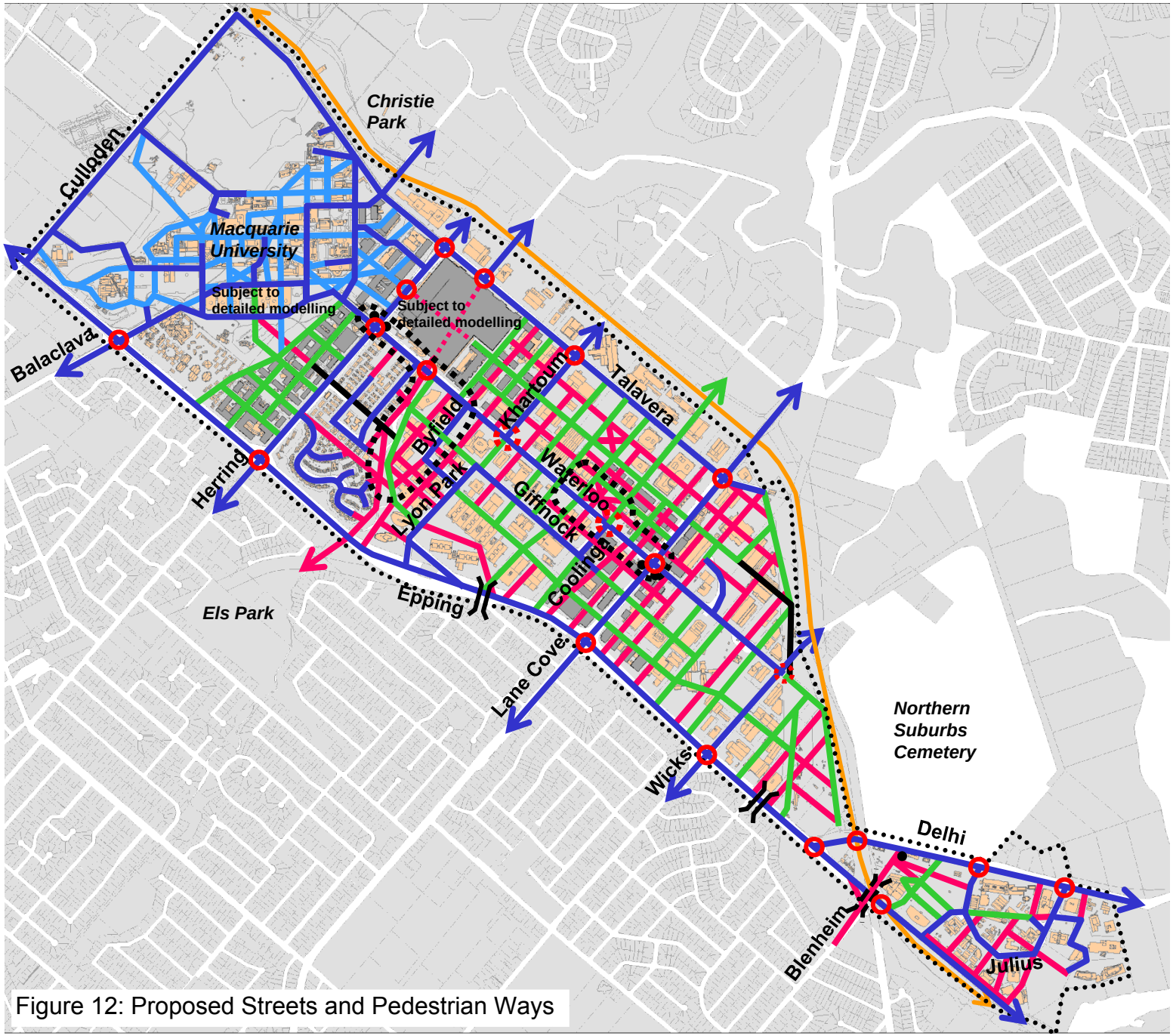


Figure 12: Proposed Streets and Pedestrian Ways

- Space Syntax proposed pedestrian ways
- Space Syntax proposed streets subject to traffic modelling
- DCP 2008 proposed streets
- Existing streets
- Existing university pedestrian ways
- M2 Motorway
- DCP 2008 site boundary
- Existing signalised crossings
- Proposed signalised crossings
- Existing pedestrian bridge
- Possible pedestrian bridge
- Railway Station entrances
- Potential new urban centre for retail and commercial land uses

6 Commercial Property Market Comparison with Competing Centres

6.1 Recent Employment Growth Trends 2001-2006

The following map in **Figure 13**, displays the recent growth in commuter journey to work travel to various employment locations centres in the Sydney Metropolitan Region over a five year period from 2001 to 2006. The data is based on the Census Journey to Work data for work place. The map depicts in either green/red the total growth/reduction in the amount of employment in each Local Government area from the travel to work data over the most recent five year Census Interval:

Macquarie Park is one of the fastest growing employment centres in the Sydney Region and has experienced growth of approximately 5000 additional jobs over the five year period from 2001 to 2006.

This employment growth has formed the major component of the overall City of Ryde employment growth (+ 6,000 jobs approximately), which makes Ryde currently the fifth most significant local government area for employment growth in Sydney or the surrounding Greater Metropolitan Region of NSW, where the ten Local Government Areas with the largest employment growth during the inter censal period 2001-2006 were ranked as follows.

- City of Sydney, + 8623 jobs
- City of Newcastle, + 6735 jobs
- Baulkham Hills LGA, + 6696 jobs
- Blacktown LGA, + 6639 jobs
- City of Ryde, + 6002 jobs
- Wyong +4580 jobs
- Auburn + 4028 jobs
- Maitland, + 3853 jobs
- Gosford, +3435 jobs
- Canada Bay, + 2997 jobs

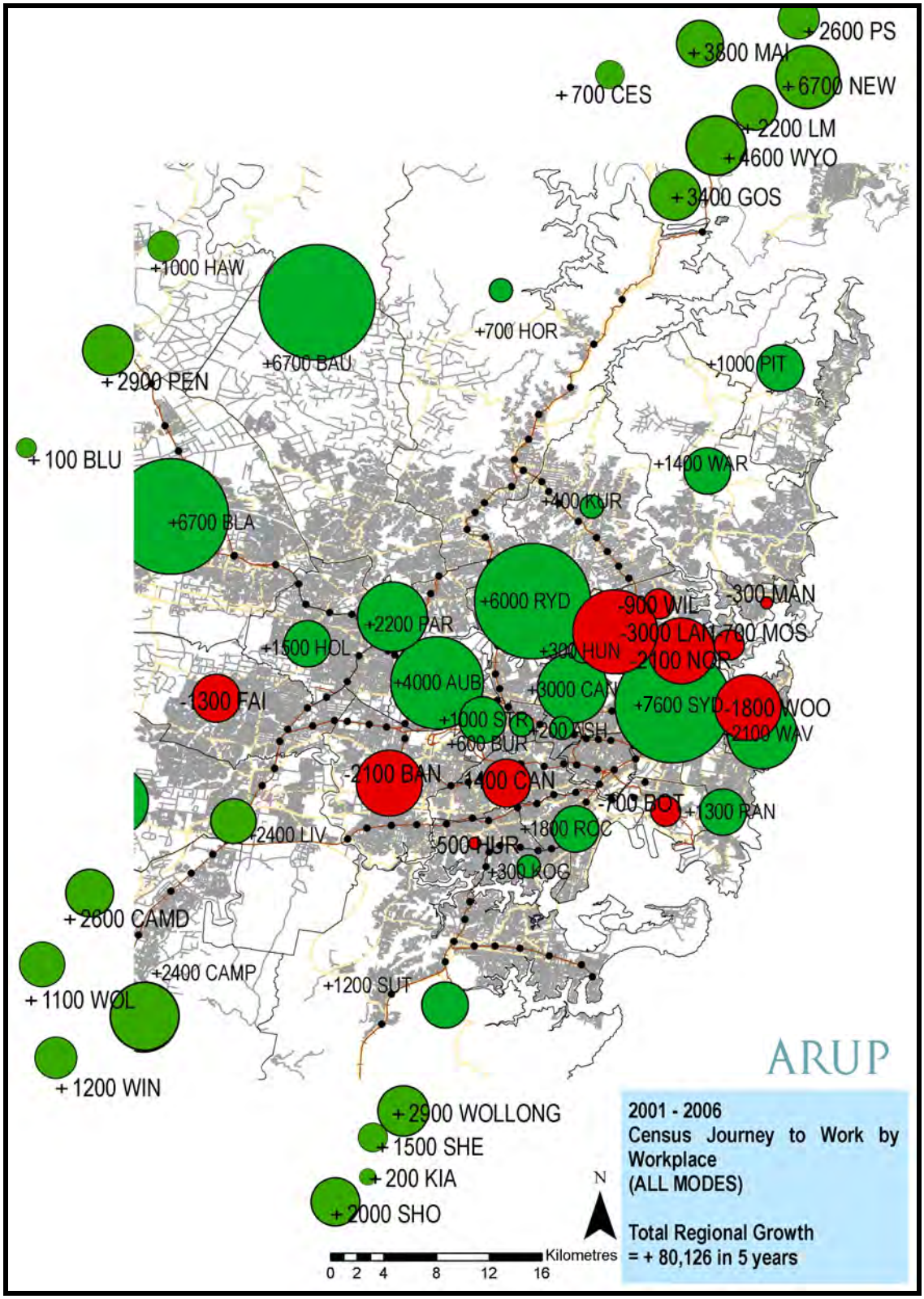


Figure 13: 2001 - 2006 Growth in Journey to Work Travel

6.2 Sydney 2031 Metro Strategy Employment Growth Projections

Looking further into the future, towards the year 2031 time horizon which has been adopted by the NSW Government Department of Planning for the Sydney Metropolitan Planning Strategy, the future employment growth has been predicted for each of the fifteen major employment centres in Sydney.

Projected Employment Growth in Fifteen Major Employment Centres of Sydney

TYPE OF CENTRE	NAME	2001 Employment	2031 Employment	Employment Growth Target
MAJOR CITIES				
1	City of Sydney	331,572	380,000	+48,000
2	Parramatta	41,662	60,000	+18,500
3	Liverpool	15,533	30,000	+14,500
4	North Sydney	49,160	60,000	+11,000
5	Penrith	19,074	30,000	+11,000
6	Gosford	12,284	17,000	+5,000
SPECIALISED CENTRES				
1	Macquarie Park	32,308	55,000	+23,000
2	Sydney Airport & Environs	36,063	55,000	+19,000
3	Olympic Park/Rhodes	13,667	25,000	+11,500
4	Norwest	4,651	15,000	+10,500
5	St Leonards	25,166	33,000	+8,000
6	Westmead Health & Education	13,267	20,000	+7,000
7	Bankstown Airport & Environs	16,325	20,000	+4,000
8	Randwick Education & Health	9,790	12,000	+2,000
9	Port Botany and Environs	11,264	12,000	+1,000

In the table above, the forecast future employment growth for centres indicates that the Macquarie Park Specialised Centre which includes Macquarie University has the largest forecast employment growth of any centre outside the Sydney CBD and is the second largest forecast future employment growth centre in the Sydney Region overall.

This pre eminent role of the combined -Macquarie Park-Macquarie University- Riverside Corporate Park employment centre in Sydney's future employment growth is also illustrated by its existing employment catchment area where it currently has a workforce that is drawn roughly equally from both the east and the west of Sydney including small but significant components from virtually all the existing residential suburbs throughout the Sydney Metropolitan region.

6.3 Future Competing Centres for Macquarie Park

The future commercial centre analysis which has been undertaken by Jones Lang LaSalle (JLL) for this report has examined a number of comparable commercial business centres to Macquarie Park, primarily the Sydney CBD and other suburban business centres in the "northern" region of Sydney. JLL has determined, by means of factors such as market

sector of the principle tenancies, typical office rental and vacancy rates and accessibility to key related business areas, which of these business centres are potentially the key competing centres for Macquarie Park in the future market for the construction and leasing of new commercial office buildings.

This analysis is presented in detail in a separate JLL report, in **Appendix B** to this report, and has investigated the following eight major commercial centres in Sydney which compete to varying degrees with Macquarie Park as locations for new commercial business offices.

- Sydney CBD
- Sydney CBD Fringe eg Pyrmont, Green Square, Bondi Junction
- North Sydney
- St Leonards / Crows Nest
- Chatswood
- Parramatta
- Rhodes / Homebush Bay
- Norwest

These centres have a wide range of typical office rental rates currently and parking availability for leasing with new business tenants such that different centres effectively compete with Macquarie Park on a number of different levels, eg net rent per sqm, parking availability, accessibility for the workforce by non car based travel modes (eg public transport) and the general availability of other attractions in the area (eg childcare, shopping, restaurants and other recreation). The key factors in this comparison are discussed and summarised below.

6.4 Comparison of Office Rental Rates

A summary comparison of the typical current market rental rates for commercial offices and the current demand profile of building occupiers by market sectors is illustrated by the three graphs below,

- **Figure 14,** Average Prime Grade Office Rents (2006 - 2008)
- **Figure 15,** Commercial Office Demand Profile Macquarie Park (2006 – 2008)
- **Figure 16,** Commercial Office Demand Profile Parramatta (2006 – 2008)**.**

In terms of market rentals, the closest competing centres to Macquarie Park are Parramatta and the CBD Fringe (South Sydney). However, there are significant differences in the major demand for building leases between Parramatta, which is currently 49% Government Agencies and 41% Finance Banking and Insurance, and Macquarie Park which is 51% Communications Services, 17% Manufacturing and 11% Health and Community Services, such that there is generally no overlap between the demand for new tenancies in the two centres and consequently very little effective market competition between the two centres.

Two other suburban business centres, Rhodes/Homebush Bay and Norwest Business Park which are not shown on the graph in **Figure 14** also have market rental costs per square metre which are broadly similar to Macquarie Park.

However, these two centres are not currently considered as directly competing centres for Macquarie Park because they either compete in generally different market sectors (eg mainly retail and wholesale company offices are locating to Norwest currently) or the areas do not currently have “critical mass” or have only limited spare capacity for future growth (eg Homebush Bay and Rhodes). The Sydney CBD Fringe, eg South Sydney, is currently the closest competing centre to Macquarie Park for large new commercial buildings.

Figure 14 Average Prime Grade Office Rents (2006-2008)

Source: Jones Lang LaSalle Research & Consulting, rents based on 10-yr lease term

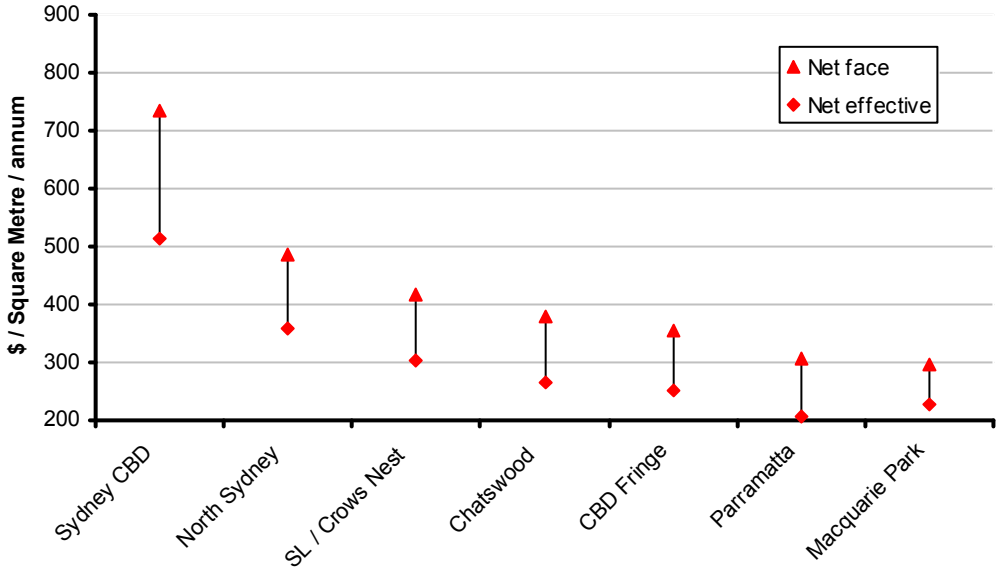


Figure 15 Commercial Office Demand Profile Macquarie Park (2006-2008)

Source: Jones Lang LaSalle Research & Consulting

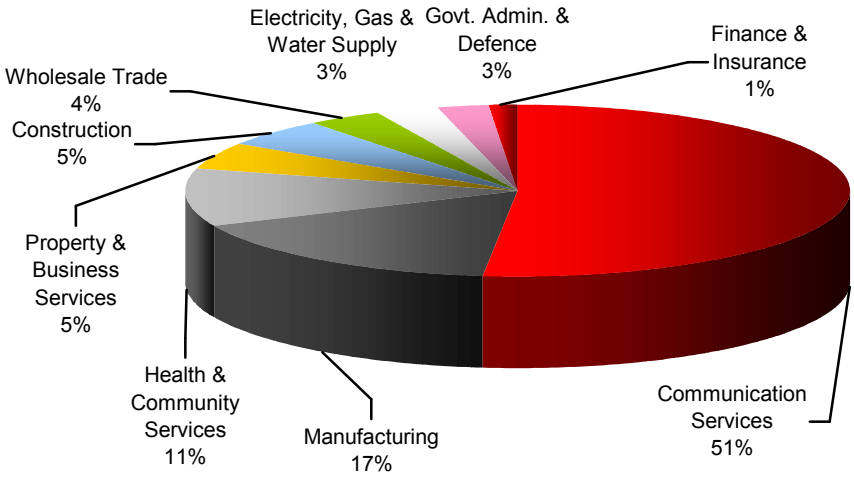
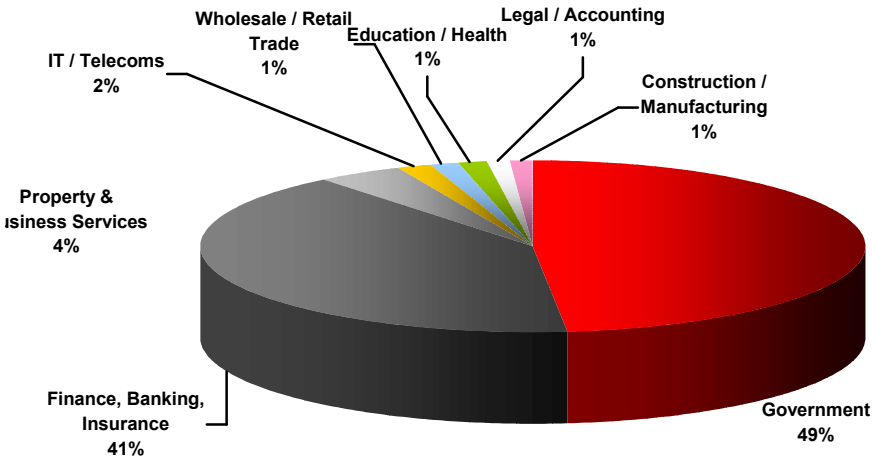


Figure 16 Commercial Office Demand Profile Parramatta (2006-2008)

Source: Jones Lang LaSalle Research & Consulting, chart refers to gross demand



6.5 Comparison of Vacancy Rates

The current market situation for commercial development in Macquarie Park and its competitive set of comparable competing centres is illustrated by the vacancy rate for commercial office developments. As of the final quarter of 2008 (December), the respective office vacancy rates were.

- Sydney CBD, 7.5%
- North Shore, 10% (Combined data for North Sydney, St Leonards/Crows Nest and Chatswood)
- Parramatta, 9.8%
- Macquarie Park, 14.5%
- Sydney CBD Fringe (South Sydney), 5.5%

This recent "spike" in the vacancy rate for Macquarie Park, if sustained through 2009, is potentially a concern to the current short term market situation for commercial type office development in the area, and is illustrated by the graph in **Figure 17** below.

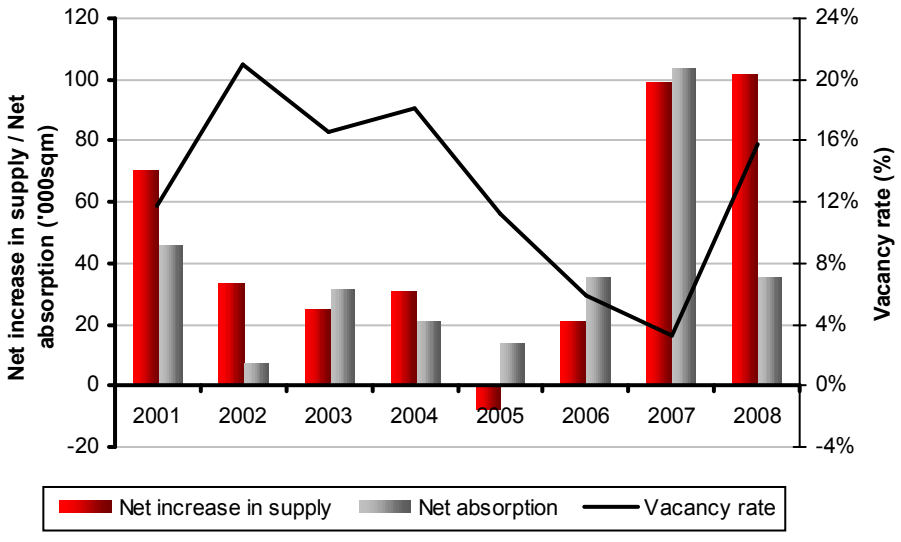
As a result of the combination of factors which stimulated development in 2007 and 2008, a large net increase in supply of approximately 100,000 sqm of prime grade commercial office floor space came on to the market in both of these years. The increase in 2007 was effectively absorbed into the market by growth in demand but the increase in 2008 was not, contributing significantly to the high vacancy rate currently, which is effectively 4 to 5% higher than in the other major business centres in Sydney.

This high office vacancy rate has occurred primarily from one year's worth of development at recent 2007-2008 floor space construction rates in combination with a sharp short term decline in demand as a result of global financial conditions.

This vacancy rate spike could potentially be reduced as quickly as it has developed. However, until global market trading conditions return to predictable future levels and the market for commercial office development in the area recovers significantly, the likely duration of the period of above average vacancy rates at Macquarie Park is not easy to predict.

Figure 17 Supply and Demand Dynamics Macquarie Park

Source: Jones Lang LaSalle Research & Consulting, as at Q4/2008



7 Effects of Existing Parking Availability

Investigating the current transport situation for Macquarie Park allows an understanding into current travel behaviour and the potential to adopt alternative travel methods.

7.1 Comparison between Business Centres

The City of Ryde brief indicated parking availability and a future parking strategy should be assessed for Macquarie Park in comparison to the primary competing business centres: eg Parramatta, Sydney CBD, Rhodes, Chatswood, Norwest.

However, considering the future potential of the Macquarie Park Corridor to develop into a higher density commercial and potentially a mixed use development centre with greater public transport accessibility via the heavy rail connection, additional centres with greater public transport availability were also included in the comparison, i.e. St Leonards / Crows Nest, The Sydney CBD Fringe (South Sydney) and North Sydney.

Parking Provision Rates in Comparable Centres

Business Park area	Planning Control Document	Car Parking Provision
Macquarie Park Corridor	City of Ryde Draft LEP 2008 -Macquarie Park Corridor Parking Restrictions map	1 space / 80 sqm – within 400 m of new rail station 1 space / 70 sqm – Waterloo Road Corridor 1 space / 46 sqm – net usable floor space in remaining areas of Macquarie Park
Norwest Business Park	Baulkham Hills DCP – Section D- Parking Commercial premises (including offices and professional chambers)*	1 space / 25 sqm of GFA
Parramatta	SREP 28 – Parramatta	1 space / 100 sqm GFA
Homebush Bay - Rhodes		1 space / 35 sqm
Sydney CBD	Sydney LEP 2005	The car parking provision rate is based on one space per 50 sqm Site Area, which is equivalent to approximately 1 space per 500 sqm for new commercial buildings with an FSR of 10:1 typically
South Sydney	South Sydney Council DCP 11 – Transport Guidelines for Development 1996	1 space / 125 sqm – (20%) allocated to visitors
Sydney Airport surrounds	City of Botany Bay	1 space / 40sqm
North Sydney	North Sydney DCP	1 space / 400 sqm
St Leonards	North Sydney DCP	1 space / 400 sqm
Chatswood	Willoughby Council	1 space / 60 sqm – non railway precincts 1 space / 110 sqm – railway precincts 1 space / 200 sqm – commercial in Chatswood

7.2 Journey to Work Travel Mode Shares in Comparable Centres

A comparison of the current journey to work travel behaviour to other business centres in the Sydney Metropolitan Area identifies several centres that have achieved more sustainable modes of travel and have lower car dependency than Macquarie Park.

Further examination of these business centres in relation to their land use and transport elements identifies future transport and parking policy and strategy elements which can be applied to Macquarie Park in the future. However, the Epping to Chatswood Rail Link, does not currently provide equivalent public transport accessibility to Macquarie Park, compared to the centres which are indentified in the table below.

Once the business park based employment centre in Macquarie Park has matured with further improvements to its public transport accessibility in the longer term, it will become more like the identified centres in the table below, which already have high levels of public transport accessibility eg, Parramatta, Chatswood, St Leonards, North Sydney and the Sydney CBD.

The table below summarises the current public transport journey to work and future target mode splits for these “High Public Transport Accessibility” business centres in Sydney. As the future workforce in Macquarie Park grows, and its public transport accessibility continues to improve, it is anticipated that its future public transport journey to work travel mode share will move along a parallel trend line to that for the other “High Public Transport Accessibility” centres in Sydney, reaching a future level of 40% public transport journey to work travel usage by 2031, when the corresponding future total study area employment level of 78,000 jobs is reached. This is illustrated by the graph in **Figure 18**

Employment Area	Existing Travel Mode Split	Target Travel Mode Split
Macquarie Park 2006 Census Data:	Car Driver: 79% Car Passenger: 5% Rail: 5% Bus: 5% Walk/Cycle: 4%	(Bitzios Traffic Study, 2008) Car Driver: 50% Car Passenger 5% Public Transport: 40% Walk/Cycle 5%
Optus Office in Macquarie Park	Car Driver: 46% Car Passenger: 9% Rail: 15% Bus: 27% Walk/Cycle: 3%	(Optus Workplace Travel Plan, 2004) Car Driver: 40% Car Passenger: 7.5 % Public Transport: 45% Walk/Cycle: 7.5%
Chatswood CBD 2006 Census Data	Car Driver: 51% Car Passenger: 5% Rail: 29% Bus: 7% Walk/Cycle: 8%	
Sydney CBD 2006 Census data	Car Driver: 16% Car Passenger: 4% Rail: 48% Bus: 22% Walk/Cycle: 7%	(Sydney 2030 Strategy) Public Transport: 80%

St Leonards / Crows Nest 2006 Census Data	Car Driver: 60% Car Passenger: 4% Rail: 23% Bus: 6% Walk/Cycle: 7%	
North Sydney 2006 Census Data	Car Driver: 34% Car Passenger: 4% Rail: 43% Bus: 10% Walk/Cycle: 7%	
Parramatta 2006 Census Data	Car Driver: 55% Car Passenger: 7% Rail: 26% Bus: 6% Walk/Cycle: 5%	Mode shift towards 10% non car based

7.3 Effect of Parking Availability on Commuter Behaviour

Within the study area of Macquarie Park, parking availability is currently relatively uniform such that it does not show any discernable effect on journey to work travel patterns for different employment destinations within Macquarie Park.

In comparison with the other major commercial employment centres of Sydney shown in the table above, historically the high parking supply for businesses at Macquarie Park, in conjunction with the relatively slow and infrequent public transport services from most areas of Metropolitan Sydney (prior to the ECRL Rail Line opening), has led to high levels of car travel for journeys to work and correspondingly low levels of public transport usage (as shown by the year 2006 Census data).

However at the residential origin end of the journey, the public transport usage for journey to work travel to Macquarie Park in the 2006 Census varies quite significantly. There is a factor of about six between the best performing region (Gosford-Wyong, 18% Bus or Rail Journey to work to Macquarie Park) and the worst performing region (Baulkham Hills, 3% Bus or Rail Journey to work to Macquarie Park). The relatively high public transport travel mode share for longer distance journey to work travel to Macquarie Park from the Gosford Wyong region is achieved primarily because of the high level of accessibility to the heavy rail network in that region (14 Railway Stations). The correspondingly low public transport travel mode share for journey to work travel to Macquarie Park from Baulkham Hills LGA occurs because of the low level of accessibility to the heavy rail network (only 1 Railway Station) in that area of Sydney.

This variation in the journey to work travel mode share in the 2006 Census is illustrated in more detail in **Figure 19** . The 2006 Census is the most recently available data and shows a significant “Area of Residential Origin Factor” which has historically influenced the journey to work commuter travel patterns of Macquarie Park employees.

