APPENDIX G INDEPENDENT TRAFFIC ASSESSMENT

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Memorandum

To	**Amy Watson / Ben Lusher**	From	**Gillian Austin**
Copy		Reference	**234109**
Date	**26 February 2014**	Pages (including this page)	**7**
Subject	**Rozelle Village – Review of GTA Response dated 25th February 2014**		

Aurecon have been commissioned to review the GTA Response dated 25th February 2014 to TfNSW submission (ref:CD14/01735). This response has been considered in relation to the advice provided within the Aurecon Traffic and Transport Review dated 13th February 2014.

Review of GTA Response

Core Issues Listed in TfNSW

Issue No. 1. – Parking Removal In Wellington Street

It is understood that the revised proposal looks to remove parking on Wellington Street in the PM peak hour but does not see the need in either AM or Saturday peak.

It is agreed that the removal of parking is primarily a local Council matter and subject to the loss of parking being supported then it is not a matter for RMS. However, if parking is not removed (and it is noted that parking is generally a very contentious issue for local residents and hence Council) then this would adversely impact the operation of this intersection and as such is a concern for RMS.

If agreement to remove the parking has not been obtained in principle it may be prudent to identify the impact of the development if this parking is not removed.

Issue not satisfactorily resolved ✖

Issue No. 2. – Satisfactory Pedestrian Arrangements

It is understood that this has been covered by the draft conditions of the permit

Issue resolved with conditions ✓

Issue No. 3. – Access to Victoria Road from Rozelle Village Development

See discussion below

Issue Partially Resolved but Issues Still Outstanding ✖

Issue No. 4. - Controls on Heavy Vehicle Access

The GTA PPR indicates that RMS requested the following access management measures for the loading dock:

- *Restrictions on loading dock access during AM (6am – 10am) and PM (3pm – 7pm) peak periods*

The PPR response to this requirement was the following:

"The network modelling has indicated that the loading dock can operate satisfactorily without significant adverse implication on the road network during the AM peak periods. However, the results indicate that network operation will be affected during the PM peak with the loss of green time to Victoria Road (outbound) and / or Wellington Street"

As a result the PPR access management measures included the following:

- *Loading dock access shall be restricted between 4pm and 6pm*
- *Access restrictions will be managed by the following:*
  - *Signage*
  - *Roller Shutter Doors*
  - *Implementation and Enforcement of a loading dock management plan*

The TfNSW response indicates concerns regarding the effectiveness of the proposed management measures, in particular the proposal to include roller shutter doors on the site access.

Aurecon's view is that whilst there may still be valid issues in relation to the operation of the loading dock access these could be managed by inclusion of appropriate conditions, including but not necessarily limited to include the following:

- No roller shutter door on the heavy vehicle ingress that could prevent vehicles physically entering the loading dock area. This will avoid the scenario of heavy vehicles turning off Victoria Street and not being able to access the service area then reversing back onto Victoria Street;
- Roller shutter door on the exit that can be closed during "loading restriction" preventing vehicles exiting the site and therefore activating the site phase of the signals; and
- Implementation of a delivery management plan prepared to the satisfaction of RMS

Issue potentially could be resolved with suitable permit conditions ✓

Issue No. 5. – Club Access via Waterloo Street

It is noted that the GTA report *Rozelle Village Revised Scheme Transport Assessment of Revised Victoria Road Site Access Arrangements* clearly states:

"No changes are proposed to the Waterloo Street vehicle access arrangements, namely that only residential vehicle entry and exit movements will be provided to and from Waterloo Street."

Issue Not Applicable to Current Revised Scheme ✓

Response to PB Audit

PB Section 2 – AM Peak Hour

GTA have advised that they have corrected the modelling error and re-run the model, as suggested in our report this has resulted in a marginal improvement in the road network.

The Memo states – *"vehicles egress onto Waterloo Street which [SIC] shows minimal queuing"*

The information provided indicates that in the AM peak hour the corrected model error has made a significant impact on queuing on Waterloo Street with minimal queuing now being shown compared to the previous model run where queuing was modelled as extending back to the Waterloo Street access for much of the AM peak period.

It is noted that the PB audit in relation to this point does not suggest that there is actually queuing within the residential access during the peak period but rather that the *"results and findings of the AM peak modelling are not valid"* due to the modelling error and that it was *"recommended that this issue is fixed and the models re-run"*

This has now been completed.

Issue resolved with correct modelling ✓

PB Section 3 – PM Peak Hour

Darling Street

The PB audit does not appear to be commenting on whether the change in the traffic signal timings at the intersection of Darling Street and Victoria Road are acceptable or not but rather they are reporting on the impact that this would have, particularly on Darling Street west.

This information including the "virtual" queue represented by unreleased vehicles within the model indicate that queuing on Darling Street would increase from 15 vehicles (93m) in the 'base + cumulative' model to 140 vehicles (866m) in the 'with revised Rozelle Village Model'. This is a significant impact.

Issue not satisfactorily resolved ✗

Lane Choice Issues

The PB modelling audit report clearly shows that in the Base + Cumulative model there is significant use of all three lanes on the City West link approach and the Anzac Bridge approach to Victoria Street whereas in the 'with Rozelle Village' model the majority of traffic appears to be using only two of the three possible lanes on either approach. As a result the PB audit suggests that this has resulted in significantly fewer vehicles (difference of 1600 vehicles) travelling outbound on Victoria Road in the PM Peak. In our view this would clearly contribute to a better performance within the network itself.

The GTA response states:

> *"The lane choice differentials were adjusted as part of testing to try to reduce the amount of unreleased vehicles from the corresponding zone for the various options and to reflect actual observed behaviour in congested periods"*

In Aurecon's view this does not satisfactorily address why it is appropriate to adopt a different lane choice at these model thresholds for the base + cumulative and the Rozelle Village models. In addition in the information provided to Aurecon in relation the GTA response there is no details or

diagrams showing the 're-run' lane choice modelling for either City West or Anzac Bridge, therefore it is impossible to understand whether this issue has been resolved to a satisfactory manner.

Issue not satisfactorily resolved ✖

Internal Queuing within the Development

The PB modelling audit queuing findings relate to the December 2013 run and based on this have identified the following:

- *"Queuing from the Retail car park extends ……a distance of approximately 130m…..A review of the modelling indicates that vehicles seeking to leave the retail car park can queue for over 10 minutes to exit the car park."*
- *"Due to congestion on Waterloo Road, vehicles have limited opportunities to exit the residential car park during the PM peak……A review of the modelling indicated that vehicles seeking to leave the residential car park can queue for over 30 minutes to exit the car park"*

These comments are based on the December 2013 modelling run, however it is clear from the comparison between the December 2013 and February 2014 runs that changes between the two models have resulting in significantly less queuing, particularly from the residential exit. Although it is noted that the GTA responses still acknowledges that some vehicles exiting the non residential access can be queued *"for a maximum of 5 to 10 minutes"*

In our view a 10 minute wait to exit a car park is still significant and could result in frustrated drivers taking risks.

Issue not satisfactorily resolved ✖

Impact on Bus Travel Times during PM Peak

Both the PB audit and the GTA response find that buses using Darling Street may experience significant delays.

The PB audit indicates that those routes most impacted could experience delays of between 4 and 5 minutes.

The GTA response does not provide a strong justification as to why it is appropriate to generate this level of delay to bus routes using Darling Street per se or evidence that the appropriate department has been consulted and is willing to support these changes. Although it is noted that in the response to the Detailed Comments GTA state that the number of buses using Darling Street is relatively low, however the actual total has not been advised.

Aurecon's view is that whilst it is acknowledged that Victoria Street bus routes will not experience any material impact on bus travel times more discussion is required as to whether delays in up to 5 minutes is acceptable for Darling Street routes.

Issue not satisfactorily resolved ✖

Saturday Review

It is recognised that the Saturday model is less congested than the AM & PM peak models and will therefore perform better. It is noted that the PB audit identified lane choice issues within this model, however these have not been addressed by the GTA response, primarily as this is not the critical period.

The Saturday model does not appear to have been re-run

Issue not resolved but is the least congested period, therefore if traffic impact in other scenarios is acceptable this would be too. ✗

Response to PB Audit Detailed Comments

Items 1 to 6

These items have been covered above

Item 7 – Darling Street / National Street Intersection

The Darling Street / National Street intersection is located approximately 90 metres from the intersection of Darling Street and Victoria Road and is the only signalised intersection between Zone 10 entry and Victoria Road.

Ideally it is good practice to include all signalised intersections within the study area, however, given that the signals only serve to accommodate vehicles turning into and out of a no through road traffic volumes are anticipated to be relatively low and hence the activation of this signal is unlikely to occur over a significant period of the peak period. It is therefore considered that this would not have a major impact on the validity of the model.

Issue not resolved but is anticipated to have no material impact on the overall network. ✓

Item 8 – Local Road Network Impacts

The PB audit states that the *"Transport models do not quantify the impacts on the local road network within the Rozelle/Balmain precinct, including Wellington Street and Terry Street"*

It is noted that whilst the model include this information it has not been provided within a reader friendly format as part of the report.

Issue not satisfactorily resolved ✗

Implications of GTA Response on Aurecon Report Conclusions

The Aurecon report made seven conclusions in relation to the December 2013 analysis. Based on the above response and the information provided within the re-run these conclusions have been reviewed as follows:

Table 1 Review of Aurecon Conclusions from 13th February 2014

	Conclusion from Aurecon Report Dated 13th February 2014	Validity of Conclusion following GTA Response and re-run of the model dated 25th February 2014
1	Although there are some discrepancies between traffic generation calculations between the October 2012 "preferred scheme" and the July 2013 and December 2013 "revised scheme" based on the information available and the acceptance of previous generation assessments, both "revised scheme" overall traffic generation assumptions for the development are reasonable.	Remains Valid
2	Disagreement of trip distribution assumptions was raised by the Local Government that the secondary catchment only generates "passed by" traffic and not attract additional patronage in its own right. The assumptions in relation to all traffic generating from secondary catchment area as passing trade and replacing the same number of trips travelling from the Iron Cove Bridge to the Anzac Bridge and vice versa would have the potential to underestimate new trips to the study area.	Remains Valid
3	The introduction of Rozelle Village development will be expected to generate adverse impacts on all surrounding streets, particularly Darling Street, Wellington Street and Waterloo Street. Bus operation along Darling Street will be expected to experience significant travel time increase during peak periods.	Remains Valid This has not been addressed in any detail within the current assessment reports.
4	The revised retail car park access arrangements did eliminate the hazard of the car park exit at the intersection of Victoria Road and Wellington Street, which was identified in the review of the July 2013 Revised Scheme. However the safety issues on Waterloo Street and at the Waterloo Street/Darling Street intersection still remain, due to the increased activities in relation to Rozelle Village development.	Remains Valid
5	Exiting vehicles, from both retail car park and residential car park will experience significant delays and congestion during peak periods, which lead to safety implications as frustrated drivers have a greater propensity to take risks.	The revised model indicates significantly lesser queuing from the residential car park, however vehicles exiting the non residential car park will still experience up to a 10 minute delay. Revised Conclusion: ***Exiting vehicles, from the retail car park will experience significant delays and congestion during peak periods, which lead to safety implications as frustrated drivers have a greater propensity to take risks.***

	Conclusion from Aurecon Report Dated 13th February 2014	Validity of Conclusion following GTA Response and re-run of the model dated 25th February 2014
6	The model audit undertaken by PB identified a coding error and a couple of misused lane choice rule configuration, which results in unexpected model performance. Significant delays and congestion were observed on the road network surrounding development in the model during peak periods. These delays and congestion are the direct results of the introduction of Rozelle Village development.	The coding error has been corrected however, it is not clear whether the lane choice rules have been amended appropriately. Revised Conclusion: ***The model audit undertaken by PB identified some lane choice disparities between model runs, which have a significant impact on the amount of traffic that can enter the model network and therefore may impact the validity of models. It is unclear whether these disparities have been amended in the February 2014 model re-run.***
7	Based on the results of detailed traffic and transport assessments undertaken for the proposed development and following the review of all supporting documentation prepared as part of this project application, TfNSW and RMS recommend that the subject PPR not to be approved in its current form due to the adverse traffic and transport impacts on the road network in the precinct.	No TfNSW or RMS response has been viewed in relation to the GTA Response dated 25th February 2014
8	In conclusion it is considered that the supporting documentation for the revised July 2013/December 2013 proposal do not fully address the traffic implications of the development on the surrounding road network and transport system.	Still Valid

If you have any queries in relation to the above please do not hesitate to contact me.

Regards

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aurecon

Project: Rozelle Village Revised Scheme

Traffic & Transport Review

Reference: 234109

Prepared for: DoP&I

Revision: 2 - Final

13 February 2014

Document Control Record

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Document control						
Report Title		Traffic & Transport Review				
Document ID			**Project Number**		234109	
File Path		\\aurecon.info\shares\AUSYD\Projects\CIV\234109\Reporting\Final Draft Report\Main Report\Rozelle Village Development-Independent Review of Supplementary Report_2013.10.29_Masterdoc.docx				
Client		DoP&I	**Client Contact**		Ben Lusher Department of Planning & Infrastructure	
Rev	**Date**	**Revision Details/Status**	**Prepared by**	**Author**	**Verifier**	**Approver**
0	18 October 2013	Interim Draft report for comments	FL	FL	GA	GA
1	11 January 2014	Review with Revised Access Arrangements	FL	FL	GA	GA
2-F	13 February 2014	Final Report	FL	FL	GA	GA
Current Revision		**2 - Final**				

Approval			
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Contents

1. Background **1**

1.1 Introduction and Scope of Report 1

1.2 Documents reviewed 2

2. Development Summary **3**

2.1 Preamble 3

3. Review Summary **5**

3.1 Revised Traffic Generation 5

3.2 Revised Traffic Distribution Assumption 7

3.3 Traffic Impacts on Surroundings 9

3.4 Revised traffic impacts on bus operation 14

3.5 Revised design of retail car park access 16

3.6 Proposed pedestrian crossing at Victoria Road/Wellington Street Intersection 16

3.7 General review of the RSA Report 17

4. Joint TfNSW and RMS submission and response to Revised Scheme December 2013 **19**

5. Conclusion **22**

Appendices

Appendix A

Supporting Documents

1. Background

1.1 Introduction and Scope of Report

Aurecon has been engaged by Department of Planning and Infrastructure to provide a number of traffic engineering / transport planning reviews of the Rozelle Development and submissions.

This report provides a concise traffic engineering / transport planning review of the development proposals that have been submitted since July 2013. For the purpose of this report these will be known as "Revised Scheme-July 2013" and "Revised Scheme – Dec 2013" and have been assessed and modelled within the following reports:

- Revised Scheme – July 2013 - Supplementary Traffic Modelling Report prepared by GTA dated 12 July 2013.
- Revised Scheme – December 2013 – Transport Assessment of Revised Victoria Road Site Access Arrangement, prepared by GTA, dated 11 December 2013.

It is noted that the 12 July 2013 GTA report was prepared by GTA to respond to the public and agency submissions regarding the revised Rozelle Village Scheme and that this report also includes a Road Safety Audit Stage 2 for the Revised Proposed Project. The December 2013 GTA report responds to the additional comments in relation to the safety concerns of the Victoria Road access arrangement proposed by the July 2013 scheme.

It should be noted that Aurecon's scope of work considers the July 2013 scheme in the first instance and the December 2013 scheme only where significant changes have occurred, as summarised below:

Item	Changes in Revised Scheme Dec 2013
Review of the revised traffic generation;	Changes to AM and PM traffic generation, as a result of recent updates to recommended rates for high density residential uses published within the RMS Technical Direction TDT 2013/04a dated August 2013,
Review of the revised traffic distribution assumption;	No changes to July 2013 scheme
Review of the impact of the development traffic on the direct adjacent roads and intersections;	Removal of retail car park exit via the signalised Victoria Road/Wellington Street intersection. Provision of additional left-in-left-out retail car park access at Victoria Road between Darling Street and Wellington Street.
Review of the traffic impacts on bus operation;	No changes to July 2013 scheme
Review of the revised design of retail car park ramps;	In terms of the revised Victoria Road access arrangement

Item	Changes in Revised Scheme Dec 2013
Review of safety of the proposed pedestrian crossing arrangement across Victoria Road;	No changes to July 2013 scheme
Review of swept path analysis associated to the revised design;	No changes to July 2013 scheme
Review of the supplementary Road Safety Audit Stage 2; and	In terms of the revised Victoria Road access arrangement
Review of RMS / PB analysis of the revised modelling and conclusions	In terms of the revised Victoria Road access arrangement

1.2 Documents reviewed

The following documents prepared on behalf of proponent, as part of the Rozelle Village Revised Scheme, were provided for the review:

- *Supplementary Traffic Modelling Report, prepared by GTA Consultants, dated 12 July, 2013* (Supplementary Report)
- *Supplementary Road Safety Audit Report Stage 2, prepared by Winning Traffic Solutions, dated August 2013* (RSA Report)
- *Rozelle Village Transport Management and Accessibility Plan Preferred Project Report, prepared by GTA Consultants, dated 25 October, 2012* (Preferred Project Report)
- *Rozelle Village Revised Scheme – Transport Assessment of Revised Victoria Road Site Access Arrangements, prepared by GTA Consultants, dated 11 December 2013* (New Access Arrangement Report)
- *Road Safety Audit Stage 2 (Revised Preliminary Design), prepared by Winning Traffic Solutions, dated December 2013* (New Access Arrangement RSA Report)

Aurecon has undertaken an independent peer review of the Rozelle Village Transport Management and Accessibility Plan – Preferred Project Report (PPR Review), dated March 2013. This report also refers to the PPR Review as a supporting document, which is included in Appendix A.

2. Development Summary

2.1 Preamble

As stated previously this review is based on the current "revised" development proposals these proposal are the same as within the July 2013 Revised Scheme but differ from previous proposals as indicated within Table 2.1.

Table 2.1 Preferred and Revised Rozelle Village Development Schemes

Heading	**Dec 2013 Revised Scheme (as modelled in GTA Dec 2013 Report)**		**July 2013 "Revised Scheme" (as modelled in GTA July 2013 Report)**		**October 2012 "Preferred Scheme"**	
	Development Size	***Parking***	***Development Size***	***Parking***	***Development Size***	***Parking***
Non Residential	As July 2013 Scheme	As July 2013 Scheme	20,646sq.m	300 spaces 1.45 spaces per 100sq.m	27,500sq.m	278 spaces 1.01 spaces per 100sq.m
Residential	As July 2013 Scheme	As July 2013 Scheme	247 dwellings 125 x 1-bed (51%) 108 x 2-bed (44%) 14 x 3-bed	188 spaces 0.76 spaces per dwelling	316 dwellings 170 x 1-bed (54%) 128 x 2-bed 12 x 3-bed 5 x SOHO apartments	231 spaces 0.73 spaces per dwelling
Total		488 spaces		488 spaces		509 spaces

It is noted that whilst both the total development area and parking numbers have reduced since the 2012 scheme the adopted parking provision rate per development unit (dwelling or floor area) for both non-residential and residential uses have both increased.

Non-Residential Development – Revised Scheme

The Revised Scheme floor areas are summarised in Table 2.2 for information purposes

Table 2.2 Revised Rozelle Village Development Schemes Land Uses Breakdown

Non Residential Uses		**July 2013 & Dec 2013 "Revised Scheme" (as modelled in GTA July 2013 Report)**	**July 2013 & Dec 2013 "Revised Scheme" (as modelled in GTA July 2013 Report)**
Commercial Uses	Office Suites Medical Centre Gymnasium Circulation	1478sq.m	As July 2013 Scheme
Retail	Supermarket Speciality Retail Mini Major Food retail Restaurants Associated Circulation	10,982sq.m	As July 2013 Scheme
Club		2576sq.m	As July 2013 Scheme
Community Facilities		905sq.m	As July 2013 Scheme
Total		15942sq.m	As July 2013 Scheme

It is clear that the breakdown of commercial uses as provided within the Urbis Report SA4539_Rozelle Village_PPR Response specifies a total commercial use of 15,942sq.m compared to the total non-residential use as a summary of 20,646sq.m (a difference of 4704sq.m)

3. Review Summary

3.1 Revised Traffic Generation

The revised traffic generation for the development is summarised within Table 3.2 of the July 2013 Supplementary Report and New Access Arrangement December 2013 Report.

The traffic generation for land uses within the Rozelle Village development is updated in the December 2013 report, with the consideration of the updated traffic generation rate for high density residential flat dwellings, set out in the RMS Guide to Traffic Generating Developments Updated traffic surveys, TDT 2013/04a, published August 2013.

This traffic generation has been provided for information and compared against the "Preferred Scheme" within Table 3.1.

Table 3.1 Estimated Traffic Generation Comparison

	December 2013 "Revised Scheme"			**July 2013 "Revised Scheme"**			**October 2012 "Preferred Scheme"**		
Land Uses	**AM**	**PM**	**Sat**	**AM**	**PM**	**Sat**	**AM**	**PM**	**Sat**
Non Residential (GFA)	147	296	266	147	296	266	115	299	270
Residential Dwelling	47	37	72	72	72	72	94	94	94
Totals	194	333	338	219	367	338	209	393	364

The July 2013 Supplementary Report suggests that the Revised Scheme would generate 7% less traffic than Preferred Scheme, with the reduction increased in the Dec 2013 analysis which indicated 7% - 15% less traffic.

It is noted that the actual difference in traffic generation is different depending on the analysed period as summarised below:

July 2013 Scheme to Preferred Scheme

- AM Peak Hour Approx. 5% i**ncrease** in traffic generation with latest "revised" scheme
- PM Peak Hour Approx. 7% **decrease** in traffic generation with latest "revised" scheme
- Sat Midday Approx. 7% **decrease** in traffic generation with latest "revised" scheme

December 2013 Scheme to July 2013 Scheme

- AM Peak Hour Approx. 11% **decrease** in traffic generation with July 2013 Scheme
- PM Peak Hour Approx. 9% **decrease** in traffic generation with July 2013 Scheme
- Sat Midday Remained same as July 2013 Scheme

Stakeholder's Submission referring to Preferred Project Report

From previous reviews only Leichardt Council provided a comment or issue in relation to the traffic generation of the development proposals. This comment is provided below for information.

Stakeholder	Issue / Comment
Leichhardt Council/ARUP	As the development was identified as a local shopping centre and much less of a destination centre in GTA's Preferred Report, the Council's concern was expressed that the distribution was an over simplification of the nature of Rozelle

It is noted that this submission did not raise particular concerns with the traffic generation methodology per se.

Aurecon Review and Comments

July 2013 Assessment

It is noted that no issues have been raised previously in line with the trip generation of the proposed development and in general the same basic generation assumptions have been adopted. However Aurecon would comment as follows in relation to the current trip generation:

1. It would appear that the residential traffic generation rate adopted was taken from RTA Guide to Traffic Generating Developments (GTGD) for high density residential uses within metropolitan sub-regional centres. As trip movements are related in some degree to parking provision it is noted that the equivalent GTGD parking requirements for this type of land use and locale (192 spaces) are not dissimilar to the proposed residential provision (188 spaces).

2. The retail, gym, medical centre and commercial centre trip generation were calculated based on the turnover of parking and therefore will reflect the "revised" scheme change in non-residential car parking provision. It is noted that details of reasoning behind individual land use parking turnover to trip generation relationships are not included within the assessment and further information would be required in order for us to assess the appropriateness of the trip generation base rates.

3. The foodcourt trip generation rate has reduced in the assessment of the "revised" scheme. Under the "preferred scheme" a rate of 1.36 trips per parking space was adopted for the PM and Saturday assessment periods (no rate in the morning period) within the current "revised" scheme a rate of 0.33 trips per space has been adopted for all periods. No explanation has been provided for this change of rate. Using the "revised scheme" rate results in 9 additional trips in the AM assessment but 29 fewer trips per hour in the PM and Saturday assessments. In Aurecon's view it is considered that a food court would primarily generate trade from trips within the site rather than attract a significant number of trips in its own right. Therefore the adoption of a lower rate is not considered unreasonable.

December 2013 Assessment

In summary, whilst there are some discrepancies between traffic generation calculations between the October 2012 "preferred scheme" and the July 2013 and December 2013 "revised scheme" based on the information available and the acceptance of previous generation assessments, the December 2013 "revised scheme" overall traffic generation for the development is acceptable.

3.2 Revised Traffic Distribution Assumption

Information from the Supplementary Modelling Report

Analysis of JTW 2011 data was undertaken in the Supplementary Modelling Report. The origins and destination of the private motor vehicles were used to create the distributions in Paramics modelling assessment.

The summary of the private vehicle origin / destination for Rozelle Village site Travel Zone is reproduced in Table 3.2.

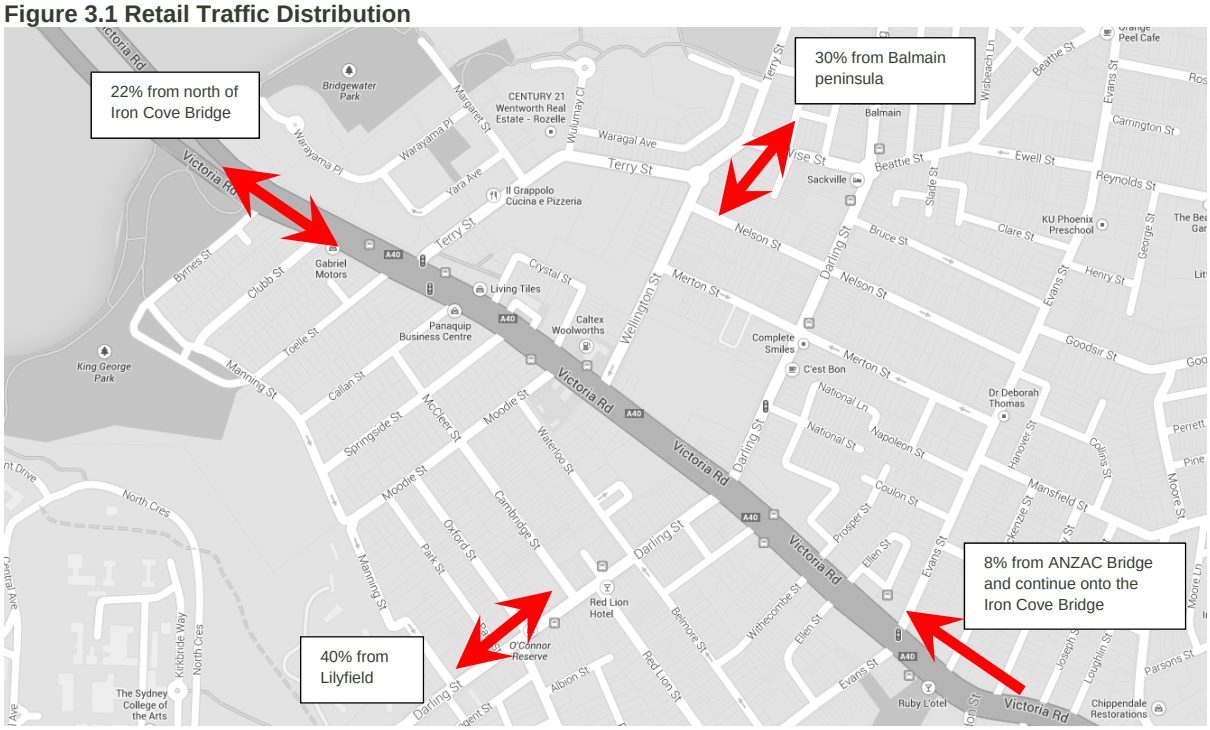
Table 3.2 Origin/Destination of JTW Private Vehicle Trips (2011)

Model of Travel	Originating at Rozelle Village Travel Zone (825)	Destination in Rozelle Village Travel Zone (825)
North (north of Iron Cove Bridge)	29%	28%
North (north of Iron Cove Bridge)	29%	28%
Eastern Suburbs and Southern Suburbs (Anzac Bridge)	29%	14%
Western Suburbs (Darling Street / City West Link)	38%	56%

The retail traffic distribution used in the Supplementary Report was based on the economic assessment of Rozelle Village development prepared by Urbis (October 2012). This retail distribution is consistent with Preferred Report.

Figure 3.1 shows the retail traffic distribution assumed in the Supplementary Report.

Figure 3.1 Retail Traffic Distribution



Assumptions have been made that the primary catchment is considered to be located within the model extents, while the secondary catchment and passing trade (some 30% in total) can be considered as external traffic to the model.

Stakeholder's Submission referring to Preferred Project Report

Stakeholder	Issue / Comment
Leichhardt Council/ARUP	The Council doesn't agree that the proponent's modelling has assumed the secondary catchment will only generate "passed by" traffic and not attract additional patronage in its own right.

Aurecon Review and Comments

July 2013 Assessment

The Table 3.4 of the Supplementary Report is confused with duplicated rows of North (north of Iron Cove Bridge) Origin/Destination vehicle distribution.

Same assumptions and distribution split ratios were applied in the Supplementary Report as the Preferred Project Report. Therefore Aurecon has the same comments as stated in Rozelle Village Traffic and Transport Review Report, which are replicated below:

- The assumption in relation to all traffic generating from secondary catchment area as passing trade and replacing the same number of trips travelling from the Iron Cove Bridge to the Anzac Bridge and vice versa would have the potential to underestimate new trips to the study area for the following reasons:
  - Workers to the retail development and delivery vehicles are expected to arrive from further afield
  - While some of the passing trade is expected to use the shopping centre, it also has the potential to attract trips which are not already on the road. For example, if the shoppers living in Drummoyne and currently using Birkenhead Shopping Centre, they may use the proposed Rozelle Village Shopping Centre. These are new trips to the study area and are not the replacement of trips travelling from the Iron Cove Bridge to the Anzac Bridge and vice versa.
- Based on information from similar developments and journey to work data information, provide more detail on the traffic distribution assumptions in relation to the number of movements which are likely to be generated as new trips from outside the study area.

December 2013 Assessment

The traffic distribution assumptions for both the cumulative future traffic and the Rozelle Village development traffic are retained as the same as the previous July 2013 assessment. It is considered that the changes in the Victoria Road access arrangements would have no material impact on the likely traffic distribution assumptions. Therefore the comments provided above remain valid and appropriate to the latest revised scheme.

3.3 Traffic Impacts on Surroundings

Information from the revised Modelling Reports

The road network operation was assessed in terms of the key performance indicators:

- Average vehicle delays
- Average travel time, and
- Vehicle queuing

The following conclusion has been made in the July 2013 Revised Scheme Report and December 2013 New Access Arrangement Report.

"Average vehicle speed decreases, in AM, PM and Saturday peak periods, *with additonal traffic associated with Cumulative Growth and Rozelle Village development traffic flows compared with base conditions."*

"Average vehicle delay (seconds/vehicle), in AM and PM peak periods, *increases with additonal traffic associated with Cumulative Growth and Rozelle Village development traffic flows compared with base conditions."*

"The removal of on street parking in Victoria Road and to a less degree Darling Street as proposed with the Rozelle Village project provides additional corridor capacity, thereby reducing delays and improving travel time compared with the Cumulative development scenario."

In order to identify the change of the traffic volumes at the street adjacent to Rozelle Village development, the traffic volume information is extracted from Appendix G of Supplementary Report and summarised inTable 3.3. It is noted that street traffic volumes were not reported in December 2013 New Access Arrangement Report. However, given the adopted traffic generation for the December 2013 scheme are lower assumed within the July 2013 scheme it is likely that the future traffic volumes on Waterloo Street will be lower than indicated below, although they will still be higher than at present.

Table 3.3 Street Traffic Volumes – as within July 2013 Assessment

Street - Section	Scenario	AM	PM	SAT
Victoria Rd - Wellington / Darling	Existing	9264	10202	7974
	Base+Cum	10197	11016	8585
	Post Dev	10119	10895	8428
Darling St - Waterloo / Victoria	Existing	1883	2253	1967
	Base+Cum	2073	2480	2179
	Post Dev	2070	2458	2171
Moodie St - West of Victoria Rd	Existing	327	317	652
	Base+Cum	327	317	652
	Post Dev	360	325	672
Waterloo St - Darling / Moodie	Existing	115	113	151
	Base+Cum	115	113	151
	Post Dev	281	332	385

The modelled travel times on Victoria Road, between The Crescent and Iron Cove Bridge, is summarised in the Supplementary Reports and reproduced in Table 3.4 Modelled Travel Time on Victoria Road.

