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Herring Road Urban Activation Precinct

CITY OF RYDE

August 12, 2014

Executive Summary

Council has undertaken a review of the Planning Report and associated documentation for the Herring Road Urban Activation Precinct (UAP). In light of the information placed on Public Exhibition, Council has significant concerns regarding the UAP. These concerns are such that Council cannot support the proposal in its current form and strongly rejects its approval; Council has persistently raised these concerns.

This submission, details Council's many issues and concerns regarding the proposal, including:

- The excessive level of development and density is out of context within the existing Macquarie Park Business Corridor and the controls proposed by Council in Amendment 1 to Council's Ryde Local Environmental Plan 2014.
- The UAP fails to consider in a holistic manner the level of development achievable under Council's Amendment 1, existing approvals and the proposed planning controls. This must be undertaken to ensure that the impact of the proposal on Macquarie Park and surrounding communities is given due regard.
- Likelihood of significant development density beyond that envisaged by the UAP. The Planning Report identifies a maximum of 5,400 dwellings in 2031, whilst the end state of the proposal will be beyond 15,000 dwellings.
- The inability of the existing and proposed infrastructure to cater for the additional levels of growth proposed by the UAP, especially in light of:
    - The minimal amounts of additional open space proposed as part of the precinct. The only identified area of additional open space (park 9) is currently used by the community as open space. The areas surrounding Kikkiya Creek have not been clearly identified as open space in the proposed zoning controls
    - There is no certainty regarding the delivery of the Community Facility within the Macquarie Shopping Centre. Inadequate consideration of the community facilities required to support a development of the scale proposed has not been detailed. This includes libraries, schools, childcare centres, cultural facilities and open space.
    - The proposed use of Section 94 to provide infrastructure has not been predicated on any analysis of costs of infrastructure or likely Section 94 contributions which could result in Council with potential funding liabilities.
    - The UAP should be subject to a Planning Incentive scheme similar to that detailed within Amendment 1. Failure to incorporate the UAP into Amendment 1 will result in a funding shortfall in excess of $7 million.
    - No commitment to the delivery of a Bus Interchange within the precinct. This is a medium term commitment that is required to be delivered based on the forecasting of bus demand undertaken by Council. To ensure its delivery in the medium term, commitment to the design and development of the interchange is required in the short term.
    - Uncertainty regarding the suitability of the width of Herring Road to cater for the proposed and likely travel demands given the potential light rail, need for bus priority lanes, cycle infrastructure, car lanes, landscaping and pedestrian footpaths.
- The proposed built form strategy will not deliver the indicative scheme detailed within the Planning Report. The proposed setbacks and street wall requirements will result in an urban form greatly different from that shown in the 3D images and indicative schemes.
- The strata unit area contained between Herring Road, Shrimptons Creek and the Ivanhoe Estate is unlikely to be redeveloped in either the short or long term due to the number of strata title units present. The ramifications and impacts of this have not been adequately considered.

- Failure to undertake extensive consultation with the residents of Ivanhoe Estate and provide them a sense of certainty regarding future redevelopment of the site.
- Unrealistic consideration of the traffic and transport demands to be generated by the UAP and the surrounding areas, In particular, the proposal fails to give due regard to the uplift afforded by the development and what this will mean for the rest of Macquarie Park.
- The parking rates that are proposed are higher than the minimums provided within the rest of Ryde. This is not in keeping with a Transit Orientated Development.
- Failure to give due regard to existing Riparian Corridors.
- The proposed zoning controls are likely to have extensive impacts on the wider LGA by virtue of encroachment of residential land uses within the Macquarie Park Corridor. In particular, the proposal will allow residential land uses on the University and rezones existing B3 Commercial Core and B7 Business Park land as B4 Mixed Use. The proposal also seeks to allow signage within B4 Mixed Use zones.
- Lack of consideration and appropriate assessment of the impacts that would occur in the city from the rezoning of the University from a Special Use zone to B4 Mixed Use.
- The development of an Infrastructure Implementation Program and an associated funding mechanism to ensure the delivery of infrastructure within the development process
- The development and implementation of an Integrated Transport Strategy to ensure the identification and delivery of transport infrastructure, which is integrated with the rest of the Corridor and the existing networks within Ryde.

Given the extent of concerns identified within this submission, Council would like to extend an offer of staff assistance to resolve the UAP in a mutually acceptable manner as it has tried to consistently do since the UAP was announced. In Council's opinion this would include the matching of the genuine interests that the State Government is looking to fulfil with the UAP with the professional advice from Council staff as to how best these items be achieved in the context of Macquarie Park.

As detailed at length within this submission, Council continues to have ongoing concerns regarding the UAP and strongly urges the State Government to reconsider the proposal and the resultant built form proposed. Ryde Council has consistently raised the issues contained in this submission with the Department of Planning and Environment but they have not been adequately considered. Council has also expressed significant concerns about how the UAP process has been administered and the failure to engage in a partnership approach to the UAP in a manner acceptable to Council.

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Planning Pathway and Consultation

Urban Activation Precincts

Council initially nominated the UAP as it was predicated on the co-ordinated delivery of infrastructure to support it and that Council would be an integral partner as part of the process. It is noted that the *NSW Urban Activation Precincts Guideline* identifies that the process and policy are based on the following principles:

- A strategic precinct-based approach (rather than a single site or development)
- Close involvement with local government at an early stage and throughout the process as an integral partner
- Precincts located in close proximity to existing and planned transport and service infrastructure
- Precincts, zones and development controls that are based on financial viability and affordability, and reflect market demand and investor feasibility.

In Council's opinion, it is not considered that the Herring Road UAP reflects these principles. In particular:

- Council was not closely involved in the design or drafting of the planning controls for the UAP with the majority or work being undertaken by the Department and its consultants.
- The precinct fails to adequately detail or address financial viability and affordability by virtue of insufficient consideration of the strata total area to the south of Herring Road.
- Consultation discussions occurred but comments were ignored or not responded to.
- No acknowledgement of the strategic planning work Council has undertaken in the precinct.

Council staff and Councillors have been invited to participate on agency working groups and Steering Committees; however their input seems to carry little weight in the decision making process. Several comments have been provided by Council with little to no amendments being made in the proposal or response / reasoning of why our issues were not incorporated into the Planning Report. These comments have been provided in letters and memos to the Department but to little avail.

Council is also disappointed in the lack of detail contained within the UAP Planning Report and associated studies. It is again noted that the *NSW Urban Activation Precincts Guideline* provides significant detail as to the sorts of studies to be undertaken as part of an UAP. Whilst it is recognised that studies are required where deemed necessary for the precinct, the studies that are identified in the Guideline that must be undertaken in Council's opinion are as follows:

- *Constraints and opportunities of the precinct, including environmental, social and economic factors as well as existing characteristics of the area or neighbourhood* – The proposal treats the UAP in isolation and does not afford any consideration to its context with the Macquarie Park Corridor and immediate surrounds.

- *Financial viability and investor feasibility* – as identified previously, no economic analysis has been provided for review and it appears as though the strata unit area south of Herring Road is unlikely to ever be redeveloped. No economic justification has been provided for the FSRs proposed.

- *Access to appropriate transport and service infrastructure* – A key reason why Council nominated the Herring Road UAP is to ensure that sufficient infrastructure was provided to support the redevelopment of this area. Whilst Council acknowledges the existing

infrastructure provided previously, a crucial item not adequately dealt with under the UAP is a future bus interchange on Herring Road. This is dealt with later within this submission.

- *Infrastructure growth requirements and any proposed contribution arrangements* – The proposed use of Section 94 Contributions to fund almost all infrastructures associated with the UAP is not based on any detailed analysis of the costs of the infrastructure or the likely contributions to be paid to Council. It is unclear whether there will be sufficient funding available for Council to deliver the infrastructure. Furthermore some of the infrastructure such as the community facility within the Macquarie Shopping Centre is not a guaranteed deliverable.

- *Appropriate land uses and proposed zonings, and development standards* – As identified at length within this submission, Council does not believe that the proposed development standards are reasonable or acceptable given the context and likely impacts on existing road networks and other infrastructure, amenity and scale of development proposed.

- *Implications of any proposed land use for local and regional land use, infrastructure, service delivery and natural resource planning* – The proposal may establish a precedent for development not in context with Macquarie Park. Council recently refused two planning proposals that failed to address the strategic intent and direction of Macquarie Park. This also extends to establishing a precedent for substantially higher FSRs and heights for the greater Macquarie Park region. The proposal does not give due regard to the implications for infrastructure and service delivery as detailed at length within this submission.

- *Growth Infrastructure Plan that identifies the capacity within the network and required State infrastructure to support planned growth* – Within the Planning Report, there is only consideration of the need to undertake a whole of network strategy but no reference to a Growth Infrastructure Plan. In Council's opinion any such plan MUST include the delivery of the transport interchange.

- *Funding for local government to provide local infrastructure required for the precinct to address pressures arising from population growth* - There is insufficient funding or guarantee of funding to address the additional population pressures proposed under the UAP. This has the potential to leave Council with a significant funding shortfall in the future.

The Guidelines also identify that '*If the State government decides to proceed with rezoning an Urban Activation Precinct, the following policies will assist the delivery of the precinct…. Growth Infrastructure Plans (GIP) – identifies capacity within the infrastructure network and outlines the infrastructure required to support the planned growth. The GIP would input into the State government's budget allocation process to ensure coordinated delivery of State infrastructure for the precinct.*' (p. 13). No comment regarding a Growth Infrastructure Plan has been provided within the UAP Planning Report. In Council's opinion the dedication of funding to the infrastructure to support the precinct should be provided prior to the gazettal of the UAP. Or alternatively, the development potential proposed under the UAP should be deferred until the Growth Infrastructure Plan is approved.

Consultation

Following a series of community and landowner workshops to introduce the project and explain the process going forward, a Community Reference Group (CRG) was established to provide community input the project. These meetings, while useful, only occurred in the early stages of the project (March and June 2013). Since June 2013, the CRG has not met or been update. This

has resulted in considerable uncertainty and anxiety; particularly for the local residents of Ivanhoe Estate.

While Council understands community feedback provided during the public consultation phase was considered, the Proposal has not significantly changed from when first released; despite the concerns raised by the community (and Council) regarding the scale, density and infrastructure road network of the Proposal.

To broaden feedback into the draft Proposal, consultation was also undertaken with key stakeholders including: AMP Capital, Macquarie University, key landowners such as Goodman, Baptist Community Services and Stamford Property Services, as well as relevant Government Departments. Council was specifically invited to participate on a Herring Road Agency Working Group and Steering Committee.

Unfortunately, Council saw this as a lost opportunity, with the meetings seemingly only to provide 'briefings about investigations' rather than an opportunity to discuss the key issues and seek Council input. In particular, Council raised concerns that the Steering Committee was not providing the strategic direction for the UAP, and was merely reviewing the work undertaken by the Working Group. The Agency Working Group failed to deliver the interaction anticipated, with the infrequent meetings often cancelled or postponed with short notice. Council raised specific concerns regarding the 'Terms of Reference' of the Steering Committee in its letter of 17 April 2013.

Council has provided regular feedback to the Department on key issues including:

- An appropriate funding mechanism for infrastructure delivery;
- Inconsistency with Amendment 1 planning controls;
- Excessive scale and density;
- Net loss of open space;
- Lack of planning for a Transport Interchange; and the
- Need to consider the Herring UAP holistically within the Macquarie Park Corridor.

These concerns were highlighted in letters to the Department on 16 August and 17 November 2013. No formal response has been provided to these letters; many of these issues are still to be addressed.

Council was disappointed that it was not given the courtesy of 'advance warning' by the Department of Planning that the Proposal was to go on exhibition on Thursday 26 June 2014. This frustration was also shared by the residents of Ivanhoe Estate who once again heard the news via the media. A more inclusive approach to communication would build greater trust and cooperation.

Dwelling Numbers and Development Potential

It is noted that the UAP Planning Report has identified a total approximate maximum dwelling numbers of 5,400 by 2031. Clarity must be provided detailing how this figure has been determined. Key questions that Council would like answered include:

- Is this predicated on any commercial floor space being delivered within the UAP outside of the Macquarie Shopping Centre? It is noted that there is some reference to multi storey commercial buildings along Herring Road but whether this is achievable or not is questionable.

- What is the assumed take up rate for the UAP?
- Is this the total end state for the Master Plan or the anticipated dwelling delivery at 2031?
- In determining the extent and range of infrastructure to be delivered, has this been determined at total end state of the UAP or dwellings to be delivered by 2031?

Council has undertaken a high level analysis of the FSRs proposed under the UAP Planning Report and concludes that the end state of the UAP will be approximately 1,558,068m^2. Assuming a 20/80 split between commercial and residential (likely to be significantly lower given current market trends) this will result in a total of 311,613m^2 of commercial floor space and 1,246,455m^2 of residential floor space.

Assuming a total residential land use of 80% (with 20% commercial), this result in a total of 12,464 dwellings. At an assumed occupancy rate of 2.1 persons per dwelling this would be a total population of 26,175. Given the entire Ryde LGAs current estimated population is 112,545, the UAP end state population would be equivalent to 23% of the current population. Given the extent of planning undertaken to date and the issues identified elsewhere within this submission regarding community facilities and infrastructure, this is alarming.

It is noted that the above figures are predicated on several assumptions which include but are not limited to:

- Predominantly residential land use within the UAP
- Total redevelopment of all sites within the UAP maximising the permissible floor space on the site.

Infrastructure Delivery

A successful precinct based master plan will rely on the appropriate and timely delivery of infrastructure. This will be predicated on the implementation of a funding mechanism to ensure that necessary community services and infrastructure can be provided. The ability of Local Government to provide new infrastructure will be limited without additional avenues and sources of funding.

The proposed levels of density are largely dependent on the various infrastructures to be delivered. This includes items such as:

- Community facility;
- Open space areas;
- Schools;
- Intersection upgrades;
- New roads;
- Upgrades and improvements to existing roads;
- Pedestrian and Cycleway routes; and
- Stormwater infrastructure.

There is little detailed consideration of sub-regional infrastructure planning in the Planning Report. It states that significant infrastructure has been provided previously and acknowledges that there are ongoing issues within the wider area that must still be resolved. The planning report identifies that '*…a strategic response to ensure that changes to transport infrastructure can support projected growth. Addressing these transport issues requires a whole-of-network planning strategy and a suite of measures that reduces reliance on car travel, enhances public transport and manages congestion and traffic flows efficiently'* (p. 69 Planning Report Herring Road UAP).

The Council requires a whole-of-network infrastructure planning strategy and implementation plan; this must take place before any approval is given to the Herring Road UAP. Without considering the whole of network, it cannot be determined that the proposed heights and FSRs are reasonable.

As identified previously by Council, a holistic approach for both infrastructure and planning need to be undertaken for the Precinct. Through requesting the endorsement of the proposed rezoning study without any guarantees that the necessary infrastructure will be delivered, the Department is requesting both Council and the community to take it on 'good faith' that the infrastructure will be delivered. The promise of NSW Government funding for infrastructure was the reason that Ryde Council nominated the area as a UAP.

Given the above, Council continues to have significant concerns regarding the proposed infrastructure and its delivery mechanisms. The proposal has not adequately detailed how the infrastructure is to be delivered within the precinct, given the significant development uplift afforded. In Council's opinion there has been insufficient detailed consideration of what the relative cost of the proposed infrastructure will be in comparison to the prospective funding streams.

Council is disappointed that the Department continues to insist on affording increased development potential on land owners without reasonable value capture mechanisms to ensure that sufficient funding is obtained to deliver infrastructure. This is particularly concerning given the extent of the total development potential proposed under the UAP.

Council is of the opinion that the significant development uplifts should be tied to the delivery of infrastructure. This would be in keeping with the rest of Macquarie Park which is to be subject to Amendment 1. Amendment 1 is a Planning Proposal to Council's *Ryde Local Environmental Plan 2014* that is currently being discussed with the Department. Amendment 1 was placed on exhibition June / July 2013 and was endorsed by Council on 22 October 2013.

Under Council's proposed Amendment 1, there will be a series of planning incentives provided to fund the provision of new streets and part fund new parks to meet the open space deficit in Macquarie Park and to assist with connectivity and accessibility. The scheme aims to partner with developers and implement roads as works in kind. The scheme aims to achieve 100% funding for proposed roads and is augmented by s94 to implement new parks.

Council has undertaken some preliminary investigations as to the impacts of the exclusion of the UAP area from the infrastructure delivery mechanisms of Amendment 1. It has been estimated that the UAP Plan will leave Council with funding liabilities in relation to new park and road infrastructure of $7,107,186. This is due to the exclusion of the UAP from Amendment 1 and the failure of funding the infrastructure to be delivered within the precinct. It should be noted that this figure would need to be recalculated based on the extent of new roads and include also the unfunded bridge over Shrimptons Creek. The figure does not include roads inside the University site. It is likely that the costs of new roads will increase when recalculated.

The failure of the application of Amendment 1 within the UAP area is inequitable by requiring land adjacent under Amendment 1 to contribute to new infrastructure by capturing some of the value uplift through an incentive scheme whilst land within the UAP is not required to be subject to direct value uplift capturing. Council suggests a similar mechanism (or satisfactory arrangements provision) be implemented in the development process.

Current infrastructure and public domain improvements in Macquarie Park are currently funded by the following:

a. **S94 Developer contributions** – This is used to fund stormwater upgrades, public domain improvements (such as new traffic lights) and community facilities. The existing S94 Contributions Plan 2007 is supported by a works schedule that identifies how contributions will be expended. Council is currently undertaking a review of the s94 Plan and is seeking to implement an s94A Plan which will require a variation to the contribution rate endorsed by the Minister for Planning.
b. **Special Rate Levy** – There is a special rate levy applied to Macquarie Park, which is expended predominantly on capital and non-capital projects including: Transport Management Association, signage, lighting, paving and other public domain upgrades.
c. **Grants** – Council utilises significant grants from the RMS to part fund cycleway improvements in accordance with Council's Bicycle Strategy and Master Plan. The Master Plan is being implemented within Macquarie Park.
d. **Council's General Revenue –** This is used for public domain improvements which are not covered by other funding identified above.
e. **Planning Incentives –** Under Council's proposed Amendment 1, there will be a series of planning incentives provided to fund the provision of new streets and part fund new parks to meet the open space deficit in Macquarie Park and to assist with connectivity and accessibility.
f. **Conditions Imposed on Development** – In determining Development Applications within the City of Ryde, Council imposes conditions on consent which require applicants to provide public domain upgrades on land adjoining their site. This is required to be in accordance with Councils Public Domain Technical Manual.

Infrastructure Table

Council continues to recommend that an infrastructure implementation program with an appropriate funding mechanism needs to be incorporated into the development process. Below is a consideration of the infrastructure and the proposed delivery authorities as detailed within the Planning Report.

Item / Measure	Who / When	Comment
Regional traffic improvements 1. Upgrade of the Hills M2 motorway, including: • New Herring Road westbound off ramp from M2 • New Christie Road eastbound on ramp to M2 • Additional westbound lane from Lane Cove Road to Beecroft Road • Additional eastbound lane from Pennant Hills Road to Lane Cove Road • Talavera Road is widened to two lanes in each • direction, between Christie Road and Alma Road	Transurban	No comment
Local traffic improvements		
2. Epping Road / Balaclava Road intersection – additional through lane on Balaclava Road (south) and additional right turn lane on Balaclava Road (north)	Macquarie University As sites develop	No comment

3. Epping Road / Herring Road intersection – additional through lane on Herring Road (south), additional right turn lane on Epping Road (east), two through lanes and two right turn lanes on Herring Road (north) and adjusted signal pass	Macquarie University As sites develop	This is in accordance with agreement between the University and COR and the conditions imposed upon the Macquarie University Concept Plan. However, despite the conditions relating to the Concept Plan Approval, Macquarie University has yet to finalise the MOU with the RMS to design and deliver this vital infrastructure. However, once the proposed heights, FSRs and Zoning are applied to the University, it will be possible for the University to undertake works pursuant to the UAP rather than the Concept Plan. Therefore, it should be a pre-condition to further development. It should be noted that Council's TMAP concludes grade separation as the best solution for this intersection for resolving the flow of traffic.
4. Herring Road / Ivanhoe Place – new signalised intersection and pedestrianised crossing to improve east west connectivity	Developers/ City of Ryde As sites develop	This is to be funded under the provisions of the existing Ryde s94 plan and would also be funded under a future s94A plan. Alternatively, it could also be incorporated into the supporting controls for the UAP that requires its provision as part of the development of adjoining land.
5. Herring Road / Dunmore College - potential new signalised intersection and pedestrianised crossing to improve local connectivity	Developers/ City of Ryde	This signalised intersection would be related to the delivery of the new road that runs through the University and Dunmore Lang College. The signalised intersection and the road should be jointly co-ordinated. The new road and signalised intersection should be funded by the university and developers in return for the gains delivered by the UAP. Council is concerned that the works are not costed and that there is no trigger or funding mechanism to ensure delivery. This matter needs to be addressed prior to the UAP's finalisation.

6. Proposed new street, cycleway and pedestrian connection between Cottonwood Crescent and Ivanhoe Place	Developers/ City of Ryde As sites develop	Council is concerned that the works are not costed and that there is no trigger or funding mechanism to ensure delivery. This matter needs to be addressed prior to the UAP's finalisation.
7. Proposed new street, cycleway and pedestrian connection between Herring Road and Balaclava Road	Developers/ City of Ryde As sites develop	Council is concerned that the works are not costed and that there is no trigger or funding mechanism to ensure delivery. This matter needs to be addressed prior to the UAP's finalisation.
8. Potential new street, cycleway and pedestrian connection between Peach Tree Road and Lyonpark Road and new bridge over Shrimptons Creek	Developers/ City of Ryde As sites develop	Council is concerned that the works are not costed and that there is no trigger or funding mechanism to ensure delivery. This matter needs to be addressed prior to the UAP's finalisation.
Public Transport Improvements		
9. North West Rail Link (NWRL) will connect into the Epping Chatswood Rail Line which will be upgraded for NWRL single deck trains and improved service levels	TfNSW NWRL completion date estimated for 2019-2020	A strategy needs to be developed by TfNSW for the mooted station closers and the subsequent pressure placed on the bus system.
10. North West Region bus services to be refined to meet the demands of regional growth and in conjunction with implementation of the NWRL	TfNSW Ongoing	Needs more consideration as the rail service alone will not meet needs for the journey to work. A timeframe should be given to delivery of detailed plans to enhance bus service and the interchange. This needs to be a pre-commitment from the State Govt. prior to UAP approval.
11. Local improvements to bus services	TfNSW Ongoing	Needs more consideration as the rail service alone will not meet needs for the journey to work. A timeframe should be given to delivery of detailed plans to enhance bus service and the interchange. This needs to be a pre-commitment from the State Govt. prior to UAP approval.
Community Infrastructure Measures		
12. Improvements and upgrade of Herring Road, including wider pavements, narrowed median,	Developers/ City of Ryde	It is expected that footpaths, landscaping and cycle ways would be implemented as conditions of

new landscaping, new street trees and a new two-way cycleway	Potential funding of improvements under the Urban Activation Precinct Support Scheme	consent and as part of Council's cycle ways implementation plan. Discussions with Council regarding how the $5m infrastructure funds will be spent needs to occur before the commencement of any project.
13. Potential southerly extension of the Herring Road cycleway to Kent Road, connecting into the City of Ryde's regional cycleway network	Developers/ City of Ryde	Works will be completed as part of the ongoing footpath upgrade program.
14. Multipurpose community facility, such as a community space, community lounge, hall, gallery, local library or other community facilities	Developers/ City of Ryde Potential delivery as part of future redevelopment Macquarie Shopping Centre	Council is concerned that the works are not costed and that there is no trigger or funding mechanism to ensure delivery. This matter needs to be addressed prior to the UAP's finalisation.
15. New and improved local parks provide amenity for residents	Developers / City of Ryde Delivery as part of a Section 94 Plan	It is unclear which new park that this refers to. It is noted that the Planning report identifies a generic local park that does not appear to be located anywhere within the UAP.
16. New park adjacent to Shrimptons Creek corridor	Developers/ City of Ryde Delivery as part of a potential renewal of the Ivanhoe Estate	The existing areas along Shrimptons Creek where parks might be located are already utilised by the community as open space. It is a misnomer to call this a "new" park as it is already open space in council's care and management. However, it is agreed that this open space be refurbished as an active recreation space funded by the redevelopment of Ivanhoe Place. The delivery of this open space must be guaranteed as part of any increase in development yield.
17. Shrimptons Creek corridor	Developers/ City of	It is unclear what the reference to

environmental improvements	Ryde	Developers is within this item. However generally this work would be covered by s94 and grants.
18. Shrimptons Creek public access and cycleway improvements	Developers/ City of Ryde	It is unclear what the reference to Developers is within this item. Generally this work would be covered by s94 and grants.
19. Kikkiya / University Creek corridor environmental improvements	Developers/ City of Ryde	It is unclear what the reference to Developers is within this item. Generally this work would be covered by s94 and grants. It is assumed that this includes the open space areas surrounding the creek and shown conceptually on the Indicative Public Space Framework (Figure 42 Planning Report Volume 1). Should this area be utilised as open space, it should be zoned and managed for that purpose, preferably with it being dedicated to a public authority and having 24 hour access. Consideration of funding for the additional maintenance of this asset must be undertaken.
20. Regional open space connections improved: • north to Lane Cove National Park and • south via Shrimptons Creek to ELS Hall Park	Developers/ City of Ryde	It is unclear what the reference to Developers is within this item. Responsibility of regional open space funding mechanisms. Improving the connection via Shrimptons Creek to ELS Hall could possibly be funded by the UAP funding.

