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**MACQUARIE**  
University

15<sup>th</sup> April 2016

Ms Megan Fu  
Senior Planner  
Social and Other Infrastructure Assessments  
Department of Planning and Environment  
GPO Box 39  
Sydney NSW 2001

Dear Megan,

As you are aware, the Macquarie University Concept Plan was approved in 2009, and almost seven years after consent was granted, a number of traffic-related conditions remain unresolved. These issues have been the subject of ongoing discussions between the University, RMS, Transport for NSW and the City of Ryde Council (Council), and are the source of delays to new proposals on the campus.

Most recently, in December 2015, the University submitted what was considered to be the final, endorsed version of the micro-simulation model to the Department of Planning and Environment (the Department) for approval, in accordance with the requirements of the Concept Plan. The University's submission was distributed to RMS, Transport for NSW and Council for comment. This letter provides a response to the issues raised in RMS's submission dated 27 January 2016. The issues raised in Council's submission will be addressed in a separate letter.

At the centre of RMS's submission are three key elements required by the conditions of consent, namely:

- The micro-simulation model;
- The agreement with RMS relating to various road intersection upgrades and cycleway on Epping Road (the subject of a proposed VPA with the RMS); and
- The need for bus priority lanes.

While the conditions of the VPA have generally been agreed and await finalisation with the Department, the micro-simulation model and, by extension, the need for bus priority lanes and any additional capacity, remain unresolved.

Macquarie University is keen to finally resolve these conditions of consent to remove any impediment to future projects. The following summarises the status of each key condition, and possible actions to assist in their resolution.

## **BACKGROUND AND KEY CONDITIONS**

The 2009 Concept Plan approval, and subsequent Hearing Hub consent, contain a number of conditions relating to traffic modelling, road intersection upgrades and bus priority measures. The key conditions are summarised below. Since 2009, the University has made a number of submissions to RMS in an attempt to resolve these conditions:

- **Concept Plan** (MP06\_0016) - Approved in 2009. Key issues outstanding are:
  - Condition C10(2) - Micro-simulation model
  - Condition C10(4) and B5(1),(2) - MP06\_0016 - Road upgrades to form part of a legally binding agreement (VPA)
  - Condition C15(2) and B5(1),(2) - MP06\_0016 - Bus lane priority setbacks
- **Hearing Hub Development** (MP10\_0032) – Approved in 2010. This consent generally aligns with the Concept Plan conditions, however has been amended to clarify the requirement for the bus priority setbacks, as outlined below. Key outstanding issues are:
  - Condition E1(a) - Preparation of a Micro-simulation model as required in the Concept Plan approval
  - Condition E1(b) - External road and intersection works consistent with Concept Plan
  - Condition E1(c) – Provision of any adequate setbacks for bus priority and capacity improvements consistent with Concept Plan

Note: this condition was amended in 2013 to clarify that the bus priority setbacks are only necessary *‘if identified as being required by the detailed micro-simulation modelling’*.
- **Gateway Proposal** – Submitted to RMS for approval in 2015. Approval for changes to the intersection configuration on the University’s private road and traffic signal changes have been delayed by resolution of conditions above.

<p><b>Relevant Conditions - Micro-Simulation Model</b></p> <ul style="list-style-type: none"> <li>• Concept Plan Condition C10(2) - MP06_0016</li> <li>• Hearing Hub Condition E1(a) - MP10_0032</li> </ul>
<p><b>Requirement</b></p> <p>Macquarie University to submit a micro-simulation model for endorsement</p>
<p><b>Response</b></p> <p>The aim of the micro-simulation model is to identify the impacts of the growth of the campus on the surrounding external road network. The requirement was conditioned in 2009 as part of the Concept Plan approval, and was subject to traffic conditions in 2009.</p> <p>In close association with RMS (then RTA), Transport for NSW (then Ministry of Transport), the Department and Council, Arup developed a micro-simulation Paramics traffic model of the Macquarie Park area. This built on the existing Macquarie Park Paramics model developed by Bitzios for Council in 2007, which at the time was agreed as the most suitable method to undertake the modelling.</p> <p>The base traffic model was submitted to the RTA in June 2010 which reflected road network conditions and operations at the time. Subsequent to the approval of the base model, Arup inputted future year traffic flows which considered the growth of the campus, as well as the wider Macquarie Park area. The final report outlining necessary road infrastructure works to intersections external to the University to support this growth, as well as the Paramics modelling files, were submitted to the RTA in 2011. These road infrastructure works have received in-principle support from RMS and are currently the subject of VPA negotiations with Macquarie University.</p> <p>At RMS’s request, the University has continued to adjust the model based on a number of planning initiatives in the precinct. With continuing planning initiatives across</p>

Macquarie Park, there is a risk that a model required in 2009 may never be complete if continual adjustments are required.