Table 3.4 Modelled Travel Time on Victoria Road

Development Scenario	City bound	Outbound	Dec 2013 City Bound	Dec 2013 Outbound
AM Weekday Peak Hour 8-9am				
Base Case (2011)	458	180		
Base + Cumulative (2021)	475	179		
Base + Cumulative + Rozelle Village (2021)	476	185	458	182
PM Weekday Peak Hour 5-6pm				
Base Case (2011)	306	155		
Base + Cumulative (2021)	650	186		
Base + Cumulative + Rozelle Village (2021)	356	291	283 / 345*	174 / 184*
Saturday Peak Hour 12-1pm				
Base Case (2011)	269	175		
Base + Cumulative (2021)	363	266		
Base + Cumulative + Rozelle Village (2021)	340	188	343	209

Note: *The options with and without on-street parking on Wellington Street were tested for PM peak in December 2013 New Access Arrangement assessment.

It was concluded that under the With Rozelle Village development scenario the city bound travel time in the PM Peak does not increase as the Cumulative + Base development scenario.

The comparison of the above table indicates that the new car park access arrangements on Victoria Road are not expected to have significant operational changes on Victoria Road, comparing to the July 2013 Revised Scheme.

Stakeholder's Submission referring to Preferred Project Report

The following section summarised the submissions regarding the traffic impacts of the Rozelle Village development on surroundings from a number of stakeholders in relation to the Revised Scheme July 2013.

Stakeholder	Issue / Comment
Leichhardt Council/ARUP	The impact of additional traffic in Waterloo Street, particularly in relation to right turn prohibitions likely to be imposed on vehicles exiting the development onto Victoria Road is insufficiently assessed. Darling Street/Waterloo/Belmore intersection and associated queuing, particularly the applicant's proposal to remove kerbside parking in Darling Street to alleviate this queuing. It is considered that the applicant's proposal, to replace Darling Street's kerbside spaces with short-stay spaces in the development's basement, is not appropriate as these spaces will not be readily available for patrons of shops which front Darling Street. The impact of increased traffic on Terry and Wellington Streets and proposals to remove parking in Wellington Street. The Inner West Busway project along Victoria Road has already had an impact on the accessibility into and out of some local streets along this section of Victoria Road. The Rozelle Village development places increased traffic on local streets on both sides of Victoria Road in order to gain access to the site. This will further reduce local accessibility for residents and businesses in the precinct. The traffic assessment assumes the removal of on-street parking in Darling Street and Victoria Road on Saturday. These are considered to be crucial car parking spaces for the ongoing viability of the strip retail on Saturday. The provision of short term spaces within the basement will not provide the same level of service that currently exists.
Department of Education and Communities	The impact of traffic generation from the proposed development in Terry Street, Merton Street, Darling Street (South) and Victoria Road must also be evaluated together with the Tigers Development. DEC's concern is that together with other planned developments, the traffic network will exceed the budgeted capacity around Rozelle Public School and therefore creating serious traffic issues. *DEC does not agree with proposed clearway measures on Darling Street and Wellington Street to alleviate traffic congestion at peak hour as the school community relies on the current parking arrangement on these streets to access the school*
TfNSW/RMS	To accommodate the future traffic flows generated by the development, the applicant proposes to remove a number of parking spaces along Darling Street, between Victoria Road and Waterloo Street. Whilst RMS does not object to the removal of these on-street parking spaces, the proponent must undertake adequate consultation with any affected local businesses and Council to the satisfaction of DoP&I

Stakeholder's Submission referring to Preferred Project Report

Stakeholder	Issue / Comment
Leichhardt Council/ARUP	**Traffic** Further analysis of the traffic impact in relation to the following is required: Waterloo Street, particularly in relation to right turn prohibitions likely to be imposed on vehicles exiting the development onto Victoria Road is required The impact of increased traffic on Terry and Wellington Streets and proposals to remove parking in Wellington Street. The Inner West Busway project along Victoria Road has already had an impact on the accessibility into and out of some local streets along this section of Victoria Road. The Rozelle Village development places increased traffic on local streets on both sides of Victoria Road in order to gain access to the site. This will further reduce local accessibility for residents and businesses in the precinct. **Parking Spaces** It is considered that the applicant's proposal, to replace Darling Street's kerbside spaces with short-stay spaces in the development's basement, is not appropriate as these spaces will not be readily available for patrons of shops which front Darling Street. The traffic assessment assumes the removal of on-street parking in Darling Street and Victoria Road on Saturday. These are considered to be crucial car parking spaces for the ongoing viability of the strip retail on Saturday. The provision of short term spaces within the basement will not provide the same level of service that currently exists.

Aurecon Review and Comments

July 2013 Assessment

The following comments are provided by Aurecon in relation to results of traffic impact assessment undertaken in July 2013:

Victoria Road

- The average vehicle delay is expected to increase during weekday peak periods, while the average vehicle travel speed goes down. The proposed removal of on-street parking on Victoria Road during Saturday would improve the traffic condition along Victoria Road; however this may have an impact on the amenity of parking and operation of businesses along this street.

- Traffic flows on Victoria Road are reported to remain similar to existing in all AM, PM and Saturday peak periods.

- It is reported that the city bound travel time on Victoria Road does not increase with the Base + Cumulative + Rozelle Village during the PM peak in 2021. However the modelled travel time indicates that the travel time significantly decreases unexpectedly from 650 seconds to 356 seconds. The decrease of travel time is not consistent with the increasing traffic volumes once the Rozelle Village development is built. Further explanation is required to address the issues;

it is suspected that this is because some traffic is "held" outside the study area moving delays and queues to intersections and sections of road beyond the study area.

- Queuing at the car park access on Victoria Road into the Rozelle Village development is not assessed in the Modelling Report.

- Aurecon has undertaken a high level queuing theory calculation in terms of the maximum traffic in-flow of 296 vehicles in PM peak hour and the suggested lane capacity of 300 vehicles/hour/lane with automatic ticket issue and boom gate, stated in AS/NZS 2890.1:2004. Based on this analysis the queue length of vehicles approaching the access has potential to overflow to the next traffic lane on Victoria Road. Further assessment should be undertaken to assess the impact of the car park access operation, particularly, on Victoria Road.

- The Level of Service of the intersections adjacent to the Rozelle Village development was reported in Appendix G. The intersections of Darling St/Victoria Rd, Wellington St/Victoria Rd and Waterloo St/Darling St were all reported in Level of Service "F" for all scenarios (including existing conditions). The result indicates that all adjacent intersections are currently operating over ideal capacity. As level of service F represents conditions that exceed the capacity of the intersections and is the lowest level of service defined it does not indicate the relative impact on the operation of the intersection, in this case the changes in queues and delays at each intersection would provide a better indication of the impact.

- The removal of on-street parking on surrounding streets and operation of peak hour clear way on Victoria Road will have significant impacts on nearby businesses and communities. It is unclear whether the reduction in parking would be acceptable given other supplies in the area and how this may impact on travel patterns as vehicles change their search for spaces.

- Further parking assessment is required to assess the impacts of the proposed amendments to the supply of parking in the area.

Local Roads

- In order to respond the DoPI's request, the Supplementary Report extends the traffic assessment to cover main local roads.
- Traffic flows on Darling Street and Moodie Street are reported to remain similar to existing in all AM, PM and Saturday peak periods.

- Waterloo Street would experience a significant traffic volume increase, 144% in AM, 194% in PM and 155% on a Saturday, since the residential car park accesses onto Waterloo Street.

- Waterloo Street is currently classified as a local street with traffic calming measures. The large amount of increased traffic on Waterloo Street will have significant impact on the amenity and safety of the locality for existing residents adjoining the site. However these impacts were not assessed in the Preferred Report and the Revised Report. Further investigation is required to assess the functionality and accessibility of the adjacent local street.

December 2013 Assessment

The new car parking access arrangements on Victoria are expected to have the same level of impacts on the surrounding road network, comparing to the July 2013 Scheme. The less traffic generation in

relation to the residential land uses is expected to result in a lesser impact on Waterloo Street in particular, but has not been documented by GTA.

It is noted that the residential traffic generated as assessed within the December 2013 report is some 10% less than as assessed in July 2013. This would suggest daily volumes on Waterloo Street still increasing from existing 1100 vehicles per day[1] (approx.) to approximately 2800 vehicles per day with Rozelle Village development in the future. Whilst less than as suggested by the July 2013 figures, the traffic increase on Waterloo Street still represents a considerable change in the general amenity and environment to an existing local street and is approaching the level of traffic anticipated on connector rather than access streets.

More traffic with more pedestrian activity, as would be produced by the development of Rozelle Village, will inevitably lead to more opportunities for congestion and conflicts between pedestrians and vehicles on local streets in the vicinity of the development and this has not been either assessed or addressed within the GTA report and could result in capacity and safety issues.

The PB Audit indicated that the introduction of Rozelle Village development will still have significant impacts on the road surrounding the development, particularly Darling Street, Wellington Street and Waterloo Street. Significant congestion and long vehicle delays were observed in the model during peak periods for vehicle exiting the development.

3.4 Revised traffic impacts on bus operation

Information from the revised Modelling Report

The Supplementary Report notes that since the strategic forecasting of bus operation on Victoria Road are currently not finalised and as such it would be sensible for the modelling to incorporate existing bus movements for the 2021 model. The bus travel times on both Victoria Road and northbound approach of Darling Street were extracted from the model and summarised in the both Revised Reports, which is reproduced in Table 3.5 and Table 3.6.

Table 3.5 Modelled Bus Travel Time on Victoria Road

Development Scenario	City bound	Outbound	Dec 2013 City Bound	Dec 2013 Outbound
AM Weekday Peak Hour 8-9am				
Base + Cumulative (2021)	217	246		
Base + Cumulative + Rozelle Village (2021)	201	275	218	251
PM Weekday Peak Hour 5-6pm				
Base + Cumulative (2021)	296	186		
Base + Cumulative + Rozelle Village (2021)	340	272	259	194
Saturday Peak Hour 12-1pm				
Base + Cumulative (2021)	230	204		
Base + Cumulative + Rozelle Village (2021)	227	196	234	202

[1] *Daily volumes have been assessed based on traffic volumes in Table 3.3 and assuming 10% of daily volumes occur in the peak hour period.*

Table 3.6 Modelled Bus Travel Time on northbound approach of Darling Street

Development Scenario	July 2013			Dec 2013		
	Route A	Route B	Route C	Route A	Route B	Route C
AM Weekday Peak Hour 8-9am						
Base + Cumulative (2021)	390	760	407			
Base + Cumulative + Rozelle Village (2021)	487	591	360	639	678	456
PM Weekday Peak Hour 5-6pm						
Base + Cumulative (2021)	242	389	175			
Base + Cumulative + Rozelle Village (2021)	315	544	264	490	685	360
Saturday Peak Hour 12-1pm						
Base + Cumulative (2021)	384	400	358			
Base + Cumulative + Rozelle Village (2021)	326	255	220	197	291	150

*Route A – Darling Street (Northbound), Manning Street to Wise Street
Route B – Darling Street and Victoria Road (Citybound), Manning Street to Joseph Street
Route C – Darling Street (Northbound), Manning Street to Victoria Road

It is concluded that the modelling results for other routes such as Darling Street, Robert Street and Mullen Street show a mixture of bus travel time increases and decreases for the various future development scenarios.

However buses approaching Victoria Road on Darling Street will expect to have significantly increasing delays with Rozelle Village development traffic, which could be adversely double comparing to the Base + Cumulative scenario during afternoon peak period.

Stakeholder's Submission referring to Preferred Project Report

Stakeholder	Issue / Comment
Leichhardt Council/ARUP	Increasing delays on Victoria Road have the potential to impact on buses, which in turn may reduce the attractiveness of buses and so reduce the potential for increased public transport mode share for the development's residents and patrons. The capacity of existing bus services to cater for the increased demand envisaged by the traffic study does not appear to have been examined.

Aurecon Review and Comments

July 2013 Assessment

Further bus travel time analysis was undertaken and reported in the Supplementary Report for the side street. The bus travel time analysis results included in Appendix G of the Supplementary Report indicate the variation between the three scenarios (Existing Condition 2011, Base + Cumulative Growth 2021, and Post Development + Cumulative Growth 2021). In addition, the existing road network within the study area is currently operating at capacity, which could lead to unstable network operation. Therefore the assessment/comparison of the Rozelle Village development traffic on the buses operation is not achieved.

It is noted that whilst bus travel times along Victoria Road may be improved due to the staging of the signals bus routes that access Victoria Road from side streets would experience greater delays as a result of negotiating intersections.

December 2013 Assessment

Table 3.6 indicates that new retail car park arrangements will have adverse impacts on the bus operation, with 15% to 56% of bus travel time increased, along Darling Street, compared to the July 2013 Revised Scheme.

In addition, it is noted that the model indicates suggests that vehicles that exit the site during peak periods may experience significant queuing and delays. This may lead to driver frustration which can increase an individual's propensity to take risks, for instance taking small gaps in traffic to exit an intersection.

3.5 Revised design of retail car park access

Information from the revised Modelling Report

The July 2013 Supplementary Report notes that in response to the RSA findings a number of design modifications have been made and incorporated into the revised scheme.

The December 2013 New Access Arrangement Report reports that the design of retail car park access complies with the RMS requirements of deceleration lane and a minimum sight distance 114 metres. The report concluded that the vehicle queues within the car park for all peaks are not excessive with the car park being able to be emptied within the modelled peak periods. It was also reported that the demand for car park entry movements can be accommodated without queuing across the property line and long the deceleration lane.

Information from the RSA Report

The RSA Report notes that the grades of the car park exit driveway have been modified as part of the revised design proposal to provide compliant grades.

Aurecon Review and Comments

July 2013 Comments

Aurecon reviewed the design of access arrangement to retail car park of the Revised Preliminary Design. Based on the basement design plans PA105 and PA106 of the revised Proposed Project Report, it is confirmed that the design of the retail car park access ramps comply with the requirements set out in AS/NZS 2890.1:2004.

December 2013 Comments

Figure 3.2 of the December 2013 revised Modelling Report indicated that the vehicle queue length, exiting the retail car park was not observed over 82 metres from the PM model with Wellington Street on-street parking removed. However the PB Audit verified that the vehicle queuing from the Retail car park extends back into the zone with approximate distance of 130 metres, leading to vehicles queuing over 10 minutes to exit the car park.

3.6 Proposed pedestrian crossing at Victoria Road/Wellington Street Intersection

Information from Supplementary RSA Stage 2 Report

The RSA Report notes that a few changes are made to the Preliminary Design to improve the pedestrian safety at the Victoria Road/Wellington Street Intersection. These changes include:

- Gantry signage, removal of columns to improve sight lines and line marking of entrance paths at the Victoria Road / Wellington St / site access intersection

- Speed reduction measures to be applied along the footpath approach to the intersection crossing
- Pedestrian fencing to be installed along the kerb of the proposed deceleration slip lane entry to the car park.

Stakeholder's Submission referring to Preferred Project Report

Stakeholder	Issue / Comment
Leichhardt Council/ARUP	Pedestrian and cycle access along the Victoria Road frontage does not appear to be fully resolved
Department of Education and Communities	Recent senate inquiries such as the Joint Standing Committee on Road Safety – Inquiry into School Zone Safety (March 2012) reinforces the focus of school road safety as a significant issue. DEC therefore requested that the TMAP included a school traffic survey during the AM peak period by a qualified traffic engineer assessing school traffic safety. This was not carried out by the applicant and our concerns with the potential impact on pedestrian.

Aurecon Review and Comments

July 2013 Comments

Aurecon notes that the right turn movement from the Rozelle Village development retail car park is prohibited on Victoria Road in the Revised Scheme. The conflict of pedestrian movement across Victoria Road and the exiting traffic turning right from Rozelle Village retail car park is eliminated.

December 2013 Comments

Comment is as July 2013 assessment

3.7 General review of the RSA Report

Information from Supplementary RSA Stage 2 Report

The following concerns are raised in the RSA Report and reproduced as below:

- Cars exiting with the trucks, on the inside or "blind side" increases the probability of collision, especially if trucks are seeking the centre lane.

- The "remote location of the pedestrian facility across Victoria Road exposes pedestrian to vehicles exiting from Wellington Street at speed. Whilst it is recognised that a "left Turn Arrow Hold" facility is incorporated into the design, pedestrian exposure becomes greatest when this arrow expires and the northbound pedestrian is completing the crossing during the remainder of B phase (still green for Wellington Street vehicles).

Information from Supplementary RSA Stage 2 (Revised Preliminary Design) Report

The audit was undertaken to address road safety concerns in regards to the revised access arrangement of the Rozelle Village development that may impact road user safety. The overall site issues raised by the audit include:

- It was observed that the combination of parked vehicles, bus activity and right turn vehicles into Waterloo Street on Darling Street causes the queuing of southbound traffic. This

congestion also restricts the right turn movement from Victoria Road into Darling Street and through westbound movement along Victoria Road. It is expected that the frequency of this congestion will be increased due to the increased right turn traffic from Darling Street into Waterloo Street and increased pedestrian activity, which could be the results of the Rozelle Village development.

- At the Waterloo Street / Darling Street intersection, additional traffic is predicted to access the southern precinct. The cumulative impacts on the Darling Street / Victoria Road intersection, in terms of operational road safety such as queuing across intersection and potential for rear end incidents, are considered medium to high.
- Bicycle directional signage is insufficient to indicate where bicycles are to access the complex or how they might access the visitor cycle parking on Basement Level 2. It is assumed bicycle owner residents will use vehicle access point, which could result in the conflict of bicycle and vehicle movements at basement. Bicycle access management measures are required to eliminate the hazard.

Aurecon Review and Comments

July 2013 Comments

The RSA Report identifies a serious issue, which could lead to a head-on crash of the eastbound Victoria Road through movement and the left turn articulated vehicle movement during B phase at the intersection. The probability of crash is identified high by the RSA Report.

The RSA Report also notes that the probability of collision increases when cars exiting with the trucks, on the inside or “blind side, especially if trucks are seeking the centre lane. Therefore it should not be concluded that the Revised Preliminary Design (Revised Scheme) is adequate in meeting road user safety level. Further investigation must be undertaken and safer intersection layout must be designed to eliminate the hazard.

December 2013 Comments

The revised retail car park access arrangements eliminate the hazard of the car park exit at the intersection of Victoria Road and Wellington Street, which was identified in the review of the July 2013 Revised Scheme.

..

4. Joint TfNSW and RMS submission and response to Revised Scheme December 2013

TfNSW and RMS also conducted a review of the addendum to the reviewed PPR in relation to the new car park access arrangement. As part of the TfNSW and RMS review, RMS commissioned Parsons Brinckerhoff (PB) to undertake an independent audit of the revised transport modelling submitted. The following comments are the summary of the submissions and the findings of PB Audit:

PB Audit Findings

- **Model Coding Errors**

A coding error was identified by the PB Audit, which leads to unexpected traffic routing and significant congestion on Waterloo Street and Darling Street, as well as the vehicle blockage in the residential car park for over an hour. The coding error observed produced an inactive link prior to the traffic zone representing the retail car park, this meant that vehicles could not access the zone via this link. As a result vehicles from Wellington Street which should directly access the site were modelled travelling via Moodie Street, Waterloo Street and Darling Street to use the alternative entrance from Victoria Road. This error contributes to the significant queuing on Waterloo Street blocking the egress from the Rozelle Village residential car park.

- **Amended Signal Timing at Victoria Road / Darling Street Intersection**

A reduced green time of 4 seconds per cycle was noted for the northbound approach of Darling Street from the Base Case and Base + Cumulative PM models. It is reported in the Audit that this green time reduction, combined with the increased development traffic, exacerbates congestion and delays on the Darling Street approach during PM peak, and the occurrence of extended queuing back into the traffic zone (Zone 9).

- **Lane Choice Issues**

The lane choice rules applied to the links of the City West Link and Anzac Bridge approaches were considered unsuitable by the PB Audit. These unsuitable lane choice rules restricted the use of all lanes in the associated traffic links, which results in high volumes of unexpected unreleased vehicles in Zone 14, 15, 16 and 17. These lane choice issues were also found in Saturday modelling.

- **Internal queuing within the Development**

Vehicle queuing from both Retail car park and residential car park back into traffic zones were observed in the PM model. This would result in queuing beyond the internal boom gates. Vehicles seeking to exit the development would experience extremely high level of delays, 10 minutes to exit Retail car park and 30 minutes to exit residential car park.

- **Impacts of bus travel times during PM peak**

Unexpectedly increased travel times, comparing to the Base + Cumulative model, were indicated for the buses approaching Victoria Road on the southern leg of Darling Street in the PB Audit.

TfNSW and RMS Comments

Besides of the adoption of PB Audit findings, the following comments were provided by RMS in relation to the traffic and transport impacts of the Rozelle Village Development:

- **Model Coding Errors**

As the results of model coding errors and unsuitable lane choice rules configurations, the Rozelle Village AM and PM model scenarios do not accurately quantify the traffic and transport impacts of the development on Victoria Road, City West Link and Anzac Bridge and Wellington Street approach to Victoria Road.

- **Amended Signal Timing at Victoria Road / Darling Street Intersection**

Given the existing high levels of congestion in Rozelle / Balmain area, the existing signal timings have been optimised over time by the Transport Management Centre to provide the best possible balance between east-west traffic on Victoria Road and for Darling Street.

- **Removal of on-street parking on Wellington Street during PM peak**

It is unlikely that community or Council would agree to the removal of these parking spaces.

- **Missed Darling Street and National Street Intersection**

None of the traffic models submitted included the existing signalised intersection of Darling Street and National Street.

- **Missed assessment of Wellington Street and Terry Street**

The transport models do not quantify the impacts on the local road network within the Rozelle / Balmain precinct, including wellington Street and Terry Streets. In order to quantify the traffic impacts, the Level of Service and 85 percentile queue lengths on the local road network should be provided.

- **Conflict of pedestrian and exiting vehicles**

The new retail car park access arrangement on Victoria will pose conflict between motorists, who could be impatient due to the significant delay, exiting the car park and pedestrians crossing the proposed driveway on Victoria Road. The RMS suggestion of diverting the footpath on Victoria Road into the subject site (behind the exit driveway to minimise conflict is not achieved with the new access arrangement.

- **New retail car park access location issue**

The proposed new retail car park access is located 25 metre from the westbound stop line on Victoria Road. The short distance storage could be filled up easily during peak periods, which will prevent vehicles exiting from the car park from entering Victoria Road efficiently and lead to extensive delays.

- **Service area closure during peak periods**

RMS suggests that the loading dock shall be closed in the AM peak (6-10am) and PM peak (3-7pm) periods to maintain existing Level of Service on Victoria Road. Proper measures need to be implemented to ensure compliance, such as roller shutter or similar devices at both entry and exit driveways, Variable Messages Signs on Victoria Road to notice the drivers the loading dock operation status, and a loading dock management plan for RMS review.

- **Loading dock operation**

In according to the existing design, vehicles larger than a 12.5 metre long Heavy Rigid Vehicle (HGV) shall be prohibited from entering the subject site as the loading dock has been designed to only cater for vehicles up to and including HRV.

- **Delivery vehicles on retail basement car park**

Due to the peak period closure of the loading dock, Small Rigid Vehicles (SRV, up to 6.4 metre long and 3.5 metre high) shall be allowed to use the retail basement car park for delivery. These spaces for SRVs should be accommodated adjacent to the proposed void for the Goods Lifts and the lift modified to allow deliveries.

- **TfNSW and RMS decision**

Based on the results of detailed traffic and transport assessments undertaken for the proposed development and following the review of all supporting documentation prepared as part of this project application, TfNSW and RMS recommend that the subject PPR not to be approved in its current form due to the adverse traffic and transport impacts on the road network in the precinct.

5. Conclusion

Based on the above review it is concluded that:

- Although there are some discrepancies between traffic generation calculations between the October 2012 “preferred scheme” and the July 2013 and December 2013 “revised scheme” based on the information available and the acceptance of previous generation assessments, both “revised scheme” overall traffic generation assumptions for the development are reasonable.

- Disagreement of trip distribution assumptions was raised by the Local Government that the secondary catchment only generates “passed by” traffic and not attract additional patronage in its own right. The assumptions in relation to all traffic generating from secondary catchment area as passing trade and replacing the same number of trips travelling from the Iron Cove Bridge to the Anzac Bridge and vice versa would have the potential to underestimate new trips to the study area.

- The introduction of Rozelle Village development will be expected to generate adverse impacts on all surrounding streets, particularly Darling Street, Wellington Street and Waterloo Street. Bus operation along Darling Street will be expected to experience significant travel time increase during peak periods.

- The revised retail car park access arrangements did eliminate the hazard of the car park exit at the intersection of Victoria Road and Wellington Street, which was identified in the review of the July 2013 Revised Scheme. However the safety issues on Waterloo Street and at the Waterloo Street/Darling Street intersection still remain, due to the increased activities in relation to Rozelle Village development.

- Exiting vehicles, from both retail car park and residential car park will experience significant delays and congestion during peak periods, which lead to safety implications as frustrated drivers have a greater propensity to take risks.

- The model audit undertaken by PB identified a coding error and a couple of misused lane choice rule configuration, which results in unexpected model performance. Significant delays and congestion were observed on the road network surrounding development in the model during peak periods. These delays and congestion are the direct results of the introduction of Rozelle Village development.

- Based on the results of detailed traffic and transport assessments undertaken for the proposed development and following the review of all supporting documentation prepared as part of this project application, TfNSW and RMS recommend that the subject PPR not to be approved in its current form due to the adverse traffic and transport impacts on the road network in the precinct.

In conclusion it is considered that the supporting documentation for the revised July 2013/December 2013 proposal do not fully address the traffic implications of the development on the surrounding road network and transport system.

Appendix A
Supporting Documents

Submission to Preferred Project Report for Proposed Mixed Use Redevelopment

by Leichhardt Council

Balmain Leagues Club Precinct

This submission has been prepared
with technical input from the following:

Leichhardt Council
Councillors and Staff

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table of contents

1 Introduction 1

2 The Strategic Context 4

2.1 Applicant's Justification 4
2.2 Precedent Cases 12

3 Traffic and Parking 16

3.2 Arup traffic and parking assessment 18

4 Retail Impacts 21

5 Urban Design 23

5.1 NSW Government's Metropolitan Strategy 23
5.2 The Department of Planning + Infrastructure Schedule 1 - Fundamental Issues to be Addressed 25
5.3 The Department of Planning + Infrastructure Schedule 2 - Other Key Issues to be Addressed 26
5.4 DRP Conclusion 31

6 Voluntary Planning Agreement 32

7 Conclusion 34

appendices

Appendix A – Montages prepared by Australian Illustration & Modelling Co. P/L

1 Introduction

This submission provides comment from Leichhardt Council to the NSW Department of Planning and Infrastructure (DoPI) on the Preferred Project Report (PPR) for major project MP11_0015. The project is for the construction of a Mixed Use Commercial, Retail and Residential Development at the site of the former Balmain Leagues Club and adjoining lands on Victoria Road, Rozelle.

This submission should be read in-conjunction with Council's submission dated June 2012 in relation to the Environmental Assessment of the project. Matters not addressed in this current submission but raised in Council's previous submission, remain relevant concerns.

Council maintains its' position, that the proponent has not provided adequate justification for a "landmark" building at the site. In essence, the proposal remains an overdevelopment of the site. The site cannot accommodate such an intensive form of development without adverse amenity impacts on the locality.

The original Environmental Assessment (EA) report submitted by the proponent's ignored the considered hierarchy of centres as contemplated in the strategic planning framework for Sydney. Although the development is called "Rozelle Village", in the proponent's justification for the development in the April 2012 EA, there is no acknowledgement that the site is located within a "small village" as identified under the *Inner West Subregion – draft Subregional Strategy*.

In Council's submission of June 2012, the established framework within which the application should be assessed was highlighted. Council's submission carefully reviewed high level planning frameworks that are used to guide future planning outcomes for site. The submission identified that Rozelle had been consistently recognised in the relevant State, Metropolitan, Subregional and Local policy levels as an area that could only support "small village" outcomes.

Leichhardt Council constituted a Design Review Panel (Panel) to advise on the design aspects of the amended Preferred Project. The Panel has reviewed the amended application in relation to SEPP 65, which includes ten Design Quality Principles and the requirements for a Qualified Designer (a Registered Architect) to provided Design Verification Statements throughout the design, documentation and construction phases of the project.

The Panel has concluded that *the proposal continues to be an ill-conceived ambit claim unrelated to the Sydney Metropolitan Strategy, the DCP or the requirements of SEPP 65. The Panel considers this proposal would have large and long lasting detrimental impacts on Rozelle. The Panel can find no positive outcomes for the residents and businesses within the local area that would arise due to this proposa*l.

The DoPI, in their letter to the proponent, dated 8 August 2012, concurred with the planning framework established in Council's original submission. The DoPI's letter includes: *The Department is of the view that the exhibited proposal is unacceptable for the site, particularly in relation to height and floor space…It is emphasised that you will need to give urgent consideration to the height of the proposal and to provide solid justification for the amended*

height in the context of the site's location. The DoPI detailed a number of fundamental planning and environmental amenity issues that needed to be resolved, including:

- Building height and scale
- Density
- Traffic and parking
- Retail impacts
- Urban design.

The proposal remains a significant development demonstrated by the fact that it still includes:

- A podium of 2 to 3 storeys.
- Towers with a height of 24 storeys including podium.
- A floor space of 43,500m² and a floor space ratio of 5.3:1.
- Retail distributed over 3 levels.
- On-site parking for 509 spaces.

This submission identifies Council's concerns with the amended proposal presented in the Preferred Project Report (PPR) dated October 2012 including:

- The justification for the proposal in the context of the Strategic Planning Policy Framework guiding the development of the site.
- Architectural, Building, Urban Design Impacts and Built Form.
- Traffic and Parking.
- Retail Impact.
- Development Contributions.

The proponent is essentially seeking support for the Preferred Project on the premises that the proposal will:

- Increase housing supply in the local government area (LGA)
- Increase employment opportunities in the locality
- Is an opportunity to provide a "gateway" to Rozelle.

Council asserts that a development that is designed to be compatible with the context of the site's location, that is a "small village", can also:

- Increase housing supply in the LGA
- Increase employment opportunities in the locality
- Be designed as a gateway to Rozelle

However, the issue which the proponent has not addressed in the PPR, is defining the tipping point in regards to the scale of the development, in order to achieve the above outcomes but with acceptable impacts on the community and future residents. In contrast, the scale of the Preferred Project, results in impacts that are no longer acceptable and is in fact, detrimental to the Rozelle community.

This submission demonstrates that, despite the modifications to the proposal:

- The site and the proposed design are *not* so “unique” to justify putting aside the well considered planning outcomes that Rozelle should remain a "small village and the current State and Regional strategies for the locality or recently exhibited draft documents such as the *draft NSW Long Term Transport Master Plan*.
- The proposal will have significant and permanent detrimental impacts on Rozelle and Balmain high streets.
- The proposal fails in terms of its Urban Design and Architectural merit and would result in poor amenity for future residents and users of the retail area.
- The development would have significant impact on surrounding residential streets and the future trading of the existing retail shopping strip characteristic of Rozelle.
- The proposal will result in unacceptable impacts on the surrounding traffic network, including Victoria Road.
- The certainty of the Tiger’s Club returning to the site has diminished, reducing the FSR bonus that may be considered because of the benefit of the Club to the community.

2 The Strategic Context

2.1 Applicant's Justification

The Department required the proponent to justify the height and density of the proposal in the context of the site's location. The proponent's response is that the site is so unique, that the strategic context of the site can be overlooked. The PPR includes:

Notwithstanding the reduction in scale and density of the development, the project itself remains a significant proposal in terms of its development density and building height by comparison to the surrounding context. Accordingly, it is anticipated that even in this modified form, the Preferred Project will not satisfy many submitters' concerns in relation to the overall scale of the project.