It is disappointing that the bus interchange is not addressed specifically as part of the above. Also missing from the above list are the plaza areas surrounding the station. In the event that the Department continues to insist on relying on section 94 funding to deliver the proposed infrastructure, this must be predicated on the cost of each infrastructure item to be delivered under Section 94 being costed. Council continues to argue that an implementation program and funding mechanism needs to be incorporated into the development process to ensure Council is not left with a funding liability.

Herring Road

The UAP Planning Report appears to suggest that the $5m allocated to the Herring Road UAP will be spent on upgrading Herring Road between Epping Road and Waterloo Road. This will not address any of the key infrastructure demands and simply be a superficial treatment to improve streetscape. There does not appear to be any cost allocated against this upgrading but Council notes that it has been previously stated as costing approximately $5.36m. Council has concerns regarding the precinct and the proposed allocation of the funding against the upgrading of Herring

Road which would normally be required as a condition of consent on future development along the road. Council notes that generally, the use of the funding allocated to UAPs is determined at a later date and not specified in the process. In the event that the UAP is approved, Council would have further discussions with the Department on the appropriate expenditure of these funds.

Considerations of improvements to other parts of Herring Road are not considered by the UAP proposals. The upgrade of the Epping Road and Herring Road intersection is a key infrastructure need as traffic and worker and residential populations in the area increase. Council notes that these works form part of the commitment made by the Macquarie University's Concept Plan; it is critical that the University delivers on this commitment.

Bus Interchange

Council continues to be disappointed at the lack of commitment from the State Government for the delivery of the Bus Interchange. This is a vital piece of infrastructure that must be delivered. Council is seeking a requirement provision or pre commitment from the University and Shopping Centre to deliver the Interchange prior to receiving the substantial increase in FSR and heights on their sites.

As detailed within the Transport section of this submission, the Bus Interchange is needed within the medium term due to bus usage demands. Given that it needs to be delivered in the medium term, Council suggests it should be planned for within the short term to ensure its delivery coincides with its need.

Generally, the Bus Interchange and other improvements in Herring Road between Waterloo Road and the M2 are ignored. It is noted by Council that highest levels of pedestrian activity in the Macquarie Park Corridor are within this block and the potential for vehicular conflict very high.

Council has undertaken extensive work justifying the provision of this infrastructure as detailed in the Attachments.

Community Infrastructure

The Herring Road Urban Activation Precinct Planning Report Volume 1 acknowledges that currently there is a shortage of community facilities and related access to support the existing population. However no detailed analysis of the needs of existing communities or future communities has been undertaken. It is noted that this information was included as part of the North Ryde Station Urban Activation Precinct which raises the question why it was not considered necessary for this proposal.

The document mentions potential delivery of a community facility through redevelopment of Macquarie Shopping Centre. This recommendation needs to be imbedded in any future developments plans and agreed by Council. To date, there has only been high level commitment to the potential for community facilities within the Macquarie Shopping Centre but nothing definitive. In Council's opinion, the additional height and FSR afforded to the Shopping Centre should be predicated on the delivery of the community facilities. Any uplift must provide firm details of how the facility will be achieved and Council's role in its planning.

In lieu of any detailed analysis of the existing and future community within the precinct, Council's draft Social and Cultural Infrastructure Framework provides an overall strategic direction on the type and scale of facilities required across the City of Ryde's town centres. The draft Framework has been developed based on research, analysis and consultation about the future direction of the City of Ryde's infrastructure provision.

With the inclusion of the projected increase in population as a result of the Herring Road UAP, according to standards identified in the draft Social and Cultural Infrastructure Framework, Macquarie Park will require district level community infrastructure to sustain the population.

At the district level, the City of Ryde has identified the multipurpose community hub model as its approach to future community infrastructure provision, and has developed a number of principles in support:

	Principles for social and cultural infrastructure provision
Locate new social and cultural infrastructure within urban centres	• Central to population catchments • Close to activity generators such as shops, schools and other community facilities
Create community hubs, inclusive of multipurpose social and cultural infrastructure	• Accommodates a wide range of services, activities, programs and spaces • Close to, and has a good relationship with a park, plaza, playground or other public space • Welcomes all community members and encourages community connections
Express the experiences and richness of the local community	• Contributes to a sense of place • Tells local stories • Helps activate public places
Maximise access to and use of social and cultural infrastructure	• Connected to public transport, pedestrian and cycling networks • Visible from the street or other public space • Designed to be used flexibly • Designed to maximise safety • Incorporates technology
Use a partnership approach to planning, delivery and operation	• Encourages coordinated service delivery • Co-funded with government or non-government
Increase financial sustainability	• Designed to be expanded and adapted in response to changing community needs • Incorporates compatible commercial uses

The hub model seeks to incorporate a number of integrated compatible uses into a single building. A district level multipurpose community hub in Macquarie Park should include:

- Community space (facilities and services for groups such as children, young people, older people, people with a disability and culturally and linguistically diverse communities; hall, meeting rooms etc.)
- Library
- Community arts centre including performing arts and/or exhibition

The draft Framework applies standards to the types of Council owned and operated infrastructure that should be provided at a district level:

Infrastructure	**Rate of provision (per population)**	**Approximate GFA**
Library	1:20,000-35,000	39m^2 per 1,000 people
	1:35,000-65,000	35m^2 per 1,000 people
Multipurpose community space	1:20,000-30,000	1,000-1,500m^2 50m^2 per 1,000 people

Community arts centre	1:40,000-50,000	1,000-1,500m^2

Additional to the GFA identified in the standards, any new community infrastructure developed in the City of Ryde must include a floor space provision appropriate for compatible commercial use. The commercial floor space will be proportionate with the overall floor space of the proposed facility, with the aim of providing an income generation mechanism for ongoing infrastructure renewal and maintenance.

Childcare Centres

The City of Ryde supports the acknowledgment that there will be a growing need for the provision of child care places in the precinct. Child care in the Ivanhoe Estate and Macquarie University currently has long waiting lists. It is well known that most of the child care spaces in the Estate are used by people working in the area and the demand for child care is typical of a transit – oriented community. There is a need to make provisions for additional numbers of child care places within the precinct in line with demographic projections.

Schools

By 2031 it is predicted that a maximum of 5,400 dwellings will be delivered. (Council notes this does not consider the ultimate end state of the UAP, as such, the total amount of development will be higher).

In the Social Impact Statement for the North Ryde Station precinct (2013), it is suggested (based on Growth Centres Commission figures) that:

- For every 1,500 dwellings requires an additional Primary School
- For every 4,500 dwellings requires an additional High School

Based on these benchmarks the Herring Road UAP will need to deliver an additional three Primary Schools and an additional High School. While these benchmarks have been developed for 'new release areas' and the application of these benchmarks needs to take into existing school vacancies or capacity; given that the majority of local schools are at or near capacity, Council is concerned that education infrastructure will not meet the demand anticipated in the Herring Road UAP.

It is noted however that the Frequently Asked Questions Brochure dated June 2014 for the precinct states that:

- *The Department of Education and Communities (DEC) is undertaking a detailed analysis of the impacts of the new development on the provision of school places in North Ryde.*

- *Whilst local schools can cope with demand in the interim, a short, medium and long term plan is being prepared by DEC to ensure that the provision of schools can meet the increase in population brought about by new development in North Ryde.*

As such, Council assumes that the Department will wait until the short, medium and long term plan is prepared prior to any gazettal of the Herring Road UAP.

Traffic and Transport

In preparing its submission, Council engaged Bitzios Consulting to undertake a review of the Herring Road UAP in relation to 'Traffic and Transport'. A copy of the 'Herring Road UAP Review' (July 2014) is attached. The key matters raised are summarised below.

It is noted that the Planning Report identifies that '*The scale of employment and housing growth projected for Macquarie Park, the North Ryde Urban Activation Precinct and the Herring Road Urban Activation Precinct requires a strategic response to ensure that changes to transport infrastructure can support projected growth. Addressing these transport issues requires a whole-of-network planning strategy and a suite of measures that reduces reliance on car travel, enhances public transport and manages congestion and traffic flows efficiently*' (p. 69 Herring Road UAP Planning Report).

Council strongly urges that this commitment to a whole-of-network strategy is realised prior to any approval for the proposed levels of density. This is a priority for the region and an integral part of the UAP that cannot be left to be resolved at an undetermined later date.

It is disappointing that Council's requests for an Integrated Transport Strategy (ITS) has not been realised. Council maintains its position that an ITS is needed because:

- Major growth is expected to occur rapidly;
- Transport infrastructure and services are already at capacity;
- There is no plan to implement modal shift;
- The Urban Activation Precinct, TODs and major developments are being planned without consideration of a future bus priority or bus services master plan;
- Parking rates for development and on street parking quantum and pricing will need to change over time. There is no plan on how this could be achieved to support broader modal shift objectives in an integrated way;
- The traffic upgrades strategy is currently being created in isolation and there is no consistency between modal strategies to achieve specific targets;
- Land requirements for transport infrastructure are not understood, particularly for bus priority infrastructure, parking infrastructure, cycle lanes etc.;
- A sustainable transport strategy is required across all modes and considering all development in Macquarie Park;
- There is limited justification for introducing workplace travel plans as no transport strategy exists on which to base these plans;
- A piecemeal approach to transport facility provision that lags rather than leads development in the area is bound to either cost the community more or result in levels of traffic congestion that will deter development in Macquarie Park.

The purpose of the study would be to:

- Set policy principles to transform Macquarie Park from a car-dominated into an accessible Specialised Centre with a commercial core and high quality residential areas.
- Set integrated targets for Public transport, walking and cycling to capture >40% of trips to Macquarie Park;
- Set modal strategies to achieve targets to shift away from car travel through bus priority (for competitive travel times), parking policy (to restrict ease of parking), active transport infrastructure, end of trip facilities (to encourage usage), and pedestrianisation to affect modal priorities
- Define infrastructure programs and planning conditions for the area (for works programs and development application considerations).

It is anticipated that an ITS would take approximately 12 months to complete. The ITS could range from limited data analysis/experienced based assessment to a more detailed analytical process depending on the level of quantification of impacts and benefits required.

Council continues to believe that should DOP&I seek to increase the levels of development beyond that proposed under Amendment 1 as a result of the UAPs and the past Part 3A approvals, it must be demonstrated that Macquarie Park and the surrounding areas will be able to support this development from a transport perspective.

Growth and Population Underestimated

The UAP proposes 5,400 dwellings in its area. The potential number of dwellings however based on preliminary work undertaken by Council could be in excess of 12,000 dwellings. Given the excellent accessibility provided by the Macquarie Station and the North-West Rail Line to other major employment centres, as well as the proximity to the University and local shopping and entertainment, the demand for residential property in this area is expected to be very high. It would therefore be prudent to forecast transport demands associated with the UAP on expected residential "take-up" closer to the 100% of allowable dwellings.

The UAP Planning Report focusses on the potential development within the UAP boundary and is silent on the growth in the adjacent Macquarie Park, which is significant in terms of the traffic, public transport, walking and cycling demands interaction with the UAP. Importantly, the transport demands to and from the major generators of Macquarie University and Macquarie Centre are also not quantified and only the residential proposal elements are considered in the traffic capacity assessment. Macquarie Park currently includes approximately 1,000,000 m^2 of commercial floor space which is expected to double over the next 50 years; generating around 50,000 m^2 of additional floor space per year.

Another 1,000,000 m^2 of office space would equate to 20,000 more peak hour trips, most of which would need to be accommodated on public transport, walking and cycling given the limited traffic capacity committed to be augmented into the current major road system. These trips would require more infrastructure across all modes which, if not provided, would diminish accessibility into the Herring Road precinct. Furthermore, traffic, bus and rail capacity in Herring Road and at Macquarie Station needs to be cognisant of the Macquarie Park demands as "background growth" and not simply consider the UAP demands on top of existing demands, as this will not be the situation in 20 or even 10 years.

That is, the generic 2% p.a. background traffic growth assumed in the UAP traffic analysis is unlikely to occur given capacity constraints but there is likely to be major growth in public and active transport usage. In simple terms, if Macquarie Park is facilitated to reach its potential, travel demand to/from the centre will double. Given that car travel makes up about 70% of trips to/from the area, but can only grow by 20% due to traffic constraints, public and active transport demands will need to increase from about 30% mode share to 60% mode share, which is effectively a four-fold increase in demand and hence supply of services.

Public Transport

The UAP Planning Report identifies the public transport improvements associated with the UAP as being:

- the North-West Rail Link;
- "refinement" of North-West bus services to meet regional growth demand; and
- local improvements to bus services.

This limited list of upgrades fails to acknowledge the scale of expected growth in bus services, in particular, at Macquarie Interchange. In this context, the Planning Report makes no attempt to calculate estimated public transport demands at Macquarie Station (rail) or at the Bus Interchange and how they would increase over time. Without understanding how many buses and trains will be needed in the future for Macquarie Park generally and additionally due to the UAP, the Planning Report cannot determine how much longer the existing interchange will be able to function without excessive delays to buses and passengers due to:

- congestion on approaches to the bus interchange due to both cars and buses;
- congestion at the bus interchange due to insufficient bays for the number of buses accessing it;
- congestion at the bus interchange due to layover needs (given that services feed off the rail station as well and therefore often need to "dwell"); and
- excessive pedestrian demands at the rail station and bus stop platforms that require additional areas to be provided for this pedestrian storage.

Increasing Demands on Bus Services and the Interchange

Trip demand to/from/within Macquarie Park and its immediate surrounds are estimated as 40,000 person trips per hour (in 2031). At a 40% public transport mode share this equates to approximately 16,000 public transport trips per hour (these calculations did not include the effects of the UAP residential development in increasing these demands)

Approximately 6,000 passengers per hour may be accommodated by train (allowing for some directionality of movement and a 10 minute train headway), thus leaving approximately 10,000 passengers per hour to be accommodated on buses. At a conservatively high rate of 30 passengers per bus (i.e. so as not to overestimate bus demands), this leads to approximately 330 buses per hour (5.6 buses per minute) accessing Macquarie Interchange in 2031. This compares to the 65-70 buses per hour currently using the interchange which has 8-9 bus bays. With or without the UAP, this volume of buses simply cannot be accommodated within the existing bus interchange.

Interchange Reaching Capacity

Preliminary estimates suggest that the Bus Interchange will be "at capacity" with another 50-60 buses per hour estimated to be required by 2020 under current development profiles in Macquarie Park. That is, in a little over 5 years, the existing bus station will need upgrading and in a little over 10 years would need to be double its current size. Stimulating more localised demand through the UAP and its associated residential parking restrictions (in addition to traffic capacity limitations) would escalate this need. The UAP Planning Report identifies consideration of a new Bus Interchange as a "long term" need; however, calculations of likely bus demands suggest a "medium term" need (about 10 years) for the Bus Interchange and hence, as a minimum, some form of "short term" commitment to its design.

There is no practical way of accommodating these extra buses (and movements between buses and trains) without some form of grade separation and most probably, an underground bus station. Given design and procurement times for infrastructure of this scale, it would be prudent in the UAP Planning Report to include a concept for this bus station and commitment for both the upgrade and the redevelopment of the Interchange. A copy of the review undertaken by Council, 'Macquarie Interchange Capacity Needs Review (28 August 2012) is attached.

Need for Bus Priority

More than 300 buses per hour entering the Macquarie Bus Interchange in 2031, in addition to worsening congestion on surrounding roads, suggests a strong need for bus priority. However the

UAP Planning Report only generalises the need for bus priority… "*A high end-to-end travel speed, no worse than 25kph for 95 percent of services is desirable for the core bus network to meet customer needs*". There is no indication as to how this will be achieved particularly given the levels of traffic congestion expected. There are clear benefits to buses (as well as traffic and cyclists) for the provision of bus priority infrastructure in Herring and Waterloo Roads and these types of specific provisions should be considered in the proposed infrastructure upgrades being considered for the Herring Road UAP.

The Herring Road cross section in the UAP is shown as four traffic lanes (median divided) with a wide cycle lane as the third kerbside lane in each direction. This wide kerbside lane could be replaced with a bus lane and the cycleway infrastructure moved off road. In any event, it is likely that some widening of the Herring Road corridor will be required to accommodate these facilities and planning for a bus priority network, linked to an Integrated Transport Strategy should form part of this UAP Planning Report.

North West Rail Line (NWRL) to be delivered by 2019-20

The North West Rail Link (NWRL) is expected to connect into the Epping to Chatswood Rail Line by 2019-2020. The new rapid transit line is expected to run 12 trains per hour per direction during peak periods (one train every five minutes) and six trains per hour per direction off peak (one train every ten minutes), carrying up to 1,300 passengers.

An important consideration is the mooted temporary closure of the rail line during the construction of part of the NWRL. Preliminary estimates suggest that this could add another 40-50 buses in the peak hours which wouldn't be able to be accommodated within the existing Bus Interchange. Early construction of an underground Bus Interchange would assist in addressing this matter.

Planning for Light Rail Infrastructure

The potential light rail connecting Parramatta with both Castle Hill and Macquarie Park would absorb a proportion of current bus trips, but the extent of the impact needs to be further assessed as its catchment would be relatively limited. Herring Road has notionally been considered as a possible route for the light rail; however the UAP Planning Report has not considered the incorporation of the provision of light rail into the precinct.

Roads and Intersections

Traffic Analysis Needs Review

A background growth rate of 2% p.a. would appear a significant under-estimate of potential "trip demand", although as a "traffic" growth rate this could be offset by the fact that traffic congestion could dampen traffic growth rates and increase the usage of alternative modes.

As indicated in Table 3.4, 3.5 of the transport strategy, the Herring Road/Waterloo Road intersection is at near failure and the Herring Road/Epping Road intersection is at failure point. It defies logic that the authors of the exhibited material could consider the Master Plan viable, without definitively addressing the upgrade of key intersections that deliver vehicular traffic into the UAP area. Council further questions the traffic modelling done in 2013 as Council's observation is that the intersections are at failure in both the AM and PM peaks. On this basis, it appears that the base year SIDRA intersection models have not been validated to current conditions.

The Planning Report does however identify that the intersections of Herring Road with Epping Road, Waterloo Road and Talavera Road are congested and will worsen over time. No significant upgrades are however contemplated in the report deferring the issue to the need for a "whole-of-network" planning strategy. In relation to works on the Herring Road/Epping Road intersection,

Council considers this unacceptable particularly as this need was identified as early as 2009 when it was a condition of consent for the Macquarie University Master Plan. This study is evidently being undertaken by RMS; however, at Council's own meetings with the RMS, this has not been confirmed. There are some key access works that need to be delivered to ensure that Macquarie Park and the UAP area is accessible and therefore competitive; to fulfil its population and employment growth expectations. The delivery of these intersection upgrades is a pre-requisite for the proposed uplift in heights and FSRs.

Local Street Network

The proposed local street network in the UAP Planning Report was compared to the street network in the current Ryde LEP 2014 Draft (Amendment 1). This revealed that within the UAP area, the connections between major collector streets are very similar in both proposals. The key exception is the link in the UAP street network from Ivanhoe Place/Peach Tree Road across Shrimptons Creek to Lyon Park Road. This link has been modelled by Council and showed some benefits as a two-way road but its benefits would be strengthened by the signalisation of the Lyon Park Road/Epping Road intersection with full movements allowed.

It is unclear why the UAP proposal is to make this road one-way eastbound only and there would be significant benefits of making this link two-way to reduce pressure on Waterloo Road for local trip making. Similarly, it is unclear why the link from Cottonwood Crescent to Lachlan Avenue needs to be one way. Rat running through this area would be minimal in the north-eastbound direction given the two right turns required to do this and the circuitous nature of the route. Also, the extension of Ivanhoe Place with a new road along the creek to connect to Peach Tree Road was not envisaged in the LEP Amendment and there may be some alignment challenges with this link and its proximity to the creek.

The key major road, intersection and street network issues associated with the UAP Planning Report are:

- There appears to be a reluctance to commit to any major intersection works on Epping Road that would improve the accessibility of Macquarie Park in general and the UAP in particular from the major road network. This is despite the key intersection of Epping and Herring Roads – the very throat of the UAP, already being designated an 'F' during peak times. The grade separation of the Epping/Herring intersection is the highest priority need and should be designed and delivered prior to further development occuring;
- More access points onto Epping Road are needed as they would benefit all traffic;
- The UAP local street network and connections is generally in accordance with the DCP although there are some unresolved issues regarding the feasibility of the Ivanhoe Place to Peach Tree Road connection and the connection across to Lyon Park Road. This connection would also suggest further consideration of the benefits of signalisation of the Epping Road/Lyon Park Road intersection; and
- There appears to be little benefit in making the Cottonwood Place to Lachlan Avenue link and the Peach Tree Road to Lyon Park Road both one way and there would be significant traffic circulation and accessibility benefits for these links to be two way.

Active Transport Provisions

Pressure on Pedestrian and Cycling Networks

There are already very heavy streams of pedestrians crossing Herring Road between the University and the Shopping centre/bus stops at the marked crossing. It is likely that signalisation of the zebra crossing will be required to better manage the pedestrian/traffic-bus interface at this location as volumes of all modes increase significantly. In fact, with the potential doubling of pedestrian volumes at this crossing over the next 10 years (with expected greater bus usage), signals may not be sufficient to manage capacity at this location and some form of grade

separation may be required. This would be a similar situation at the Herring Road/Waterloo Road intersection. An underground bus station would be the preferred means of dealing with these conflicts.

The UAP documentation does not foresee the scale of this increase and does not assess its potential implications on either traffic or pedestrians. It is evident that more consideration is needed of potential volumes of each mode and the degree of demand for space and time each mode will generate. This analysis may reveal that more significant infrastructure solutions will be warranted between Waterloo Road and Talavera Road; such as grade separated pedestrian plazas, or at least some separation of buses underground.

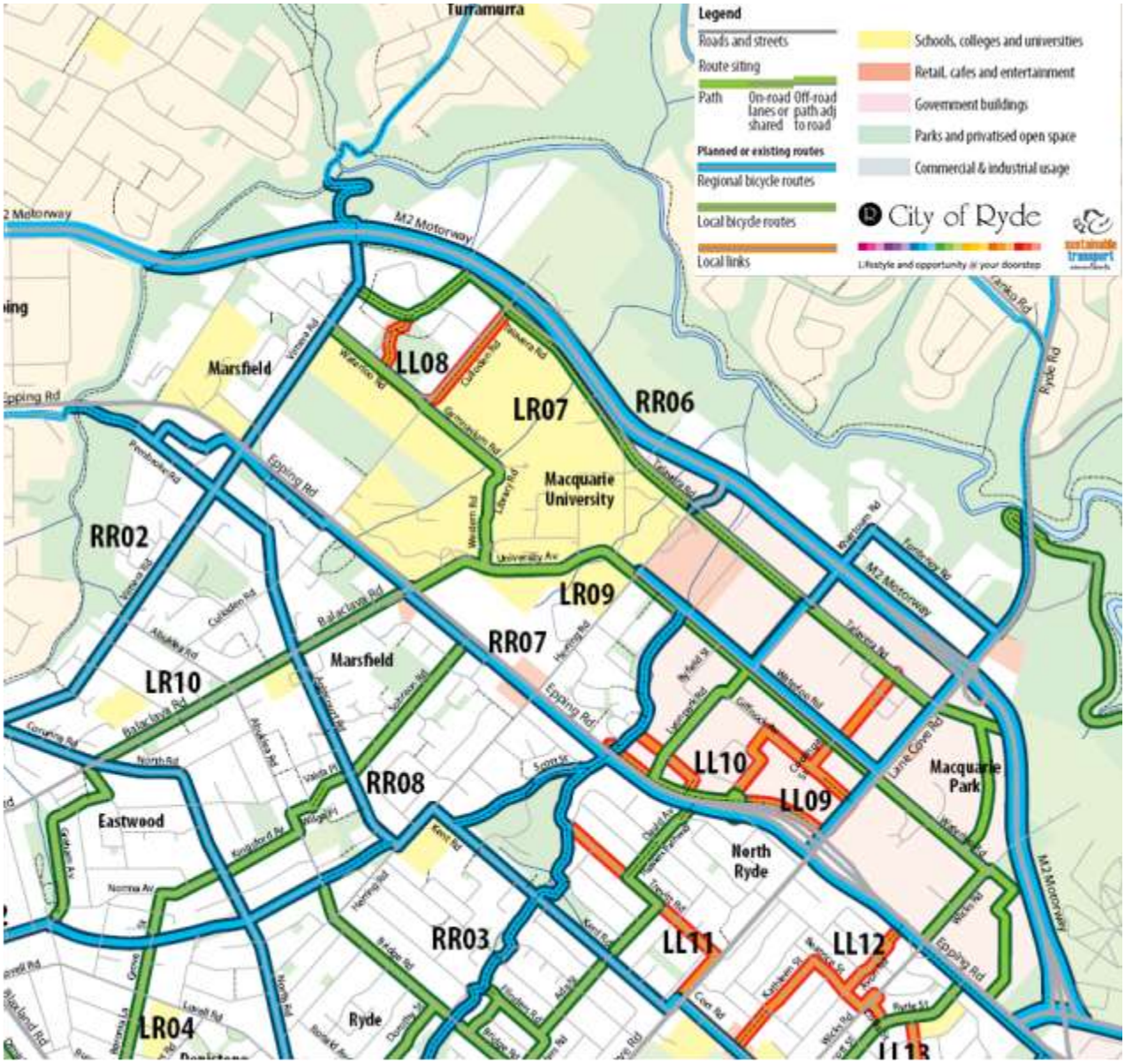
The additional signalised intersections on Herring Road south of Waterloo Road are consistent with the need to support better crossings of Herring Road in this area. The key feature of the proposal is wide 'on road' cycle lanes on Herring Road shown as part of the artist's impression. Given the nature of cycling likely to be evident on Herring Road and the benefits of bus lanes rather than on road cycle lanes, there would appear to be greater merit for high quality off road (but parallel) facilities for cyclists in this corridor. This would most likely be a wide shared walk/cycle facility and would require widening of the Herring Road corridor.