In 2015, Arup updated the micro-simulation traffic model to consider recent road network upgrades in Macquarie Park – particularly the addition of new on and off ramps at Herring Road and Christie Road from the M2 motorway.

The base model, which expanded and updated Ryde Council's Bitzios model, was submitted to RMS in May 2015.

Correspondence was received by Arup on 11 May 2015 from the RMS endorsing the micro-simulation base model:

*The base model calibration and validation are satisfactory. The AM and PM models reasonably replicate Herring Road existing traffic between Waterloo and Talavera Roads, in the project core area. The models are suitable for further modelling analysis associated with Macquarie Square Interchange assessment.*

Following the development and endorsement of the base traffic model, future traffic volumes were inputted for the forecast year 2026. Future year traffic demand forecasts were comprised of the following components:

- Changes to traffic demand on the wider road network (background traffic growth);
- Increased traffic demand attributable to the growth of the Macquarie University campus; and
- Increased traffic demand attributable to the Herring Road priority precinct.

The latest iteration of the Paramics micro-simulation model, taking into account the above factors, confirmed the findings of the 2011 Paramics model submitted to the RMS with respect to necessary intersection upgrades external to the Campus.

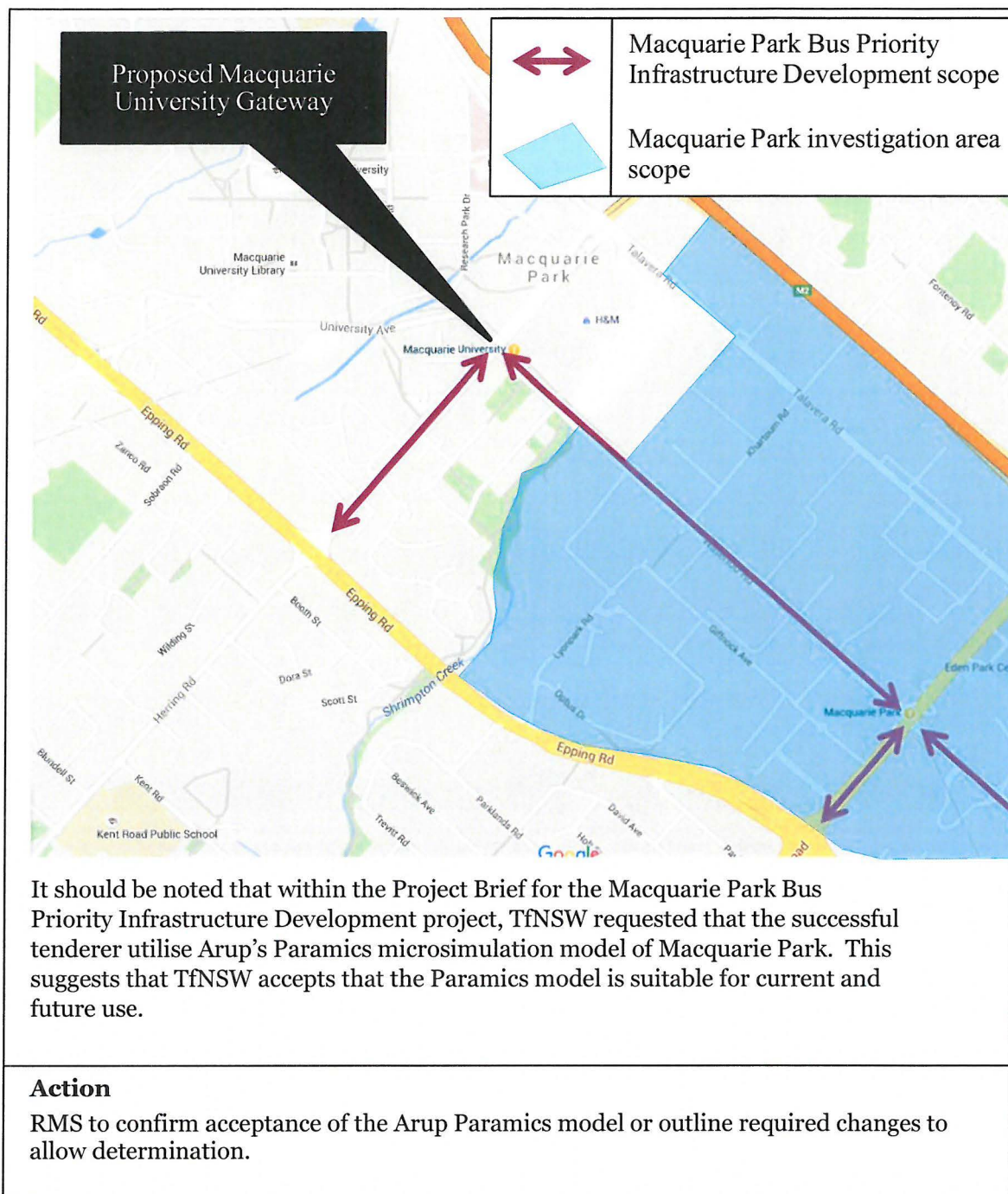
### **Macquarie Park Project Impacts**

The RMS letter refers to two ongoing projects currently being undertaken by the NSW Government (see plan below). The projects and likely impacts on Macquarie University are:

- Macquarie Park - Bus Priority Infrastructure Development (currently being undertaken by Arup) – located on Herring, Land Cove and Waterloo Roads. No impact on Macquarie University modelling; and
- Macquarie Park Strategic Investigation (currently under assessment by the Department) – located east of the Macquarie Centre. No impact on Macquarie University modelling.

As illustrated in the figure below, these two projects lie outside the Macquarie University precinct and would not impact the operation of internal roads within the campus.





**Relevant Conditions - Road Intersection Upgrades and Cycleway**

- Concept Plan Condition B3 (2), C10(4)) and C15(1)-(4) - MPo6\_0016
- Hearing Hub Condition E1(b) - MP10\_0032

**Requirement**

The University is required to enter into an agreement with the RMS in relation to upgrades of six (6) road intersections surrounding the campus, including:

1. Epping Rd / Balaclava Rd
2. Epping Rd / Herring Rd
3. Waterloo Rd / Herring Rd
4. Waterloo Rd / Culloden Rd
5. Talavera Rd / Christie Rd
6. Talavera Rd / Herring Rd

The agreement with RMS is to also provide for the construction of missing cycleway connections on Epping Road.

