

TECHNICAL NOTE

Reference: P0421t03v02

9 October 2019

Frasers Property Australia
Level 2, 1C Homebush Bay Drive
Rhodes NSW 2138

RE: Revised Response to Submissions – Ivanhoe Estate, Macquarie Park (SSD 8707)

Dear Chris,

I refer to your recent request to provide further analysis to address the issues raised in the revised responses to submissions that were received in relation to Ivanhoe Estate Master Plan, Macquarie Park (SSD 8707) and specifically the following documents received following the exhibition of the proposal:

- A. Department of Planning, Industry & Environment, *Ivanhoe Estate Redevelopment Concept Plan, Macquarie Park (SSD 8707) Revised Response to Submissions*, 10 July 2019.
- B. Roads and Maritime Services, *Response to Submission – Notice of Exhibition for Ivanhoe Estate Redevelopment 2-4 Lyons Park Road, Macquarie Park Ref: SYD17/00415/08 (A27844958)*, 19 June 2019.
- C. Transport for NSW, *Notice of Exhibition (Response to Submissions) Ivanhoe Estate Redevelopment (SSD 8707)*, 20 June 2019.

We have reviewed the above submissions to the masterplan application and our response to each of the key issues raised is provided below.

Department of Planning Infrastructure & Environment (A)

Issue A1

Provide detailed traffic information that compares the operation of the proposed estate and surrounding road network, both including and excluding the proposed new access road from Epping Road.

Response

It is understood that, following discussions relating to the environmental impacts associated with the proposed new Left-in (LI) access from Epping Road, this infrastructure upgrade has now been removed from the Proposal. The operation of the road network under the revised access strategy, has been included in the assessments below.

The proposed removal of the LI access has been further analysed in our SIDRA network model and the performance of nearby intersections are summarised in **Table 1** and **Table 2** for 2021 and 2031 scenarios respectively. Traffic that would otherwise use the LI access was re-assigned to access the Site via Herring Road.

Modelling results for “with LI” scenarios have been extracted from the TMAP Addendum report.

Table 1: Intersection Performance – 2021

Intersection	Item	AM		PM	
		with LI	without LI	with LI	without LI
Epping Road / Herring Road	LoS	F	F	E	F
	Delay (s)	77	86	64	72
Herring Road / Ivanhoe Place	LoS	B	B	B	D
	Delay (s)	22	23	27	45

Table 2: Intersection Performance – 2031

Intersection	Item	AM		PM	
		with LI	without LI	with LI	without LI
Epping Road / Herring Road	LoS	F	F	E	E
	Delay (s)	81	91	67	70
Herring Road / Ivanhoe Place	LoS	B	B	C	D
	Delay (s)	22	23	35	45

It is evident from the results in **Table 1** and **Table 2** that the proposed removal of the LI access would result in increased delays at the Epping Road / Herring Road intersection up to 10 seconds during each scenario assessed. At the intersection of Herring Road / Ivanhoe Place, increase in delay is noted during the PM peak (up to 18 seconds), while the AM peaks for both scenarios would perform somewhat similar.

Other nearby intersections (refer to TMAP Addendum) were assessed and found to have minimal or no impact due to removal of LI access.

Issue A2

Provide a response to comments from Roads and Maritime Services (RMS), including the proposed removal of U-turn facilities.

Response

See 2 below and 2.2 for specific reference to U-turn facilities.

Issue A3

SIDRA analysis of the two main intersections along Main Street demonstrating the proposed layout is appropriate to accommodate future traffic flows. The Department requests the analysis also considers a scenario that excludes the proposed new access road from Epping Road.

Response

A SIDRA analysis has been conducted and the future performance of the intersections along Main Street were modelled using the volumes extracted from the Aimsun model as shown in **Figure 1 to Figure 2**.

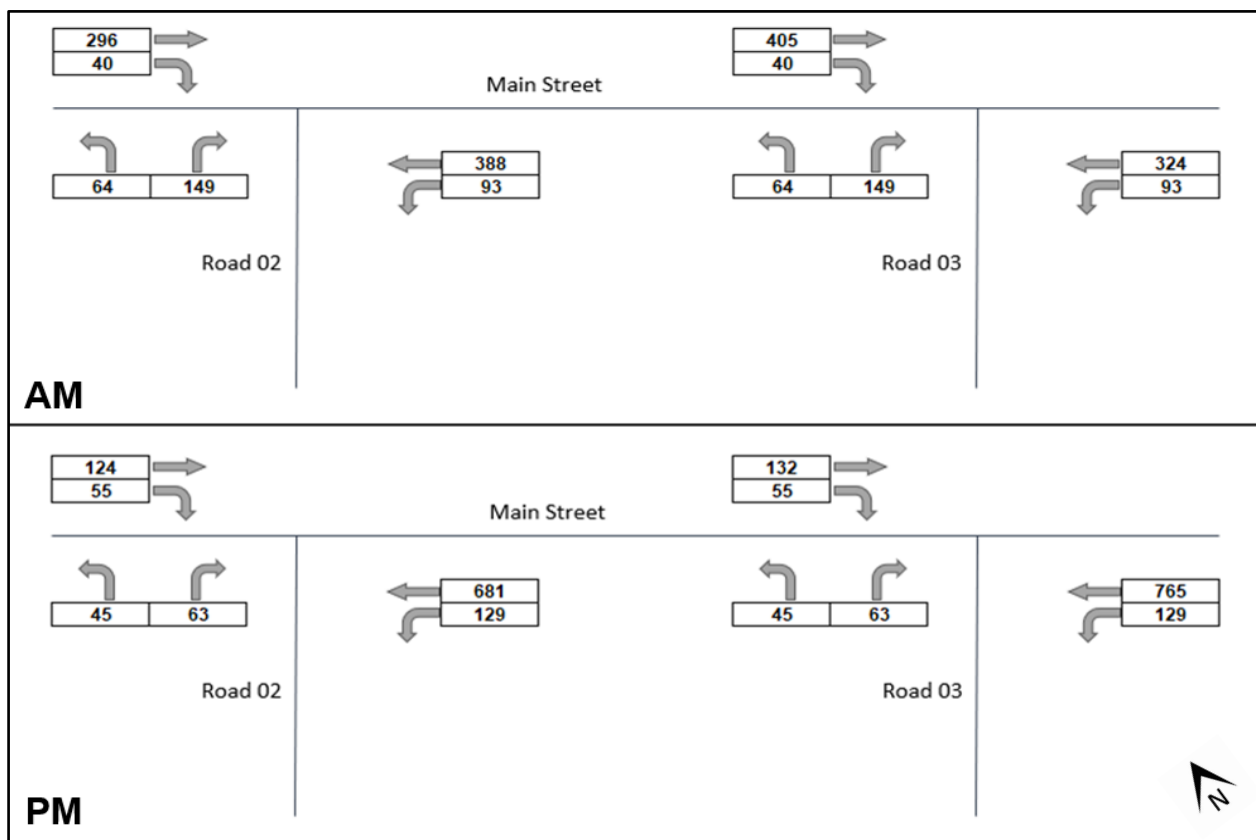


Figure 1: 2021 Traffic Volumes

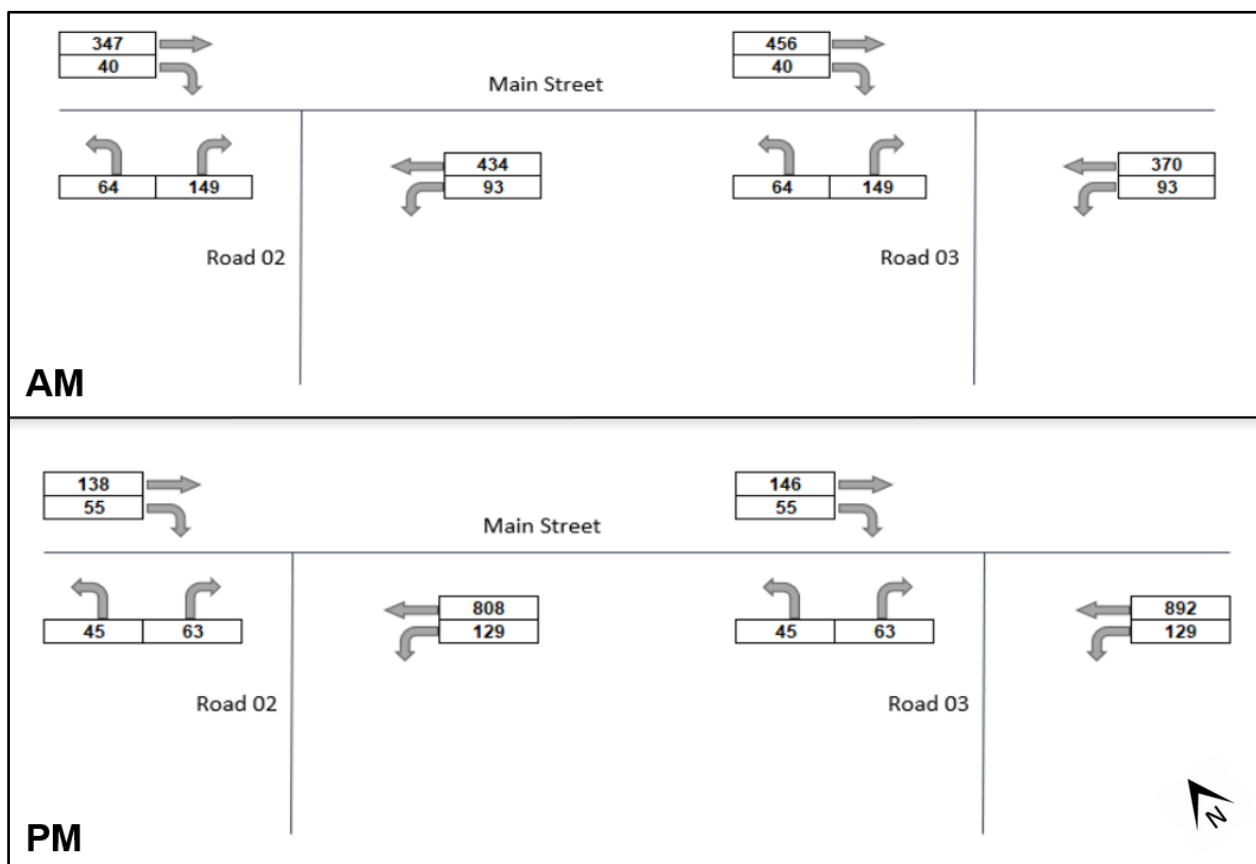


Figure 2: 2031 Traffic Volumes

With consideration of the above figures, the modelling was conducted, and the results are shown in **Table 1**.