Furthermore, in terms of permeability and accessibility the areas and facilities promoted to the south-east of Herring/Waterloo are quite "fine-grained" and cater for a mix of recreational and more direct multi-purpose trip making. The proposed active transport network to the south-west of the Herring/Waterloo intersection however is quite coarse and requires trips generated by new development in this area to move eastwards towards the Herring Road corridor before travelling northwards towards Macquarie Centre. It is the lack of a "fine grained" street network in the UAP concept in this area that limits the ability to achieve the pedestrian permeability desired in the Macquarie Park DCP.

The Herring Road UAP, and Macquarie Park generally, appears to have the characteristics that lend itself to a cycle share scheme such as a multi-purpose usage, the geographic spread of Macquarie Park, the size of the university, the transient nature of university students and the proximity of residential areas, and further consideration of this initiative would be of value.

The UAP Planning Report does not appear to give any consideration to the *City of Ryde Bicycle Strategy (updated February 2014)*. Whilst existing paths are considered within the UAP Planning Report, this master plan identifies future intended links in around the area. An extract is provided below at Figure 1.

Figure 1 - Bicycle Master Plan



From the above Figure it can be seen that there are a range of different cycle routes surrounding the UAP area. The proposed Cycle network depicted in Figure 2 below fails to provide for new connections into the network. It does not connect into the proposed cycle routes along Waterloo Road, Epping Road (currently required as a condition on the Macquarie University Concept Plan), Balaclava Road, and other surrounding roads. These missing links could be imposed as part of the significant development uplift proposed by the UAP. It is also puzzling that the pedestrian networks detailed within the UAP as provided at Figure 2 do not align or reflect those shown within Figure 42 of the Planning Report, reproduced as Figure 3 below. In particular, the Department's attention is drawn to the links along Kikkiya Creek and between Peach Tree Road and Ivanhoe Place.

Figure 2 - UAP Connection Network

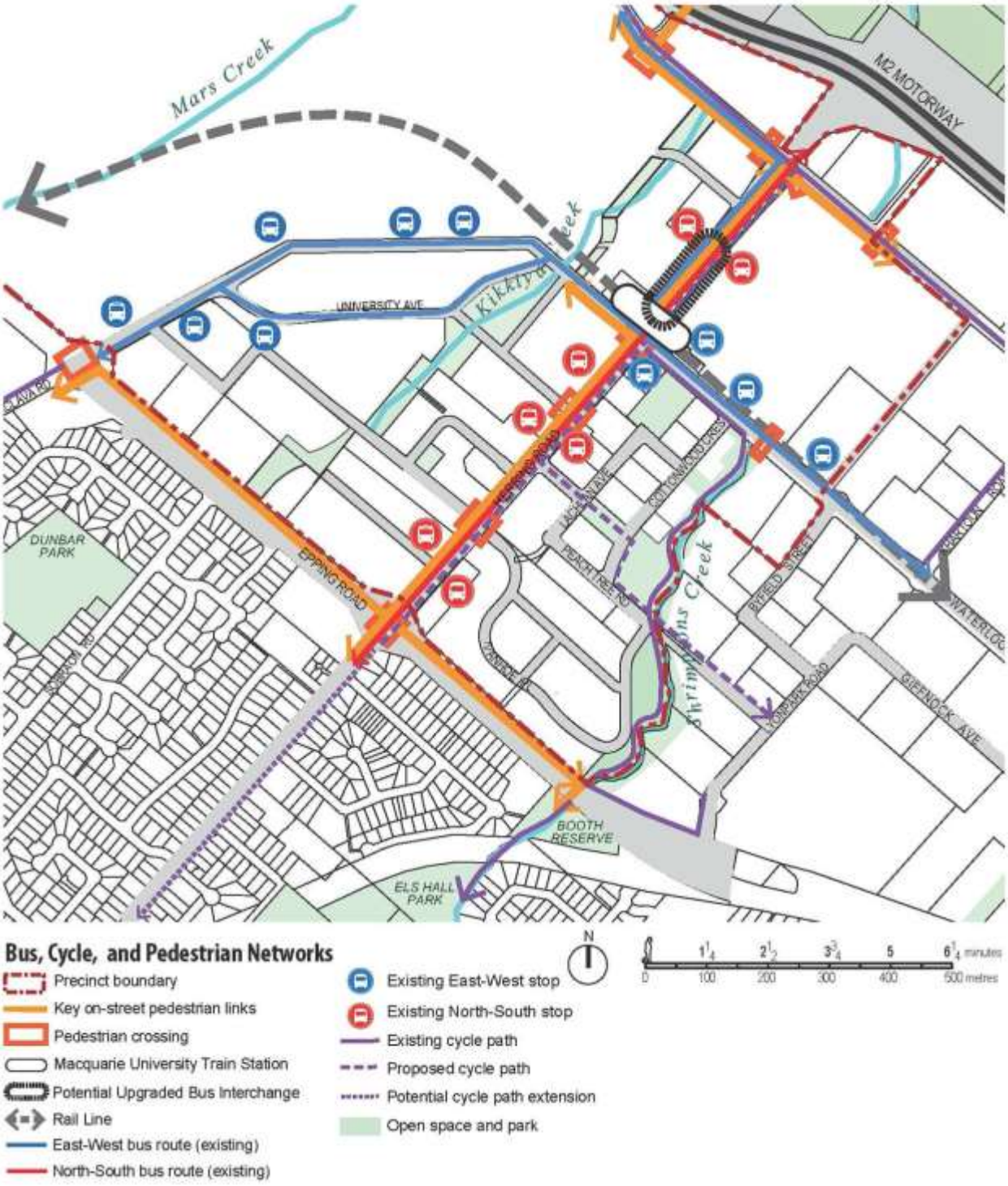
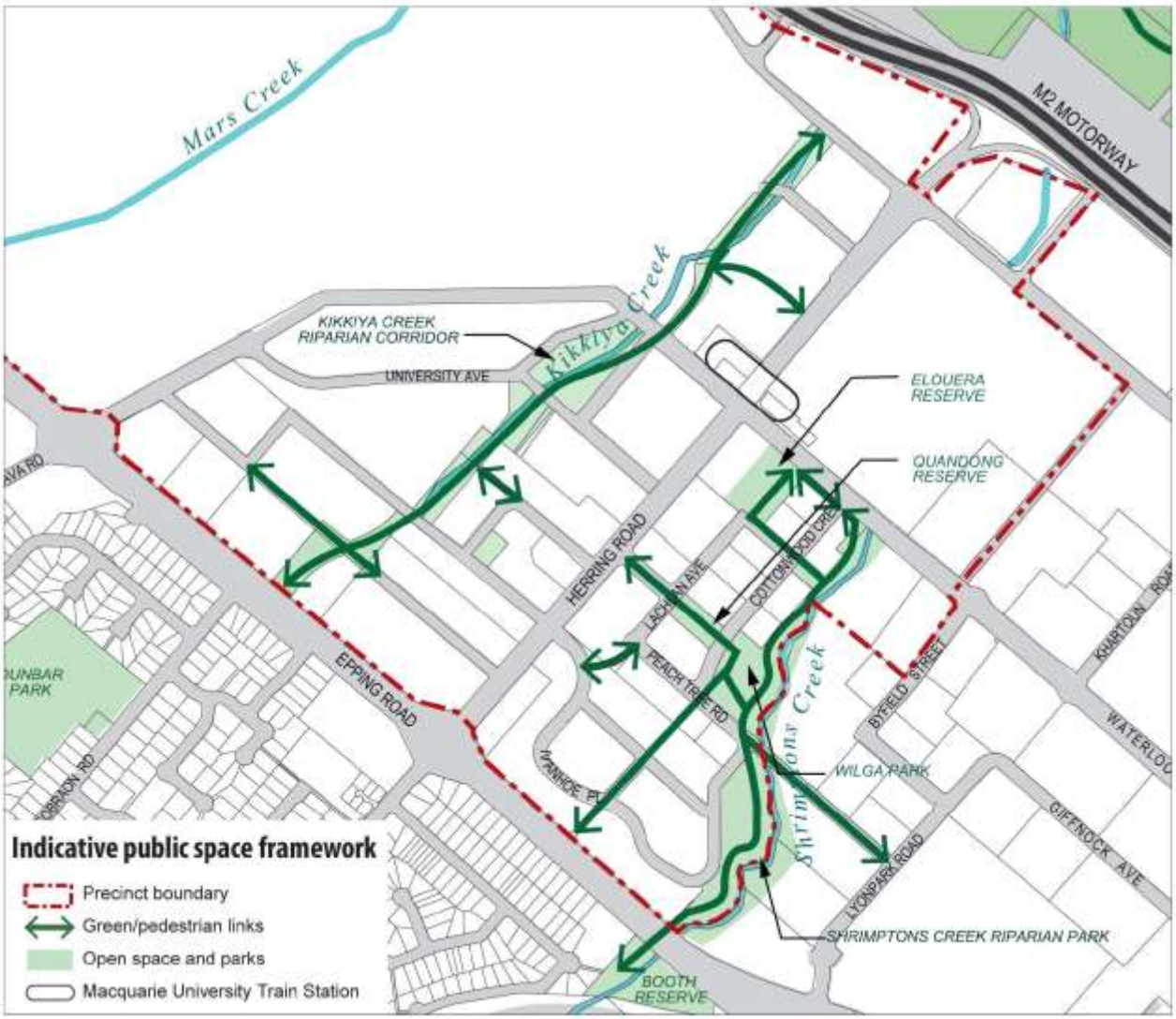


Figure 3 - Public Space Framework



Car Parking and Travel Demand Management

Parking rates need to be reviewed

The UAP identifies that the parking rates proposed for the precinct are based on "best practice for Transit- Orientated Development". The rates in general appear appropriate with a maximum rate specified rather than minimum rates. The rates however are inconsistent with advice previously provided by TfNSW for development at NRSP and should be modified for consistency to:

- 1 bedroom unit = 0.3 spaces per dwelling;
- 2 bedroom unit = 0.6 spaces per dwelling;
- 3+ bedroom unit = 1 space per dwelling; and
- Visitor parking = 1 space per 10 units.

It is unclear what the intended commercial parking rates are for the precinct however it is assumed that they would the current rates contained within Council's existing controls. It should be noted that Council is currently seeking to revise these rates and it will be the subject of a Macquarie Park Parking Study in 2014-15. No reference to possible car share rates has been provided within the Planning Report and this must be considered. High level discussions with existing providers should be carried out to ascertain realistic requirements.

Overall parking management needs to be considered
The UAP documentation does not cover the potential impacts of additional on street parking with the opening of the NWRL and congestion around other rail stations on this line. There is potential for increased Park and Ride demand for local streets and a local parking management scheme may need to be deployed in parallel with the redevelopment of the UAP area.

The Planning Report recommends that introduction of Residential Travel Plans for the UAP area along with car share schemes and "more stringent parking controls and management". These are good initiatives, however, mechanisms for implementation of these initiatives are not discussed, and particularly, how they could be specifically tied to development in the UAP area. This should be resolved within the DCP.

Council's Recommended Actions on Traffic and Transport

The Planning Report should quantify the traffic, public transport and active transport demands and impacts in the UAP area for more than just the residential component of the UAP.

- Development growth should specifically consider:
  - 80% take-up of the development of the UAP residential area;
  - 50,000 students at Macquarie University(student numbers and commercial and academic floor space to be revised in the 2014 University Master plan);
  - 180,000m^2 at Macquarie Centre; and
  - Fulfilment of the additional 1,000,000 sqm of commercial floor space in Macquarie Park
- The bus interchange will reach capacity in the medium term (potentially within 10 years). The underground bus station should be included in the UAP infrastructure schedule and should be considered as a matter of priority;
- The Planning Report should identify how light rail could be incorporated into the Herring Road upgrade;
- The Planning Report should include bus lanes in Herring Road and in Waterloo Road and identify the road widening required to achieve this.
- The upgrade of the Epping/Herring intersection is the highest priority traffic need in the area and should be included as part of the proposal and this issue has been identified under the Macquarie University concept plan. A possible solution to resolve the traffic issues at this intersection is grade separation;
- There appears to be little benefit in making the Cottonwood Place to Lachlan Avenue link and the Peach Tree Road to Lyon Park Road both one way. These links should be two way. Signalisation of the Epping Road/Lyon Park Road intersection should also be reconsidered in view of this.
- With bus lanes recommended on Herring Road between Epping Road and Waterloo Road, the UAP proposed on road cycle lanes on Herring Road should be located as an off road high quality shared pedestrian-cyclist facility in the Herring Road corridor but west of the carriageway in this section.
- More north-south street connections are needed in the areas to the south-west of the Waterloo/Herring intersection to overcome the lack of north-south permeability for pedestrian movements in this area.
- The parking rates should be modified to maximum rates of:
  - 1 bedroom unit = 0.3 spaces per dwelling;
  - 2 bedroom unit = 0.6 spaces per dwelling;
  - 3+ bedroom unit = 1 space per dwelling; and
  - Visitor parking = 1 space per 10 units.
- The Planning Report should make reference to the mechanisms to implement within a new DCP the travel demand management initiatives recommended.

- Reference should be made in the Planning Report to the need to introduce a local area parking management scheme as part of redevelopment of the area and to the overall Integrated Transport Strategy.

Urban Form

Council has significant concerns regarding the urban form proposed under the UAP. These concerns not only relate to the heights and floor space ratios (FSRs) nominated, but also the ambiguousness and identified poor development outcomes in the precinct.

Heights and Floor Space Ratios

The proposed FSR and heights will result in exceedingly dense development which will be characterised by very tall buildings (14-37 storeys). In Australia, this type of density is more typical of a CBD location where there are largely commercial uses. Whilst the Herring Road precinct is zoned B4 and a mix of uses is permissible, it is likely that the majority of the precinct will be developed for residential uses. The proposed UAP building heights remain untested for a residential precinct within the middle ring suburbs of Sydney. It is unknown whether the proposed densities and heights within the environment envisaged by the UAP will result in a desirable place for people to live.

The heights and FSRs proposed under the UAP are significantly higher than those currently permissible, those proposed by Council under Amendment 1 and those of existing approved developments, with the exception of the state approved Concept Plan for the University. In considering the proposed heights and FSRs, Council does not support the concept of gateway sites having higher FSRs and heights than the neighbouring sites as this is inequitable. Identification of gateways can be achieved through a range of mechanisms such as building designs and public art without necessarily affording increased heights or FSRs. It is also noted that the FSRs of 4:1 and 4.5:1 are unjustified. This is as there is no requirement for the delivery of infrastructure / community benefit or economic justification provided for sites outside the strata title area.

These FSRs are the highest in the Ryde LGA, excluding Top Ryde Shopping Centre. These FSRs will deliver exceedingly dense development. The failure to apply Amendment 1 consistently across the precinct and the planning incentives contained within the proposed controls raises questions of equality. Within the Amendment 1 affected areas, heights and FSRs are subject to the delivery of infrastructure. Within the UAP there are no such requirements. This is detailed further in the infrastructure section of this submission.

The following Figure 1, Figure 2, Figure 3 and Figure 4 detail the existing and proposed heights and FSRs for the UAP and immediate surrounds. It should be noted that no amendments to height or FSR outside of the Macquarie Park Business Corridor (MPBC) are proposed under Amendment 1 or Draft RLEP 2014. As such the FSR and heights for the areas outside the MPBC remain the same. Figure 8 and Figure 9 detail the heights and FSRs proposed under the UAP.

Figure 4 - Building Heights under RLEP 2010

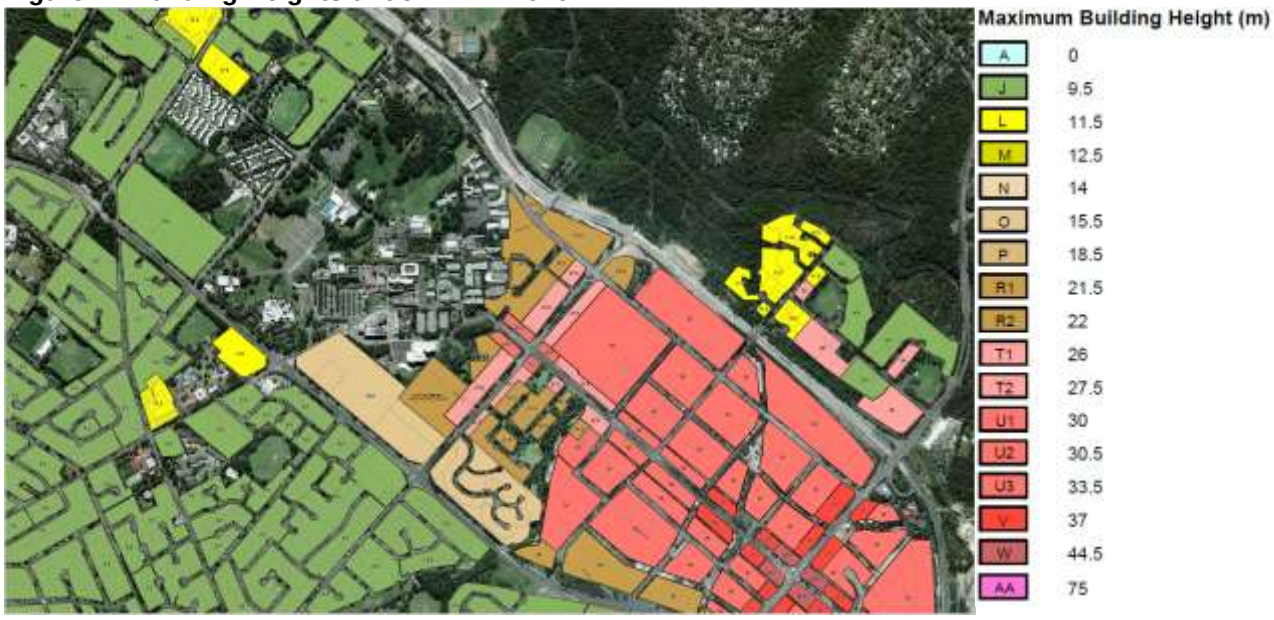


Figure 5 - FSR controls under RLEP 2010

Figure 6- Building Heights under Amendment 1

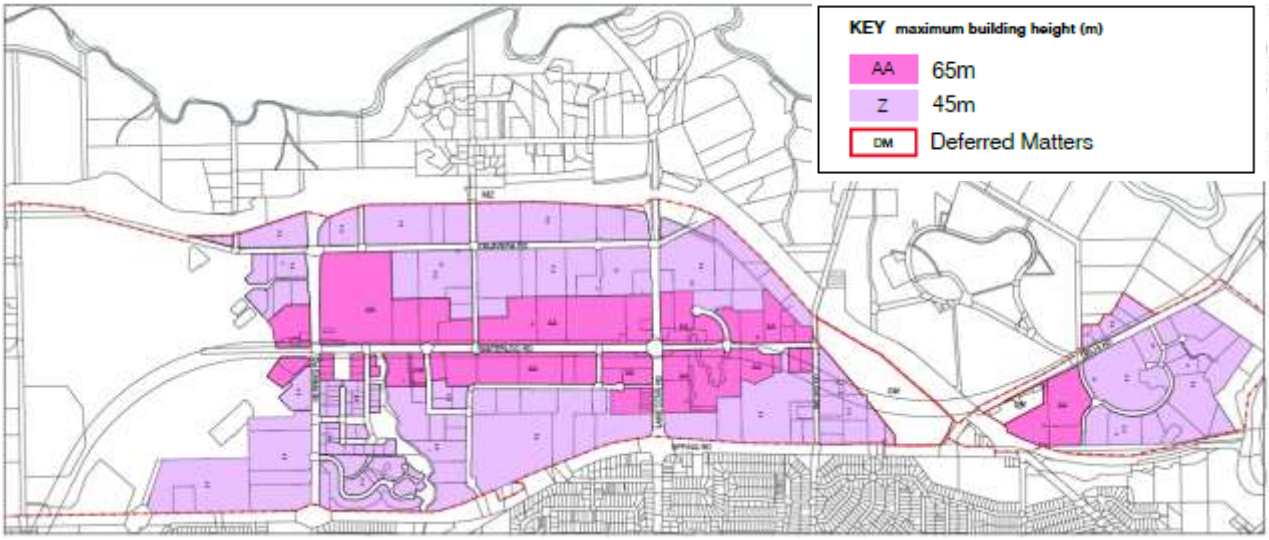


Figure 7 - FSR controls under Amendment 1

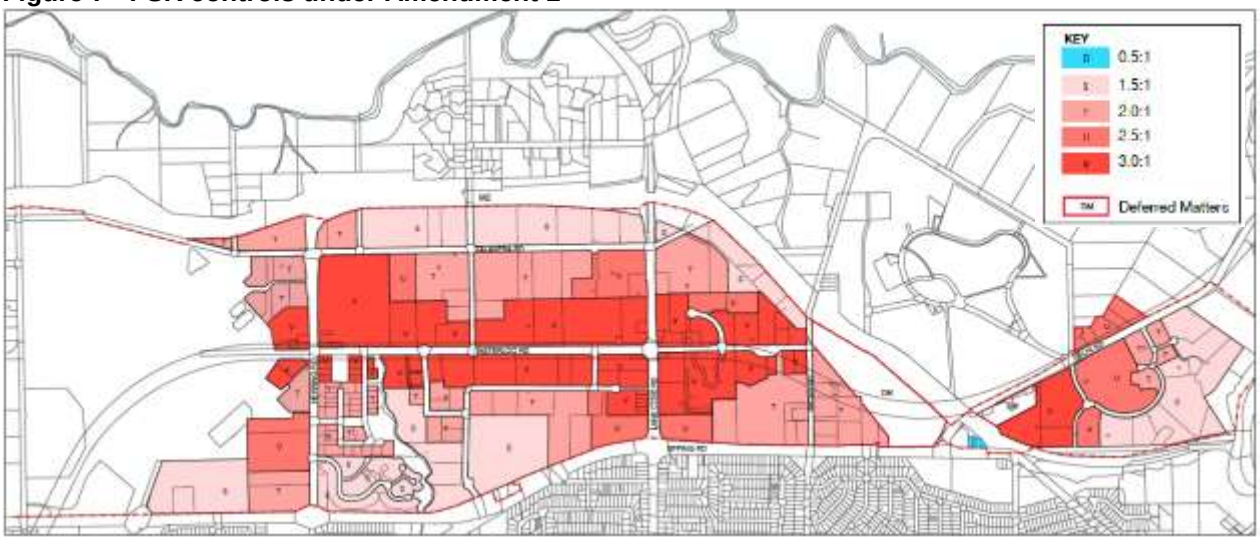
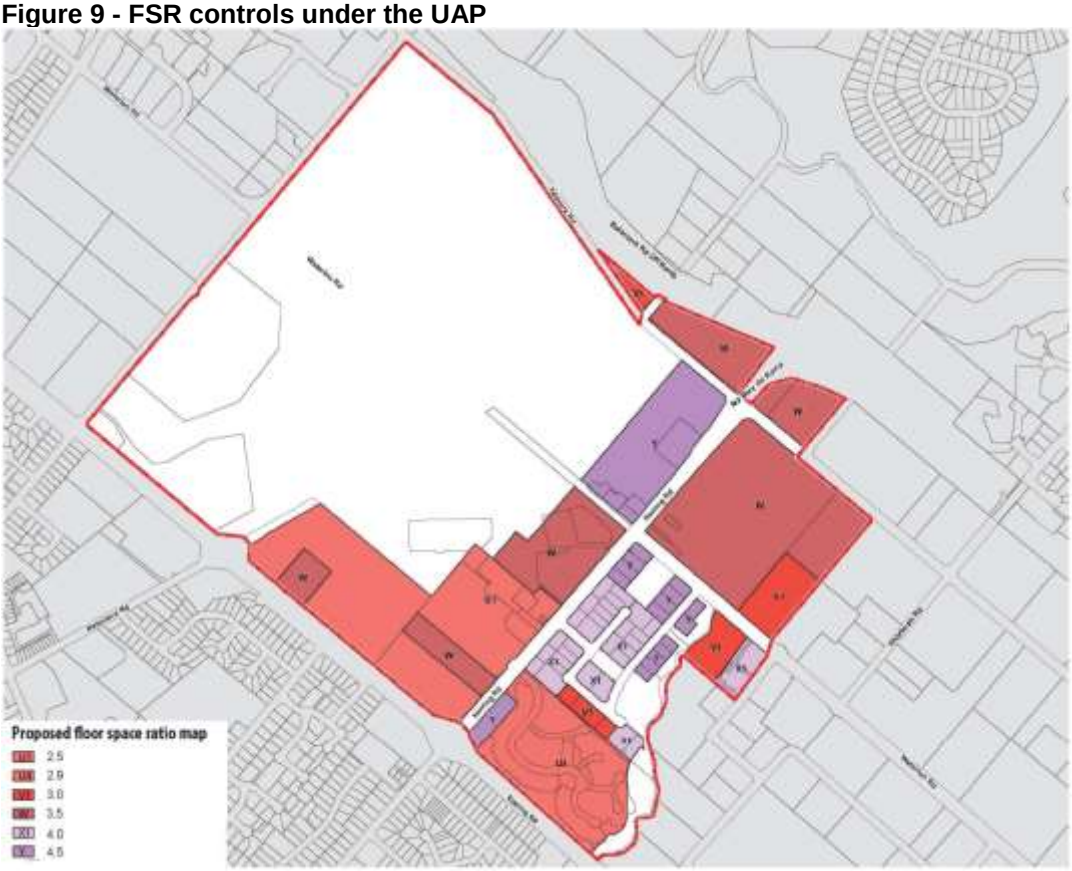


Figure 8 - Building heights under the UAP

Figure 9 - FSR controls under the UAP



In light of the above, it is noted that there appears to be a disconnect in the heights and FSRs proposed for 157 Balaclava Road and 159-161 Epping Road. In particular, it is noted that it appears as though the FSR of 3.5:1 is not in the same location as the increased heights of 65m. This must be clarified.