The opening of the ECRL rail link in early 2009 is likely to have mitigated this factor by providing increased public transport accessibility to Macquarie Park, via the heavy rail network, from most of the Greater Sydney Metropolitan Region. This will have significantly benefited those Macquarie Park employees who live in areas which already have good

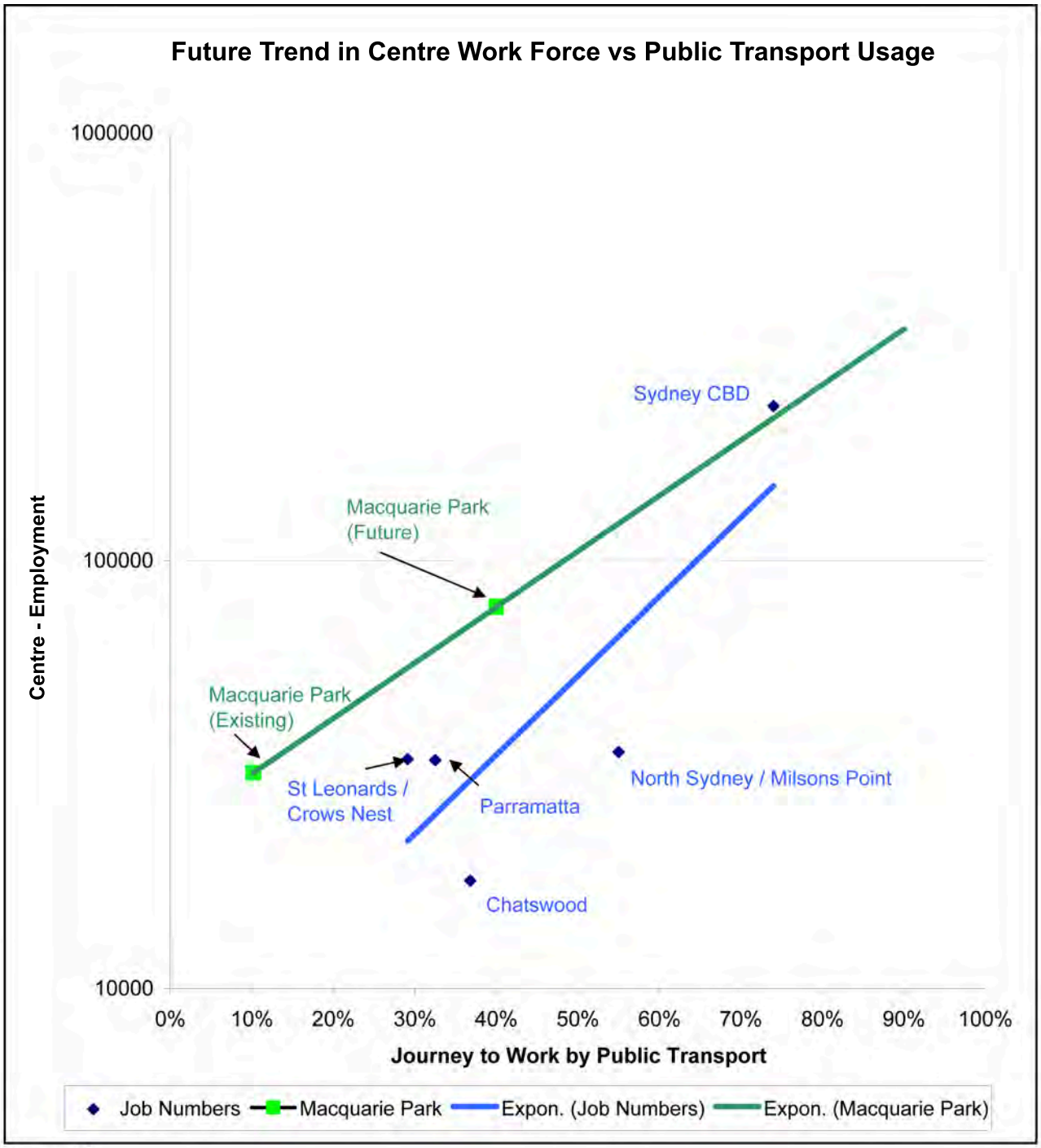
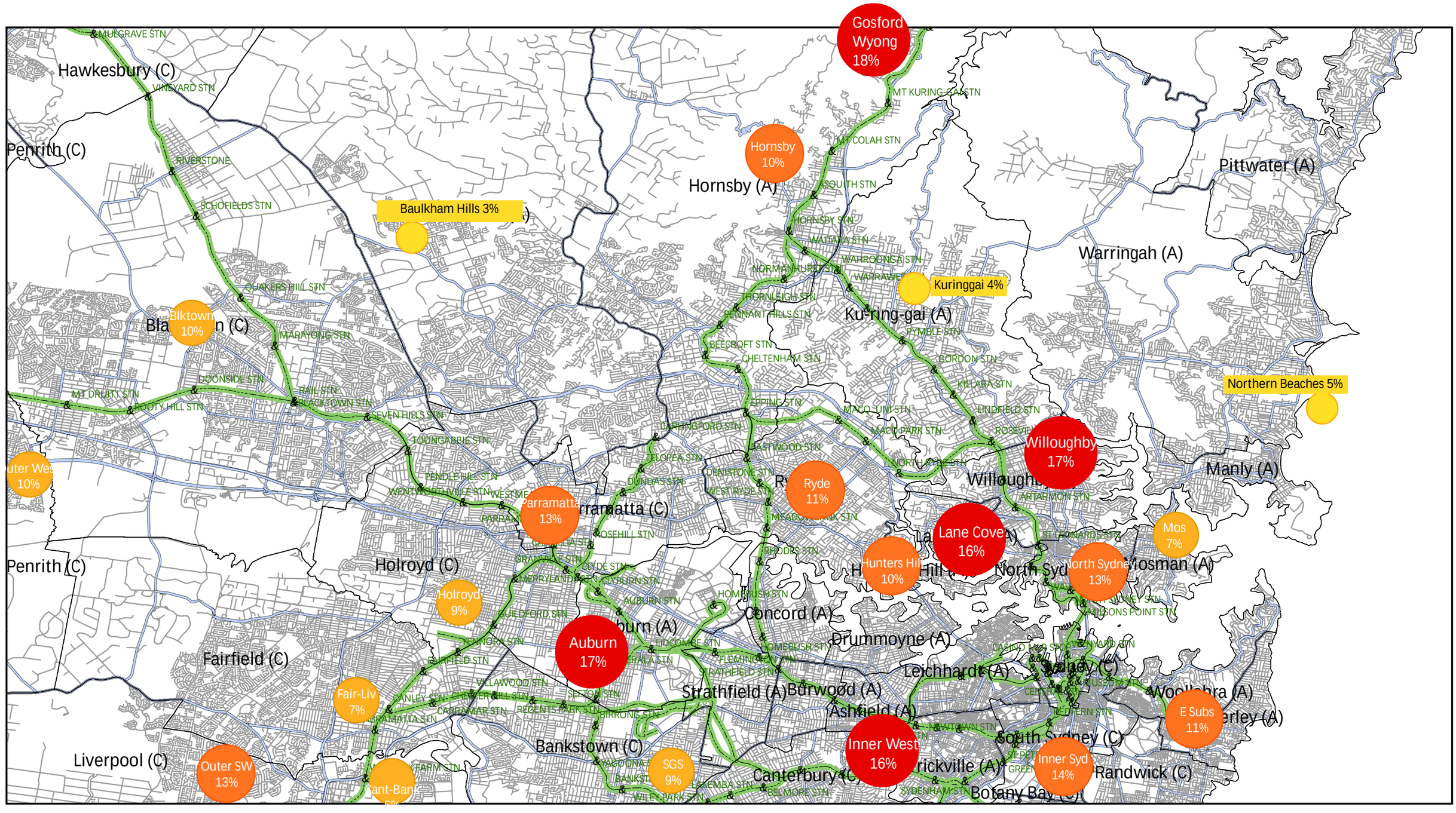


Figure 18: Future Trend in Work Force vs Public Transport



Rail Line

Rail Stations

Sydney Roads

Main Roads

Sealed Roads

% Public Transport for LGAs

15% - 20%

10% - 15%

5% - 10%

0% - 5%

Figure 19: 2006 Public Transport % for Journey to Work to Macquarie Park

Source: 2006 Census

ARUP

0 1.25 2.5 5 7.5 10 Kilometres

accessibility to the heavy rail network (North Sydney, Inner Sydney, the Eastern Suburbs and the Inner West of Sydney) or whose rail services directly connect with the ECRL rail link services (eg the North Shore railway line and the Main Northern railway line as far north as Gosford – Wyong) .

Those Macquarie Park employees who live in regions of Sydney such as Baulkham Hills or the Northern Beaches, where there are effectively no rail services currently, will have received only minimal benefits from the new ECRL rail link services and consequently only minimal changes to the historically car based journey to work travel patterns to Macquarie Park will have occurred from these areas as a result of the ECRL rail link.

7.4 Effect of Parking Availability on Traffic Congestion

The effect of “parking availability” in a major employment area on the traffic congestion of the surrounding road network system is complex but is significantly influenced by two key factors, namely

- The presence or absence of strong regional commuter traffic flows on the adjoining road network
- The availability of alternative public transport services for persons who may choose not to drive.

In an area such as Macquarie Park where historically there has been a high level of availability of car parking and a high level of journey to work car travel, traffic congestion reaches an equilibrium point with commercial development. This is exacerbated by the heavy regional traffic flows on the adjoining roads also, eg the M2 motorway, Lane Cove Road and Epping Road.

Continuing employment growth at Macquarie Park with high levels of commercial car parking provision (there is virtually one car parking space per employee in the area currently) will very rapidly increase the peak hour traffic congestion on the adjoining road network to the point where the limited road accessibility will effectively discourage further employment growth in the area, unless adequate alternative access is available by public transport.

The ECRL rail services at Macquarie Park now provide a reasonable level of public transport accessibility to and from the area (via the heavy rail network) for most residential areas in the Sydney region. However, there are still some remaining areas, in particular the Baulkham Hills Shire, the majority of Western and South Western Sydney west of Parramatta, and the Northern Beaches region where the public transport accessibility benefits to Macquarie Park which are now provided by the ECRL rail services are relatively minimal.

Accessibility by public transport to Macquarie Park from these areas will improve when the additional section of the ECRL linking to Parramatta is completed as originally proposed, the North West Rail Link to either Baulkham Hills or Rouse Hill is constructed as originally proposed and also construction of an underground heavy rail link from Chatswood to the Northern Beaches.

Only then, can the ongoing causal linkage between continuing high employment growth at Macquarie Park and excessive peak hour traffic congestion on the major road network leading to the area, be effectively broken for all employees and visitors to the area.

8 Study Consultation With Key Stakeholders

At the commencement of the study, a large number of major institutional, commercial and government agency stakeholders were identified and a study consultation strategy was developed to achieve targeted and co-ordinated consultation with four separate stakeholder groups as follows.

8.1 Government and Transport Industry Consultation

The first consultation which was undertaken for the study was a workshop meeting of the key government transport agency and other transport industry stakeholders at the City of Ryde Offices on 19 March

Workshop attendees were invited from a range of NSW Government and private sector transport industry stakeholders, including:

- The Roads and Traffic Authority
- The State Transit Authority
- RailCorp NSW
- NSW Ministry of Transport
- NSW Transport Infrastructure Development Corporation
- Transurban (The M2 Motorway Operator)
- NSW Taxi Council
- Hillsbus / Westbus
- City of Ryde Council

8.2 Key Institutional Stakeholder Consultation

During April and May 2009 a series of one on one stakeholder consultation meetings were held by Arup and the City of Ryde Study Manager, with a series of key business and institutional stakeholders in the area, namely

- Property Council – Angus Nardi
- Macquarie University - Dale Clark
- Chamber of Commerce - Colin Stibbs
- Ryde Business Forum – Andrew Bland and Charles Kilby
- Macquarie Shopping Centre - Gerard McSpadden and Daniel Wilton
- Optus - Andrew Parker

A general discussion was held with each stakeholder and notes were made of the views and suggestions for a future car parking strategy for the Macquarie Park Corridor

8.3 Additional Commercial Stakeholder Consultation

In addition to the key business and institutional stakeholder interviews which were undertaken by Arup and City of Ryde, JLL undertook additional telephone interview discussions with a range of building owners and tenants in the study area who also made future car parking strategy suggestions for the study area.

8.4 Residential Area Consultation Undertaken by Ryde Council

Extensive residential area consultation had previously been undertaken by the Ryde City Council on two occasions in recent years to investigate current residents' concerns regarding car parking availability and usage in the residential streets surrounding Macquarie

Park and the need for Resident Parking Schemes to address overflow parking in these areas (caused by either the commercial area workforce or Macquarie University students).

Firstly in November 2005 consultation was undertaken by consultants URAP to assess community attitudes to car parking issues in the area as part of the Car Parking Demand Review Study for the area which was undertaken prior to the anticipated opening of the Epping to Chatswood rail link.

Secondly in late 2008 / early 2009, extensive further consultation was undertaken directly by City of Ryde Council staff, to review residents' satisfaction levels with the Resident Parking Scheme controls that had been implemented in the residential streets surrounding Macquarie Park in recent years.

8.5 Summary of Stakeholder Consultation

Following the analysis by Arup of combined comments from all the study stakeholder consultation workshops and discussion meetings, a broad range of ten potential future study area car parking management strategy options or changes to car parking controls were identified as having some support from one or more of the four stakeholder groups consulted.

Summary of Key Parking Strategies Suggested by Stakeholders	
1	**Maintain existing car parking provision rates for commercial development**
2	**Potentially consider less restrictive commercial car parking provision rates (In the short term) but more restrictive commercial car parking provision rates ultimately**
3	**Facilitate more adaptive shared use of car parking in the study area**
4	**Provide more off street public car parking in public parking stations**
5	**Provide peripheral car parking stations with bus shuttle services for Employees and Visitors to the Macquarie Park Area**
6	**Provide rail commuter car parking for "Park and Ride" at the Macquarie Park railway stations**
7	**Further extend Resident Car Parking Schemes in the residential areas adjoining the Macquarie Park study area**
8	**Develop Workplace Travel Plans (WTPs) for both existing and new workplaces**
9	**Provide preferential commuter car parking charges in public off street car parks for cars carrying more than one person**
10	**Consider potential future extension of the State Government car parking levy to the Macquarie Park study area in the Medium to Longer Term**

9 Commercial Market Impact of the Provision and Management of Car Parking in Macquarie Park (Including Arup Summary of JLL Report)

The Macquarie Park business precinct has approximately 509,000 sqm of prime grade commercial office stock and is the 5th largest commercial property market in Australia. Aside from North Sydney it is the largest commercial property market on Sydney's North Shore. The level of commercial development in Macquarie Park has grown considerably since the CSIRO's original estate in the 1960's.

9.1 General Observations about the Macquarie Park Commercial Market

Macquarie Park competes as a commercial / business location for new commercial office development and leasing to a greater or lesser degree with a range of other commercial / business centres in Sydney, namely, the Sydney CBD, the Sydney CBD Fringe (South Sydney), North Shore markets, Rhodes / Homebush Bay, Norwest and Parramatta.

There has been a significant spike in new commercial office development activity in Macquarie Park during 2006 to 2008, brought about by planning changes (new Masterplan and DCP in 2008), new transport infrastructure projects (Lane Cove Tunnel and ECRL with three new train stations), solid demand conditions in 2007 and limited supply in the more established Sydney office markets.

9.2 Current Market Conditions

There is a solid supply pipeline with 397,000sqm of new commercial office space now approved or currently in the planning stages. This is now planned to be built 2009 onwards as follows:

- 2009 = 36,400sqm under construction (76% still available for pre-lease).
- 2010 = 179,000sqm across projects with DA approval and 100% still available for pre-lease. This is across projects that are most likely to proceed and where a tentative completion date has been provided by owner / developer.
- An additional 79,600sqm is in planned / mooted stages to be completed in 2010 and beyond.

The peak Macquarie Park commercial office vacancy level of 14.5% which was recorded in late 2008 was well above the recent minimum of 5.0% which was recorded less than 12 months earlier. More recently since mid 2009, the vacancy rate has reduced slightly to 13.8%, according to the most recent JLL market information.

The main reason for the recent shift upwards in vacancy is the large amount of non-committed new supply which entered the market in 2008. Gross effective rents have shown a decline of 2.6% in 2009, in comparison to figures recorded in Q4/2008.

Prime investment yields for Macquarie Park remained stable in the upper range and shifted 25 basis points in the lower range to 8.00%-8.75%.

9.3 Key Market Conditions (Further details available in the JLL report, see Appendix B)

The additional 397,000 sqm of new commercial office space which is currently either under construction, approved or planned for the Macquarie Park Corridor area is an additional 30-40% approximately to the total commercial floor space capacity which is currently developed in the area (1,387,000 sqm of gross commercial floor area, corresponding to 1,110,000 sqm of gross leasable floor area, according to the most recent City of Ryde Council data). This will create an even more competitive office space market in the area if all developed within the next few years.

Commercial property market conditions in the latter half of 2008 showed a rapidly growing office vacancy rate in Macquarie Park, which reached 14.5% at the end of 2008, but has now recovered slightly to 13.8% after June 2009. This represents a very significant increase over the prevailing office vacancy rates for most of the five year period prior to 2008. The increase has been primarily due to the delivery of a large amount of non-committed space and the emergence of additional vacant space available for subleasing due to the adverse economic conditions with the global financial conditions and economic downturn in mid-late 2008.

These economic conditions have effectively placed a halt on most further planned office developments (with the exception of Macquarie University research park sites) until market conditions improve and pre-commitments to leases can be secured. As demand for space has fallen due to the current economic climate, rents have also fallen slightly, and incentives have gone up in order to attract tenants.

Macquarie Park yields now reflect values falling slightly as well as rents. However there have been relatively few transactions in 2009 to confirm current market values. Over the preceding five years rental yields had been falling slightly as a general increase in property values relative to rentals had been occurring. This trend has now stalled.

Overall, the commercial property market in Macquarie Park is now facing a very competitive rental market, where there is likely to be increased competition for the scarce occupiers active in the marketplace. Higher available amounts of parking, either in existing or planned buildings, can potentially provide a competitive edge for some building owners to offer to attract new commercial tenants.

At present due to the soft economic conditions, any additional car parking which is available is likely to be offered as an incentive to attract occupiers, rather than necessarily increasing effective rents.

9.4 Overall Impact of Commercial Stakeholder Views

The commercial stakeholders who were interviewed for this Macquarie Park Corridor Parking Study report raised a number of valid concerns and comments about the current status of parking and accessibility, and the impact this has on tenants' perceptions of the Macquarie Park area. These observations, whilst anecdotal, present an important insight into the current responsiveness of the local commercial property market to any proposed review of parking rates for new commercial office development in Macquarie Park.

9.4.1 Parking Rates reflect overall accessibility

Due to a range of congestion issues with local area road access, as investigated by the City of Ryde's Traffic Report (Bitzios, 2008), the recent opening of the Epping to Chatswood rail line and growing concern of the need for more environmentally friendly transport alternatives to the private car, any changes to the current parking provision rates for Macquarie Park are most likely to decrease the amount of parking available in the future.

Any future reduction in the available parking would need to be managed with regards to the general (current) commercial property market perception of Macquarie Park as being a “car based” business centre, where commercial tenancies in the area need to provide adequate parking for their employees and visitors.

However, in the longer term, continuing unrestrained provision of, and demand for, car parking in the area by building owners and their commercial tenants is not sustainable. Future reviews of the parking provision rates at Macquarie Park will need to address this, but further changes can only be justified parallel with improvements to public transport accessibility and also education programs and campaigns to promote alternatives to private car travel.

9.4.2 Comparable Centres

Macquarie Park is a recently evolved major commercial centre in Sydney, which needs to respond to ongoing market challenges to maintain its continuing growth as a major employment centre. As the density of development and quantum of available commercial floor space in the centre grows, it will need to recognise that one result of the higher concentration of commercial floor space will be change in the rate of parking provision.

This is amply demonstrated by comparisons with the other major business districts in Sydney where the centres which have the largest volumes of commercial office space currently. The Sydney CBD and Fringe, North Sydney and Parramatta all have much lower rates of parking provision than Macquarie Park. Chatswood is a smaller commercial centre than Macquarie Park, but has a lower rate of parking provision as it also has a significant amount of residential development in the centre which can support more locally based journey to work travel patterns.

Conversely, most other commercial centres that are currently smaller than Macquarie Park have higher rates of parking provision, such as Norwest. However Norwest currently lacks many of the accessibility benefits of Macquarie Park, namely a new train line with three railway stations servicing the business centre. The new rail line will provide a catalyst for longer term change in both employer and employee perceptions of the accessibility of Macquarie Park as a place to work.

Prospective commercial tenants, and commercial property market stakeholders, will also see changes in demand for car parking at Macquarie Park with the new rail services, as current building tenants and future potential employees adjust their lifestyles and trip making patterns to reflect the new level of train access.

In future comparisons of Macquarie Park’s parking provision rates with those of other centres, it is important to undertake comparisons with “like” centres and to understand that the link between business location decisions and parking policies (or restrictions) is not a primary factor in these decisions.

The JLL research report in **Appendix B** indicates that the availability of car parking is actually only the fourth ranked factor in business office location choices as is ranked below the following three primary factors which are

- The cost of office space ($ rental per square metre)
- The availability of public transport, and
- Fitting in with corporate image

Integrated public transport strategies for an area, and an increase in employee accessibility and transport options are now seen as the best ways to manage parking demand and reduce perceptions of the need for parking, “The High Cost of Free Parking” (Donald Shoup, 2005).

Future parking rate comparisons for Macquarie Park should therefore be undertaken with business centres with equivalent heavy rail access, once the Epping to Chatswood line is

fully integrated into the CityRail network. Parking comparisons also need to be undertaken with reference to the overall Sydney commercial office market and the general mobility levels of the relevant employers and employees. Generally, the Sydney CBD competes as an office location with North Sydney and the Sydney CBD fringe (Bondi, Ultimo/Pyrmont, South Sydney), North Sydney competes with Chatswood, Chatswood competes with Macquarie Park, and Macquarie Park competes with Norwest, Homebush Bay and Rhodes etc.

Ultimately, the value of these comparisons will also become more focused on the overall attractiveness and amenity of an area, considering other business and recreational activity levels, travel distances as well as convenient access to clients, suppliers and markets. Whilst parking is a significant accessibility issue, other factors are more significant.

9.5 Other impacts on the Commercial considerations of Parking in Macquarie Park

9.5.1 NSW Government Parking Space Levy

A further consideration in the comparison of the parking availability and costs in an area is the potential (longer term) introduction of the NSW Government Parking Space Levy to the Macquarie Park Corridor and the impact this will potentially have on the provision and demand for commercial car parking spaces.

The NSW Government Parking Space Levy (PSL) was introduced to discourage car use in major commercial centres, encourage the use of public transport and to improve air quality.

The PSL funds public transport infrastructure projects which make it easier and more convenient for people to access public transport services. The aim of the PSL is to discourage car use in leviable districts and to develop infrastructure to encourage the use of public transport for travel to and from, or within these districts.

It is important to note the extent to which the PSL adds to the cost of parking provision in the affected commercial centres, which directly impacts on the overall provision and leasing costs of car parks. The Sydney business centres that are already subject to the PSL are:

Category 1 ($2000 annual levy) per car parking space:

- Sydney CBD
- North Sydney/Milsons Point

Category 2 ($710 Annual Levy) per car parking space:

- Bondi Junction
- Chatswood
- Parramatta
- St Leonards

9.5.2 Fringe Benefits Tax

Fringe benefits tax is liable on off street car parking provided by employees if there is a commercial car parking station (off street) operating within 1km of the employer's car park.

There is a threshold parking cost of around $7-8 a day (deemed commercial rate, subject to annual review by ATO) above which the FBT liability is triggered. As the FBT liability is incurred by the employer, based on the daily commercial car parking cost of $8+ a day (depending on utilisation of the car parking space) and at a tax rate of 46.5%, this can impose a considerable cost on the employer. Some employers attempt to pass this cost on to their employees, but this is a complicated compliance issue, with associated personnel costs to manage it.

Based on recent introduction of paid car parking at a daily rate of more than $8 per day to the Macquarie Shopping Centre car park, the commercial areas within 1km of there will now be liable for FBT consideration. Previously, many tenants were attracted to Macquarie Park because of the FBT exemption, as this was seen as a highly competitive cost consideration for businesses to provide generous staff car parking. This situation will now need to be reviewed by employers in the area following the introduction of the commercial pay parking in the Macquarie Shopping Centre car park.

9.5.3 NSW Metropolitan Parking Policy

The Sydney Metropolitan Strategy (2005) identifies a need to develop a metropolitan parking policy as a key objective. Objective D3.2.1 of the Metropolitan Strategy seeks to "Develop and implement a metropolitan wide parking policy to encourage use of public transport to centres and ensure a consistent approach across centres".

The metropolitan parking policy is intended to reduce the competition between commercial, residential and retail centres based on their allowed car parking provision rates. By reducing the availability and increasing the cost of parking, there will be direct impacts on people's travel choices. By reducing parking provision in areas well served by public transport, the use of public transport is supported, with related improvements in congestion, amenity and the environmental benefits of reduced reliance on private vehicle trips.

The need for a Metropolitan Parking Policy to limit competition between centres based on parking provision rates is warranted. Traffic congestion, adverse environmental impacts and reduced mobility are the end results if there is no overall metropolitan parking strategy to manage core, centre and fringe rates of parking demand in all the commercial centres. The future development of a Metropolitan Parking Policy in Sydney will need to be explored by the NSW Government agencies in further detail to adopt a consistent approach to parking provision and support the development of emerging commercial centres in Sydney such as Macquarie Park.

9.5.4 The Introduction of Parking Meters to Macquarie Park

Following an earlier parking study which was undertaken by the City of Ryde in 2005, parking meters were introduced to virtually all the commercial streets in the Macquarie Park Corridor study area.

The parking meters do not generally restrict the overall time duration of car parking in the centre and most permit all day parking. However the cost for all day parking was initially set at $10 but has now been reduced to $6 in some areas where the parking meters were considered to be under utilised.

The parking meters currently control a total of 1,147 on street car parking spaces in the following locations.

- Culloden Road
- Talavera Road
- Alma Road
- Khartoum Road
- Waterloo Road
- Byfield Street
- Giffnock Avenue
- Lyon Park Road
- Coolinga Road
- Eden Park Drive
- Wicks Road, and
- Plassey Road

While the parking meters are not universally popular, they do fulfil a valuable role in helping to establish commercial benchmark costs for car parking in the area, which are an essential part of helping to manage the future transition of the area from an historically car access

dominated employment centre in the past to a multi access mode, integrated, mixed use business centre in the future.

However, one aspect of the parking meters that should be reviewed in the future is their usage for all day parking. While this appears to be the main parking demand currently in the streets at Macquarie Park where they have been installed, in most other commercial centres in Sydney which have meter parking, the meter parking is normally used to increase parking turnover, ie to provide more short term parking capacity.

In most of the core commercial areas of Macquarie Park, ie the areas within a 400 metre walking distance of the railway stations, consideration should be given to changing the future time limit of the meter parking to 2 hours maximum to facilitate their use for the short stay – high turnover visitor parking needs of the various businesses and other facilities in these areas.

9.6 Summary of Commercial Implications of Changes to Car Parking Controls

9.6.1 Short term:

One of the main findings coming out of the study consultations with commercial stakeholders is that new demand for commercial office space in Macquarie Park is currently very weak. Any changes to the provision of parking for future developments will adversely affect the marketability of newly constructed developments, particularly in respect to the current vacant supply and the approved development pipeline of office stock. Based on the overall study consultation findings from the full range of government, commercial, institutional and residential stakeholders, it is considered that parking provision rates should be left unchanged in the short term.

9.6.2 Medium term:

As the current market conditions stabilise, and the commercial office space market in Macquarie Park absorbs available stock and any newly developed stock, there is a real opportunity to change perceptions of the accessibility of Macquarie Park. In the medium term, the newly opened ECRL rail line will have established itself as a full service rail line, and users will adapt their lifestyles to make greater use of it.

There will also be more opportunities to positively influence tenants' perceptions about transport alternatives by developing a series of public transport and pedestrian friendly initiatives, such as street improvements and more integration of bus and rail improvements. Other parking management measures such as more "unbundling" of the leasing of office space and car parking in the area, will also help to ease the transition of the area towards operating with lower levels of parking provision for most commercial office developments in the longer term.

The increasing implementation of workplace travel plans (similar to Optus and Macquarie University) will also help to reduce the existing strong demand for business related car travel during office hours. Also making Macquarie Park a more self sufficient mixed use business centre can also further potentially reduce the need for major office building tenants and their workforces to have access to a car during work hours.

9.6.3 Longer term:

As the Macquarie Park area grows, the pressure on available road capacity in the region will increase and the current levels of parking provision will need to be reviewed to limit additional vehicle travel for journeys to work (particularly during the peak hours) and to bring the Macquarie Park centre parking rates into line with the other major business centres in Sydney. This will mean reducing the provision of parking for new commercial office developments. However, this can only be a viable strategy when coupled with improvements to alternative transport modes for the area (public transport, walking and

cycling) and raised awareness of these alternatives among the key stakeholders, landholders, employers and employees in the area.

The current accessibility based parking provision principles in the area are valid, and similar principles should be supported as new parking provision rates are developed. Direct comparisons of Macquarie Park parking provision rates with other competing commercial centres in Sydney will continue to be important to limit business centres competing with each other in terms of parking provision and accessibility, as the resulting adverse traffic congestion, road safety and environmental impacts will be significant. In the longer term, the Macquarie Park parking provision rates should be more comparable with centres that are serviced by frequent train services and other public transport modes, including business centres which incorporate major bus-rail interchanges.

10 Analysis of Parking Strategy Options for Future Development

10.1 Summary of Existing Parking Availability

The existing car parking availability in the study area is generally good as summarised by the car parking and commercial floor space inventory analysis in Chapter 4 of this report and the high level of car usage for journey to work travel in the most recent Year 2006 Census data.

For the overall Macquarie Park Corridor study area, where the Year 2006 Census total workforce is 32,000 persons, the total commercial area car parking supply is approximately 32,500 car parking spaces (31,500 off street car parking spaces and 1,000 on street car parking spaces) . This balance represents approximately 1.0 car parking spaces per employee in the commercial areas.

If the Macquarie Shopping Centre, which is primarily a retail facility (1,000 employees and 4,100 car parking spaces), is excluded from the car parking comparison, the corresponding balance of employment vs commercial car parking changes slightly to (31,500 employees and 28,400 car parking spaces). This still represents a very high rate of parking provision for the commercial workforce in the study area of approximately 0.90 car parking spaces per employee.

In view of these totals, it is somewhat surprising that the area has any significant car parking supply issues currently. However commercial factors evidently do influence the situation and restrict access to some of the off street car parking supply currently.

Also, the relatively high office vacancy rate (13-14% currently) means that a significant proportion of the study area car parking supply is not actually leased currently and is therefore not available for use by the workforce, contributing to the observed problems of high on street car parking demand in the core commercial areas and consequent overflow of excess car parking demand into the surrounding residential areas. However, in recent years, resident car parking schemes have been introduced to these areas by the City of Ryde Council to manage this situation.

It is also significant at the current time that the effective commercial area employment density is relatively low, with 32,000 employees distributed over 1,387,000 sqm of gross commercial floor area (equivalent to approximately 1,110,000 sqm of gross leasable floor area) representing an existing employee density ratio of 1 employee per 34.6 sqm of gross leasable floor area, within the commercial areas.

This relatively low employment density is a reflection of some of the less “employee intensive” research and manufacturing type activities which are undertaken by many of the businesses in the area. This employment density ratio is well below the current normal floor space utilisation levels for commercial office uses in Sydney at 1 employee per 15-20 sqm typically in central CBD offices and 1 employee per 20-25 sqm typically in most suburban office locations.

This low employment density currently indicates the significant future potential, with changes in the business uses, for the existing commercial floor space in the study area to accommodate a substantially larger workforce in the not too distant future. By 2031 an extra 7,000 jobs could potentially be included within the existing commercial sites, increasing the future employment density in existing commercial buildings in the area to approximately 1 employee per 28.5 sqm of gross leasable floor area.

10.2 2031 Development Scenario

The future commercial development scenario to the year 2031 which has been developed by the City of Ryde Council as part of the recent DCP and LEP Planning reviews for the Macquarie Park Corridor, proposes a total of approximately 1,029,000 sqm of additional gross commercial floor area at Macquarie Park / North Ryde and a further +400,000 sqm of gross commercial floor area proposed within the future "Technology Park" precincts of the Macquarie University Campus.