The proponent's justification for the proposed height and density under the PPR are the "unique" attributes of the site. These unique attributes are described in the PPR to be:

- *Its pivotal location at the intersection of the two major roads;*
- *The location at the high point of the local precinct;*
- *The significant land holding that makes high density development possible and the ability to meaningfully contribute to housing supply needs; and*
- *The historic association of the Balmain Tigers, an important social and community facility for the local region.*

Council's response to these "unique" attributes of the site is provided below.

2.1.1 Attribute 1: Its pivotal location at the intersection of the two major roads

The identification of the project as a "Major Project" means that the project is potentially so significant that local, numeric planning controls do not apply. Consequently, the status of the higher level planning documents, in the form of State, Metropolitan and Regional policies, becomes vital in providing an established framework within which the application must be assessed.

The location of the site, at the intersection of two major roads, does not make the site particularly unique in the Sydney Metropolitan context. However the location does mean there are significant constraints that must be considered in the design of the proposal. The impact of the location of the site, at the intersection of two major roads, means issues regarding amenity impacts on proposed future residents and mitigation measures on already at capacity traffic intersections need to be thoroughly considered. The proponent has failed to respond to the constraints of the site as a result of its location on two major roads.

The location of the site, on a busy road, is also relevant in terms of assessing the potential of the site in the context of the strategic planning framework guiding development in the locality. The *draft Inner West Subregional Strategy* (the Strategy) under the Centres and Corridors chapter, identifies Victoria Road as an Enterprise Corridor. The Strategy highlights that: *There are a number of roads in the Inner West Subregion with high volumes of traffic.*

These are not generally recommended for new housing development due to the health risks and low amenity associated with traffic noise and vehicle emissions[1].

The development is proposed in an area that is not recommended for housing development. The draft Subregional Strategy also includes that

The Inner West contains a number of busy roads that may be appropriate for Enterprise Corridor zoning, such as Parramatta Road, Liverpool Road and Victoria Road. They provide valuable spaces for local industrial services, such as automotive services, a range of retail formats and often affordable spaces for businesses. Redevelopment within Enterprise Corridors may only include residential uses where there will be acceptable impact from road noise and pollution.

The recently exhibited *draft NSW Long Term Transport Master Plan* (the draft Master Plan) has been prepared to be the guiding transport planning and policy document to support the goals in NSW 2021 (the NSW State Plan). The aim of the draft Master Plan is to integrate transport with wider economic, infrastructure, social, housing and land use planning including the Metropolitan Strategy for Sydney and the State Infrastructure Strategy to ensure NSW has a coherent overall approach to planning and growth. The final Master Plan is expected to be delivered by the end of 2012.

Chapter 4 – Getting Sydney Moving Again, of the draft Master Plan, describes Sydney's transport challenges and the actions to ensure Sydney's 46 strategic transport[2] corridors flow. These strategic transport corridors are vital to sustaining Sydney's centres of commercial and residential growth, supporting the transport needs of key industries and helping Sydneysiders get to work each day and move freely around the City. The Parramatta to Sydney via Top Ryde (i.e. Victoria Rd) corridor is currently the second most congested road corridor in Sydney.

The draft Master Plan includes that:

The section of Victoria Road between Drummoyne and the Anzac Bridge carries an average of around 75,000 vehicles each weekday across the Iron Cove Bridge. It is one of the most congested road corridors in Sydney with average speeds below 20 km/h between Hunters Hill and Rozelle. [Refer to Figure 1 below – extract of Figure 4.29 from the draft NSW Transport Master Plan 2012] *This section of road is also one of the busiest bus corridors in Sydney, with 19 bus routes carrying an average 40,000 passengers across the Anzac Bridge each weekday. With the recent opening of the new Iron Cove Bridge, improved transit lanes on Victoria Road have improved bus flow, providing city-bound bus commuters with travel time savings of up to 17 minutes in the morning peak period. Even so, there is still variability in bus travel times of between eight and 10 minutes due to the volume of buses.*

Forecast growth in this corridor is also high due to growth at Ryde and Macquarie Park, inner Sydney and Parramatta. Forecasts suggest 37 percent growth on bus patronage. This

[1] NSW Department of Planning (July 2008) Draft Inner West Subregional Strategy. Page 57

[2] The draft NSW Long Term Transport Master Plan identifies 46 strategic transport corridors in Sydney's Greater Metropolitan Area. These corridors represent travel demands between Sydney's key activity centres and are where high concentrations of travel demand occur during peak periods on all travel modes. Figure 2.3 of the Master Plan show these corridors.

corridor has a strong correlation with other corridors such as Parramatta to the CBD via Strathfield and Macquarie Park to the CBD via Chatswood.

The draft Master Plan identifies that *key bottlenecks – such as Victoria Road, Spit Bridge and the Harbour Bridge – are at capacity*.[3]

The State Government promises in the Master Plan that:

This draft Long Term Transport Master Plan provides measures that will address the causes, and mitigate the manifestations of congestion. These measures go beyond addressing the visible incidence of congestion and extend to the management of the State's transport systems as a whole[4]. We will do this by:*

- *Accommodating land use, growth and urban renewal and ensuring land use policies make a positive impact on congestion.*

Council's traffic consultants have reviewed the proposed Preferred Project and the traffic and transport analysis prepared GTA Consultant's for the proponent (refer to Section 3 below). Council's traffic consultants do not conclude that the proposal will have a positive impact on congestion, which is counter to the commitments of the NSW State Government's policy in relation to transport and land use planning.

Council's Panel has advised that the proposed residential apartments are predominantly orientated towards Victoria Road to the east and north and will be adversely affected by road noise and pollution. In the Panel's view, the apartments are compromised by traffic noise and this is supported in the proponent's Noise Impact Assessment which states that due to the "high traffic noise levels" substantial glazing systems are required and balconies' noise reduction treatments need to be maximised. These requirements will most likely result in continuous use of air-conditioning and an inability to enjoy sufficient noise amenity on balconies.

Furthermore, the NSW Auditor-General's Report - Volume Eight 2012 – Focus on Transport and Ports, released on the 5 December 2012 has identified on p19 that Victoria Road has the slowest average travel speeds in both the morning and afternoon peak periods of all of the seven major routes to and from Sydney.

The Panel has advised that the proposal does not meet the requirements of SEPP 65 due to a number of issues, including acoustic issues on the Victoria Road frontage. They are of the opinion that this issue should be resolved in a manner that allows passive ventilation whilst achieving noise and temperature comfort levels in the residential apartments. The residential amenity will be compromised by heat gain and noise problems.

[3] NSW draft Transport Master Plan 2012 – p.103

[4] * P20, Managing Urban Traffic Congestion, Transport Research Centre, European conference of Ministers of Transport.

Figure 4.29 Minimum, average and maximum AM peak travel speeds on key roads in Sydney

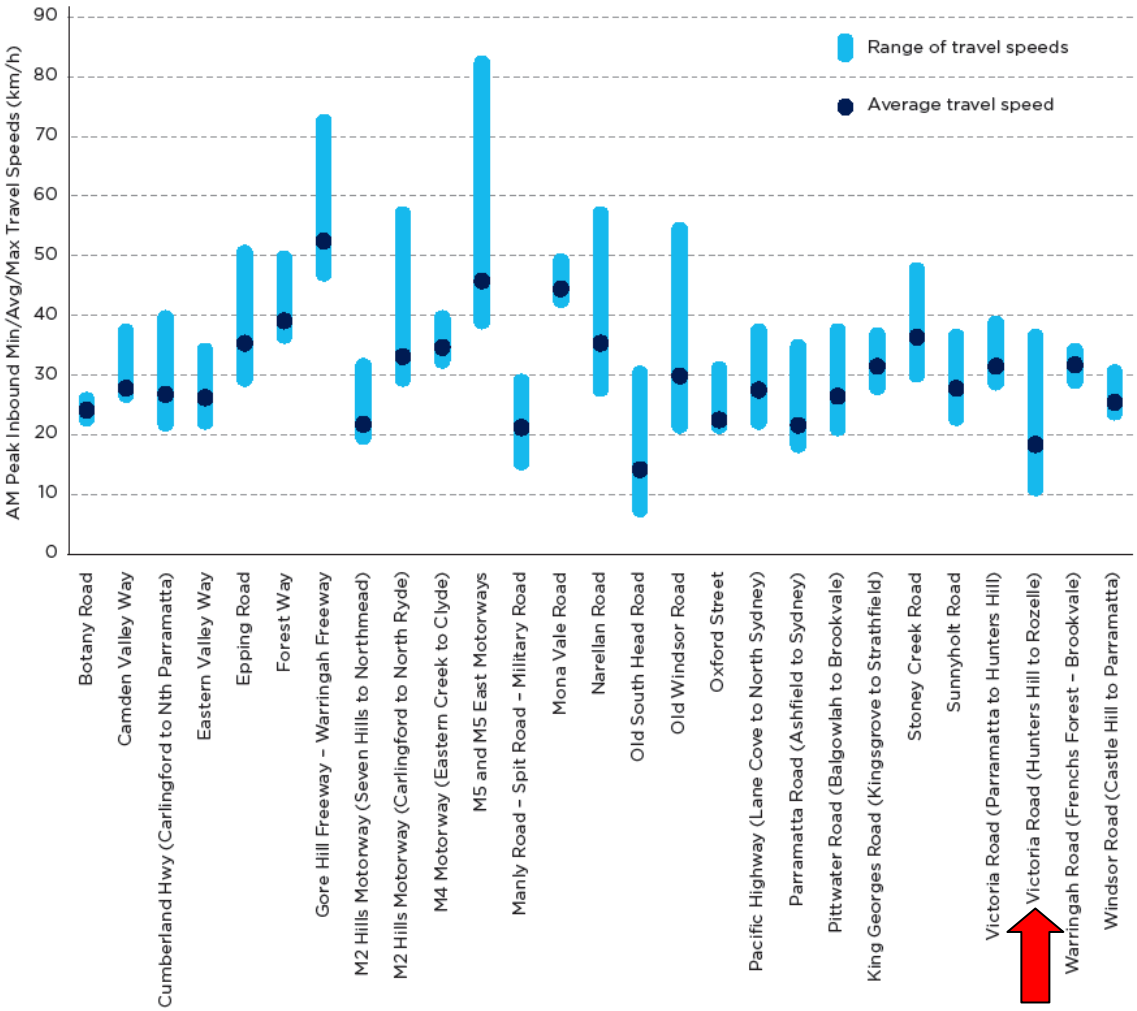

Figure 1: Extract of Figure 4.29 of the draft NSW Transport Master Plan indicating minimum, average and maximum AM peak travel speeds on key roads in Sydney.

2.1.2 Attribute 2: The location at the high point of the local precinct

The location of the site at the high point of the local precinct means that any development at the site must be of exemplary design. The topography alone will add to the visual impact, let alone two (2) x 24 storey towers in an environment characterised by 2 – 3 storey developments.

The Council's Panel has advised that:

The building mass and bulk is considered entirely inappropriate due to the great number of negative impacts imposed on the surrounding area. The overshadowing is excessive and will considerably reduce amenity to the neighbouring properties and public space.

The deep podium building creates an internalised retail area which does not make a positive contribution to the surrounding streets at street or upper levels. The monolithic podium to is out of character and overbearing. The podium is designed with complete indifference to the context and topography. This results in a building that presents a bulk and scale that is overly dominant and out of scale with every other development on the Balmain and Rozelle peninsula.

We respond to the proponent's argument that the site is so unique that they can ignore the strategic planning context of the site. One of the unique attributes the proponent refers to for the site is its location at the high point of the local precinct.

The proponent argues that the site is unique due to its location at the high point of the local precinct. This in itself is not justification for a development of the scale proposed. The previous DCP and LEP for the site had considered the regional and local context and the topography and concluded that the maximum desirable height would be 7-12 storeys. This was a result of a detailed study from various view points and the visual impact when viewed from a distance. Further the building heights proposed were of different scales in order to establish a single dominant element. The height proposed is not the outcome of 3-D planning study of inner metropolitan Sydney or even the impacts on the local context, but one that is capped only by the limits of the flight path overhead.

The DCP and LEP also recognized the potential contribution that the site could make to the retail activity on Darling Street through the integration of a central public open space and a strong open connection to Darling Street. In return for the public benefit a considered increase in the building height was considered reasonable. The current proposal does not provide this public benefit.

The residential towers are too close together. Under the RFDC buildings of this height should have a minimum of 24 metres building separation. Victoria Park in the City of Sydney is a better example with 60m distance required between residential towers to reduce loss of amenity and overshadowing. Overlooking and overshadowing remain series issues with this proposal. Any proposal for extra height in this area would require excellence in all aspects of the design and good public benefits. This proposal does not achieve either.

A series of photomontages were commissioned by Council to demonstrate the possible contextual outcomes of the proponent's Preferred Project and the visual impact of the towers, given the site's location at the high point of the locality. Photomontages 1 – 4 on the following pages illustrate the visual impact of the development on the locality. A complete set of photomontages commissioned by Council are provided at Appendix A.

Photomontage 1 | View from Moodie Street, corner of Waterloo Street, Rozelle.

Photomontage 2 | View from the corner of Hamilton and Merton Streets, Rozelle.

Photomontage 3 | View from Victoria Road, near Terry Street.

Photomontage 4 | View from the corner of Darling and Denison Street, Rozelle.

2.1.3 Attribute 3: The significant land holding that makes high density development possible and the ability to meaningfully contribute to housing supply needs

A higher density at the site is potentially possible if the impacts of such a development can be mitigated to protect the amenity of adjoining residential streets and the local economy of Rozelle. This is in addition to addressing impacts on one of Sydney's most constrained strategic transport corridors and the impacts of Victoria Road on the amenity of future residents in terms of acoustic and pollution. As outlined above, Council's Panel have commented that the density of the PPR is inappropriate due to the number of negative impacts that will result on the surrounding area and the amenity of future residents.

In terms of contributing to Sydney's housing supply needs, as outlined in Council's original submission dated June 2012, Council's draft LEP 2011 is based on the outcomes of the Council's *Stage 1 – Residential Strategy*. The housing figures for the site, in the *Residential Strategy,* are based on the NSW Government's Metropolitan Development Program (MDP) (2008/2009), where the yield from the site was identified at 130 dwellings. In the 2010/2011 MDP, the site is no longer identified as a major site.

The PPR includes that the building envelope of the Preferred Project has been informed by two reference points:

Maximum: noting comments in respect of safeguarding prescribed airspace zones the maximum height of the proposal is constrained by the PANS-OPS level (RL 124).

Minimum: under the local planning controls development may be constructed to a height of RL52m (equivalent to 14 storeys).

A height at the upper limit of these two reference points has been adopted (RL 122m). This has informed the overall FSR of the project (5.3:1).

The objective of the floor space ratio control under Clause 4.4 of the draft Leichhardt LEP 2011 is:

4.4 Floor space ratio

(1) The objectives of this clause are as follows:

- *a) to ensure that the bulk and scale of development is compatible with the character, form and scale of the neighbourhood, and*
- b) *to minimise adverse environmental impacts on adjoining properties and the public domain*

Typically, higher FSR controls than envisaged by environmental planning instruments are supported where impacts on the surrounding neighbours and locality have been mitigated through best practice urban design. As outlined in the PPR, the proponent has derived the Preferred Project FSR by simply designing a building to the PANS-OPS limit, rather than designing to protect the amenity of the surrounding locality or to ensure the amenity of future occupants of the development.

The Council's Panel has stated that:

The proposal continues to be an ill-conceived ambit claim unrelated to the Sydney Metropolitan Strategy, the DCP or the requirements of SEPP 65. The Panel considers this

proposal would have large and long lasting detrimental impacts on Rozelle. The Panel can find no positive outcomes for the residents and businesses within the local area that would arise due to this proposal.

The site specific DCP and LEP provide for increased density provided the objectives of that Plan were met. These objectives (agreed to by the previous owner of the site) were:

(a) the development integrates suitable business, office, residential, retail and other uses so as to maximise public transport patronage and encourage walking and cycling,
(b) the development contributes to the vibrancy and prosperity of the Rozelle Commercial Centre with an active street life while maintaining residential amenity,
(c) the development is well designed with articulated height and massing providing a high quality transition to the existing streetscape,
(d) the traffic generated by the development does not have an unacceptable impact on pedestrian or motor vehicle traffic on Darling Street, Waterloo Street and Victoria Road, Rozelle,
(e) any residential development at street level has a frontage to Waterloo Street, Rozelle and, when viewed from the street, has the appearance of no more than three storeys.

In addition, there were other public benefits through improved public domain and public space was to be provided. The current proposal provides no public benefit in return for the substantial development that is provided on the site.

2.1.4 Attribute 4: The historic association of the Balmain Tigers, an important social and community facility for the local region

Council supports the return of the Club to the area and this site.

However, this PPR does not provide a fully fitted out Club or propose a peppercorn rent for the space (there is no such commitment in the Statement of Commitments). Council understands that the Club now has a debt in excess of $10million to the proponent and it seem unlikely the Club will be able to fund a relocation back to the site and pay commercial rent for the space.

Importantly, given the uncertainty of the Club returning to the site, Council's draft LEP 2011 recognises that the Club's role at the site is less certain. As a result, bonus FSR and height provisions are not included in the draft LEP and a density more consistent with that of a Local Centre or Village is proposed, that is a density of 1.5:1. Nevertheless, Council has indicated a willingness to consider a revised planning proposal for the site that is compatible with established centres typology for the locality.

2.2 Precedent Cases

The proponent compares the site to a number of other sites consisting of high rise towers outside of major centres which are greater in height, mass and scale than their local context. The examples the proponent has chosen as "precedent cases" have little in common with the proposal, except that they all include substantial towers.

Table 1: Proponent's "precedence cases" compared to the Preferred Project

Development	Site location	FSR	Comparison to Rozelle Village
Rose Corp – 150 Epping Road, Lane Cove	Epping Rd, land zoned industrial. Site adjoins light industrial units and bushland.	1.1:1	▪ The Epping Road site is not located in an existing "village" setting. ▪ The Epping Road site is not located in a Heritage Conservation Area (part of Rozelle Village site fronting Darling St is in HCA) ▪ The Epping Rd site is not located on a "constrained" transport corridor. ▪ The proposal is not adjacent to any other residential development. Consequently, there are no impacts such as overshadowing on surrounding areas.
Stamford Grand Hotel Cnr Epping & Herring Road, North Ryde	Cnr of Epping Road and Herring Road, gateway to Macquarie Park corridor.	2.13:1	▪ The Stamford Grand site is not located in an existing "village" setting. ▪ The Metropolitan Plan identifies Macquarie Park as a 'Strategic Centre' and as the northern anchor of the 'Global Economic Corridor' of concentrated jobs and economic activities stretching between Macquarie Park and Port Botany. Macquarie Park is more specifically classified as a "specialised Centre" under the Plan. ▪ The Stamford Grand site is not located on a "constrained" transport corridor, but is located within 400m of a train station. ▪ The orientation of the site and the positioning of the buildings is such that, the majority of overshadowing will fall across Epping Road rather than residential uses, with sufficient daylight access to adjoining properties maintained during the critical winter solstice.
North Ryde Railway Station	Located adjacent to business park and opposite a cemetery	Unknown	▪ The North Ryde Station site is not located in an existing "village" setting. ▪ The North Ryde Station site is not located on a "constrained" transport corridor, but is at a train station – the proposal is specifically described as Transit Orientated

Development	Site location	FSR	Comparison to Rozelle Village
			Development. ▪ DGR's have been provided. No proposal has been submitted at this time.
23 – 37 Lindfield Ave, Lindfield	Located in a "small village" adjacent to heritage items (or conservation area).	3.84:1	▪ The Lindfield site is located in an existing "village" setting as defined by the draft North Subregional Strategy. ▪ The Lindfield site is located adjacent to a heritage conservation area (or items). ▪ The Lindfield site is not located on a "constrained" transport corridor, but is opposite Lindfield train station – in recognition of location near unconstrained transport = additional FSR.

The Lindfield example is the only case provided by the proponent that is potentially comparable to the subject site, being located in a "village" as determined by the hierarchy of centres for the Sydney Metropolitan region as outlined in the Metropolitan Plan. The Lindfield example, however is not located on a constrained transport corridor. In the Lindfield example, the Department gave consideration to the built form of the proposal and compatibility to the surrounding locality. The DoPI's report to the Planning Assessment Commission includes: *The Department considered that the proposed height, bulk and scale for this proposal is most appropriately tested through an assessment of:*

- *density*
- *proposed height and bulk of the built form; and*
- *compatibility with the surrounding locality.*

The Department has considered the merits of the proposal in accordance with the objects of the EP&A Act and ecologically sustainable development, also taking into consideration the issues raised in all submissions. The Department has determined that the proposed bulk and height of the development is generally compatible with the character of the surrounding locality (subject to recommended conditions).

The Department concluded that the proposal, at its scale of 3.84:1 and 5 – 6 storeys in height could be supported on the basis that it would provide a broad mix of apartment types within the existing Lindfield Town Centre adjoining excellent public transport services and an opportunity to revitalise the Town Centre with upgraded retail services.

As outlined in the PPR, the Rozelle Village proposal is not compatible with the local context of the site within a "small village". Its proposed density (5.3:1), height (2 x 22 storey towers above 2 – 3 storey podium) and built form will have impacts on the amenity of surrounding residential properties; the amenity of future residents; unacceptable traffic impacts on an already constrained corridor and negative impacts on the existing Rozelle commercial village hub. The proposal is unlikely to act as a catalyst to revitalize the existing "small village". Peter Leyshon of Leyshon Consulting has advised:

…the reduction in floorspace may well have had a detrimental effect on the extent to which the proposed development "connects" with Darling Street Rozelle. The revised plans indicate a short retail arcade leading from Darling Street and opening out into an internal square without significant "activation" by retail tenancies. As a consequence of this, the proposed development breaks traditional rules of retail development which holds that that shoppers should be "engaged" by a continuous facade of retail tenancies which maintains their interest in draws them from the development through to Darling Street and vice versa.

… the amended design will not encourage shoppers to come up from the two lower levels of the proposed development, which accommodate the supermarket and mini-major respectively, to interact with the existing retail shops operating on Darling Street.

Thus the proposed development while having an impact (according to urbis) of - 5.7 % to - 11.2 % on Darling Street does not significantly offset this impact by acting as a new effective "anchor" to the surrounding retail precinct.

The overall negative impact of the proponent's Preferred Project in this context is unacceptable and will create considerable issues in how it relates to and impacts upon the existing and future landform of Rozelle.

3 Traffic and Parking

The development goes beyond any real or reasonable expectations for the site. Consequently, the traffic implications as a result of the development are beyond anything that has been contemplated for the site by Council. Accordingly, Council's technical staff reviewed the Transport Management and Accessibility Plan Preferred Project Report (Issue C) prepared by GTA Consultants. In addition, a technical review has been prepared by Council's traffic consultants, Arup. Council's technical staff and Arup have identified a number of areas of concern relating to the traffic access and car parking for the Preferred Project, as outlined below.

3.1.1 Assumptions Made by Consultants Regarding Likely Traffic Generation

The consultant traffic study addresses the key issues associated with traffic generated by the development and includes an assessment of relevant potential new developments (with the exception of the Temporary Exhibition Centre, which was not proposed when the study was prepared).

The following assumptions require further explanation before Council could be completely satisfied with the traffic calculations:

- Based on advice from Urbis; GTA have assumed that the development's retail component will be "a local shopping centre and much less of a destination centre". Concern is expressed that this is an oversimplification of the nature of Rozelle. In addition to the attraction of the development's proposed major supermarket, club and gymnasium/health club, the existing Rozelle shopping strip contains numerous speciality stores which have region-wide reputations (eg Herbies Herbs and the Essential Ingredient). Consequently, it would seem unusual that a new development would not attract a number of similar speciality stores which would attract from further a field, with the possibility that Rozelle could continue to grow in this manner. (GTA - P12)
- The traffic distribution assumed in the Transport Management and Accessibility Plan appears to indicate that the 22% of traffic likely to travel from the north (ie the secondary retail catchment) have "replaced the same number of trips travelling from Iron Cove to Anzac Bridge and visa versa". This implies that the applicant's modelling has assumed that the secondary catchment will only generate "passer-by" traffic and not attract additional patronage in its own right. (GTA - P13)

- The traffic modelling appears to ignore traffic generated by the Cruise Passenger Terminal (GTA - Table 3.2 and GTA - P18) indicating that "the cruise terminal would not generate significant levels of traffic at the same time as the peak periods for traffic generation of the Preferred Project". This is contrary to the current Sydney Ports berthing schedule (for Barrangaroo and the Overseas Passenger Terminal) which indicates that for the months;
  - 14 November 2012 – 13 December 2012 … 61% of ships will arrive during the AM peak period;
  - 1 April 2013 – 30 April 2013 … 68% of ships will arrive during the AM peak period.[5]
- The modelling was unable to include the recently proposed temporary exhibition centre as it was not announced until after the modelling had been completed.
- The modelling appears to have assumed 24/7 clearways on Victoria Road, and the removal of kerbside parking on Darling Street during peak periods including Saturday Midday peak, which have not been approved would have a significantly detrimental impact on local shops.

3.1.2 Traffic Generation

Traffic generation of the Preferred Project represents a significant reduction in the number of peak period vehicle movements (in comparison to previously proposed developments. The reduced floorspace (55,000m^2 to 43,500m^2) in combination with the reduced on-site parking provision (reduced from 834 to 509 spaces) is better but still does not provide an acceptable impact on Victoria Road or local streets

3.1.3 Other Considerations

Other considerations relating to the traffic and transport assessment of the Preferred Project include:

- The impact of additional Traffic in Waterloo Street, particularly in relation to right turn prohibitions likely to be imposed on vehicles exiting the development onto Victoria Road.
- Darling Street/Waterloo/Belmore intersection and associated queuing, particularly the applicant's proposal to remove kerbside parking in Darling Street to alleviate this queuing. It is considered that the applicant's proposal, to replace Darling Street's kerbside spaces with short-stay spaces in the development's basement, is not appropriate as these spaces will not be readily available for patrons of shops which front Darling Street.
- The impact of increased traffic on Terry and Wellington Streets and proposals to remove parking in Wellington Street.
- Pedestrian and cycle access along the Victoria Road frontage does not appear to be fully resolved.
- Increasing delays on Victoria Road have the potential to impact on buses, which in turn may reduce the attractiveness of buses and so reduce the potential for increased public transport mode share for the development's residents and patrons.

[5] It should be noted that the Sydney Ports schedule does not differentiate between domestic and international cruise ships in this data

- Modelling indicates that the cumulative impact of all developments (with the exception of the temporary exhibition centre – not modelled) will result in saturation of the Victoria Road/The Crescent intersection during the PM peak[6].
- The consultant's assessment of cumulative traffic impacts of all developments indicates that adjacent local streets will receive increased traffic movements, as indicated below.

Table 2: Assessment of cumulative traffic impacts of all developments on adjacent local streets

Modelled % Traffic Increase			
Street	**AM Peak**	**PM Peak**	**Saturday Midday Peak**
Waterloo Street	160%	83%	69%
Terry Street	44%	20%	23%
Darling Street (west of Waterloo Street)	23%	25%	38%
Moodie Street	40%	33%	27%

- The capacity of existing bus services to cater for the increased demand envisaged by the traffic study does not appear to have been examined.
- Care should be taken that the reduction of on-site parking should be supported by measures to encourage lower private car ownership to reduce the likelihood of overflow parking using adjacent residential streets. While the consultant study proposes a green travel plan, it is suggested that additional details on its operation and management should be provided.

3.2 Arup traffic and parking assessment

3.2.1 Vehicle access

Vehicular access to the site concentrates retail and commercial vehicle movements to and from Victoria Road with only residential parking being accessed from Waterloo Street. All loading dock and servicing access is also from Victoria Road.

The Victoria Road site access is configured as a fourth (western leg) to the Wellington Street intersection with full traffic light control. The right turn movement from Victoria Road into the site is banned which requires vehicles entering from the north to use Terry Street to access the site via Wellington Street. The Wellington Street cross movement to enter the site is offset by some 12m. The pedestrian crossing on Victoria Road is moved east to allow for the site driveway. This will be confusing to drivers and potentially unsafe given that there is only one lane entering and three lanes exiting the site.

The RMS has requested that only entry movements be permitted from Victoria Road due to the additional phase that exit traffic would add to the traffic lights reducing the green time for Victoria Road traffic and bus flows. The Leichhardt Development Control Plan – Part D1.0 Site Specific Controls, Balmain Leagues Club Precinct (2008) requires that all egress for retail, commercial and servicing be to Victoria Road. The Preferred Project has adopted this

[6] Note this intersection is already is near capacity in both peak periods and is likely to reach capacity without the addition of traffic from Rozelle Village. Consequently route choice decisions may be made further afield resulting in a diversion of some traffic to other streets.

arrangement by allowing only left turn traffic to exit the site and banning the right turn movement out of the site. This means that city bound traffic exiting the site will need to use the surrounding residential streets. The quickest routes would be via Denison Street, Alfred Street and Gordon Street or Darling Street, Nelson Street and Evans Street to gain access to Victoria Road. This places pressure on narrow local streets reducing resident amenity.

3.2.2 Victoria Road deceleration lane and Porte Cochere

The entrance to Darling Lane and the adjacent porte cochere indicates vehicles will be entering and leaving these driveways immediately next to each other. This is considered a confusing and potentially unsafe arrangement. In addition, the driveways occur at the start of the deceleration lane which will also be confusing for Victoria Road traffic as drivers entering this driveway will need to slow down in the left traffic lane prior to the deceleration lane. Tailing drivers will expect left turn traffic to be proceeding further down to the main car park entry and hence the speed differential on this downgrade will be confusing for drivers. Pedestrians on the Victoria Road footpath need to deviate in towards the building at this location behind the deceleration lane and no details are provided on how pedestrians will be treated in safe manner at this driveway location.

The porte cochere does not appear to include an adequate turn around facility for cars and taxis and will potentially block up, especially if cars decide to wait on one side of the two lane roadway. The drop-off and pick-up activity should occur within the basement in a non-ticketed area. There appears to be no location for the community bus pick-up/drop off.

3.2.3 Cumulative Traffic Generation

The traffic modelling has been undertaken including anticipated traffic flows for all planned developments that are serviced by the Victoria Road corridor. A bus travel time analysis has been undertaken using the Paramics model. In the AM peak, eastbound city buses experience a 9 second per bus delay and the buses westbound from the city experience a 18 second per bus delay due to the introduction of the fourth leg to the Victoria Road/Wellington Street intersection. In the PM peak, the buses westbound from the city experience a 30 second delay per bus. A significant component of the westbound delay in both peaks results from the Rozelle Village traffic.

On Saturday, the modelling for eastbound buses assumes removal of on-street car parking on the east side of Victoria Road. This improves bus travel times including development traffic. In the westbound direction, bus travel times are increased by 1 minute 24 seconds. However there has been no modeling based on retention of these spaces.

The intersection performance at Victoria Road /Darling Street has been modelled for car parking removed in Darling Street on Saturday for the Rozelle Village scenarios. This shows improved operation over the base model and base + cumulative other developments. There is no indication of how the intersection performs if car parking is retained. For the PM peak, the modelling indicates that this intersection deteriorates with the base + cumulative traffic but then improves with the addition of Rozelle Village traffic. This outcome is not explained in the report.

It is noted that the cumulative analysis by GTA consultants does not include the proposed Temporary Exhibition Centre, because it was not proposed at the time the analysis was undertaken.

3.2.4 On-Street Parking

The traffic assessment assumes the removal of on-street parking in Darling Street and Victoria Road on Saturday. These are considered to be crucial car parking spaces for the ongoing viability of the strip retail on Saturday. The provision of short term spaces within the basement will not provide the same level of service that currently exists.