In considering Council's planning controls below is a summary of the environmental planning instruments and the general intent contained within them:

- **Ryde Local Environment Plan 2010** – this was a 'like for like' updating of Council's *Ryde Planning Scheme Ordinance 1979* into the standard instrument.
- **Ryde Local Environmental Plan 2014** – this is a subsequent iteration of the RLEP 2010 that seeks to amend planning controls for a range of sites within the Ryde LGA. No amendments are proposed within the MPBC. Council is awaiting the final gazettal of this EPI which is shortly anticipated
- **Amendment 1** – this is a planning proposal that seeks to amend the planning controls contained within RLEP 2010 within the MPBC only. This planning proposal seeks to provide increased heights and FSRs but only where infrastructure or funding for infrastructure is provided. It relies on planning incentive provisions. This planning proposal has been submitted to the Department for consideration and has undergone public exhibition. The planning proposal includes a refinement of the Macquarie Park road network and open space network. Council has undertaken extensive work as a part of this process which provides a detailed roadmap for the future of Macquarie Park.

In preparing the Amendment 1 planning controls for Macquarie Park, Council conducted extensive investigations into the appropriate urban form that would provide for the long term growth of the commercial core, while allowing residential development to occur in the B4 Mixed Use Zone. A two tier heights system is proposed at 45m and 65m - with the highest fronting Waterloo Rd (which is considered the spine of the Corridor). This simple but considered approach to building heights will result in an urban form that will allow the tallest buildings to be along Waterloo Road in close proximity to the stations; the lowest FSRs to be on the perimeter of Macquarie Park.

This ensured an appropriate relationship of the development with the surrounding areas, including the transition to low density residential areas to the south. Amendment 1 also seeks to reinforce Waterloo Road as the central spine of Macquarie Park as reflected in the heights and FSRs. This is not reflected or reinforced by the proposed heights and FSRs within the UAP. Whilst Herring Road is the main road within the UAP, it is not the central road for the rest of Macquarie Park and is not likely to become one due to its largely residential nature with the exception of the portion between Waterloo Road and Talavera Road. However Council notes that under the proposed planning controls, Herring Road will evolve into a different sort of spine to that of Waterloo Road. This is due to the presence of the University, Shopping Centre and Station. However this difference in the spine must be reflected in the setbacks and treatment of Herring Road.

Surrounding Development

With regards to the Herring Road UAP, there are a variety of different existing approved developments that must be considered. These are as follows:

Macquarie University (Part 3A Approval) - The Macquarie University Campus Concept Plan approved on 13 August 2009 permits 400,000sqm of commercial floor space and 61,200sqm for academic uses, student housing and associated infrastructure and open space. The approval

includes maximum building heights of between 72m and 108m for the sites adjacent to the Macquarie University Train Station. The maximum height of 108m is the highest maximum building height throughout the campus and is to allow for the construction of landmark tower buildings at the arrival point to the train station and university. It is noted that the University has released its campus Master Plan which will *'… guide the evolution, growth and development of the campus for the next several decades*'. (Macquarie University Campus Master Plan 2014). Council has viewed the document but was not involved in its formation or development. Council has concerns with the extent of the development proposed in the Master Plan and its lack of connection with Council's planning framework.

Interestingly, the Master Plan states that '*The adoption of the UAP at Macquarie University may see a change of land use to create greater flexibility in land use distribution across the campus. Along the Herring Road frontage, increased heights and specific floor area controls have been identified in this important transport interface zone.* (p. 14, Macquarie University Campus Master Plan 2014*)*. The plan also notes that '*The proposed zoning may see an increase in commercial potential for the campus and more flexibility in its location on the University site.'* (p. 37, Macquarie University Campus Master Plan 2014)

Macquarie Shopping Centre (Development Application) – On 3 February 2009 Ryde Council consented to "alterations and additions to the Macquarie Shopping Centre including the demolition of building on No. 55-61 Talavera Road and the construction of a new shopping centre expansion with associated car parking, road works and landscaping". This application consented to the following works:

- Enlargement of the GFA by 30,326 sq/$m^2$to provide a total GFA of 166,335sq/m^2.
- Enlargement of the retail GLA by 31,979 sq/m^2 to provide a total GLA of 128,455 sq/m^2.

There have been subsequent applications which have furthered increased and modified the above application. Of particular relevance to the UAP, is that in 2010 Council signed a memorandum of understanding with AMP Capital to:

- Further progress the development of a Master Plan,
- Hold a series of workshops to further develop the elements of a future plan which included:
    - '*Understanding the potential for community facilities such as the Macquarie Park Learning – Leisure and Library Facility'*.
    - A new town square between the railway station and shopping centre,
    - Integration of entertainment / leisure precinct into new town square,
    - Investigating an underground link between the station and the shopping centre,
    - Upgrades to transport infrastructure at Herring Road, and
    - Exploring issues regarding ownership and responsibility for Shrimptons Creek / Link Road,

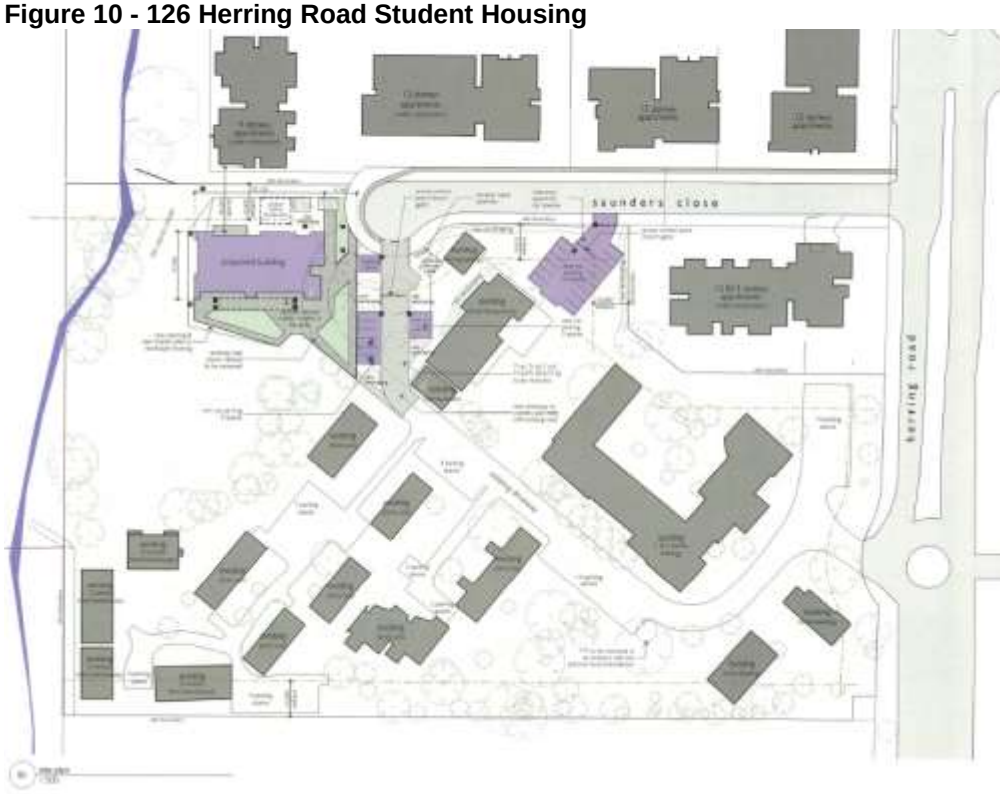
110-114 Herring Road (Part 3A Approval) - On 26 September 2012 a Concept Plan and Stage 1 Project Application was approved for a mixed use residential, retail and commercial development at 110-114 Herring Road, Macquarie Park (corner of Herring Road and Epping Road). The Stage 1 Project Application includes the construction of four (of seven) buildings, landscaping, public domain and internal roads and services. Approved modifications increased the height of one of the buildings from 20 to 22 storeys, and the approved FSR from 2.13:1 to 2.28:1. It is noted that both the heights and FSRs as approved are below the controls proposed for the site under the UAP.

120 -128 Herring Road (Part 3A Approval) - On 20 January 2011, a Concept Plan, Subdivision and Project Application was approved for 120-128 Herring Road. The development is currently under construction and comprises a mixed use residential and retail development of four 12-13 storey buildings and one 9 storey building. The proposal has an approximate FSR of 2.65:1. It is noted that both the heights and FSRs are above the controls proposed for the site under the UAP.

84 - 92 Talavera Road (Development Application) - On 15 March 2012, a mixed use development was approved by the JRPP for 84- 92 Talavera Road, Macquarie Park. The development comprises four buildings, being two 8 storey residential buildings, one 8 storey serviced apartment building and one 9 storey serviced apartment building. This development is currently under construction and nearing completion.

126 Herring Road (Development Application) – Council has received a Development Application for student housing at this site. From the high level plans supplied as part of the UAP, the location of the student housing will require the roads north of Herring Road to be redesigned. A copy of the site plan is provided at Figure 10

Figure 10 - 126 Herring Road Student Housing



Strata Title Units - With regards to other surrounding development, Council has significant concerns regarding the area containing several strata title units bound by Waterloo Road, Herring Road, Shrimptons Creek and the Ivanhoe Estate. This area has been afforded significant heights and FSRs but it is unclear whether there will be sufficient economic justification for the redevelopment of this area.

It is noted that NSW Fair Trading released a position paper on strata title law reform which identified two key changes:

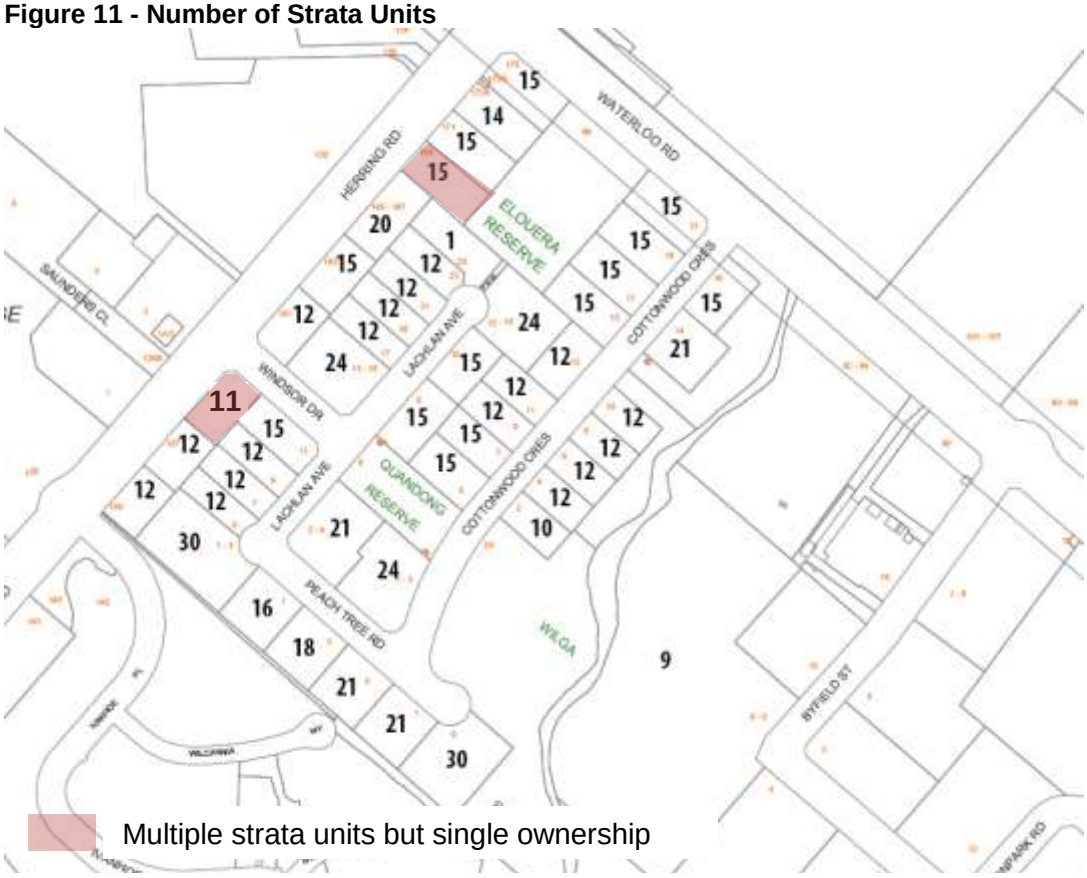
- to lower the threshold support for renewal to 75% of owners (versus the current 100% requirement); and

- to terminate strata schemes by application of the owners corporation to the Strata Commissioner who will be a member of the Land and Environment Court.

Figure 11 identifies the number of strata units on each allotment. This will be a significant and severe impediment on the redevelopment of this area. The Planning Report identifies that economic modelling has taken place but this information has not been provided to Council and as such, Council strongly questions whether this area will develop. This has significant ramifications for:

- delivery of new roads,
- payment of associated Section 94 Contributions which is required for the delivery of infrastructure under the UAP
- in the event of redevelopment of adjoining lots under the UAP controls, significant disconnect in the built form of existing walk up apartments and new buildings which will range from 20-37 storeys.

Figure 11 - Number of Strata Units



Built Form Strategy

The proposed FSR and heights will result in exceedingly dense development which will be characterised by very tall buildings (14-37 storeys). In Australia, this type of density is more typical of a CBD location where there are largely commercial uses. Whilst the Herring Road precinct is zoned B4 and a mix of uses is permissible, it is likely that the majority of the precinct will be developed for residential uses. The proposed UAP building heights remain untested for a residential precinct within the middle ring suburbs of Sydney. It is unknown whether the proposed densities and heights will result in a desirable place for people to live.

Whilst there is significant debate within the broader community about the merits of tall buildings, it is generally agreed that for tall buildings to succeed, there are a number of issues that need to be addressed at the planning and design stages. In this regard, the Herring Road UAP Planning Report is a high level document with insufficient detail to ensure achievement of well-designed buildings situated in a workable, liveable environment that supports well-being and quality lifestyle for future residents.

The proposed built form strategy in the Planning Report is poorly defined and ambiguous. Further, the proposed built form controls are minimal in content and fail to address issues such as climatic impacts (e.g. overshadowing and wind turbulence), the building's interface with the public domain, and private and communal open space. Whilst there is much emphasis in the document on improvements to the public domain on Herring Road, there is little information about the built form's contribution to the future character of the precinct. In particular, the report displays a noticeable lack of vision for the residential area between Herring Road and Shrimptons Creek.

There are inconsistencies in the document between the proposed built form controls (p59), the perspective sketches of future streets (cover Figs 29 and 36), the illustrative master plan (Fig 28) and the detailed plans and street sections (Figs 44-46). Whilst the proposed controls on p59 indicate a street wall building with an upper level setback, this built form is not illustrated on the perspective sketches which show buildings of varying heights but with no upper level setbacks. The detailed plan of Herring Road shows extensive side setbacks and gaps between buildings at the street frontage whilst the illustrative master plan, the photomontages and the structure plan (Fig 37) indicate a continuous retail frontage along Herring Road. These inconsistencies in the document suggest that the strategy for built form requires further resolution.

One of the main issues with tall buildings is the potential overshadowing of the public domain. The Planning Report provides shadow diagrams at Fig 53 – 60 for the winter and equinox solstice. The shadow diagrams are based on the illustrative master plan with assumptions being made regarding the height of buildings. It is noted that under the proposed LEP heights, a 20 storey building is permissible for the buildings adjacent to Elouera Reserve. However, the shadow diagram assumes a building of far lesser height. If the shadow diagram had shown the potential building height correctly, there would be significant overshadowing of Elouera Reserve in winter.

Setbacks

Council has concerns regarding the proposed setbacks detailed within the submitted plan. The setbacks are unlikely to result in the proposed built form detailed within the Indicative Plan and associated montage images. This is primarily the result of seeking to establish a street wall without considering potential side boundary setbacks, building depths or potential uses of podium elements.

An upper level setback has been stipulated for buildings fronting Herring and Waterloo Road. The rationale for the setback is to create a street wall height (6-8 storeys) which will minimise the impact of the taller buildings behind them. Whilst upper level setbacks may be appropriate in some locations, they should not be mandatory for every site on Herring and Waterloo Road. For example, buildings at the intersection of Waterloo and Herring Road should help to define the corner. It is noted that the perspective sketches in the Planning Report do not show upper level setbacks for all buildings. It is recommended that a more detailed approach to the built form is adopted to address site specific issues.

Zero side setbacks should be nominated for buildings fronting Herring Road in the section where it is envisaged that retail uses will occur. It is noted that a "street wall" building typology can only

be achieved with zero side setbacks. Zero side setbacks also facilitate continuous all weather protection. What this means for the uses above ground level and nominal building depths has not been detailed within the submission. The stylised building envelope provided at Figure 52 of the UAP Planning Report appears to propose built to boundary podium style development that has significant depth. Presumably, this will not permit residential uses on the 6-8 storey street wall? It is noted that awnings are indicated on the detailed street section of Herring Road. Whether this is an appropriate built form for the entire length of Herring Road is questionable. This will be influenced by the active frontage location and whether it is feasible to have this for the entire length of Herring Road. Work undertaken as part of Amendment 1 is detailed at Figure 12 which details potential locations of active frontages.

It is noted that the UAP only details front setbacks and is generally silent on side boundary and rear boundary setbacks. It is assumed that this is on the basis that the minimum building separation rules of thumbs contained within the Residential Flat Design Code will apply. In Council's opinion, side boundary setbacks should be nominated to provide guidance for development. This is important for the secondary streets within the precinct as it will strongly influence building typologies.

However it must be recognised that it is unlikely that the entire length of Herring Road will be retail / commercial land uses. It is recommended that targeted areas for retail / commercial land uses be identified. This would then allow further resolution of the street setbacks to ensure that sufficient amenity is provided on the ground floor. As identified elsewhere in this submission, it is noted that some amendment / further resolution of the type of traffic, pedestrian environment and cycling infrastructure along Herring Road is required. This will then need to require a significant redesign of the treatment of Herring Road which may need for the widening of Herring Road to occur. This must be considered as part of any proposed setbacks.

Additionally, a zero setback on Waterloo Road may not be possible due to the Epping to Chatswood rail line which is located below Waterloo Road and constrains future development outside the railway stratum.

Figure 12 - Macquarie Park Urban Form

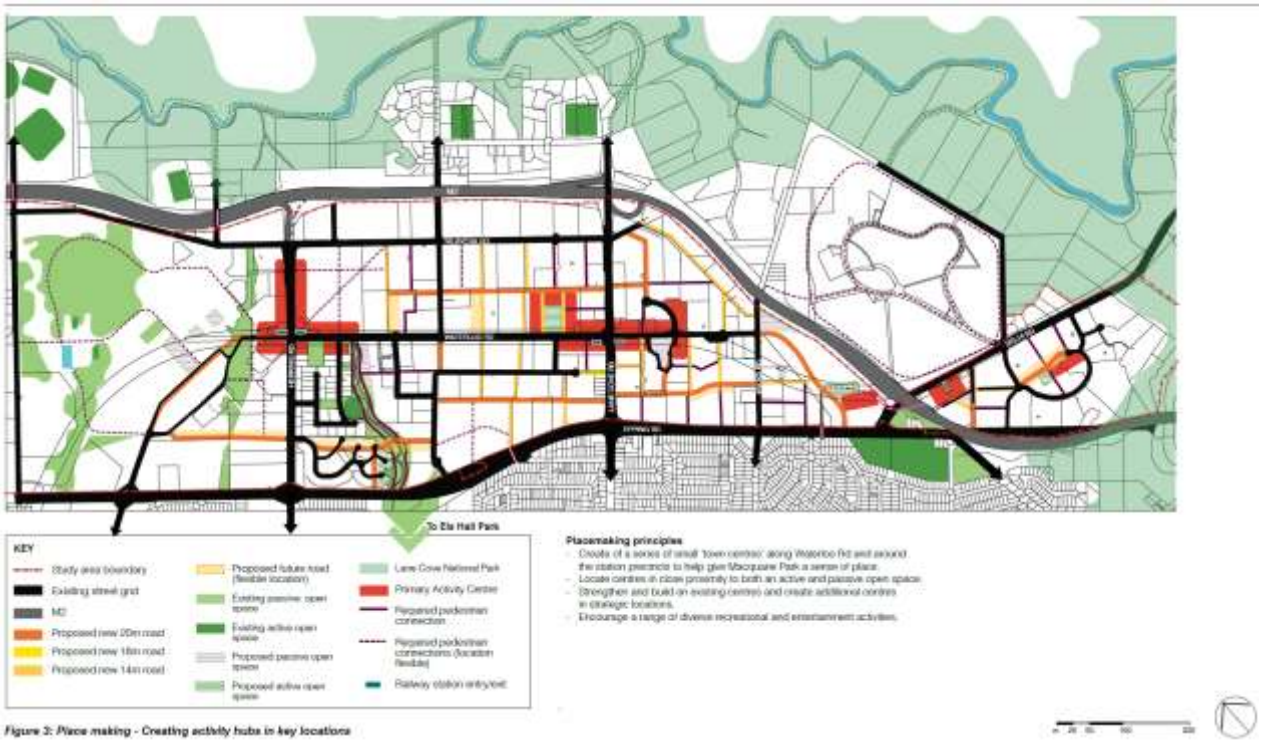


Figure 3: Place making - Creating activity hubs in key locations

It is also noted that the Planning Report identifies that there will be a maximum building foot print above podium street wall buildings of 800m^2 for residential or 1400m^2 if commercial. It is unclear how this will be achieved, or where it is expected to deliver commercial buildings of such a significant size.

Street Widths

It is noted that the UAP Planning Report identifies an average new street width of 20m for local streets. No consideration has been given to any type of street hierarchies or range of streets proposed within the UAP. In particular, it is noted that several new connections are to be one way. The width of these streets have not been identified or nominated. Council is of the opinion that all streets should be designed as being capable of two way traffic flow with temporary barriers being restricted to limit flow at a later date it required.

Herring Road

Council has several concerns regarding the treatment and sizing of Herring Rd. In particular, the Transport / Traffic sections of this submission identifies that the provision of Bus priority measures along the length of Herring Road whilst needing to provide a range of different bike user paths.