Table 3: SIDRA Results

Intersection	Peak	Criteria	2021	2031
Main St / Road 02	AM	Delay	1.9	2.0
		LoS	A	A
	PM	Delay	1.9	2.3
		LoS	A	A
Main St / Road 03	AM	Delay	1.9	2.1
		LoS	A	A
	PM	Delay	2.1	2.7
		LoS	A	B

The results demonstrate that both intersections on Main Street will operate with acceptable levels of service under the future development scenarios for both the 2021 and 2031 horizon years. For clarity, this analysis also assumes the removal of the previously included left-in access from Epping Road.

Issue A5

Analyse Aimsun modelling outputs to summarise the overall road network performance comparing with and without the proposed development.

Response

Arup recommended utilising the Aimsun model to summarise the overall road network performance to produce the average time a vehicle spends on the network—taking into consideration unreleased vehicles. **Table 2** provides a summary of the analysis.

Table 4: Network Performance Summary

Item / Issue	Unit	AM Base	AM + Dev	Diff	PM Base	PM + Dev	Diff
Total Input Count	veh	78,279	80,358	2,079	80,463	82,391	1,928
Vehicles Waiting to Enter	veh	3	5	2	1	1	0
Total Travelled Distance	km	135,554	139,600	4,045	140,446	143,991	3,545
Total Travelling Time	h	5,357	6,180	823	6,385	7,190	805
Average Speed	km/h	25.3	22.6	-2.7	22	20	-2
Time per vehicle in network	min/veh	4.11	4.61	0.5	4.76	5.24	0.48

The results demonstrate that, with the provision of the new bridge connection, the average time spent on the network is not significantly greater than that under the 'future base' scenario. In fact, the average speed per vehicle reduces by only 2.7km/h in the AM Peak and 2km/h in the PM Peak, whilst the additional time per vehicle in the network is only 28–30 seconds.

Issue A6

Provide the proposed rates for bicycle parking for different land uses.

Response

A single bicycle parking space is proposed for each residential unit, ensuring sufficient provision for bike storage in accordance with City of Ryde Development Control Plan 2014. Bicycle parking will also be

provided for non-residential land uses at rates consistent with Council's DCP i.e. where the floor space exceeds 600m² GFA for each specific land use provide bicycle parking equivalent to 10% of the required car spaces or part thereof.

Additionally, other areas of key open space within Ivanhoe Estate will also have bicycle parking for leisure and recreational use.

Issue A7

Clarify if pre-loaded Opal cards are to be provided to all initial residents of the development or only Stage 1 residents.

Response

FPA has agreed to provide pre-loaded Opal cards to all initial residents of the proposed development.

Issue A8

Provide further details regarding operation of the proposed community bus.

Response

FPA has agreed to make the provision of the proposed community bus a condition of consent prior to issuing of an Occupation Certificate for the first building.

Subject to further negotiation with Council, it is proposed that a community bus be provided for use by the Ivanhoe Estate residents and employees travelling via a route that circulates through the Macquarie Park precinct. The bus would travel between the site, Macquarie Shopping Centre and Macquarie Park Metro Station, during morning and evening peak hours. The purpose of the bus is to improve the connectivity of the site with major trip generators and provide an alternate travel mode to walking. The bus will be free to all residents and employees within the site and managed by FPA.

Issue A9

As part of their submission for the Stage 1 SSD (8903), RMS have requested the dedication of land within the site boundary to allow for the potential future relocation of the Epping Road deceleration lane. Given the potential implications of this for the concept proposal, please provide a comprehensive response to this request.

It is understood that, following discussions relating to the environmental impacts associated with the proposed new left-in access from Epping Road, this infrastructure upgrade has now been removed from the Proposal.

Roads and Maritime Services (B)

Issue B1

Roads and Maritime will work with proponent (where possible) regarding traffic signal works at Ivanhoe Place & Herring Road intersection with Ivanhoe Estate Road Network development. However, if the intersection is to be signalised prior to the completion of Stage 1 works, then the proponent is to provide a U-turn facility within the site.

Response

Until such time that roads associated with future stages of the Ivanhoe Estate are constructed—at the completion of Stage 1C—a strategy has been developed to enable sufficient access and turning areas to accommodate the U-turn manoeuvre with the provision of turning heads at the end of the proposed north and south roads (Main Street and Neighbourhood Street) as shown in **Figure 3**, consistent with the RMS requirements.



Figure 3: Proposed Iterim U-turn Facility

Issue B2

The removal of U-turn facilities will have extensive impact in the road network. The subject U-turn facilities would improve general accessibility within the precinct. The Department should note that the subject U-turn facility was one of the main key issues raised by the community during Roads and Maritime's REF exhibition for BPIP project that includes signalisation of the intersection of Ivanhoe Place and Herring Road. Roads and Maritime requests provision and retention of U-turn facility to facilitate the safe and convenient travel.

Response

To date Ason Group and FPA have attended multiple meetings in relation to the removal of the existing roundabout at the intersection of Herring Road / Ivanhoe Place and the impacts of the proposed development on the surrounding road network. In particular, we refer to the meeting held with RMS, TfNSW, Department of Planning and the NSW Land and Housing Corporation on the 19th of June 2018.

The purpose of this meeting was to review the analysis undertaken by Ason Group on the impact of the removal of the existing roundabout to residents on the western side of Herring Road. A summary of the key items presented and agreed at this meeting are provided below:

- The impact to the residents on the western side of Herring Road between Epping Road and Saunders Place of will only impact inbound trips, generally in the PM Peak period.
- Surveys undertaken in 2016 and 2017 show a peak "U-turn" movement at the intersection of 41veh/hr, representing the number of trips that would be required to redistribute through the network should the roundabout be removed.

- Due to the turn restrictions in place at the intersection of the M2 Offramps and Talavera Road (no through movement), all effected movements currently must access Herring Road via Khartoum Road and or Waterloo Road.
- Google data for this movement demonstrated an average travel time for vehicles accessing the on the western side of Herring Road between Epping Road and Saunders Place movement of between 3–7min from the intersection of Talavera Road and Waterloo Road.

Noting the above, two possible travel routes are available through the design of the proposed road network to accommodate the impacted 40veh/hr:

1. Vehicles undertaken a U-turn movement making use of the internal road network, or
2. Vehicles use an alternate route of Byfield St – Lyonpark Road – Main St (via the proposed new bridge connection).

The travel times along these routes were subsequently modelled making use of the Aimsun model undertaken from the project. The travel times for these two routes is shown in **Figure 3**.