The likely future distribution of this additional commercial floor area development within the study area is illustrated by **Figure 20** , including the high predicted future concentration of new office development in the four street block precinct which is immediately surrounding the Macquarie Park railway station

The likely future changes to the overall car parking situation in the Macquarie Park study area as a result of this future commercial development, are analysed and discussed in the following sections of this Chapter in terms of nine future land use development precincts of the study area which are illustrated by **Figure 21**.

In general terms, the overall future development scenario for the study area in the year 2031, proposes an approximate doubling of the future commercial floor space in the study area, with an even greater (+ 144%) increase in the total study area employment to 78,000 jobs approximately.

The corresponding level of future car parking restraint which will be applied in each precinct as a result of this study area employment increase under the default future car parking management scenario (the retention of the existing LEP 137 car parking controls) is also discussed.

It should be noted that this overall study area land use redevelopment scenario currently excludes any formal future land use development proposal for the currently vacant land zoned "deferred" which is the former ECRL worksite, in the vicinity of the North Ryde Railway Station. When a future development proposal for this land area (likely to be a mixed use combination of high density residential and commercial uses) is defined, the overall future study area employment growth scenario is likely to be even more extensive.

10.2.1 Precinct 1 - Macquarie Park General Business Park Commercial Area

In terms of land area, this is the largest future land use zone in the Macquarie Park study area. This area includes ten of the twenty four "street blocks" of the Arup car parking inventory map, namely blocks 11, 12, 14, 15, 16, 18, 19, 20, 21 and 22.

The existing total development floor space in the area is 889,986 sqm of which approximately 849,736 sqm is commercial business park type development with a total parking supply of 17,162 car parking spaces. This represents 1 car parking space per 49.5 sqm of commercial floor space.

The future 2031 development projection for the precinct estimates significant additional future commercial development of 528,000 sqm which is likely to developed with future car parking at a rate of either 1 parking space per 46 sqm or 1 parking space per 70 sqm (probably about 1 parking space per 60 sqm on average).

This is an approximate 60% increment of additional floor space in an area which is already substantially developed. The additional future development area and car parking (8,800 car parking spaces) will have some influence on the overall future car parking provision reducing this to 1 space per 53 sqm by the year 2031. This fairly small 5-10% reduction in the overall future rate of parking provision per sqm will nevertheless, in combination with a likely 15-20% higher employment density in the future, result in a reasonably significant 25% future level of car parking restraint for employees in the area in comparison to the current employee car parking situation.

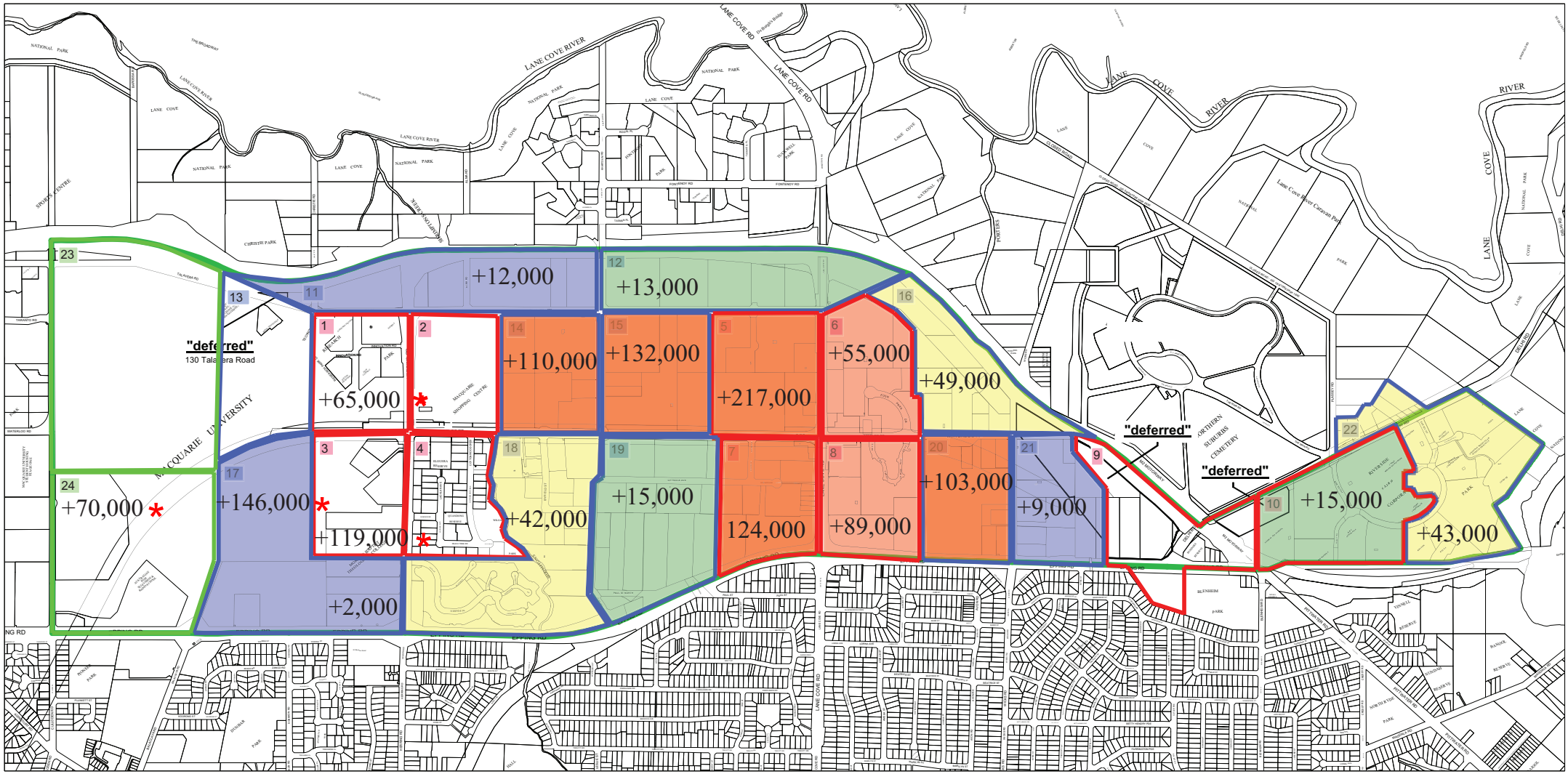


Figure 20

Predicted 20 Years Commercial Floor Space Growth

City Of Ryde

GFA Increase (+1,029,000 m2 Macquarie Park Commercial)

GFA Increase (+400,000 m2 Macquarie University Commercial) *

ARUP

Existing m2
+100,000 m2 and Over
+50 - 100,000 m2
+ 25 - 50,000 m2
+ 12.5 - 25,000 m2
+ 0 - 12,500 m2
+ 0
Corridor Area

* Excl Macquarie University

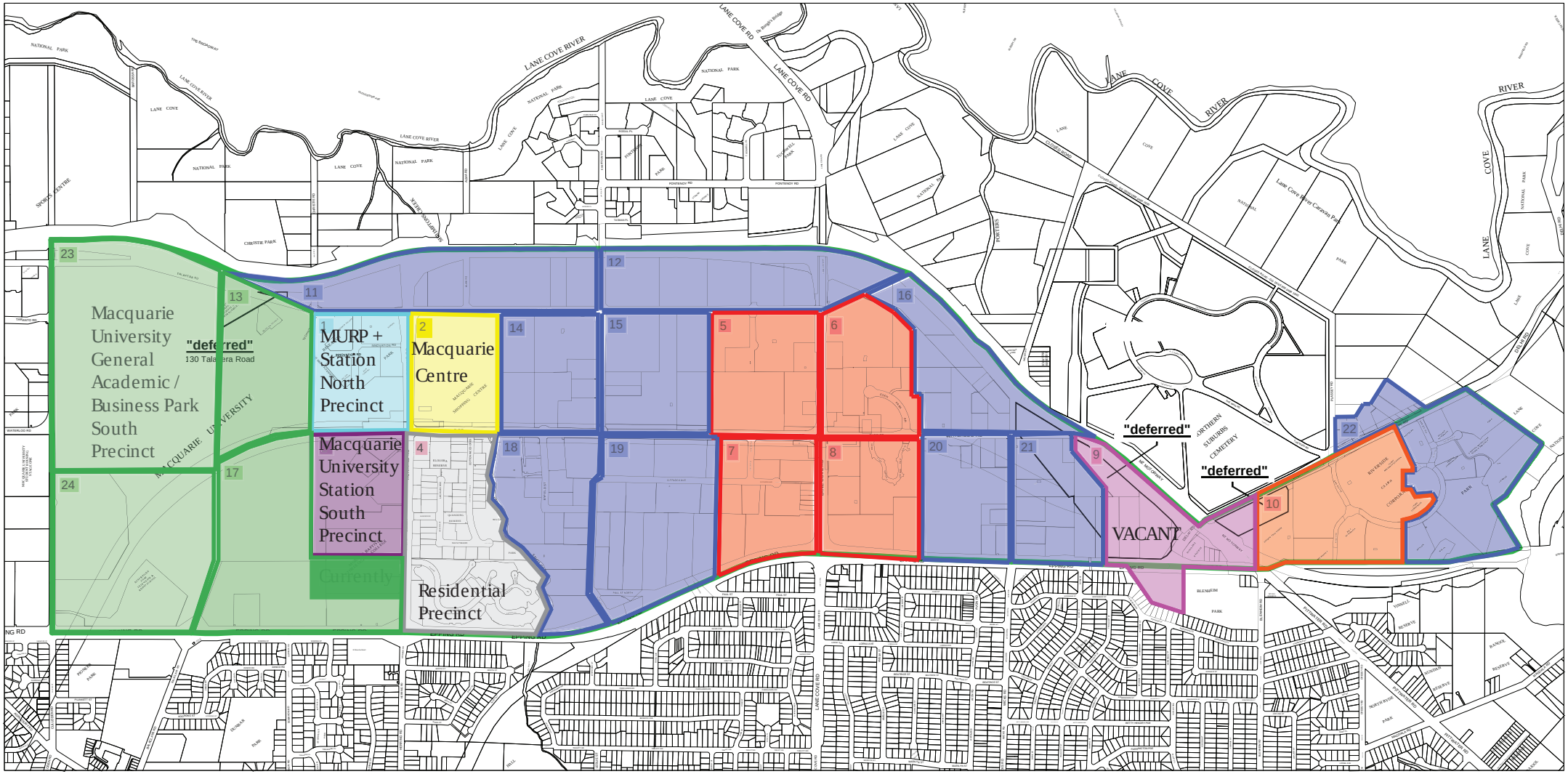


Figure 21

Future Study Area Development Precinct

*Excl Macquarie University

1 Macquarie Park General Business Park Area

2 Macquarie Park Core Business Area

3 Riverside corporate Park Core Business Area

4 Macquarie Shopping Centre Retail-Commercial

5 Macquarie University Research Park

6 Macquarie University Education Precinct

7 Future University Commercial Core Residential Currently

8 Residential Precinct

9 Deferred Matter Zoning Former ECRL Worksite

ARUP

10.2.2 Precinct 2 - Macquarie Park Railway Station Core Business Area

This area includes four of the twenty four "street blocks" of the Arup car parking inventory map, namely blocks 5, 6, 7 and 8.

The existing total development floor space in the area is 348,532 sqm of which approximately 298,284 sqm is commercial business park type development with a total parking supply of 7,220 spaces. This represents 1 car parking space per 41 sqm of commercial floor space.

The 2031 development projection for this precinct estimates a highly significant additional future commercial development component of 485,000 sqm (+ 162% increase) which is likely to all be developed with future car parking at a rate of 1 parking space per 80 sqm.

Because of this relatively large increment of additional floor space development in an area which is currently substantially under developed, the additional future commercial development area and car parking (6,063 additional car parking spaces) will significantly reduce the overall future car parking provision to 1 space per 59 sqm in the future. This reduction in combination with the likely increasing employment densities in the area, will represent an approximate 50% level of car parking restraint by the year 2031 in comparison to the current level of car parking availability for the workforce in the precinct.

10.2.3 Precinct 3 - Riverside Corporate Park Core Business Area

This area comprises one of the twenty four "street blocks" of the Arup car parking inventory map, namely block 10.

The existing total commercial development floor space is 98,044 sqm has a total parking supply of 2,107 spaces. This represents 1 car parking space per 47 sqm of commercial floor space.

The 2031 development scenario for this precinct estimates an additional 15,000 sqm which is likely to be developed at a future car parking rate of 1 parking space per 80 sqm.

Given that this is only a relatively small increment of additional floor space development to an area which is already substantially developed, the additional development floor area and car parking (188 parking spaces) will only marginally change the overall future car parking provision to 1 space per 49 sqm in this area in the future. Nevertheless, the generally increasing levels of employment density in the area will still result in some employee car parking restraint being applied to this precinct in the future, in comparison to current levels of workforce parking availability.

10.2.4 Precinct 4 - Macquarie Shopping Centre Retail – Commercial

This area comprises one of the twenty four "street blocks" of the Arup car parking inventory map, namely block 2.

The existing total development floor space in the area (which is all retail - commercial type floor space) of 97,000 sqm has a total parking supply of 4,100 spaces. This represents 1 car parking space per 23.6 sqm of retail - commercial floor space.

The City of Ryde 2031 development scenario for the study area does not include any specific additional floor space estimate for this precinct but the Macquarie Shopping Centre Management has advised in consultations for this report that an additional 30,000 sqm of retail – commercial floor space at the centre and 1400 spaces of car parking has DA Approval. This additional development in this precinct will generally maintain the current rate of car parking provision for the shopping centre staff and customers at approximately 1 space per 23 sqm

10.2.5 Precinct 5 - Macquarie University Research Park / Station North Precinct

This area includes the existing Macquarie University Research Park development which is block 1 of the Arup car parking inventory map. It also now incorporates the future

development sites which are proposed to be developed as the “Station North” precinct in the Macquarie University Concept Plan.

The existing total development floor space area in this street block (which is all research related commercial uses) is 44,023 sqm and has a total parking supply of 924 spaces currently. This represents 1 car parking space per 48 sqm of commercial floor space.

The City of Ryde year 2031 development projections for the study area do not include any additional floor space estimate for this street block, but the Macquarie University Concept Masterplan indicates an additional 65,000 sqm of commercial floor space will probably be developed in this precinct, together with an additional 813 car parking spaces, at the City of Ryde “commercial core” area car parking rate of 1 space per 80 sqm.

This significant increment of additional development to this area will significantly reduce the overall future car parking provision within this precinct to approximately 1 space per 63 sqm, compared to 1 space per 48 sqm currently. This reduction in parking provision, together with the likely increasing employment densities in the area, will result in a fairly significant 30% future level of car parking restraint being applied to this area, whereby there will be an overall 30% reduction in the number of available car parking spaces per employee for the workforce in this precinct in the future.

10.2.6 Precinct 6 - Future Macquarie University Commercial Core / Station South Precinct

This area which is referred to in the Macquarie University Masterplan as the “Station South” precinct, comprises block 3 of the Arup car parking inventory map. The existing total development floor space in the area is primarily university residential uses with an existing total floor space of approximately 19,656 sqm.

The future Macquarie University Masterplan indicates an additional 119,000 sqm of commercial “University Research Park” floor space will probably be developed in this precinct which will largely replace the existing student accommodation. This change will primarily occur because this precinct is now considered to be a “core” commercial precinct of the university because of its proximity to Herring Road and the new Macquarie University Railway Station.

The University proposes that this new commercial development will however be undertaken at the current City of Ryde “core” commercial area car parking rate of 1 space per 80 sqm. This will result in this precinct having an overall future total of 1,480 commercial car parking spaces approximately. This precinct will effectively become the most car parking constrained precinct in the study area with all the future car parking provision being provided at the City of Ryde “commercial core” car parking rate of 1 space per 80 sqm.

10.2.7 Precinct 7 - Macquarie University General Academic / Business Park South Precinct

This area includes four of the twenty four “street blocks” of the Arup car parking inventory map, namely blocks 13, 17, 23 and 24.

The existing development in the area is primarily university teaching and residential uses where the future car parking which is to be available to both the University staff and students will be progressively reduced from a peak of approximately 5,200 spaces in 2008 to approximately 4,800 spaces in the future, despite significant predicted increases in the future total university staff and student enrolment numbers.

This precinct currently has only a relatively small amount of commercial office development of 38,042 sqm. The 2031 University Masterplan proposes a highly significant increment of additional commercial floor space of 238,000 sqm for the precinct, which is likely to be developed with car parking at the current City of Ryde “core” commercial area car parking rate of 1 space per 80 sqm.

This will result in this area having an additional total of approximately 2,980 commercial car parking spaces approximately. This precinct will also become one of the most car parking constrained precincts of the study area with the future commercial car parking provision being all at the car parking rate of 1 space per 80 sqm.

10.2.8 Precinct 8 - Existing Residential Precinct (East of Herring Road)

This area comprises street block 4 of the Arup street block car parking inventory map and also the residential part of street block 18, which is on the western side of Shrimptons Creek Reserve.

No commercial development is currently proposed for this precinct. Some potential for increases in the residential densities in this precinct exists but the current strata title ownership of most residential properties will make any future urban consolidation difficult to achieve in practice. No future car parking analysis has been undertaken for this precinct in the study as the primary focus of the study is on future car parking management for commercial development.

10.2.9 Precinct 9 - Deferred Matter Zoning (Former ECRL Worksite)

This area exhibits significant potential for future high density mixed use development including both residential and commercial “Business Park” development similar to that which is anticipated to occur in the other commercial precincts of the study area, as discussed in the above sections 10.2.1 to 10.2.7 of this report. Based on the available land area of the precinct, it has the future potential for the development of approximately 250,000 sqm of future floor space as either commercial or residential land uses

The precinct also has significant potential for future use for rail commuter car parking. A large future rail commuter car park could potentially be constructed as a large structure near the south eastern corner of the precinct, from which appropriate direct, safe and secure walking connections could be developed to and from the nearby North Ryde (Delhi Road) Railway Station. The provision of future rail commuter car parking at this location would primarily be a matter for TIDC (Transport Infrastructure Development Corporation) to determine as the responsible government agency owning the land, in consultation with other government agencies.

It is not within the scope of this study to make a recommendation regarding the suitability or otherwise of TIDC providing rail commuter car parking within this precinct. However it should be noted that there is nothing to prevent future residential or commercial development occurring in this precinct according to agreed future FSR and car parking controls, in addition to future rail commuter car parking being provided independently of these planning controls, within a separate level or separate structure on the site.

10.3 Review of Future Car Parking Strategy Suggestions from the Study Stakeholder Consultations

Following the study stakeholder consultation workshops, ten potential future study area car parking management strategy options were identified as having broad stakeholder support, although not necessarily consistent support across all four groups of stakeholders. Where there were differences between the views and suggestions of some of the stakeholder groups, these differences are discussed in more detail in the stakeholder consultation comments and summaries in **Chapter 8** and **Appendix A** of this report.

Parking Strategy Option 1, Maintain Existing Car Parking Provision Rates for Commercial Development

This option had a strong consensus of support from the study commercial stakeholders, at least as a realistic option in the short to medium term future period for at least 5 years probably. There have been significant recent changes to car parking provision rates within the area with DCP 55 and LEP 137, designed to be implemented in conjunction with the

opening of the new rail stations. The core commercial area car provision parking rate in the area has been reduced, from one space per 46 sqm in all areas previously, to one space per 70 or 80 sqm in all the core commercial areas which are within convenient walking distance of the new rail stations. However until the year 2015, additional temporary on site car parking to make up some of the difference is still allowed to be provided if site developers wish to do so, although this parking must be converted to other land uses after 2015.

These recent changes appear to have been broadly accepted by both building owners and tenants in the area and the need for further change in the short term is not pressing as the additional rail commuter access capacity to the area will provide some relief to peak hour traffic congestion, such that further car parking restraint (eg less car parking permitted with new commercial buildings) is not necessarily justified, despite the currently congested and restricted road access capacity in the short term.

Parking Strategy Option 2(A), Implement More Restrictive Commercial Car Parking Provision Rates in the Medium to Long Term

This option is likely to become increasingly necessary in the medium to longer term future as the levels of commercial development and employment in the area increase (leading to an effective doubling of existing total floor space in the study area by 2031). The longer term future limitations to the overall growth of vehicular access capacity for road traffic to and from the Macquarie Park area are highly significant and will essentially limit future traffic access growth to that which can be provided by additional access capacity in the M2 Motorway Corridor and some additional local vehicular access capacity for additional local access traffic growth to and from the local North Ryde area.

In consequence, as determined by the 2008 City of Ryde (Bitzios) traffic study, the future public transport and other non car based travel model shares to and from the area will have to increase significantly to approximately 40-50% of all travel by 2031, (in comparison to 10-15% currently).

This will ultimately require further commercial car parking restraint (as part of the carrot and stick approach) which will have to be implemented within the area, in addition to improved public transport access (both bus and rail). However it is still likely that the current peak hour car traffic “gridlock” at most existing major road intersections will continue to occur throughout the intervening period as continuing growth in total peak hour car travel demand to and from the area matches any additional peak hour road traffic capacity which is able to be provided.

The necessary timing for the future introduction of further car parking restraint for new commercial development in the area, over the 22 year period to 2031, will depend on when within this period the likely additional road access capacity is able to be constructed. In principle, if the extra road capacity (in the form of M2 Corridor widening) is able to be provided within the next 5 years, this will probably delay the need for further tightening of the Macquarie Park commercial area car parking controls within this period.

The social equity and accessibility issues for access to employment in the area show that for certain parts of Sydney (eg the Hills District and the Northern Beaches) the public transport access to and from the Macquarie Park area is still not sufficiently good as to be considered attractive to most persons in comparison to private car travel. If major future public transport access improvements for these area (eg the North West Rail Link or an equivalent NW Metro Line extension from either Epping or Beecroft) are not able to be constructed within the next 5 years, the future M2 Corridor road widening within this period will be unavoidable.

Parking Strategy Option 2(B), Implement Less Restrictive Commercial Car Parking Provision Rates in the Short Term

This option was favoured by two general stakeholder groups, namely

- Some development industry interests who are currently considering development proposals in the area, who believe the current commercial car parking provision rates (since the DCP 55 / LEP 137 changes) are “holding back” potential commercial development in the area. Several references were made to the more generous parking provision rates at the Norwest Business Park, and
- Residents of the adjoining residential areas, who seemed to take the view that the existing overflow parking problems which they are experiencing in their areas are the result of inadequate car parking provision having been provided for existing commercial development. Residents suggested that this situation needs to be remedied by providing more generous car parking for new commercial business park development and also for the Macquarie University Education and Research Park expansion.

These views have some legitimacy but these issues are now effectively being addressed by means other than the provision of additional car parking, namely.

- For new commercial development in the area, the three new rail stations which have recently opened with the ECRL in the area represent a major increase to the peak hour public transport access capacity for the area such that direct comparisons with car parking in other business park areas (eg Norwest) are no longer appropriate. With the opening of the ECRL line stations in February 2009, residents in approximately 80% of the existing local government areas of Sydney have reasonable access to the heavy rail network which provides commuter access to the Macquarie Park study area via the ECRL rail line. It is primarily only areas such as the Hills District of North Western Sydney and the Northern Beaches where significant improvements to public transport access are still required. These may still yet be provided within the medium term timeframe, although any major new underground rail project is likely to take a minimum of five years from the start of construction to the commencement of operations.
- The City of Ryde Council has in recent years implemented resident car parking schemes in all the main residential areas which are directly adjoining the Macquarie Park and Macquarie University employment areas. These schemes, which do require ongoing enforcement by Council Parking Rangers on a daily basis, are addressing the issue of overflow of commercial car parking demand into residential areas. In reality this overflow parking is as much a response to the daily cost of parking as the supply of car parking in the commercial areas. In this regard, changes to the future rates of car parking supply for new commercial development in the study area may not necessarily improve the situation anyway, either now or at any time in the future.

Parking Strategy Option 3, Facilitate More Adaptive Shared Use of Car Parking in the Study Area

The study investigations, in particular the car parking inventory, have established that there is a generous supply of car parking in the study area currently, which in theory is sufficient to meet all the existing needs of employee and visitor car parking demand in the area.

However there are commercial cost factors in operation which in practice limit the availability and usage of this car parking supply. In effect 97% of the total study area “commercial” car parking supply (31,500 out of 32,500 car parking spaces) is located off street on private land where its accessibility and availability for use is governed by commercial leasing considerations.

Many building tenants do not lease sufficient on site car parking to meet the full car parking needs of all their employees and visitors. While this “unbundling” of car parking supply should lead to reduced overall car parking demand in the study area in the longer term, It also potentially leads to increased demand for on street car parking by both employees and visitors to the area where there is already intense competition for the extremely small proportion (3%) of the total local area supply of car parking which is on street and publicly available.

It is evident that this situation is adversely affecting the availability of convenient on street parking for daytime visitors to the area as well as generally suppressing the development of new street level mixed use and recreational businesses in the area eg restaurants and gymnasiums.

In principle any future mixed use commercial with street level retail development in the area should provide a balance of approximately 70% long stay car parking for employees and 30% short stay car parking for visitors. The current leasing and management of all the existing study area car parking supply should be reviewed to ensure adequate visitor car parking is made available for the legitimate car parking needs of all visitors to all sites in the study area.

Where this balance cannot be achieved with on site parking, the on street parking time restrictions should be reviewed to create more short stay car parking. This will help to achieve the overall efficient shared use of all car parking facilities by both the workforce and visitors to the area.

Also, with the future implementation of Council's DCP 2008 road network, as illustrated by **Figure 11** , there will be some additional on street "short stay" car parking capacity created on the new local roads within the commercial business park area. However, the amount of additional study area public car parking which will be created in this manner will still be relatively small in relation to the total study area car parking supply, and may ultimately do no more than replace the loss of other on street car parking, with increased peak hour clearways along the major roads in the study area

The additional local road capacity with the DCP 2008 road network is primarily required to accommodate the additional predicted future traffic flows, with an effective + 100% increase in the total commercial floor space in Macquarie Park by 2031. The creation of a small amount of additional on street car parking on the new local roads is a by product rather than the main intention of the new DCP 2008 road network and will not necessarily make a major contribution to the future total study area car parking supply.

Parking Strategy Option 4, Provide More Off Street Public Car Parking In Public Parking Stations

An alternative approach to the future conversion of significant amounts of off street private car parking in "secure access" commercial buildings to "multi user" public access 'short-stay" visitor car parking, the former parking areas should be "de commissioned" . New multi purpose off street car parking areas could then be constructed for shared use by visitors to the area in one or more centrally accessible locations in the future Macquarie Park and North Ryde (Delhi Road) commercial core business centres.

Traditionally the Macquarie Shopping Centre Car Park (4,100 Car Parking Spaces) has served as a de facto public car parking station for the area with a nominal three hour car parking time limit, which was rarely enforced. However this location, while central to the Macquarie University Rail Station commercial core business precincts, is not convenient for other parts of the study area and therefore the demand for alternative public short stay car parking facilities, needs to be considered in the other commercial core business centres of the Macquarie Park Corridor.

The potential need now for additional public visitor car parking capacity to be provided in the study area, either by private developers or by the City of Ryde Council, funded under a section 94 contributions plan for the area, should be considered.

In the longer term future, approximately 30% of the total study area commercial car parking demand will be for short stay visitor car parking. This demand represents potentially 1,500 to 1,800 car parking spaces for additional future short stay public car parking in the future Macquarie Park Railway Station core business precinct **as defined in section 10.2.2** of this report and a similar amount (yet to be determined because of the deferred matter zoning) in

the future North Ryde (Delhi Road) Railway Station core business precinct, **as outlined in sections 10.2.3 and 10.2.9 of this report**.

The most realistic means of providing a flexible future visitor car parking supply for all businesses in the core commercial areas, is for the parking to be accommodated in a few large off street car parking facilities where the cost of parking and the physical provision of vehicular access, can be most economically and efficiently managed. This will require 30% of all the future permissible car parking for new commercial developments in the "Core Business Centre Precincts" of the study area at the Macquarie Park and North Ryde Railway Stations to be designated as visitor parking and to be provided "off site" by means of Section 94 contributions to the City of Ryde Council.

The City of Ryde would then be responsible either directly, or in conjunction with a commercial developer, to construct and manage the necessary public car parking facilities.

Parking Strategy Option 5, Provide Peripheral Car Parking Stations with bus shuttle services for employees and visitors to the Macquarie Park area

This parking management option is most frequently used in European countries where the historic road network constraints in the larger regional cities cannot provide vehicular access for current levels of commercial development and Satellite "Park and Ride" car parking stations are developed with regular shuttle bus services to and from the centre funded by car parking charges.

The extent to which this type of solution would be appropriate for an area such as Macquarie Park, relies on the availability of a suitable remote site for car parking (eg sites adjacent to the M2 Motorway corridor potentially) that is not subject to traffic congestion either now or in the future and the ability or willingness of any organisation to provide the necessary shuttle bus services.

Another variation to this strategy is to alternatively provide the additional satellite parking at railway stations, primarily existing railway stations in the North and West of Sydney, from where commuters can travel by train to and from the Macquarie Park area by train using the three Macquarie Park railway stations

Parking Strategy Option 6, Provide Rail Commuter Car Parking for "Park and Ride" at Macquarie Park Corridor Railway Stations

This parking strategy option was mentioned by many stakeholders in the study consultation but is not generally supported by government agencies, eg RTA. The current peak hour traffic congestion situation on the major roads leading into the area such as Lane Cove Road, Herring Road and Waterloo Road is already a major concern to the RTA and attracting additional car commuter traffic into the area to access the railway stations during the morning and afternoon commuter peak periods by permitting commuter car parking at the railway stations would only exacerbate this problem.

Also the future land use Masterplan for the Macquarie Park study area generally proposes high density commercial core development within the two main railway station precincts at the Macquarie Park and Macquarie University Railway Stations which is not compatible with the provision of large amounts of "nominally free" rail commuter car parking in those locations.

There is nevertheless a significant potential opportunity which should be further explored in the medium term future, to provide a rail commuter car parking station on the land in the vicinity of the North Ryde railway station (former ECRL Construction Worksite) which is currently zoned "deferred" in the Draft LEP. Further discussions and negotiations should be undertaken with the major land owner (TIDC) to review the future feasibility of constructing "long stay" rail commuter car parking on this land. Any development proposal would nevertheless be subject to the usual "Traffic Impact Assessment" criteria of the RTA

whereby the peak hour impact of the additional vehicular traffic on the local roads, including proposed access intersections to the major road network, would need to be considered

Parking Strategy Option 7, Further Extend Resident Car Parking Schemes in the residential areas adjoining the Macquarie Park Study area

All of the residential areas which are directly adjoining the Macquarie Park and Macquarie University Commercial areas now have resident parking permit schemes (RPS) in place. In some cases these schemes cover parking on only one side of the street but in most cases parking on both sides of the street is included in the restricted parking.

These schemes extend in most cases throughout all the residential areas within an approximate 500 metre buffer zone walking distance of the outer boundary of the Macquarie Park commercial area and the Macquarie University campus eg the study area boundary for this car parking study.