Herring Road must cater for the following types of movement:

- Light Rail Corridor
- Cyclists:
    - Between Epping and Waterloo this may be appropriate as Shared User Paths. Sufficient widths must be provided.
    - Between Waterloo and Talavera this must be a dedicated lane due to high levels of pedestrian traffic.
- Bus priority lanes in both directions
- Cars
- Landscaping and WSUD

- Sufficient footpath width for pedestrians
- Sufficient footpath width for Retail / Commercial spaces in targeted areas
- Sufficient setbacks to allow for residential amenity to ground floor units.

From the submitted documentation it is likely that Herring Road will need to be widened to cater for the above. This is as no consideration has been provided for bus priority measures or the light rail.

Connections

Generally the proposed road network is supported, in particular, the additional new roads within Macquarie University, the elimination of the cul-de-sacs in Ivanhoe Place, and the road alongside Shrimptons Creek. These proposals will assist in making the precinct more permeable and facilitate traffic movement and circulation. However, the following are areas of concern with the proposal.

Connection	Comment	Recommended resolution
Peach Tree Road to Ivanhoe Place	This road is likely to result in the loss of open space. Whilst it is acknowledged that some of this open space is located on Ivanhoe Estate land, it currently functions as open space for the community. It also requires either the redevelopment of 9 Peach Tree Road (contains 30 Strata title units) or the loss of open space from Wilga Park.	The potential loss of open space must be recaptured elsewhere along Shrimptons Creek. A mechanism to deliver infrastructure needs to be developed and incorporated into a planning instrument. This mechanism could be a planning incentive scheme similar to that detailed within Amendment 1 or the 'satisfactory arrangements provision'.
Street and bridge between Peach Tree Road to Lyonpark Road	This road is proposed to be one way when it should either be two way or built to a sufficient width to cater for two way traffic. It appears to be located over multiple property boundaries and potentially half / half. The bridge is unfunded.	Should be identified as being a minimum of two way width. A mechanism to deliver infrastructure needs to be developed … 'as above' The road should be located over only 1 property and where possible this should be properties within single ownership.
Ivanhoe Estate Streets	Initially, these aligned with existing streets to reduce potential impact on utilities.	Clarity to be provided regarding location of utilities. A mechanism to deliver infrastructure needs to be developed … 'as above'
Lachlan Avenue to Cottonwood Crescent	This road is proposed to be one way when it should either be two way or built to a	Should be identified as being a minimum of two way width.

Connection	Comment	Recommended resolution
	sufficient width to cater for two way traffic. Council supports the improved access to Elouera Reserve. Requires the redevelopment of two properties: • 12-14 Lachlan – 24 Strata units • 13 Cottonwood – 12 strata units	A mechanism to deliver infrastructure needs to be developed… 'as above'
Waterloo Road to Talavera Road	Nil	A mechanism to deliver infrastructure needs to be developed… 'as above'
Herring Road to Balaclava Road	Proposal includes roads that are potentially affected by Current DAs.	A review needs to be undertaken of the proposed road network to confirm the impact of current DAs on the proposed road network. A mechanism to deliver infrastructure needs to be developed… 'as above'
Macquarie University campus / Dunmore College	Nil	A mechanism to deliver infrastructure needs to be developed… 'as above'
Local streets - Morling College, BCS and other development sites	Current DA has been lodged with Council which includes a boarding house on the Morling College site. See section on Surrounding Development.	A mechanism to deliver infrastructure needs to be developed…'as above'
Pedestrian Link from Peach Tree Road to Ivanhoe (Cottonwood Crescent)	This pedestrian link would require the redevelopment of a number of sites as they are all less than 1800m^2: • 5 Peach Tree Road - 21 units • 3 Peach Tree Road - 18 units • 7 Peach Tree Road- 20 units	Nil.

Connection	Comment	Recommended resolution
	Supported but whether it can ever be achieved is questionable due to redevelopment constraints.	
Pedestrian Link from Peach Tree Road to Ivanhoe Place (Lachlan Avenue Connection)	This pedestrian link would require the redevelopment of a number of sites as they are all less than 1800m^2: • 1-3 Lachlan Avenue - 30 units • 1 Peach Tree Road - 18 units Supported but whether it can ever be achieved is questionable due to redevelopment constraints.	Nil.

The majority of these new roads are located on privately owned land and their delivery would be dependent upon the redevelopment of affected sites. The Planning Report suggests that the delivery of the roads could be achieved through a VPA or Section 94 Contributions. However, as the proposed FSRs and heights for the UAP will already result in exceedingly dense development, it will be difficult for Council to negotiate a satisfactory built form outcome that will deliver the necessary infrastructure. The Department needs to develop a mechanism for the delivery of the infrastructure – such a mechanism needs to be incorporated into a planning instrument (SEPP/LEP) to ensure it is mandatory to deliver the infrastructure as part of the development process.

New signalised intersections along Herring Road are supported because they will increase pedestrian safety by slowing traffic and providing more crossing points at desire lines; consideration of the impact on traffic flow also needs to be considered.
On p. 30 of the Planning Report, a key element of the Herring Road Precinct vision is to provide better links to Lane Cove National Park. It is noted that no new links are proposed or identified in the Planning Report.

Proposed Zoning

The proposed expansion of the B4 Mixed Use Zone is not supported by Council. In particular, the application of B4 Mixed Use across Macquarie University or for 101-107 Waterloo Road and 16 Byfield Street are key areas of concern.

The reduction of the B3 Commercial Core and the B7 Business Park areas on 101-107 Waterloo Road and 16 Byfield Street run the risk of establishing a precedent for the further rezoning of B3 Commercial Core / B7 Business Park areas within Macquarie Park. Council has already received two planning proposals within the MPBC which seeks to increase the amount of B4 Mixed Use land. This is inconsistent with the strategic direction for the Macquarie Park Corridor adopted in the City of Cities: A Plan for Sydney's Future (Metropolitan Strategy), Metropolitan Plan for

Sydney 2036, the Draft Metropolitan Strategy for Sydney 2031, Ryde Local Planning Study 2010 and Ryde LEP 2010 and Draft Ryde LEP 2013.

Council acknowledges that residential development yields greater short-term profits and as a result anticipates that changing the B3 land uses to B4 will set a precedent that will encourage all landowners in Macquarie Park to request B4 Land use zoning and jeopardise the future of the Macquarie Park Corridor as an employment centre. The MPBC contributes significantly to the commercial strength and Gross Domestic Product for NSW and wider Australia as evidenced in the *PwC Australia uncovered - A new lens for understanding our evolving economy March 2014*.

The rezoning of University land from SP2 University to B4 Mixed Use is intended to allow the University the flexibility to develop synergies between commercial and research land uses. In Council's opinion this is unnecessary as:

- The university already has a Concept Master Plan which permits commercial and research uses;
- It will allow residential land uses on the whole of the University site zoned B4 Mixed Use, the ramifications of which have simply not been considered within the Planning Report. In Council's opinion the potential expansion of residential land uses in the MPBC is unnecessary and fill further reduce the viability of the MPBC for reasons detailed elsewhere within this submission; and
- If the purpose of the rezoning is in fact to encourage commercial activities a B3 land use zoning for the university site would be more consistent with commercial activities.

Under the proposed zoning controls, it is noted that the proposal seeks to include 'signage' as a permissible land use within the B4 Mixed Use Zone. This is highly questioned by Council as it will have significant ramifications by permitting a wide range of signage across the entire LGA which is not currently permitted. This appears to be an afterthought with either poorly conceived or no justification for its inclusion.

In addition to the above concerns it is noted that the proposed Public Space Framework for the precinct identifies a network of open spaces and green pedestrian links along Kikkiya Creek. This has not been reflected in the proposed zoning for the site. It is recommended that this area be identified as RE1 Public Recreation. This will ensure its future protection. It is noted however, that it does not appear as though any detailed investigations of the extent / nature of Kikkiya Creek has been undertaken. This must be undertaken to identify the riparian buffer areas to be applied and to determine the extent of the RE1 Zoning required.

In addition to the proposed zoning controls, land reservation maps must clearly identify what areas are to be provided as open space and potential widening for Herring Road.

In the event that the Department seeks to utilise the UAP controls to replace those currently in place under the Concept Plan for Macquarie University it should be noted that the Concept Plan applies to land outside of the UAP area. Particular reference is made to the land to the north of the M2 and the land alongside the M2 at Culloden Road.

It is noted that there some outstanding discrepancies between the Heritage Item listing for the Macquarie University site under the Concept Plan approval, Ryde Local Environmental Plan 2010, and the draft Ryde Local Environmental Plan 2014. This must be resolved prior to the finalisation of the UAP.

Macquarie University Rezoning of Land – SP2 to B4

Council has significant concerns regarding the rezoning of the whole of the University land to Mixed Use. It is acknowledged that the development of the University is guided by a Part 3A Concept Plan which was approved by the Department in 2009.

The rezoning of the land could result in:

- A significant widening of the permissible land uses on University Land beyond that currently permitted. It is noted that the Concept Plan is primarily limited to Commercial Premises, University uses and those considered ancillary. Of particular concern, the B4 mixed use zoning allows residential uses and all other uses permissible within a B4 Zone. Whilst the University may never seek these uses, it does open up a range of alternate uses not currently permissible that will have significant impacts on Macquarie Park and the wider LGA.
- The application of the planning controls relating to height, FSR and zoning on the University land is poorly considered as part of the UAP. The proposal appears to loosen the existing controls imposed by the Concept Plan which provides detailed guidance for the future development of the University. The Concept Plan forms a master plan which provides a clearly defined image for the University's future this is not delivered by the UAP.
- The current Concept Plan provides detailed guidance for the future development of the University land with specific controls relating to provision of Open Space, road network, provision of car parking, building typology and massing, land uses and other significant areas. Should the UAP be approved in its current form, these controls will be weakened with no guidance provided for these areas other than the generally high level indicative details provided as part of the UAP.
- This broad application of generic planning controls to the site will result in individual development applications considered on a case by case basis with no unifying scheme of end state being considered.
- Consideration should be given for the UAP to include controls within Council's LEP and DCP for the University rather than the Concept Plan; this would require detailed discussions between the University and Council.

Council strongly objects to the rezoning of the University land from SP2 to B4 or any other zone. Should the University seek to amend the planning controls that apply to its land, this should be undertaken as part of a planning proposal which could be based on a development staging plan. The planning proposal process would allow the comprehensive consideration and assessment of redevelopment proposal — based on the key elements of density, height, building bulk/ scale, context, traffic issues, open space provision etc.

The status of the 'Planning Agreement' (7 February 2013) negotiated between the University and Council needs to be clarified. This Agreement defined the quantum and type of development, as well as a schedule of monetary payments and works-in-kind to support the Concept Plan. Any change to the planning controls could significantly affect the Agreement negotiated between the University and Council.

Amendments to Development Control Plan

Council is currently in the process of amending the Macquarie Park Development Control Plan so as to reflect the controls detailed within Amendment 1. At the time of writing this DCP has not yet been endorsed by Council and as such cannot be provided. However it is anticipated that this will

be completed later this year. Once finalised, Council can provide a copy of this to the Department upon request.

Given the extent of concerns identified within this submission, it is considered that the Department will need to significantly revise / amend the DCP. Prior to this work being undertaken, Council will work collaboratively with the Department to revise the proposed controls and ensure that the DCP will result in the best outcomes possible. Key areas of concern include but are not limited to:

- No detail of open space / public areas to be delivered. This includes open space along Shrimptons Creek and public Plaza areas;
- No detail about how the design / finishes to Herring Road will be captured within the DCP; and
- Whether the proposed roads are to be in accordance with the typology identified under Amendment 1 and whether this is appropriate.

Overshadowing

Shadow studies indicate that public spaces will be adversely impacted by the built form proposed. This extends to the parklands along Shrimptons Creek, including Wilga Park, Quandong and Elouera Reserve and Herring Road between the Shopping Centre and the University. The impacts of this are an adverse impact and reduction of amenity. It is also noted that there appears to be an inaccuracy in the heights along Elouera Reserve and the shadows depicted in the Planning Report. With regards to Herring Road, this area is one of the most heavily pedestrian trafficked areas within Macquarie Park. This significant loss in amenity is highly questionable as there does not appear to have been any alternate options considered.

Public Art

Part of Councils vision for Macquarie Park is to create a vibrant space with public art used to identify and highlight key landmarks and precincts. There has not been any consideration of the provision of public art within the precinct. This must be addressed.

Public Domain

A key area of concern for Council is the UAPs approach to public domain areas including Open Space and Herring Road. Other public domain areas such as the treatment of other streets within the UAP have been addressed in the Urban Form section of this report.

There appears to be little detail as to how the public spaces around the station entrances are to be treated. In particular, there is little detail on how the public spaces will interact with critical infrastructure including the Shopping Centre, bus Interchange, train station and nearby University precinct. Opportunity exists to provide public meeting places which will act as places to gather and as a destination. As the Herring Road precinct develops the need for these public spaces will increase. This is of particular concern given that it is widely recognised that a bus interchange below ground must be provided along Herring Road between Waterloo Road and the M2.

With regards to the public domain areas to be delivered under this proposal, Council already has predetermined standards for the public domain. These are contained within Council's Public Domain Technical Manual. These standards do not appear to have been recognised within the precinct. These standards must be used to ensure consistency with the rest of Macquarie Park. Furthermore, it is noted that the proposal has failed to take into account amended street widths proposed under Amendment 1.

Additionally, Council has recently adopted a Street Tree Master plan that provides a list of street trees to be used within all areas of the Ryde LGA. This has not been addressed as part of the DCP and compliance with this master plan must be achieved.

The UAP does not commit to highlighting the importance of creating a public space near the train and shopping centre. No details as to how plazas at the train stations are to be achieved (proposed funding stream or delivery plan) are detailed adequately within the Planning Report. Council's Development Control Plan 2010 identifies plazas at the train stations and the Ryde LEP funds these under the planning incentives scheme. The UAP undermines the possibility of their delivery.

Herring Road

It is appreciated that Herring Road is the spine of the UAP and that the scheme for Herring Road has been prepared as an indicative use of the $5 million associated with the Precinct Support Scheme. However, it is unclear whether the proposed scheme can realistically be delivered within the total $5 million or whether there will be any funding shortfall. Council is yet to see detailed costings of the proposed upgrading and outlines its concerns and suggestions in more detail in the Infrastructure section of its submission.

The proposed upgrading of Herring Road does not detail whether there will be sufficient room for the proposed light rail within the road corridor. Given that the state government has reserved $400 Million in the budget for the light rail and that the UAP represents an opportunity to provide new controls for Herring Road, the adequacy of the road reserve for the light rail must be considered. This may require an increase of the setbacks along Herring Road that will allow for the widening of the road at a later date. Alternatively, it may simply require provision of a median strip of sufficient width which can be converted to the light rail corridor at a later date. This must consider location and position of possible stops and the spaces required for this.

With the Transport section of this submission, several issues regarding the upgrade with regards to cycle ways and bus priority measures have been identified. This must also be considered with regards to the upgrading of Herring Road.

Open Space

Council is disappointed with the minimal amounts of open space provided as part of the UAP. The total size of open space both lost and gained by the UAP does not appear to have been quantified within the Planning Report. However, from Council's calculations the proposed areas of open space to the south of Herring Road equates to only 2.5% of the entire study area. There is no specific numerical quantum given for the minimum size of this area or the areas along Kikkiya Creek. This must be clarified.

From the supplied documentation, it appears as though there is no increase in public open space and possibly less open space than currently accessible; there is a lack of clarity in the documents around this issue. The "new" park is in fact within existing Shrimptons Creek parklands which is already used by the community as informal open space. It is doubtful that the dimensions of the existing park will accommodate a new playing field. Furthermore, this space is likely to be predominantly within the riparian corridor of Shrimptons Creek which may severely limit its usability. It is noted that Wilga Park might be reduced by the new road connection from Peach Tree Road to Lyonpark Road. It is noted that Wilga Park is currently too small to be used for formal active recreational uses (i.e. organised sports).

It is preferred that Wilga Park is retained or enlarged to provide additional future capacity for active open space to supplement open space as the population of the area increases.

Straightening the alignment of the proposed Shrimptons Creek crossing and Cottonwood Crescent could achieve this. Alternatively, funding to provide a similar sized space elsewhere within the UAP could be included.

It would appear that the UAP Proposal will result in a loss of active open space. Ryde Integrated Open Space Plan concludes that there is a deficiency of open space, and particularly, active recreation space in Macquarie Park. Existing open active space in proximity to the site is already at capacity; the closest active space - ELS Hall Reserve - is already overused and would not be able to cope with additional usage. Accordingly more active recreation/open space is needed in Macquarie Park.

Council suggests that the 'new parks' (identified as No.7 No. 8. and No. 9 in documentation shown at the Steering Committee meeting) given their size and location, will only function as a 'private parks' serving the development within which they are located and not provide the public active recreation space that is needed. Park No. 7 in particular, could be better placed if it formed part of the Shrimptons Creek Parklands which would allow greater access from the broader community. The need for this park is a direct result of the additional population within the area.

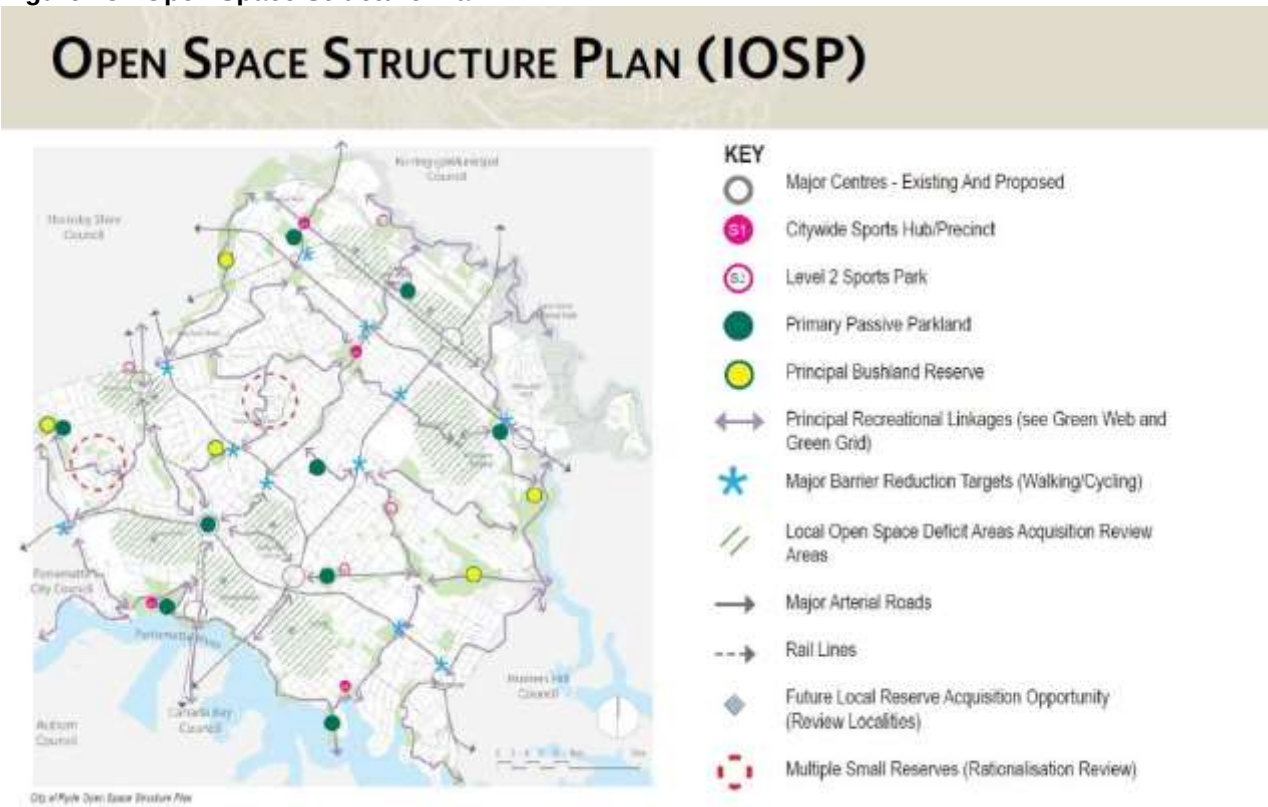
Open spaces anticipated to be delivered by the University are yet to be confirmed and a mechanism to achieve the desired outcome – including their long term certainty - needs to be identified. It is noted that the current Concept Plan for the university never considered the level of development proposed under the UAP or the clear identification of an open space network on the University.

Sufficient space needs to be ensured to support a playing field/active recreation. It is acknowledged that active recreation space is critical for the area given the already identified open space deficiency.

With regards to Kikkiya Creek, the creek is identified by the UAP as an open space resource for new residential communities anticipated as a result of the development uplift. However, it is noted that this land is proposed to be zoned B4 Mixed Use and that there does not appear to be any consideration of the riparian zone required for the creek. This should be identified at this high level to determine whether the buffer zone and creek treatments will provide additional open space / recreation areas to support the proposed community. It will also influence the potential amounts of FSR and building forms permissible on adjoining properties. As identified in the Proposed Zoning part of this submission, the creek should be Zoned RE1 Public Open Space.

Extensive work undertaken by Council in its Integrated Open Space Plan 2012 (IOSP) analysed existing open space in the City of Ryde – its function and size. Based on this investigation, an open space deficiency in the Macquarie Park Corridor was identified as being local open space deficient as detailed in Figure 13.

Figure 13 - Open Space Structure Plan



This deficiency will be exacerbated by projected growth in residential and worker populations in Macquarie Park excluding the UAP. The population of Macquarie Park is forecast to increase by over 60% from around 6,600 people in 2014 to over 10,000 by 2031. This does not include the additional population afforded by the UAPs. In addition to the demand generated by the residential population, economic growth will double worker numbers by 2031 from 40,000 to over 80,000. In 2013 Council estimated that the overall open space in City of Ryde was around 3.22 hectares per 1,000 people. The Macquarie Park Corridor was significantly lower at 2.7 hectares/1000 people.

While the ISOP developed in 2012 highlighted the open space deficiency in Macquarie Park, the Plan has not allowed for the population impacts from the Urban Activation Precincts Program. Based on State Government projections, by 2031, the Herring Road UAP will add a potential maximum additional 5,400 dwellings; but with the final end state of the development estimated by Council as being in excess of 12,000 additional dwellings.

With an expected additional day time/weekday population the size of a small new town within the next 20 years in the Herring Road UAP, the need to provide adequate and suitable additional public open space is critical. However, the Planning Report appears to argue that the UAP area is within 800m of several open space areas? The use of 800m is highly questionable. Firstly, the *Recreation and Open Space Planning Guidelines for Local Government* (ROSP) identifies that this should be 400m rather than the 800m proposed. Best practice planning for urban environments recommends that all residences should be within a maximum of 400 metres (approximately 10 minutes) walking distance from public open space for day-to-day recreation needs. There is no clarification as to why 800m has been selected. Secondly, use of distances in this manner should be predicated on real connections taking into account existing streets, pathways, cycle ways and barriers; not a blanket 400m as the crow flies. A review of the access to open space in accordance with the above would result in the actual access to open space

areas achievable by the UAP. It is Council's position that this would further highlight the need for additional open space within the UAP.

It is noted that the vision for open space contained within Section 3.1 of the Planning Report identifies that better links will be provided to Lane Cove National Park but this is not detailed anywhere within the Planning Report. This would need to overcome the M2 which would be a significant barrier. It should be noted that Council met recently with Transurban whom are currently investigating the use of land on the other side of the M2 for a variety of different uses. One of these included providing access under the M2 by virtue of a stormwater culvert which may provide access into the National Park. Council can provide contacts to the Department upon request.

It is noted that there are several references to plaza areas within the Planning Report that have not been captured in Figure 42 of the Planning Report. These must be captured and detailed within the DCP. These spaces can often form crucial parts of the public space areas and are often not adequately captured or identified as open space. Another area which should be further clarified is where the typical local parks identified in Figure 45 are to be located. This does not appear to be the so called 'new' sports field adjacent to Shrimptons Creek or be detailed anywhere within Figure 43 which details the open space framework for the precinct.