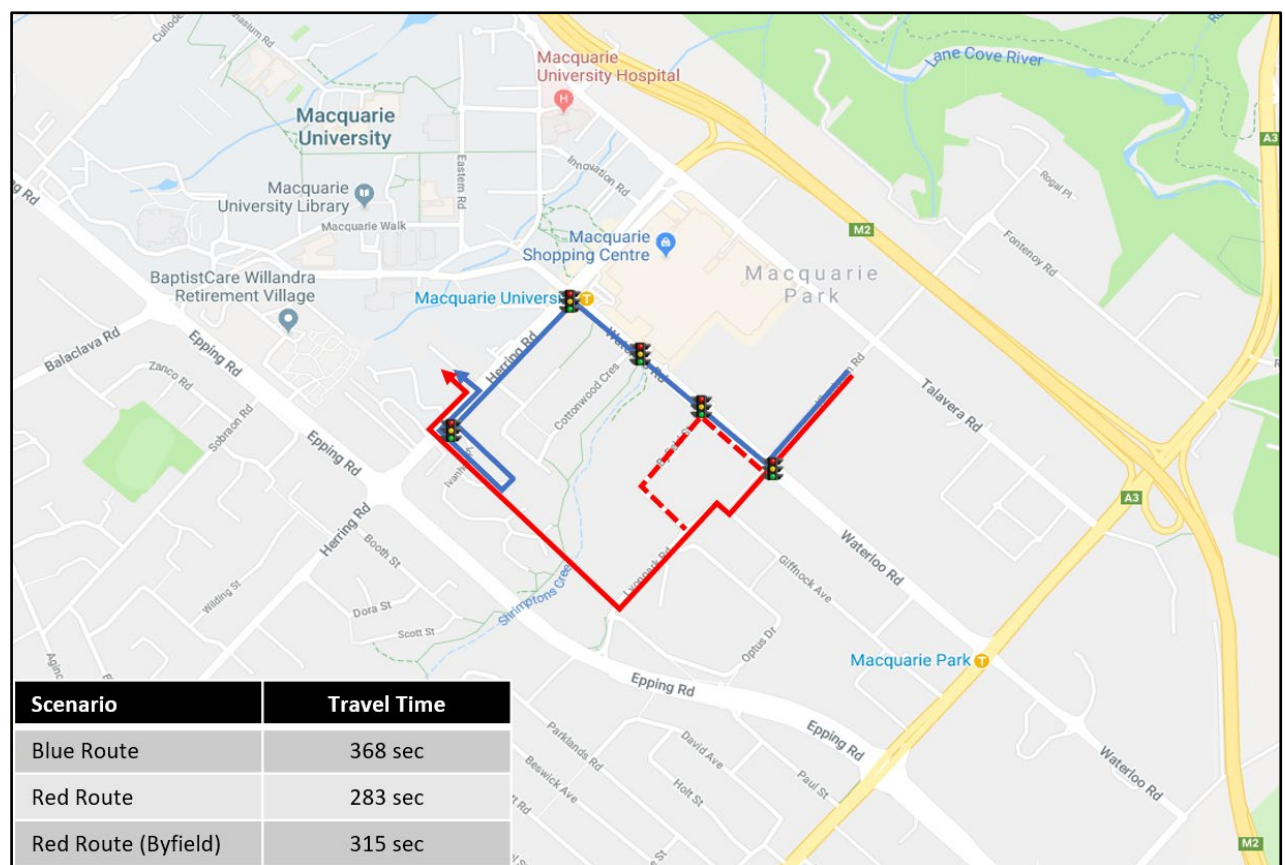


Figure 4: PM Peak Inbound RMS Base + Development Travel Times

The modelling demonstrates a travel time of between 4–6 minutes during the PM peak period. These travel times are consistent with the current travel times, recorded using Google travel time data. A copy of the presentation provided to the RMS is included at **Attachment A**.

Following the aforementioned meeting the RMS resolved that:

For Stage-2 (Ultimate) development: if a roundabout cannot be built then the U-turn movement facility will need to be provided within Ivanhoe Estate's local road network. It was mentioned in the submission that re-routing options throughout Macquarie Park would generate the travel time greater than 4 mins, which is not

acceptable. Therefore, travel time assessment of performing the U-turn by going round the Ivanhoe Estate block in the internal road network, should be included in further submission.

For Stage-1 Ivanhoe Estate development: a cul-se-sac turn head will need to be provided to allow U-turn movements and/or once Stage 2 BPIP works has been completed. The turn head shall be designed to allow for 8.8m service vehicle (Garbage Truck) to perform a U-turn to service Stage 1 development once it is open.

In due course, Roads and Maritime will be seeking in line with the Urban Activation Precinct for Herring Road, a full contribution for the development and implementation of the traffic signals at Herring Road/Ivanhoe Place intersection and partial contribution towards intersection upgrade works for the additional traffic demand from the Estate on Epping Road / Herring Road signalised intersection.

A copy of this correspondence is also provided in **Attachment B**.

Notwithstanding, two potential locations for the provision of a roundabout were identified within the site. The impacts on development yield as a consequence of the construction of a roundabout at these two locations was undertaken by FPA and summarised below:

- Location 1: loss of 98 Social ILU's, 52 social dwellings and 24 market dwellings = -174 dwellings
- Location 2: loss of 98 social ILU's and 48 market dwellings = -146 dwellings

This impact appears grossly disproportionate to the number of vehicles potentially affected particularly given it also results in longer travel times than that which would otherwise be achieved.

Transport for NSW (C)

Issue C1

The Applicant has stated that an agreement has been reached with Roads and Maritime whereby a contribution will be paid for the intersection works. DP&E should implement an appropriate condition accordingly.

Response

FPA has agreed and acknowledges that this will form one of the conditions of consent.

Issue C2

Future development approvals should include the requirement to provide Opal cards with a starting balance of \$20 for future occupants of all dwellings.

Response

FPA has agreed to provide pre-loaded Opal cards to all initial residents of the proposed development.

Issue C3

DP&E should ensure (through appropriate conditions of consent) that the staged development of the Ivanhoe Estate includes provisions for a cul-de-sac for the Stage 1 development and the construction of Main Street, as part of Stage 1 & 2, includes 3.5m travel lanes for buses.

Refer to the response to B1 above.

The design for Main Street (Road 1) has an allowance for 3.5m travel lanes for buses. Noting that this requirement contradicts Council's previous request for 3.0m wide travel lanes.

Finally, we trust the above information provides clarification and a greater appreciation of the issues identified in the revised responses to submissions. Please contact undersigned should you have any queries or require further information.

Yours sincerely,



Dan Budai

Senior Traffic Engineer – Ason Group

Email: dan.budai@asongroup.com.au

Attachments: A) Ason Group Travel Time Presentation
 B) RMS email RE: U-turn facility