Community consultation feedback surveys undertaken by City of Ryde in December 2008, show that the existing RPS schemes are working reasonably well in terms of their intended purpose of controlling any spread of on street parking demand from the study area where it is generated, into the adjoining residential precincts. This was confirmed by two photographic surveys of these streets by Arup in April 2009 and City of Ryde, in September 2009. These surveys confirmed that the overall on- street car parking supply in the residential zones adjoining the Macquarie Park Corridor commercial and university zones, was currently less than 50% occupied during daytime periods, leaving significant additional vacant parking for use by the local residents.

However, in the longer term, with increasing levels of commercial development and employment growth in the study area, it may be necessary to further extend the boundaries of the resident parking scheme areas up to a general limit of approximately 1 kilometre from the outer boundary of the commercial and university zoned areas. This is similar to the extent of the resident parking scheme zones which currently apply around all the major Lower North Shore Employment centres in Sydney, eg at North Sydney/Milsons Point, St Leonards/Crows Nest and Chatswood.

Parking Strategy Option 8, Further Extension of Nominated Workplace Travel Plans (WTPs) to Cover Both Existing and New Workplaces

The City of Ryde DCP now requires workplace travel plans to be prepared and implemented for all new commercial developments on sites with more than 15,000 sqm of new development or more than 300 employees.

This requirement is particularly relevant in the case of major employers in the area such as Optus and Macquarie University who now have large workforces with significant opportunities for car sharing.

However on many commercial sites, the future building security provisions will effectively restrict underground car park access to authorised persons and vehicles. This means that the future environmental benefits of more sustainable travel patterns can primarily only be achieved from within the pool of employees and visitors travelling to and from that particular site.

Nevertheless, as in the case of Optus, with over 5,000 employees at Macquarie Park, and with Macquarie University, these environmental benefits can still be significant. Optus effectively now operates its own private bus shuttle services for employees from the Sydney CBD and Strathfield using Hillsbus contra - peak direction return bus services which would otherwise be travelling empty. A nominal $2 per journey fare contribution is charged to the Optus employees who use these buses.

In the future, the introduction of existing workplace WTP should also be retrospectively introduced to all the major workplaces in the study area by either a voluntary or a compulsive process (eg regardless of development conditions). The introduction of WTP's

to all existing workplaces should be staged to achieve maximum benefits by first targeting all workplaces with over 2,000 employees, then 1,000, then 500 and then finally 250 employees to obtain the maximum overall change to workforce travel patterns in the area within the shortest practicable period.

It is also recommended that the recent UK Guidelines (PAS 500: 2008) "National Specification for Workplace Travel Plans" should be adopted for the preparation of workplace travel plans for new and existing sites in the Macquarie Park Corridor. These guidelines are illustrated by the two flowchart extracts in **Figure 22.**

Parking Strategy Option 9, Future Preferential Car Parking Charges for High Occupant Vehicles in Public Off Street Car Parking Facilities in The Study Area

In the Optus WTP, there is a useful provision for persons driving to work with more than one occupant in the vehicle to obtain a preferential daily on site car parking rate eg $6 per day for the vehicle instead of the alternative $10 per day parking rate for single occupant motor vehicles.

This strategy could potentially be extended in the future to any private or publicly operated car parking facility in the Macquarie Park study area. In the Canberra suburb of Woden, a similar "Three for $3" daily car parking charge operates from the main central public car park whereby in a section of the car park before 9 am, all day parking tickets are able to be purchased from the manned car park entry booth at the discounted rate of $3 per day, for any car that has three or more persons in the vehicle. In Macquarie Park, similar schemes could operate permitting different preferential daily car parking rates for cars that had either two or three persons in the vehicle.

Parking Strategy Option 10, Potential Future Extension of State Government Car Parking Levy to the Macquarie Park study area in the medium to long term

The State Government annual car parking levy has recently been increased to $700 per parking space per year in the relevant Category 2 suburban business centres in Sydney, eg Bondi Junction and Chatswood. The State Government could potentially decide to extend the levy to Macquarie Park in the medium to longer term future.

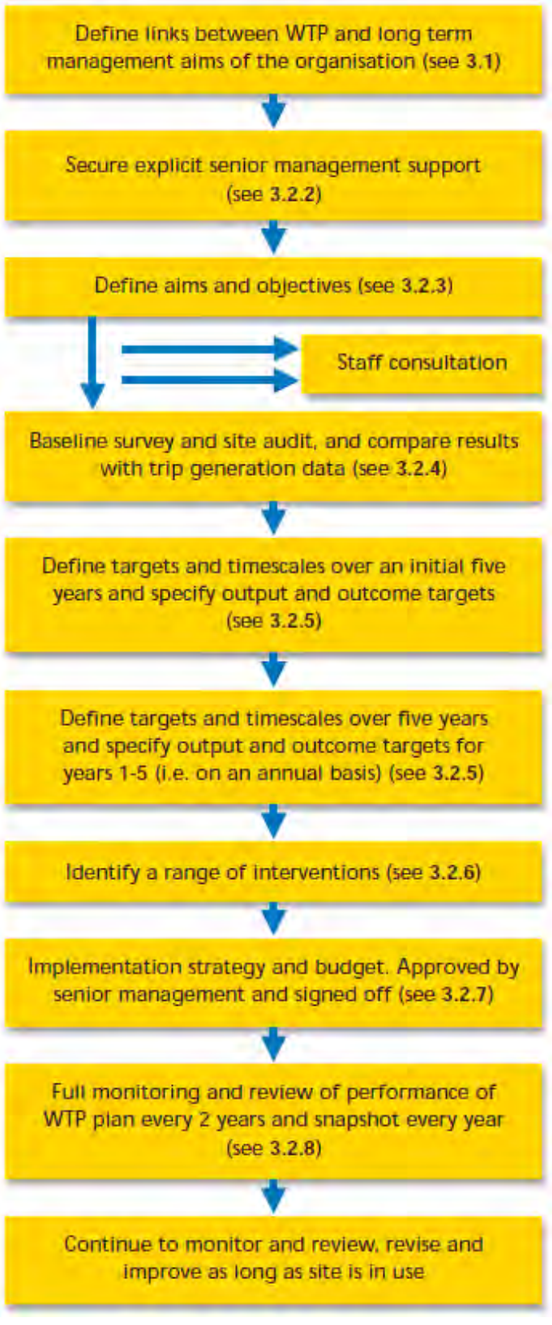
The reasoning behind the levy is that the money is spent on a range of public transport access improvements, which are primarily additional commuter car parking and bus-rail interchange facilities at selected railway stations throughout the Sydney Metropolitan Region.

The car parking levy also provides a parking disincentive factor whereby increasing the cost of car parking, results in persons being more likely to use public transport when travelling to and from that centre in the future.

Currently, despite the recent extension of heavy rail based public transport access to Macquarie Park by means of the three new railway stations, the level of accessibility and inter-connectedness of the bus and rail services and the corresponding overall ease of using public transport to travel to and from the area is still not really comparable to Chatswood and Bondi Junction where more established public transport services are available to the workforce for commuter travel.

However, with continuing potential improvements to the level of public transport access and services at Macquarie Park, ie with more peak hour train services and a westward extension of the Heavy Rail line (or an equivalent Metro Line) to either Castle Hill/Rouse Hill or Parramatta, it may be justifiable for the State Government to extend the parking space levy to all the commercial centres within the Macquarie Park Corridor, ie including the adjacent commercial precincts of Macquarie University and North Ryde/Riverside Corporate Park.

Activities to be undertaken for a travel plan for an existing site (voluntary travel plans)



Activities for a travel plan for a new site (planning obligation and planning related)

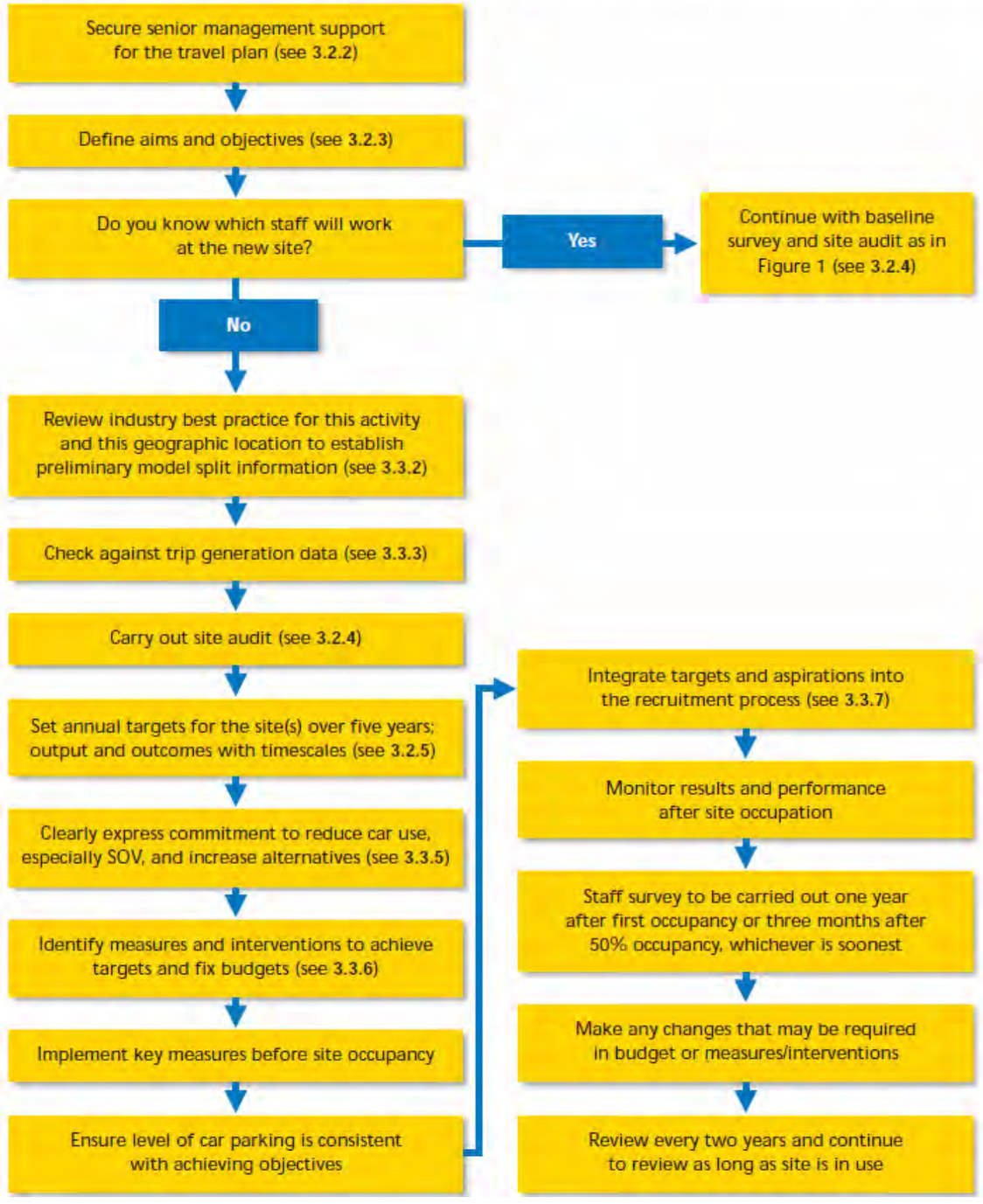


Figure 22: Source: National Specification for Workplace Travel Plans by British Standards - PAS 500:2008

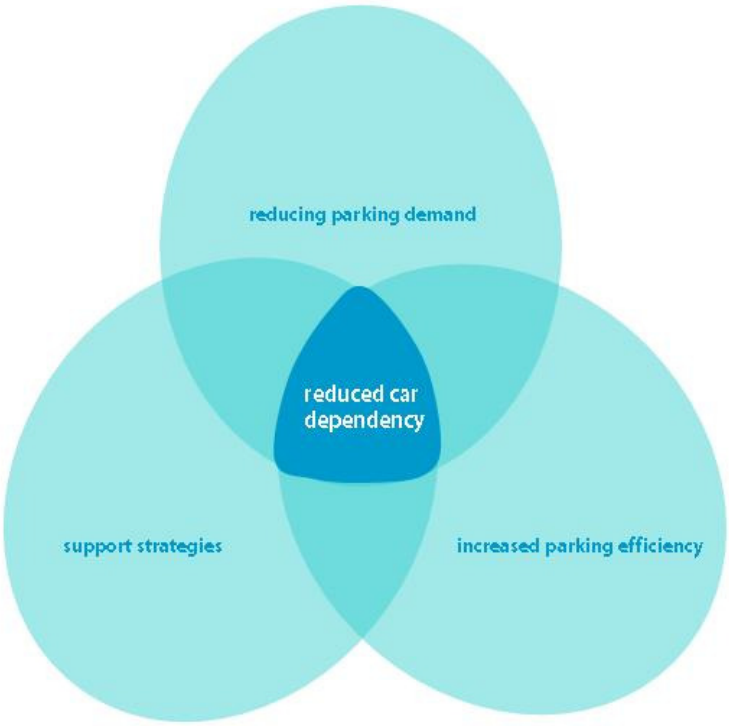
11 Future Car Parking Strategy Recommendations

11.1 Future Sustainable Development and Transport Considerations

Measures to reduce the dependence on and use of the private car need to be co-ordinated with a range of transport system investments and stakeholders, and integrated with broader travel demand and behaviour change programs, **Figure 23**.

It is identified that policies and strategies need to address initiatives that require modification to the built environment ('hard' infrastructure) as well as those that are related to the modification of use behaviour ('soft' infrastructure). It is recognised that these 'hard' and 'soft' infrastructure initiatives are mutually exclusive and support one another to result in integrated and efficient transport alternatives.

Figure 23 Integrated Approach to Reducing Car Dependency



An important aspect of parking management is the need to identify strategies through time. This encourages a market based approach to parking provision and allows parking management options to be relevant and competitive and allow users to be encouraged to identify cost effective alternatives and use of the private car can be addressed accordingly.

11.2 Future Transport and Parking Policy Context of Development at Macquarie Park

Travel and traffic strategies and policies relate to local issues that are heavily influenced by regional transport conditions. Context is therefore also an important element of travel demand management where initiatives need to relate to regional, local, area and site specific contexts. The recommended future car parking strategy which has been developed

for the Macquarie Park Corridor by this report, has developed in recognition of the following overall transport and parking issues and objectives.

- Parking pricing is identified as having substantial impact on behaviour other than changes to journey costs such as journey time and fuel costs (Marsden, G: 2004). The study area needs to develop a parking pricing scheme that makes alternative modes of transport competitive with car travel.
- Implementation of both hard and soft infrastructure strategies that complement one another
- Communicate sustainability benefits of reduced car dependency to tenants and employees:
    - Cost reductions associated with car parking (land value, lease of parking, maintenance)
    - Environmental responsibility
    - Improved accessibility for all staff
    - Equality of opportunity for all staff – providing a range of benefits for all staff to support a range of travel options
    - Personnel benefits – fitter workforce, boost morale
- Longer term development goals for Macquarie Park that include more residential development and mixed use development including Transit Orientated Development (TOD) in the immediate vicinity of the three railway stations.
- Transit Orientated Developments promote development patterns that are closely integrated with public transport systems and challenge traditional assumptions about car parking provision, by promoting public transport as the 'best' mode of transport for most journeys. Successful examples of TODs in the US have low parking rates, in parallel with a dense mix of land uses and effective public transport system. The key elements of TOD are:
    - low parking rates
    - dense, mixed land use
    - effective public transport system

There is considerable potential for Macquarie Park to move towards constructing Transit Orientated Developments following the introduction of the Chatswood to Epping Rail Link. The current DCP does not encourage residential uses in Macquarie Park although the 2004 Macquarie Park Corridor North Ryde Master Plan appears to acknowledge the future potential for residential uses as part of mixed use developments.

> *'The policy in particular seeks to ensure that a network of viable, mixed use centres, closely aligned with the public transport system accommodates and creates opportunities for business growth and service delivery'*
>
> *'The development of large-scale residential development is contrary to the current and planned function of the Corridor as an important economic/employment generator in the Sydney region. However, limited residential development will continue to be allowed in the Macquarie University Station Precinct. Student housing will continue to be permitted while an intensification of existing residential areas of Herring Road and incorporation of housing into Macquarie Shopping Centre will be permitted.*

Limited residential development will also be permitted in the form of serviced apartments and hotels near the other station nodes.'

The successful introduction of TODs to the three core "Railway Station" precincts of the study area will help the newly developed train services to develop their full potential to capture a wide market of travellers:

- business → am+pm peak inbound travel
- residents → am+pm peak outbound travel
- visitors → off peak travel

Transit Oriented Developments and other mixed use development will also help the area to to be 'sustainable, vibrant, and attractive for pedestrian and public transport users.

However, a counter balancing factor is that the introduction of residential land uses into the core commercial precincts of the study area is not supported by the Property Council (Property Council's Response to the Macquarie Park Corridor, North Ryde Draft Master Plan). The Property Council is concerned that the introduction of residential uses will erode the strength of the corridor as premium employment generating land.

11.3 Future Timing and Priority Considerations in the Development of the Proposed Study Parking Management and Supporting Strategy Recommendations

The following three tables further discuss the range of proposed Macquarie Park Corridor parking management and supporting strategy recommendations, which were identified during the course of the current study, in terms of the likely constraints to their introduction and suitable timing for their implementation – categorising each strategy under:

- Implementation Time Frame: Short-Medium Term (0 – 5yrs), Medium - Long Term (5 - 10 yrs)
- Strategy Level, either core strategies which reduce parking demand or supporting strategies which facilitate travel by other travel modes
- Context, either local or regional

11.3.1 Suitable Short –Medium Term Priority Parking Strategies

Strategy	Strategy level	Context	Priority
1 Improving alternative modes of transport _Clear Wayfinding	Support Strategy	Local	High
Well placed, easily read signs and maps are crucial in guiding pedestrians. Way finding asserts walking as a more viable mode of travel and allows a better sense of certainty for pedestrians. Developing an integrated way finding strategy for Macquarie Park will contribute to creating an area where walking is a competitive transportation mode and help connect public transport within the area. **Implementation Time Frame: Short-Medium**			
2 Improving alternative modes of transport _Safe Walking Routes	Support Strategy	Local	High

Walking routes should be safe to encourage use throughout all times of the day. Well thought out pedestrian crossings and improved lighting will enhance pedestrian safety within the area. **Implementation Time Frame: Short-Medium**			
3 Improving alternative modes of transport	Decreases parking demand	Regional	High
Strategies to reduce dependence on the car can not rely on parking policies alone. Strategies to improve alternative modes of transport must be implemented complimentary to parking specific policies. It is important to develop and implement investments to make alternatives to the private motor car more appealing and offer efficient, safe and convenient travel modes. Hard infrastructure initiatives have been identified as contributing to improving alternative modes of transport. Alternative modes of transport have been identified as: - Walking - Cycling - Other - Multi modal The Strategy towards improving alternative modes of transport is in line with aims of the Draft Inner North Subregional Strategy, Ryde LEP 137 and the Macquarie Park Masterplan 2004. **Implementation Time Frame**: **Implement improvements in the short term to have long term benefits.**			
4 Improving alternative modes of transport _Bicycle Parking	Support Strategy	Local	High
Bicycle parking is necessary at a desirable distance from the endpoint of the journey. Bicycle parking should be: - free and accessible - be conveniently located and integrated with transport interchanges. - safe and secure **Implementation Time Frame: Short-Medium**			
5 Car sharing	Decreases parking demand	Local	Medium
Developing a car pool system within each business or for each building will provide mobility for office related trips and contribute to reducing private motor vehicle use for work related uses. Car pool systems are a part of Workplace Travel Plans, **Implementation Time Frame: Short-Medium**			
6 Workplace Travel Plans	Support strategies	Local	High
The strategies within the Workplace Travel Plan should include: • providing travel planning information to inform staff about bus and train services and bike paths • offering cycle training sessions and a buddy system for new cyclists • promoting benefits for staff, in terms of health benefits, financial savings, time savings and environmental impact • inviting work groups to compete in a Travel Challenge by clocking up			

kilometres of active travel

• offering practical support such as pre-paid transport tickets for meetings, a car-pooling service and purchasing bikes.

Incentives and competitions and giveaways are also soft initiatives within Workplace travel plans that can encourage more sustainable travel to work. An important element of Workplace Travel Plans is implementation and monitoring, The plans need to include a structured and continuous process which promotes sustainable staff travel through staff feedback and further fine tuning of the plan's operation.

Implementation Time Frame: Short-Medium

7 Education Campaigns	Support strategies	Local	High

Education and information campaigns can be very useful low cost means of facilitating travel behavioural change amongst large groups or groups with common travel needs including workers relocating to a new work premises. Education campaigns can be active (group sessions) or passive (such as brochures and 'self serve' information)

Information systems can also provide more technology based assistance to persons in choosing their travel modes. In the Optus HQ Building entrance foyer, there is a real time train travel information screen which replicates the train departure information from the nearby railway stations .

Implementation Time Frame: Short-Medium

8 Incentive programs	Support Strategies	Local - Regional	High

Information sharing beyond the workplace environment can be considered as an extension of individual workplace travel plans to further promote public transport, walking and cycling as more attractive travel alternatives to driving and hence reduce the need for workplace parking provision.

Community information sharing within worker's home residential communities has the ability to encourage other potential users and share information. These initiatives are largely self motivated and self regulated, but in the context of metropolitan and state transport issues would benefit from official endorsement, support or patronage.

Examples include common websites that allow users to share information, tips, tricks and routes, such as 'wiki'-style information sites and community forums to the more advanced systems that collect and compile route maps and allow users to download, store and interact with them in real time during their journey.

Implementation Time Frame: Short-Medium

9 Parking Pricing	Decreases parking demand	Regional	High

Pricing parking is a key market based mechanism to encourage users to reconsider their transport options. Research into the effects of parking policies indicates that 'parking prices have a more substantial impact on behaviour than other changes to journey costs such as journey time and fuel costs.' (Marsden, G: 2004). The 'free' nature of parking has been shown to increase demand for parking at the expense of alternatives modes of transport.

Revenue raised by parking pricing systems can be used for a range of transport alternatives to subsidise the quality, frequency or convenience of these modes. In an environment where alternative transport modes need to be cost competitive and self supporting, ensuring that parking is similarly costed is an important element of the operation of the overall transport system.

Pricing of parking needs to be coordinated closely with the development of alternative transport modes that have a commensurate level of route and service efficiency.

The further effects of parking pricing within the Macquarie Park Corridor study area will need to be investigated with regards to Fringe Benefit Tax on Car Parking, whereby the further extension of all day public car parking (at a daily cost above the FBT Threshold limit) will result in more workplaces in the area becoming liable for FBT for the car parking which is provided to their workforces.

Implementation Time Frame: Short-Medium

11.3.2 Suitable Medium - Long Term Priority Parking Strategies

10 Metro Wide Parking Policy	Increases parking efficiency	Regional	High

This inconsistent application of minimum and maximum parking rates across Sydney led to the need for action to develop a Sydney wide Metropolitan Parking Policy as part of the Sydney Metropolitan Strategy

A metropolitan wide parking policy works at a regional level to avoid the issue of oversupply of parking, which acts as an inducement to drive.

This policy would apply a consistent application of minimum and maximum parking rates across Sydney and would stop centres competing on the basis of parking availability.

Implementation Time Frame: Medium-Long

11 Improving alternative modes of transport _Attractive Walking Routes	Support Strategy	Local	High

Creating an attractive walking route can enhance the pedestrian experience and attract commuters away from car based travel for short trips as well as creating a better pedestrian experience from public transport node to destination. Elements of an attractive walking route include:

- high quality footpaths
- lighting
- clear passageways
- walkways enriched with artwork
- street activity eg cafes and shops
- reduced noise levels
- high quality paving
- resting places

Development of Attractive Walking Routes should relate closely to Station Area Transport Management Plans (SATMP's) which have been prepared for the three new stations associated with the Rail Line.

The SATMP's ensure that the stations have been designed to include safe and sheltered access for pedestrians, cyclists and bus passengers, and safe and convenient access to taxis and kiss'n'ride drop-off areas.

Implementation Time Frame: Medium-Long

12 Improving alternative modes of transport _Connected Bicycle Network	Support Strategy	Local	High

A consistent and connected bicycle network will help establish cycling in the area as an attractive alternative to vehicle traffic or public transport. The bicycle network should include: - dedicated, well signposted cycle lanes throughout the area - be inviting for all user groups to allow cycling to become a common mode of transport - be integrated with public transport **Implementation Time Frame: Medium-Long**			
13 Improving alternative modes of transport _Multi Modal Public Transport	Support Strategy	Regional	Medium
Supporting commuters and travellers with connected transport services is important to ensure that there are viable alternatives for the variety of trips needed for everyday users. A key support strategy is to provide seamless connections between local and regional transport services (i.e. integration of local bus and suburban rail services) and to ensure that journeys undertaken in the middle of the day to local shops or other facilities can be easily undertaken, with out requiring a car (i.e local shuttle bus services). **Implementation Time Frame: Medium-Long**			
14 Unbundling Parking	Decreases parking demand	Local	Medium
Unbundling parking from the leasing of building floor space or other land uses encourages both employers and employees to undertake a review of the actual cost and benefit of leasing or owning a parking space, driving and of car ownership. Once car parking is leased or owned separately to other commercial land uses, a market based approach to parking provision and use emerges that can increase the use of alternative modes of transport. **Implementation Time Frame: Medium-Long**			
15 Adaptive reuse of car parks	Support Strategy	Local	Medium
A strategy to respond to developer's short term concerns regarding possible loss of investment opportunities with reduced commercial car parking provision is to permit building of interim car parking with sufficient floor to ceiling heights to accommodate future conversion to residential or commercial use. This building re-use strategy is appropriate for the early years of operation of the Epping to Chatswood Rail Link, to help ease the transition from predominantly car based transport now to a more even balance of car plus public transport access in the future as circumstances in the study area change and the ECRL rail link becomes a more viable mode of transport for a greater proportion of the Macquarie Park Corridor workforce and visitors. **Implementation Time Frame: Medium-Long**			

12 Summary Matrix of Proposed Parking Strategy

A summary matrix of the proposed study area car parking strategy recommendations has been prepared, which includes nineteen proposed car parking management and supporting strategy recommendations, sorted according to the short (0-2 years), short-medium (2-5 years) and medium- long (5+ years) future implementation time frames as follows.

1 Matrix of Strategies

Implementation Time Frame Short (1-2 years) Short - Medium (2-5 years) Medium - Long (5+years)	No.	Strategy (Core Recommendation , Support Strategy	Explanation	Benefit	Responsibility (City of Ryde, RTA, Employers etc)	Related Issues and Co-ordination with other agencies	Current Relevant Examples
Short	1	Maintain Current LEP 137 Car Parking Provision Rates for Commercial – Office Type Development	There have been significant recent changes implemented to car parking provision rates within the area, eg LEP 137 in conjunction with the opening of the new rail stations. The base commercial area car parking rate was reduced in 2006 from one space per 46 sqm, in all areas previously, to one space per 70 or 80 sqm in the core commercial areas which are within walking distance of the new rail stations. However until the year 2015, additional temporary on site car parking to make up some of this difference, is still allowed to be constructed if site developers wish to do so. In the short term, maintaining the current parking rates is recommended, but in the longer term rates can be review when appropriate public transport services are available.	The recent LEP 137 changes appear to have been broadly accepted by both building owners and tenants in the area . The need for further change in the short term is not pressing as the additional rail passenger access capacity to the area will provide some relief to peak hour traffic congestion in the area. Further car parking restraint is not immediately required	City of Ryde, DoP, MoT	Need for ongoing liaison with State Government Planning and Transport Agencies to determine when parking rates should be reviewed	Equivalent, or in many cases more restrictive, commercial office car parking rates now apply in most of the comparable major employment precincts in Sydney
Short	2	Enhance Wayfinding and signage for pedestrians	Install clear way finding maps, markers and signage to support commuters using alternative transport. Well placed signs and information help commuters to choose alternative travel modes to private cars.	Improves pedestrian navigation and pedestrian accessibility to businesses and services.	City of Ryde, RailCorp, STA	Working with RTA, Railcorp and STA to manage and update service locations and information.	North Sydney, City of Sydney, Waverley Council
Short	3	Improve Pedestrian walking routes	Design and install additional pedestrian friendly walking routes linking rail stations, retail strips, café areas, bus stops, periphery parking areas, and employment nodes	Improve pedestrian safety, amenity and accessibility	City of Ryde, Land Owners and Developers	Negotiations with site land owners and developers to establish access through private lots for optimum pedestrian routes	Waverley Council Green Links
Short	4	Programs to Encourage Car Sharing	Sharing car trips between colleagues and employees increases car occupancy rates and decreases the quantity of cars on the road. Can be incentivised with cheaper parking or transit lanes.	Reduced congestion and reduced parking demand	City of Ryde, RTA, Employers	Linked to workplace travel plans and web sites. Can be incentivised with cheaper parking for multi occupant motor vehicles in both public and private car parks.	Optus has successful employee car sharing schemes in operation.
Short	5	Education Campaigns to reduce car travel	Educating commuters about transport alternatives and informing their decision making can encourage behavioural change amongst local transport users	Informed decision making by commuters will help reduce car dependency	City of Ryde, Employees, RTA, STA, Railcorp	Requires co-ordination of initiatives and marketing campaigns of transport alternatives.	NSW Government Travel Smart Program
Short	6	Maintain Parking Pricing	Parking pricing (supported by parking meters) is one of the most effective mechanisms to get commuters to assess transport alternatives. Free employee parking is a major disincentive to commuters using alternative modes of transport. This requires consistency of parking time limits in an area and consideration of the strategic intent of parking controls (e.g. high turn over vs. long stay parking).	Encourages alternative modes of transport, employees make value judgements about driving. The use of parking pricing can more effectively manage the demand for the existing parking resources. The introduction of “off street” paid	City of Ryde and other car parking providers	Needs a consistent approach across all Macquarie Park “Corridor” Centres for on street and off street car parking management.	Pay Parking now applies in most major commercial centres in the Sydney Region.