3.2.5 Wellington Street

The report states that on-street car parking arrangements along Wellington Street have been adjusted in the model to better reflect existing conditions. The existing left lane in Wellington Street is a short 30m long lane which currently provides for left and right turning traffic. No indication is provided in the report on whether the left lane is to be lengthened to accommodate the additional straight ahead traffic accessing the Rozelle Village site.

3.2.6 Local Street Impacts

The Inner West Busway project along Victoria Road has already had an impact on the accessibility into and out of some local streets along this section of Victoria Road. The Rozelle Village development places increased traffic on local streets on both sides of Victoria Road in order to gain access to the site. This will further reduce local accessibility for residents and businesses in the precinct.

4 Retail Impacts

Leyshon Consulting has undertaken a review of the proponent's preferred project on behalf of Council and advised as follows:

The current amended proposal reduces the retail floorspace by about 2,185 sq.m

Normally this is to be applauded as any reduction in floorspace theoretically reduces the potential impact on retail centres/precincts in the trade area.

The decrease in floorspace is broadly as follows:

- *Supermarket – 215 sq.m*
- *Mini-majors – 950 sq.m*
- *Specialties – 1,020 sq.m*

The reduction in specialties is particularly beneficial as it will result in 10 to 12 fewer shops in the proposed development compared to the previous proposal. That said, the development is still likely to accommodate 20 to 25 shops in addition to the supermarket and proposed mini major.

I reiterate comments previously provided to Council that at present the retail sector in Australia remains very subdued and it is likely that existing retailers in Darling Street Balmain and Rozelle are likely to be trading sub optimally. Inevitably there will be some impact from the addition of 20 to 25 shops in this location.

Surprisingly the projected sales of the proposed retail component of the development have only marginally reduced from $ 67.0 mil pa in the previous scheme to $65.7 mil pa in the amended proposal. This is a decline in projected sales of only of -1.9% despite a decrease in retail floorspace of about -21.7%.

The revised EIA prepared by urbis entitled: Roseville Village Economic Impact Assessment October 2012, it does not provide a convincing explanation as to why the turnover of the now proposed centre would only be slightly less than the previous proposal for a much larger centre.

We remain unconvinced that the revised turnover has been estimated with any acceptable degree of precision. It is unexplained why such a smaller development will capture almost the same aggregate level of sales and in fact will trade at a much higher average rate (as measured on a $ per sq.m per annum) basis with no substantive change to the overall tenancy mix or characteristics of the development.

Reference is made by urbis to the proposed removal of the "Target Urban" mini major and the consequent provision of opportunities to cluster specialty food retailing around the supermarket and increase scope for "some of the larger retail boxes at ground level to be subdivided into smaller destination tenancies". We do not agree that these changes would substantially alter the performance characteristics of this proposed centre to the degree suggested.

We consider that this change has been "engineered" solely to address the criticism of the Economic Impact Assessment (EIA) which accompanied the previous application, that the turnover rate for the then proposed development was too low by observed industry standards to be credible.

In our opinion the reduction in floorspace may well have had a detrimental effect on the extent to which the proposed development "connects" with Darling Street Rozelle. The revised plans indicate a short retail arcade leading from Darling Street and opening out into an internal square without significant "activation" by retail tenancies. As a consequence of this, the proposed development breaks traditional rules of retail development which holds that that shoppers should be "engaged" by a continuous facade of retail tenancies which maintains their interest in draws them from the development through to Darling Street and vice versa.

In our opinion, the amended design will not encourage shoppers to come up from the two lower levels of the proposed development, which accommodate the supermarket and mini-major respectively, to interact with the existing retail shops operating on Darling Street.

Thus the proposed development while having an impact (according to urbis) of - 5.7 % to - 11.2 % on Darling Street does not significantly offset this impact by acting as a new effective "anchor" to the surrounding retail precinct.

5 Urban Design

The Panel (Philip Thalis, Peter Smith + Kerry Clare) was constituted by Leichhardt Council to advise on the design aspects of this major application for a large consolidated site in Rozelle. This is the third Panel review for this site.

The Panel has also reviewed the Part 3A Application in relation to SEPP 65, which includes ten Design Quality Principles and the requirements for a Qualified Designer (a Registered Architect) to provided Design Verification Statements throughout the design, documentation and construction phases of the project. The Residential Flat Design Code, published by Planning NSW (September 2002) is also relevant to this review.

The following review of the new Rozelle Village proposal (October 2012) assesses the appropriateness of its response to the above issues and against the objectives of the NSW Government's Metropolitan Strategy (2010).

5.1 NSW Government's Metropolitan Strategy

1. *The 2010 Metropolitan Strategy does not recognise the Balmain Tigers site as being within a Major Centre, Specialised Centre, Town Centre or Village. The Strategy states that villages - which are considered to include a rule-of-thumb walking catchment of 400 to 600 metre radius may benefit from additional shop-top housing, low rise apartments and well-designed clusters around schools, child care centres, parks or recreation areas. The area is noted within a "Small Village" with a density of 12-25 dwellings per hectare.*

***Comment**: The development fails to support the Strategy in an appropriate manner by proposing an overdevelopment for the local area.*

2. *The Metropolitan Strategy also notes the Inner West contains a number of busy roads that may be appropriate for Enterprise Corridor zoning, such as Parramatta Road, Liverpool Road and Victoria Road. "They provide valuable spaces for local industrial services, such as automotive services, a range of retail formats and often affordable spaces for businesses."*

***Comment**: The shopping areas proposed lacks sound retail planning or a clear connection to Darling Street or Victoria Road. The retail does not contribute to the existing streets and has poor and circuitous vehicular and pedestrian access. This site has the potential to positively contribute to the retail experience and become a catalyst for the retail in this part of Rozelle. In order to do this there must be a strong visual and physical connection.*

3. *Redevelopment within Enterprise Corridors may only include residential uses where there will be acceptable impact from road noise and pollution."*

***Comment**: The development will be subject to unacceptable impact from road noise and pollution. The development will further exacerbate the traffic and pollution by creating queuing through the local streets. This development appears to be inconsistent with Planning NSW's guidelines for development along main road corridors, and recent research by the Heart Foundation (Increasing Density in Australia: maximising the health benefits and minimising harm). The application does not demonstrate why this site is suitable or adequately resolve how the residential component will mitigate against road noise and pollution.*

4. *The Metropolitan strategy has identified three types of corridors: economic, renewal and enterprise corridors. Victoria Road has been identified as an Enterprise Corridor with high traffic volumes (up to 80,000 vehicles per day) and can "accommodate a vital range of economic roles, including local urban services, car yards, strip retail and office uses. . . . Enterprise Corridors are areas which provide low cost accommodation for a range of local and regional services, including start–up offices, light industrial, showrooms, building supplies and retail, which benefit from high levels of passing traffic (over 50,000 vehicles per day). They provide a valuable buffer between residential development and the road."*

   "There are a number of roads in the Inner west sub-region with high volumes of traffic. These are not generally recommended for new housing development due to the health risks and low amenity associated with traffic noise and vehicle emissions."

***Comment**: The development is proposed in an area that is not recommended for housing development. The proposed residential apartments are predominantly orientated towards Victoria Road to the east and north and will be adversely affected by road noise and pollution.*

5. *Small villages under the strategy should not detract from the strengthening of the identified Strategic Centres. The Metropolitan strategy outlines some key aspects of successful Strategic Centres as:*

- *accessible and pedestrian friendly;*
- *providing good public transport options;*
- *containing high–level jobs, learning opportunities and cultural activities; and*
- *having attractive and safe public domain spaces.*

***Comment**: The site is inappropriate for the proposed land use and density and will have serious amenity, economic and traffic impacts to the detriment of the local area.*

5.2 The Department of Planning + Infrastructure Schedule 1 - Fundamental Issues to be Addressed

The Department of Planning and Infrastructure noted in its assessment of the previous proposal that the:

- *Building Height and Scale of the building and podium were unacceptable within the building's context, and*
  Density of the proposal was excessive and more generally related to that of a Major Centre.

Schedule 1 requests a more appropriately scaled development in its context.

Panel Comments

Although the proposal has been somewhat reduced in size and replanned to some extent it is the Panel's opinion that the development does not meet building height, scale and density requirements or SEPP 65 standards due to the following inadequacies:

- *severe over shadowing of the local area*
- *overshadowing of the southern tower by the northern tower*
- *proximity of residential towers which will overwhelmingly appear as one building from the majority of viewpoints. The height and bulk is unrelated to the character of Rozelle and considered an inappropriate precedent for the future character of the area*
- *residential car park on the lowest basement levels is considered a very low amenity for residents due to travel distance*
- *the new infill retail buildings to Darling Street do not demonstrate design excellence or make a significant contribution to the existing streetscapes.*
- *the basements design has several problems and should align to the new boundaries along Victoria Road without any encroachment under the 3m setback and dedication. The basements should be set back 1m from the boundaries along Waterloo Street to create viable deep soil areas.*
- *the large areas for driveways has significant negative impacts on pedestrian and streetscape amenity*
- *there is no clear or compelling merit argument that would justify such an inequitable increase in floor space (the existing site specific DCP already envisages FSR's and heights substantially higher than anything in the area – this proposal goes well beyond those heights and volumes, the public benefit of the increased floor space was intended to be the creation of a public space open to the air and a strong retail connection to Darling Street.*
- *the apartments generally have issues of lack of cross ventilation, a key requirement of the RFDC associated with SEPP 65*
- *access to natural ventilation via opened windows will subject apartments to undue traffic noise*
- *the proposed solar array will be extremely inefficient due to overshadowing*
- *the high proportion of apartments that do not have cross ventilation. Many other buildings of similar scale throughout Sydney are able to obtain well over 75% cross ventilation*

- *the high number of bedrooms that have compromised access to light and ventilation (snorkel bedrooms)*
- *the high number of apartments with single orientation*
- *the high number of one bedroom apartments that do not have a window for the bedroom*
- *vastly excessive areas of fixed, unshaded, west facing glass to approximately one third of the apartments*
- *unshaded reflective glass curtain wall systems are considered inappropriate due to the added need to air-condition. Reflective glass also reduces the ability for occupants to see out at night as the surface becomes mirror-like to the interior. Large reflective areas are likely to cause problems to other people in the area.*
- *proximity of the towers, which does not comply with the RFDC (24m for towers of this height)*
- *acoustic issues on the Victoria Road frontage should be resolved in a manner that allows passive ventilation whilst achieving noise and temperature comfort levels in the residential apartments. The residential amenity will be compromised by heat gain and noise problems*
- *generally the landscape provisions are not adequate for the increased population that is proposed. The substitution of the central public open space as required by the DCP by one extremely small light court (approximately 9m x 3m) is entirely unacceptable and does not deliver the public benefit anticipated for the site*
- *safety and security concerns in the public domain arising from the site planning and built form including footpaths to both Victoria Road and the through site link which are in the form of undercrofts lacking surveillance from above; the disproportionately few uses at street level to activate the street and lane due to internal levels not related to the sloping streets; the configuration of the podium has insufficient contact and surveillance to the street – a particular concern where there is a licensed club as part of the proposal*
- *poor entrances to the residential towers. The entry for Tower B is adjacent the truck entry for deliveries for the retail and supermarket, deep within a dog-legged recess. The entry for Tower A appears that it is part of the centre court and food court.*
- *social consequences of 311 apartments, a large retail area, a licensed club, 5 levels of car parking do not appear to have been adequately considered regarding the relationship of these elements to each other, and of even more consequence, the negative effects on the local area*
- *shortcomings of the aesthetics of the podium and its relationship with the surrounding buildings and streets.*
- *tower A overshadows the photovoltaic array.*

5.3 The Department of Planning + Infrastructure Schedule 2 - Other Key Issues to be Addressed

5.3.1 Panel Comments

Traffic + Parking
For reasons outlined below the Panel is of the view that Traffic and Parking issues have been inadequately addressed.

Retail Impacts
For reasons outlined below the Panel is of the view that retail impact issues have been inadequately addressed.

Urban Design
For reasons outlined below the Panel is of the view that urban design issues have been inadequately addressed.

5.3.2 Detailed Review

Public Domain Interface / Context
This is a major application for a large consolidated site in Rozelle. The current Leichhardt Council DCP for this site includes clear guidelines in relation to public domain and importantly the creation of a connecting ground plane to Victoria Road, Darling Street and Waterloo Street. The intended open public space in the centre of the large consolidated block is described in the DCP and the surrounding building envelopes are arranged to provide definition and appropriate sun access to this space.

The arrangement of the public space with multiple on grade connections from the central public space to Waterloo Street, Victoria Road and a wide link (open to the sky) to Darling Street would provide a strong connection to the existing retail.

The current Part 3A Application has not attempted to comply with the DCP massing, height, floor space or open space requirements. Accordingly the proposed building envelopes are considered excessive as they cause the following negative impacts to the public domain.

Victoria Road
Negative impacts continue in this new proposal due to the large expanse of driveways on the Victoria Road frontage including the slipway and several truck and car driveway entry and exits. The slipway takes up existing public footpath reserves and removing the possibility of viable street trees.

The scale, detail, colours and materials of the podium design are considered bland and the proportions remain monolithic within the streetscape of Rozelle. Rozelle and the Balmain Peninsula are characterized by the fine grain of the built form.

The small recessed residential entry in a deep undercroft off Victoria Road adjacent to truck entry, car entry and slipway is considered entirely unacceptable. Entry for the residential components on this site would be far better placed off Waterloo Street.

Entrance to the supermarket should be announced with a generous opening that visually connects through the site to Waterloo Street and is predominantly open to the sky.

The mini-major embedded at car park level cannot add to the street vitality. Instead it is orientated to those people coming to and leaving the centre by car. As such it will detract from Rozelle's street life, adding circulating vehicles rather than pedestrians.

The transition to the northern neighbour has not been well considered. The bulk of the podium building has no connection with the existing character of the street and would set an undesirable precedence for the future character of the street.

The dedication to Council of a 3m footpath width is considered a minimum and preferably this is clear of bus shelters and the like. The Panel strongly advises that the footpath be dedicated in perpetuity to Council and that the basement levels (at all levels) are set back to the same alignment.

The dedication to Council should extend for the full frontage to this important Sydney main road. This would allow the long-term resolution of services and to allow continuous deep soil for the trees. It would avoid obvious ongoing maintenance and liability issues such as failure / replacement of waterproof membranes that would disrupt the public footpath and lead to the loss of street trees. The dedication would extend to future development sites on either side of this site.

Waterloo Street

Apart from increased traffic impacts which are discussed separately the SoHo apartments need to be stepped with the fall of the street to retain direct connection and activity, instead the bland architecture of the podium is continued along Waterloo Street with the predominant street front material being precast concrete with surface treatment of a single colour. The large level change to the interior of the podium has not been addressed and it continues to reduce visual permeability and ease of connection due to the large number of stairs. The monolithic presence in no way relates to the finer scaled rhythms of this street

Darling Street

The Darling Street connection has been further downgraded since the previous proposal. The arcade is now a single storey ramped retail space with a concrete undercroft (due to the full width medical centre on Level 1) and connects into a 'forecourt' which is covered over by the upper level tennis court with tall netting, along side the undercroft space of porte cochère / taxi drop-off and turn-around.

The proposal does not respond to the fine grain character of the existing properties. The street frontage on Darling Street is not maintained but sets in an undesirable 1.5 metres (approx.) which interrupts the established shopfront line. Negative impacts include bland architecture and large areas aluminium grille facade. The arcade does not benefit from top-lighting.

Overshadowing of the south side of Darling Street for lengthy periods by the proposed towers will noticeably reduce the amenity of the north facing shops in this significant local strip-retail area.

Retail impacts - the poor nature of the arcade, the poor use of Darling Lane, the poor retail placement and circulation, the embedded bi box tenancies, and the poor access and egress to parking and associated traffic issues will have serious impacts on this development and the local retail offer.

The proposed removal of on-street car parking in Darling Street (required for the new traffic volumes generated by this proposal) will have negative impacts on the existing retail. Traffic movement and availability of on-street parking is a fine balance that is self regulating in many local retail neighbourhoods. The addition of a left turn lane, longer traffic waiting times, and reduced parking will upset the current balance and therefore amenity and viability.

Darling Laneway

Darling Laneway is an area that, under the site specific DCP, has great potential to make a positive contribution to the amenity and economic viability of the Rozelle neighbourhood by increased pedestrian connectivity, possible 'through' retail from Darling Street, access to northern sun, and enough separation from traffic to be conducive to outdoor dining or the like. The current design of the podium and towers will dominate and overshadow the lane.

The proposal for a taxi drop-off / porte cochère and vehicle turn-around in effect creates another double driveway across the Victoria Road footpath with a large undercroft driveway space of extremely poor character separated by level change and balustrades from the lane. This proposal provides no benefit to the lane, and is a poor neighbour to the existing Darling Street properties adjoining.

There is not adequate space for turning of any vehicle within this space.

Satisfactory evidence of retail viability has not been provided. The opportunity for an amenable and equitable lane running at the rear of existing shops and connecting 3 streets has been ignored. Such a lane could make a vital addition to the centre's public domain, and enable a diversified range of retail frontages.

Open Space

This proposal constitutes a huge reduction in area from DCP ground level public space, vastly reduces natural permeability, and creates deep internal spaces under buildings. These are not courtyards but atria that serve as retail circulation. Spaces are overshadowed, subterranean and disconnected where the DCP anticipated an on-grade landscaped public space open to the sky.

Built Form and Scale

The building mass and bulk is considered entirely inappropriate due to the great number of negative impacts imposed on the surrounding area. The overshadowing is excessive and will considerably reduce amenity to the neighbouring properties and public space. Heights more consistent with the DCP are more supportable. Any argument for greater height should be a result of further minimising the tower footprints, silhouette and separation distances. The architects' concede that the building depth is "approximately 25 metres" (p47), whereas the RFDC stimulates 18 metres maximum depth.

The deep podium building creates an internalised retail area which does not make a positive contribution to the surrounding streets at street or upper levels. The monolithic podium is out of character and overbearing. The podium is designed with complete indifference to the context and topography. This results in a building that presents a bulk and scale that is overly dominant and out of scale with every other development on the Balmain and Rozelle peninsula.

The residential towers are too close together. Under the RFDC buildings of this height should have a minimum of 24 metres building separation. Victoria Park in the City of Sydney is a better example with 60m distance required between residential towers to reduce loss of amenity and overshadowing. The overshadowing of the apartments by the building within the development are cause for serious concern. Any proposal for extra height in this area would require excellence in all aspects of the design and good public benefits. This proposal does not achieved either.

5.3.3 The Department of Planning + Infrastructure Schedule 3 - Additional Information Required

1. An assessment of alternative options for pedestrian access across Victoria Road.

***Comment** - This has not been provided. The Applicant's report (Appendix Q) notes that street level pedestrian crossings are the preferred outcome. The report does not directly assess traffic impacts in relation to crossings or increased waiting times for pedestrians. The report refers to Victoria Road as an urban street rather than addressing its ranking as an Enterprise Corridor in the Metropolitan Strategy.*

The proposed options for public connections and through-site linkages at ground level on balance have not been significantly improved.

2. Redesign of the footpath along Victoria Road to be clear of columns and have adequate width.

***Comment** - Although the columns have been removed the slipway and vast width of driveways has not improved. The addition of the taxi drop-off increases the driveway width. The footpath design is considered exceptionally poor and this is further weakened by the relentless facade, the absence of street trees and the reduced width due to the slipway.*

3. An assessment of the capacity of existing services and need for additional services and open space

***Comment** - the provision of a childcare, and the commercial space for a medical centre and the Leagues Club is not considered of sufficient benefit to warrant the severe reduction of public benefits. These commercial uses could be accommodated on the site in a way that retains the public benefit anticipated by the DCP / LEP.*

4. A revised Noise Impact Assessment.

***Comment** - This has been provided (Appendix J). In the Panel's view the apartments are compromised by traffic noise and this is supported in the Applicant's report which states that due to the "high traffic noise levels" substantial glazing systems are required, and balconies' noise reduction treatments need to be maximised. These requirements will most likely result in continuous use of air-conditioning and an inability to enjoy sufficient noise amenity on balconies.*

5. Construction impacts, storm water runoff, staging.

***Comment** - the Panel defers to Leichhardt Council's assessment of these impacts.*

6. Clarification of impacts in relation to overlooking -

***Comment** - There remains substantial overlooking impacts within and to the surrounding neighbourhood*

7. Material and colour of external finishes

***Comment** - insufficient improvement has been achieved*

8. ESD initiatives

***Comment** - entirely inadequate. Air-conditioning will be required to achieve amenity for apartments. By the Panel's calculation, there are too many single-orientation apartments, including;*

the 5 SoHo units are single orientation south-west

5 / 13 on level 3

10 / 18 on levels 4 - 8

8 / 16 on levels 9 - 20

2 / 8 levels 21

0 / 8 levels 22 - 23

one per floor in each tower that are orientated south-west (levels 4 - 20, plus one on level 3).

The applicant claims that 69% of units are cross-ventilated (p51). In the Panel's opinion the percentage is actually 50% (158 / 316) - unacceptable in terms of the RFDC minimum requirement for 60% cross-ventilated. With tower forms on such a large site, the Panel would have expected from its experiences to have achieved 80 - 90% cross-ventilated units.

9. Compliance with the Residential Flat Code

***Comment** - Inadequate. See previous comments in this report.*

5.4 DRP Conclusion

The proposal continues to be an ill-conceived ambit claim unrelated to the Sydney Metropolitan Strategy, the DCP or the requirements of SEPP 65. The Panel considers this proposal would have large and long lasting detrimental impacts on Rozelle. The Panel can find no positive outcomes for the residents and businesses within the local area that would arise due to this proposal.

The DCP and LEP provide for increased density on this site compared to adjoining site, but in return a public benefit through improved public domain and public space was to be provided. The current proposal provides no public benefit in return for the substantial development bonus provided on the site.

As detailed above, the Panel has significant concerns about the scheme's shortcomings, and cannot support the Part 3A Application in its current form.

6 Voluntary Planning Agreement

The VPA relating to the DA before the JRPP included the following benefits to offset the impacts of development, in addition to s.94 contributions:

- $500,000 for community grants
- $250,000 for upgrading of surrounding roads and footpaths
- Home delivery service
- Community shuttle bus
- Pedestrian Bridge across Victoria Road
- Pedestrian link to Darling Street
- Bike facilities
- Community car share scheme
- Employment for Aboriginal and Torres Strait Islander people during construction
- Taxi pick up and drop off area

A review of the (original) PPR reveals that the current VPA was included as an appendix to that application and the draft Statement of Commitments undertook to negotiate a revised VPA with Council. At page 112, the Application listed the benefits proposed under the VPA and stated:

The VPA does not form part of this Part 3A application but the details of the agreement are generally relevant to the current proposal (being for a high density, mixed use development). The proponent remains committed to delivering the public benefits outlined in this existing VPA although it is recognised that some modification may be required to reflect the current proposal. Any changes deemed necessary to the VPA to reflect the current proposal will be negotiated with Leichhardt Council.

The recently amended PPR also amends the draft Statement of Commitments, at page 27, the report states:

The proposed development is subject to payment of a contribution to Council under Section 94 or Section 94A of the Environmental Planning and Assessment Act, to provide for the increased demand on Council services as a result of the proposed development. Alternatively, a Voluntary Planning Agreement (VPA) under Section 93F of the Act may be reached between the proponent and Leichhardt Council. Such a VPA may include a range of works not specified on any current Council works schedule. In addition, it may include an agreement to offset the costs of the works proposed against contributions otherwise payable under Section 94 or Section 94A of the Act.

The Proponent requests that should the project be approved, a condition be placed on that consent requiring the Proponent either pay Section 94 or Section 94A Contributions to

Leichhardt Council, or to enter into a new VPA with Leichhardt Council in lieu of such payments, to the agreement of both parties. It is anticipated that the existing VPA which was prepared in respect of the rezoning of the site would be replaced by any VPA agreement entered into with Council in respect of the development or any requirement for Section 94 payments.

In summary, the Proponent has abandoned the earlier commitment to the provision of community benefits and now seeks to offset any benefit against s.94 contributions.

It should be noted that no approach has been made to Council to renegotiate the VPA to address any additional community benefits that might flow from the PPR.

7 Conclusion

Despite the amendments to the proposal as outlined in the PPR, the proposed redevelopment of the Balmain Leagues Club Precinct will result in an unacceptable change to the urban form for the locality.

The proponent has not provided adequate justification for the building height and scale in the context of the locality. The proposal ignores the local context and the constraints of the site. What is currently a “small village” in an already constrained environment, particularly from a traffic and transport perspective, will attempt to become a more significant centre adding to traffic and transport congestion.

The constraints are not only unacceptable in terms of the consequent amenity outcomes; they have the potential to significantly affect the viability of the "centre".

The planning framework and shortcomings of the development verify that a smaller scale development is the most suitable outcome for the site.

This is an overdevelopment of the site. The site simply cannot accommodate such an intensive form of development without adverse effects. A development with a reduced scale could, with greatly reduced impacts, achieve:

- Increased housing supply for the LGA.
- Increased employment.
- An attractive gateway to Rozelle.

This submission demonstrates that:

- The proposal, as amended, continues to fail in terms of its urban design and architectural merit and would result in poor amenity for future residents and users of the retail area.
- The development would have significant impact on surrounding residential streets and the future trading of the existing retail shopping strip characteristics of Rozelle.
- The proposal will result in unacceptable impacts on the surrounding traffic network, including Victoria Road.
- The proposal provides no justification for putting aside the well considered planning outcomes that Rozelle should remain a "small village". In contrast, the provision of a larger centre cannot be supported under the current State and Regional strategies for the locality.

The development of the site requires careful consideration as to how the combination of land uses will operate in harmony to deliver quality outcomes for the community and future occupants as mandated when Council agreed to rezone the site for redevelopment in 2008.

Council has now resolved to back zone the site to reflect the nature of the surrounding “High Street” centre. The proposed “back zoning” provides Council with the opportunity to undertake a fresh round of traffic, retail and social impact studies to determine an appropriate future zoning and suite of development controls. Council seeks the support of the Department of Planning and Infrastructure and the Planning Assessment Commission in pursuing this line of action.

appendix a

photomontages

Photomontage No.1: View from Moodie Street, cnr of Waterloo Street, Rozelle

Photomontage No.2: View from cnr of Hamilton & Merton Streets, Rozelle

Photomontage No.3: View from Victoria Road, near Terry Street

Photomontage No.4: View from cnr of Darling and Denison Streets, Rozelle

Photomontage No.5: View from Henley Marine Drive

Photomontage No.6: View from Henley Marine Drive (cropped and zoomed)

NSW GOVERNMENT | Education & Communities

PCU012546

Mr Chris Wilson
Acting Deputy Director General, Development Assessments
Department of Planning and Infrastructure
23-33 Bridge Street
SYDNEY NSW 2000

Your Reference:MP11_0015
Our Reference: DOC12/435377

Dear Mr Wilson

RE: MP 11_0015 Preferred Project for Rozelle Village / Balmain Tigers

Thank you for inviting the Department of Education and Communities (DEC) to make a submission on the preferred project for the Rozelle Village / Balmain Tigers Development.

DEC have reviewed the Preferred Project Report and still has some concerns with the preferred project and the applicant's responses to issues raised by DEC for the original project. DEC request that you investigate the project further for the following reasons:

1. Traffic and Transport

Recent senate inquiries such as the *Joint Standing Committee on Road Safety – Inquiry into School Zone Safety* (March 2012) reinforces the focus of school road safety as a significant issue. DEC therefore requested that the TMAP included a school traffic survey during the AM peak period by a qualified traffic engineer assessing school traffic safety. This was not carried out by the applicant and our concerns with the potential impact on pedestrian safety have not been addressed.

The impact of traffic generation from the proposed development in Terry Street, Merton Street, Darling Street (South) and Victoria Road must also be evaluated together with the Tigers Development. DEC's concern is that together with other planned developments, the traffic network will exceed the budgeted capacity around Rozelle Public School and therefore creating serious traffic issues.

DEC does not agree with proposed clearway measures on Darling Street and Wellington Street to alleviate traffic congestion at peak hour as the school community relies on the current parking arrangement on these streets to access the school.

2. Privacy and Security

DEC concerns with privacy and security issues raised in our previous response have not been adequately addressed. For example:

- The smoker's balcony whilst screened remains in its previous location, directly facing the school playground. We ask that you ensure that the development is assessed with appropriate conditions to limit the risk of students witnessing smokers through a relocated smoker's lounge facility, to mitigate this socially unacceptable outcome.

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- DEC employ qualified staff to ensure child protection and security of children at the school is maintained and for this reason we do not agree with the applicant's argument that greater surveillance will result in better security. DEC's concern is that the height and density of the residential development has the potential to result in visual privacy and security issues from occupants in high rise apartments with direct viewing into the school. This is something that can only be managed through design or reducing the risk factor by reducing the building's height. Our previous submission outlined ways to mitigate this impact of which the applicant has not considered.

3. Construction Traffic, Noise and Dust

The Acoustic report notes that construction noise levels have the potential to exceed the stated noise criteria by 7 – 22db to 77db, during construction. The report also notes the assumption that the school does not use natural ventilation, which is incorrect as the school has operable windows on buildings nearest to Victoria Road. Mitigation measures need to be identified to protect the school learning environment and this has not been carried out.

4. General consultation on impacts

DEC note that there has been no meaningful consultation carried out by the applicant – e.g. face to face meetings, school visits etc. It appears the applicant is using the Department of Planning and Infrastructure's consultation as a proxy process.

DEC reiterate that the local school community is concerned by the proposed development and requests that the applicant ensure an appropriate and justified level of community consultation is undertaken. This consultation should be driven by the applicant rather than primarily relying on the public exhibition of the proposal's technical documents on the Department of Planning and Infrastructure's web page.

I would also ask that an appropriate *Construction Environment Management Plan* is prepared in consultation with the school so as to avoid loud construction practices, dust emissions and other potential construction impacts during key school periods.

Please contact Devika DeFonseka, Regional Asset Planner, Sydney Region on 9217 3009 or email devika.defonseka@det.nsw.edu.au should you require any further assistance or clarifications in relation to this matter.

Yours Sincerely

Tony McCabe

Director, Planning and Delivery

29 November 2012

NSW Department of Education & Communities – Asset Management Directorate
Level 4, 35 Bridge Street Sydney NSW 2000 GPO Box 33 Sydney NSW 2001 T 02 9561 8000 F 02 9561 8077
www.det.nsw.edu.au

NSW GOVERNMENT | Transport Sydney Buses

4 December 2012

Mr. Chris Wilson
Acting Deputy Director- General
Development Assessment & Systems Performance
Department of Planning and Infrastructure
GPO BOX 39
Sydney NSW 2001

Dear Mr. Wilson

Exhibition of Preferred Project Report for Rozelle Village / Balmain Leagues Club (MP11_0015)

Thank you for the opportunity to provide comment on the project application for Rozelle Village / Balmain Leagues Club. The State Transit Authority operates a large number of bus services along the Victoria Road and Darling Street frontage's of the development. These services, as suggested in the traffic modeling report will be impacted by the proposed development.

The State Transit Authority has assessed the proposal and its supporting documentation and provides the following comments.

- **Measures to promote public transport usage**

Victoria Road has recently undergone a major upgrade in association with the duplication of the Iron Cove Bridge. Part of this upgrade included bus lanes and bus priority measures implemented along the corridor. These measures have proven beneficial in increasing bus reliability. What strategies have been considered for encouraging public transport usage?

As previously mentioned, State Transit does not want this re-development to add delays to bus services along Victoria Road. The modelling suggests this will occur and ways to ameliorate this delay should be further investigated. The increase in travel times for buses is generally non compliant with the Director Generals requirements.

All bus stops along Victoria Road and Darling Street in the immediate area of the development should be upgraded to comply with DDA standards. The inclusion of real time information should also be part of the upgrade.

State Transit believes that consideration should be given to the future requirement for Metro Rail and/or similar infrastructure at this site. Plans need to be sufficiently fluid so they can adapt and cater for such infrastructure within the existing site.