**Response**

The University has been working with the RMS towards an agreement that satisfies the relevant conditions of the Concept Plan approval. As identified in Condition B3(2), six (6) intersections were selected for upgrade works. The RMS has since acknowledged and agreed that four (4) of those intersections have either already been carried out by others or are addressed in the VPA between the University and the City of Ryde Council. In their letter of 6 December 2013 the RMS confirmed that *“out of the six (6) intersections identified in condition B3(2) only the intersections of Epping Road / Balaclava Road and Epping Road / Herring Road remain outstanding”*.

The University and the RMS have subsequently reached an in-principle agreement in order to satisfy the remaining two intersection upgrade requirements. This involves the “pooling” of funds towards an “agreed” state road intersection upgrade near the University and requires the University to make a cash contribution to the RMS.

Additionally, in order to satisfy Condition C15(2) of the Concept Plan approval, the University and the RMS have reached agreement that the University will provide for a Shared Use Path (SUP) along Epping Road (between Herring Road and Culloden Road).

Discussions with RMS and the Department have confirmed that the appropriate pathway for documenting the agreed position is via a Voluntary Planning Agreement to be facilitated by the Department. The University has made a formal offer to the Department to enter into such a VPA with RMS and we are currently in discussions with the Department to finalise the VPA.

**Action**

Macquarie University to work with the Department of Planning and Environment to finalise the VPA with RMS.

**Relevant Conditions - Bus Priority Setbacks**

- Concept Plan Condition C15(2) and B5(1),(2) - MP06\_0016
- Hearing Hub Condition E1(c) - MP10\_0032

**Note:** Condition E1(c) of MP10\_0032 was amended in 2013 to clarify that the bus priority setbacks are only necessary 'if identified as being required by the detailed micro-simulation modelling'

**Requirement**

The provision of bus priority setbacks and any required additional capacity at the Balaclava Road/Epping Road and Waterloo Road/Herring Road intersections

**Response**

The micro-simulation model has also been the tool to examine the impacts of traffic within the campus.

It demonstrates that the significant traffic growth expected in Macquarie Park results in increased delays and congestion at major intersections external to the campus. Within the Macquarie University road network, traffic is shown to operate efficiently, with delays the result of increased vehicle movements on the external road network.

Most importantly, the modelling demonstrates that buses operate efficiently within the Macquarie University internal road network, with additional bus priority setbacks at the approaches to Herring Road / Waterloo Road and Epping Road / Balaclava Road not required.