Implementation Time Frame Short (1-2 years) Short - Medium (2-5 years) Medium - Long (5+years)	No.	Strategy (Core Recommendation , Support Strategy	Explanation	Benefit	Responsibility (City of Ryde, RTA, Employers etc)	Related Issues and Co-ordination with other agencies	Current Relevant Examples
			Investigate options for Council operated “Pay Parking” in off street car parking areas. A co-ordinated strategy for Council and privately operated “Off Street” Paid Parking needs to be identified.	parking in public car parks may have an impact on the fringe benefits tax liability of companies that lease or own car parking spaces elsewhere in the study area			
Short	7	Development of Transitional Car Parking than can later be converted to other uses	The current high demand for office employee and visitor parking in the study area is likely to require maintaining parking provision at current parking rates for new commercial developments until overall travel demand patterns in the area react to the new public transport services. This additional short term parking demand will need to be constructed at the surface or in building structures that are initially used as parking stations, but can be later converted into alternative land use, e.g. additional commercial uses. This will require innovative planning and building construction methods to ensure that later building conversions can occur. Basement car parking is unlikely to be able to be converted, but ground floor and above spaces should offer scope for conversion, assuming BCA building design and environmental criteria can be satisfied	This addresses the short term demand and expectation for parking, but minimises the long term impact by providing a sunset clause to redevelop transitional parking sites for alternative land uses.	City of Ryde, Landowners	Requires a legal ‘trigger’ to convert from parking to alternative land use – e.g. a sunset clause in the development approval. City of Ryde will need to approve ultimate land uses.	This is a requirement under the current LEP 137 Car Parking Provisions for Macquarie Park
Short-Medium	8	Cheaper Parking for Multi Occupant Motor Vehicles	Persons driving to work with more than one occupant in the vehicle should obtain a preferential daily car parking rate (eg 60% of the full day parking rate) for a shared vehicle. This policy should be incorporated into future workplace travel plans (Optus already has a similar policy)	Reduced travel costs, traffic congestion and vehicular emissions leading to improved social and environmental outcomes	City of Ryde, Building Owners and tenants and/or car parking operators	Requires cross subsidy from other parking users (low occupancy vehicles). Requires agreements to be negotiated between council and car park operators.	Public Car Parking In Woden (Canberra). Also in the Optus WTP at Macquarie Park
Short-Medium	9	Improve and integrate multi modal public transport	Ensure public transport alternatives are, appealing, dependable, safe and efficient forms of transport and provide a viable alternative to private car journeys, for employees getting to and from work and for journeys undertaken during the day. Ensure that all public transport modes work seamlessly and efficiently and buses arrive and depart from train stations in sync with train arrivals, and both buses and trains operate frequently.	Improves the appeal of public transport, reducing road congestion and demand for parking. The transfer of travel demand from cars to public transport services, generates significant socio economic and environmental benefits.	City of Ryde, STA, RTA, MoT, DoP, RailCorp.	Integration of existing transport infrastructure and services, co-ordinated route development planning, Integration of timetables and ticketing	London, UK, Brisbane and South East QLD, Melbourne, Vic, Perth, WA.
Short-Medium	10	Provide Improved local resident access to ECRL Rail Stations (In particular North Ryde) and M2 bus	This reduces local residents need to use their cars to get to work. Options include 1-More locally based shuttle bus service with fully integrated bus-rail fares for both single trips and weekly commuting to directly link all the residential areas adjoining Macquarie Park	This strategy would improve the local accessibility to all public transport sevices, including the new ECRL rail stations and M2 bus services, with consequent flow-on benefits for both local accessibility and regional traffic	City of Ryde, RailCorp, TIDC, RTA, MoT and Transurban (the M2 Motorway operator)	Any development proposal would be subject to “Traffic Impact Assessment” whereby the peak hour impact of additional vehicular traffic on the local area roads would be	Numerous rail commuter car parks at major rail stations throughout Sydney e.g. Seven Hills, Kogarah, Gosford,

Implementation Time Frame Short (1-2 years) Short - Medium (2-5 years) Medium - Long (5+years)	No.	Strategy (Core Recommendation , Support Strategy	Explanation	Benefit	Responsibility (City of Ryde, RTA, Employers etc)	Related Issues and Co-ordination with other agencies	Current Relevant Examples
		services	with the new rail stations. 2 - Constructing a "City of Ryde Residents Only" rail commuter car parking station by Council leasing vacant land in the vicinity of the North Ryde railway station (the former ECRL Construction Worksite). 3- The M2 widening project could include a park and ride facility for M2 bus services linking the area with North West Sydney and the Sydney CBD.	flows on the major road network elsewhere		assessed, including access intersections to the major road network Council may choose to accept responsibility for constructing "City of Ryde" resident only commuter car parking.	Gordon and Sutherland. Bondi Beach subsidised parking for Waverley LGA residents NW Transitway Park and Ride at Burns Road
Short - Medium	11	Improve bicycle trip facilities	Improved bicycle trip facilities including bike paths, bike parking and bike rider change facilities. Connect bicycle facilities with supporting regional bicycle facilities to create a viable bicycle network for commuters.	Encourages cycling by commuters and visitors as a viable way to get to Macquarie Park. Reduces congestion on roads and reduced crowding on transport alternatives (rail, bus)	City of Ryde, RTA, MoT, Macquarie University, other employers and building tenants and surrounding Councils	Integration of safe bicycle paths within the existing road network and capital works and recurrent maintenance funding from multiple agencies. Provision of "end of bicycle trip" facilities requires private landowner participation	Inner West Sydney, M7 and Lane Cove Tunnel Bike Paths. Sydney Harbour Bridge Bike Path Macquarie Shopping Centre wants to provide more bicycle parking.
Short - Medium	12	Increase implementation of Major Business and Institution Workplace Travel Plans (WTPs)	Co-ordinating employee transport needs at a workplace level have proven to be effective in effectively managing workplace travel requirements of employers, by matching available/existing resources with demands It is recommended that the recent UK Guidelines (PAS 500: 2008) National Specification for Workplace Travel Plans be adopted for the preparation of workplace travel plans for new and existing sites in Macquarie Park. The City of Ryde DCP requires WTPs for new commercial developments over 15,000 sqm or having more than 300 employees. The implementation of WTPs can be further supported by a local Transport Management Association involving WTP co-ordinators. WTPs earn points under the GBCA Green Star Rating procedure.	Uses local transport resources more efficiently, matching travel needs with existing travel resorces.	City of Ryde, Employers, RTA, Public Transport Operators	Requires a procedure for Council to enforce WTP preparation for existing worksites and undertake ongoing auditing of the outcomes of all WTP's. WTP's require interaction with public transport service providers and other government agencies to ensure public transport services are available as an alternative to private car usage.	Many good examples exist from UK Studies. The major examples in the study area are Optus (over 5,000 employees and the Macquarie University (1,570 Staff and 18,000 Students -Full Time Equivalent)
Short - Medium	13	Unbundling Parking supply from Land use	Unbundling parking means that parking is marketed and managed separately from other building areas in particular commercial office floor space. This defines a separate value for car parking spaces and impacts on the decisions of employers and employees to utilise car parking.. Council can further encourage the creation of a separate market for car parking by ensuring local development	The policy increases the consideration given to providing and leasing car parking, which results in rationalisation of parking supplied by employers and developers. However, it reduces the potential use of free parking as an incentive to attract new	City of Ryde, Land owners, developers	Unbundling car parking from land uses will require Council removing any statutory planning or regulatory controls that require the leasing of existing commercial car parking to be	This currently occurs throughout the City of Sydney Council area, where the leasing of commercial office space and car

Implementation Time Frame Short (1-2 years) Short - Medium (2-5 years) Medium - Long (5+years)	No.	Strategy (Core Recommendation , Support Strategy	Explanation	Benefit	Responsibility (City of Ryde, RTA, Employers etc)	Related Issues and Co-ordination with other agencies	Current Relevant Examples
			planning policies and DCP controls do not impede the leasing of car parking separately from approved building developments. The ownership and management of all the study area off street car parking spaces will need to be audited by Council to achieve the future objective of “freeing up” the overall flexibility and shared use of car parking by both employees and visitors throughout the study area.	building tenants The policy needs changes to be introduced, building by building on a case by case basis, managed through lease and property transaction negotiations		directly linked to specific approved land uses. The policy needs to be supported by additional car parking controls, ie pay parking for Council controlled on street parking and Resident Parking Schemes in nearby residential areas	parking is managed separately. There are also numerous examples of this practice from overseas countries such as Hong Kong and Singapore
Short - Medium	14	Further Extension of Resident Car Parking Schemes	With increasing levels of commercial development and employment in the study area, it will be necessary to further extend the boundaries of existing resident parking scheme areas in the future. Potentially all residential areas up to a general limit of approximately 1 kilometre from the outer boundary of the existing commercial and university zoned areas will eventually require Resident Parking Scheme restrictions, to limit the potential overflow parking demand with increased parking controls in the study area. Enforcement of broader parking restrictions is necessary to ensure other strategies (e.g. unbundling car parking) are effective.	The current schemes appear to be working reasonably well in terms of their intended purpose of restricting the spread of commercial and university car parking into adjoining residential precincts, in particular the low density residential precincts. There is some evidence currently that more distant streets, beyond the limits of the current RPS schemes are already affected by overflow parking from the commercial areas.	City of Ryde and local area residents. Requests for extensions of Resident Parking Schemes are usually made by local resident groups or representatives.	Needs appropriate enforcement of the timed car parking restrictions by Council Parking Rangers	Similar resident parking scheme zones currently exist around all the major Lower North Shore Employment centres, ie North Sydney Milsons Point, St Leonards Crows Nest and Chatswood.
Medium - Long	15	Review Future Commercial Car Parking Provision Rates	As determined by the 2008 City of Ryde (Bitzios) traffic study, the future year 2031 public transport and other non car based travel model share to and from the area will have to increase significantly to approximately 40-50% of all travel (in comparison to 10-15% currently). This will ultimately require lower amounts of car parking to be provided in new commercial developments (as part of the carrot and stick approach) which will have to be implemented throughout the study area, in addition to improved public transport access (both bus and rail)	The necessary timing for the future introduction of lower car parking provision rates for new commercial development in the area will depend on when, within the period to 2031, additional road access capacity is constructed. If the extra road capacity, eg M2 Corridor widening, is provided within the next 5 years, further tightening of the Macquarie Park commercial area car parking controls will probably not be required within that time.	City of Ryde, DoP, MoT, RTA.	The timing will depend on the related timing of regional road network corridor capacity improvements, e.g. M2 Widening, and/or the provision of effective integrated public transport system improvements (e.g. the NW heavy rail link extension or a Metro Link to other sectors of Sydney	Sydney CBD Fringe Business Centres, Parramatta, Chatswood and Bondi Junction, have recently had significant reductions to the provision rates of car parking for new commercial office developments.
Medium - Long	16	Implement Sydney Wide Metropolitan parking policy	The State Government’s Metropolitan Strategy requires delivery of a Sydney wide policy to manage provision and operation of parking areas which discourages commercial centres competing on parking provision/rates.	Greater optimisation of land use and road transport by managing overall metropolitan supply and management of parking	NSW Government, DoP, MoT	Requires agreement of numerous State government agencies	RTA Guide to Traffic Generation (becomes default parking policy)
Medium - Long	17	Develop pedestrian focused precincts	Developing urban environments within employment centres which are human scaled and pedestrian focused, supports	This policy actively encourages pedestrian activity and discourages	City of Ryde, site Landowners and	Requires evolution of industry approach to	Rouse Hill Town Centre

Implementation Time Frame Short (1-2 years) Short - Medium (2-5 years) Medium - Long (5+years)	No.	Strategy (Core Recommendation , Support Strategy	Explanation	Benefit	Responsibility (City of Ryde, RTA, Employers etc)	Related Issues and Co-ordination with other agencies	Current Relevant Examples
		within employment centres	more walking and pedestrian activity. This can also be used to specifically discourage shorter distance car trips, particularly during the day. This also supports the development of retail/recreational land uses.	car based travel within employment centres.	Developers	development of Macquarie Park away from Car based business park to pedestrian focused employment business district	development.
Medium - Long	18	Introduce Developer Contribution Funded Publicly Accessible Car Parking Facilities, eg Section 94 car parking policy	The likely increasing longer term need for public visitor car parking in the area should be accommodated, either by private developers or by City of Ryde Council, potentially funded under a section 94 contributions plan for the area. This type of parking will be appropriate in the future for at least 30% of all the future car parking demand for all commercial development in the area. It is also desirable for future vehicular access and streetscape management in the area that the majority of all future visitor car parking for businesses in the core commercial areas be accommodated in a relatively small number of car parking facilities. A typical minimum facility size of 300 parking spaces enables the cost and management of parking and vehicular access and egress to be most economically and efficiently managed The FBT liability for adjoining businesses of providing paid off street car parking in the area, above the daily threshold cost for FBT may have been independently triggered by other parking policy developments by this time. Otherwise this may be an issue needing to be addressed with this strategy	Approximately 30% of all the future car parking for new commercial developments in the “Core Business Centre Precincts” should be designated as visitor parking and be provided “off site” by means of Section 94 contributions to the City of Ryde Council (Approximately $30,000 per car parking space). The City of Ryde would then be responsible either directly, or in conjunction with a commercial developer, to construct and manage the future car parks	City of Ryde, potentially in partnership with a private sector car park operator	This strategy requires the corresponding decommissioning of equivalent quantities of long stay car parking in commercial office developments in the area. Otherwise additional car parking capacity would be created in the study area which would be contrary to the overall future long term parking management objectives for the study area.	For many years a similar Section 94 contributions scheme operated for the off site provision of one third of the car parking for all new commercial developments in the core central areas of the Parramatta CBD
Medium - Long	19	Peripheral Car Parking “Park and Ride” Strategy	The extent to which this type of solution would be appropriate for an area such as Macquarie Park, relies on the availability of a suitable remote site for car parking (e.g. a site adjacent to the M2 Motorway corridor) that would not significantly affect regional traffic congestion by its operation as a car park in the future. Another variation to this strategy could alternatively be the provision of additional commuter parking at relevant railway stations, in particular railway stations in the North West of Sydney, from which future commuters could travel by train to and from Macquarie Park commercial sites.	This strategy potentially reduces car based travel on both the regional and local road networks surrounding Macquarie Park. One or more satellite “Park and Ride” car parking stations can be provided.	City of Ryde in conjunction with the car park site landowner and an approved public transport operator for shuttle bus services, eg with MoT Accreditation	This future car parking strategy option depends on the ability or willingness of any organisation to provide the necessary shuttle bus services funded from car parking charges.	Widely used in the UK and other countries, where the road network in regional cities cannot provide sufficient peak hour vehicular access for car commuters

Appendix A

Responses From Study Consultation

A1 Detailed Responses from Stakeholder Consultation

At the commencement of the study a large number of project institutional, commercial and government agency stakeholders were identified and a study consultation strategy developed to achieve targeted and co-ordinated consultation with four separate stakeholder groups as follows.

A1.1 Government and Transport Industry Consultation

The first consultation which was undertaken for the study was a workshop meeting of the key government transport agency and other transport industry stakeholders at the City of Ryde Offices on 19 March

Workshop attendees were invited from a range of NSW Government and private sector transport industry stakeholders, including:

- The Roads and Traffic Authority
- The State Transit Authority
- RailCorp NSW
- NSW Ministry of Transport
- NSW Transport Infrastructure Development Corporation
- Transurban
- NSW Taxi Council
- Hillsbus/Westbus
- City of Ryde Council

The attendees from these organisations are listed below. Not all the organisations shown above were able to attend.

- Nick Chapman (CoR),
- Meryl Bishop (CoR),
- Harry Muker (CoR)
- Alex Helderman (CoR)
- Susan Sky (DOP),
- Danijela Karac-Cooke (DOP),
- Tim Brooker (Arup),
- Adam Carmody (Arup),
- Carolyn Riley (TIDC),
- Vi Ong (RailCorp),
- Rob Mitchell (RailCorp),
- Eva Cermak (MoT),
- Jose Sevilla (MoT),
- Stephen Timbrell (Hillsbus-Westbus),
- Ken Moon (RTA)
- Stephen Butt (NSW Taxi Council)
- Peter Wells (STA)

The focus of the workshop was to present the work to date by the study team and then have a series of structured discussions to identify the opportunities and constraints for managing parking in Macquarie Park. The format for the workshop was split into three main tasks:

- Presentation of work to date
- Workshop session on issues, opportunities and constraints
- Workshop session on Parking Strategy Options and solutions

The aims and objectives for the workshop were:

- Identify known issues of transport, accessibility and parking in the Macquarie Park area
- Discuss opportunities to develop parking strategies with broader travel demand management strategies
- Align Macquarie Park development strategies with broader strategic travel demand strategies.
- Discuss opportunities to integrate employer and regional travel management strategies.

The outcomes of the workshop were a series of approximately 30 key points for consideration in the future development of the parking strategy options and priorities for the Macquarie Park area. These are detailed below, as recorded in the workshop.

Future Parking Strategy Option / Suggestion	**Category**
Council streets have parking meters to prevent all day parking - initially there is opposition, but generally accept the imposition	Parking pricing
Implement green car parking schemes to provide reduced car parking charges for environmentally efficient, low emission vehicles	Parking pricing
Need more consistent enforcement of parking regulations to encourage more short term turnover	Parking pricing
No commercial car parks in Macquarie Park currently - M2 operators interested if suitable site identified, council not keen at moment - remote parking	Parking pricing
Introduce s94 parking contribution schemes in Macquarie park	Parking pricing
Parking pricing - - need to implement incrementally	Parking pricing
Parking pricing - ability to allocate cost/price based on incentives - e.g. car pooling costs less than single occupant	Parking pricing
Parking Pricing - most effective mechanism to affect modal choice	Parking pricing
Parking supply closely related to modal split - users prefer parking over other modes all things being equal - need to affect the decision making with time/price controls	Parking pricing
Provide a commercial car park in Macquarie Park managed by council/other with 'profits' supporting alternative travel modes - 'parking user pays'	Parking pricing
Bus utilisation is affected by peak hour demand for CBD services - impact on ability to provide cross regional routes	Transport Alternatives
More signalised pedestrian crossings, more pedestrianisation of Macquarie Park - under/over passes not preferred	Transport Alternatives
Newcastle Council offers perimeter parking charges and free shuttles to CBD - keeps cars out of centre, but encourages people to use centre - remote parking	Transport Alternatives
Opportunity to influence bus route timetables with integration of ECRL in Macquarie Park area	Transport Alternatives

Overall need for more buses to Macq Park	Transport Alternatives
Temporary parking sites not supported by RTA/DOP due to traffic impacts on surrounding streets	Transport Alternatives
Tie State Government parking levy in Macquarie Park to Public Transport improvements	Transport Alternatives
Way finding - need better information and linkages for walkers and cyclists	Transport Alternatives
Importance of price differential between modes increases as distance increases - users more willing to take Public Transport if cheaper over longer distances	Transport Pricing
Incentivise new tenants to develop WTPs	Transport Pricing
Salary sacrifice all travel costs, not just car based ones	Transport Pricing
Tie Council parking fine revenue to public transport improvements	Transport Pricing
Unbundling parking from land uses is more relevant to residential land uses	Transport Pricing
Council requires WPTP for new developments, but needs advice on what to do about existing sites retrospectively.	Workplace travel plans
Incentivise DCP controls to discourage parking and encourage workplace travel plans - apply to new build and new tenants/change of use	Workplace travel plans
New British standard for Workplace Travel Plans is an opportunity to improve Australian practice	Workplace travel plans
Parking supply closely related to modal split - users prefer parking over other modes all things being equal - need to affect the decision making with time/price controls	Enhance convenience of public transport over cars
Macquarie Park already has parking maximums - need to manage these in line with other centres	Comparison to other centres

A1.2 Key Institutional Stakeholder Consultation

During April and May 2009 a series of one on one stakeholder consultation meetings were held between Arup and the City of Ryde Study Representative, Nick Chapman and a series of key business and institutional stakeholders in the area, namely

- Property Council - Angus Nardi
- Macquarie University - Dale Clark
- Chamber of Commerce - Colin Stibbs
- Ryde Business Forum – Andrew Bland and Charles Kilby
- Macquarie Shopping Centre - Gerard McSpadden and Daniel Wilton
- Optus - Andrew Parker

A general discussion was held with each stakeholder according to the following general discussion prompts and notes were made of the views and suggestions of each stakeholder on the key issues to be considered in the development of a future car parking strategy for the Macquarie Park study area.

- Your organisation’s opinions and perspectives of Macquarie Park as a specialised commercial and employment centre.

- Your organisation's aspirations for the future development and evolution of Macquarie Park.
- Key opportunities and drivers for the future development of Macquarie Park, from your organisation's perspective.
- Your views on key threats and risks which may undermine Macquarie Park's future development.
- Your perspective on the competitive business characteristics and features of Macquarie Park, and your views on the relative importance of these features from an organisational perspective eg:
    - Availability of commercial/retail space
    - Cost of accommodation
    - Proximity to clients/customers/students
    - Close to staff residences
    - Close to suppliers/producers
    - Clustering of like services or providers – business 'Hub'
    - Access to amenities and business support services
    - Fitting corporate image
    - Availability of public transport
    - Availability of parking
    - Access for visitor
    - Congestion
    - Other
- Your views on how Macquarie Park's accessibility, parking and level of transport services compare with other commercial/business centres.
- Your views on accessibility, parking and transport services in Macquarie Park, from the perspective of your regular clients/students/employees re: journeys to work, work day journeys (e.g. offsite visits) and visitor parking.
- Your organisation's perspective on the effects of the recent opening of the Epping Chatswood Rail Link, in terms of general accessibility and potential impacts on staff and visitor car parking needs.
- Your perspective on Council's current role in promoting pedestrian and transport accessibility, including the provision of adequate car parking and public transport.
- Suggestions for enhancing your organisation's use of bus, rail, cycling and pedestrian facilities in Macquarie Park, including the use of incentives and promotions to encourage transport alternatives
- Your suggestions about how to maximise efficient use of parking services and facilities in Macquarie Park
- Any further comments or suggestions about how to improve accessibility, parking and transport services in Macquarie Park

A total of approximately 80 future car parking strategy issues, options and suggestions were determined which are summarised according to a range of general "themes" or "category" in the table below.

Future Parking Strategy Option / Suggestion	Category
Businesses should do more to promote the use of the rail link by their staff, eg more incentives and more education	Future Workplace Travel Plans
People's "inertia to change" needs to be overcome for them to make more use of bus and rail based public transport services	Future Workplace Travel Plans
More adaptive shared use of car parking is required in the area for site employees and visitors which reduces the overall need for large on site leased car parking areas	Future Workplace Travel Plans
Future travel demand management plans for the area will still have to accommodate about 50% car driver usage ultimately even with improved public transport and use of other transport modes	Future Workplace Travel Plans
Develop car sharing websites eg Facebook to provide the basis of an area wide car pooling "ride sharing" system. Likely to be highly valuable for area employees who tend to arrive at peak times eg 9.00am on weekdays	Future Workplace Travel Plans
The Ryde City Council has 714 employees and could be a useful example of a "demonstration" workplace travel plan within the local government area	Future Workplace Travel Plans
The Macquarie University has adopted a future 40% public transport travel mode share target for both staff and students. The University is preparing a sustainable transport management plan, in liaison with City of Ryde staff, which will include facilities such as charging points for electric vehicles	Future Workplace Travel Plans
Hyundai and Aristocrat are good examples of potential companies to target for future workplace travel plans. Other companies eg Foxtel and Johnson & Johnson have more car based workforces (eg 500 parking spaces for 800 employees) and are less likely to achieve potential gains with workplace travel plans	Future Workplace Travel Plans
As part of the implementation of the Optus workplace travel plan, Optus operates 60 bus services on weekdays, mostly chartered from Hillsbus. There is an MoT requirement to use an MoT accredited Public Transport Operator.	Future Workplace Travel Plans
A Top Down approach should be used by Council to target businesses in the area for future workplace travel plans starting with the larger businesses first eg over 2000 employees, then the 1000-2000 employee range then 500-1000 employees, then 200-500 employees etc	Future Workplace Travel Plans
Council needs to have a workplace travel planner to perform a similar role to the Optus workplace travel planner in developing and promoting workplace travel plans for the businesses in the area	Future Workplace Travel Plans
Consider Climate Change Funding for projects such as new workplace travel plans/car sharing schemes in the area	Future Workplace Travel Plans
Macq Park needs a "high tech" shuttle bus or people mover system appropriate to the area (eg light rail – maglev - monorail) similar to the Gold Coast – Dreamworld or Dubai Systems, for people to move between sites in particular at lunchtime	Travel Demand Complexity
There may be route selection issues with a future people mover monorail or loop system eg whether to	Travel Demand Complexity

use main roads eg Waterloo Road or make detours eg via Byfield Road and Giffnock Avenue	
The Macq Park area could have more long term peripheral car parking areas with shuttle buses or monorails linking them to the centre	Travel Demand Complexity
Potential travel demand in the South-East travel corridor from Macq Park to and from the Gladesville direction should be examined to see if additional commuter or other bus services are feasible	Travel Demand Complexity
Sydney's public transport system is not very accessible from the outlying areas. More commuter car parking is needed at rail stations from areas such as Epping and West Pennant Hills. This will help to free up road access capacity and congestion and result in less car parking being needed at Macquarie Park	Travel Demand Complexity
The Macq Park area does not need more car parking. Improved Public Transport is the most realistic solution to traffic congestion	Travel Demand Complexity
The area needs more high density residential development to keep shops busy and create more life in the evenings	Future Planning Changes
The Macquarie Shopping Centre has a DA approved for expansion +30,000 sqm, with a further +40,000 sqm potentially subject to a further DA	Future Planning Changes
Residential development should not be permitted in Macquarie Park as it restricts night time activity, eg night construction work on public roads and open spaces	Future Planning Changes
Local Councils in Sydney are too focussed on local issues. The Sydney Metropolitan area needs an overall unified development vision	Future Planning Changes
The University Masterplan proposes an additional 1500 beds of student accommodation resulting in a future total of 5000 beds of student accommodation, mostly at Culloden Road, but some at the Herring Road frontage.	Future Planning Changes
The University supports current parking rate provisions for the area, including the 1 parking space per 80 sqm rate for its development on the "Station North' site adjacent to the Macquarie University Railway Station	Future Planning Changes
The University has planned bus movement changes for University Avenue, including dedicating the road as a public road with 4 traffic lanes and 2 bus lanes, but is having difficulty getting RTA and MoT agreement to the proposed changes	Future Planning Changes
The University has planned extensive intersection traffic improvements for the area as part of voluntary planning agreements for its future business park developments but is having difficulty gaining RTA approval for the proposed works.	Future Planning Changes
The University academic and business park development works are a major future "economic driver" for the area in the next few years	Future Planning Changes
The University is currently preparing complex construction traffic management plans for its proposed development construction works over the next three years	Future Planning Changes
The future urban design streetscape changes proposed for Herring Road with The University frontage development will increase the development pressures on existing residential sites. Future streetscape urban	Future Planning Changes

design issues for Herring Road are still being resolved with the State Government planning authorities	
It is a risk for the state government to limit car parking in areas such as Macquarie Park as this will restrict development	Future Planning Changes
The Macquarie University on site car parking situation is fluid currently with many developments about to start construction. The long term strategy is to reduce the total staff + student car parking from 5200 spaces currently to 4700 in the future	Future Planning Changes
The future Macquarie University Masterplan includes building over most existing at grade car parking sites with future on site car parking to be concentrated in four large peripheral car parking stations.	Future Planning Changes
The development planning rules in the area need to be more flexible and responsive to change, eg to permit 10 or even 20 storey commercial development in the "Commercial Core" zones. State and local government should constantly review planning controls	Future Planning Changes
The new bus interchange which is proposed for the Macquarie Centre will improve public transport integration. However, the Ministry of Transport is under resourced and is having difficulty progressing the Macquarie Centre and Macquarie University bus interchange proposals.	Future Planning Changes
The ECRL Rail line is 100 year transport infrastructure and can be relied upon to define the "Commercial Core" areas of the centre. Residential development should not be permitted in the commercial core business zones	Future Planning Changes
Future Long stay car parks could be constructed by Council with a private operator for both ECRL and general Macq Park visitor usage	Paid Parking
The area needs major public car parking stations at the perimeter of the commercial areas	Paid Parking
Council should undertake commercial feasibility studies for the construction and operation of either at-grade or structured car parks in the area	Paid Parking
Ryde Council needs to recognise the strong rates revenue base which it already receives from Macquarie Park Commercial Sites and stop trying to raise additional revenue from parking	Paid Parking
Ryde Council needs to be more strategically focussed in its car parking management with less emphasis on revenue raising	Paid Parking
A major new car parking station in the middle of Macquarie Park is not a good idea as it would increase traffic congestion. At most businesses only about 10-20% of staff really need cars to come and go in the daytime. The rest could use all public transport for access to and from Macquarie Park if convenient services were available to and from their home.	Paid Parking
The parking meters in the area were very poorly used initially but usage has improved now the cost is reduced. More of the parking meter spaces should be allocated to short stay visitor parking not long stay parking	Paid Parking
In the future people with tenant parking in the Macq Park area will probably use it to catch the train into the	Comparison Between Modes

city	
In the future the Macquarie Shopping Centre is looking at providing plug in charging facilities for people parking hybrid vehicles	Comparison Between Modes
Construct a new cycle route parallel to the M2 Motorway Corridor. The Macquarie Shopping Centre Car Park can provide additional bicycle parking	Comparison Between Modes
Current Commonwealth Government taxation policies disadvantage public transport users in comparison to car users. Change policies to remove inequities	Comparison Between Modes
The Macquarie University staff and student travel management will be much more public transport focussed in the future but the development of 400,000 sqm of associated research park facilities will involve approximately 7,000 additional off street car parking spaces	Comparison Between Modes
Since May 2009, Hillsbus has been operating more 619 and 621 bus services through the Macquarie Park area to and from North Western Sydney, with potential for more buses in the future.	Comparison Between Modes
Ryde Council Raises $1 million annually from a special rate levy for footpath improvements in the Macquarie Park area	Comparison Between Modes
More bus priority is needed for bus services along Epping Road, in addition to the Lane Cove Road proposals	Comparison Between Modes
More facilities need to be developed for the use of electric cars throughout the area	Comparison Between Modes
In the short term future, the public transport system serving Macquarie Park is not going to be good enough to encourage significant number of persons to stop using private cars. In the longer term eg 20 years, this objective may be more realistic but needs more improvements to the public transport system including a direct rail link to Parramatta	Comparison Between Modes
More public transport usage for businesses in the area will benefit the Macquarie Shopping Centre by reducing traffic congestion so that more people can access the centre	Comparison Between Modes
Need more long term parking at ECRL stations for people to catch the train into the city. The most likely site is the former ECRL worksite at the M2-Delhi Road corner.	Effects of ECRL
Future large structured car parks can have sensitively designed facades to minimise their visual impact	Effects of ECRL
Direct commuter car parking access to ECRL stations from the M2 will reduce commuter traffic flow on other sections of the regional major road network further to the east ie Lane Cove Tunnel and Warringah Expressway	Effects of ECRL
There is potential for future subsidised rail commuter car parking at the Macquarie Shopping Centre if persons make purchases at the centre, then parking can be subsidised	Effects of ECRL
The ECRL will have to be extended to Parramatta one day to achieve its originally intended objectives	Effects of ECRL
The recently opened ECRL rail line is a major advantage for the area but urgently needs extension to Castle Hill and beyond to link with the NW Sector of Sydney.	Effects of ECRL

Need more "No Parking" eg car passenger drop off and pick up zones at the railway stations and also around the Macq Park area local streets generally	Effects of ECRL
Better integration of the bus and rail services is now urgently needed to optimise local commuter access for the new rail stations in the Macquarie Park – Macquarie University area	Effects of ECRL
The future ECRL train services with the integrated timetable will be more attractive for Central Coast Rail Commuters so may increase usage from this direction	Effects of ECRL
More "secure" bicycle parking facilities are needed at the new rail stations	Effects of ECRL
More local commercial facilities need to be developed around the train stations	Effects of ECRL
The area can improve accessibility by pursuing Federal Government funding for the F3-M2 motorway tunnel link as a strategy to reduce traffic congestion on the Lane Cove Road route	Comparison To Other Centres
A significant future risk to the Macq Park area is the perceived lack of alignment of government agencies in planning and developing the area	Comparison To Other Centres
Most Macquarie Park businesses find Council and DoP to be very helpful but have difficulty contacting other government transport and infrastructure agencies to get help or agree to anything	Comparison To Other Centres
The City of Sydney is a good area to make comparisons with a lot of good initiatives for sustainable transport. Similar initiatives should be trialled and promoted in Macquarie Park	Comparison To Other Centres
The current business mix in Macquarie Park has been carefully managed by Council by insisting on research and development related business activities consistent with the original CSIRO and Macquarie University research related businesses. Future diversification should be permitted but needs to be carefully managed	Comparison To Other Centres
The name of the study area should be changed from "Corridor "to Centre"	Comparison To Other Centres
Newcastle and Wollongong are very good examples of Cities where Council have been proactive in working with developers to help promote new businesses to develop or relocate to their areas	Comparison To Other Centres
The Macquarie Park area needs to be proactively marketed in other countries eg China	Comparison To Other Centres
More long term car parking provided "not in residential areas" will help to address the problem of 'overflow" parking in residential areas	Local Resident Parking
The full integration of the ECRL trains with the rest of the Cityrail network will improve public transport accessibility for the area, reducing "overflow" car parking impacts in residential areas	Local Resident Parking
Optus would not object if existing resident parking schemes to the south of Epping Road were extended further to the south eg to Kent Road/Cox's Road	Local Resident Parking

A1.3 Additional JLL Commercial Stakeholder Consultation

In addition to the key business and institutional stakeholder consultation which was undertaken by Arup and City of Ryde, summarised above, the JLL study included as part of

their surveys, a number of additional discussions with a range of building owners and tenants in the study area who made a number of additional comments and requests in relation to the range of issues and options which should be considered in the study in the determination of overall future car parking strategy recommendations.