It is unclear how the porte le cohere and taxi drop off / pick up is suppose to function, given the small area. The facility needs to be made larger in order for it to be practicable for its application and/or otherwise removed from the plans.

The relocation of the bus stop on the southern side of Victoria Road, east of Darling Street should be further considered in consultation with Roads and Maritime Services and State Transit Authority.

The benefits of additional green time are at best questionable. The demand for Daring Street traffic particularly during the peak periods, is largely driven by the pedestrian demand that cross Victoria Road and the significant

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time allocated to the walk and clearance times could not be reduced under the current traffic signal arrangements.

State Transit is supportive of the removal of the car parking on the northern side of Victoria Road between Terry and Darling Streets as well the parking on the eastern of Darling Street between Victoria Road and Red Lion Streets. The latter will assist with the traffic movements using the dual right turn from Victoria Road into Darling Street. The removal of the parking on Darling Street should be operational as a minimum between 6am and 7pm daily.

Construction

The Transport Management plan does not provide a great deal of detail on the construction traffic movements or the management of construction operations. State Transit would appreciate some clarification on the Construction Management Plan when finalised including the following points:

- Ingress and egress points for construction vehicles;
- Why on site parking for contactors cannot be provided? State Transit considers the majority of contractors will use private vehicles to the site, mainly associated with their speciality tools required for the work.
- Recessed bay that could be used as a deceleration and/or storage area for vehicles needing access to the site associated with demolition and/or construction material.
- Required work zones and kerb space;
- Marshalling and/or call forward areas for heavy construction vehicles
- Points 4.4.4 and 4.4.5 appear to be at odds with each other. It would be desirable to maintain all pedestrian access along Victoria Road and the construction plan should address how this could be achieved.
- Trucks routes should be determined by Roads and Maritime Services, Local Councils and State Transit.

Should you require further information please contact Mr. Brian Mander during business hours on 9245 5750 or by e-mail brian_mander@sta.nsw.gov.au.

Yours sincerely

Bruce Eldridge

General Manager,

People and Bus Systems

NSW GOVERNMENT | Transport for NSW

A/ Deputy Director General
Development Assessment & Systems Performance
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: Chris King

Exhibition of Preferred Project Report supporting Project Application for Rozelle Village/Balmain Leagues Club Development off Victoria Road, Rozelle (MP11_0015)

Dear Mr Wilson,

Thank you for your letter dated 5 November 2012 regarding the abovementioned Preferred Project Report (PPR), which was referred to Transport for NSW (TfNSW) for comment.

TfNSW appreciates the opportunity to provide comment and offers the combined comments of Roads and Maritime Services (RMS) and TfNSW. Detailed comments are provided in **Attachment 1**.

A critical issue for both TfNSW and RMS is the operation of Victoria Road. In this regard the applicant has provided a detailed report as part of the PPR outlining the results of a micro-simulation model to understand the impacts of the proposal. The RMS has commissioned Parsons Brinckerhoff (PB) to undertake an independent audit of the transport modeling submitted.

As illustrated in the attached comments from RMS and the independent audit from PB, the critical issue is that the micro-simulation modeling is not fit for purpose and therefore not able to be used to quantify the impacts of the development on the operation of Victoria Road (including any potential adverse impacts on bus and other vehicle travel times and reliability) within the Rozelle precinct. A copy of the PB audit report is provided in **Attachment 2** for your information.

TfNSW advises that before a project approval is granted, the applicant should be required to address the concerns raised and resubmit the application. TfNSW / RMS is not in a position to support the proposed development in its current form or provide requirements to be incorporated into any project approval until such time that the applicant has satisfactorily addressed the concerns and demonstrated that the proposed development will not have an adverse traffic and transport impact on the road network within the Rozelle Precinct by submitting micro-simulation traffic models that are fit for purpose.

If a project approval is granted, TfNSW further advises that a formal concurrence under

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the State Environmental Planning Policy (Infrastructure) 2007 is required due to the proximity of the development to the CBD Metro Corridor. In this instance, TfNSW advises that the concurrence is granted subject to the proposed conditions of consent being imposed as outlined in **Attachment 3**.

Should you have any questions regarding this matter, please contact Aleks Tancevski on 8202 2811 or Aleks.Tancevski@transport.nsw.gov.au

Yours sincerely

Steve Enticott 4/2/17
General Manager, Transport Planning
For and on behalf of Sydney Metro
Transport for NSW

Encl.: Attachment 1 – Detailed TfNSW & RMS Comments
Attachment 2 - Parsons Brickerhoff Paramics Model Audit
Attachment 3 - State Environmental Planning Policy (Infrastructure) 2007 Concurrence

CD12/20739

Attachment 1

Detailed TfNSW and RMS Comments

A. Protection of the CBD Metro Rail Corridor

The proposed development, in particular the proposed excavation, is in proximity to the CBD Metro corridor. Under Clause 88(4) of the *State Environmental Planning Policy (Infrastructure) 2007* ("Infrastructure SEPP"), concurrence is required from Transport for NSW (as vested from Sydney Metro) to ensure that the proposed development will not have an adverse impact on the future viability of the corridor.

In issuing such concurrence, TfNSW has considered the likely effects of the proposed development on:

1. The practicability and cost of carrying out development for the purposes of the CBD Metro on the relevant land in the future;
2. The structural integrity or safety of, or ability to operate, the CBD Metro; and
3. The land acquisition costs and the cost of the construction, operation or maintenance of the CBD Metro.

TfNSW has reviewed the relevant documentation and note that the architectural plans do not include structural details or excavation levels of its foundations. As such, TfNSW undertook an assessment to determine whether the running tunnels and the proposed basement structure can co-exist.

The proposed development falls within the Zone of Influence of the Metro running tunnels (as defined by the *'Development Guidelines within the vicinity of Sydney Metro Network Line 1'*, document reference no.CBD-2100-PBACH-R-GN-0159). Encroachment of the proposed building basement excavation within the Zone of Influence is expected to be of a high risk to the potential future Rozelle metro station cavern as a consequence of interpreted geological conditions and vertical separation between the cavern and the extent of the basement. However, without details of the proposed foundation arrangements and loadings of the building basement or accurate information regarding the building footprint, a definitive judgment could not be reached. For instance, the available information to date does not guarantee that piles will not encroach within the protection zone which is not permitted. It is requested that once these details are available, a more detailed engineering assessment is undertaken prior to issue of the Construction Certificate.

Therefore, TfNSW request that as part of any approval for the proposed physical works, the developer and/or landowner with the benefit of the development consent enter into a deed agreement with TfNSW, to ensure that the ability for the future metro to be developed is not comprised. Such deed is required as a condition of consent and is to be executed prior to the issue of the Construction Certificate.

TfNSW's concurrence in accordance with the Infrastructure SEPP for this proposed development is in **Attachment 3.** Transport for NSW issues this concurrence subject to the conditions being included in any such development consent for the proposed development.

For matters relating to the Metro corridor, please contact Michael Gheorghiu on 0419 265 659 or michael.gheorghiu@transport.nsw.gov.au

B. Road Network and Bus Service Operation

1. As you would already be aware, RMS requested the applicant to submit micro-simulation modelling for review in order to quantify the full extent of any increase in vehicular queues, bus and vehicle travel times and level of congestion on the road network as direct result of the proposed development.

   RMS commissioned Parsons Brinckerhoff (PB) to undertake an independent audit of the micro-simulation modelling on behalf of RMS and TfNSW.

   The audit has identified numerous errors with the micro-simulation models which include some significant errors, such as the following:

   - Up to 65% difference between the surveyed and modelled average travel times for the base case models. In this regard, the travel time validation for the base models does not meet industry standard.
   - Through movements on Darling Street and Victoria Road operate during the same signal phase in the AM base case model.
   - 1700 unreleased vehicles on Robert Street approach to Victoria Road in future (development scenario) AM model.
   - 200 vehicles unreleased in Wellington Street at Terry Street intersection in future (development scenario) AM model.
   - Some bus stops are missing or coded incorrectly in the base models.

   As a result of the significance of some of the numerous errors with the submitted micro-simulation models, the models are deemed not fit for purpose in quantifying the traffic and transport impacts of the proposed development. This includes quantifying any increase in bus and vehicle travel times on Victoria Road as a direct result of the proposed development and associated access arrangements.

   As you will appreciate, TfNSW and RMS are not in a position to provide comment on the external traffic and transport impacts of the proposed development, until such time that micro-simulation models are submitted that are deemed fit for purpose.

   For the applicant's information and reference, a copy of the PB audit is provided in the attached.

2. The following concerns are raised with regard to the geometric layout of the proposed modified signalised intersection of Victoria Road and Wellington Street:

   a. The proposed exit ramps to Victoria Road from the proposed loading dock and basement car park are physically separated by pillars and are at different grades leading up to Victoria Road. This is a highly unorthodox road design. Concern is raised that motorists on these exit ramps will not have adequate sight distance to vehicles on adjacent exit ramps when exiting the subject site on a green phase. This restricted sight distance between exiting vehicles may require two separate signal phases for the proposed fourth leg on road safety grounds, which would create significant additional congestion on Victoria Road and would be unacceptable as

Victoria Road is critical east-west arterial corridor.

b. There is a significant deflection within the proposed modified signalised intersection for through movements from Wellington Street into the subject site.
c. Limited sight distance to pedestrians on Victoria Road for motorists exiting the subject site.

The applicant shall submit an independent road safety audit by a certified practitioner for the proposed modified signalised intersection on Victoria Road, which includes auditing the abovementioned safety concerns.

3. To accommodate the future traffic flows generated by the development, the applicant proposes to remove a number of parking spaces along Darling Street, between Victoria Road and Waterloo Street. Whilst RMS does not object to the removal of these on-street parking spaces, the proponent must undertake adequate consultation with any affected local businesses and Council to the satisfaction of DoP&I.

4. The PPR and TMAP do not address the potential change in delays to buses and bus passengers along Darling Street. An analysis needs to be undertaken to determine the impacts.

5. The PPR and TMAP do not take into account any growth in traffic or bus numbers over the life of the completed development. The modelling should consider and report on current and current + 10 years after completion of the development and report on the impact of both traffic and bus volumes, delays and associated costs.

6. The PPR includes the provision of a porte cochere and taxi drop off / pick up facility under the proposed development's podium entrance with access to and from Victoria Road. TfNSW considers that such a facility could potentially impact buses on Victoria Road and therefore requests the facility's impact on traffic and buses on Victoria Road be accessed. It is critical that the queue entering the site does not spill into the through lane and have any impact on buses.

7. Section 3.2 of the PPR states that the bus stop location on Victoria Road (westbound) east of Darling Street has been adjusted to better reflect existing conditions as part of modified modelled scenarios. TfNSW would like clarification as to whether this bus stop would be relocated as part of the proposal as there is no mention of this being undertaken in the TMAP. If so, greater detail on the proposed new location is required to be provided and the applicant must ensure that the bus stop is DDA compliant.

8. The PPR does not provide a suitable location for a bus stop with awning, stop facilities and Passenger Information Display. The proponent should be required to contribute to a suitable passenger facility.

Attachment 2

Parsons Brickerhoff Rozelle Village Paramics Model Audit

Peer review of Rozelle Village Paramics Modelling

Roads and Maritime Services

February 2013

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A GRI Rating Sustainability Report 2011

2175001A-PR_3452_RevA

Revision	Details	Date	Amended By

Author: Bill Chen , Meysam Ahmadpour

Signed:

Reviewer: Graeme Inglis

Signed:

Approved by: Graeme Inglis

Signed:

Date: 7 February 2013

Distribution:

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Contents

		Page number
1.	Audit overview	1
1.1	Purpose	1
1.2	Overview	1
1.3	Conduct of the audit	2
1.4	Recommendations index	2
2.	Audit background	3
2.1	Standards	3
2.2	Submitted models	3
2.3	Submitted reports	4
3.	Audit schedule	5
3.1	The project	5
3.2	The audit	5
3.3	Model scope	5
3.4	Network	6
3.5	Vehicle and driver data	7
3.6	Base year traffic demand	8
3.7	Assignment	8
3.8	Calibration	8
3.9	Validation	9
4.	Base model development review	11
4.1	Model form	11
4.2	Model Parameters and input files	12
4.2.1	Configuration	12
4.2.2	Vehicles	12
4.2.3	Behaviour	13
4.2.4	Categories	13
4.2.5	Acceleration profiles	13

Contents (Continued)

		Page number
4.3	Traffic data and demand development	14
4.3.1	Traffic turn count data	14
4.3.2	Demand matrices	14
4.3.3	Demand profile	14
4.4	Network coding	15
4.5	Road hierarchy	15
4.5.1	Road category coding	15
4.5.2	Link and category cost factors	16
4.6	Lane choice plugin	17
4.7	Next lanes	17
4.8	Restrictions	17
4.9	Closures	17
4.10	Public transport	17
4.11	Traffic signals	18
4.12	Pedestrians	19
4.13	Traffic assignment	19
4.13.1	Driver familiarity	19
4.13.2	Assignment method	19
5.	Calibration and validation review	21
5.1	Calibration review	21
5.1.1	Changes made to Calibrated Base Models	21
5.2	Validation review	22
5.2.1	Travel time validation	22
5.2.2	Bus Travel times	22
5.3	Queue length validation	23
5.3.1	Queuing on Side Roads	23
5.4	Terry Street/Wellington Street	24
6.	Future scenarios model audit	27
6.1	Development traffic development	27
6.1.1	Estimated trip generation	27
6.1.2	Cumulative trip generation	27
6.2	Network coding	28
6.2.1	Signal timings	28
6.2.2	Terry Street/Wellington Street	29
6.2.3	Pedestrian Crossing at Victoria Road/Wellington Street	30
6.2.4	Robert Street/Victoria Street Intersection	30

Contents (Continued)

		Page number
6.3	Travel time results	31
6.3.1	Travel time for general traffic	31
6.3.2	Bus travel time	31
6.4	Intersection performance results	32
6.4.1	Development trips	33
7.	Summary and recommendations	35

Contents (Continued)

List of tables

		Page number
Table 4.1	Configuration file changes	12
Table 4.2	Vehicles file changes	12
Table 4.3	Categories file changes	13
Table 4.4	Heavy vehicle percentages in the models and the report	14
Table 5.1	Network performance between Halcrow WP4 Report and the GTA PPR	21
Table 5.2	Review of validation statistics for total vehicles	22
Table 6.1	Review development trip generation	27
Table 6.2	Signal timings for Base Case and with Rozelle Village Scenarios	29
Table 6.3	Review of validation statistics for total vehicles	32
Table 6.4	Review of validation statistics for total vehicles	33

List of figures

		Page number
Figure 4.1	Model study area	11
Figure 4.2	Inconsistent road category coding	16
Figure 4.3	Signal coding error	18
Figure 5.1	AM peak – Unreleased vehicles on Wellington Street and Evans Street	24
Figure 6.1	Signal timings at Victoria Road/Wellington Street, Base and Proposed	28
Figure 6.2	Signal timings at Victoria Road/Wellington Street	30
Figure 6.3	Coding error at Robert Street	31

1. Audit overview

Parsons Brinckerhoff was commissioned by NSW Roads and Maritime Services (RMS) to undertake an audit of the microsimulation models developed by GTA/Halcrow to assess the proposed Rozelle Village development.

1.1 Purpose

The purpose of this audit is to:

- confirm the quality of the data and its application in the development of the models
- review the modelling process employed in accordance with industry standard modelling practices
- assess the accuracy of the modelling results to ensure that they appropriately inform the decision making process of the project.

1.2 Overview

This audit examines the following aspects of the work:

- the network model
- traffic signal control
- travel demand data
- public transport routes
- traffic assignment
- model calibration
- model validation
- model application
- documentation of model development and application.

1.3 Conduct of the audit

Parsons Brinckerhoff conducted the audit of the Rozelle Village Paramics models in line with the model audit procedure outlined in the *RMS Paramics Microsimulation Modelling Manual* (May 2009 Version 1).

This model audit reviewed the base case and two future year scenario cases for weekday AM and PM peaks and Saturday midday peak. No site visits were undertaken.

Representatives from Parsons Brinckerhoff met with GTA on 15 January 2013 to discuss the modelling methodology employed and to seek clarifications on a number of modelling issues.

Parsons Brinckerhoff has made recommendations about several aspects of the modelling and modelling procedures. These are based on the information provided.

1.4 Recommendations index

This audit includes recommendations for future work on the models to ensure they are effective tools to assess the traffic impacts of the proposed development. There are two levels of recommendations and these are colour coded as shown below:

Critical: These must be undertaken.

Noteworthy: These should be reviewed and considered.

2. Audit background

2.1 Standards

Standards	UK Design Manual for Roads and Bridge (DMRB, Volume 12, Section 2, Part 1 – Traffic Appraisal in Urban Area) & Paramics microsimulation modelling – RTA manual

2.2 Submitted models

This model audit covers the following models provided by RMS:

Scenario	Model
Base Case	2011 AM Base with Parking
	2011 PM Base
	2011 Sat Base No Parking
Base Case + Cumulative Traffic	AM Base plus Cumulative
	PM Base plus Cumulative
	Sat Base plus Cumulative
Base Case + Cumulative Traffic + Rozelle Village (Preferred Project)	AM Opt with development left in left out
	PM Opt with development left in left out
	Sat Opt with development left in left out

2.3 Submitted reports

Parsons Brinckerhoff obtained the following documents/reports from the DoPI website to conduct this audit:

Title	Date
Rozelle Village Transport Management and Accessibility Plan (Halcrow's TMAP)	17 February 2012
Rozelle Village TMAP Working Paper 1 – Traffic Modelling Methodology Statement (Halcrow's Traffic Modelling Methodology Statement)	19 September 2011
Rozelle Village TMAP Working Paper 2 – Network Build ((Halcrow's Network Build Report)	31 October 2011
Rozelle Village TMAP Working Paper 3 – Calibration Report (Halcrow's Calibration Report)	18 January 2012
Rozelle Village TMAP Working Paper 4 – Paramics Modelling Results Report (Halcrow's Modelling Results Report)	10 February 2012
Rozelle Village TMAP Preferred Project Report (GTA's PPR Report)	25 October 2012

3. Audit schedule

3.1 The project

Location/Route/Area	Rozelle, New South Wales
Project description	Rozelle Village Transport Management and Accessibility Plan – Preferred Project Report (GTA's PPR)
Purpose of modelling	Assessment of the proposed Rozelle Village development
Model development history	The original models developed by Halcrow for the Inner West Bus way. The models were later updated to assess the impact of the Rozelle Village Development. The models were subsequently updated again by GTA to assess the Rozelle Village Preferred Project.

3.2 The audit

Reviewers	Graeme Inglis, Bill Chen, Meysam Ahmadpour
Date	January 2013

3.3 Model scope

Geographical extent	The extent of base models includes the Iron Cove Bridge, Victoria Road corridor, The Crescent, City West Link, Anzac Bridge and some local streets in Rozelle.
Year modelled	Base year 2011
Time periods modelled	**Weekday AM peak:** 6.00–7.00 warm up, 7.00–9.00 model peak, 9.00–10.00 cool down **Weekday PM peak:** 15.00–16.00 warm up, 16.00–18.00 model peak, 18.00–19.00 cool down **Saturday Midday peak:** 10.00–11.00 warm up, 11.00–13.00 model peak, 13.00–14.00 cool down
Period in variations in	
Traffic demand	Hourly periodic matrices
Links	No periodic links file
Junction control	No periodic priorities file
Number of zones	24
Number of links	**AM base model:** 314 **PM base model:** 310 **Saturday base model:** 312

Number of nodes	**AM base model:** 138 **PM base model:** 136 **Saturday Base model:** 136
Number of junctions	24
Number of traffic signals **Coded with Signal player plugin** **Fixed time**	10 **AM model:** 1 **Saturday model:** 1 **PM model:** none
Work adequately documented?	YES

3.4 Network

Base network	Source
Basic geometry	Generally acceptable
Intersection layouts	Generally acceptable
Traffic signal controls	Signal operation was modelled using Ceejazz signal player plugin. Signal phasing and average phase timings from SCATS (Sydney Coordination Traffic System) by 15 minutes were coded in the models. In addition, fixed time traffic signals were coded at one location in the models to represent the observed capacity constraints.
Categories file	RMS standard file was used. Some changes were made to RMS standard file, which are discussed in section 4.2.4.
Signposting file	Signposting varies from 23 m to 750 m. **AM model:** 128 warnings on node **PM model:** 125 warnings on node **Saturday model:** 126 warnings on node
Time dependent profiles	Appropriately used
Car parks	None coded

Spot checks	Details
Network scale	JPG file was used. Scale is appropriate.
Detailed layouts	General acceptable.
Signal controls	At Node 655 (the Victoria Road/Darling Street) signal phasing arrangement was coded incorrectly. These are discussed in section 4.11.
Visual check of operating model	A number of vehicles cannot be released into model network due to lack of available travel routes.

Future network	Source
Basic geometry	Generally acceptable
Intersection layouts	Not stated
Traffic signal controls	Not stated
Other variations from base network	Not stated
Detailed layouts	Generally acceptable
Signal controls	Generally acceptable
Visual check of operating model	Significant issues were found at the intersection of Robert Street and Victoria Road (this is outlines in Section 6.4.5)
Work adequately documented	Reporting lacks detail in some areas.

3.5 Vehicle and driver data

Data type	Sources and details
Default vehicle data	RMS standard vehicles file was used. Changes were made to vehicle types, vehicle proportions and driver's familiarity and perturbation. These are discussed in section 4.2.2.
Additional or non-standard vehicle types	Additional vehicles types were incorporated into the models include type 5 car, type 6 car, type 7 car, type 16 OGV2 and type 20 OGV2. A standard vehicle type (type 5 LGV) was not included in the models.
Vehicle proportions	Matrix 1 – light vehicles **type 1 car:** 61.06%; **type 2 car:** 16%; **type 3 car:** 7.05%; **type 4 car:** 5.78%; **type 5 car:** 8.33%; **type 6 car:** 0.45%; **type 7 car:** 1.34%. Matrix 2 – heavy vehicles **type 11 OGV1:** 26%; **type 12 OGV1:** 19%; **type 13 OGV1:** 6%; **type 14 OGV1:** 26%; **type 15 OGV2:** 5%; **type 16 OGV2:** 5%; **type 17 OGV2:** 8%; **type 18 OGV2:** 5%. Vehicle types were defined in the vehicles file, but were not included in the above demand matrices **type 10 OD bus:** 0.1%; **type 19 OGV2:** 13.208%; **type 20 OGV2:** 13.208%; **type 21 OGV2:** 60.376%; **type 22 OGV2:** 13.208%.
Familiarity	Light vehicles: **type 1 car:** 15%; **type 2 car:** 100%; **type 3 car:** 15%; **type 4 car:** 50%; **type 5 car:** 15%; **type 6 car:** 15%; **type 7 car:** 15%. Heavy vehicles: **type 11 OGV1:** 8%; **type 12 OGV1:** 8%; **type 13 OGV1:** 8%; **type 14 OGV1:** 8%; **type 15 OGV2:** 85%; **type 16 OGV2:** 85%; **type 17 OGV2:** 85%; **type 18 OGV2:** 85%; **type 19 OGV2:** 85%; **type 20 OGV2:** 15%; **type 21 OGV2:** 15%; **type 22 OGV2:** 15%.
Aggression distribution	Normal
Awareness distribution	Normal
Headway	Standard headway of 1.0
Reaction time	Standard reaction of 1.0
Work adequately documented	No, many discrepancies were found between reported values and model inputs/results.

3.6 Base year traffic demand

Data type	Details
Automatic vehicle counts	None
Manual vehicle counts	None
Classified counts	Halcrow's Calibration Report states that traffic count surveys were carried out at key intersections on Thursday 8 and 15 September 2011 and Saturday 10 and 17 September 2011.
SCATS counts	None
Number plate survey	Halcrow's Calibration Report states that a number plate survey was undertaken on Thursday 8 September 2011 and Saturday 10 September 2011 to collect bus travel time data. This data was not supplied.

3.7 Assignment

Algorithm	Stochastic assignment (all-or-nothing) with perturbation
Cost coefficients	Time (a): 1 Distance (b): 0 mins per km Toll (c): 0
Incidents	None
Strategic routes	Not used
Plugins	Route choice plugin was not used.

3.8 Calibration

Trip length distribution	Not reported
Observed volumes	UK DMRB GEH criteria.
Queue lengths	None
Travel times	None
Other	None
Work adequately documented	No

3.9 Validation

Was an independent data set used	Yes
Observed volumes	None
Queue lengths	Halcrow's Calibration Report documents that the original base models match on-site observations
Travel times	Travel time validation for the original base models was provided in Halcrow's Calibration Report for busses and general traffic.
Other	None
Work adequately documented	No documentation was provided regarding the validation criteria

4. Base model development review

4.1 Model form

The base case models include the network area as shown in Figure 4.1. The network includes the Iron Cove Bridge, Victoria Road corridor, The Crescent, City West Link, Anzac Bridge and some local streets in Rozelle.

Visual inspection of model road widths and vehicle dimensions indicates that the model was constructed at a 1:1 scale which ensures correct vehicle operations and trip lengths.

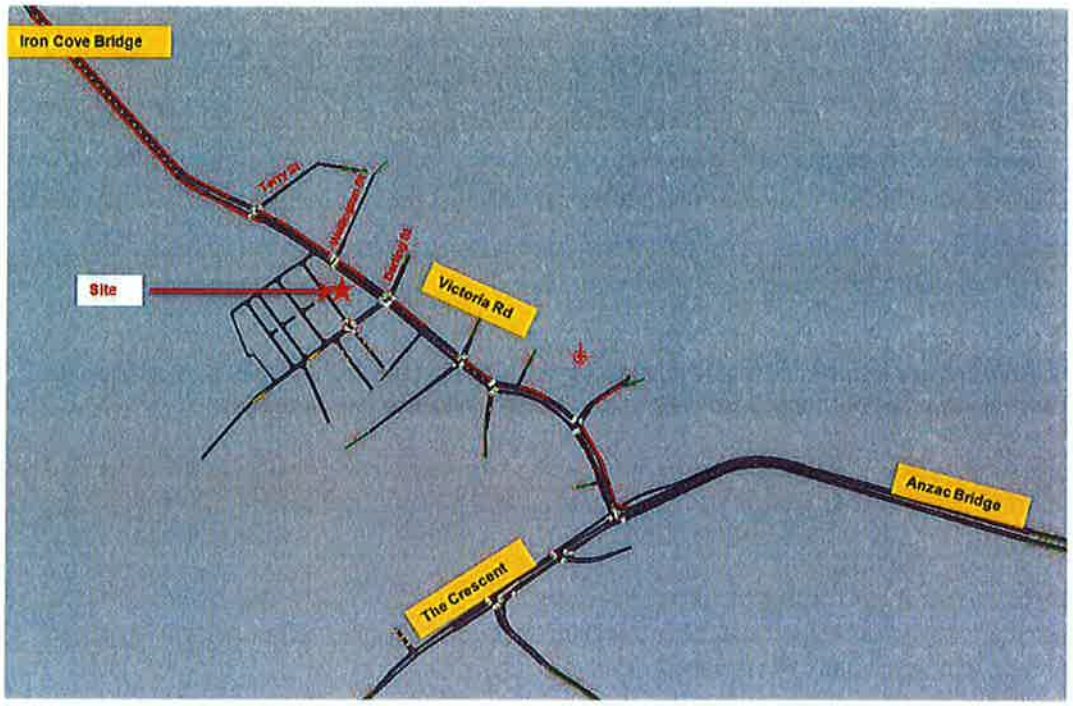


Figure 4.1 Model study area

4.2 Model Parameters and input files

The Rozelle Village models were developed using Q-Paramics version 6.7.1. A review of the model configuration was undertaken by comparing with the RMS standard files for Q-Paramics.

4.2.1 Configuration

Halcrow's Calibration Report states that standard RMS configuration file has been used. On inspection, several parameters have been changed. Table 4.1 summarises the changes made.

Table 4.1 Configuration file changes

Factor	Change made	Justification
Perturbation	Enabled	Traffic assignment
Cost coefficients	Time coefficient was changed from 0.467 to 1.000 Distance coefficient was changed from 0.283 to 0.000	None
Amber time	Changed from 4 s to 3 s (and in some cases 2 s) in the AM and Saturday peak base models	None
Loop length	Changed from 4.5 m to 2.0 m	None
Closest destination car park	Disabled	None
Curve speed factor	Changed from 1 to 10	None
Speed drift	Changed from 5 to 1	None
Optimise route table build option	Enabled	None

No justification was provided regarding the changes made to the standard RMS configuration file. The majority of these changes are unlikely to materially influence model results.

Recommendation: Review the configuration file used in the base model and provide justification for the changes.

4.2.2 Vehicles

Halcrow's Calibration Report states that standard RMS vehicle file has been used. On inspection, several parameters had been changed.

Table 4.2 Vehicles file changes

Factor	Change made	Justification
Lengths	Standard values were changed for some vehicle types	None
Crawl speed	Standard values were changed for some vehicle types	None
Perturbation	Standard values were changed for some vehicle types	None
Familiarity	Standard values were changed for some vehicle types	None
Vehicle type	Large Goods Van (LGV) was not included Additional vehicle types were added	None
Proportion	Separate demand matrices were created for light and heavy vehicles	Traffic demand

No documentation was provided regarding the changes made to the lengths and crawl speed of vehicles.

In addition, there were several discrepancies found in terms of vehicle types and proportions between the vehicles file in the base model and the documented information in Halcrow's Calibration Report. For instance, Halcrow's Calibration Report states that small cars (type 1) accounts for 29% (Table 3-2 of the Halcrow Calibration Report) of the total light vehicle demand. However, review of the vehicles file indicates that it accounts for 61% of the total light vehicles.

These changes made to the standard RMS vehicles file are likely to have significant impacts on the model results.

Recommendation: Review the vehicles file used in the base model and provide justification for these changes.

4.2.3 Behaviour

The standard RMS behaviour file has been used. No change has been made.

4.2.4 Categories

The standard RMS categories file has been used. The following changes have been made.

Table 4.3 Categories file changes

Factor	Change made	Justification
Lanes	Standard values were changed for some categories	None
Speed	Standard values were changed for some categories	None
Width	Standard values were changed for some categories	None
Type	Standard road types were changed for some categories	None
Curve speed factor	Standard curve speed factor of 1.0 were changed to 0.0 for all categories	None
Cost factor	Standard values were changed for some categories	None
Additional categories	A new category were added	None

Halcrow's Calibration Report documents that no change to the categories file was needed for the model. However, review of the categories file indicates the changes were made to the standard RMS values as described in Table 4.3, which contradict the reported information.

The majority of these changes are unlikely to have a material influence on model results.

Recommendation: Review the categories file used in the base model and provide justification for the changes.

4.2.5 Acceleration profiles

The standard RMS acceleration profiles file has been used. No change has been made.

4.3 Traffic data and demand development

4.3.1 Traffic turn count data

Halcrow's Calibration Report states that turn counts were collected at 13 key intersections in the study area in September 2011 for the development of the traffic demand. Data validation was undertaken by developing traffic flow diagram, which indicated the data was found to be generally consistent. This is in line with standard modelling practice.

4.3.2 Demand matrices

Separated demand files have been created for light and heavy vehicles. Periodic (hourly) demand files have been used for all the base models.

Matrix estimation

Halcrow's Calibration Report states that the traffic demand matrices were developed using the Estimator module and the matrix estimation was based on local knowledge, site observation and surveyed turn counts. This is in line with standard modelling practice.

A comparison was undertaken between the percentages of heavy vehicles in the base models and the reported survey results. As shown in Table 4.4, the percentages of heavy vehicles in the models are higher than reported values for all three peak periods.

Table 4.4 Heavy vehicle percentages in the models and the report

Peak period	Base model	Reported survey results
AM peak	0.9%	0.5%
PM peak	0.8%	0.2%
Saturday midday peak	1.0%	0.25%

As there is a low percentage of heavy vehicles in the base year demand, the discrepancies shown in Table 4.4 are unlikely to have significant impact on model results.