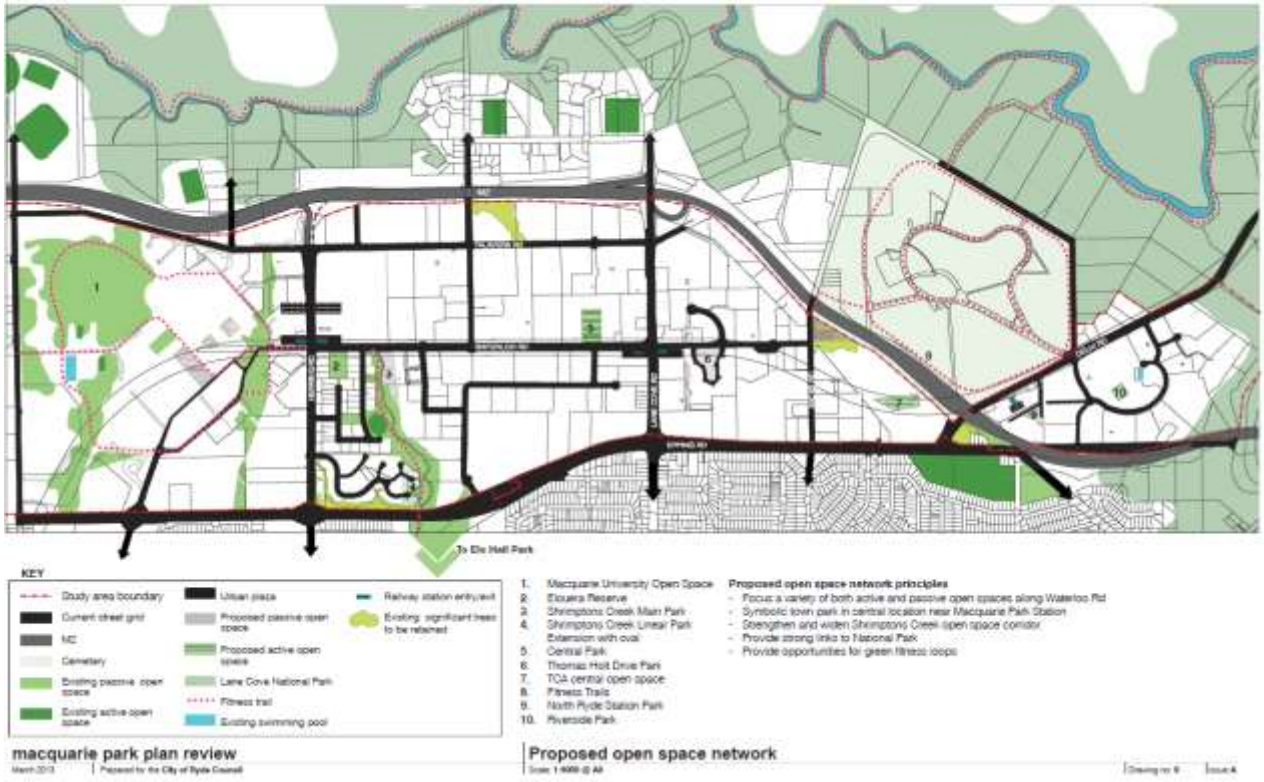
The Planning Report does not take into account the size, nature and type of these open spaces. In undertaking an analysis of existing open space areas, the ROSP identify that any analysis of existing open space needs to take into consideration:

- the function / use of space,
- the context within which each of these spaces exist,
- the catchments which these facilities serve,
- the quality / condition of each space,
- the size of the space,
- existing utilities located within these spaces,
- links to other venues / centres and community assets

None of the above appears to have been considered in the provision of open space for the UAP. As such, the assumption that no significant amount of additional open space needs to be provided despite the significant uplift afforded to existing properties is not based upon any sound reasoning.

The work undertaken by Council as part of Amendment 1 identifies potential areas of increases to open space within and adjacent to the UAP area. These can be seen in Figure 14 below as Items 2, 3 and 4.

Figure 14 - Open Space Network under Amendment 1



The UAP represents an opportunity to further capitalise on the work undertaken by Council as part of Amendment 1 and further expand and embellish the Shrimptons Creek Park network. This will deliver open space while enhancing the pedestrian/cycling networks through the precinct. The work undertaken as part of Amendment1 did not envisage as significant an increase in residential population as that proposed under the UAP and as such, there clearly is a demand for the increasing of open space beyond that detailed in Figure 14.

Without provision of additional open space it will result in open space intensification. This will put strain on public open space and sport fields facilities within the Macquarie Park Corridor and adjoining areas, including:

- Increased recreational use of natural areas and bushland which will require careful management and control to minimise harm to the habitat value of the City's natural areas;
- Further demands on the use of existing sporting facilities including fields (ES Hall), courts, canteens and club facilities: and
- Increased pressure on the use of open space as the 'pseudo backyard' by virtue of high density development.

Any consideration of densification as proposed under the UAP needs to consider the following issues:

- ensuring there is sufficient supply of functional and accessible open space to meet the needs of current and future communities;
- developing open space in a way that provides for current needs and allows flexibility in meeting future demands;
- establishing a network of public open space that is efficient to manage and maintain; and
- ensuring effective utilisation of existing open space resources enables a range of uses and maintains equity of access.

In Council's opinion the Department must undertake further investigation / analysis of open space for existing and the future communities created by the UAP Precinct This should include further investigation of open space in accordance with the ROSP. At a minimum, this should consider:

- Existing surrounding open space areas within 400m of the subject site and connections to and from the UAP area. This should consider all the following:
    - the function / use of space;
    - the context within which each of these spaces exist;
    - the catchments which these facilities serve;
    - the quality / condition of each space;
    - the size of the space;
    - existing utilities located within these spaces; and
    - links to other venues / centres and community assets.

  It should be noted that much of this work has already been undertaken by Council as part of the IOSP. This information is contained within Part 3: Open Space Provisions of the IOSP.
- Land capability within the UAP for provision of additional open space. This should include the following:
    - Environmental affectations of properties including:
        - Flooding;
        - Topography; and
        - Proximity to creeks and associated riparian zones.
    - Land ownership – whether the fragmented nature of the strata title area supports the acquisition of open space / infrastructure and whether this should be imposed on single ownership lots to ensure deliverability.
    - Economic viability of delivery of open space (in terms of the uplift proposed).
- An analysis of the demographics of the likely new residents within the UAP given the sites proximity to the University, likely preponderance toward units within the UAP, and current demographical trends within greater Sydney region.
- The likely open space/public space needs of the new residents.

Council continues to have concerns regarding the delivery mechanisms for the public open space as detailed within the Infrastructure section of this submission. The delivery of open space must be adequately detailed and decisively shown to be realistically achievable. It is noted that Council's own Amendment 1 incorporates a funding mechanism for the new parks and plazas based on planning incentives – increased height and FSR. The UAP proposal provides increased FSR and height and consequent increased populations without an associated proposal to fund infrastructure such as open space.

In light of the above, it is recommended that the following be undertaken:

1. Further detailing of how improved access to the National Park will be achieved by the UAP
2. Clarification on the amount and location of genuine new open space to be provided. In particular the typical local park shown at Figure 45 of the Planning report and the 'new' sports field to be created.
3. Further analysis of the access to existing open space areas and the likely needs of the new population to be delivered by the UAP. This should consider end state number of dwellings and not just 2031 targets.
4. The provision of additional open space to cater to the needs of new residents as identified within the above additional analysis to be undertaken
5. The application of incentive provisions which will ensure the delivery of additional open space. Or in the event that the Department continues to hold the opinion that Section 94

funds should be sufficient, cost estimates and approximate yields of S94 funding be determined.

6. Land around Kikkiya Creek be zoned RE1 Public Open Space

Affordable Housing

The provision of affordable housing within the UAP is not adequately addressed within the Planning Report. In considering affordable housing, there are two critical areas of concern:

1. Redevelopment of the Ivanhoe Estate
2. Provision affordable housing within the UAP.

Redevelopment of the Ivanhoe Estate

The City of Ryde understands that a decision has not been taken on the future of the Ivanhoe Estate. While this may be the case, the Planning Report Volume 1 depicts illustratively the Ivanhoe Estate as a site marked for redevelopment. The City of Ryde suggests that at this stage of planning the UAP, more direction should be provided in the Report on the future of the Estate, and specifically what commitment there is to include social housing for current and future residents.

Section 5 of the Planning Report lists key considerations that have been investigated and addressed for the Herring Road precinct. The City of Ryde believes the future of the Estate and social housing provision is a key consideration, and approaches to address these issues should be integrated into the vision and principles at this strategic planning stage.

Any decisions regarding the redevelopment of the Ivanhoe Estate should be undertaken in consultation with the Department of Housing, existing residents and the Department of Planning and Environment. It is critical, that the residents are engaged in the process.

Provision of Affordable Housing

Within Sydney, there has been an established history of seeking contributions for affordable housing as part of major urban renewal projects. This can be either in the form of monetary contributions or the dedication of completed land / dwellings for affordable rental housing.

As part of the North Ryde Station Urban Activation Precinct, the Centre for Affordable Housing prepared a discussion paper identifying a range of projects in which affordable housing had been delivered. Unfortunately, the NRSUAP did not eventuate in set targets or contributions for affordable housing.

The discussion paper identified that '*The Metropolitan Plan for Sydney 2036 sets out an action to 'set affordable housing targets for state urban renewal projects on a case by case basis'. State urban renewal projects are to take the lead to minimise the impact on the availability of affordable and moderately priced housing in areas that are the focus of redevelopment.'* In this respect, until the Metropolitan Plan is updated, it is reasonable to pursue the actions detailed in the current plan.

The discussion paper identifies a range of methods to establish affordable housing contributions. It also identifies that any such contributions should consider the need for housing within the area, whether existing affordable housing stock is lost, whether it will increase the demand for affordable housing and seek to provide consistency and transparency for developers about the nature of the contribution required.

The discussion paper identifies a range of matters that must be considered regarding affordable housing contributions and these are summarised as follows:

- Establishing a target by virtue of:
  - Percentage of dwellings
  - Percentage of floor space
  - Percentage of value of development
- Determining the type of contribution:
  - Monetary payment to housing providers to acquire / develop affordable housing.
  - Completed dwellings dedicated to housing providers.
  - Transfer of land to housing providers for affordable housing.
- Legal framework for establishing a contribution to affordable housing:
  - S93F planning agreements (Voluntary Planning Agreements)
  - S94F conditions requiring land or contributions for affordable housing and s94G provision of affordable housing

Given the size and scope of the proposed development it is strongly recommended that the Department review the UAP and commit to the delivery of additional social housing on the Ivanhoe Place Estate.

On 12 August 2014 Council resolved that the Precinct should be subject to an affordable housing target of 10%. This will ensure that sufficient amounts of affordable housing are not only delivered within the precinct but also within the state of NSW.

Council continues to be disappointed that no affordable housing was realised under the North Ryde Station Precinct and that this UAP has failed to consider or address affordable housing in any meaningful capacity.

The above matters are detailed at length within the discussion paper, which is recommended to be obtained from the Centre for Affordable Housing.

Riparian Corridors

Little to no analysis has been undertaken of Shrimptons Creek and Kikkiya Creek. It is also unclear where the naming of Kikkiya Creek has been derived from as this creek is often referred to as University Creek.

Given that the UAP area will be one of the final areas that these two creeks flow through before connecting to the Lane Cove River, care must be taken to improve the water quality of these creeks wherever possible. This should be considered at this stage as the extent of riparian corridors / buffer zones required for these creeks is not yet known or determined. Council undertook a Pilot Creek Assessment of Buffalo & Shrimptons Creeks in July 2008. This assessment only considered Buffalo and Shrimptons Creek and did not include Kikkiya Creek. Whilst this assessment identified an approximate buffer area, an analysis of Shrimptons Creek should be undertaken to further clarify / define the buffer areas in accordance with Department of Primary Industries *Guidelines for riparian corridors on waterfront land,* dated July 2012.

This is of particular importance given that the majority of the open space areas to be delivered within the UAP are proposed along the length of both creeks. It has not yet been demonstrated that this is appropriate or reasonable with regards to the health of the creeks. It has also not been reasonably demonstrated that the sites directly adjacent to the creek areas should be developed to the extent detailed within the UAP. This is a significant environmental issue that must be addressed before progressing the UAP.

It is also noted that there are Sydney Turpentine Ironbark Forest areas located within the UAP area, primarily around the creeks. The Planning Report recognises the presence of these species and simply acknowledges that further consultation is to take place with the Department of Premier and Cabinet. It is assumed that sufficient consideration will be given to these species and that their retention will be required as part of any future redevelopment under the UAP.

Utilities

Given the large scale of the precinct, utilities should be reviewed at a wider basis to see if a precinct specific plan can be prepared which will ultimately result in savings, not only in sustainability terms, but also in overall cost. This could potentially include tri/cogeneration facilities at a precinct level. This would encourage future development of the precinct however would require an initial outlay of significant funds.

There has also not been any analysis of whether the existing utilities infrastructure within the region is capable of supporting the additional development envisaged by the UAP along with the redevelopment of the surrounding area. This relates to a wide range of utilities such as:

- Gas;
- Electricity;
- National Broadband Network which is soon to be rolled out;
- Telecommunications;
- Water; and
- Sewerage.

Stormwater

Given that the proposal only seeks consent for the establishment of planning controls for future sites, consideration should be given at this early stage to preparing controls requiring adherence to WSUD principles.

The proposed Herring Road, Macquarie Park Urban Activation Precinct is likely to impact on the water quality and quantity of the three receiving water namely Mars Creek, Kikkiya Creek (University Creek) and Shrimptons Creek. Consideration should be given at this early stage in order to maintain the existing creeks behaviours.

A number of opportunities for management of stormwater quality, quantity and flooding exist at the proposed Herring Road UAP. This management would benefit from the implementation of Water Sensitive Urban Design (WSUD) practices. The implementation of WSUD will take up some of landscape areas in the order of 3 % of the total site area. The locations are to be determined at the early stage of the development.

It should be noted that Council is currently preparing an updated Stormwater and Flooding Development Control Plan that may be used to detail applicable controls for the subject area. This must be identified and addressed in any future planning controls to apply to the site.

Flood Management

Council has undertaken detailed flood analysis of the Macquarie Park Catchment through a Floodplain Risk Management Study and Plan. There is no consideration of the study or plan within the UAP. Electronic copies of the Study and Plan can be provided to the Department upon request. Given that the proposal only seeks to undertake amendments to existing planning

controls, it is recognised that future development applications will need to undertake detailed consideration of the flood prone nature of individual sites. However, it should be noted that large sections of the subject area are affected by flooding. This may affect the overall development yield of the region and should be considered at this early stage with regards to proposed planning controls.

Environmentally Sustainable Development

The principles of ESD are not expressly recognised within the UAP. Whilst the development of the precinct as a TOD is supported, no recognition or consideration is given to the linking of sustainable design standards of development to Green Star, NatHERS and NABERS rating sustainability requirements.

In addition, no consideration has been given to ensuring that future development gives due regard to Sustainable Building Design. From a sustainability standards perspective for development controls, it is recommended that requirements be incorporated for Green Star, NatHERS and NABERS ratings.

Other elements that could be considered include:

- allowing provisions for green walls and green roofs in the building design to help reduce heat island effects and improve climate of indoor environment. This will reduce need for indoor environment to regulated by air conditioning and hence reduce energy consumption and related costs.
- considering Precinct based co-generation and or tri-generation energy supply systems for groupings of developments and encourage this through planning controls. This could also result in savings for utilities providers and developers in the long run. This must be investigated up front at a precinct level rather than leaving for an individual DA to DA process.
- provision should be made in the building design to allow for future connection to alternative water recycled supplies. Sydney Water has previously considered this for Macquarie Park and may consider extending an alternative Precinct wide recycled water supply.
- encouraging the installation of wall and ceiling insulation to a rating relevant to local climate conditions.

HERRING ROAD UAP REVIEW

FOR

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EXECUTIVE SUMMARY

The Herring Road Urban Activation Precinct (UAP) Planning Report has been released by the State Government. The UAP was identified as one of eight key urban renewal areas across Sydney where the ideal mix of local transport activity, mass transit facilities and there is a "pent up" demand for residential development that draws from this accessibility. The UAP Planning Report (and in particular its Appendix F) considered the surrounding major road network, local street connections and intersections, public and active transport networks and car parking and travel demand management initiatives. In general, whilst the report covers all aspects relevant to the UAP area, it does so in isolation of the needs of Macquarie Park generally and the influence that these needs will have on infrastructure within the UAP boundary.

In particular, the report does not consider the likely traffic, pedestrian and bus volumes converging on the Waterloo Road/Herring Road intersection in the next 10 -20 years and the associated "step-change" in infrastructure provision that is likely to be required nor does it consider specific traffic capacity improvements needed at the Herring Road/Epping Road intersection to cater for more than just the UAP-related development accessing through this intersection. Furthermore, the limited acknowledgement of the impending major increase in bus-based demand to the area through the absence of bus priority provisions may inhibit the ability to retrospectively introduce the types of bus priority treatments required to facilitate the increase in buses expected.

The UAP investigation process provides an ideal (but missed) opportunity to investigate these needs in more detail and make more specific recommendations and even commitments about future major infrastructure needs.

Key issues identified with the UAP Planning Report are:

- *It appears to underestimate the likely take-up of residential potential in the UAP, which is likely to be significantly higher than the 5,400 dwellings assumed;*
- *Impacts have not specifically considered the growth in Macquarie Park employment on UAP infrastructure needs This growth is significant and specific to transport demands and needs in the UAP area ;*
- *Bus interchange needs have not been quantified and they should be to highlight the likely need for of an underground bus station within the next 10 years (subject to more detailed demand forecasting). This item should be mentioned in the UAP infrastructure schedule. Consideration of the impacts of the closure of Macquarie University Station for some time owing to construction of the NWRL should also be discussed in this context;*
- *Specific bus priority measures should be a consideration;*
- *There appears to be a reluctance to commit to any major intersection works on Epping Road that would improve the accessibility of Macquarie Park in general, and the UAP in particular, from the major road network.;*
- *The UAP local street network is generally in accordance with the DCP however there appears to be little benefit in making the Cottonwood Place to Lachlan Avenue link and the Peach Tree Road to Lyon Park Road both one way and there would be significant traffic circulation and accessibility benefits for these links to be two way. The Lyon Park Road connection would also suggest further consideration of the benefits of signalisation of the Epping Road/Lyon Park Road intersection;*
- *There is insufficient consideration of the scale of pedestrian demands at the Waterloo/Herring intersection and the section of Herring Road between Waterloo Road and Talavera Road, considering the scale of potential conflicts with vehicles at these locations and the need for more significant treatments than those proposed;*
- *The wide on road cycle lanes proposed on Herring Road between Epping Road and Waterloo Road are considered to be a lesser priority than bus lanes in this area considering the significant volume of buses expected in this corridor. Also, there is a preference for parallel off road high quality cycleway facilities between Epping Road and Waterloo Road given the predominance of recreational and university-based cycling markets expected in this corridor (rather than high speed sports or commuter cycling). This facility would still need to provide a direct connection to the rail station. Between Waterloo Road and Talavera Road, bus lanes could give way to on road cycle lanes, particularly if the underground bus station is provided ;*
- *The lack of north-south permeability for pedestrian and cyclist movements in the areas to the south-west of the Waterloo/Herring intersection;*
- *The parking rates are inconsistent with recent TfNSW advice for residential development in the area and should be modified for consistency;*

- *The report should reference the specific mechanisms to implement the travel demand management initiatives recommended and how they might be worked into a new DCP; and*
- *Reference should be made to the need for a local area parking management scheme as part of redevelopment of the area.*

Overall, the Herring Road UAP Planning Report provides some useful specifics regarding local street connections and new signalised intersections which, with the exception of one-way links and an insufficient granularity of the network to the south-west of the Herring Road/Waterloo Road intersection, are generally consistent with the LEP 2013 Draft (Amendment 1) and would contribute to the accessibility and permeability objectives of the DCP. However, only a "high-level", generic view of the "big ticket" infrastructure items is provided and there appears to be a reluctance to commit to the need for major works required to support the level of development proposed in the UAP and more generally in Macquarie Park as it affects the needs of UAP area.

The associated recommendations for response to the State Government are:

- *The Planning Report should quantify the traffic, public transport and active transport demands and impacts in the UAP area for more than just the residential component of the UAP. Development growth should specifically consider:*
  - *full take-up of the development of the UAP residential area*
  - *50,000 students at Macquarie University*
  - *180,000 sqm at Macquarie Centre*
  - *Fulfilment of the additional 1,000,000 sqm of commercial floor space in Macquarie Park*
- *The bus interchange will reach capacity in the medium term (potentially within 10 years) and the underground bus station should be included in the UAP infrastructure schedule and be identified as a priority commitment;*
- *The Planning Report should identify how light rail could be incorporated into the Herring Road cross section;*
- *The Planning Report should include bus lanes in Herring Road and in Waterloo Road and identify the road widening required to achieve this.*
- *The upgrade of the Epping/Herring intersection is the highest priority traffic need in the area and should be included as part of the proposal and this issue has been identified under the Macquarie University concept plan. A possible solution to resolve the traffic issues at this intersection is grade separation;*
- *There appears to be little benefit in making the Cottonwood Place to Lachlan Avenue link and the Peach Tree Road to Lyon Park Road both one way. These links should be two way. Signalisation of the Epping Road/Lyon Park Road intersection should also be reconsidered in view of this.*
- *With bus lanes recommended on Herring Road between Epping Road and Waterloo Road, the UAP-proposed on road cycle lanes on Herring Road should be located as an off road high quality shared pedestrian-cyclist facility in the Herring Road corridor but west of the carriageway in this section.*
- *More north-south street connections are needed in the areas to the south-west of the Waterloo/Herring intersection to overcome the lack of north-south permeability for pedestrian movements in this area.*
- *The parking rates should be modified to:*
  - *1 bedroom unit = 0.3 spaces per dwelling;*
  - *2 bedroom unit = 0.6 spaces per dwelling;*
  - *3+ bedroom unit = 1 space per dwelling; and*
  - *Visitor parking = 1 space per 10 units.*
- *The Planning Report should make reference to the mechanisms to implement within a new DCP the travel demand management initiatives recommended.*
- *Reference should be made in the Planning Report to the need to introduce a local area parking management scheme as part of redevelopment of the area*.

1. INTRODUCTION

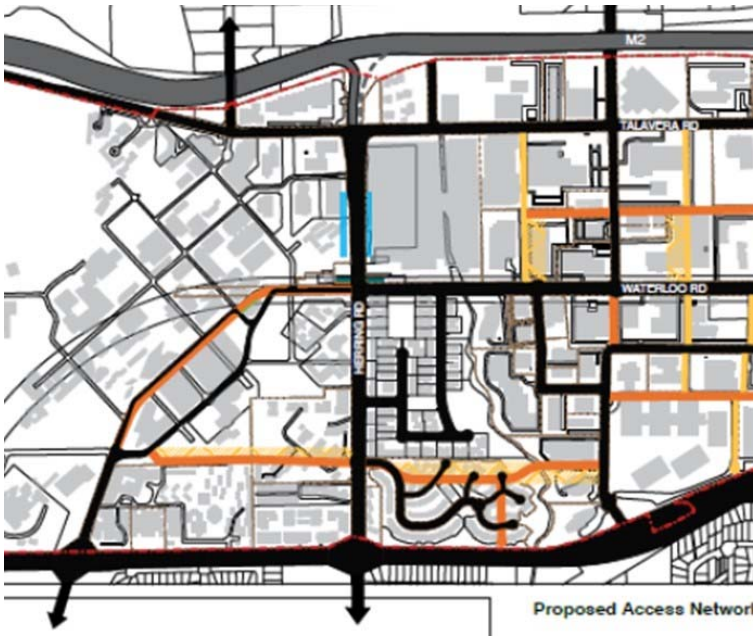
1.1 BACKGROUND

The NSW government recognises that there are significant benefits in facilitating the intensification of housing options in locations with high levels of public transport, walking and cycling accessibility. The Herring Road precinct was identified by the Department of Planning and the Environment as one of eight precincts in Sydney that have potential for "urban renewal" (or "urban activation") given its multi-modal accessibility and the key land use anchors of Macquarie University and Macquarie Centre being in place. The definition of the Herring Road area as an Urban Activation Precinct (UAP) allows existing planning controls to be modified (effectively over-ridden) to allow for the intensification of residential densities generally within 800m of Macquarie Station. The Herring Road UAP area is provided in Figure 1.1.

Source: Herring Road Urban Activation Precinct, Planning Report, Volume 1, June 2014

Figure 1.1: Herring Road UAP Boundary

The Ryde LEP 2013 Draft (Amendment 1) Macquarie Park Corridor is the evolution of the LEP in Macquarie Park since 2006 to address changing needs and legislative requirements. The associated DCP (2010) envisages a significant commercial centre with over 1,000,000 million sqm of additional commercial floor space constructed in the corridor.