A summary of the 13 key future parking strategy issues and suggestions for the study area which were identified from this additional commercial stakeholder consultation is listed in the following table.

Issue	Additional Commercial Stakeholder Issue (JLL)
1	Additional visitor parking is required off site for many businesses, maybe in a central multi level car park
2	Commercial Property Market driven parking costs in the area have recently been "contained" with the GFC (Global Financial Crisis), but will potentially "break out" with future economic recovery
3	The area must increase the range of facilities and amenities provided in the area, either on site or close to commercial buildings, eg child care, to reduce reliance on the private car for travel elsewhere
4	The area should increase the zoning flexibility to permit more land uses and allow the bias of occupiers to widen beyond R&D workers who have a high reliance on car travel
5	The missing part of the ECRL rail link connecting to Parramatta is a key missing link to effect significant transport change in the Macquarie Park area
6	Additional Park and Ride facilities for Macquarie Park Rail Commuters are needed in the Catchment Rail stations, in particularly in North Western Sydney
7	Internal Road Congestion in the Macquarie Park area is a major factor in discouraging car travel, both now and in the future, and is working in favour of increased rail travel
8	The area required more "Hard" incentives to encourage greater usage of public transport, eg improved public transport infrastructure and services
9	There is a large and mobile sales force working in the area currently that suffers significant lost time just getting in and out of the area. Better use of the existing traffic signal timings at peak periods may reduce these delays
10	Parking availability and land use controls should allow "competition" to keep up in Macquarie Park, otherwise other competing centres have either better public transport or lower costs
11	Utilise existing vacant land in the area for car parking as an interim measure until sites are developed
12	Provide more transport alternatives and choice in the area prior to forcing people into unpopular measures such as parking meters
13	Use Section 94 or other developer contributions to create real amenity improvements for the area or additional car parking capacity. Otherwise lowering the future contributions will permit developments to proceed that do not have the higher parking ratio.

A1.4 Residential Area Consultation Undertaken by Ryde Council

Extensive residential area consultation has been undertaken by the Ryde City Council on two occasions in recent years to investigate resident's concerns regarding car parking availability and usage in the residential streets surrounding Macquarie Park and the need for Resident Parking Schemes to address overflow parking in these areas (by either the Commercial Area workforce or Macquarie University students).

Firstly in 2005, consultation was undertaken to assess community attitudes to car parking issues in the area as part of the URAP Car Parking Demand Review study for the area which was undertaken several years prior to the opening of the Epping to Chatswood rail link

Additional consultation was undertaken by City of Ryde in late 2008 / early 2009 to assess resident satisfaction levels with the resident parking schemes that had been implemented in the residential streets surrounding Macquarie Park in recent years.

A summary of the local area resident's views and comments which were expressed in the year 2005 residential area consultation program is presented in the table below.

Year 2005 Parking Study Area	**Comment**
1, eg Herring Road, Lachlan Avenue, Peach Tree Road and Cottonwood Crescent	Concerned about lack of parking facilities near railway stations
	Need more on street parking
	Would like 1 hour parking limit and Resident Parking Scheme
	Need Resident Parking Scheme. Concern about lack of parking in the area for workers uni students and rail users in the future
	Against parking restrictions and parking meters
2, eg Rogal Place, Durham Close	Shortage of parking due to shopping centre and railway stations, need resident parking
	No to on street car parking. Build a car park
3, eg Paul Street, McGregor Street, David Avenue, Parklands Road	Paul Street, Residential street used as a car park
	David Avenue, Residential street used as a car park
	McGregor Street, Residential street used as a car park
	Parklands Road, Residential street used as a car park
	Holt Street, Residential street used as a car park
	Whiteside Street, Residential street used as a car park
	Napier Crescent, Residential street used as a car park
4, eg Beatrice Street, Avon Road, Allengrove Crescent	Do not want local streets becoming parking lots
	Residential Streets used as a car park
	Parking Meters will make things worse
	More off street parking should be provided
5, eg Khartoum Road, Fontenoy Road, Tuckwell Place	Concerned about no parking for rail users
	Opposed to parking meters
	Parked Vehicles cause line of sight safety problems

6, eg Libya Place, Culloden Road, Taranto Road, Busaco Road, Trafalgar Place, Brunton Place, Talavera Road	Problems with Uni Students occupying on street parking spaces
	Concerned about heavy vehicles using residential streets
	University should address parking issues on their grounds
	Request for Resident Parking Scheme
	Remove parking meters
	Prefer not to have restricted parking
	Proposed restrictions will impact upon Trafalgar Place shopping centre car parking
	University should provide parking for students so they don't use the streets
	Kiss and Ride Commuter Drop off Parking is needed at the rail stations
	Parking Stations should be provided
	Parking meters are a blatant money grab
	Need Resident Parking Schemes
	Remove Parking Meters
	Council cashing in on uni student parking
	Imbalance between Council's desire for revenue, needs of businesses, needs of employees
	Council needs to liaise with schools re Safety Reasons
	Meter parking fees are excessive for an employee at Macquarie Park
	Provide shuttle bus services for rail commuters

The more recent year 2008/9 resident consultation was focussed more on obtaining feedback from the residents on the Resident Parking Schemes which have been implemented in the areas surrounding Macquarie Park since 2006.

In general these surveys recorded a high level of satisfaction (Approximately 80-90%) in the Resident Parking Scheme zones 1, 3 and 4 in response to a series of four specific questions concerning local area parking and traffic safety issues, namely

- Problems with finding on street parking close to your house
- Problems with passing oncoming vehicles in narrow streets
- Problems getting in and out of your driveway
- Problems seeing oncoming traffic

However in the area around Resident Parking Scheme zone 6 (the area around Taranto Road, Libya Place, Culloden Road and Talavera Road) the overall resident satisfaction level was much lower (40-50% Approximately) for reasons which are probably related to the parking meters in streets around the Macquarie University campus causing the displacement of parking into other areas.

There is also a potential related issue for the Resident Parking Schemes which have been recently been implemented in the streets to the south of Epping Road, where anecdotally, there is evidence that the introduction of resident parking schemes to a number of streets has displaced the parking problem into other streets further to the south eg Kent Road

where it is affecting the availability of parking for residents and the local commercial facilities there.

Approximately 44% of the year 2008/9 City of Ryde resident consultation responses also provided additional comments in relation to other specific residential area car parking issues which were of most concern to them. These comments, in order or the general frequency of which similar comments were received, are summarised in the table below.

Additional Year 2008/9 Resident's Comments in the Resident Parking Scheme Areas	**Frequency of Responses**
Requests for more parking enforcement, in particular in Paul and McGregor Streets	107
Generally happy with the success of Resident Parking Schemes	72
Request for more than 2 parking permits per household	22
Residential streets are used as rat runs with speeding traffic	19
Resident Parking Scheme has relocated cars to other streets	15
Resident Parking Scheme Restrictions should be both sides of the street in all streets	13
Remove the Resident Parking Schemes as they have provided no benefits	9
Problems are worse after RPS Scheme was introduced, with displacement of parked cars into other streets eg Kent Road, Taranto Road	8
Cars still park too close to driveways	6
Resident Parking Schemes were not needed as parking was never a problem anyway	6
No Improvement with Resident Parking Scheme. Friends are frightened to park because of the fear of being fined	5

These resident comments indicate that in general the Resident Parking Scheme restrictions are probably working well in most streets but there are a limited number of persons in some streets who are not happy with certain aspects of the scheme, and possibly may not have been in favour of its initial introduction.

Community consultation feedback surveys undertaken by City of Ryde in December 2008, show that the existing RPS schemes are working reasonably well in terms of their intended purpose of controlling any spread of on street parking demand from the study area where it is generated, into the adjoining residential precincts.

This was confirmed by two photographic surveys of these streets by Arup in April 2009 and City of Ryde, in September 2009. These surveys confirmed that the overall on- street car parking supply in the residential zones adjoining the Macquarie Park Corridor commercial and university zones, was currently less than 50% occupied during daytime periods, leaving significant additional vacant parking for use by the local residents. However the parking situation in affected streets should continue to be monitored by City of Ryde and if the situation worsens, the extension of Resident Parking Scheme restrictions to all the streets up to 1 kilometre walking distance from the current boundary of the Macquarie Park and Macquarie University Campus will have to be formally considered.

In the longer term, it is likely that further extensions of the Resident Parking Scheme areas (potentially including all streets within a 1 kilometre walking distance limit of the boundary of Commercial Business District and University Precinct) will have to be considered to ultimately address the issue of displacement of the overflow parking problem from the initially affected streets, which are closest to the commercial area, into other more distant streets which were not previously affected.

In the short term, the significant accessibility benefits to the area which are being provided by the new rail link “ECRL” stations should give sufficient relief to the overflow parking problems in adjoining residential areas to Macquarie Park and these parking problems should reduce.

There is also some evidence that the streets closest to Macquarie Park (eg Paul Street, Macgregor Street, Herring Road are still suffering from high parking demand as these streets are still relatively close to the core Macquarie Park business precincts and the Macquarie Shopping Centre and are therefore still attractive even for short stay (2 hour) parking for visitors to the area. Further reductions of the “non resident” parking time limits, eg to 1 hour instead of 2 hours, should therefore be considered for these streets.

Appendix B

JLL Commercial Property Market Assessment Report

Macquarie Park Parking Study

JONES LANG LASALLE®

October 2009

TABLE OF CONTENTS

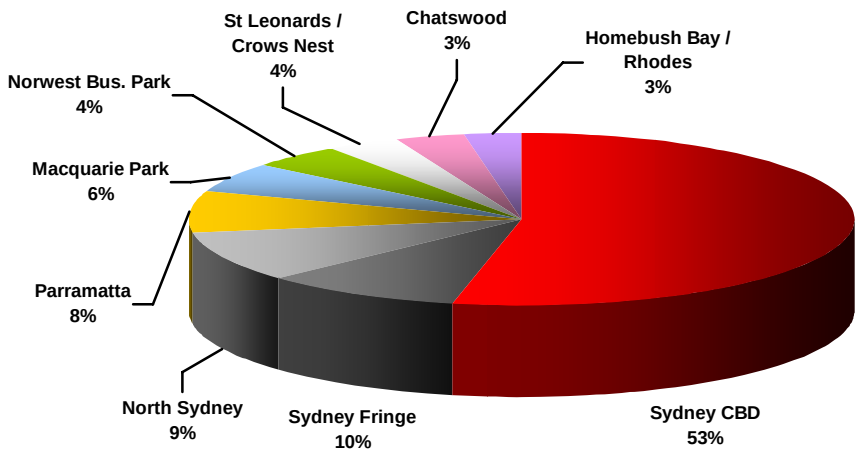
This report has been developed over an extended timeframe. The initial draft was prepared late 2008 with final issue October 2009. Much of the economic information relates to the original date. This information has been updated by the inclusion of economic updates to 2nd quarter 2009 at the appendices.

1. Introduction

Macquarie Park has a total commercial office stock of 509,400m^2, which is 6% of all major established office markets in metropolitan Sydney. It is now the 5th largest Australian commercial office market and aside from North Sydney, it is the largest suburban office market along the North Shore (see Figure 2.1). According to the 'Macquarie Park Corridor - North Ryde Master Plan', the potential commercial floor space in the Corridor is expected to be 2.5 million m^2 by 2024.

Figure 1.1: Total office stock in established markets

Source: Jones Lang LaSalle Research & Consulting, as at Q4/2008



Total = 8.9 million sqm

Along with competing with the more established Sydney office markets, Macquarie Park is also likely to attract / lose tenants to suburban office precincts such as Parramatta, Homebush Bay / Rhodes and Norwest Business Park. These suburban office markets have experienced significant growth over the last decade with a flight to quality by tenants and attractive rental levels providing an incentive to relocate to suburban locations.

2. Commercial Market Review

2.1 Macro and Regional review

2.1.1 Economy to slow

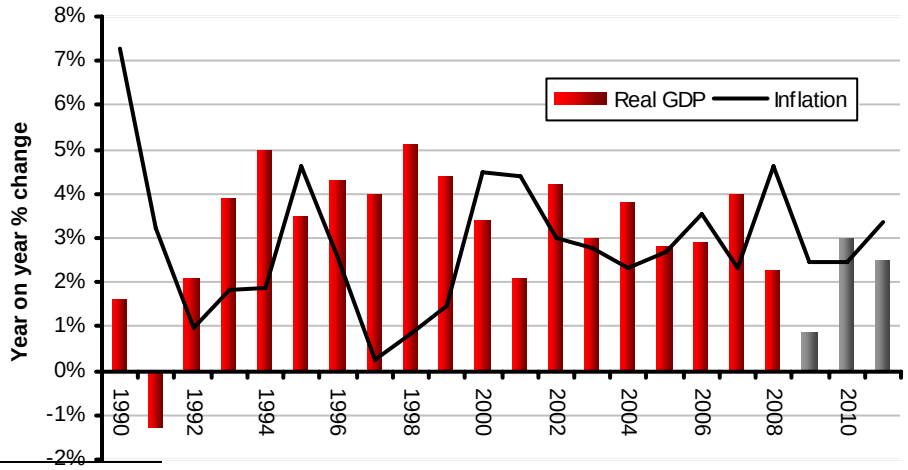
Turbulent world financial markets caused the IMF to update its forecasts in a relatively dire November edition of their World Economic Outlook[1]. Forecast world economic growth for 2008 was revised down to 3.7% from the October projection of 3.9% (2009 forecast growth of 2.2% but is more likely to be sub-1.0%). The US 2008 growth outlook was also revised down to 1.5% in 2008. The IMF noted that the downward revision was the result of further deterioration of global growth between October and November 2008, continued financial sector deleveraging, and falling producer and consumer confidence.

World growth is projected at 2.2% in 2009 (from 3.0% October forecast), a substantial reduction from the average of about 4.6% over 2006-2008. The downward revisions to 2009 real GDP growth projections are somewhat larger in emerging and developing economies – forecast to grow at 5.1% in 2009 (down from 6.1% October forecast). Among the most affected are commodity exporters, given that commodity price projections have been marked down sharply, and countries with acute external financing and liquidity problems. China is still expected to maintain strong growth above 8.0%. The 2009 outlook for advanced economies is less bleak (growth of -0.3%) and a recovery is projected late this year. The US 2009 growth forecast is -0.7% (0.1% October forecast).

Locally, Access Economics forecasts GDP growth to be 0.9% in 2009, 3.0% in 2010 and 2.8% per annum over the next ten years on average. However, non-farm GDP growth is forecast to slow from 2.0% (2008) to 0.4% (2009). Consensus Economics is a bit more bullish on the short term outlook – its January edition shows forecast Australian GDP growth in 2009 to be 0.9% and 2.4% in 2010.

Figure 2.1: Australian GDP – growth slowdown in 2009

Source: ABS, Access Economics



[1] International Monetary Fund: World Economic Outlook Update, November 2008.

New South Wales is expected to see -1.0% GSP growths in 2009 but bounce back to 3.8% in 2010, supported partly by planned infrastructure spending. The State's recovery is heavily dependent on an upturn in residential construction, currently tracking around all-time lows. Interstate migration, which is an important driver of population growth in New South Wales, has started slowing. The loss of blue collar workers to Queensland has created weakness in the western Sydney residential housing market.

In October 2008, the Federal Government announced an emergency $10.4 billion stimulus package in an attempt to soften the anticipated fall in domestic economic growth. A one-off Christmas bonus was paid to pensioners and low income families, aimed at increasing consumer spending. To stimulate construction in the housing sector the Government tripled the first home buyers grant for newly constructed homes from $7,000 to $21,000 for one year (ie. all contracts entered into by June 30, 2009). Other first home buyers will secure a doubling of the grant to $14,000 for 12 months. A second stimulus package is expected to be announced in Q1/2009 and likely to include tax cuts, financial assistance for small to medium sized businesses and fast tracking some infrastructure projects.

2.1.2 Further interest rate cuts expected despite rising inflation

The Consumer Price Index recorded a rise of 4.6% in 2008 (Figure 2.1). Excluding the impact of the GST in 2000, this is the highest headline inflation rate since 1995. The underlying rate of inflation stands at a 7-year high (4.0% in 2008). Inflation is now well above the Reserve Bank's 2% to 3% target band, and expected to stay that way over the next few quarters.

Table 2.1: The Australian Economy – key macroeconomic indicators

Source: Access Economics, calendar year projections as at Q4/2008.

Growth rates calculated on fourth quarter on fourth quarter basis, except for 10-yr bonds which is calculated on year end basis.

**FIPB = Finance, Insurance, Property & Business Services.*

		GDP (%)	CPI (%)	10-year bonds (%)	FIPB* Emp. (%)	Mfg Output (%)
2004 – 08 (ann. ave.)	Actual	3.1	3.1	5.7	2.8	0.9
2007	Actual	4.0	2.3	6.0	3.2	3.2
2008	Actual	2.3	4.6	6.1	1.3	3.0
2009	Forecast	0.9	2.4	4.5	1.5	-0.5
2009-13 (ann. ave)	Forecast	2.6	2.7	5.6	2.8	1.6

The impact of the credit crunch presents the main risk to the economic growth outlook. Evidence is accumulating that financial market turbulence is spilling over into the real economy, appearing initially as a decline in the growth of consumer credit and business investment. With demand pressures easing and a weaker outlook for commodity prices stifling inflation pressures, the Reserve Bank of Australia now has the ability to respond to slowing economic growth through the reduction in the official Cash Rate target. The RBA has responded by cutting the official Cash Rate by 300 basis points from their peak of 7.25% in August 2008, with the further rate cuts anticipated in the first half of 2009.

The official overnight cash rate is currently 4.25% and the general consensus is that it will drop by 50bp at or before the next monetary policy meeting on 3 February (some

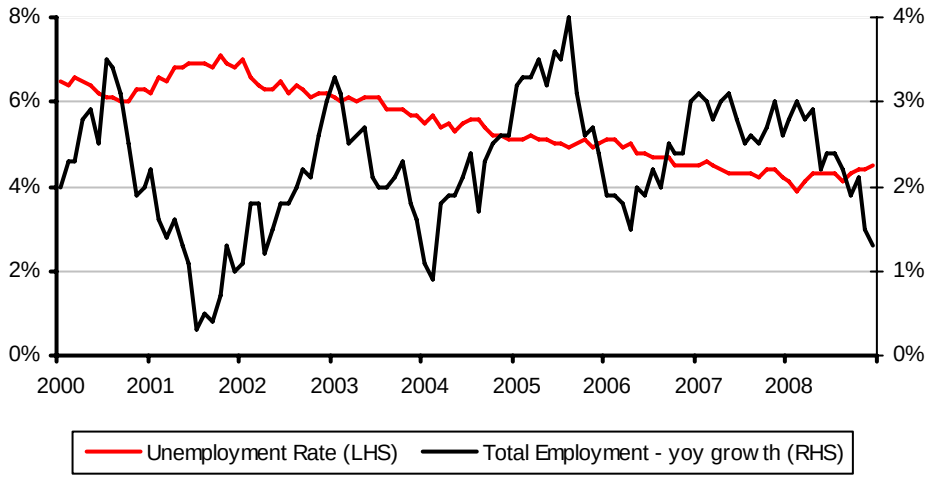
economists forecasting a 75-100bp cut). Further cuts to official interest rates reflect the Reserve Bank's judgement that a slowing economy will act to restrain price increases over time. In addition, the monetary authorities now see support for the financial sector against a backdrop of global turbulence as the prime policy priority in the immediate future.

2.1.3 Slowing economy to lead to rising unemployment rate

The national unemployment rate fell to 3.9% in February 2008, its lowest level since 1974. Since then, the rate has crept up to 4.5% in December (seasonally adjusted) as the economy slows. A further slowdown in economic growth in 2009 implies a further rise in the unemployment rate. Access Economics forecasts the unemployment rate to increase to 5.8% in 2009 and exceed 7.0% by 2010.

Figure 2.2: Australian labour market

Source: ABS, seasonally adjusted data

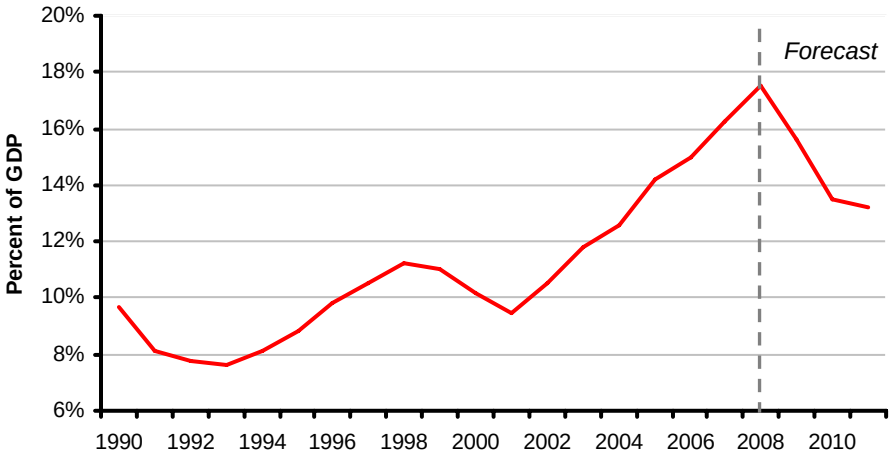


2.1.4 Business investment to slow but remain close to historical peak

A combination of high levels of skilled immigration, the resources boom, micro economic reform and the expansion of public-private infrastructure partnerships has resulted in solid growth in private fixed business investment over the past five years. With the new Federal Government setting up Infrastructure Australia, a Commonwealth statutory body that will identify infrastructure priorities within 12 months in relation to transport, water, communications and energy, the scope for further publicly initiated but privately led fixed investment across states and territories is expanding. Access Economics, however, forecasts that private investment will ease in 2009, but remain at a historically high level.

Figure 2.3: Australian private business fixed investment

Source: Access Economics



2.1.5 Real estate market drivers point to 2009 slowdown

Table 2.1 shows Access Economics' forecasts of output and employment growth for those sectors of most relevance to the office real estate market. The forecasts for 2009-2011 are generally weaker relative to the previous three years. The short-term outlook for the office sector has weakened, with little growth expected from the finance and insurance sector over the next few years due to contraction in financial markets.

Table 2.2: The Australian Economy – key macroeconomic indicators

Source: Access Economics, calendar year projections as at Q4/2008.

Growth rates calculated on fourth quarter on fourth quarter basis, except for 10-yr bonds which is calculated on year end basis.

**FIPB = Finance, Insurance, Property & Business Services.*

	Output %		Employment %	
	2006 - 2008	2009 - 2011	2006 - 2008	2009 - 2011
OFFICE DEMAND				
Finance & Insurance	5.5	0.3	2.6	0.3
Property & Business Services	3.7	3.5	2.8	3.1
Public Administration	2.2	2.3	2.1	2.6
Communications	7.3	6.8	0.3	3.7

Under the impetus of the economic slowdown, State and Federal governments will be encouraged to increase expenditure, particularly on infrastructure and other capital items such as transport and health facilities. This is despite some States, such as NSW, already having a budget deficit position. Infrastructure Australia has invited each State to make submissions for projects that could be funded by its $20 billion Building Australia Fund.

The NSW Government will have a $917 million deficit over 2008/09 and has reduced its four year capital expenditure program by $890 million to $56.8 billion. The State

Government has put forward several transport infrastructure projects for Federal government funding such as the M4 East expansion (in first priority list), F3 – M2/M7 Link, M5 expansion and the Northern Sydney Freight Line (all three are part of the second priority list).

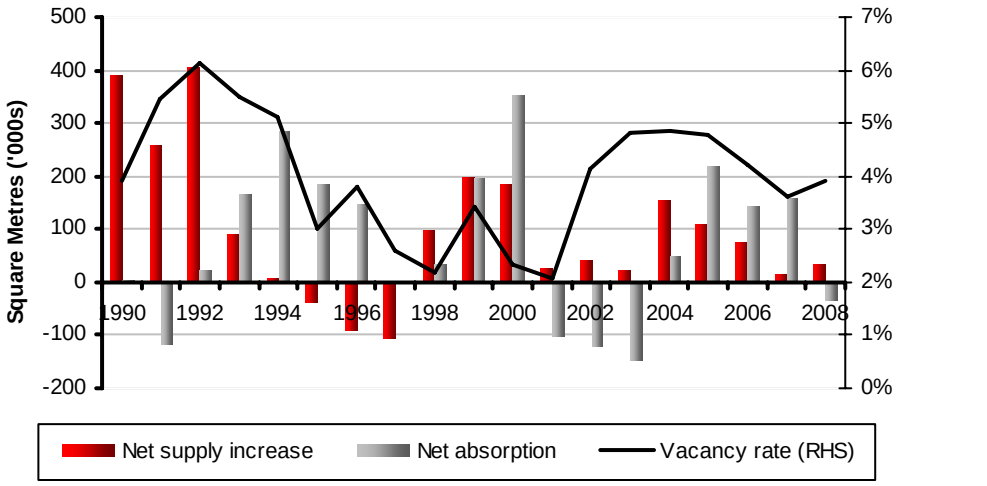
2.2 NSW and Sydney

Sydney is the corporate capital of Australia and the country's largest office market. Its status as the 'unofficial' capital of Australia and its large population makes it the preferred headquarter location of most major Australian firms and the head office of the Australian arms of global firms. The relatively high occupancy of international firms, particularly those in the 'Finance & Insurance sector', exposes the market to global volatilities. The global slump in equity markets between 2001 and 2003 following events such as the 'tech wreck', the 9/11 terrorist event, SARS and accounting scandals in the US, saw a slowing in Sydney's office demand despite Australian GDP growth remaining relatively firm.

Development of office space in Australia's key office markets typically occurs in cycles. A major development cycle was underway across all CBD office markets in the late 1980s, which led to a 57% increase in the amount of office space in Sydney's CBD, North Shore and Parramatta markets between 1987 and 1993. Additions of new stock were more subdued from 1994 to 1997, partly due to the Sydney office market absorbing the new floor space associated with the previous construction cycle, as well as lenders' requirements for significant pre-commitments. A short uplift in building activity took place between 1998 and 2000 (the pre-GST boom), resulting in a more moderate 8% rise in Sydney's office stock.

Figure 2.4: Office market balance, Sydney

Source: Jones Lang LaSalle Research & Consulting, Includes Sydney CBD, North Sydney, Chatswood, St Leonards / Crows Nest & Parramatta

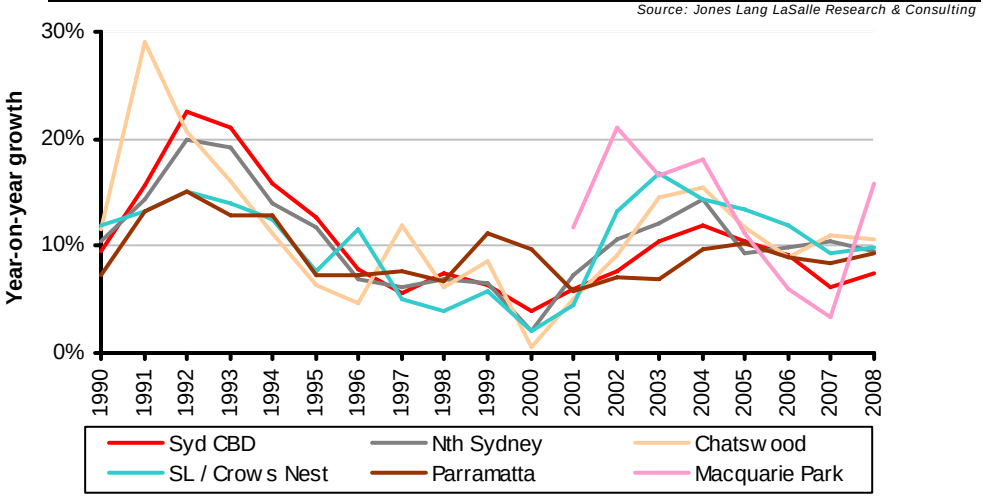


Between 2005 and 2007, industrialised countries around the world experienced solid growth and in turn the Sydney office market encountered positive net absorption over these years. Construction activity picked up in 2004 and Sydney's office stock increased by 6%. The average Sydney office vacancy rate was at a six year low of 8.2% by the end of 2007, driving strong rental growth in the CBD and spilling over to suburban markets.