Recommendation: Review the heavy vehicle demand in the models to ensure it is consistent with the survey results.

4.3.3 Demand profile

Four periods (including warm-up and cool down periods) have been specified for all the base models. 15-minute interval demand profiles for light and heavy vehicles have been included, which specify the timing of proportional release of vehicles into the model. Halcrow's Calibration Report documents that the demand profiles were estimated based on the survey data and a generally flat profile was used for zones where no data was available.

4.4 Network coding

The coding of links, kerbs and stoplines is generally consistent with data from the aerial photography provided by GTA.

4.5 Road hierarchy

The model has been setup using major and minor links to assist with routing. The main road links in the model have been coded as major, which include City West Link, Anzac Bridge, Victoria Road and Icon Cove Bridge. The rest links representing local and residential streets were coded as minor.

The coding of road hierarchy in the model is appropriate.

4.5.1 Road category coding

Inconsistent category link coding was observed in a number of locations in the base models as shown in Figure 4.2:

- **Location 1:** The Crescent (in both directions) between Victoria Road and City West Link was coded as inconsistent categories (category 32 and 33 vs 49, 50, 56 and 61) with different category speeds
- **Location 2:** M4 Western Distributor Freeway between ANZAC Bridge and The Crescent was coded as inconsistent categories (category 32 vs 49 and 75)
- **Location 3:** Victoria Road (eastbound) between Lilyfield Road and ANZAC Bridge was coded as inconsistent categories (category 77 vs 50 and 55)
- **Location 4:** Victoria Road (northbound) between Lilyfield Road and Robert Street was coded as inconsistent categories (category 76 vs 50).

Recommendation: Links should be coded with consistent categories along similar lengths of road. Category cost factors should be consistent for roads at the same level in the road network hierarchy; link cost factors should be used for route cost calibration.

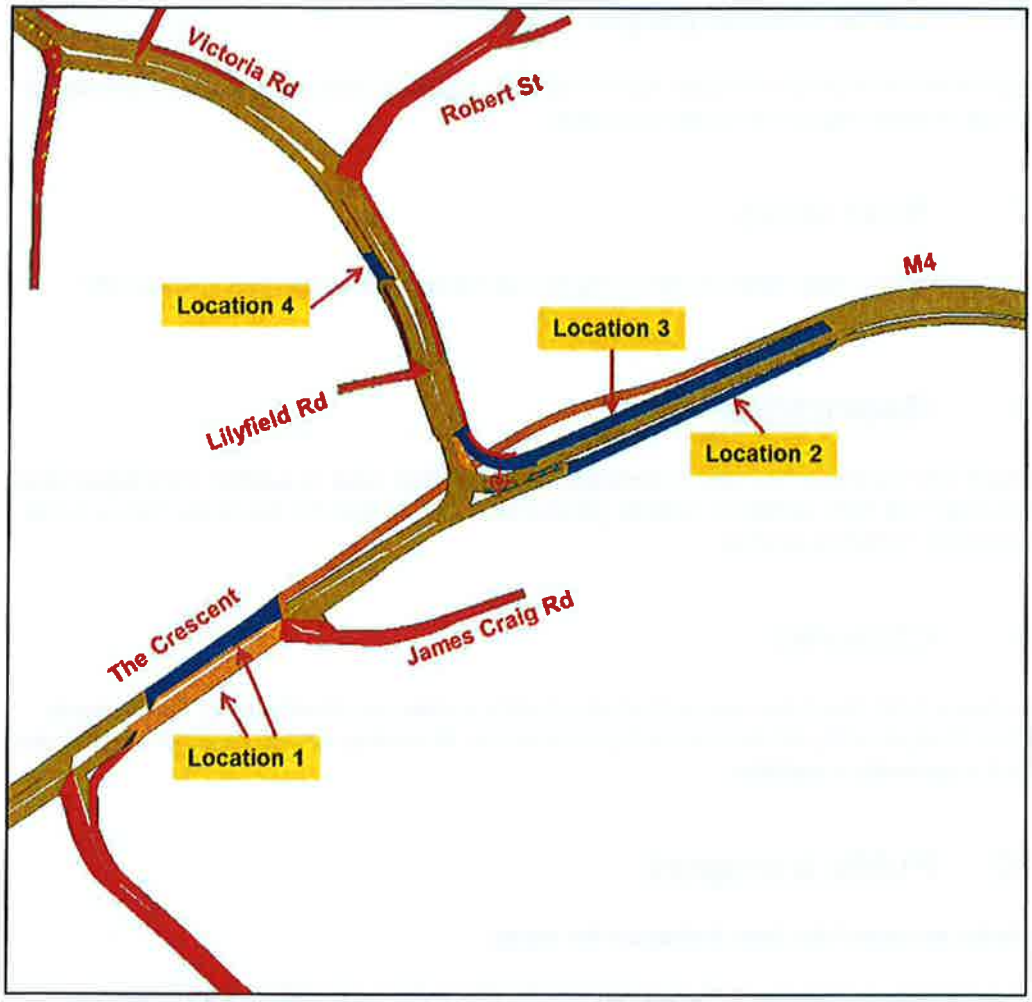


Figure 4.2 Inconsistent road category coding

4.5 2 Link and category cost factors

Link cost factors have been applied to Darling Street and Waterloo Street in the base models. Halcrow's Network Build Report states these cost factors were added to the model to place a cost for using these local streets as an alternative route.

A link cost factor of 1.5 has also been applied to Gordon Street (eastbound) in the base models. This has no impact on route choice as there is none available at this location.

Different link cost factors have been applied in the AM, PM and Saturday base models. Cost factors between the base models ideally should be the same. However, if changed are required these should be noted and justification should be provided.

In addition to link cost factors, categories with category cost factor of 2 have been used. As category cost factors cannot be directly viewed in the model, it is not recommended to use them for the purpose of calibrating route choice, rather link cost factors are preferred.

Recommendation: Provide justification for the changes of cost factors between the base models.

4.6 Lane choice plugin

Ceejazz lane choice plugin has been used in the base models. A review of the lane choice rules in the model indicate they are generally acceptable.

4.7 Next lanes

Next lane rules have been applied extensively throughout the base models and are generally acceptable.

4.8 Restrictions

Coding of bus lanes/bays has been undertaken using restriction rules. In addition, the Ceejazz lane choice plugin has been applied to replicate general traffic turning from the bus lanes. This is in line with standard modelling practice.

4.9 Closures

Lane closure rules have been used in the base models to reflect on-street parking, lane closures, tidal flow arrangements, and banned turning movements. Reviewing the application of closure rules shows it is generally acceptable.

4.10 Public transport

Bus routes and stops have been included in the model.

Thirty-one bus stops have been incorporated into the AM model, while there are thirty-two bus stops in the PM and Saturday models. These bus stops include 'dummy' stops at the extents of the model to account for services that continue outside the extents of the model. A review of bus stop coding reveals the following error:

- the bus stop located on Victoria Road (westbound) between Lilyfield Road and Robert Street was not coded in the AM model.

Separate bus route files have developed for the AM and PM peaks and Saturday midday peak. The number of bus routes for each peak period is provided below:

- sixty-four routes in the AM model
- sixty-five routes in the PM model
- sixty-six routes in the Saturday model.

Generally, majority of the bus routes in the models are representative of the services documented in Halcrow's TMAP, which were sourced from 131 500 Transport info line.

Recommendations: Review the coding of bus stops in the model and make adjustments where necessary. Bus sizes used and dwell time used in the models should also be documented.

4.11 Traffic signals

In the modelled study area there are nine signalised intersections. These have been incorporated into the models using Ceejazz Signal Player Plugin.

A review of signal operations in the model reveals the following error as shown in Figure 4.3:

- The through movement on Darling Street run simultaneously with the conflicting through movements (in both directions) on Victoria Road in the AM base model.

This coding error is likely to have significant impact on the performance of the Victoria Road/Darling Street in the vicinity of the site.

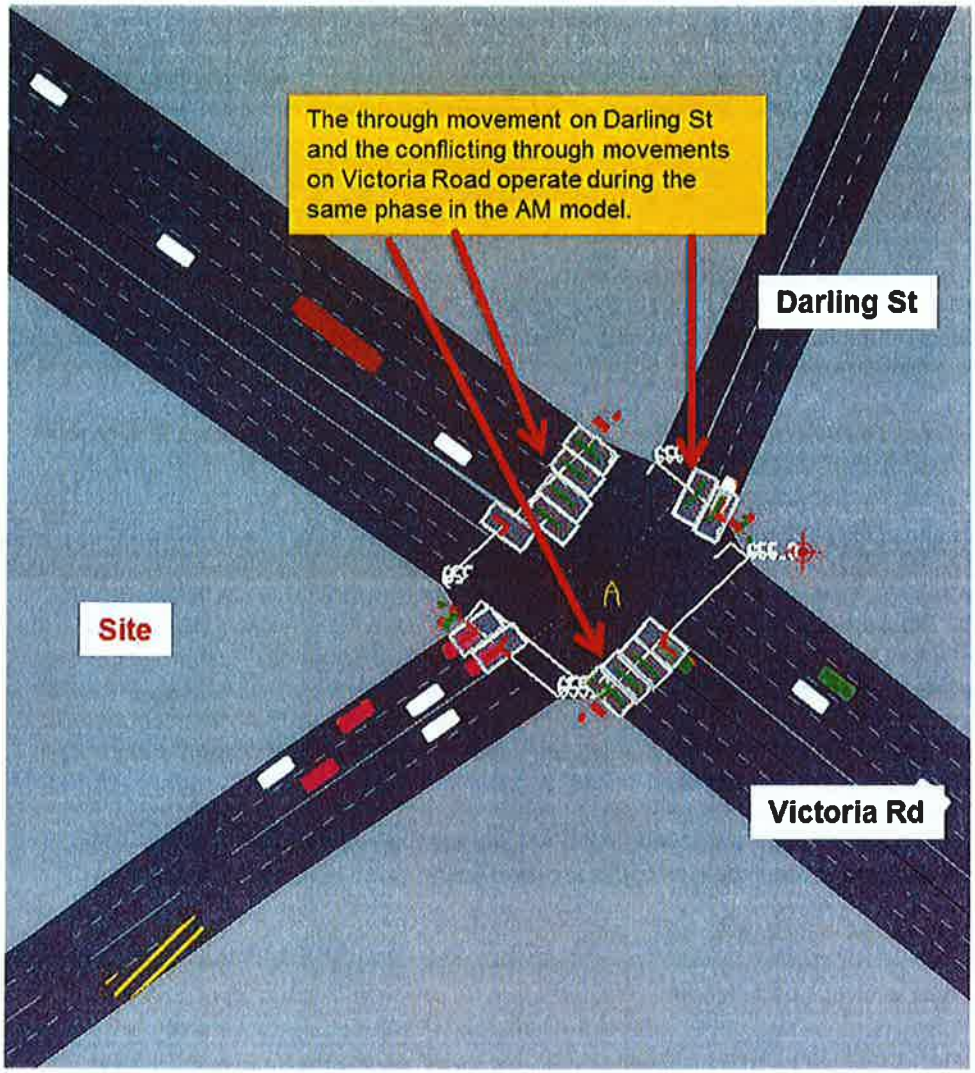


Figure 4.3 Signal coding error

Recommendation: Review the coding of signal operations in the AM model and make adjustments where necessary. Update base model calibration appropriately.

4.12 Pedestrians

Halcrow's Calibration Report states Ceejazz pedestrian plugin was applied in the model to mimic the delays to turning vehicles caused by pedestrians. The pedestrian crossings were coded at the following three intersections in the vicinity of the site:

- Darling Street/Victoria Road
- Darling Street/Waterloo Street
- Victoria Road/Wellington Street.

The pedestrian crossings were coded in the AM base model. However, pedestrians were not modelled in the PM and Saturday base models and no justification was provided.

As the delays to vehicles caused by pedestrians were not modelled in the PM and Saturday base models, this may lead to an underestimation of the intersection delays.

Recommendation: Incorporate the pedestrian crossings into the PM and Saturday base models to reflect the delays to vehicles caused by pedestrians. Update base model calibration appropriately

4.13 Traffic assignment

4.13.1 Driver familiarity

Driver familiarity has been changed from RMS standard level (50% familiar for cars, 70% familiar for rigid heavy vehicles and 85% familiar for articulated heavy vehicles). No justification on the change of driver familiarity has been provided.

Recommendations: Provide justifications for the driver familiarity used in the models.

4.13.2 Assignment method

The base models have been developed using a stochastic assignment (all-or-nothing). The use of this assignment is appropriate, given the simplicity of model network and limited number of route choices. In addition, perturbation factors have been used, which randomly perturb the calculated cost to account for differences between drivers' perception of the cost to travel between a particular pair of origins and destinations for each vehicle in the network. Reviewing the perturbation factors used in the models show they have been changed from RMS standard level (5% for all vehicles except for fixed-route buses). No justification on the change of perturbation factors has been provided.

The general cost equation, which governs vehicle's decisions on routing through the network, has been changed from the standard RMS equation to include only the time component of the equation. No justification has been provided for not including the distance factor in the generalised cost equation. There are no tolls in the study area and therefore, it is reasonable to disregard the toll factor. Therefore, time is the only factor which will impact on vehicle's routing decisions. Generally, a 50:50 ratio between time and distance is applied for microsimulation models.

Recommendations: Provide justification for the change of perturbation factors and the generalised cost equation used in model assignment.

5. Calibration and validation review

5.1 Calibration review

The calibration criteria adopted for the model calibration is based on the GEH assessment from the UK Design Manual for Roads and Bridges (DMRB). The Halcrow Calibration Report (Rozelle Village Working Paper 3 – Calibration Report, 18/1/2012), Table 6-1, shows that the base models meet the required GEH criteria. The results of the GEH calibration are summarised as follows;

- no flows with GEH greater than 10
- 85% of all flows with GEH of less than 5.

The calibration report documents that multiple runs have been undertaken using five different RMS seed values for calibration and GEH comparison meets DMRB standard the three peak periods.

5.1.1 Changes made to Calibrated Base Models

Base Paramics models were developed for the AM (7:00–9:00), PM (16:00–18:00) and Saturday (11:00–13:00) peaks. The Calibration Report associated with these base models is the Halcrow Report 'Rozelle Village Working Paper 3 – Calibration Report, 18/1/2012'. In the 'Rozelle Village Transport Management and Accessibility Plan, Preferred Project Report' (25/10/12), prepared by GTA, Section 3.2 refers to a number of changes that were made to the base models in response to submissions received on the original planning application.

Following these changes, the base models were not recalibrated to ascertain whether the changes made had any impact the original model calibration. A comparison of the base conditions Levels of Service, between Halcrow report (Table 4-2, 4-3 and 4-4 of Working Paper 4) and GTA report (Tables 4.5, 4.6 and 4.7 of the PPR) shows that the base conditions have changed, particularly in the AM peak (see Table 5.1 below).

Table 5.1 Network performance between Halcrow WP4 Report and the GTA PPR

Level of Service	Base AM peak		Base PM peak		Base SAT peak	
	Halcrow WP4	GTA PPR	Halcrow WP4	GTA PPR	Halcrow WP4	GTA PPR
Terry Street/Victoria Road	F	F	A	A	F	F
Darling Street/Victoria Road	E	E	D	D	E	E
The Crescent/Victoria Road	F	F	F	F	D	D
The Crescent/City West Link	E	F	E	E	D	D
Wellington Street/Victoria Road	C	E	B	B	D	D
Waterloo Street/Darling Street	B	B	A	A	E	D
Evans Street/Victoria Road	D	D	B	A	B	B
Gordon Street/Victoria Road	C	D	B	A	B	A
Roberts Street/Victoria Road	E	F	C	C	C	C
James Craig Road/The Crescent	B	B	B	B	A	A

Recommendation: These LOS results suggest that the changes made to the models (as outlined in Section 3.2 of the GTA PPR) may have impacted the model performance. Further checks should be made to determine whether the Halcrow Calibration report is still valid for the GTA Base Models.

5.2 Validation review

5.2.1 Travel time validation

The Halcrow Calibration Report provides travel time validation for the base models. The travel time validation was undertaken for two bi-directional routes along Victoria Road for the AM, PM and Saturday midday peaks. No validation criterion is stipulated in the report.

The travel time criteria from the DMRB (which was adopted for the GEH calibration) stipulates:

- 85% of movements to have modelled journey times within 15% (or 1 minute, whichever is higher) of the observed journey times.

Table 5.2 shows a summary of the validation results for general traffic shown in the Halcrow Calibration report (Table 6-2, 6-3 and 6-4). The results indicate that the AM peak travel times do not meet the DMRB criteria in the AM peak.

Table 5.2 Review of validation statistics for total vehicles

	AM	PM	Saturday
% meets travel time difference criteria	62.5%	88%	88%
Acceptable	No	Yes	Yes

Recommendation: Undertake travel time validation against stipulated criteria for each peak. Demonstrate that the travel times meet the criteria used or provide commentary as to why the criteria cannot be met and what impact this will have on the modelling outcome.

5.2.2 Bus Travel times

The Halcrow calibration report (Table 6-5, 6-6 and 6-7) shows that the travel times for buses on the Victoria Road. While no validation criteria are stipulated, an analysis bus travel times indicate that they generally comply with DMRB criteria.

No travel time calibration was undertaken for buses on any of the side road off Victoria Road. Some key bus routes which use Darling Street and Robert Street have not been considered.

Recommendation: In order to assess the impacts on all the key bus routes in the study area, the bus routes on the Darling Street and Robert Street should be included in the model calibration/validation process.

5.3 Queue length validation

The Halcrow Calibration Report provides queue length validation for the original base models (Tables 6-8, 6-9 and 6-10), which shows the queuing in the model generally represent the observed conditions for all the three peak periods. A review of the base models reveals that the Iron Cove Bridge in the westbound direction operates well in the AM model, which contradicts the observed slow moving traffic conditions described in Halcrow's Calibration Report.

Recommendations: Review the westbound queuing on Iron Cove Bridge in the AM base model and make adjustments where necessary.

5.3.1 Queuing on Side Roads

No queue length calibration/validation was undertaken on any of the side roads off Victoria Road. Several side roads in the base models show extensive queuing, which in some cases extends back into the zone, leading to high numbers of unreleased vehicles.

The delay on the side roads may be underestimated as the unreleased demand is not included in the downstream intersection delay calculations. Figure 5.1 shows 170 unrealised vehicles at Wellington Street and 197 vehicles at Evans Street during the AM peak.

No queue length calibration has been undertaken at the intersection of Waterloo Street and Darling Street. Given that Waterloo Road will be a key access/egress route to/from the development, the queuing on Waterloo Street ad Darling Street should also be considered in the model calibration/validation so that the impacts can be suitably assessed with the development in place.

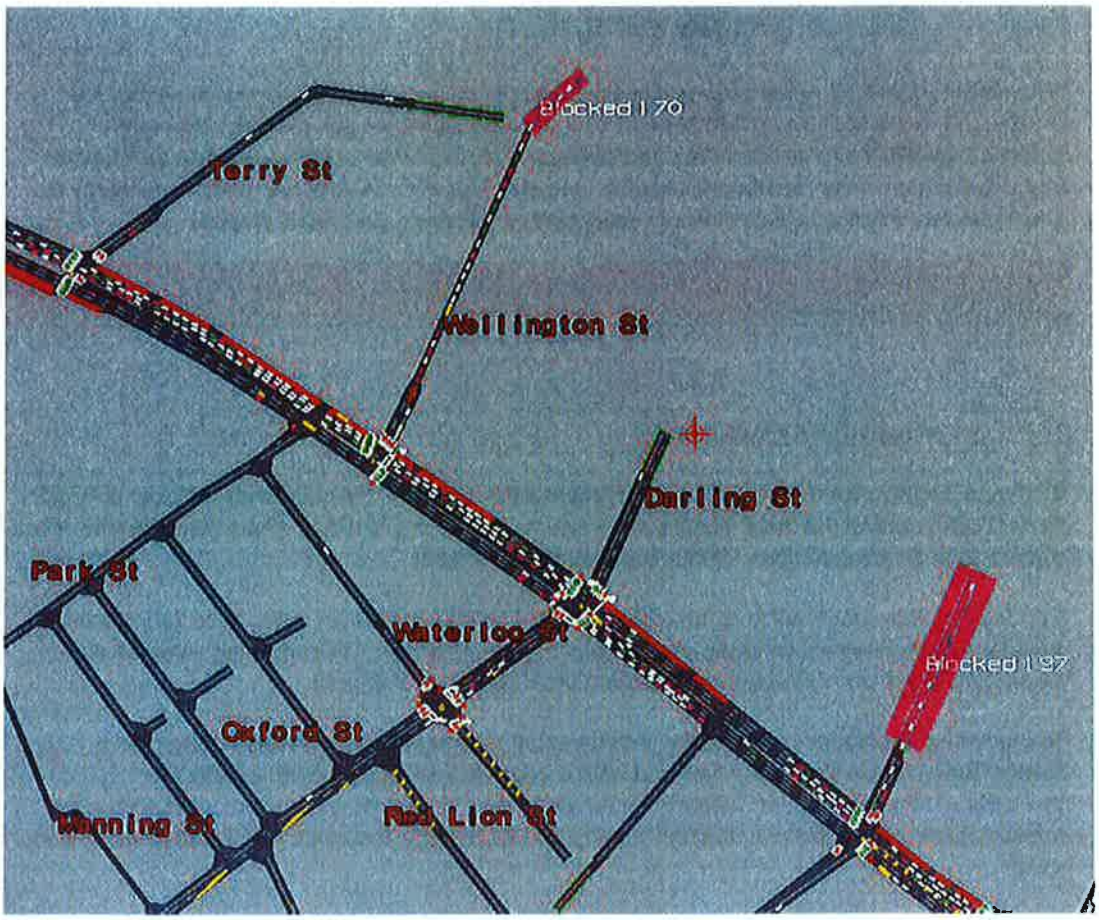


Figure 5.1 AM peak – Unreleased vehicles on Wellington Street and Evans Street

Recommendation: Queuing on the key side roads (including Terry Street, Darling Street, Evans Street and Robert Street) should be included in the model calibration/validation and numbers of unreleased vehicles reported for each model run (by zone). Alternatively the network should be extended to reduce the number of unreleased vehicles and to capture the true delay experienced on these side roads. A queue length calibration exercise should be undertaken at the Waterloo Road/Darling Street intersection.

5.4 Terry Street/Wellington Street

Section 3.2 of the PPR report discussed the inclusion of Terry Street/Wellington Street roundabout as part of the modelling analysis. This intersection was not included in the Paramics Model, but as a separate SIDRA modelling analysis. (Note that the SIDRA modelling has not been reviewed as part of this audit process.)

The base models show that there is extensive queuing on Wellington Street which extends back approximately 170 vehicles into the zone. It is unlikely therefore the LOS at this intersection will remain at LOS A, as outlined in the GTA report.

Within the models, Terry Street is coded with a separate zone so vehicles entering the zone experience no delay despite being directly adjacent to the Wellington Street zone which shows large numbers of unreleased vehicles (particularly during the AM peak).

In the future year models the role of Terry Street and Wellington Street will be significant both for trips entering the site from the west (preforming the G-Turn) and also for vehicles wishing to exit the site and travel east via Terry Street and Waterloo Street.

Recommendation: The Paramics Models should be extended to include the roundabout at Terry Street and Wellington Street to capture the true impacts of the development at this location.

6. Future scenarios model audit

In addition to reviewing the base year Rozelle Village Paramics models, the audit also assesses the following future scenario modelling for the AM, PM and Saturday peaks models:

- Base case + cumulative traffic
- Base case + cumulative traffic + Rozelle Village Preferred Project (Option 2 – Left-out only at Victoria Road).

6.1 Development traffic development

6.1.1 Estimated trip generation

A review of the development traffic generation was undertaken. Parsons Brinckerhoff compared the GTA report (Table 2.2), the spread sheets provided by GTA and the trips matrices in the models.

When assessing this information Parsons Brinckerhoff were unable to reconcile the trip generation numbers between the three data sources mentioned above.

Table 6.1 Review development trip generation

	GTA report (Table 3.2)	GTA spreadsheets	GTA models
AM peak	209	357	419
PM peak	299	392	358
Saturday peak	364	364	470

Recommendation: Further discussion/explanation is required as to how the trip generation and distribution was applied to the models.

6 1 2 Cumulative trip generation

The GTA report outlines the trip generation for the surrounding cumulative developments. It has not been specified how these have been apportioned or distributed onto the model network.

Recommendation: Further discussion/explanation is required as to how the cumulative development has been applied to the models.

6.2 Network coding

6.2.1 Signal timings

In order to accommodate the development access, a fourth leg has been added to the Wellington Street/Victoria Road Intersection. An addition 'Phase' has been added to the traffic signals to allow traffic to egress the site (left only). Figure 6.1 shows the Base case signals phasing and the revised phasing with the Rozelle Village Development in place.

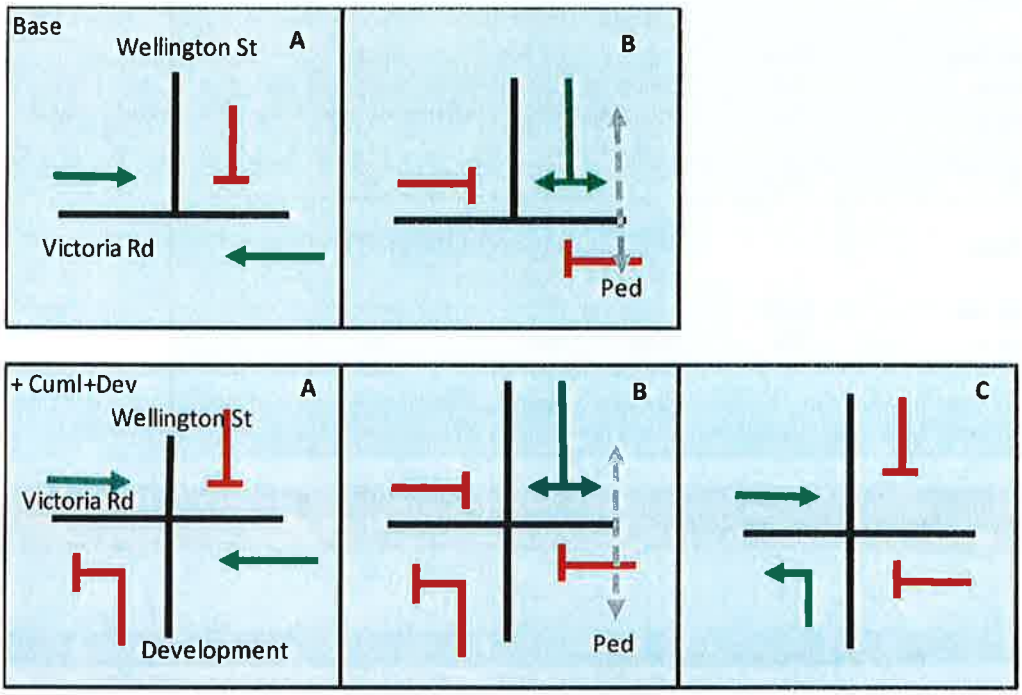


Figure 6.1 Signal timings at Victoria Road/Wellington Street, Base and Proposed

Table 6.2 shows the green time allocation for the base case modelling and with the development in place. The table highlights that green time for Wellington Street is reduced in all three peaks when the fourth leg is introduced. The Westbound movement on Victoria Road also reduced in all three scenarios.

The base models show that there is currently extensive queuing on Wellington Street with up to 170 unreleased vehicles blocked in the zone (during the AM peak). By reducing the green time for Wellington Street, the queuing increases, as does the number of vehicles blocked in the zone. In the AM peak the number of unreleased vehicles exceeds 200 vehicles.

The GTA report shows that the Level of Service at this intersection does not change greatly with the development in place, going from LOS F with a Delay of 152 Seconds in the AM Base Case to LOS F with a delay of 154 Seconds with the development in place (Appendix C), however the delay on Wellington Street is only calculated for vehicles which are able enter the network, and does not capture the delay for the unreleased vehicles within the zone. Therefore the results are significantly underestimating the impact of the development at this intersection.

Table 6.2 Signal timings for Base Case and with Rozelle Village Scenarios

AM Base				
		AM Base +Cuml+Dev		
Phase Seq	Secs		Secs	Diff
Phase A	105	Phase A	96	9
Phase B	35	Phase B	29	6
		Phase C	14	-14
Cycle	140		140	0
PM Base				
		PM Base +Cuml+Dev		
Phase Seq	Secs		Secs	Diff
Phase A	109	Phase A	102	7
Phase B	31	Phase B	24	7
		Phase C	14	-14
Cycle	140		140	0
Sat Base				
		Sat Base +Cuml+Dev		
Phase Seq	Secs		Secs	Diff
Phase A	104	Phase A Green	90	14
Phase B	36	Phase B Green	30	6
		Phase C Green	20	-20
Cycle	140		140	0

Recommendation: The network should be extended at Wellington Street to capture the true impacts of the changes proposed.

6.2.2 Terry Street/Wellington Street

With the development in place, the green time allocated for Wellington Street is reduced. This increases the delay experienced on Wellington Street. In order to fully determine the traffic impacts of the development on the surrounding road network, it is critical that the Terry Street/Wellington Street roundabout is included in the Paramics models, particularly because it is such a crucial access route into the development site. The current arrangement in Paramics, where Terry Street and Wellington Street are coded as separate zones does not accurately capture the delays in this part of the network.

Recommendation: As Terry Street and Wellington Street is such a critical access route into the site, the modelling should be extended to include the roundabout at Terry Street/Wellington Street.

6.2.3 Pedestrian Crossing at Victoria Road/Wellington Street

A pedestrian crossing has been included in the AM peak and Saturday peak models but not in the PM peak model. No justification is provided as to why a pedestrian phase has not been included during the PM peak.

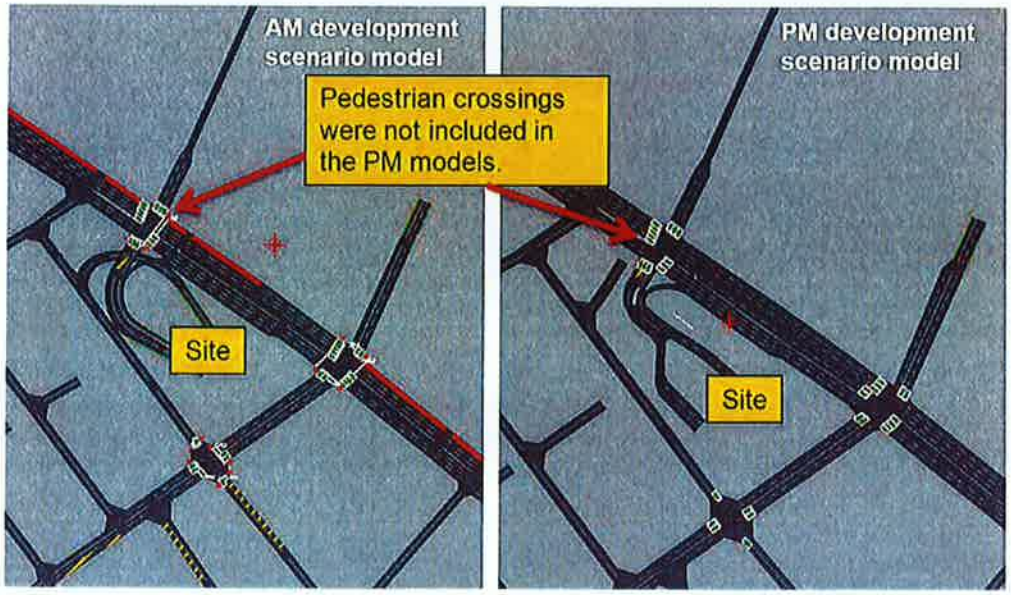


Figure 6.2 Signal timings at Victoria Road/Wellington Street

Recommendation: Include a Pedestrian Crossing in the PM Models.