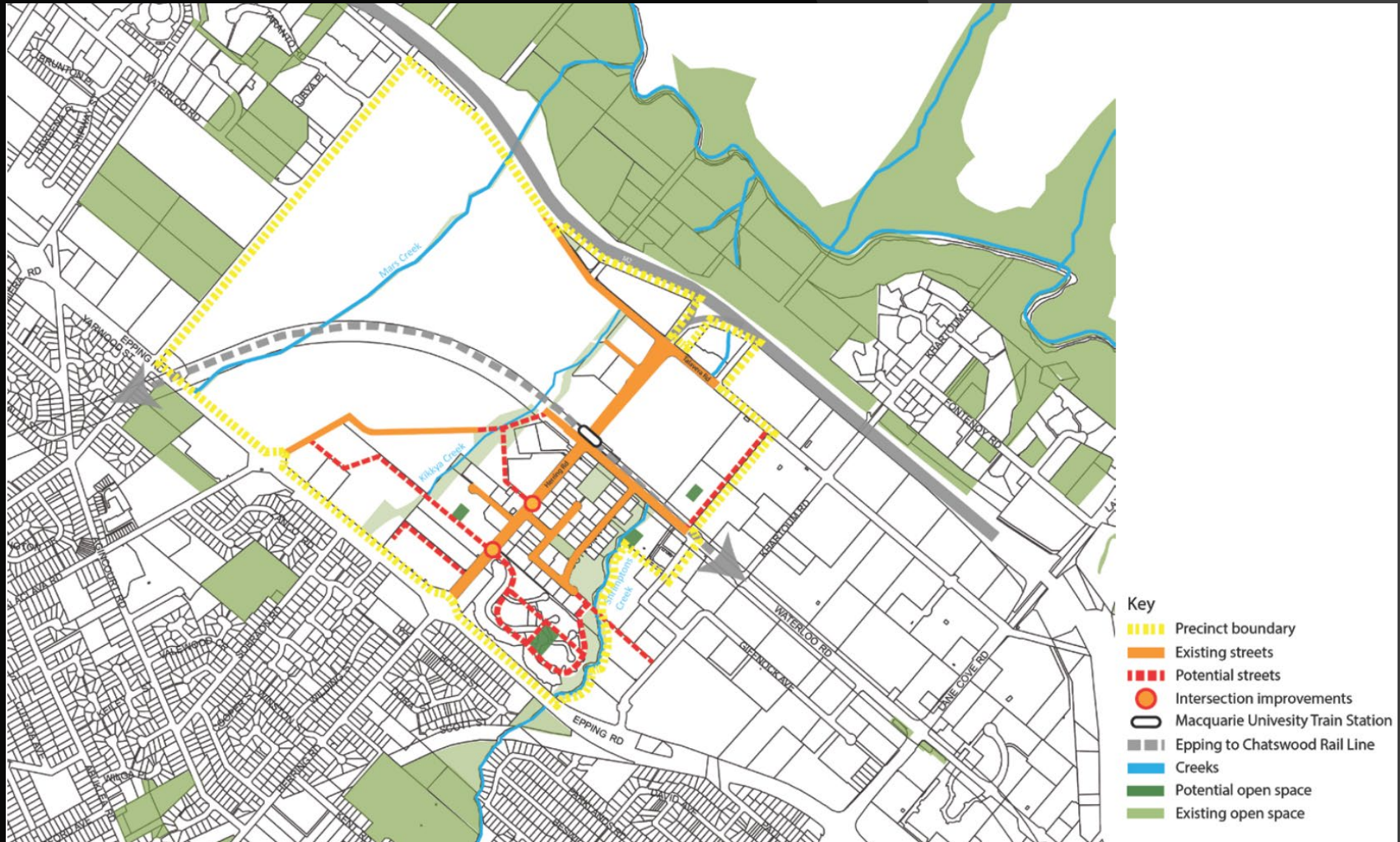
Attachment A

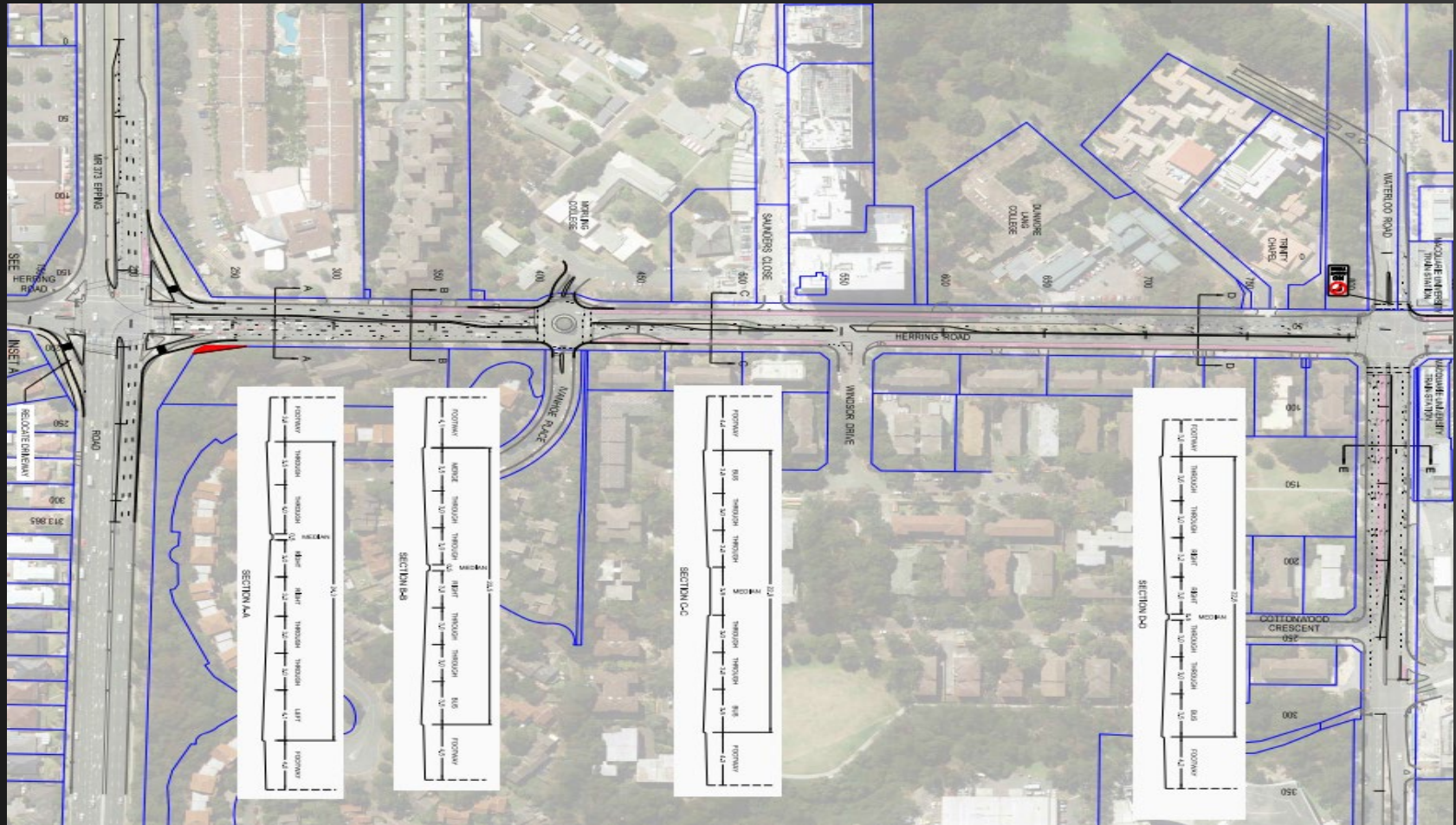
Ason Group Travel Time Presentation

P0421 – Ivanhoe Estate

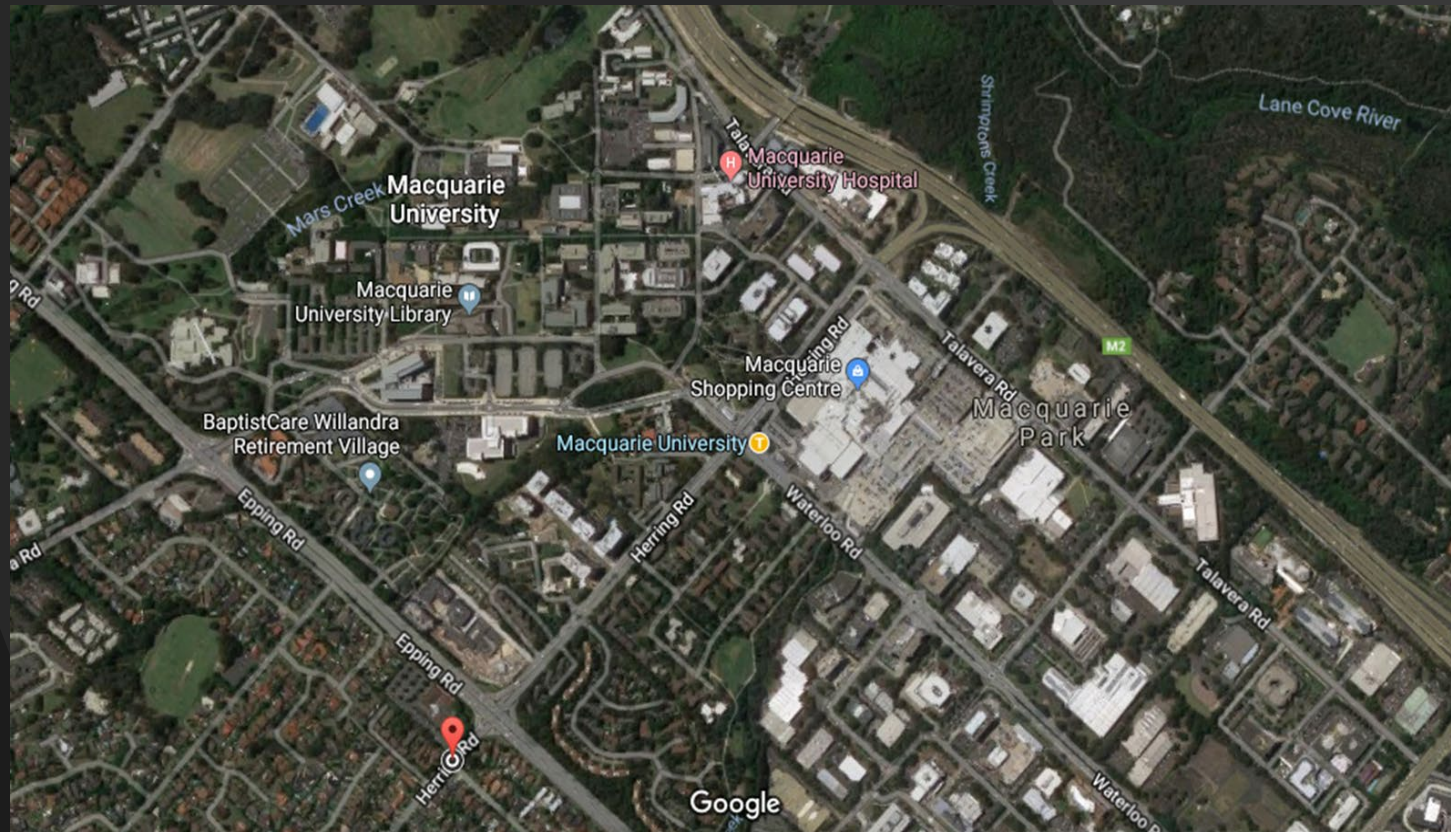
U-Turn Assessment

Herring Rd UAP Finalisation Report (May 2015)