A trend evident over the past two decades has been the increasing concentration of office space in non-CBD office locations in Sydney, which has also been the case in Melbourne. The percentage of total stock in the CBD fell from 67% in 1990 to 57% in 2008 and the share is an even lower 52% upon including the estimated stock of office space in Homebush Bay / Rhodes and Norwest Business Park. Suburban locations have been attracting a higher share of new office development as tenants prefer the higher car parking ratios, larger floor plates at lower total occupancy costs, custom designed buildings and access to a large workforce / customer base. Certain industries and back office business functions are also better suited to a CBD Fringe / suburban rather than a CBD location.

Figure 2.5: Vacancy rates, Sydney

Source: Jones Lang LaSalle Research & Consulting



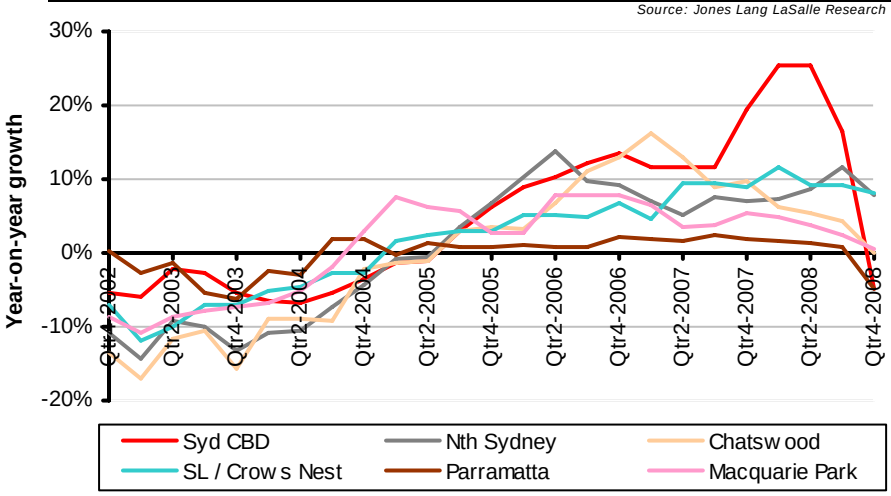
More recently office demand has been negatively impacted by Sydney's high sensitivity to global financial market performance, the US sub-prime mortgage crisis and global economic slowdown. Net absorption fell from 182,100sqm in 2007 to 61,500sqm in 2008 (includes all markets except Sydney Fringe and Macquarie Park). The average vacancy rate across Sydney's office markets rose to 9.32% in 2008 due to sub-lease space brought onto the market by the finance & insurance sector and new office supply. The limited availability of finance, higher debt costs and a weak demand outlook has had a negative impact on forecast supply, forcing the completion date of many projects to be pushed back. Access to development finance is tougher as lenders are setting higher criteria for project viability and tenant pre-commitment. On average, Jones Lang LaSalle estimate the required pre-commitment to obtain funding is between 50 and 80 per cent.

Prime gross effective rents recorded significant growth in Sydney between 2005 and 2007 - 11% p.a on weighted average basis, compared with 4%p.a over 2003-2007. The average prime gross effective rent in Sydney was $524/sqm at Q4/2008, 4.5% below that in Q4/2007[2]. In fact, prime effective rents recorded a decline across the eastern seaboard capital cities in Q4/2008.

Weaker employment growth is expected in the Australian finance and insurance sector over the 2009-11 periods, a key occupier of office space in Sydney, especially in the CBD. The deterioration of market sentiment and the expectation of a weaker leasing environment in 2009 have caused rental growth to stall in Sydney. Looking ahead, effective rental growth is expected to be negatively affected by increasing incentive levels across most of the CBD and suburban markets in the short to medium term.

Figure 2.6: Gross effective rental growth, Sydney

Source: Jones Lang LaSalle Research & Consulting

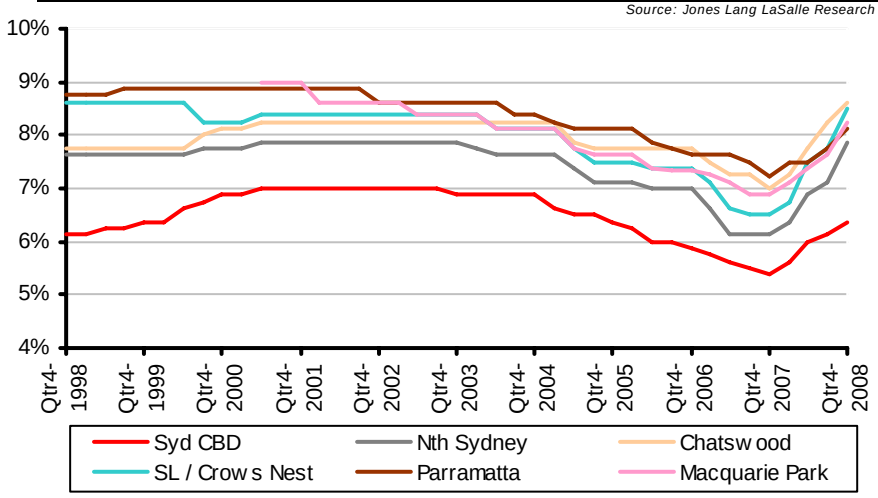


Yields rose a little during the late 1990s / early 2000s as market vacancies increased due to the 'tech wreck', SARS, the 9/11 terrorist event and accounting scandals in the US. However, between 2002 and 2007, demand for office property increased resulting in significant yield compression. Competition for a limited amount of stock was a key factor behind this tightening of yields in all property sectors during this period and led to a narrowing yield differential between sectors. The office market displayed the most volatility in yields over the decade, largely due to the greater impact of international events on this property sector. This is expected to continue going forward. Yields approached fair value the past year and started softening in Q1/2008. Subdued investor demand and lower forecast rental growth will ensure yields stay static or rise moderately in the short term.

[2] Weighted average rent includes CBD, CBD Fringe, North Shore, Parramatta and Macquarie Park office precincts.

Figure 2.7: Prime office equivalent yields

Source: Jones Lang LaSalle Research & Consulting



2.3 Competitive Set

2.3.1 Sydney CBD

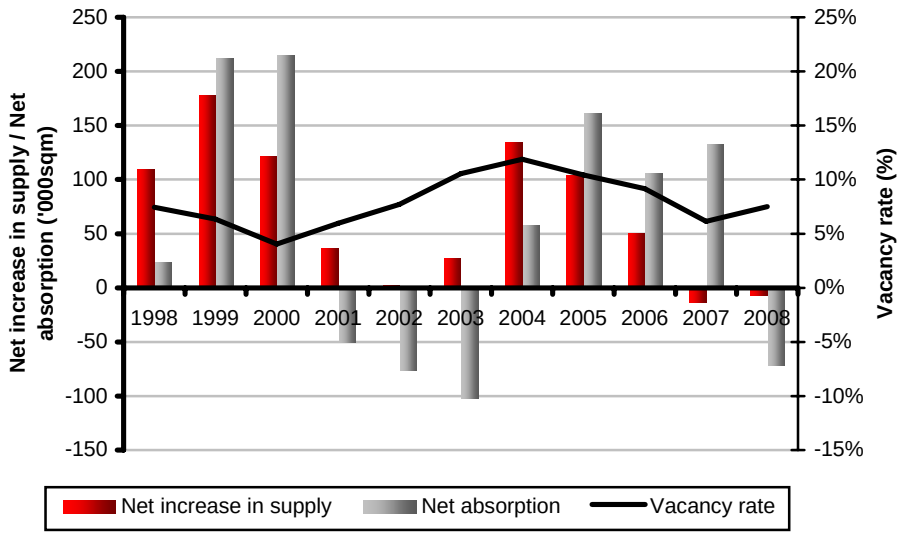
The Sydney CBD comprises 4.8million sqm of stock and 53% of this is made up of prime grade buildings (ie. A and B grade buildings). The CBD Core is the largest precinct and contains just less than half of the total stock, followed by the Midtown (23%), Western Corridor (23%) and Southern precincts (8%).

The supply pipeline in the CBD has weakened recently and this is a positive in a market that already has supply issues, in terms of limiting the upside risk to vacancy. However, the continued lack of supply will create underlying demand over the next 2-3 years, which in turn will place downward pressure of the incentives offered by landlords thus seeing a return to stronger effective rental growth.

The supply pipeline for 2009 contains 50,300sqm of new and refurbished stock, with 83% already under construction. Looking further ahead to 2010, there is potentially a further 81,200sqm of new and refurbished stock due to be delivered to the market, of which only 420 George Street (37,750sqm) is currently under construction. Continued turmoil in the financial markets has had a negative impact on supply, with the completion date of many projects being pushed out, and some anecdotal evidence suggesting that a number of projects have been shelved altogether. Recent stock withdrawals have exacerbated the low vacancy environment in Sydney CBD but this has been offset somewhat by an increase of sub-lease space.

Figure 2.8: Sydney CBD - Supply and demand dynamics

Source: Jones Lang LaSalle Research & Consulting, as at Q4/2008



With the finance and insurance sector taking up a significant segment (approximately 35%) of the Sydney CBD office market, the uncertainty in global financial markets has led to significant deterioration in levels of tenant demand. Negative absorption of 71,700sqm was recorded during 2008, mainly due to subdued tenant demand in the second half of the year.

The negative absorption, coupled with stock withdrawals, and an increase in sub-lease space availability, placed considerable upward pressure on the overall vacancy rate for Sydney CBD. It now stands at 7.5% representing 356,600sqm of available space. Despite the overall vacancy rate increasing by 1.4% since 2007, it remains well below the ten year average of 8.7%.

The distinct lack of tenant demand has had a negative impact on rental growth, with prime gross effective rents recording negative growth between Q2/2008 and Q4/2008 (-11.4%) to average $654 per sqm per annum. However, gross face rents held firm and the negative growth is a factor of increased incentives, which now average 20% or 24 months rent free on a ten year lease.

2.3.2 Sydney Fringe

The Sydney CBD Fringe, the second largest office market, comprises 866,000sqm of stock and 45% of this is made up of prime grade buildings.

High levels of pre-commitment to new projects coming online in the short-term is indicative of the continued robust demand for office premises in the Fringe. A total of 52,200sqm of stock is slated for completion in 2009, 89% of which is already under construction. Three of the largest projects - Australian Technology Park (29,000sqm), Workplace 6 (18,000sqm) and the St Margaret's East Redevelopment (8,000sqm) are fully or at the very least substantially pre-committed.

Tenant demand was relatively strong in 2008 with positive net absorption of 60,200sqm recorded, a turnaround from -80,000sqm in 2007. Indeed, with the current negative sentiment reverberating through the Sydney CBD, tenants are increasingly looking to de-centralise. Sydney Fringe is ideally placed, both geographically and from a price range point of view, to benefit from this trend.

The overall vacancy rate in the Fringe fell from 8.38% in 2007 to 5.49% in 2008, the lowest office vacancy rate in Sydney. Demand continues to be driven by tenants seeking either funky, creative space or that with an existing fit-out in an attempt to save on capital expenditure.

Strong demand from CBD tenants looking to capitalise on cheaper real estate costs in the Fringe placed upward pressure on rents between Q3/2007 and Q3/2008 - prime gross effective rents recorded a 7.0% increase during this period. However, the recent financial turmoil has negatively affected growth and resulted in a 2.8% drop in the average rent over Q4/2008 to $343 per sqm per annum.

2.3.3 North Shore

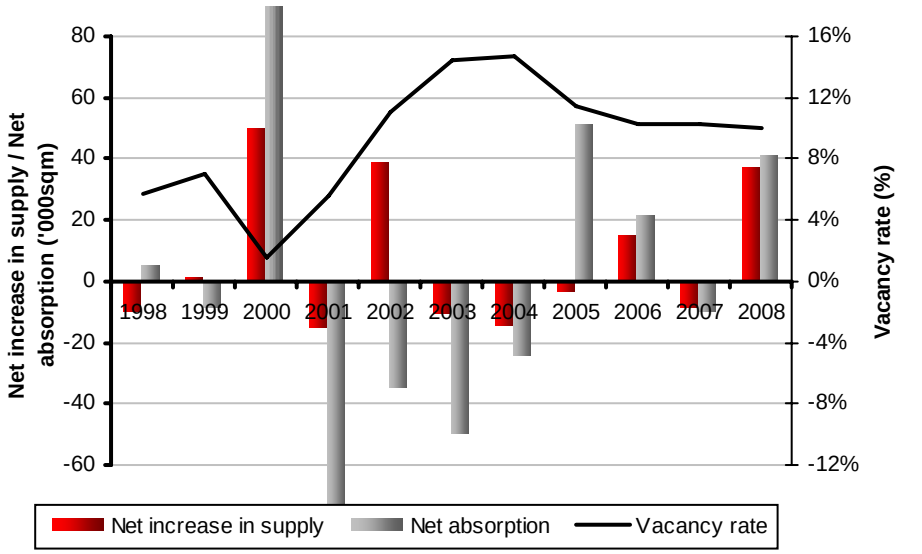
The North Shore market comprises 1.48 million sqm of stock – 57% in North Sydney 23% in St Leonards / Crows Nest and the balance in Chatswood. It is the second largest office market in Sydney.

There were no major completions across the entire North Shore market in 2008, with the exception of the refurbishment of 101 Miller Street, North Sydney. Looking ahead, the 2009 supply pipeline is minimal with only two projects currently under construction and set to bring approximately 6,900 sqm into the market (72% of this is pre-committed at this stage). Further ahead in 2010, the supply pipeline for the aggregated North Shore market has one project under construction which is set to bring approximately 28,500sqm of new office space onto the market, which currently has a pre-commitment level of 33%.

Despite limited supply additions, vacancy is forecast to peak in 2010 and sit within a range of 13.5% to 11.2%, before decreasing gradually to range between 12.7% and 7.1% in 2013.

Figure 2.9: North Shore - Supply and demand dynamics

Source: Jones Lang LaSalle Research & Consulting, as at Q4/2008



Net absorption for the aggregated North Shore office market totalled 41,000 sqm for 2008, the highest yearly total since 2000. The major contributor to this result was the relocation of CBD tenants into 101 Miller Street, North Sydney in Q3/2008, absorbing 94% of 36,200 sqm, however, net absorption is forecast to fall between negative 5,000 sqm and positive 5,000 sqm in 2009, a reflection of the decrease in demand under the current market conditions. Further ahead, net absorption is expected to reach between 5,000 sqm and 15,000 sqm in 2010, attributable to Coca Cola Amatil's pre-commitment to 9,500 sqm of space scheduled to come online that year.

Vacancy levels in the aggregated North Shore market rose to 9.8% in Q4/2008 as relocations and contractions reduced the quantity of occupied space. Chatswood has the highest rate of vacancy (10.6%), followed by St Leonards / Crows Nest (9.8%) and North Sydney (9.5%).

Vacancy across prime grade buildings sits at 11.7%, with secondary vacancy at 8.6%. Prime vacancy levels have been higher than secondary since Q2/2007. Anecdotal evidence suggests this is reflective of tenants opting to remain within the secondary market, despite the availability of prime-grade space, as a large portion of these secondary properties have undergone refurbishment providing a good standard of facilities, possess convenient location, and is without the higher cost demanded by prime office space.

Prime gross effective rents across the aggregated North Shore market average at $403 per sqm p.a and fell for the first time in Q4/2008 after having risen every quarter since Q3/2004. Similarly, secondary gross effective rents decreased by 1.3% to now average $293 per sqm p.a. North Sydney recorded its first decline in prime gross effective rents since Q3/2004, whilst secondary gross effective rents remained static. St Leonards' prime gross effective rents have increased since Q2/2005 to $394 per sqm p.a and secondary gross effective rents declined by 2.9% to $248 per sqm p.a in Q4/2008.

Looking ahead in the short-term, gross effective rents in North Sydney are expected to be negatively impacted by the increase of incentives over the next 12 months, whilst face rents are expected to hold firm. However, there is medium-term resilience to this negative growth as we remain in a short supply environment.

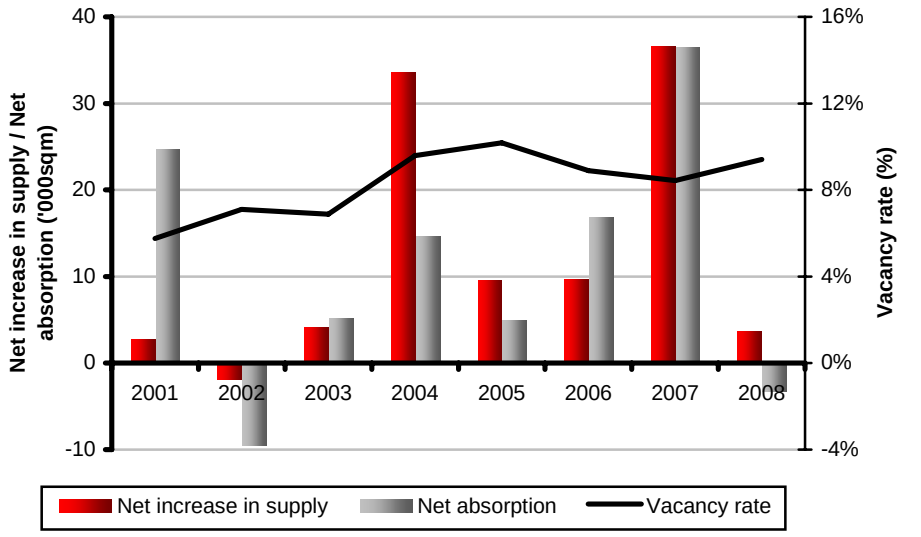
2.3.4 Parramatta

The Parramatta CBD comprises approximately 676,000sqm of stock and is the fourth largest office market in Sydney. Over half of total stock is made up of A Grade space and the remainder evenly distributed across B, C and D grade assets. Parramatta also has a significant amount of land available for development, offering opportunities for the market going forward. The Sydney Metropolitan Strategy identifies Parramatta as a key centre for future job creation and one of the three strategic regional centres in the city (Penrith and Liverpool the other two).

The most recent development cycle in the Parramatta office market took place over FY06-07 and the net increase in stock has averaged at 12,300sqm per annum between 2001 and 2008. The supply pipeline is minimal over the short term - 23,000sqm in 2009 (1 Smith Street - Sydney Water Headquarters) and plans have been submitted for a 14-storey 22,000sqm office tower at 109 George Street expected to be completed by 2010. An additional 95,400sqm of office space lies in plans approved / submitted / mooted stages and with an expected completion date in 2011. Parramatta City Council is also hopeful to complete its ambitious development, 'Civic Place,' between 2011 and 2016 in separate stages, which could potentially add new supply of up to 80,000sqm.

Figure 2.10: Parramatta - Supply and demand dynamics

Source: Jones Lang LaSalle Research & Consulting, as at Q4/2008



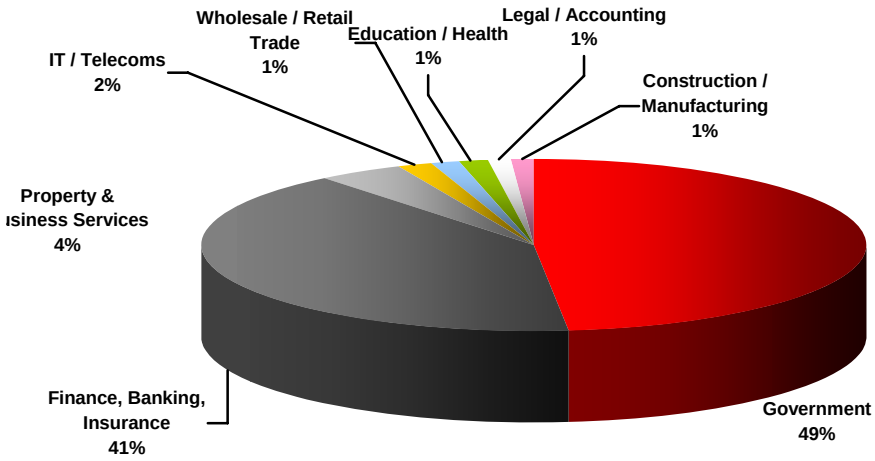
Parramatta continues to face competition from other suburban office park locations which offer lower rents and more generous car parking. Overall demand and net absorption has been very much dominated by government activity over the past three years (Figure 2.2). Gross take-up by the public sector dominates at 48% over the past three years (2006-08) driven by expansion, upgrading of space and relocation from other office locations,

particularly the Sydney CBD. However, this share has fallen from 'Government's 60% share of gross take-up in the past five years (2004-08), due to the increasing diversification of tenant base. Between 2006 and 2008, the key industry sectors that contributed to positive net absorption included Government (35,200sqm); Finance, Banking & Insurance (7,600sqm); and Property & Business Services (3,600sqm).

The Parramatta market has tended to provide overflow space for the private sector during periods of strong office based employment growth. For example, the Finance & Insurance sector used to account for a substantial amount of take-up but these companies have either contracted or consolidated their space across different markets in Sydney. This shedding of space has resulted in small positive absorption in the private sector over the past three years (8,600sqm) in relation to the Government sector (35,200sqm).

Figure 2.11: Demand profile in Parramatta (2006-08)

Source: Jones Lang LaSalle Research & Consulting, chart refers to gross demand



Net absorption of office space in Parramatta has averaged at 19,400sqm per annum over the past three years (2005-07) and 13,300sqm per annum over the past seven years (2001-08). In 2008, tenant enquiries diminished, as many tenants felt the impact of the credit crunch and Government cost cutting put a halt on expansion. Between 2009 – 2013, net absorption in Parramatta is expected to average at 12,000sqm per annum and vacancy average at 11.7% per annum. An increase in the supply pipeline in relation to demand in 2011 is expected to drive up vacancy in this market.

After recording growth between Q3/2006 and Q3/2007, prime gross effective rents fell to $287 per sqm per annum in Q4/2008, with the current market sentiment and conditions appearing to cap rental growth. Constrained levels of demand are expected to contribute to relatively low levels of rental growth in the short to medium-term.

2.3.5 Rhodes / Homebush Bay

Rhodes office stock: approx. 135,300sqm / Homebush Bay office stock: approx 100,000sqm

This is a relatively small largely developed office precinct. Two major office developments that have contributed to stock since 1990 have been Rhodes Corporate Park and Rhodes

Waterside. Upon completion, Rhodes Corporate Park will provide 90,000sqm over six buildings and Rhodes Waterside will provide 48,000sqm of office space over three buildings. Only one building remains to be built – Building F at Rhodes Corporate Park. Going forward, the major constraints faced by this area are the lack of suitably zoned sites for further commercial use (most of these sites require rezoning to allow commercial development).

The current size of the market within the Homebush Bay area is estimated to be approximately 100,000sqm with a FSR between four and six. The Sydney Olympic Park is the main source of future office supply in Homebush Bay, with about 90,800sqm across projects under construction / planned / mooted stages.

As with Macquarie Park, Homebush/Homebush Bay has been successful in attracting tenants from the CBD and other more established office precincts. Demand is largely pre-lease driven and lumpy. Given the availability of former industrial sites and the level of urban regeneration that is occurring in this area, this precinct is expected to remain on the radar screen for most occupiers seeking space in decentralised markets over the short to medium term.

2.3.6 Norwest Business Park

Existing office stock: approx. 377,000sqm. Approximately 3Ha have been sold and another 11Ha of land remains to be sold, which could collectively provide an additional 140,000sqm of employment space based on a 1:1 floor space ratio.

The 377Ha Norwest Business Park is a state-of-the-art commercial/industrial hub in the Hills District. Norwest Business Park offers its occupants the benefit of a Master Scheme and its unique collaborative approach to planning with Baulkham Hills Shire Council. Norwest has developed as Sydney's second largest suburban business park over the past 10 years (after Macquarie Park).

To date over 400 companies have relocated to Norwest Business Park and over 17,000 people work here. In excess of 375,000sqm of business space has been developed, equating to over $1.5 billion of investment. Just over 23,000sqm of office space is currently under construction and expected to be added to stock over 2009 and an additional 79,300sqm in plans approved / plans submitted stages.

Norwest has been successful at attracting those firms seeking a fully integrated working environment at cheaper rents than the CBD and other established suburban office markets. Unlike North Ryde, where the focus has been on distinct industry groups (eg IT and Telecommunications and Pharmaceuticals), Norwest has attracted a broader range of tenants but most have been manufacturing or retail/wholesale companies, with few traditional CBD occupiers (finance / insurance and business services).

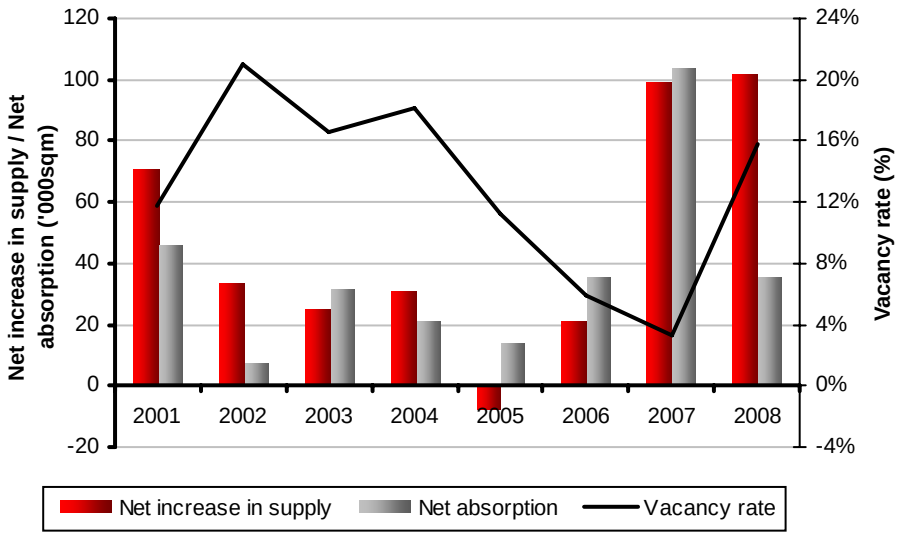
2.4 Supply and Demand

2.4.1 Macquarie Park

Despite a solid supply pipeline over the medium term, Macquarie Park is expected to face limited competition from the established office markets between 2009-11 as there will be limited supply of new office space. There is 27,700sqm across two projects with planning approval in Chatswood and only 1,900sqm of commercial office space in a mixed used development underway in St Leonards. Completions are expected to pick up from 2011 onwards, mainly in the Sydney CBD.

Figure 2.12: Supply and demand dynamics, Macquarie Park

Source: Jones Lang LaSalle Research & Consulting, as at Q4/2008



The recent spike in development activity has been brought about by planning changes (new Master Plan / LEP), new transport infrastructure projects (Lane Cove Tunnel and three new train stations), solid demand conditions in 2007 and limited supply in the more established Sydney office markets. Net supply of 46,700sqm per annum has been above net absorption of 36,700sqm per annum on average over the past eight years (2001 – 2008) and the boost in supply over 2008 resulted in the vacancy rate hitting a three year high at 15.75% at December quarter.

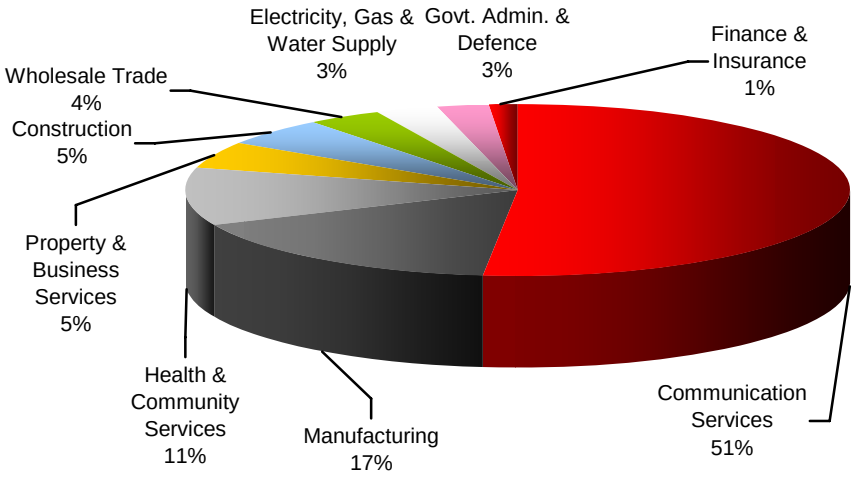
The analysis of future supply of new office space highlights the solid supply pipeline in Macquarie Park, with 397,000sqm of identified new office space expected to be built 2009 onwards, subject to market conditions:

- 2009 = 36,400sqm under construction (76% still available for pre-lease).
- 2010 = 179,000sqm across projects with DA approval and 100% still available for pre-lease. This is across projects that are most likely to proceed and where a tentative completion date has been provided by owner / developer.
- An additional 79,600sqm is in planned / mooted stages to be completed in 2010 and beyond.

Net demand has been lumpy and averaged about 173,800sqm in the past three years (compares with annual average of 36,700sqm between 2001 and 2008). Figure 2.3 shows the recent industry breakdown of net demand, with Communication services, Manufacturing and Health & Community Services (eg. Pharmaceutical companies) being the dominant occupiers taking up space. Demand has largely come from existing firms in the Macquarie Park market increasing their space requirements as well as firms relocating from outside the market from areas such as the North Shore and Western Sydney.

Figure 2.13: Demand profile, Macquarie Park (2006-08)

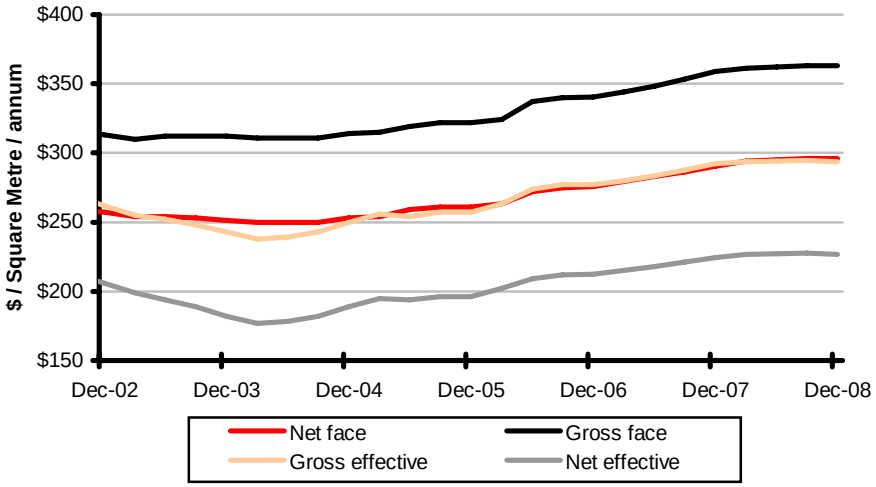
Source: Jones Lang LaSalle Research & Consulting



Despite weak tenant demand and the addition of uncommitted stock leading to an increase in the vacancy level in 2008, rents continued their upward climb in line with the trend witnessed over the past four years. Prime gross effective rents increased by 4.1% per annum between Q4/2004 and Q4/2008 to average at $294 per sqm per annum. Incentives ranged between 20-22% over this period (based on five year lease).