6.2.4 Robert Street/Victoria Street Intersection

In the AM peak model (with the Rozelle Village development in place), nine trips have been assigned from Robert Street (Zone 13) to the Rozelle Village development. During the AM peak the right turn from Robert Street into Victoria Road is banned. Because the banned turn is defined at a signalised intersection, the nine trips are released onto the network. These trips are subsequently unable to turn right at the intersection of Robert Street/Victoria Street eventually blocking all traffic from exiting Robert Street (this generally occurs about 30 minutes into first peak hour). With no traffic able to exit Robert Street, there are over 1,700 unreleased vehicles by the end of the second peak hour.

The results of the AM peak modelling are severely impacted by this issue. The results presented in the GTA report show that the 'Base +Cumulative+ Rozelle Village Scenario' actually improves network operations when compared against the AM base case scenario. Table 4.5 in the GTA PPR shows the LOS at Robert Street/Victoria Street goes from LOS F in the Base to LOD D with the development in place. This is because so much so much traffic is unreleased onto the network and Victoria Road operates much better as a result.

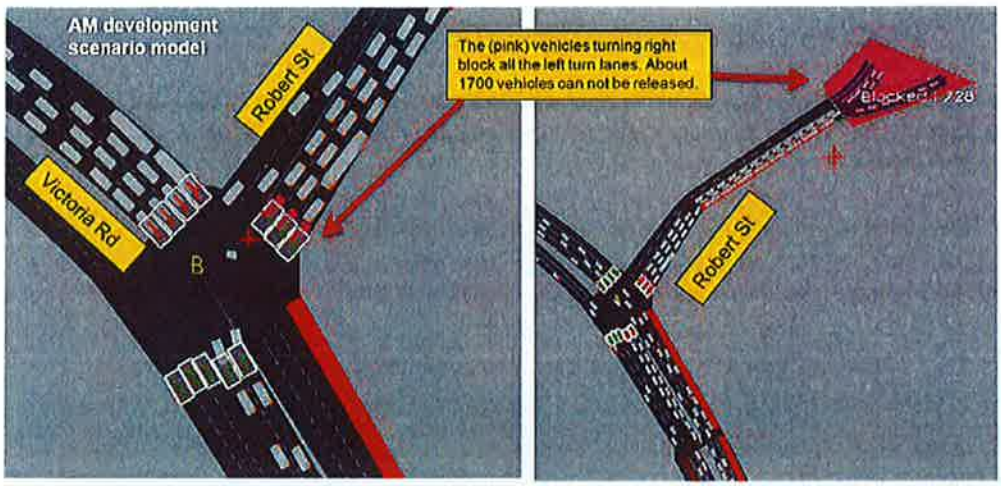


Figure 6.3 Coding error at Robert Street

Recommendation: This issue need to be fixed and the AM peak models rerun. All AM peak reporting (with the development in place) will need to be undertaken again.

6.3 Travel time results

6.3.1 Travel time for general traffic

The impacts of travel times for general traffic have not been assessed in with the development in place. Therefore it is not possible to determine the impacts of journey times on general traffic.

Recommendation: Travel times for the with-development scenarios should be considered to assess the impacts of the development for general traffic.

6.3.2 Bus travel time

The bus travel time results were compared between the GTA report and the model runs. The results in the reporting generally matched the results taken from the models.

There are several key bus routes which use Darling Street and Robert Street. No analysis has been undertaken on any of these routes.

Recommendation: The impact on bus travel times/speeds on Darling Street and Robert Street should also be assessed.

6.4 Intersection performance results

A review of the model outputs against the reported results highlighted an error in the reporting for the PM peak results. The GTA report (Table 4.7 and Appendix C) reports 5.00–6.00 pm results for the Base +Cumulative+ Rozelle Village Scenario. The results reported are actually the 4.00–5.00 pm results. The actual 5.00–6.00 pm results are significantly worse than the 4.00–5.00 pm results. The table below highlights the difference between the results reported and the actual results taken from the PM Peak Base +Cumulative+ Rozelle Village Scenario model outputs. This error appears to have occurred in the result look up table.

Table 6.3 Review of validation statistics for total vehicles

	GTA report 5.00–6.00 pm	Model results 4.00–6.00 pm	Model results 5.00–6.00 pm	Difference
Terry Street/Victoria Road	B	B	D	
	22	22	54	**32**
Darling Street/Victoria Road	D	D	F	
	52	52	71	**19**
The Crescent/Victoria Road	F	F	F	
	76	76	169	**93**
The Crescent/City West Link	F	F	F	
	79	79	117	**38**
Wellington Street/Victoria Road	C	C	E	
	35	35	62	**27**
Waterloo Street/Darling Street	B	B	B	
	18	18	18	**0**
Evans Street/Victoria Road	B	B	B	
	18	18	25	**7**
Gordon Street/Victoria Road	B	B	D	
	21	21	54	**33**
Roberts Street/Victoria Road	C	C	E	
	33	33	66	**33**
James Craig Rd/The Crescent	A	A	B	
	14	14	24	**10**

Recommendation: The reporting should be corrected and the impacts discussed in the report

6.4.1 Development trips

An assessment of the Base +Cumulative+ Rozelle Village Scenario shows that due to congestion in other parts of the network and unrealised vehicles that not all the development trips reach the development during the peak period. Table 6.4 below shows the number of trips which do not reach the development during the peak.

Table 6.4 Review of validation statistics for total vehicles

	Inbound development trips (from Matrices)	Inbound trips which reach the development during the peak	Trips which do not reach the development during the peak	%Diff
AM peak	232	187	45	19%
PM peak	213	118	95	**45%**
Saturday peak	233	189	45	**19%**

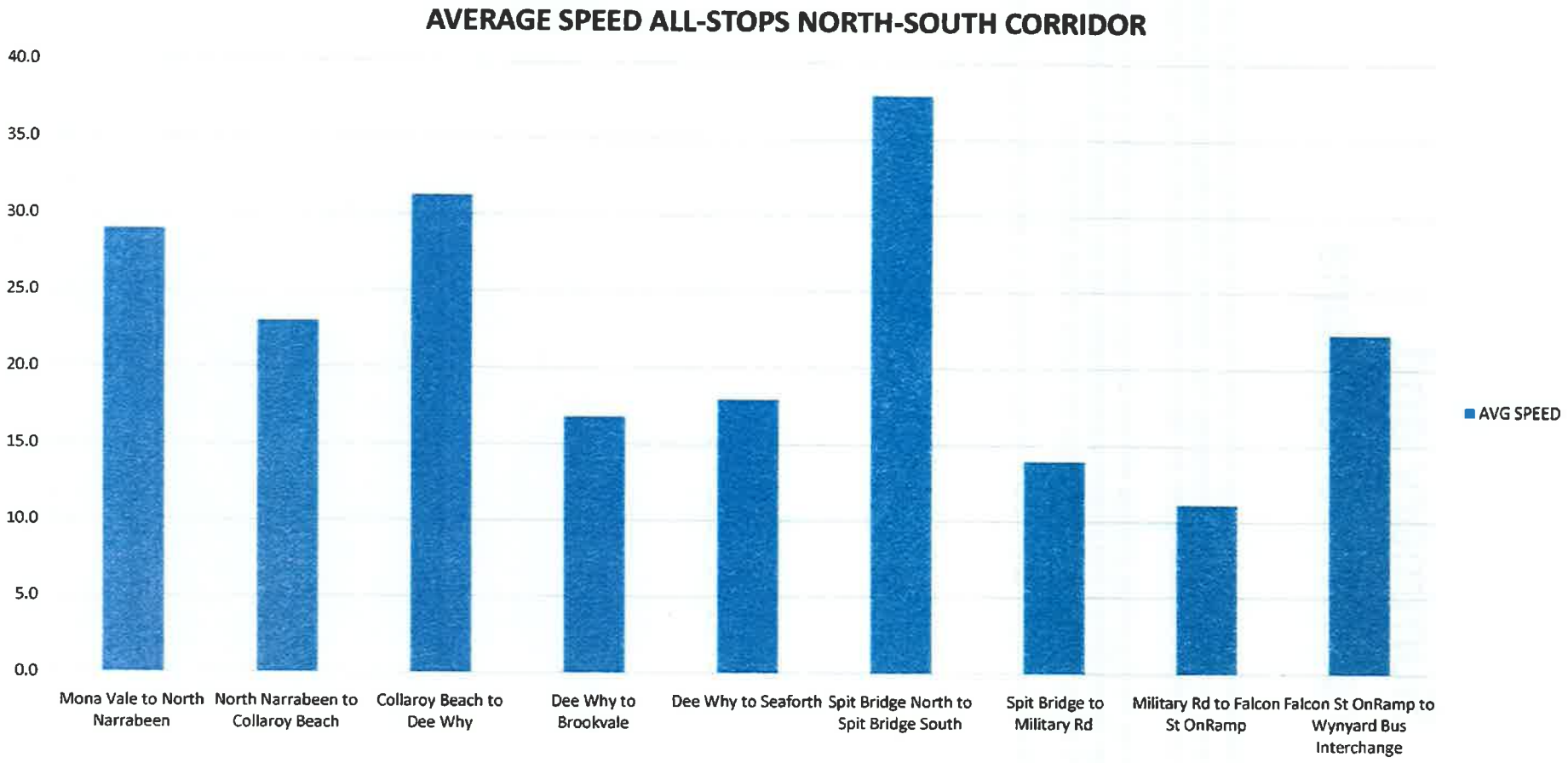
Recommendation: This is a common occurrence in congested networks and means that the full impact of the development on at the intersection closest to the development is difficult to determine. It is however important to capture the impact on the wider network, by collecting network statistics such as VKT and VHT and also to compare the number of unrealised vehicles between model options. Alternatively the network should be extended to reduce the numbers of unreleased vehicles.

7. Summary and recommendations

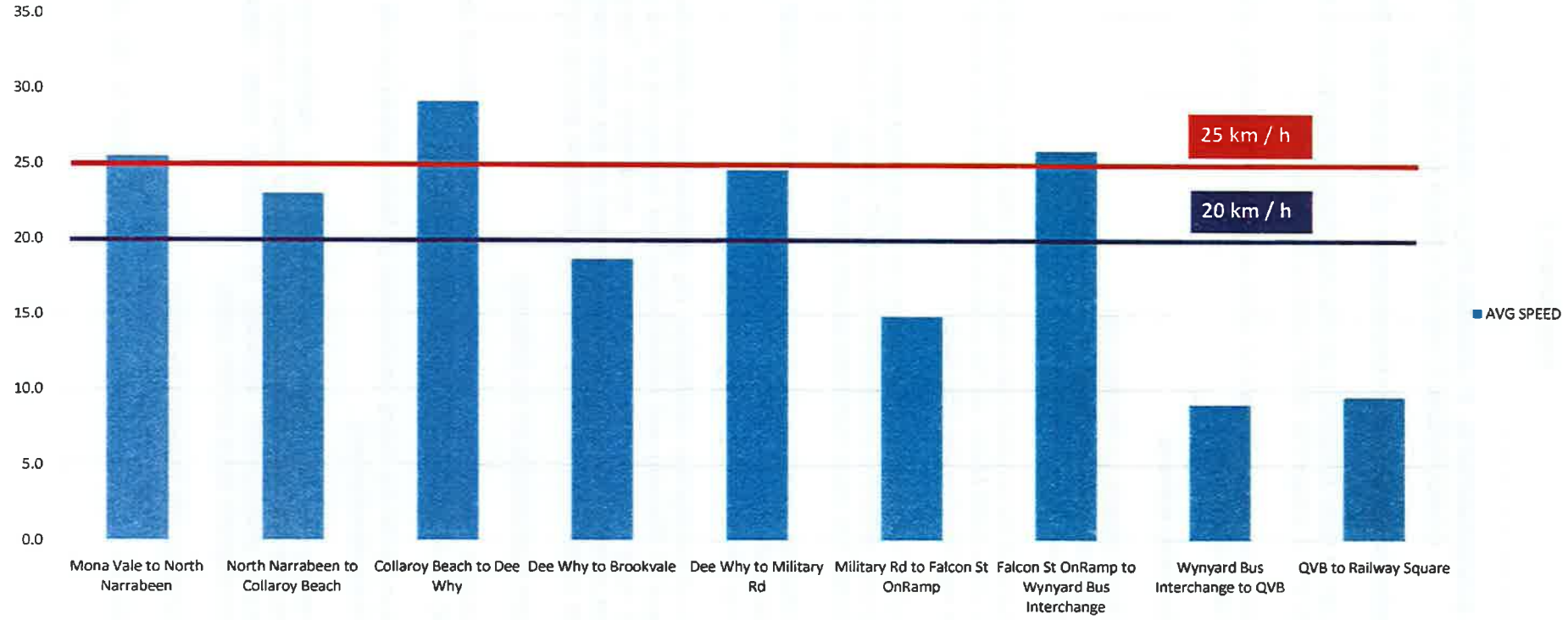
Parsons Brinckerhoff has undertaken an Audit of the Paramics Modelling associated with the Rozelle Village Transport Management and Accessibility Plan, Preferred Project Report. Where possible the audit has been undertaken in accordance with the Paramics Microsimulation Modelling – RTA manual.

The audit has found a number of issues with both the base models and the future year models. In their current form the models and their supporting documentation are not deemed 'fit for purpose' and do not allow RMS to adequately assess the impact of the Rozelle Village Development.

Parsons Brinckerhoff have made a number of recommendations to address the issues identified in the audit.


AVERAGE SPEED ALL-STOPS NORTH-SOUTH CORRIDOR
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Mona Vale to North Narrabeen
North Narrabeen to Collaroy Beach
Collaroy Beach to Dee Why
Dee Why to Brookvale
Dee Why to Seaforth
Spit Bridge North to Spit Bridge South
Spit Bridge to Military Rd
Military Rd to Falcon St OnRamp
Falcon St OnRamp to Wynyard Bus Interchange
AVG SPEED

AVGERAGE SPEED OF EXPRESS BUSES ON NORTH-SOUTH CORRIDOR



Attachment 3

STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007
CONCURRENCE ISSUED UNDER CLAUSE 88

Rozelle Village/Balmain Leagues Club Development off Victoria Road, Rozelle (MP11_0015)

Pursuant to clause 88 of *State Environmental Planning Policy (Infrastructure)* 2007 (the "**Infrastructure SEPP**"), Transport for NSW confirms the following:

The Proposed Development could have an adverse affect on the viability of the CBD Metro corridor for the following reasons:

1. *Failure to adequately address:*

   - *Electrolysis impacts on the proposal*
   - *Noise impacts on the proposal*
   - *Vibration impacts on the proposal*

2. *Potential impacts of the proposed development on the future construction, operation and maintenance of the CBD Metro, as the proposed development is located adjacent and above the proposed alignment for the CBD Metro.*

3. *The placing of any foundations, other structures and building loads in or near the proposed rail alignment may affect the practicability of the CBD Metro, its construction cost and the capacity to design it to meet metro railway operational needs.*

However, if the following conditions of consent were imposed, the Proposed Development would not have an adverse affect on the viability of the CBD Metro.
Therefore, the proposed conditions of consent are:

1. *Prior to issue of construction certification, the applicant must satisfy the Director-General of the Department of Planning and Infrastructure that the owners of the site of the approved development have entered into an agreement acceptable to Transport for NSW that addresses the potential impacts of the development on the metro corridor, for the relevant works and the commencement of any excavation below the existing surface level.*

   The Agreement must provide for the following:

   (i) *the design, construction and maintenance of the approved development so as to satisfy the requirements in conditions 2 to 5 below;*

   (ii) *allowances for the future construction of Metro railway tunnels in the vicinity of the approved development;*

   (iii) *allowances in the design, construction and maintenance of the approved development for the future operation of Metro railway tunnels in the vicinity of the approved development, especially in relation to noise, vibration, stray currents, electromagnetic fields and fire safety;*

   (iv) *consultation with Transport for NSW;*

   (v) *access by representatives of Transport for NSW to the site of the approved*

development and all structures on that site;

(vi) *provision to Transport for NSW of drawings, reports and other information related to the design, construction and maintenance of the approved development, including but not necessarily limited to:*

- *Relevant basement excavation plans which include reduced levels (RLs);*
- *Foundation arrangements including proposed location of piles; and*
- *Structural load calculations of transfer of loads from proposed building/s and associated structures to foundation design.*

(vii) *such other matters which Transport for NSW considers are appropriate to give effect to (i) to (vi) above; and*

(viii) *such other matters as the owners and Transport for NSW may agree.*

2. *The location of any building footings must be determined in consultation with the Transport for NSW prior to excavation works to ensure the structural integrity of the CBD Metro.*

3. *All structures which are proposed for construction or installation in connection with the approved development which have a potential impact on the CBD Metro must be designed, constructed and maintained in accordance with design criteria specified by the Transport for NSW.*

4. *No modifications may be made to that approved design without the consent of Transport for NSW.*

5. *In addition, prior to the issue of any Occupation Certificate, provide Transport for NSW with drawings, reports and other information related to the design, construction and maintenance of the approved development to allow Transport for NSW to fully understand the interaction between the approved development and metro corridor.*

Dated: 14/2/17

.....

For and on behalf of Sydney Metro
Transport for NSW

Paraparan Sangarapillai

From: Ben Lusher <Ben.Lusher@planning.nsw.gov.au>
Sent: Tuesday, 26 February 2013 5:33 PM
To: Ken Hind; Paraparan Sangarapillai
Subject: Fwd: MP11_0015 Rozelle Village

Ken & Para,

I also forward the email from the Proponent to help clarify the situation with the bus stops and proposed removal of on-street parking.

I hope this is of some assistance.

Thanks

Ben

Ben Lusher
Team Leader
Metropolitan & Regional Projects South
NSW Department of Planning & Infrastructure
GPO Box 39 | Sydney NSW 2001
T 02 9228 6552

>>> "Norelle Jones" <NJones@urbis.com.au> 2/26/2013 3:26 pm >>>
Hi Ben

Further to our conversation yesterday and in response to your queries:

- Bus stops: reference to the relocation of the bus stop on Darling Street within the PPR relates to changes to the modelling. None of the existing operational bus stops on either Darling Street or Victoria Road will be relocated as a result of the proposal.

  There is an existing stop (sign posted) immediately adjacent to the site on Victoria Road (adjacent to the car park). This does not appear to be operational and is believed to have been associated with Club pick up / drop offs. This stop will be removed.

- Removal of on-street parking: The existing spaces on Victoria Road will be permanently removed. Parking will be restricted to off peak hours on Darling Street with these spaces being available outside the peak hours.

  With reference to the implementation of these measures and the need to obtain approvals from separate agencies, this can be addressed by condition of consent. This approach has been used elsewhere, the consent for the Marrickville Metro Part 3A project (MP09_0191) for example includes conditions requiring separate approvals from the local area traffic committee, State Transit Authority and the RMS. Additionally, it includes the following "Mediation" condition:

  "A7 Where this approval requires further approval from Council or State Authorities, the parties shall not act unreasonably in preventing an agreement from being reached. In the event that an agreement is unable to be reached within 2 months or a timeframe otherwise agreed to by the Director-General, the matter is to be

referred to the Director-General for resolution. All areas of disagreement and the position of each party are to be clearly stated to facilitate a resolution."

Both Darling Street and Victoria Road are controlled by the RMS.

In a practical sense, any changes to the existing parking arrangements would be managed through the introduction of appropriate signposting and residents / businesses would be notified of the changes.

Please let me know if you have any further queries.

Regards
Norelle

Norelle Jones
SENIOR CONSULTANT – URBAN PLANNING

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PLANNING
DESIGN
ECONOMICS
VALUATION & ADVISORY
PUBLIC POLICY
TELECOMMUNICATIONS

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e njones@urbis.com.au w urbis.com.au
LEVEL 23 | DARLING PARK TOWER 2, 201 SUSSEX STREET | SYDNEY NSW 2000 | AUSTRALIA

Paraparan Sangarapillai

From: Ben Lusher <Ben.Lusher@planning.nsw.gov.au>
Sent: Wednesday, 27 February 2013 1:10 PM
To: Ken Hind; Paraparan Sangarapillai
Subject: Fwd: MP11_0015 Rozelle Village - Wellington Street

Hi Ken & Para,

Further clarification from the proponent re Wellington Street conditions.

I hope this clarifies this point we discussed yesterday.

Regards,

Ben

Ben Lusher
Team Leader
Metropolitan & Regional Projects South
NSW Department of Planning & Infrastructure
GPO Box 39 | Sydney NSW 2001
T 02 9228 6552

>>> "Norelle Jones" <NJones@urbis.com.au> 2/27/2013 11:32 am >>>
Hi Ben

Our traffic consultant has confirmed the following:

The base model (no development) and with development models each show a kerbside left turn lane on Wellington St approach to Victoria of **approximately 40 metres to reflect the existing conditions**.

We are not proposing to remove parking in Wellington St.

In effect, no changes (to parking or current road conditions) are proposed as part of the development.

If you need anything else please let me know.

Regards
Norelle

Norelle Jones
SENIOR CONSULTANT – URBAN PLANNING

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Transport for NSW

CD14/01735

A/Deputy Director General
Development Assessment & Systems Performance
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: Ben Lusher

ADDENDUM TO REVISED PREFERRED PROJECT REPORT FOR ROZELLE VILLAGE PROJECT APPLICATION AT VICTORIA ROAD, ROZELLE (MP11_0015)

Dear Mr Lusher,

Thank you for your letter of 13 December 2013 inviting Transport for NSW (TfNSW) and Roads and Maritime Services (RMS) to provide comment on the addendum to the Revised Preferred Project Report (PPR) for Rozelle Village Project Application (MP 11_0015). Transport for NSW (TfNSW) appreciates the opportunity to provide input into the revised PPR and offers the combined comments of TfNSW and RMS.

As you would be aware, prior to lodgment of the addendum, the applicant put forward two separate alternative access options (known as options A and B) for review and comment, which was in response to the previous joint TfNSW and RMS submission of 2 October 2013.

These two access options were reviewed in good faith with the findings outlined in a joint submission of 8 November 2013 advising that while access option B is preferable to Option A, the following road safety concerns, traffic and transport impacts needed to be satisfactorily addressed:

- As identified in the micro-simulation models, the through movement from Wellington Street into the subject site is reliant on the removal of existing on-street car parking spaces on Wellington Street, which requires approval of Council's Local Traffic Committee and community consultation with affected stakeholders. Without the removal of parking this option will create unacceptable congestion on Wellington and Terry Streets, with potential queuing back to Victoria Road.
- Satisfactory pedestrian arrangements at the light vehicle exit driveway to ensure a safe and adequate footpath configuration.
- Adequate gaps in the traffic stream in Victoria Road for light vehicles to exit the subject site in a safe and efficient manner. This will require detailed traffic analysis to determine the number of vehicles that could exit this driveway in an efficient manner without significant delays and queuing for exiting vehicles (i.e. does the option provide sufficient capacity for the estimated traffic generation?).
- Identification of adequate measures to prohibit heavy vehicles accessing the loading dock in peak periods and sufficient enforcement of this prohibition. Of particular concern, is a

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www.transport.nsw.gov.au
ABN 18 804 239 602

heavy vehicle entering the site via the deceleration lane and then faced with a closed roller shutter (or similar device) within the site, the driver attempting to reverse onto Victoria Road.

- Club access via Waterloo Street (instead of via Victoria Road in the current application) will require satisfactory community consultation with affected residents/businesses and Leichhardt Council, as well as traffic analysis to determine traffic and transport impacts, particularly on Darling Street at the Victoria Road and Waterloo Street intersections.

It should also be noted that the applicant was advised in the joint submission of 8 November 2013 that while TfNSW and RMS acknowledge that access option B is preferable to option A, it is likely to be difficult to identify sufficient mitigation measures to satisfactorily address all of the issues above. On this basis, the applicant was advised that should access option B be pursued further, a detailed feasibility assessment of this option should be undertaken, prior to the preparation and lodgment of revised plans and associated reports to Department of Planning and Infrastructure and there is no guarantee that this access option would be acceptable to RMS, TfNSW and Council.

As part of the TfNSW and RMS review of the addendum to the revised PPR, RMS commissioned Parsons Brinckerhoff (PB) to undertake an independent audit of the revised transport modelling submitted. A copy of the PB audit report is provided in **Attachment 1** for your information.

Following a detailed review of the addendum to the revised PPR and the findings of the independent PB audit of the revised micro-simulation models, TfNSW and RMS advise that the proposed Rozelle Village development will have adverse traffic and transport impacts on the existing road network within the Rozelle/Balmain precinct in the PM peak period. These traffic and transport impacts are outlined in detail in **Attachment 2.**

As advised at the meeting on 15 January 2014 with the Department of Planning and Infrastructure, the proposed development will result in significant additional vehicular queues and increased travel time for motorists and buses on the southern approach of Darling Street to Victoria Road. These impacts have been summarised graphically in **Attachment 3** and the increase in bus travel times are provided in **Attachment 4** (GTA's Bus Travel Time Matrix Table). For example, based on the transport modeling results, bus travel time city bound on Darling Street from Manning Street to Victoria Road at Joseph Street increases by approximately 5 minutes in the PM peak and vehicular queues northbound on Darling Street on approach to Victoria Road extend an additional approximately 500 metres in the PM peak as a direct result of the proposed development.

In addition to the above, based on the revised transport modeling commissioned by the applicant, motorists exiting on to Victoria Road from the proposed retail basement car park will experience delays of over 10 minutes with a queue of approximately 130 metres into the basement car park, which extends past the boom gates. It is likely in these circumstances that pressure will be put on TfNSW and RMS to provide greater access to Victoria Road than is currently proposed. Granting greater access would have a substantial detrimental effect on the performance of Victoria Road and other related roads including The Crescent and ANZAC Bridge.

Further to the above, RMS has also identified road design issues with the proposed access arrangements, which are outlined in detail in **Attachment 5.**

It is noted that all transport models submitted by the applicant to support their original and revised development applications have indicated that the scale of traffic generated by the Project will have adverse traffic and transport impacts on the road network, which is documented in detail within the previous joint TfNSW and RMS submissions of 14 February and 2 October 2013, as well as the current submission.

Therefore, based on the results of detailed traffic and transport assessments undertaken for the proposed development and following the review of all supporting documentation prepared as part of this project application, TfNSW and RMS recommend that the subject PPR not be approved in its current form due to the adverse traffic and transport impacts on the road network in the precinct.

Should you have any questions regarding this matter, please contact Mark Ozinga on 8202-2198 or Mark.Ozinga@transport.nsw.gov.au

Yours Sincerely

Carolyn McNally
Deputy Director General
Planning and Programs Division
Transport for NSW

Attachment 1

Paramics Modelling Peer Review Report prepared by Parsons Brinckerhoff (PB)

Parsons Brinckerhoff Australia Pty Limited

ABN 80 078 004 798

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Email: sydney@pb.com.au

www.pbworld.com

Certified to ISO 9001, ISO 14001, AS/NZS 4801
AGRI Rating: Sustainability Report 2011

Memo

Date 23 January 2014

To James Hall

From Graeme Inglis

Ref 2175001A-ITP-MEM-3631-RevA

Subject Rozelle Village - Paramics Modelling Peer Review

1. Introduction

NSW Roads and Maritime Services (RMS) commissioned Parsons Brinckerhoff to undertake a peer review of the Paramics Modelling undertaken by GTA to assess the revised access arrangements for the Rozelle Village Development. As part of the commission, RMS also requested that Parsons Brinckerhoff review the results presented to determine the potential traffic impacts of Rozelle Village.

This work carries on from the previous review work undertaken by Parsons Brinckerhoff in February and August 2013.

Parsons Brinckerhoff was supplied with the following information to undertake the review:

- GTA Report – Transport Assessment of Revised Victoria Road Site Access Arrangements (11/12/13)
- three sets of Paramics Modelling files, including:
  - AM peak – Option 1
  - PM peak – Option 2
  - Saturday peak – Option 1.

Option 1 includes the revised access arrangements. Option 2 also includes the revised access arrangements but includes the removal of 35 m of on-street parking on Wellington Street during the PM peak.

2. AM peak review

The review of the AM peak modelling highlighted a minor coding error which has a significant impact on the network operations.

The issue identified relates to Zone 25 (the zone associated with retail component of the Rozelle Village development). Zone 25 has two links feeding it, the left turn from Victoria Road and the straight through movement from Wellington Street. The issue identified is related to the second link, the ingress from Wellington Street. Zone 25 does not cover half of the link (Node 60 to Node 58), which means that no traffic can access the zone from this link. As a result all trips which should access the site from Wellington Street need to find an alternative route to access the site. In this instance, the affected vehicles are turning right from Wellington Street into Victoria Road, left into Moodie Street, and then traveling around the block to use the alternative entrance from Victoria Road.

This issue leads to significant queuing on Waterloo Street blocking the egress from the Rozelle Village residential car park, resulting in vehicles being blocked in the residential car park for over an hour. Figure 2.1 shows a snapshot taken from the AM Peak model, highlighting the issue described above.

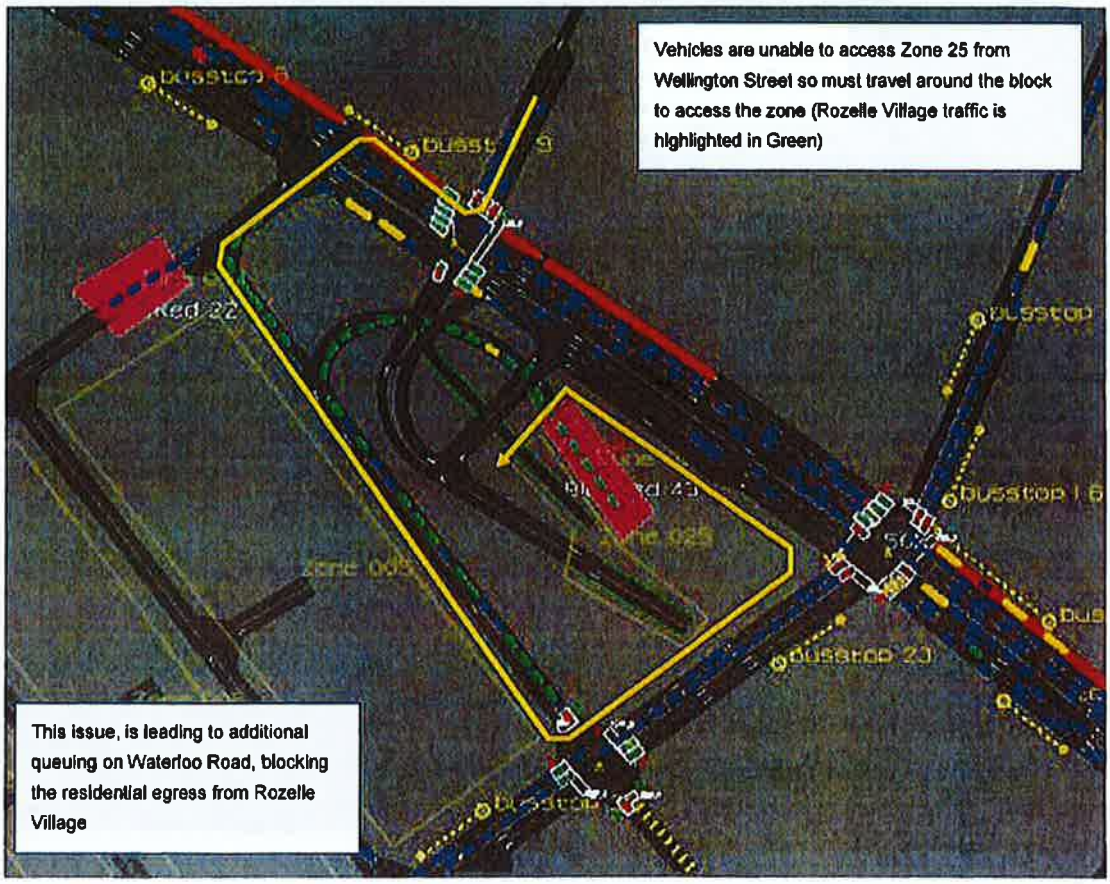


Figure 2.1 Paramics snapshot showing impact of coding error

As a result of this issue the results and findings related to the AM peak modelling are not valid. It is recommended that this issue is fixed and the models rerun.