As the road network constraints lie outside the University's (private) roads, providing bus priority would do little to enhance bus travel times and reliability.

Based on the above, and in accordance with Condition E1(c) of MP10\_0032 (as amended), no bus priority setbacks are required.

**Gateway Proposal**

Further development of the Macquarie University Master Plan in 2014 and 2015 has identified the potential to reconfigure the University's Herring Road gateway. This proposal was submitted to the RMS for approval in 2015, and involves the narrowing of the University's private roads network at the Herring Road and Waterloo Road entry, and banning right turns onto Herring Road.

The RMS letter makes reference to an email dated 18 December 2015 from George Mobayed at Transport for NSW, noting:

*I can advise that TfNSW is yet to determine if it supports the proposed narrowing of University Ave, right-turn ban and widening of the pedestrian footway. This is primarily due to the various transport related projects being undertaken within the vicinity of Macquarie University. As you may be aware, the NSW Government is currently investigating Macquarie Park as a priority precinct. TfNSW is involved in this work which would consider forecast traffic and bus corridors within Macquarie Park. Simultaneously, TfNSW is currently undertaking a project to model bus priority options for Macquarie Park and will be using your Macquarie Square Paramics traffic model as background information. TfNSW can provide more information to your request from the outcomes of these projects. I can keep you informed on their progress.*

This email was sent in response to the proposed reconfiguration of the University Avenue approach to the Herring Road / Waterloo Road intersection (Macquarie University Gateway project). The proposed works are not associated with bus priority set-backs on internal roads within the University (although they would not preclude this in the



future, if found to be necessary) or other transport related projects in the precinct. As outlined above, the works taking place elsewhere in the precinct would not impact the operation of internal roads within the campus.

The Gateway proposal primarily responds to the increased pedestrian demands between the Herring Road transport interchange and Academic Core of the University in future years. However, the proposal also provides benefit with respect to traffic flow and efficiency on the wider road network.

Arup, in reports prepared in August 2014, February 2015 and August 2015 have consistently demonstrated the operational benefits that would arise to buses as a result of the implementation of the proposed Macquarie University Gateway works. These studies have utilised a number of different traffic modelling methodologies based on feedback received from the RMS, including:

- Micro-simulation model using Paramics which dynamically reassigns traffic onto the road network; and
- SIDRA modelling with manual redistribution of traffic onto the road network.

The reduced number of signal phases required at the Herring Road / Waterloo Road intersection as a result of the banning the right turn out of the University results in significant operational benefits to all road users, including buses.

The extent of traffic redistributed to the Epping Road / Balaclava Road intersection is relatively minor and does little to change the operation of this intersection.

The August 2015 report was finalised following an extensive six month consultation period with the network optimisation team at the RMS. In August 2015 correspondence was received from Martin Oaten (General Manager Network Optimisation, Roads and Maritime) noting:

*Roads and Maritime Services (RMS) has reviewed Arup traffic analysis that outline the traffic impacts of both the Macquarie Square Interchange (MSI) and Macquarie University Gateway (MUG) proposals.*

*RMS accepts in principle Arup's analysis findings on traffic redistribution, and preliminary SIDRA traffic modelling.*

This provides written endorsement to the findings of Arup's August 2015 report which identified the benefits (to general traffic and buses) achieved following the introduction of the Macquarie University Gateway project, without incorporating any bus priority measures.

#### **Action**

RMS confirm acceptance of Paramics Model (see above).

RMS to confirm that there is no need for bus priority lanes or additional capacity at Balaclava and Herring Road intersections, based on the micro-simulation model demonstrating that these are not required.

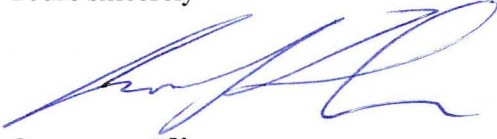
RMS to progress consideration of Herring Road intersection signalization.

We trust that this response assists in demonstrating that Arup's Paramics model is suitable, and that there is no requirement for any additional adjustments. Further, based on the outcomes of the model, there is no need to provide bus priority measures at the Balaclava Road or Herring Road intersections, and there is no impediment to the University's proposed Gateway upgrade.

The University looks forward to continuing to work with RMS and the Department to resolve

the VPA for the road intersection upgrades and shared use path. Given the University's continued efforts to resolve these matters, we would request that the Department assist in resolving these conditions with RMS, noting that these requirements need to be satisfied by September 2016, in accordance with the conditions of consent for the Hearing Hub.

Yours sincerely



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Macquarie University

cc. Greg Flynn, Manager, Strategic Land Use, Network & Safety Sydney, RMS