Figure 2.14: Prime grade rents, Macquarie Park

Source: Jones Lang LaSalle Research & Consulting



Looking forward, rental growth is likely to be subdued over the short term with a number of large speculative projects in the pipeline for 2009 and more developments waiting for pre-commitments before proceeding. Overall, Macquarie Park continues to offer a substantial rental advantage (prime gross effective rents) when compared to the neighbouring markets of North Sydney ($454 per sqm p.a.), St Leonards ($394 per sqm p.a.) and Chatswood ($361 per sqm p.a.) that makes it attractive to tenants looking for rent-effective quality suburban office locations.

2.5 Benchmarking / Price pointing / Differentiation

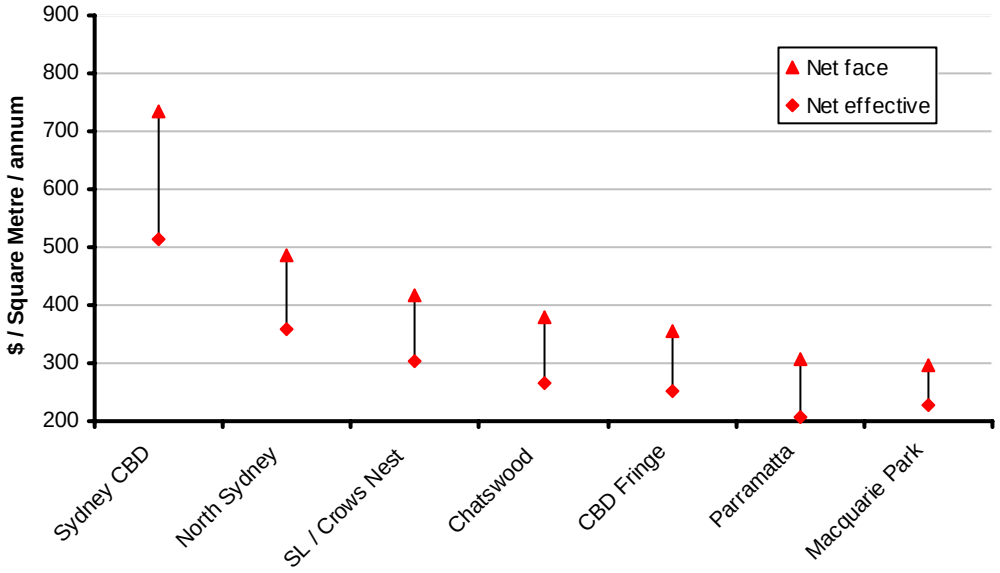
Table 1.1: Benchmarking of suburban occupancy costs (prime / brand new space)

Source: Jones Lang LaSalle, Research & Consulting

Market	Total office stock (% prime grade)	Ave. Net Rent ($/m²/yr)	Outgoings ($/m²)	Incentives (10 yr lease)	Car parking rate ($pspcm)	Car parking ratio
Sydney CBD	4.76 million Sqm (53%)	Face = 734 / Eff. = 515	139	20%	$700 - $1,000	Maximum number = $\frac{\text{Total other FSA}}{\text{Total FSA within development}} \times \frac{\text{Site area}}{50}$
CBD Fringe	386,200sqm (45%)	Face = 354 / Eff. = 252	91	17.5%	$350 - $450	Bondi - 1 per 100 GFA Pyrmont / Ultimo - 1/100 1/150 – north of Pyrmont Bridge Rd 1/200 – south of Pyrmont Bridge Rd South Sydney – 1/125 GFA
North Sydney	840,300sqm (40%)	Face = 486 / Eff = 358	97	20%	$500 - $550	1/400 GFA
St Leonards (SL) / Crows Nest (CN)	95,200sqm (28%)	Face = 416 / Eff. = 305	89	19%	$300 - $400	SL - 1/400 GFA / CN – 1/60 GFA
Chatswood	149,900 sqm (50%)	Face = 378 / Eff = 264	97	22.5%	$300-$400	1/200 NLA
Parramatta	334,000 sqm (50%)	Face = 308 / Eff =206	75-90	17.5%	$225-$240 (7,000 on street & off street spaces)	1/100 GFA
Homebush Bay/Rhodes	Approx 235,300 sqm (100%)	Face = 295-340 / Eff = 245-295	60-70	17.5% (5yr lease)	$130-$140	1/35 GFA
Norwest Business Park	Approx 377,000 sqm (100%)	Face = 295-330 / Eff 265-300	50-60	10% (5yr lease)	No Cost	1/25 GFA
Macquarie Park	509,400 sqm (100%)	Face = 296 / Eff =277	55-70	17.5% (5yr lease)	$150-$200	1/46 sqm (FSR 1:1) 1/70 sqm (1.5:1) 1/80 sqm 2:1 & 3:1)

Figure 2.15: Average prime grade office rents

Source: Jones Lang LaSalle Research & Consulting, rents based on 10-yr lease term



3. Stakeholder Consultation

3.1 Structured interviews

Structured interviews were undertaken with key stakeholders in Macquarie Park. Stakeholders included major tenant, developers, investors and owner occupiers. The 'tenure' profile of Macquarie Park is such that a limited number of each of these major classes has major stakes in occupancy or ownership in the locality. The following organisations were interviewed;

- St Hilliers
- Foxtel
- Investa
- Stockland
- Goodman Group
- Siemens
- Boehringer Ingelheim
- Johnson & Johnson Medical
- Alstom
- ING
- Orix

3.2 Stakeholder comments

Generally one on one interviews were conducted based on structured prompts to standardised questions. A summary of the key points drawn from the interviews are detailed below (*stakeholder's comments in italics*);

Location

- *High tech bias.*
- *Suits needs, co location near like users.*
- *Near worker pool or relocated with worker pool.*
- *Good branding with critical mass.*
- *Poor local amenity; no worker friendly retail high streets, hotels, leisure or recreation accessible.*
- *High car dependency / modal split. Often a large and mobile sales force.*

Performance and competitive set

- *Worse than other markets due to international bias.*
- *Better than other markets due to yields being less volatile.*

- *Large speculative pipeline (with a high parking ratio that provides more carspaces per net lettable area) that needs to be absorbed first before new development (with a low parking ratio with a lower number of carspaces per net lettable area) will commence.*
- *All occupancy costs are under pressure.*
- *Robust for future needs allowing campus development.*
- *Suits multi national's requirements.*
- *Homebush / Rhodes has no mass, South Sydney is most competitive due to the nature of occupiers such as international corporates, Norwest is different product.*

Traffic and transport

- *Highly congested through traffic at peak times.*
- *All interviewed marked M2 access and though traffic as very important.*
- *Emergency services access at peak is a concern.*
- *ECRL will have little impact on present workforce in moving from existing transport to train.*
- *ECRL needs the missing link to west.*
- *Limited real efforts with public transport initiatives.*

Parking

- *Highly competitive offer "with" parking, however rates are reasonably stable.*
- *Lost tenants to alternate locations due to cost (NAR) and higher carparking ratio.*
- *Buildings and localities without high ratios are significantly less competitive.*
- *Recently installed meters are affecting traffic flows.*
- *Appears to be structural change with loss of parking at MPSC and University, this may accentuate parking issues.*
- *The 'life cycle' of parking cost was just on upswing when GFC impacted. As a precinct evolves then parking moves from no cost through to full cost.*
- *Parking rates were beginning to break out prior to GFC.*

4. Commercial Viability

4.1 Influences

Overall

The carparking ratio for the competitive set is detailed below in terms of prime space only.

Carparking ratios (space / NLA)

Locality	Ratio
Sydney CBD	625
North Sydney	400
Chatswood	200
CBD Fringe	135
Parramatta	100
Macquarie Park	65
Homebush Bay / Rhodes	35
Norwest Business Park	25

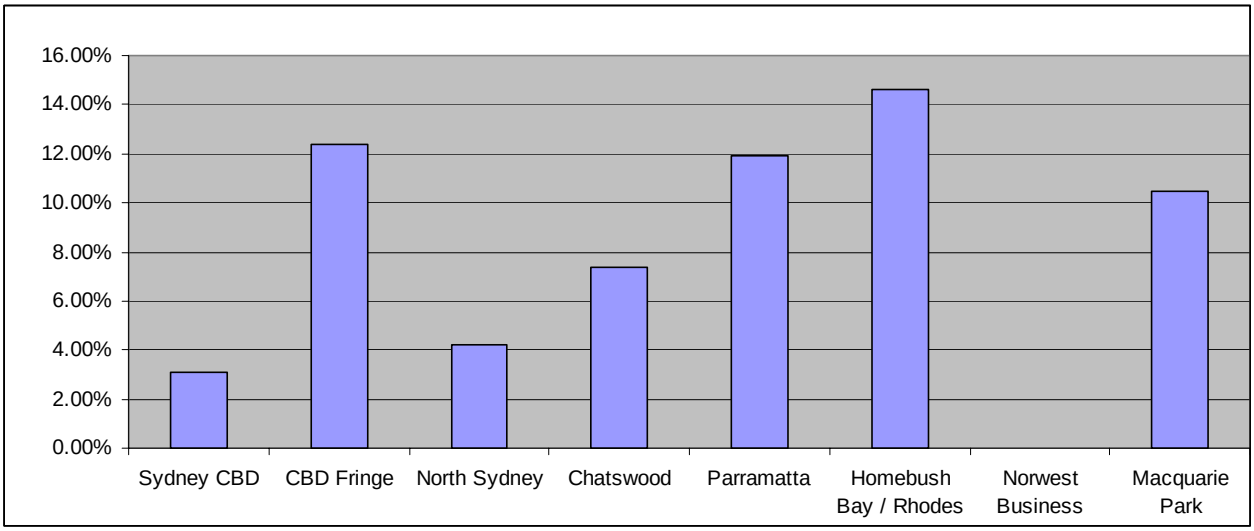
At a broad average of existing parking supply relative to prime space, Macquarie Park falls to the higher provision with a more generous ratio than many of its more direct competitors.

The chart over leaf broadly considers the cost of parking relative to office space at each location. This is calculated by multiplying the cost of total developed prime space and the potential number of carspaces to derive a percentage of parking cost in the locality.

Macquarie Park precinct has been compared to other commercial locations that it competes with. The comparison has been assessed by determining the total cost of parking for all cars within the precinct. This total cost figure then provides a basis to compare, at a precinct level, the competitiveness against other locations.

Figure 4.1: Relative cost of parking

Source: Jones Lang LaSalle Research & Consulting



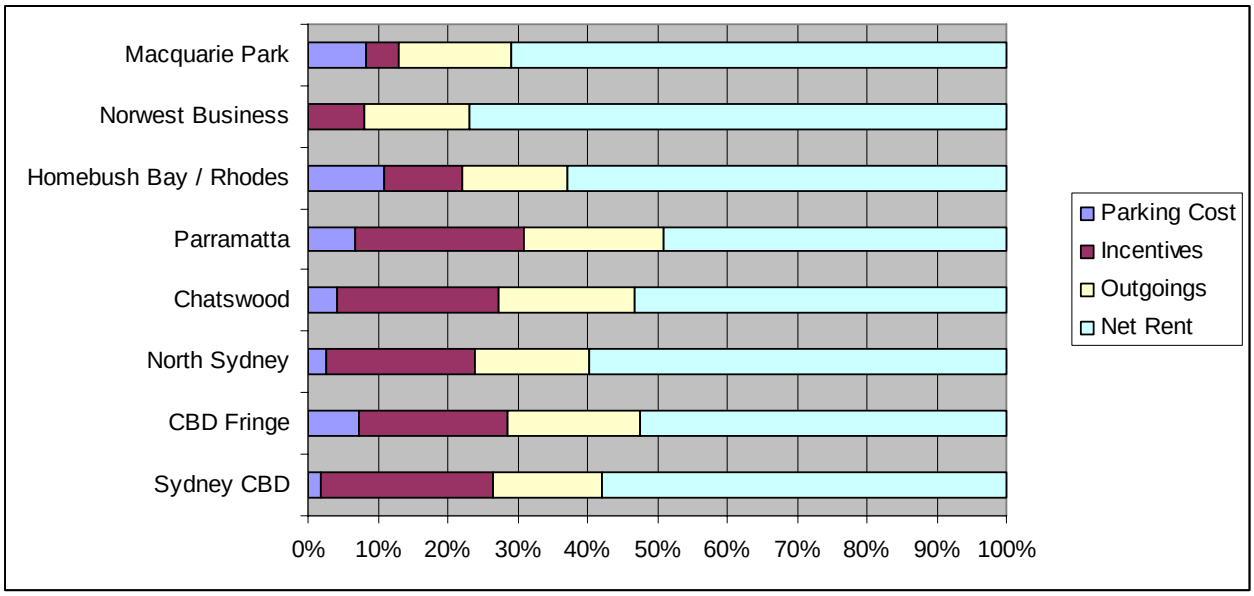
The relative cost of parking to the precinct at Macquarie Park is broadly midway against other localities. Generally as a location the area does not have a greater proportion of cost compared to the competitive set.

Site specific

The chart below has been derived from an example development of 10,000sqm NLA and plots the relativity of each of the major variables (incentives, parking, rent and outgoings) on total occupancy cost.

Figure 4.2: Proportion of total cost for new development

Source: Jones Lang LaSalle Research & Consulting



Further comparisons of the proportionate influence of parking on total occupancy cost are detailed in the chart below.

Proportion of total cost for new development

Locality	Parking	Incentives	OPEX	Net rent
Sydney CBD	2%	25%	16%	58%
North Sydney	3%	21%	16%	60%
Chatswood	4%	23%	20%	53%
CBD Fringe	7%	21%	19%	52%
Parramatta	7%	24%	20%	49%
Macquarie Park	8%	5%	16%	71%
Homebush / Rhodes	11%	11%	15%	63%
Norwest Business Park	0%	8%	15%	77%

Macquarie Park has parking as the second highest proportion of occupancy cost behind Homebush Bay / Rhodes. Rhodes Business Park has a well established public transport linkage / train as a key location driver, however also has a high parking cost and generous provision.

4.2 'Developability'

Considering costs and returns in a development then the following key drivers are noted;

- Generally development costs for the same nature of construction will be similar at each location throughout the metro area.
- The cost of developing a basement carspace is approximately $27,000 to $40,000 / bay. Direct returns for carspaces at Macquarie Park are approximately $30,000 / bay. At present carspaces are not overly profitable components in themselves.
- The balance between costs and returns relates more to the ability to be able to attract and retain a tenant. Therefore the impact to development cost will be noticed in the let up period and incentives in a speculative development or the holding period to development in a pre committed development.

5. Summary

5.1 Market area

Macquarie Park has a total office stock of 509,400m2, and is now the 5th largest Australian office market.

Macquarie Park competes with Sydney CBD, Sydney fringe, North shore markets, Homebush / Rhodes, Norwest and Parramatta.

The spike in development activity pre 2009 was brought about by planning changes (new Master Plan / LEP), new transport infrastructure projects (Lane Cove Tunnel and ECRL with three new train stations), solid demand conditions in 2007 and limited supply in the more established Sydney office markets.

5.2 Current market conditions

There is a solid supply pipeline with 397,000sqm of new office space expected to be built 2009 onwards:

- 2009 = 36,400sqm under construction (76% still available for pre-lease).
- 2010 = 179,000sqm across projects with DA approval and 100% still available for pre-lease. This is across projects that are most likely to proceed and where a tentative completion date has been provided by owner / developer.
- An additional 79,600sqm is in planned / mooted stages to be completed in 2010 and beyond.

The current vacancy level of 14.5% is well above the 5.0% recorded in Q1/2008; the main reason for the shift upwards in vacancy is the large amount of non-committed new supply which entered the market in 2008.

Gross effective rents have shown a decline of 2.6% in comparison to figures recorded in Q4/2008, this figure mirrors the annual decline of 2.6%.

Prime investment yields for Macquarie Park remained stable in the upper range and shifted 25 basis points in the lower range to 8.00%-8.75%.

5.3 Commercial stakeholder views

Summary comments from the stakeholders *(in italics)* included;

Location

The locality mix has a high tech bias that suits occupiers' needs. It provides co location near like users and is near the current worker pool or relocated with worker pool.

The precinct has good branding with critical mass, however poor amenity.

Due to the nature of present occupiers there is a high car dependency / modal split. Occupiers often have a large and mobile sales force.

Performance and competitive set

Occupancy costs at all competitive locations are under pressure. Macquarie Park has performed worse than other markets due to its international bias. However it is a robust location for future needs allowing business park development that is suitable for contemporary occupier's requirements.

The area has a large speculative pipeline (approved with a high parking ratio) that needs to be absorbed first before new development (with low parking ratios) will commence development.

Apropos of competitors, Homebush / Rhodes have no critical mass, South Sydney is the most competitive and Norwest offers a different product. Other markets offer different product types (commercial towers).

Several stakeholders indicated that the restrictions on the nature of the occupiers due to the current planning regime will reduce the market pool or number of potential occupiers. At present the occupiers are restricted and due to the nature of their business have a high bias towards car use. Relaxation of prescriptive controls that prevent all commercial users occupying space will access a wider worker pool, more potential occupiers, greater public transport use and assist in underwriting commercial competition.

Traffic and transport

The area is highly congested with through traffic at peak times. M2 access and through traffic are very important. Emergency services access at peak is a concern.

ECRL will have little impact on present workforce in moving from existing transport to train. ECRL needs the missing link to west. There have been limited real efforts with public transport initiatives.

Parking

Tenants have been lost to alternate locations due to cost (lower net rentals) and higher carparking ratio (greater availability of car parking). Buildings and localities without high carparking ratios and therefore lower numbers of carspaces are significantly less competitive. Other areas have more carspaces effectively lowering costs...

There is presently some structural change with loss of parking at MPSC and University, this may accentuate parking issues. Recently installed meters are affecting traffic flows.

The 'life cycle' of parking cost was in upswing and parking rates about to increase significantly higher, when the GFC impacted. Whilst it is currently a highly competitive commercial offer 'with' parking, the cost of carparking / rates are reasonably stable without rapid growth.

The stakeholders provided a wide variety of views as summarised above. Macquarie Park retains its attractiveness against its competitive set, however there is pricing pressure.

The subdued financial climate will focus development on the buildings under way.

The structural change and effects from development at MPSC and the University together with the recent opening of the ECRL have all yet to be determined.

5.4 Commercial viability

In terms of the commercial precinct Macquarie Park has a more generous carparking ratio than many of its commercial competing locations. The total cost of parking to the precinct at Macquarie Park is broadly midway against other localities. Macquarie Park does not have a greater proportion of cost for parking compared to the other centres that it competes against (Rhodes, Norwest, Sydney etc.). The greatest cost of parking at a precinct level is Rhodes followed by Parramatta, CBD fringe and then Macquarie Park.

Parking at Macquarie Park is the second highest proportion of total occupancy cost when compared to other similar and competing locations. It is behind Homebush Bay / Rhodes and only slightly more expensive than the CBD fringe and Parramatta. In relative cost terms Macquarie Park has a high component cost for parking with other centres such as Sydney CBD, North Sydney and Chatswood being more competitive. This is a product of both achievable rentals as well as the contribution of parking cost.

At present carspaces are not overly profitable components in themselves with costs and returns relatively neutral. However, the balance between costs and returns on carparking relates more to the ability to be able to attract and retain a tenant. In broad terms the impact to development cost is in the let up period and incentives in a speculative development, or the holding period in a pre committed development.

We have conducted hypothetical market based feasibility exercises on a range of commercial office developments with car parking allowances under the present LEP. In the current market the costs of development outweigh the end values and returns and therefore the developments are not feasible, with varying degrees of negative returns demonstrated.

Finally, and in accordance with our normal practice, no responsibility is accepted to any third party and neither the whole of the report or any part or reference thereto, may be published in any document, statement or circular nor in any communication with third parties without our prior written approval of the form and context in which it will appear.

Troy Griffiths

National Director, Strategic Consulting

12 October 2009

6. Appendix 1 – Economic Update to Q2 2009

National

- The current development cycle for office completions will peak this year. There are few new projects at this point in time and the supply pipeline for 2010-11 continues to contract.

- During Q2 2009 completions included Tower2 (275 George Street, Brisbane), Century City (100 St Georges Terrace, Perth), and the Attorney General's Department (3-5 National Circuit, Barton, Canberra). The Melbourne Fringe market also recorded several completions.

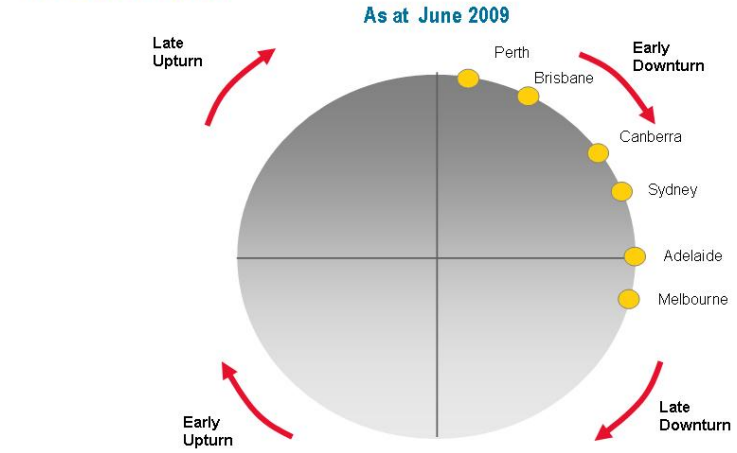
- Corporations continue to downsize and rationalise their real estate portfolios. New demand for office space continues to be weak with activity related to lease expiry profiles.

- In contrast to the other CBD markets, Perth, Canberra and Melbourne are expected to record positive absorption. With no completions in Q2/2009, the Melbourne result is attributable to relocations from Fringe locations into the CBD.

- With a flat absorption result expected across the national office markets, the completion of new stock is likely to result in the headline vacancy rate increasing in Q2/2009. Vacancy will rise in the majority of markets.

- Rents remain under pressure in CBD office markets. Weak demand for backfill space in Perth and Brisbane following development completions has accelerated the decline in rents achieved. A further rise in Sydney incentives has taken them out to the highest level since 1994. Melbourne and Canberra rents stabilised in Q2/2009, with a sub 1% reduction in prime net effective rents expected.

The Rental Property Clock – Office Market Prime Gross Effective Rents



Jones Lang LaSalle

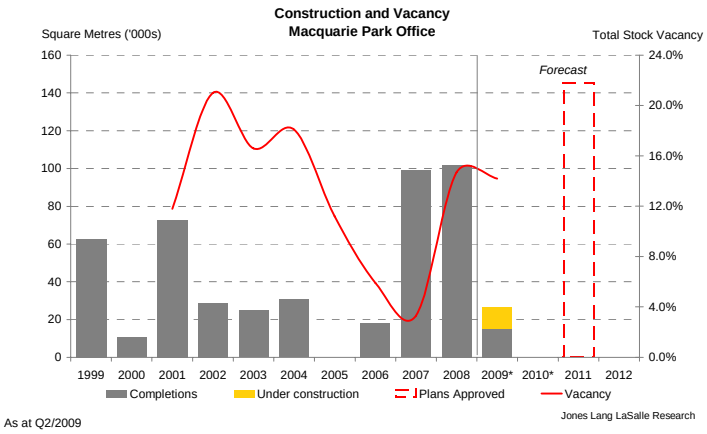
Jones Lang LaSalle Research

- Yields have softened further during the quarter. Prime equivalent yields softened by around 25 basis points and secondary yields by between 25 and 50 basis points on average during the quarter.

- Investor interest in commercial assets increased in Q2/2009. Private (both local and international) investors dominated transactions below AUD 60 million. A number of larger transactions above AUD 100 million were also recorded for the quarter. This quarter the major transactions included the purchase of 15W at 15 William Street, Melbourne (AUD 167 million), Industry House at 10 Binara Street, Canberra (AUD 123 million) and the Grenfell Centre at 25 Grenfell Street, Adelaide (AUD 76 million).

Macquarie Park

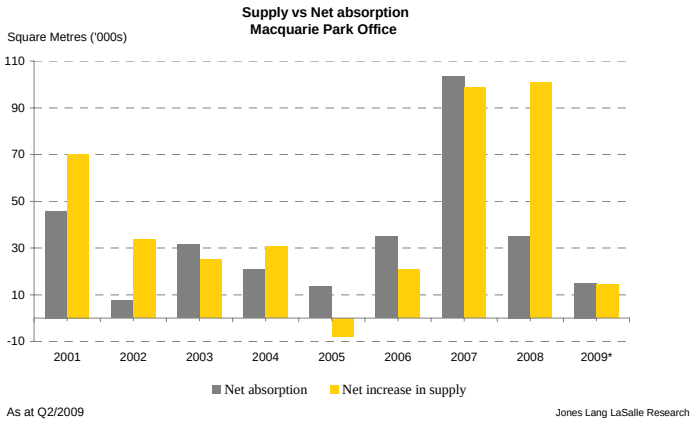
Supply



The supply cycle peaked in 2007-08 and will end in 2009 with around 26,000 sqm completed or due to complete during this year.

No new office supply will complete during 2010 and it is unlikely there will be any significant new supply before at least 2011. There is, however, almost 170,000 sqm of new office space is in the supply pipeline currently proposed or approved for completion by 2013.

Demand

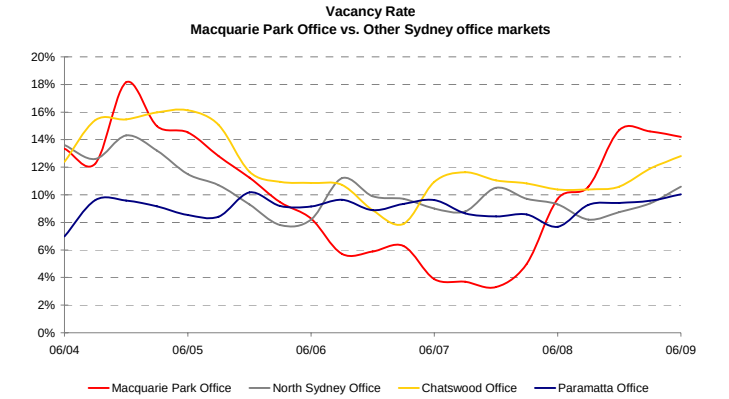


In recent years Macquarie Park has been an emerging supply-led market, with net absorption matching supply in most years as tenants have pre-committed to new supply. However, vacancy spiked sharply higher in 2008 as speculative stock increased and demand tapered off.

There was 14,900 sqm of recorded net absorption in Q2/2009. This was due to the take up of vacant office space by tenants that were previously occupying space in buildings classified as industrial and not included in the Macquarie Park stock base, artificially inflating the net absorption figure.

While no large ($\geq$ 1,000 sqm) contractions were recorded in Macquarie park during Q2/2009, some tenants are testing the market with stock offerings in anticipation of potentially downsizing and relinquishing space.

Vacancy

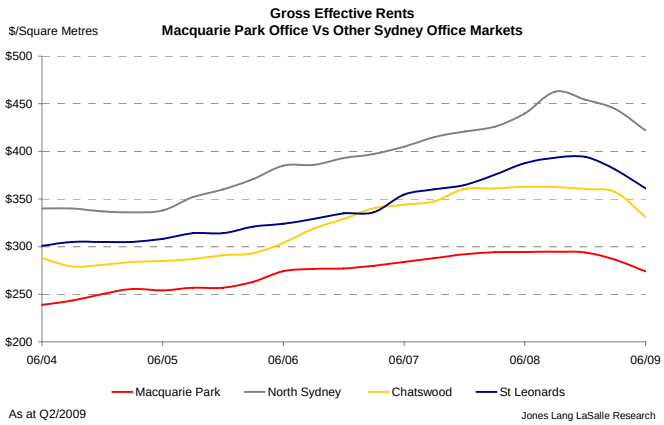


Vacancy in Macquarie Park declined 0.4 percentage points to 14.2% in Q2/2009. Despite the decline the vacancy rate is well above the average recorded since monitoring began on the market in 2001 (12.2%) and is also the highest vacancy rate of all the monitored office markets.

Strong supply additions during 2007-08 have substantially contributed to the high vacancy rate in Macquarie Park. During this period, the market underwent a net increase in supply of nearly 200,000 sqm, increasing the amount of office stock in the market by 65%. During the strong market of 2007 most of the new stock was absorbed and vacancy declined. However, as supply additions continued and economic conditions began to deteriorate, the market failed to absorb the stock and vacancy has increased. Between Q4/2007 and4/2008 the vacancy rate grew from 3.3% to 14.7%.

No new office supply is expected during 2010 and possibly 2011. This absence of supply in the short to medium term will help limit further increases in vacancy.

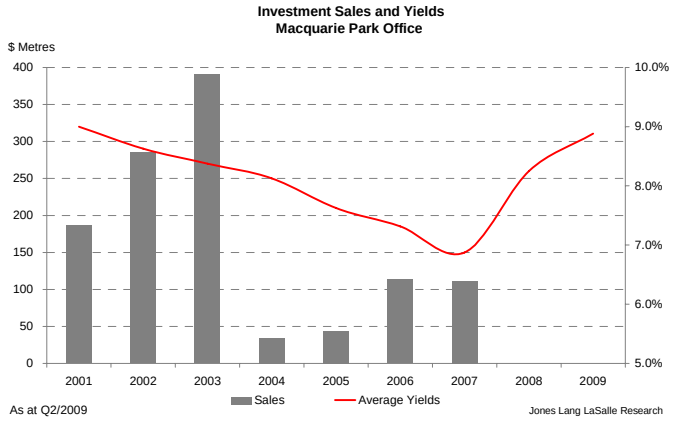
Rents



The high vacancy rate allows many options for tenants seeking space in the current environment, creating a competitive leasing market. This has resulted in landlords needing to offer higher incentives to attract tenants, with average incentives increasing from 12 to 15 months on a 5 year lease. This is also the highest that average incentives have been since Q2/2004.

Higher incentives have reduced effective rents since the peak in Q3/2008. Prime gross effective rents declined 4.3% in Q2/2009 to average AUD 274 per sqm p.a. which is the largest quarterly decline since monitoring of the market began in Q2/2001. Prime gross effective rents have declined 7.0% since rents peaked.

Investment Climate



There have been no major transactions (≥ AUD 5.0 million) recorded since 2007. While such transactions are not common in a small market like Macquarie Park, the limited transactional activity also reflects the commercial office market nationally where activity has declined sharply since 2007.

Prime investment yields for Macquarie Park have further softened in Q2/2009 to range from 8.75% to 9.00%. Average yields have softened by 200 basis points since the peak of the market in Q4/2007 with further decompression of yields still possible in the current economic climate.