Source: http://www.ryde.nsw.gov.au/_Documents/PlansProceduresGuidelines/PP+Macquarie+Park+Draft+Planning+Controls.pdf

Figure 1.2: Ryde LEP 2013 Draft (Amendment 1) near Herring Road

1.2 SCOPE

This review has been undertaken from the perspective of the City of Ryde (CoR) in terms of the potential risks and issues for Council and specifically to the Ryde LEP 2013 Draft (Amendment 1) and fulfilment of its vision. Key elements reviewed have included:

- the exhibition documentation and specifically the components related to traffic and transport;
- consideration of CoR investigations in the area as well as current proposals;
- the assessment of the current situation, including the identification of issues not documented;
- a review/verification of the assumptions used in estimating traffic, pedestrian and bus volumes in the area and the associated implications if these are not as expected;
- a review of the public transport assumptions and provisions (e.g. bus routes and service numbers, interchange function and form, light rail considerations and staged implementation);
- a review of road impacts and intersections, including Herring Road configurations, likely affected intersections and whether impacts have been adequately addressed through infrastructure and/or operations;
- a review of the proposed road network in the UAP in relation to the Macquarie Park DCP road network;
- assessment of active transport provisions, their adequacy and conflicts with other modes;
- an assessment of car parking provisions and short, medium and long term impacts as well as car park access considerations;
- review of modal interfaces, impacts, conflicts and priorities as well as any competing residential and commercial needs; and
- a review of Travel Demand Management initiatives, their likely contribution and effectiveness and how they will be monitored into the future.

1.3 REVIEWED DOCUMENTS AND ASSUMPTIONS

The publically-available documents input into this review include:

- Herring Road Urban Activation Precinct, Planning Report, Volume 1 (June 2014);
- Herring Road Urban Activation Precinct, Planning Report, Appendix F – Transport Strategy; and
- Herring Road, Macquarie Park: Urban Activation Precinct Proposal.

This review has also considered the CoR LEP and DCP and the comparison of these documents to what has been provided in the Herring Road UAP documentation.

2. EXISTING SITUATION AND GROWTH

2.1 EXISTING SITUATION ASSESSMENT

Private vehicles are still the dominant mode of transport for people travelling to Macquarie Park with a mode share of 68% for journeys to work (UAP Planning Report Appendix F, Table 2.9). However, significant traffic constraints are now evident which, if not remedied, will inevitably result in two effects:

- increasing usage of public and active transport to access the area; and
- diminished competitiveness of Macquarie Park compared to other potential centres for businesses to locate in.

Herring Road is the key access road into the proposed UAP approaching both from south via Epping Road and from north via the M2 Motorway. Access also exists via Waterloo Road and Talavera Road in Macquarie Park, both of which intersect with Lane Cove Road further east. The key issues for traffic access into the UAP, and into Macquarie Park generally, are capacity constraints at its peripheral arterial roads and the limited points of access allowed by the RMS into the area.

Greater accessibility and permeability are intents of the Macquarie Park DCP and the Ryde LEP 2013 Draft (Amendment 1) and there are clear benefits of allowing traffic to exit the major road system as early as possible and access the major road system as late as possible by using the local network for internal connectivity. The only way this can be improved is to allow more connections to Epping Road (and Lane Cove Road) which is Council's preferred position. It is unlikely however that the RMS will allow many more connections to roads such as Epping Road and Lane Cove Road and these major roads will continue to be the primary constraints to access in the area. In fact, existing intersections on these roads are heavily congested already in peak periods and there are no commitments to upgrade these roads near Macquarie Park.

In this context, public transport, walking and cycling are the modes which have experienced rapid growth in the area in recent years. The Macquarie University Train Station on the Epping to Chatswood Rail Line since opening has rapidly increased its patronage to nearly 18,000 passengers per day (the equivalent of approximately 12,000 cars). However, the rail system has a limited practical catchment and buses play a key role serving a geographically diverse market of primarily "inbound" travel to the UAP area and particularly Macquarie University and employment within Macquarie Park. The precinct is served by a network of 27 different local and regional bus routes, the majority of which use the Macquarie Centre bus interchange. Currently approximately 65-70 buses per hour operate during the peak periods providing the potential for another 3,500 (approx.) passengers to arrive or leave by bus.

The Herring Road precinct has a limited number of clear connections for pedestrians and cyclists to the Macquarie Centre and Macquarie University. Whilst the Herring Road environment north of Waterloo Road is cognisant of heavy pedestrian volumes, the section of Herring Road between Waterloo Road and Epping Road (approximately 600m long) poses significant challenges for pedestrians and cyclists, particularly for crossing Herring Road.

2.2 GROWTH TYPE, SCALE AND LOCATIONS

The Macquarie Park DCP has an underlying tone of Macquarie Park remaining a key employment centre and there has been some resistance by Council to compromise this intent with significant increases in residential development in the area. However, there are a number of reasons why high density residential development beyond the levels currently permitted and as proposed in the UAP may be beneficial to the area, including:

- it's proximity provides an opportunity for more walking and cycling between this area and Macquarie University, Macquarie Centre and other employment in Macquarie Park; and
- it allows for a better balance of inbound and outbound patronage on bus and rail services, making better use of these resources as some local residents will use these modes in the opposite direction to employees and visitors coming into Macquarie Park.

The UAP proposes 5,400 dwellings in its area. The potential number of dwellings however based on preliminary work undertaken by Council could be up to 15,600. Given the excellent accessibility provided by the Macquarie Station and the North-West Rail Line to other major employment centres, as well as the proximity to the University and local shopping and entertainment, the demand for residential property in this area is expected to be very high. It would therefore be prudent to forecast transport demands associated with the UAP on expected residential "take-up" closer to the 100% of allowable dwellings, as estimated by Council.

The UAP Planning Report focusses on the potential development within the UAP boundary and is silent on the growth in the adjacent Macquarie Park, which is significant in terms of the traffic, public transport, walking and cycling demands interaction with the UAP. Importantly, the transport demands to and from the major generators of Macquarie University and Macquarie Centre are also not quantified and only the residential proposal elements are considered in the traffic capacity assessment.

Macquarie Park currently includes approximately 1,000,000 m^2 of commercial floor space which is expected to double with major expansions of Macquarie University (up to 50,000 students) and Macquarie Centre (up to 180,000 m2 GFA) also proposed. Another 1,000,000 m^2 of office space would equate to 20,000 more peak hour trips, most of which would need to be accommodated on public transport, walking and cycling given the limited traffic capacity committed to be augmented into the current major road system.

These trips would require more infrastructure across all modes which, if not provided, would diminish accessibility into the Herring Road precinct. Furthermore, traffic, bus and rail capacity in Herring Road and at Macquarie Station needs to be cognisant of the Macquarie Park demands as "background growth" and not simply consider the UAP demands on top of existing demands, as this will not be the situation in 20 or even 10 years. That is, the generic 2% p.a. background traffic growth assumed in the UAP traffic analysis is unlikely to occur given capacity constraints but there is likely to be major growth in public and active transport usage. In simple terms, if Macquarie Park is facilitated to reach its potential, travel demand to/from the centre will double. Given that car travel makes up about 70% of trips to/from the area (based on 2011 JTW data published on the UAP Planning Report, Appendix F, Table 2.9), but can only grow by 20% due to traffic constraints, public and active transport demands will need to increase from about 30% mode share to 60% mode share, which is effectively a four-fold increase in demand and hence supply of services.

2.3 Summary of Issues Related to Land Use and Growth Assumptions

Key issues in the UAP Planning Report related to Land Use and growth are:

- the Planning Report appears to underestimate the most likely take-up of residential potential in the UAP, which is likely to be significantly higher than the 5,400 dwellings assumed; and
- growth impacts and transport demands have not specifically quantified the significant influences of growth in Macquarie Park employment generally, growth at Macquarie University and growth at Macquarie Centre on the UAP infrastructure needs; and
- growth impacts have not considered traffic capacity limitations and the associated extra-ordinary increase in public and active transport demands.

3. PUBLIC TRANSPORT CONSIDERATIONS

3.1 GENERAL

The UAP Planning Report identifies the public transport improvements associated with the UAP as being:

- the North-West Rail Link;
- "refinement" of North-West bus services to meet regional growth demand; and
- local improvements to bus services.

This limited list of upgrades fails to acknowledge the scale of expected growth in bus services in particular at Macquarie Interchange. In this context, the Planning Report makes no attempt to calculate estimated public transport demands at Macquarie Station (rail) or at the Bus Interchange and how they would increase over time. Without understanding how many buses and trains will be needed in the future for Macquarie Park generally and additionally due to the UAP, the Planning Report cannot determine how much longer the existing interchange will be able to function without excessive delays to buses and passengers due to:

- congestion on approaches to the bus interchange due to both cars and buses;
- congestion at the bus interchange due to insufficient bays for the number of buses accessing it;
- congestion at the bus interchange due to layover needs (given that services feed off the rail station as well and therefore often need to "dwell"); and
- excessive pedestrian demands at the rail station and bus stop platforms that require additional areas to be provided for this pedestrian storage.

Potential future public transport demands have been estimated below to allow an estimate of the capacity of the existing interchange to be determined.

3.2 BUS VOLUMES AND INTERCHANGING

3.2.1 Bus Volumes

Existing public transport mode share to/from Macquarie Park is on average 13%, and a target of 40% has been previously considered by CoR for 2031 through the Macquarie Park Traffic Study. Trip demand to/from/within Macquarie Park and its immediate surrounds is estimated as 40,000 person trips per hour (in 2031). At a 40% public transport mode share this equates to approximately 16,000 public transport trips per hour. These calculations did not include the effects of the UAP residential development in increasing these demands although it is acknowledged that residential uses in the UAP will typically involve transport demands that are in the opposite direction to incoming employment and education trips and therefore would not significantly affect public transport capacity.

Approximately 6,000 passengers per hour may be accommodated by train (allowing for some directionality of movement and a 10 minute train headway), thus leaving approximately 10,000 passengers per hour to be accommodated on buses. At a conservatively high rate of 30 passengers per bus (i.e. so as not to over-estimate bus demands), this leads to approximately 330 buses per hour (5.6 buses per minute) accessing Macquarie Interchange in 2031. This compares to the 65-70 buses per hour currently using the interchange which has 8-9 bus bays.

With or without the UAP, this volume of buses simply cannot be accommodated within the existing bus interchange particularly considering the need to provide bus layover facilities at this key interchange and route terminus location.

3.2.2 Interchange Capacity Considerations

Preliminary estimates suggest that the bus interchange will be "at capacity" with another 50-60 buses per hour which will be at around 2020 under current development profiles in Macquarie Park. That is, in a little over 5 years, the existing bus station will need upgrading and in a little over 10 years would need to be

double its current size. Stimulating more localised demand through the UAP and its associated residential parking restrictions (in addition to traffic capacity limitations) would escalate this need.

The UAP Planning Report identifies consideration of a new bus interchange as a "long term" need however calculations of likely bus demands suggest a "medium term" need (about 10 years) for the bus interchange and hence, as a minimum, some form of "short term" commitment to its design.

There is no practical way of accommodating these extra buses (and movements between buses and trains) without some form of grade separation and most probably, an underground bus station. Given design and procurement times for infrastructure of this scale, it would be prudent in the UAP Planning Report to include a concept for this bus station and some level of commitment to its provision under certain triggers, such as a threshold number of peak hour buses at the interchange.

There is also no mention in the Planning Report of the space required for taxis and kiss and ride provisions which are also likely to increase in significance over time.

3.2.3 Bus Priority Considerations

More than 300 buses per hour entering the Macquarie Bus Interchange in 2031, in addition to worsening congestion on surrounding roads, suggests a strong need for some form of bus priority being allowed for to feed buses from bus priority lanes on Lane Cove Road and Epping Road via (say) Herring Road and Waterloo Road.

The UAP Planning report generalises the need for bus priority. It states "*A high end-to-end travel speed, no worse than 25kph for 95 percent of services is desirable for the core bus network to meet customer needs*". However, there is no indication as to how this will be achieved particularly given the levels of traffic congestion expected. The report also mentions the importance of adjusting operation of the signals at Herring Road/Waterloo Road intersection to reflect changes in bus priority/bus movements to ensure bus delays are minimised as the only specific mention to bus priority in the precinct.

There are clear benefits to buses (as well as traffic and cyclists) for the provision of bus priority infrastructure in Herring Road and in Waterloo Road in the Herring Road UAP area and these types of specific provisions should be considered in the proposed infrastructure upgrades being considered. The Herring Road cross section in the UAP is shown as four traffic lanes (median divided) with a wide cycle lane as the third kerbside lane in each direction. This wide kerbside lane could be replaced with a bus lane and the cycleway infrastructure moved off road. In any event, it is likely that some widening of the Herring Road corridor will be required to accommodate these facilities and some mention of this should be made in the UAP Planning Report.

3.3 NORTH WEST RAIL LINK (NWRL)

The North West Rail Link (NWRL) that will connect into the Epping to Chatswood Rail Line is expected to be completed by 2019-2020. The Stage Two Environmental Impact Statement (EIS) for NWRL states that the new rapid transit line is expected to run 12 trains per hour per direction during peak periods (one train every five minutes) and six trains per hour per direction off peak (one train every ten minutes) carrying up to 1,300 passengers. This service is expected to replace a proportion of commuter bus trips to Macquarie Park. Whilst this will assist with rail capacity to/from Macquarie Park and the UAP area, this line has a limited practical catchment (even with integrated bus/rail services).

An important consideration is the mooted temporary closure of the rail line during the construction of part of the NWR. If such a closure occurred it would have a major effect on access to the Macquarie University Station area with the current circa 18,000 passengers per day being required to be accommodated, most likely, on buses. Preliminary estimates suggest that this could add another 40-50 buses in the peak hours which would not be likely to be able to be accommodated within the existing bus interchange and would otherwise require additional stops spread around the interchange area, most likely on Herring Road south of Waterloo Road and on Waterloo Road itself. This would introduce significant impacts which could be mitigated through the early construction of an underground bus station.

3.4 LIGHT RAIL CONSIDERATIONS

The Western Sydney Light Rail feasibility study has been recently undertaken to investigate the potential for light rail lines to connect Parramatta with both Castle Hill and Macquarie Park. At this stage a service frequency of 10 minutes in the peak period and 15 minutes during off-peak has been considered with 5,000 passengers forecast per peak hour. Opening the light rail service would absorb a proportion of current bus trips, but the extent of the impact needs to be further assessed as its catchment would also be relatively limited.

In the documentation for the Parramatta to Macquarie Park section of the light rail proposal, Herring Road has notionally been considered as a possible route for the light rail. The UAP Planning Report has not specifically considered the incorporation of light rail into the Herring Road cross section and there would be benefits in at least some commentary in the report as to how this could be incorporated in the future.

3.5 SUMMARY OF ISSUES

- the bus interchange needs have not been quantified and they should be to highlight the medium term (say 10 years) need for of an underground bus station and include this item in the UAP infrastructure schedule;
- the Planning Report should identify how light rail could be incorporated into the Herring Road cross section; and
- specific bus priority measures in Herring Road and in Waterloo Road should be a consideration in the Planning Report. This should consider the need for bus lanes in Herring Road.

4. ROADS AND INTERSECTIONS

4.1 TRAFFIC ANALYSIS METHODOLOGY AND OUTCOMES

The UAP Planning Report included an assessment of the likely network traffic impacts based on about 20%-40% of elements of the UAP (new dwellings, University, Macquarie Centre) being developed by 2021 and approximately 50% by 2031, which equates to the stated 5,400 new dwellings expected in the UAP. The report contests that this is based on a take-up rate of 300 dwellings per year.

The traffic analysis assumes that existing "background" traffic will grow at 2% p.a. It then adds the UAP area traffic generation at a rate of 0.24 trips per dwelling per peak hour (as per RMS guidelines for high density residential) and analyses key intersections to determine the degree of saturation of these intersections and their Level of Service in 2021 and 2031.

Key issues with this analysis are as follows:

- a background growth rate of 2% p.a. would appear a significant under-estimate of potential "trip demand", although as a "traffic" growth rate this could be offset by the fact that traffic congestion effects would dampen traffic growth rates and increase the usage of alternative modes; and
- the Herring/Epping intersection is shown to be at 93% AM and 98% PM capacity utilisation in 2021 (i.e. with background traffic and additional traffic). This intersection, through observation, is over capacity in both peaks in 2014. On this basis, it appears that the base year SIDRA intersection models have not been validated to current conditions. The models should be validated to current delays and back of queues, to demonstrate what effects to delays and queues the UAP and background traffic growth would have at this key intersection. These issues would be expected to be significant and suggest that a more extensive upgrade would be required at this intersection and certainly by 2031.

The Planning Report does however identify that the intersections of Herring Road with Epping Road, Waterloo Road and Tallavera Road are congested and will worsen over time. No significant upgrades are however contemplated in the report deferring the issue to the need for a "whole-of-network" planning strategy. This study is currently being undertaken by RMS. Whilst this is acknowledged, there are some key access works that need further consideration to ensure that Macquarie Park and the UAP area is accessible and therefore competitive enough to fulfil its expectations for population and employment growth.

4.2 KEY INTERSECTION UPGRADES

The UAP Planning Report identifies the need to:

- upgrade the Epping/Balaclava intersection (as identified in the Macquarie University expansion proposal);
- upgrade the Epping/Herring intersection at grade (as identified in the Macquarie University expansion proposal);
- convert the Ivanhoe Place/Herring Road roundabout to signals; and
- upgrade the Herring Road/Dunmore College access intersection to a signalised intersection.

The new Herring Road signalised intersections would facilitate formalised pedestrian crossings every 200m on Herring Road, which is the primary benefit of these upgrades, along with some improvement to cycling conditions and cross road accessibility.

4.3 PROPOSED LOCAL STREET NETWORK

The proposed local street network in the UAP Planning Report is compared to the street network in the current Ryde LEP 2013 Draft (Amendment 1) in Figure 4.1.

This figure shows that within the UAP area, the connections between major collector streets are very similar in both proposals. The key exception is the link in the UAP street network from Ivanhoe Place/Peach Tree Road across Shrimpton Creek to Lyon Park Road. This link has been modelled

previously by CoR and shows some benefits as a two-way road but its benefits would be strengthened by the signalisation of the Lyon Park Road/Epping Road intersection with full movements allowed.

It is unclear why the UAP proposal is to make this road one-way eastbound only and there would be significant benefits of making this link two-way to reduce pressure on Waterloo Road for local trip making. Similarly, it is unclear why the link from Cottonwood Crescent to Lachlan Avenue needs to be one way. Rat running through this area would be minimal in the north-eastbound direction given the two right turns required to do this and the circuitous nature of the route.

Also, the extension of Ivanhoe Place with a new road along the creek to connect to Peach Tree Road was not envisaged in the LEP Amendment and there may be some alignment challenges with this link and its proximity to the creek.

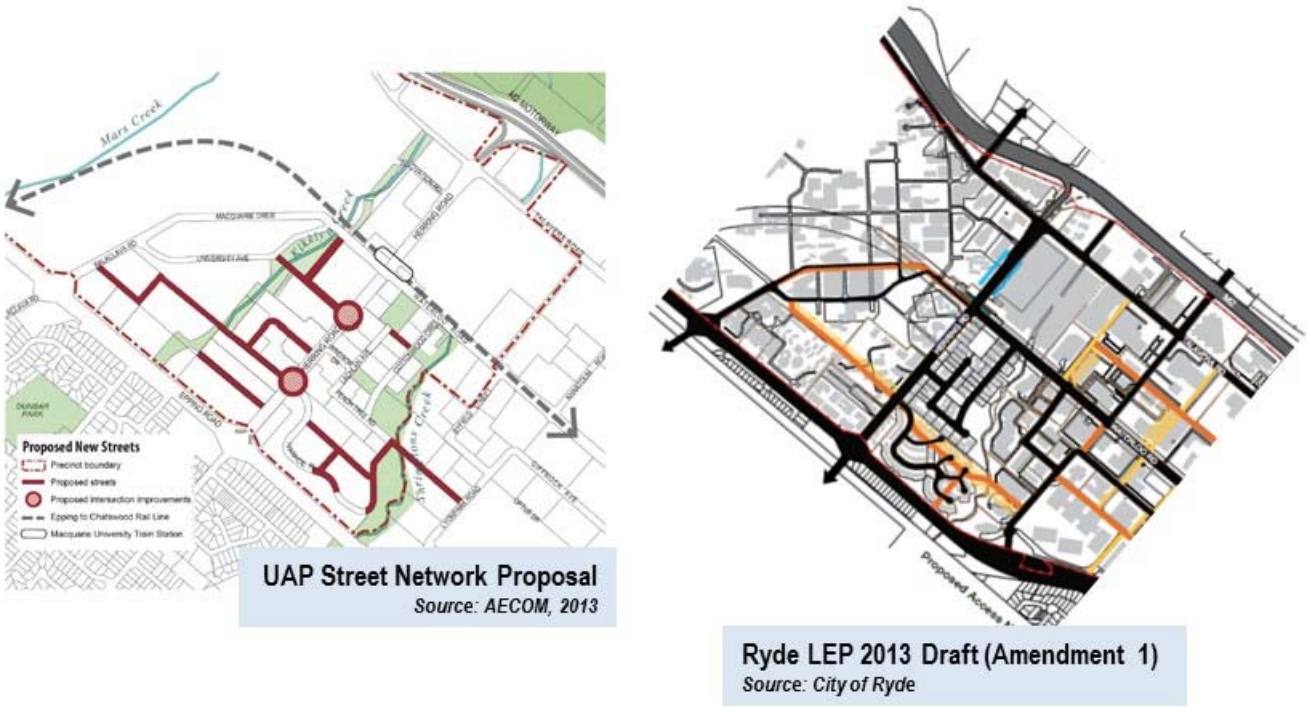


Figure 4.1: UAP Street Network Compared to LEP 2013 Draft (Amendment 1) Street Network

The key difference between the LEP Amendment and the UAP street networks is that that LEP Amendment street network has a finer grained road system proposed for the area west of Herring Road and south of the Waterloo Road intersection. This fine grained network may still be achievable in this area as part of the development planning of specific sites.

4.4 SUMMARY OF ISSUES

The key major road, intersection and street network issues associated with the UAP Planning Report are:

- There appears to be a reluctance to commit to any major intersection works on Epping Road that would improve the accessibility of Macquarie Park in general and the UAP in particular from the major road network. The grade separation of the Epping/Herring intersection is the highest priority need;
- More access points onto Epping Road are needed as they would benefit all traffic;
- The UAP local street network and connections is generally in accordance with the DCP although there are some unresolved issues regarding the feasibility of the Ivanhoe Place to Peach Tree Road connection and the connection across to Lyon Park Road. This connection would also suggest further consideration of the benefits of signalisation of the Epping Road/Lyon Park Road intersection; and
- There appears to be little benefit in making the Cottonwood Place to Lachlan Avenue link and the Peach Tree Road to Lyon Park Road both one way and there would be significant traffic circulation and accessibility benefits for these links to be two way.

5. ACTIVE TRANSPORT PROVISIONS

5.1 MAJOR MOVEMENTS AND CONFLICTS

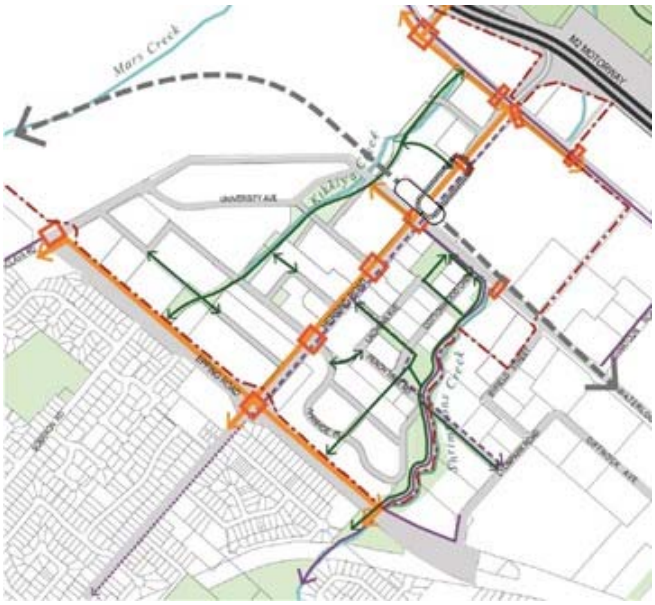
The UAP through its focus on high density residential development in the precinct will, by its very nature, increase pedestrian and cyclist demands in the area.

Most of the pedestrian movements are likely to be between these new residential buildings and Macquarie University, Macquarie Centre and Macquarie Park employment opportunities further east in particular. There will also be expected to be a reasonable level of recreational walking and cycling demands generated from these new residential buildings.

A large proportion of these generated pedestrian and cyclist demands will travel both up and down the Herring Road corridor but also across it conflicting with high volumes of private traffic and particularly buses in the future. Many of these additional trips will appear at the Waterloo Road/Herring Road intersection and will demand even greater time out of this intersection, which is already approaching capacity.

5.2 PROPOSED PROVISIONS

Figure 5.1 provides an extract from the Planning Report – Appendix F showing the proposed active transport provisions.