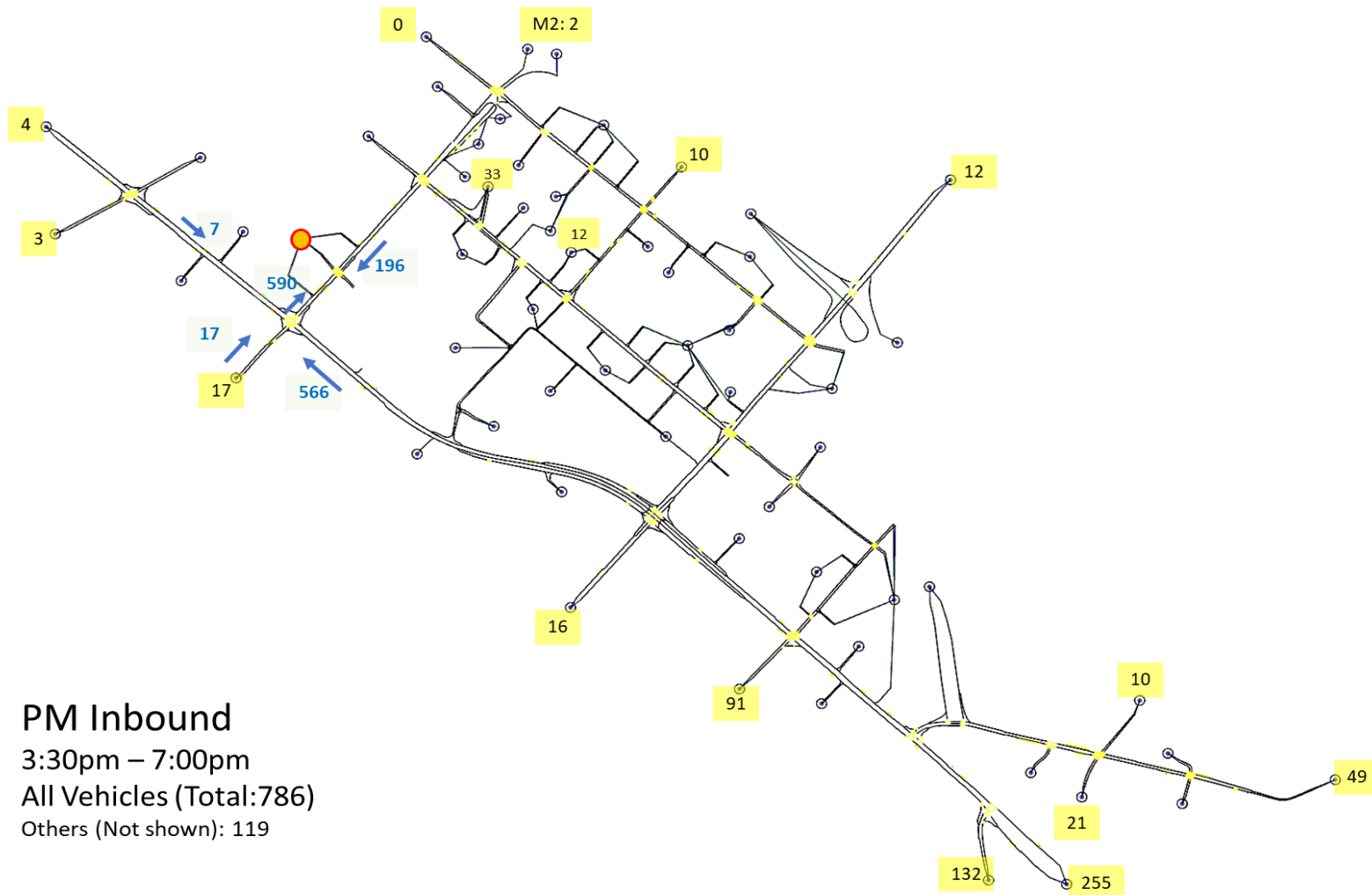




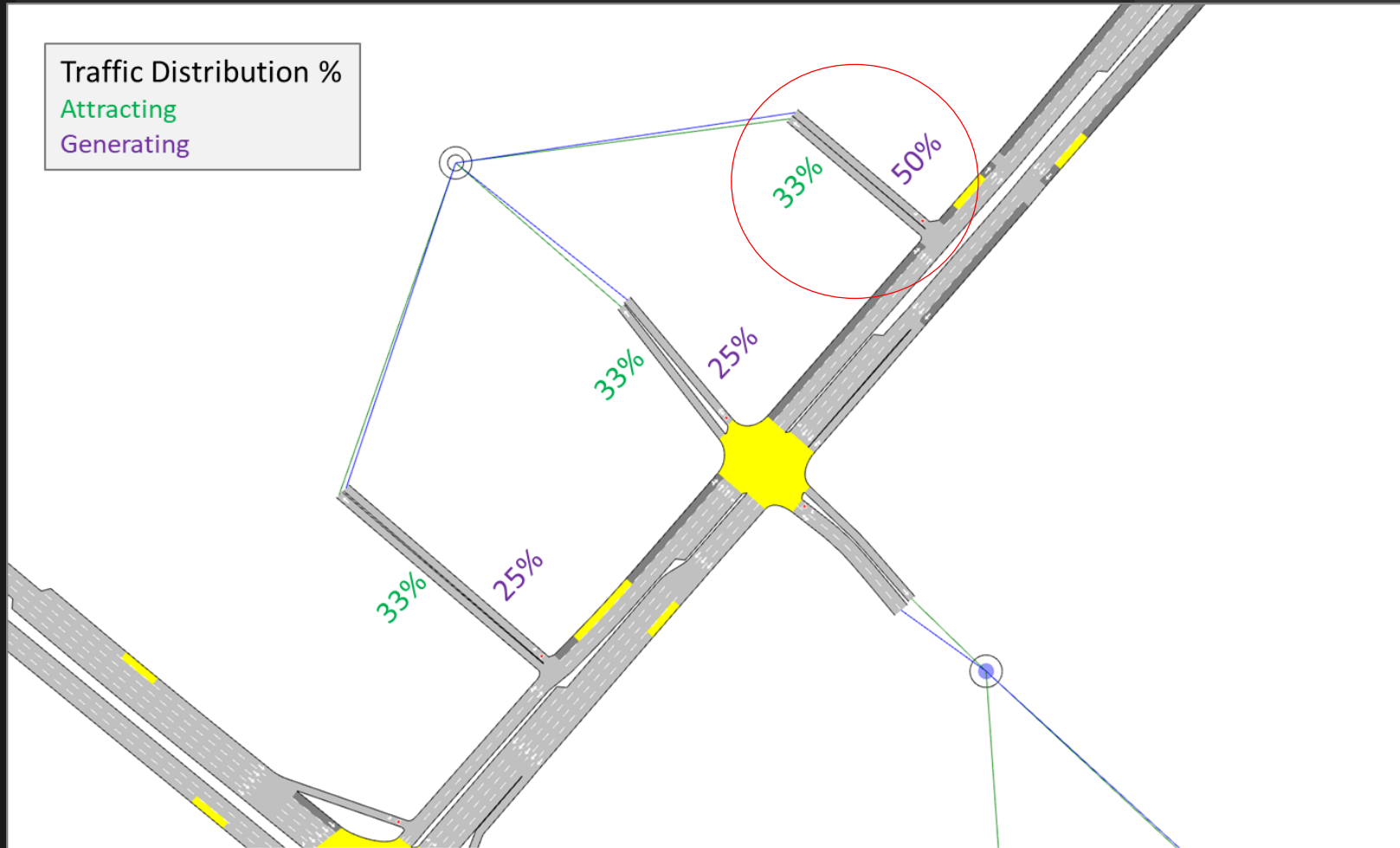
SUBMISSION NUMBER	RESPONDENT
8	Individual
9	Individual
10	Individual
11	Individual
18	Individual
44	Robert Menzies College
45	Individual
46	Individual
58	Dunmore Lang College
59	TOGA
60	Individual
62	Macquarie Baptist Church
63	Individual
67	Morling College Limited Baptist Union of NSW
72	City of Ryde Council
78	Individual



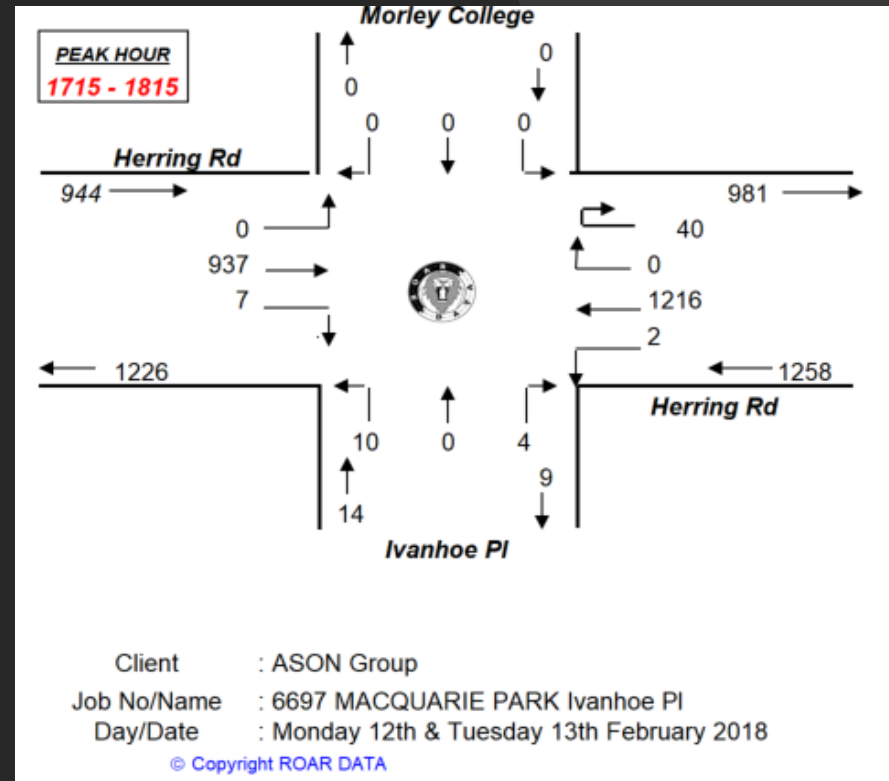
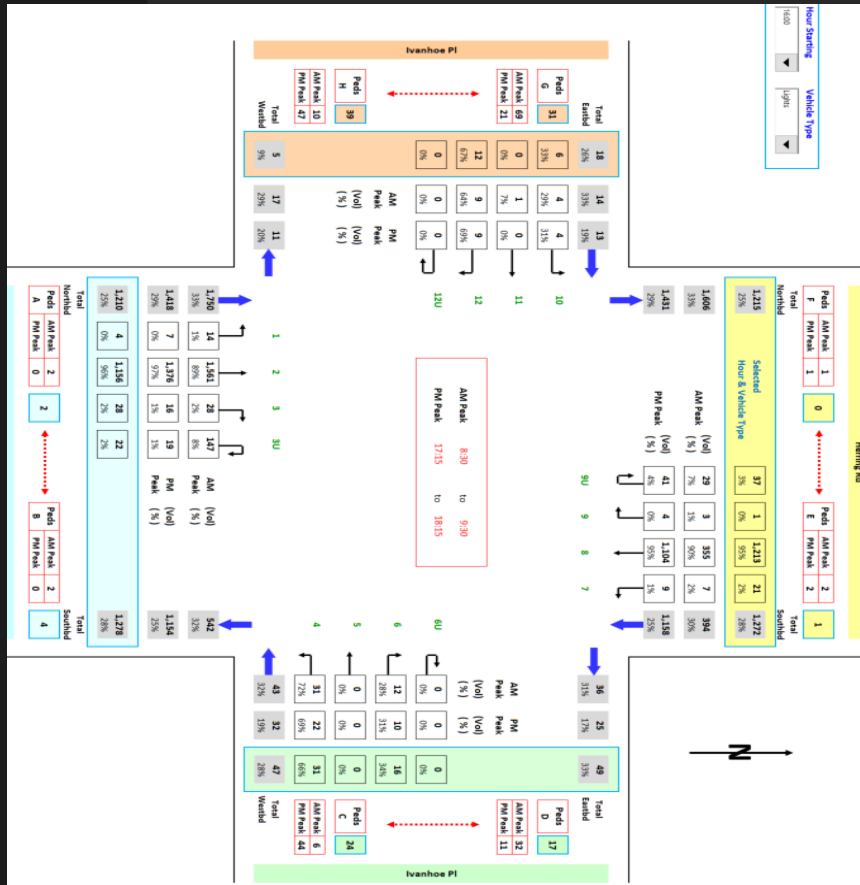
RMS BP Model Distribution (Total Vehicles)