3. PM peak review

3.1 Darling Street (west of Victoria Road)

A review of the PM peak with Rozelle Village models shows that traffic signal timings at the intersection of Darling Street and Victoria Road have been changed from the Base Case and Base + Cumulative models. These changes result in reduced green time for Darling Street (travelling north) of 4 seconds per cycle. This reduction in green time combined with the increased development traffic, is exacerbating congestion and delays on Darling Street during the PM peak. As a result, queuing extends back into the zone (Zone 9) during the PM peak. At the end of the peak period 56 vehicles (from Appendix C) are blocked within Zone 9 (note that no vehicles are blocked in the Base + Cumulative Model). The additional delays on Darling Street are also reflected in the bus travel times (see section 3.4). The Figure 3.1 highlights the congestion on Darling Street.

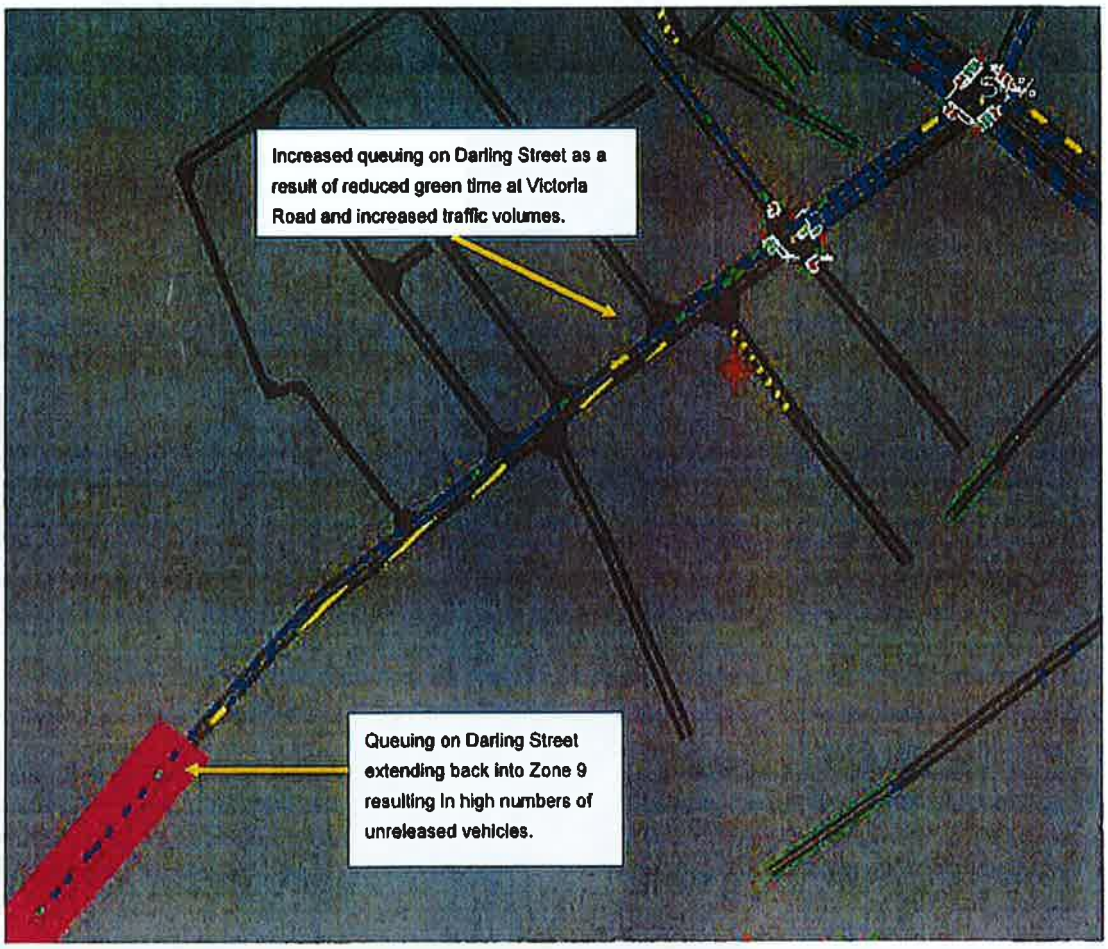


Figure 3.1 Paramics snapshot showing queuing on Darling Street

As part of the model review, Parsons Brinckerhoff also reviewed the queuing on Darling Street, west of Victoria Road (Zone 9) in 'Modeller'. The number of unreleased vehicles was compared (over 5 seed runs) between the Base + Cumulative Model and the Rozelle Village Model. Table 3.1 outlines the number of unreleased vehicles observed in each seed run. The results indicate that the reduction in green time at Victoria Road combined with an increase in traffic volumes (from the proposed development), will result in increased queuing on Darling Street (which results in higher numbers of unreleased vehicles within the model). Table 3.1 also considers the extent of unreleased vehicles as a virtual queue, based on a 6.2 m per vehicle conversion factor (at the request of RMS).

Table 3.1 Observed numbers of unreleased vehicles from Zone 9 (Darling Street, West)

Base + Cumulative model							
Time	2849	560	7771	28	86524	Average	Dist (m)
4:30	0	0	0	0	0	0	0
5:00	6	4	0	25	40	15	93
5:30	0	0	0	15	0	3	19
6:00	4	0	0	0	17	4	26
With revised Rozelle Village model							
Time	2849	560	7771	28	86524	Average	Dist (m)
4:30	82	16	0	0	0	20	122
5:00	174	33	21	21	45	59	365
5:30	227	102	96	96	22	109	673
6:00	229	172	140	140	17	140	866

3.2 Lane choice issues

A review of the 'Unreleased Vehicles' tables in Appendix C shows that there is significantly more unreleased vehicles (in Zones 14,15, 16 and 17) at the end of the PM peak in the Rozelle Village Model compared with the Base + Cumulative Model. Table 3.2 highlights the difference in unreleased vehicles between the two options.

Table 3.2 Comparison of unreleased vehicles statistics from Appendix C

Zone	Base + Cumulative	Option 2	Diff
14 Anzac Bridge	232	587	355 veh
15 James Craig Road	60	105	45 veh
16 The Crescent	466	864	389 veh
17 City West Link	97	936	839 veh

Upon further investigation, the difference in unreleased vehicles can be attributed to different lane choice configurations applied in each of the models. In the Rozelle Village model, the City West Link and Anzac Bridge approaches to Victoria Road are only utilising two of the three lanes available while all three lanes are being utilised in the Base + Cumulative Model. As a result the capacity of these approaches is reduced significantly resulting in extensive queuing on Anzac Bridge and the City West Link. Furthermore, this means that the there are approximately 1,600 vehicles less travelling outbound on Victoria Road during the PM peak in the Rozelle Village model compared with the Base + Cumulative model. Figures 3.2 and 3.3 highlight this issue.

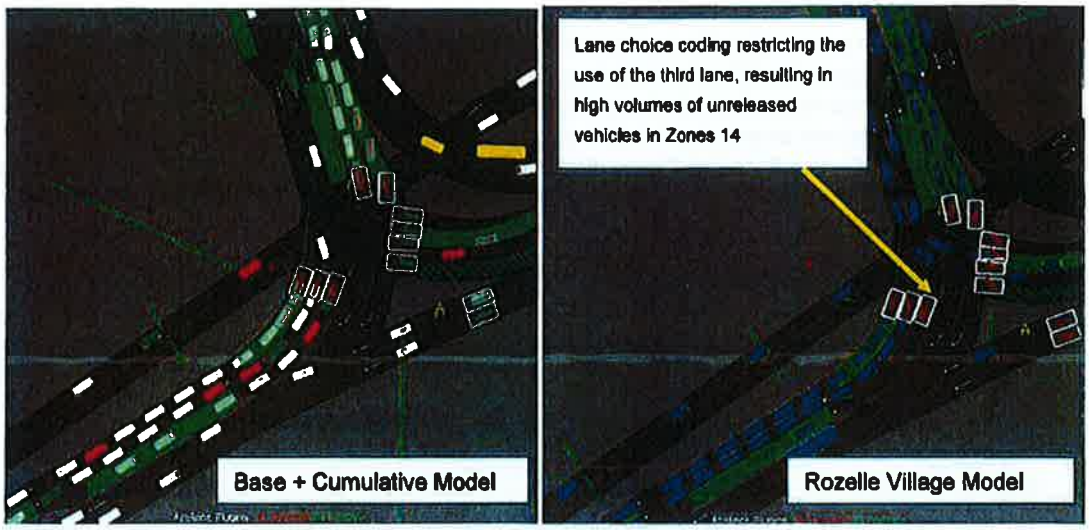


Figure 3.2 Lane choice issue on City West link approach to Victoria Road

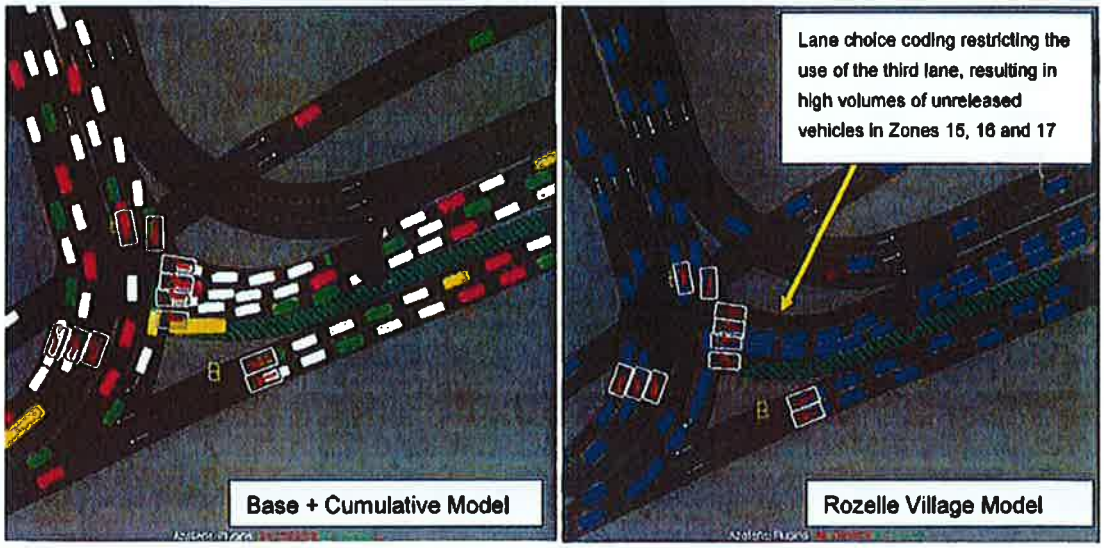


Figure 3.3 Lane choice issue on the Anzac Bridge approach to Victoria Road

This issue needs to be rectified to understand the true impacts during the PM peak.

3.3 Internal queuing within the Development

The PM peak modelling shows that significant queuing occurs within the development. Both the Retail and Residential car park are affected. Queuing from the Retail car park extends back into the zone, a distance of approximately 130 m. This would result in queuing beyond the internal boom gates. A review of the modelling indicates that vehicles seeking to leave the retail car park can queue for over 10 minutes to exit the car park.

Due to congestion on Waterloo Road, vehicles have limited opportunities to exit the residential car park during the PM peak. This leads to significant queuing within the car park. A review of the modelling indicated that vehicles seeking to leave the residential car park can queue for over 30 minutes to exit the car park. Figure 3.2 shows a snapshot taken from the PM peak model, highlighting the queuing described above.

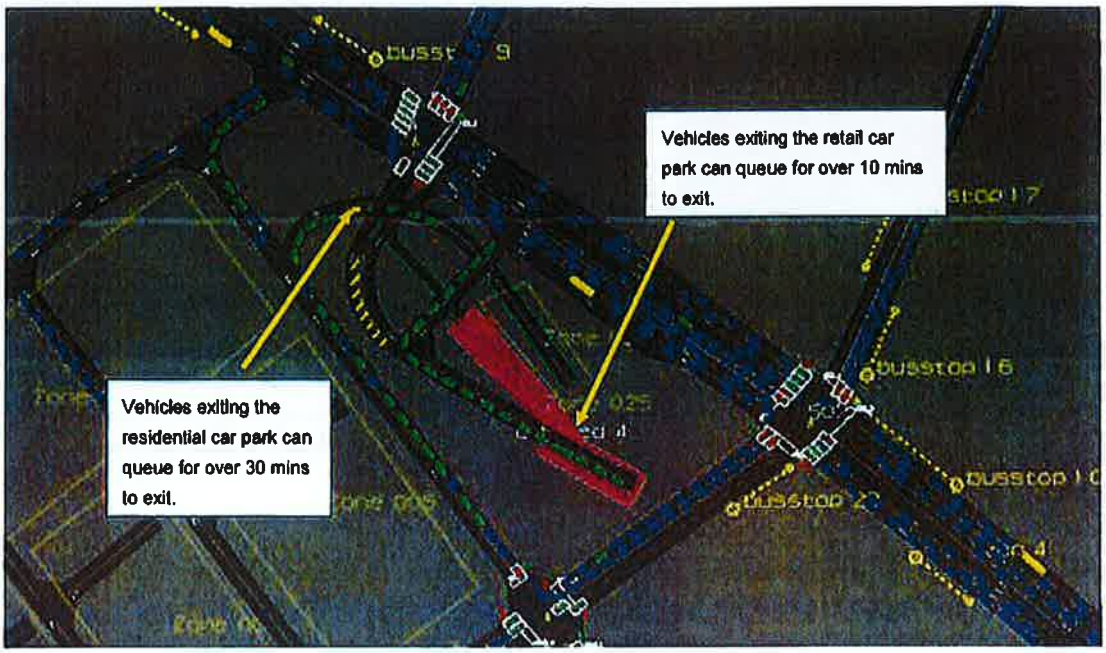


Figure 3.4 Paramics Snapshot showing internal queuing issues

3.4 Impacts of bus travel times during the PM peak

The PM peak results indicate that bus travel times on Darling Street will increase significantly as a result of the proposed development. The table below, taken from the GTA report, highlights (circled in red) where the largest increases occur between the Base + Cumulative model and the Rozelle Village model:

- Darling Street (Northbound) Manning Street to Wise Street – 248 sec increase (4 mins 8 secs)
- Darling Street and Victoria Road (Citybound), Manning Street to Joseph Street– 296 sec increase (4 min 56 secs).

Table 3.1 Bus delays on Darling Street

PM Peak						
TRAVEL TIME ROUTE	4-5PM			5-6PM		
	Existing Conditions (2011)	Base Scenario + Cumulative Growth (2021)	Post Development + Cumulative Growth (2021)	Existing Conditions (2011)	Base Scenario + Cumulative Growth (2021)	Post Development + Cumulative Growth (2021)
	189	222	204	295	296	259
	172	237	330	160	186	[illegible]
	234	286	342	294	242	490
	207	216	258	242	251	250
Darling St & Victoria Rd (Citybound) - National St to Lilyfield Rd	260	252	323	351	470	416
Victoria Rd & Darling St (Outbound) - Lilyfield Rd to National St	265	259	450	263	213	330
Darling St & Victoria Rd (Citybound) - Manning St to Joseph St				291	389	685
Victoria Rd & Darling St (Outbound) - Joseph St to Manning St	236	301	408	178	176	265
	160	360	202	268	429	376
	186	190	194	292	186	205
	94	197	265	239	275	360
	46	43	44	41	45	45
	81	190	126	286	350	297

4. Saturday review

The network is generally less congested during the Saturday peak and the network operates better than the AM and PM peaks. The removal of the parking on Darling Street helps network operations significantly during the Saturday peak.

The review did however identify that the lane choice issues experienced in the PM peak on the approaches to Victoria Road are also present in the Saturday modelling, however with less pronounced impacts due to the lower traffic volumes.

5. Conclusions

The review undertaken by Parsons Brinckerhoff has highlighted a number of coding errors in the AM, PM and Saturday peak models. Despite the relatively minor nature of these errors they each have significant impacts on the model operation, results and findings.

Notwithstanding this, the localised impacts observed in the vicinity of the development, suggest that the introduction of Rozelle Village will have a significant impact on the roads surrounding the development, particularly Darling Street, Wellington Street and Waterloo Road. The modelling also indicates that due to increased congestion around the development, exiting the Rozelle Village car parks during peak periods could be problematic and result in long delays for vehicles within the development.

Attachment 2

Detailed TfNSW and RMS comments on Traffic and Transport Impacts

Detailed TfNSW and RMS comments on Traffic and Transport Impacts

1. Parsons Brinckerhoff's (PB) independent audit of GTA's revised transport models has identified a coding error in AM Rozelle Village model and different lane configurations in the PM peak models between the base + cumulative model and Rozelle Village model scenarios, which have a significant impact on the results of the transport models. These errors are as follows:

    - In the AM Rozelle Village model, all trips, which should access the site from Wellington Street find an alternative route, which is right turn movements from Wellington Street into Victoria Road, left into Moodie Street and then travelling around the block to use the alternative left in entrance from Victoria Road.

      This alternative route (due to a coding error), leads to significant queuing on Waterloo Street blocking the egress from the Rozelle Village residential car park, resulting in vehicles being blocked in the residential car park for over an hour.

    - A review of the Unreleased Vehicles' table in Appendix C of GTA's report illustrates that there is significantly more unreleased vehicles at the end of the PM peak in the Rozelle Village Model compared with the Base + Cumulative Model. Table 3.1 in the PB audit report (**Attachment 1**) highlights the difference in unreleased vehicles between the two options.

      The difference in unreleased vehicles can be attributed to different lane choice configurations applied in each of the models. In this regard, in the Rozelle Village model, the City West Link and Anzac Bridge approaches to Victoria Road are only utilising two of the three lanes available while all three lanes are being utilised in the Base + Cumulative Model. As a result there is approximately 1,600 vehicles less on Victoria Road during the PM peak in the Rozelle Village model compared with the Base + Cumulative model.

    As a result of the abovementioned coding error and different lane choice configurations, the Rozelle Village AM and PM model scenarios do not accurately quantify the traffic and transport impacts of the development on Victoria Road, City West Link and Anzac Bridge and Wellington Street approach to Victoria Road.

2. The independent audit by PB has also identified that changes have been proposed to traffic signal timings at Victoria Road/Darling Street intersection with the Rozelle Village PM scenario. Given the existing high levels of congestion in this area, the existing signal timings have been optimised over time by the Transport Management Centre to provide the best possible balance between east-west traffic on Victoria Road and for Darling Street. The signal timing changes proposed by GTA at this intersection would reduce green time for Darling Street (by providing additional green time to the city bound movement and the right turn into Darling Street from Victoria Road) leading to additional queuing and delays on Darling Street. These additional queues are represented graphically in **Attachment 3.**

3. The Rozelle Village PM peak model scenario indicates that significant vehicular queuing occurs within the site at the retail car park exit to Victoria Road. The queue at this exit driveway extends approximately 130 metres into the basement car park, which extends past the internal boom gates. A review of the modeling indicates that vehicles seeking to exit the retail car park can queue for over 10 minutes to exit the retail car park.

4. A review of the PM peak model also indicates that due to the congestion on Waterloo Road there is significant queuing within the residential car park, which results in delays of over 30 minutes for vehicles exiting this car park.

5. Bus travel times presented in Appendix C of GTA's report indicate that the changes made to the signal timings at Darling Street/Victoria Road with the Rozelle Village development in place, lead to significantly increased bus travel times for buses using Darling Street. These bus travel times are provided in detail in **Attachment 4**.

   Of particular concern, is the increase in bus travel time city bound on Darling Street from Manning Street to Victoria Road at Joseph Street, which increases by 4 minutes, 56 seconds in the PM peak as a direct result of the proposed Rozelle Village.

6. GTA's Rozelle Village PM model scenario includes removal of 35 metres of on-street parking spaces on Wellington Street in order to extend the existing two lane approach on Wellington Street to Victoria Road. It is unlikely that the community or Council would agree to the removal of these parking spaces.

   It is likely that on-street parking on Wellington Street may also need to be removed in the AM peak. However, this cannot be quantified by the submitted transport models due to the coding error in the Rozelle Village AM model scenario as detailed in Point 1 above.

7. None of the traffic models submitted by GTA have included the existing signalised intersection of Darling Street and National Street.

8. The transport models do not quantify the impacts on the local road network within the Rozelle/Balmain precinct, including Wellington and Terry Streets. In order to quantify the traffic impacts, the Level of Service and 85 percentile queue lengths on the local road network should be provided.

Attachment 3

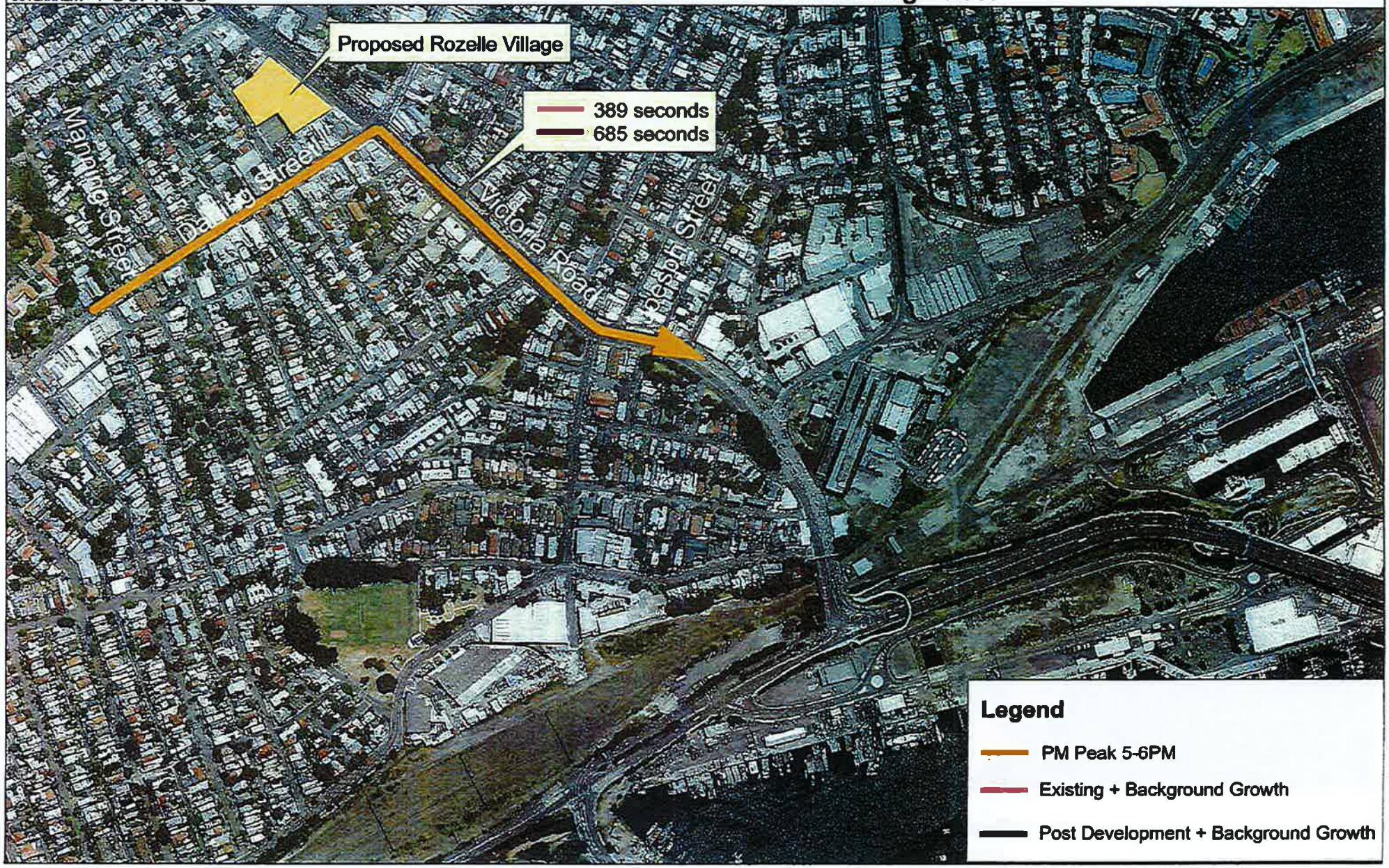
Impact on Queue Lengths and Bus Travel Times on Darling Street

Transport
Roads & Maritime
Services

Proposed Rozelle Village Project
Microsimulation Modelling Queue Length on Darling Street in PM

Transport
Roads & Maritime
Services

Proposed Rozelle Village Project
Microsimulation Modelling Bus Travel Time
Victoria Road and Darling Street



Attachment 4

GTA's Bus Travel Time Matrix Table

Rozelle Village Project

MICROSIMULATION MODELLING RESULTS
Bus Travel Times
Wednesday, 11 December 2013

AM Peak

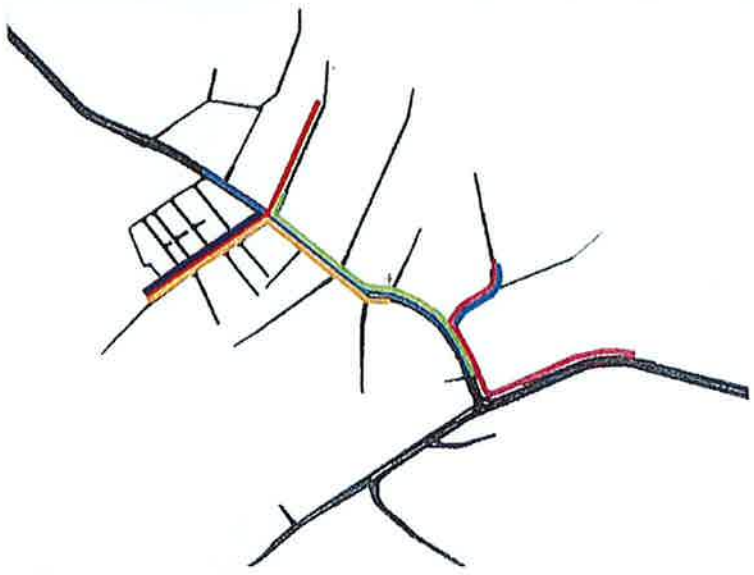
TRAVEL TIME ROUTE	7-8AM			8-9AM		
	Existing Conditions (2011)	Base Scenario + Cumulative Growth (2021)	Post Development + Cumulative Growth (2021)	Existing Conditions (2011)	Base Scenario + Cumulative Growth (2021)	Post Development + Cumulative Growth (2021)
	234	233	239	224	237	228
	220	223	259	243	246	251
	223	350	361	277	380	639
	183	197	253	222	237	262
Darling St & Victoria Rd (Citybound) - National St to Lilyfield Rd	240	232	203	287	233	261
Victoria Rd & Darling St (Outbound) - Lilyfield Rd to National St	443	370	364	323	528	518
Darling St & Victoria Rd (Citybound) - Manning St to Joseph St	344	363	377	337	760	678
Victoria Rd & Darling St (Outbound) - Joseph St to Manning St	217	185	186	248	222	221
	330	330	322	343	346	362
	205	203	178	258	247	209
	145	237	273	163	407	456
	50	59	46	52	58	51
	222	206	187	214	229	228

PM Peak

TRAVEL TIME ROUTE	4-5PM			5-6PM		
	Existing Conditions (2011)	Base Scenario + Cumulative Growth (2021)	Post Development + Cumulative Growth (2021)	Existing Conditions (2011)	Base Scenario + Cumulative Growth (2021)	Post Development + Cumulative Growth (2021)
	289	222	224	295	296	289
	272	237	230	260	286	194
	234	286	343	294	242	490
	207	216	258	242	252	258
Darling St & Victoria Rd (Citybound) - National St to Lilyfield Rd	260	252	323	251	470	418
Victoria Rd & Darling St (Outbound) - Lilyfield Rd to National St	265	259	450	263	223	220
Darling St & Victoria Rd (Citybound) - Manning St to Joseph St				232	389	683
Victoria Rd & Darling St (Outbound) - Joseph St to Manning St	236	302	408	278	276	265
	260	360	392	268	429	376
	286	290	304	292	286	309
	94	237	265	239	275	360
	46	43	44	42	45	45
	82	290	326	286	350	297

Saturday Peak

TRAVEL TIME ROUTE	11-12PM			12-1PM		
	Existing Conditions (2011)	Base Scenario + Cumulative Growth (2021)	Post Development + Cumulative Growth (2021)	Existing Conditions (2011)	Base Scenario + Cumulative Growth (2021)	Post Development + Cumulative Growth (2021)
	230	245	306	227	230	234
	195	239	205	280	204	203
	266	259	288	237	384	197
	203	285	298	292	297	269
Darling St & Victoria Rd (Citybound) - National St to Lilyfield Rd	276	248	262	257	255	220
Victoria Rd & Darling St (Outbound) - Lilyfield Rd to National St	286	280	311	367	400	853
Darling St & Victoria Rd (Citybound) - Manning St to Joseph St				289	400	594
Victoria Rd & Darling St (Outbound) - Joseph St to Manning St	278	331	321	276	201	202
	200	285	294	262	295	253
	283	280	272	280	274	273
	239	257	99	285	258	250
	59	60	83	60	53	52
	92	82	93	46	82	48



Attachment 5

RMS Road Design Comments

RMS Road Design Comments

RMS has also undertaken a preliminary road design review of the proposed access arrangements on Victoria Road and provides the following comments:

1. The proposed access arrangement on Victoria Road will pose conflict between motorists exiting the subject site and pedestrians crossing the proposed driveways on Victoria Road.

   In particular, light vehicles exiting the subject site experience delays of over 10 minutes and a queue of over 130 metres in the PM peak period (as illustrated in the submitted transport models) and motorists in this queue are likely to become impatient with additional delays caused by pedestrians walking across the exit driveway.

   The applicant was previously advised to address this conflict. RMS suggested diverting the footpath on Victoria Road into the subject site (behind the exit driveway) to minimise conflict between pedestrians and exiting vehicles.

2. The proposed exit driveway on Victoria Road for the retail car park is located approximately 25 metres from the westbound stop line on Victoria Road at the Wellington Street intersection. This short distance only allows 4 or 5 vehicles to queue in the outbound kerbside lane on Victoria Road at the Wellington Street intersection before the retail car park exit driveway is blocked by queued vehicles.

   This is undesirable as vehicles in the outbound kerbside lane of Victoria Road queuing past the retail car park exit driveway will not enable vehicles from the proposed retail basement car park to exit efficiently and will lead to extensive delays and queuing for vehicles exiting this driveway.

3. Should the application be recommended for approval by the Department of Planning and Infrastructure, the proposed signalised fourth leg at the existing signalised intersection of Victoria Road and Wellington Street and associated loading dock shall be closed in the AM peak (6-10am) and PM (3-7pm) peak periods to maintain existing Levels of Service on Victoria Road. The closure of the proposed loading dock and signalised exit in the weekday peak periods, requires the following measures to ensure compliance:

   - Roller shutters or similar devices at both the entry and exit driveways for the loading dock. The roller shutter or similar device for the loading dock entry driveway on Victoria Road should be visible to drivers, prior to entering the subject site.
   - Variable Messages Signs on Victoria Road within the subject site facing outbound motorists on Victoria Road advising whether the Loading Dock is open or closed.
   - A Loading Dock Management Plan shall be submitted to RMS for review, which identifies adequate measures to ensure constant compliance with the closure of the Loading Dock during weekday peak periods.
     One of the measures to be incorporated into the Loading Dock Management Plan is the provision of a full time Loading Dock Manager.

4. Vehicles larger than a 12.5 metre long Heavy Rigid Vehicle (HRV) shall be prohibited from entering the subject site as the loading dock has been designed to only cater for vehicles up to and including HRV.

5. Provision should be made within the proposed retail basement car park to accommodate deliveries by Small Rigid Vehicles (length of 6.4 metres and height of 3.5 clearance height) when the proposed loading dock is closed during the weekday peak periods. These spaces should be accommodated adjacent the proposed void for the Goods Lifts and the lift modified to allow deliveries from the basement retail car park.

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