Source: Herring Rod Urban Activation Precinct, Appendix F

Figure 5.1: Pedestrian and Cycle Networks for the UAP

There are already very heavy streams of pedestrians crossing Herring Road between the University and the Shopping centre/bus stops at the marked crossing. It is likely that signalisation of the zebra crossing will be required to better manage the pedestrian/traffic-bus interface at this location as volumes of all modes increase significantly. In fact, with the potential doubling of pedestrian volumes at this crossing over the next 10 years (with expected greater bus usage) signals may not be sufficient to manage capacity at this location and some form of grade separation may be required. This would be a similar situation at the Herring Road/Waterloo Road intersection. An underground bus station would be the preferred means of dealing with these conflicts.

The UAP documentation does not foresee the scale of this increase and does not assess its potential implications on either traffic or pedestrians. It is evident that more consideration is needed of potential volumes of each mode and the degree of demand for space and time each mode will generate. This analysis may reveal that more significant infrastructure solutions may be warranted between Waterloo Road and Talavera Road; such as grade separated pedestrian plazas, or at least some separation of buses underground.

The additional signalised intersections on Herring Road south of Waterloo Road are consistent with the need to support better crossings of Herring Road in this area.

The key feature off the proposal are wide on road cycle lanes on Herring Road shown as part of the artist's impression for this road. Given the nature of cycling likely to be evident on Herring Road, and the benefits of bus lanes rather than on road cycle lanes, there would appear to be greater merit for high quality off road (but parallel) facilities for cyclists in this corridor. This would most likely be a wide shared walk/cycle facility and would require widening of the Herring Road corridor.

Furthermore, in terms of permeability and accessibility the areas and facilities promoted to the south-east of Herring/Waterloo are quite "fine-grained" and cater for a mix of recreational and more direct multi-purpose trip making. The proposed active transport network to the south-west of the Herring/Waterloo intersection however is quite coarse and requires trips generated by new development in this area to move eastwards towards the Herring Road corridor before travelling northwards towards Macquarie Centre. It is the lack of a "fine grained" street network in the UAP concept in this area that limits the ability to achieve the pedestrian permeability desired in the Macquarie Park DCP. This issue is shown in Figure 5.2.

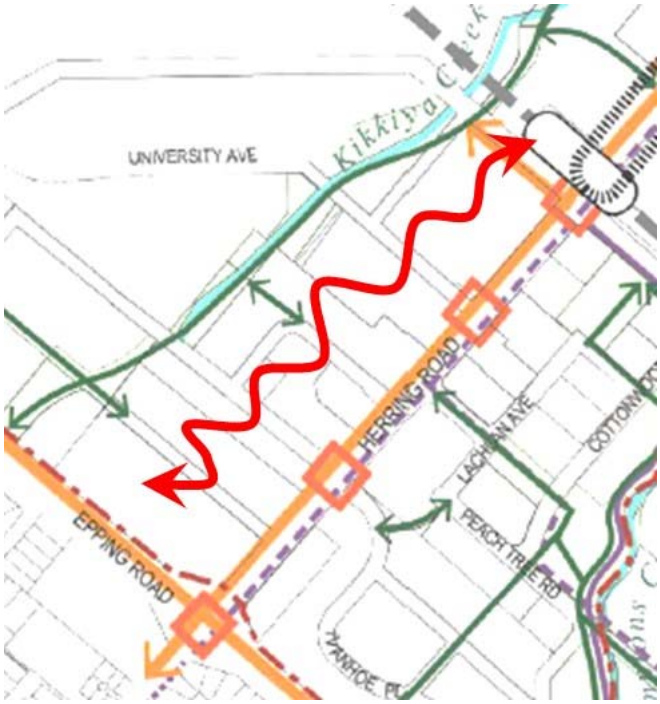


Figure 5.2: Limited North-South Pedestrian Permeability

The Herring Road UAP, and Macquarie Park generally, appears to have the characteristics that lend itself to a cycle share scheme such as a multi-purpose usage, the geographic spread of Macquarie Park, the size of the university, the transient nature of university students and the proximity of residential areas, and further consideration of this initiative would be of value.

5.3 SUMMARY OF ISSUES

The key pedestrian and cyclist issues associated with the UAP Planning Report are:

- insufficient consideration of the scale of demands at the Waterloo/Herring intersection and the section of Herring Road between Waterloo Road and Talavera Road, considering the scale of potential conflicts with vehicles at these locations and the need for more significant treatments;
- the potential alternative use of the road space allocated to wide on road cycle lanes on Herring Road considering the significant volume of buses expected in this corridor and the preference for parallel off road high quality facilities given the predominant cycling markets expected in this corridor. This facility would ideally be located on the western side of Herring but within the road reserve; and
- the lack of north-south permeability for pedestrian and cyclist movements in the areas to the south-west of the Waterloo/Herring intersection that would be improved with more north-south street connections.

6. CAR PARKING AND TRAVEL DEMAND MANAGEMENT

6.1 PARKING RATES AND SUPPLY

The UAP identifies that the parking rates proposed for the precinct are based on "best practice for Transit-Orientated Development". The rates in general appear appropriate with a maximum rate specified rather than minimum rates. The rates however are inconsistent with advice previously provided by TfNSW for development in a nearby location and are suggested to be modified accordingly for consistency to:

- 1 bedroom unit = 0.3 spaces per dwelling;
- 2 bedroom unit = 0.6 spaces per dwelling;
- 3+ bedroom unit = 1 space per dwelling; and
- Visitor parking = 1 space per 10 units.

6.2 PARKING MANAGEMENT

The UAP documentation does not cover the potential impacts of additional on street parking with the opening of the NWRL and congestion around other rail stations on this line. There is potential for increased Park and Ride demand for local streets and a local parking management scheme may need to be deployed in parallel with the redevelopment of the UAP area.

6.3 TRAVEL DEMAND MANAGEMENT INITIATIVES

The Planning Report recommends that introduction of Residential Travel Plans for the UAP area along with car share schemes and "more stringent parking controls and management".

These are good initiatives however mechanisms for implementation of these initiatives are not discussed and particularly how they could be specifically tied to development in the UAP area. This should be resolved within the DCP.

6.4 SUMMARY OF ISSUES

The key parking issues associated with the UAP Planning Report are:

- the parking rates are inconsistent with recent TfNSW advice and should be modified accordingly for consistency;
- the report should make reference to the mechanisms to implement the travel demand management initiatives recommended and how these should be implemented in a new DCP; and
- reference should be made to the need to introduce a local area parking management scheme as part of redevelopment of the area.

7. CONCLUSIONS

The Herring Road UAP Planning Report and its Appendix F (Transport Strategy) outline the traffic and transport impacts and initiatives associated with the Herring Road UAP covering the major road network, the local street network, new intersections, public transport, active transport, parking and travel demand management initiatives.

In general, whilst the report covers all aspects relevant to the UAP area, it appears to do so in isolation of the needs of Macquarie Park more generally and the influences that these needs will have on infrastructure provision within the UAP boundary. In particular, the report does not consider the likely traffic, pedestrian and bus volumes converging on and near the Waterloo Road/Herring Road intersection in the next 10 -20 years and the associated "step-changes" in infrastructure provision that are likely to be required.

Broad statements are made regarding the potential need for consideration of a grade separated bus interchange in this location in the future and equally broad statements are made regarding the need to study and implement traffic capacity improvements in the north-west region generally.

The UAP investigation process provides an ideal opportunity to investigate these needs in more detail and make more specific recommendations about future infrastructure needs, such as the underground bus station or the Herring/Epping grade separation. Furthermore, the limited acknowledgement of the impending major increase in bus-based demand to the area through the absence of specific bus priority provisions may inhibit the ability to retrospectively introduce the types of bus priority treatments required to facilitate this increase in buses expected.

Overall, the Herring Road UAP Planning Report provides some specifics regarding local street connections and new signalised intersections which, with the exception of one-way links and an insufficient granularity of the network to the south-west of the Herring Road/Waterloo Road intersection, are generally consistent with the Macquarie Park DCP. However only a "high-level", generic view of the "big ticket" items is provided and there appears to be a reluctance to commit to the need or major works required to support the level of development proposed in the UAP and more generally in Macquarie Park.

8. RECOMMENDED ACTIONS

It is suggested that CoR respond to the State Government's UAP Planning Report with the following recommendations:

- The Planning Report should quantify the traffic, public transport and active transport demands and impacts in the UAP area for more than just the residential component of the UAP. Development growth should specifically consider:
  - full take-up of the development of the UAP residential area
  - 50,000 students at Macquarie University
  - 180,000 sqm at Macquarie Centre
  - Fulfilment of the additional 1,000,000 sqm of commercial floor space in Macquarie Park
- The bus interchange will reach capacity in the medium term (potentially within 10 years). The underground bus station should be included in the UAP infrastructure schedule and should be considered as a matter of priority;
- The Planning Report should identify how light rail could be incorporated into the Herring Road upgrade;
- The Planning Report should include bus lanes in Herring Road and in Waterloo Road and identify the road widening required to achieve this.
- The upgrade of the Epping/Herring intersection is the highest priority traffic need in the area and should be included as part of the proposal and this issue has been identified under the Macquarie University concept plan. A possible solution to resolve the traffic issues at this intersection is grade separation;
- There appears to be little benefit in making the Cottonwood Place to Lachlan Avenue link and the Peach Tree Road to Lyon Park Road both one way. These links should be two way. Signalisation of the Epping Road/Lyon Park Road intersection should also be reconsidered in view of this.
- With bus lanes recommended on Herring Road between Epping Road and Waterloo Road, the UAP-proposed on road cycle lanes on Herring Road should be located as an off road high quality shared pedestrian-cyclist facility in the Herring Road corridor but west of the carriageway in this section.
- More north-south street connections are needed in the areas to the south-west of the Waterloo/Herring intersection to overcome the lack of north-south permeability for pedestrian movements in this area.
- The parking rates should be modified to:
  - 1 bedroom unit = 0.3 spaces per dwelling;
  - 2 bedroom unit = 0.6 spaces per dwelling;
  - 3+ bedroom unit = 1 space per dwelling; and
  - Visitor parking = 1 space per 10 units.
- The Planning Report should make reference to the mechanisms to implement within a new DCP the travel demand management initiatives recommended.
- Reference should be made in the Planning Report to the need to introduce a local area parking management scheme as part of redevelopment of the area.

BITZIOS consulting

MACQUARIE INTERCHANGE CAPACITY NEEDS REVIEW

City of Ryde

28 August 2012

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INTRODUCTION

Bitzios Consulting has been commissioned by the City of Ryde to undertake a preliminary "high level" review of the likely transport interchange needs at the Macquarie Interchange based on forecast transport demands that are consistent with LEP development proposals, traffic demand and public and active transport targets for Macquarie Park.

This preliminary assessment provides:

- Calculations of estimated trip growth, traffic demand, public transport demand and pedestrian demands in the Macquarie Interchange area;
- A conflicts assessment to determine any capacity issues associated with these modal demands moving through the same space in Herring Road;
- An estimate of bus storage requirements in 2031 and hence transport interchange sizing considerations; and
- Conclusions as to the types of key issues that need to be considered when planning the upgrade of Macquarie Interchange.

This report and the calculations have relied on a number of assumptions regarding development levels expected, the role of the Macquarie Transport Interchange in the future, the structure of bus service patterns in the future and the traffic capacity provisions in Herring Road and its access to the M2 (based on the Macquarie Park Traffic Study). Areas and capacities in some cases have been based on first principles calculations and "rules of thumb".

The geographical scope of this assessment has focussed around the transport interchange on Herring Road between Waterloo Road and Talavera Road intersections

TRANSPORT DEMANDS

Development Assumptions

Macquarie Park currently includes approximately 1,000,000 m^2 of commercial floor space and is planned to be developed to include over 2,000,000 m^2 of commercial floor space, with major expansions of Macquarie University (up to 50,000 students) and Macquarie Centre (up to 180,000 m^2 GFA) also proposed.

These development levels are more than double the level of development in Macquarie Park in 2012.

Travel Demand

The Macquarie Park Traffic Study calculated future traffic demands (notionally based on 2031) by calculating the traffic generation of expected development in Macquarie Park.

Existing public transport mode share to/from Macquarie Park is, on average 15%, and a target of 40% has been set for 2031. This means that the road network will be expected to accommodate approximately 20% more traffic entering and leaving Macquarie Park by 2031 with public transport needing to accommodate approximately 100,000 more person trips per day compared to 2011; which is an extraordinary increase in demand.

Given that there is limited capacity on the rail system to accommodate many more trains into Chatswood, and , more importantly, that only a small proportion of the catchment for Macquarie Park employees would actually have efficient access to stations on this line to then interchange to a Macquarie Park service, it is clear that buses would be needed to carry the greatest proportion of the growth to/from Macquarie Park.

It is also important to note that Macquarie Interchange currently functions as a terminus for buses and that almost all services in the Macquarie Park area start or terminate at Macquarie Centre. With this anchor growing even more over time, there is no reason to expect that this terminus function (and a layover function) would not continue to be demanded at Macquarie Interchange.

On this basis, the likely peak period demand for buses to access Macquarie Interchange is estimated for the critical 2031 AM peak 1 hour as follows:

- Traffic demand to/from/within Macquarie Park and its immediate surrounds is estimated as 40,000 person trips per hour (based on traffic generation calculations and a 40% public transport mode share);
- At a 40% public transport mode share this equates to approximately 16,000 public transport trips per hour;
- Approximately 6,000 passengers per hour may be accommodated by train (allowing for some directionality of movement and a 10 minute headway); thus leaving
- Approximately 10,000 passengers per hour to be accommodated on buses.

At a very conservative rate of 30 passengers per bus, this leads to well over 300 buses per hour accessing Macquarie Interchange in 2031.

It is estimated that approximately half of bus patronage at this point would be associated with Macquarie University and about half with other destinations to the east and south-east of the Interchange, given that some passengers would have already alighted the bus at other stops on Waterloo Road, Talavera Road, Khartoum Road etc.

In terms of pedestrian movements across the existing signalised mid-block crossing, this could potentially be as high as 2,500 pedestrians per hour crossing in each direction at these signals (or in other words about 40 pedestrians per direction cycle on a short 60 second cycle).

Figure 1 summarises these volumes as well as the traffic volumes through the area extracted from the 2031 Paramics Model.

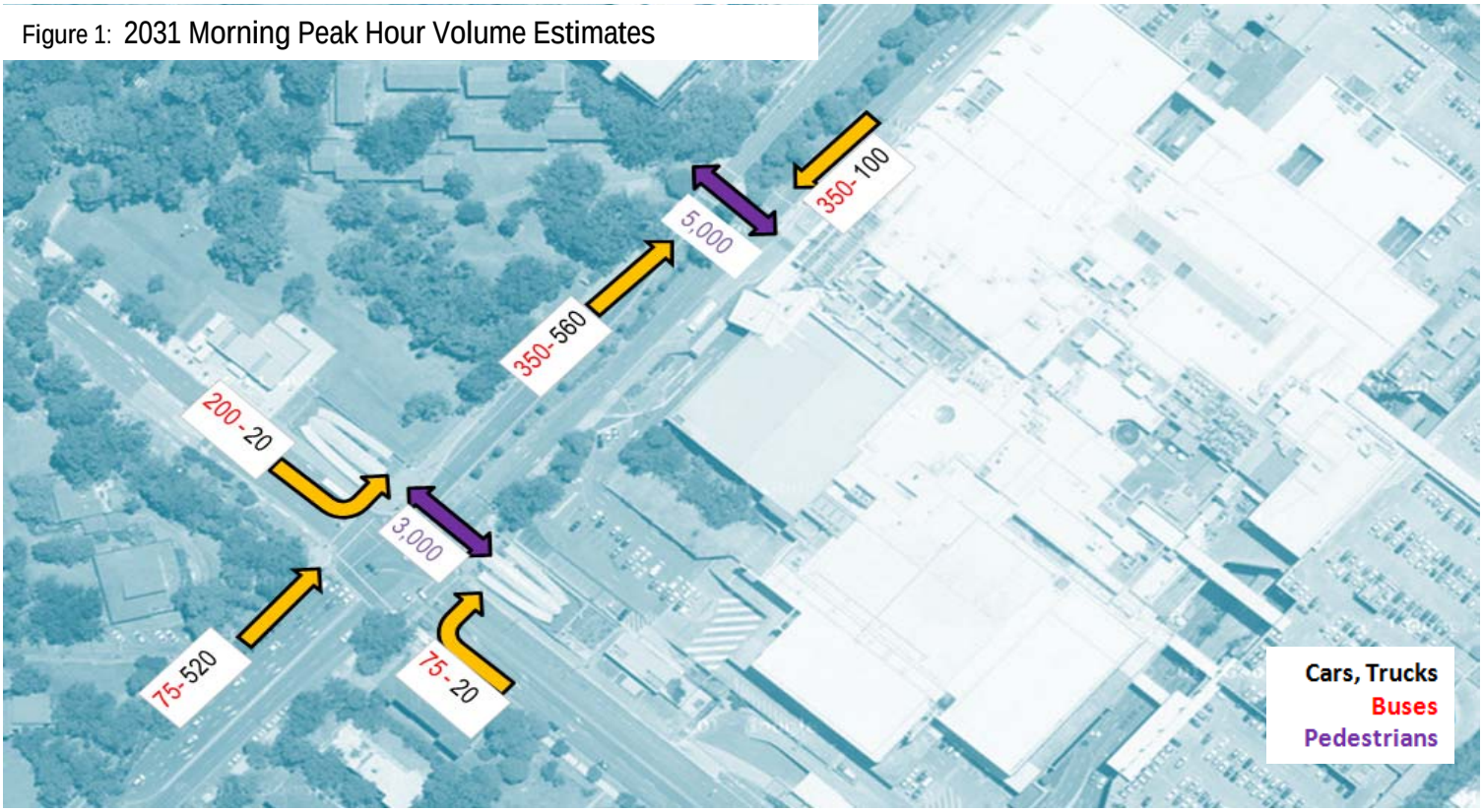
It is important to highlight that due to the very high numbers of buses expected in this area in 2031, it was observed in the models that traffic tends to bypass Herring Road and use other alternative routes (such as Culloden Road and Khartoum Road to access the M2 ramps).

Logic Check on Demands

In terms of a "logic check" on the estimated volumes, another 1,000, 000 m² of office space would equate to 20,000 peak hour trips, most of which would be accommodated on public transport given the limited traffic capacity able to be augmented into the current major road system. This does not even consider the growth in university trips and retail employment trips.

On the basis that an additional 8,000 trips can be absorbed into the road system, the extra 12,000 public transport trips when added to the existing 6,000 public transport trips to/from Macquarie Park matches reasonably well to the estimates made based on total demand in 2031.

Figure 1: 2031 Morning Peak Hour Volume Estimates



CONFLICTS ASSESSMENT

The volume estimates presented in Figure 1 show significant conflicts between buses, cars and pedestrians at both the existing signalised pedestrian crossing and the intersection of Waterloo Road and Herring Road.

On the basis of each bus equating to 3 passenger car units (pcus) there will be approximately 1,610 pcus per hour at this location northbound. Given the extremely high pedestrian movements at this location (i.e. 40 pedestrians per direction per minute), the pedestrians could be five-deep at the crossing and median storage would be impractical, inferring a crossing time of well over 30 seconds.

Also, it would be considered unsafe to hold pedestrians for long signal cycles at this location given this level of demand and a maximum 60 second cycle would be likely. This results in less than 50% of the green time available for traffic and hence traffic capacity issues in Herring Road.

Turning traffic and buses at the Waterloo Road/Herring Road intersection would also be an issue given the volume of pedestrians streaming out of the station and crossing to access the university.

Furthermore, the weaving of buses into and out of the bus stops on Herring Road would severely reduce the throughput capacity of Herring Road. That is, all 350 buses per hour would need to pull into a bus bay and then exit the bay, interrupting following vehicles to undertake this movement. Given the limited bus storage space in this area, buses leaving to layover and then returning from layover would essentially double the number of bus movements in the area. Bus bay capacity would also be a limiting factor as discussed further below.

This preliminary conflicts assessment suggests that some form of grade separation of pedestrians and buses/traffic would be essential for the reasonable function of the interchange.

BUS STORAGE REQUIREMENTS

Figure 1 shows that approximately 350 buses per hour would be required to access the Macquarie Interchange; a significant increase from the 50 buses per hour currently using the interchange.

There are approximately 3 bus bays on each side of Herring Road now and using simple factoring would therefore require 21 bays each side in 2031. Improved operational efficiency through the station and separation from traffic could increase capacity to 30 buses per bay per hour which would still result in approximately 13 bays per direction being required (assuming no layover provided). This would require in excess of 200m of kerb space on Herring Road and a "wall of buses" in this pedestrian-heavy environment.

This is clearly not possible at grade in Herring Road and leads to the conclusion that it is highly likely that a grade separated facility will be required if Macquarie Park achieves anything near its development potential under the LEP.

Given that the layover function is likely to remain at this interchange, then 13 "inbound" and 13 "outbound" bays will be required to provide an opportunity to accommodate any timetable slack required before the next run commences.

At an approximate rate of 200m^2 per bus-bay (including pedestrian waiting and circulation areas), an area of approximately 5,200 m^2 would be required for an underground bus station.

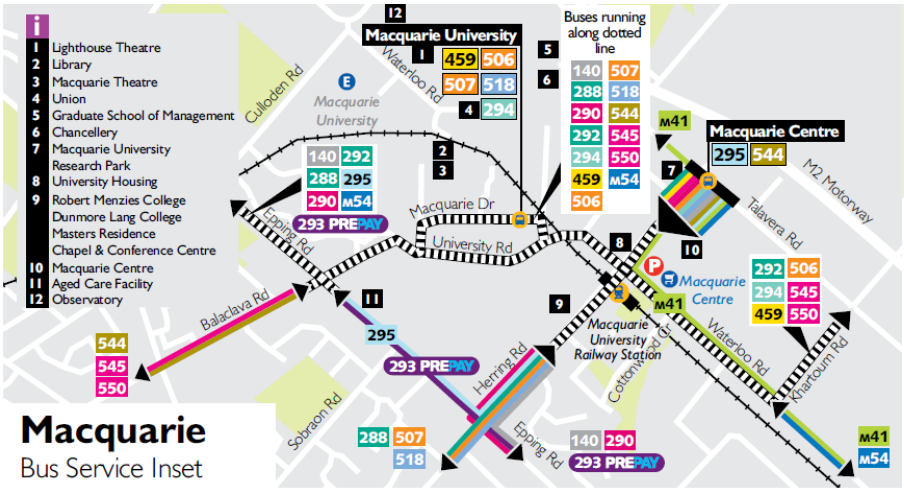
If the layover function was to be included in this station (i.e. nearby layover facilities were not available with driver break facilities) then this amount of space would be expected to be much larger.

OTHER CONSIDERATIONS

Approximately 350 buses per hour is generally well in excess of the warrants for bus lanes. If this level of demand is reached then it is unlikely that the existing service structure with a large number of buses passing through University Avenue could continue and more services would need to be split down Epping and Herring Roads instead.

This then suggests an ultimate configuration that considers bus lanes on Herring Road between Epping Road and the interchange, as well as along Waterloo Road between Lane Cove Road and Herring Road.

Grade separated bus priority facilities would also appear warranted at the interchange to move buses from Waterloo Road and from Herring Road down into the bus station.



Existing bus service structure near Macquarie Centre highlighting the "terminus" function of the Macquarie Interchange and it being a focal point for Macquarie Park services

Source: http://www.131500.com.au/maps/upload/docs/R7_Map2009_2.pdf

CONCLUSIONS

A preliminary assessment of potential Macquarie Interchange transport demands and modal conflicts has been completed. Key conclusions from this assessment include:

- Macquarie Park is proposed to increase by over 1,000,000 m^2 in commercial floor space as well as expansion of the Macquarie University and Macquarie Centre both of which are directly adjacent to the interchange.
- Modelling has demonstrated that there is limited capacity for the existing road system (or even a reasonably expanded road system) to accommodate major increases in traffic demand due to this growth and public transport must be relied upon.
- By 2031, Macquarie Park is forecast to cater for approximately 100,000 public transport person trips per day, equating to around 16,000 trips in the peak hours. With 6,000 of these peak hour trips potentially accommodated on heavy rail, about 10,000 public transport trips will need to be catered for on buses.
- Practically all buses that come to Macquarie Park end up at Macquarie interchange and there are sound operational reasons why this service structure will continue into the future. This means that approximately 350 buses per hour will enter the bus interchange, 7 times the number of buses using the interchange in 2011.
- Increasing pedestrian demand and the mix of buses and general traffic in Herring Road cannot be catered for by the current configuration on a capacity basis and this configuration also generated operational and safety concerns with such a large increase in conflicts.
- An at-grade bus station would need to include at least 13 bus-bays per direction which does not appear to be feasible within the current configuration on Herring Road.
- An underground bus station appears to be an inevitable need even if 40%-50% of the level of development allowed for under the LEP eventuates. Such a bus station would need in excess of 5,000 m^2 and would be expected to warrant approaching bus lanes from both Waterloo Road and Herring Road. An indicative concept of this arrangement is shown in Figure 2.

Figure 2: Indicative Interchange & Access Arrangements