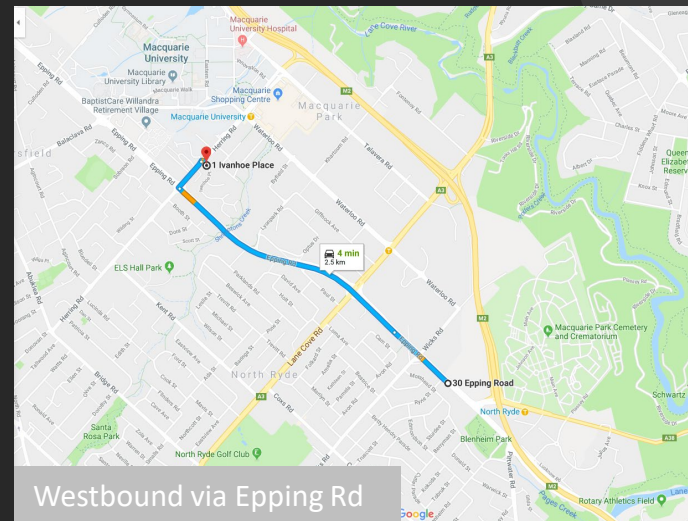
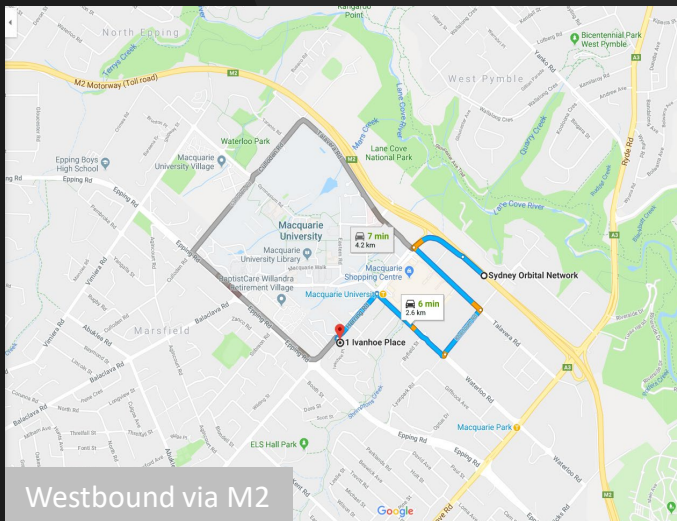
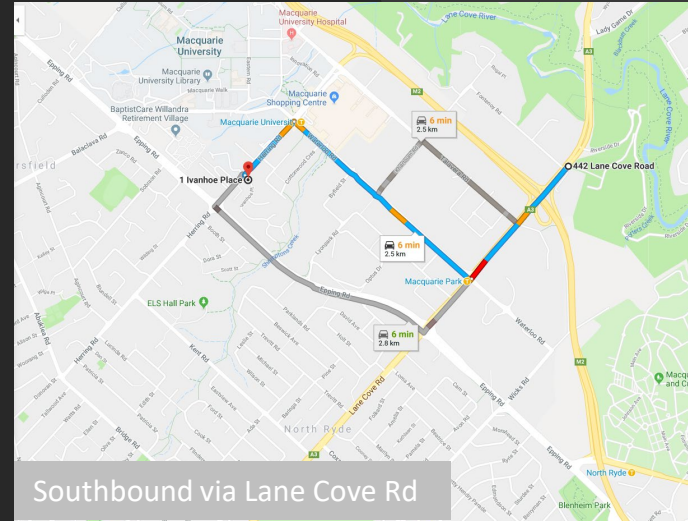
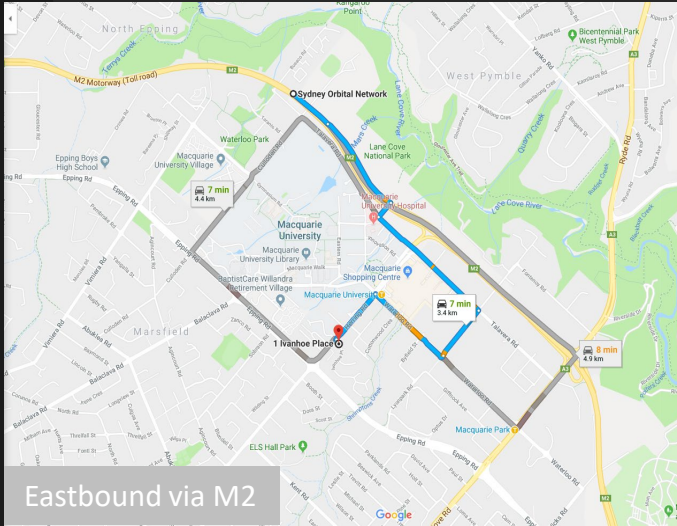
Distribution Assignment



RMS 2016 / Ason 2017 Counts



Available Travel Routes

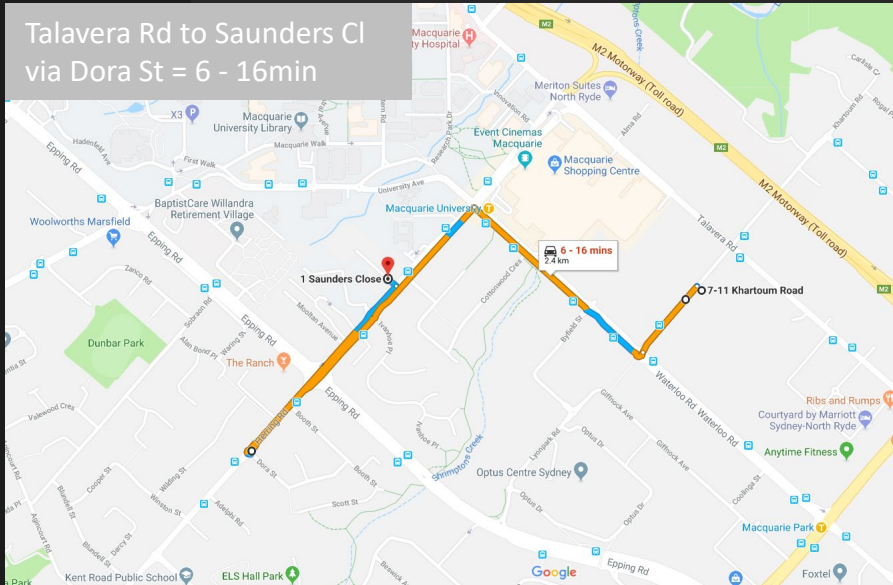


M2 / Talavera Rd Intersection

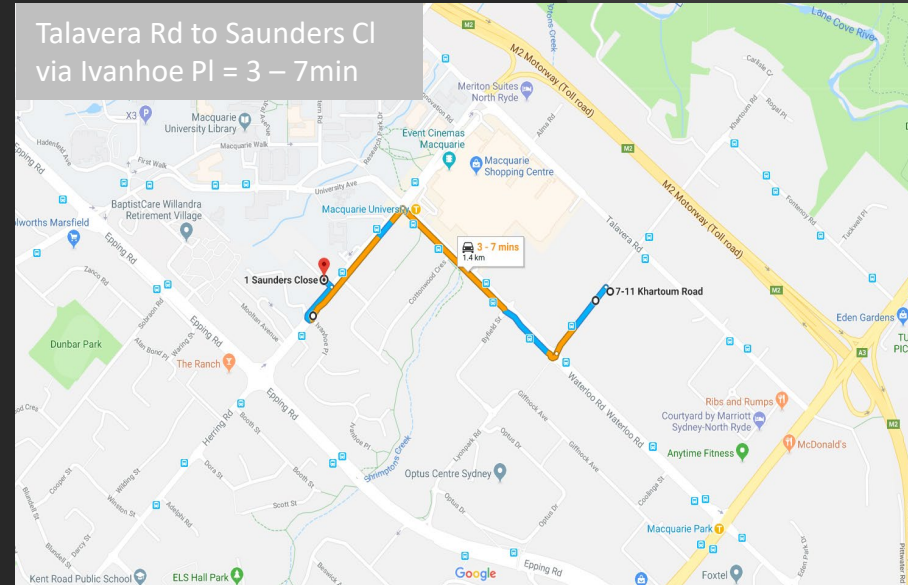


Existing PM Peak Travel Times

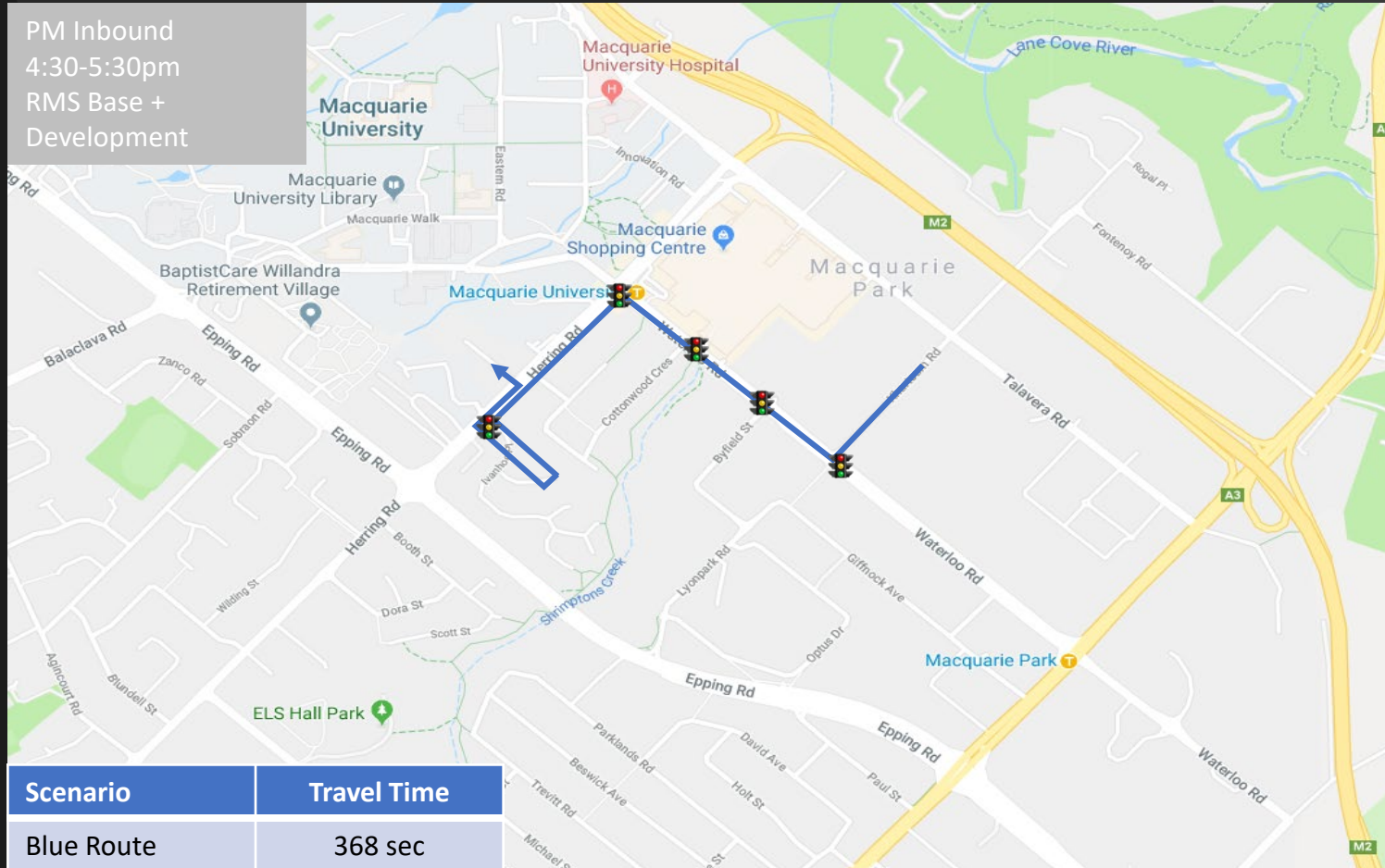
Talavera Rd to Saunders Cl
via Dora St = 6 - 16min



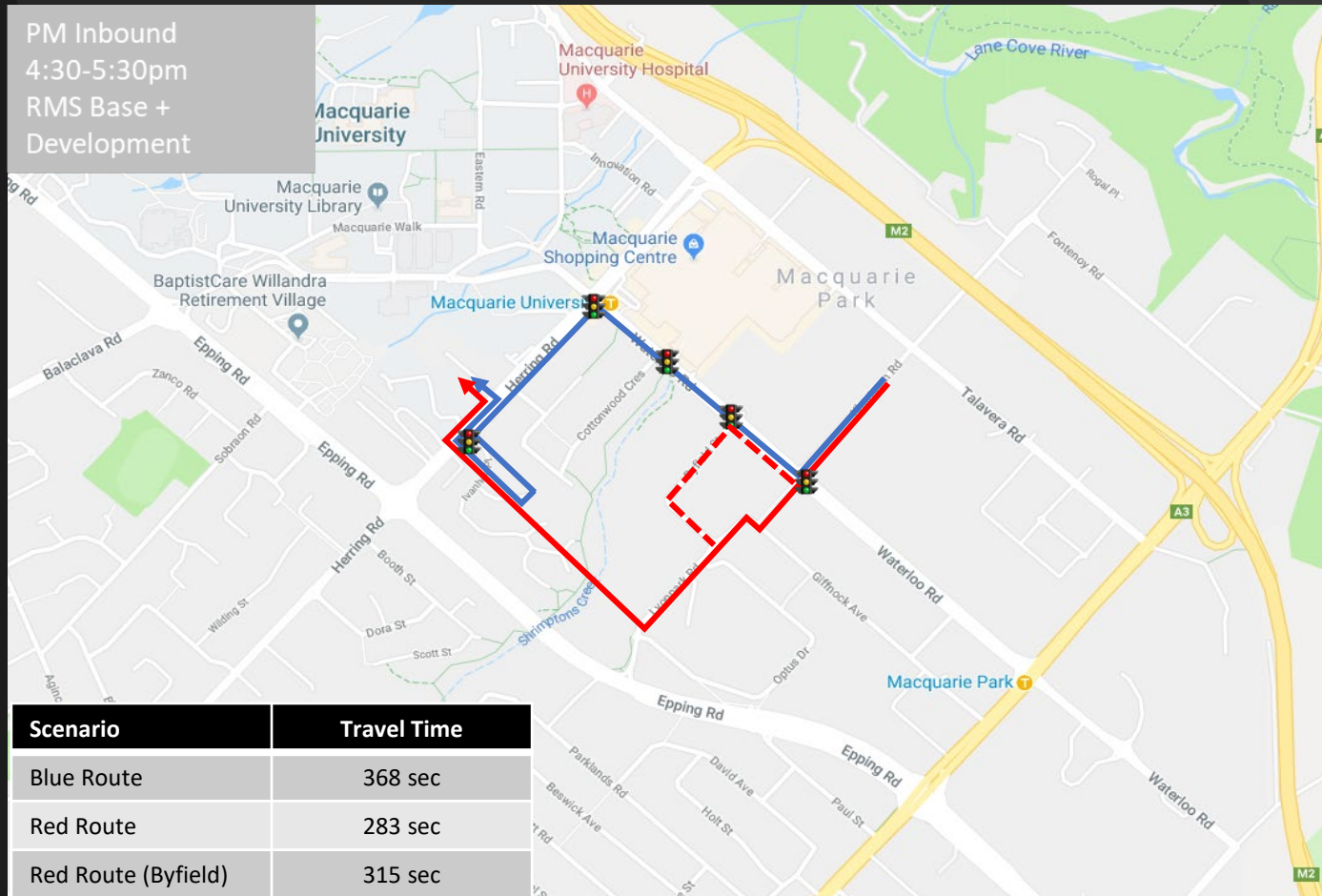
Talavera Rd to Saunders Cl
via Ivanhoe Pl = 3 - 7min



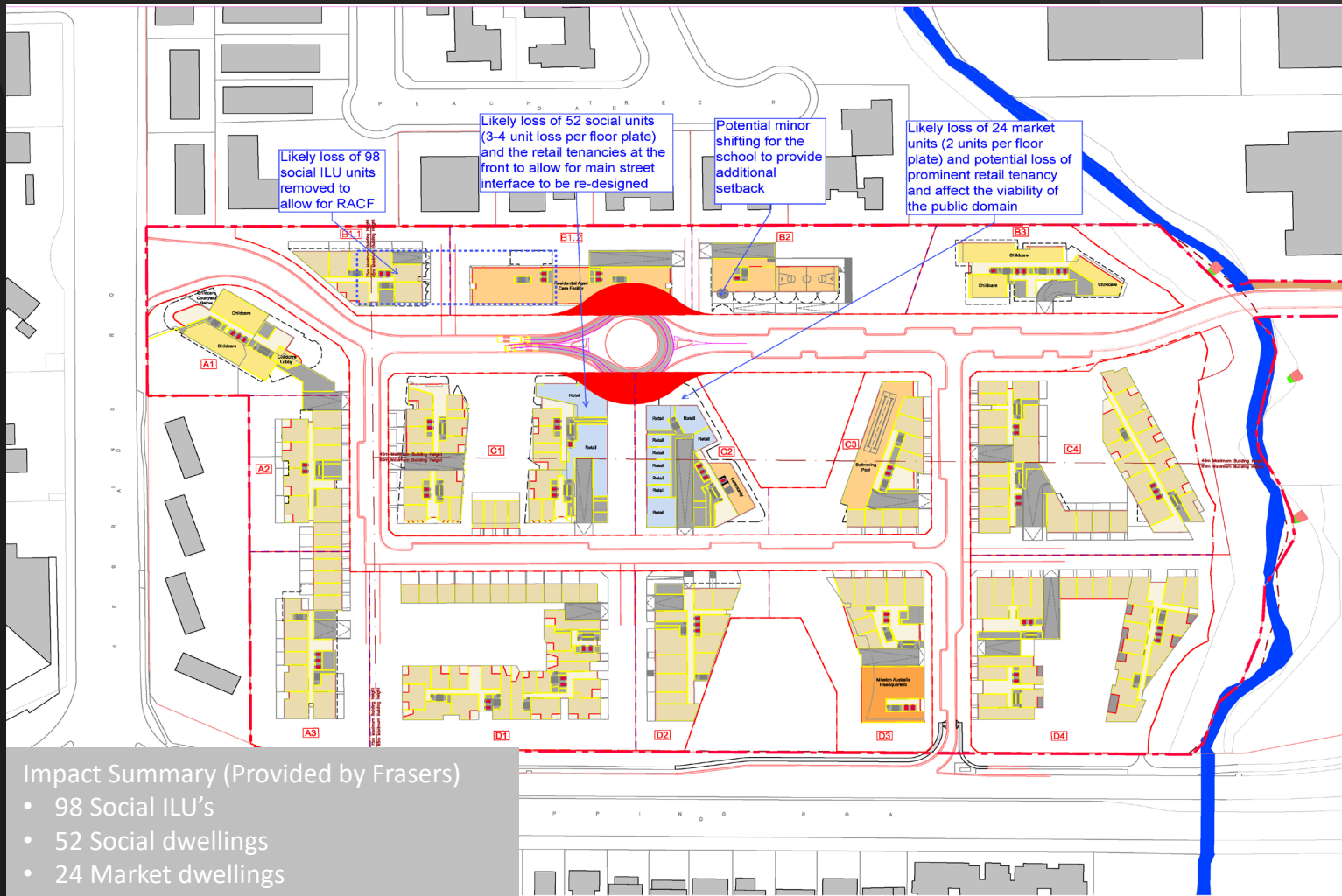
Travel Plan Trends



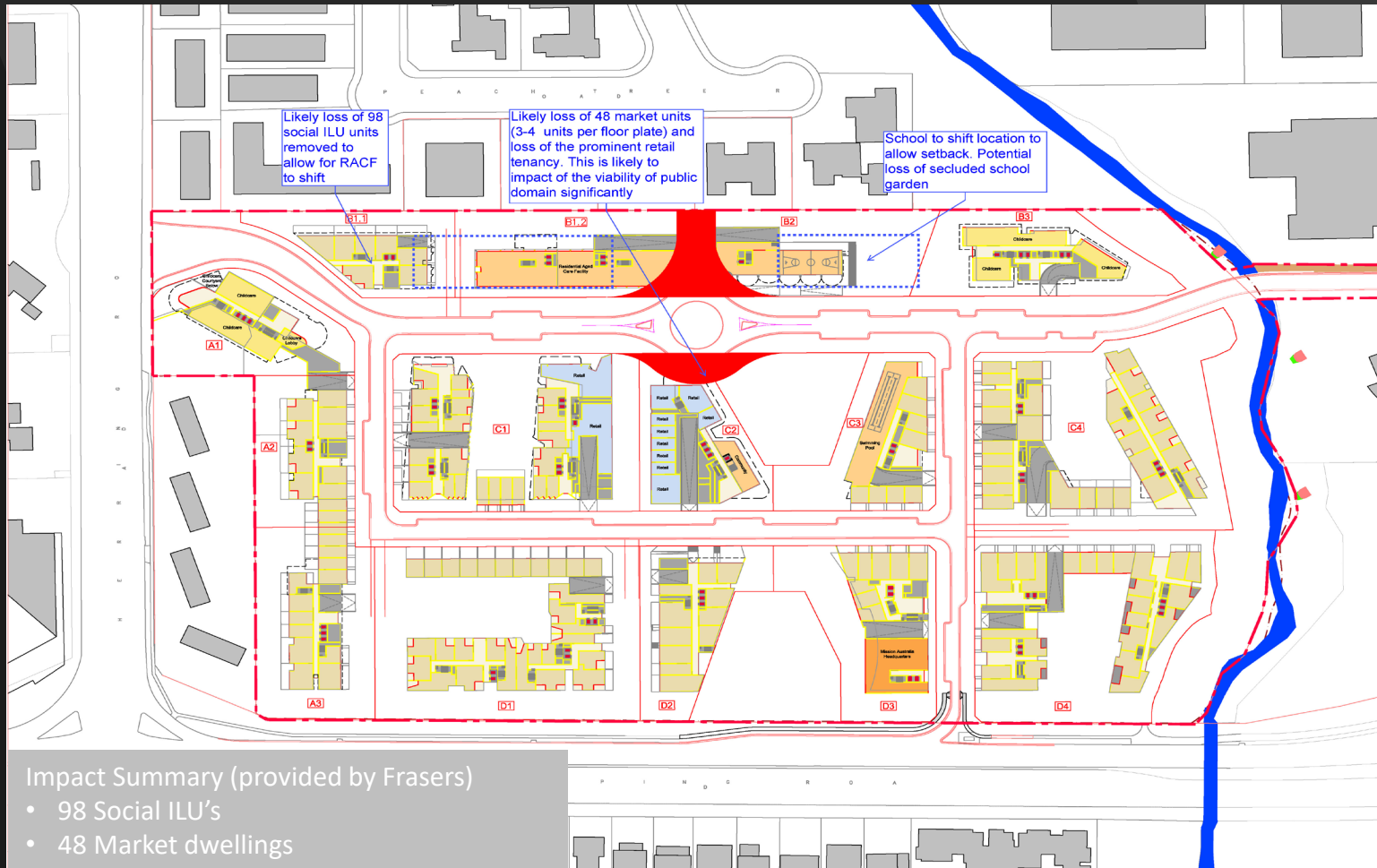
Travel Route Options



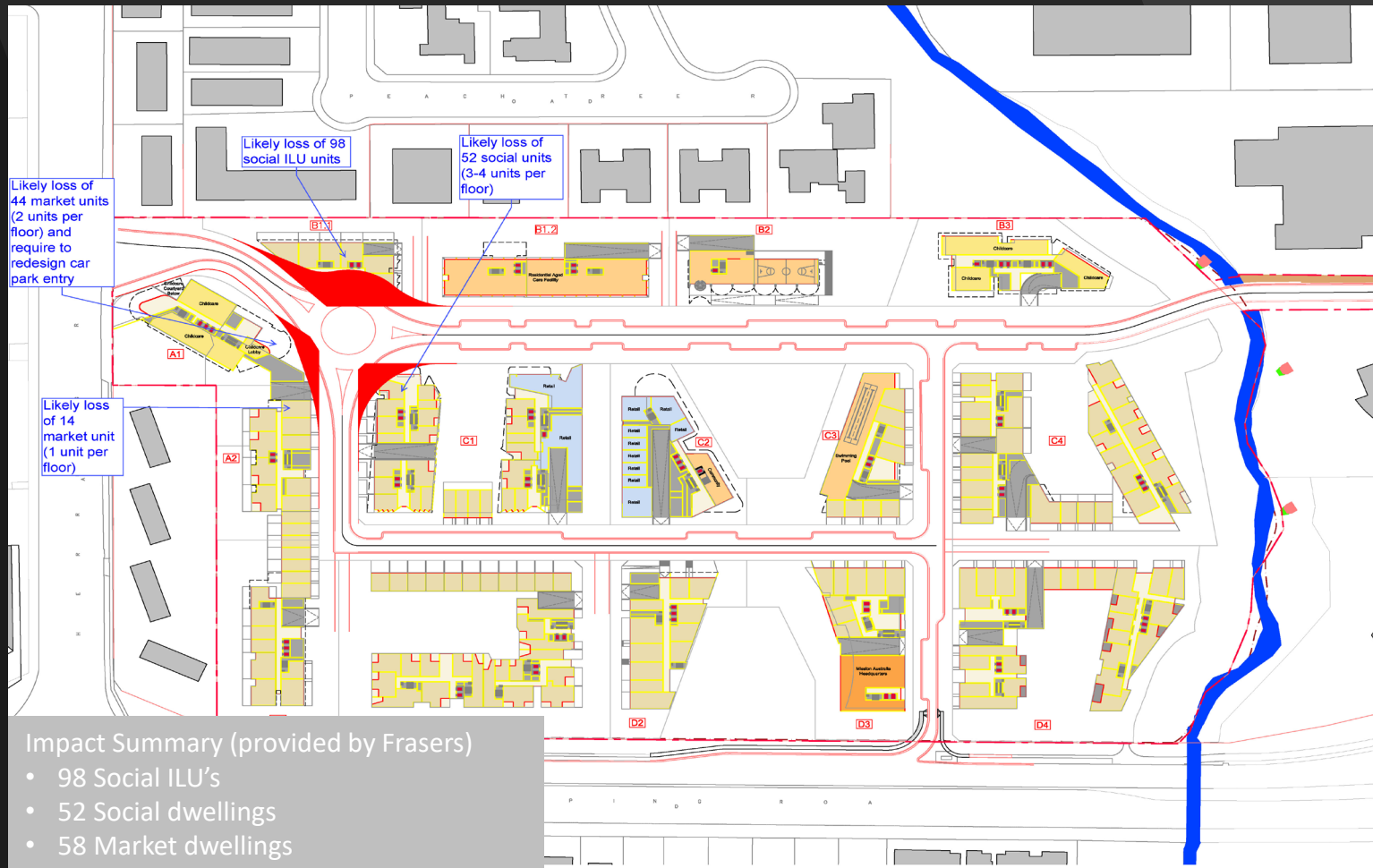
Roundabout Option 1



Roundabout Option 2



Roundabout Option 3



Stage 1 Road Network



Attachment B

RMS email RE: U-turn facility

From: [Andrew Johnson](#)
To: [Dan Budai](#)
Subject: FW: RMA response for SYD17/00415/04 - Ivanhoe Estate re-development at the Cnr of Herring Road & Ivanhoe Place in Macquarie Park. Proposed U-turn facility and funding for intersection upgrade works.
Date: Friday, 9 August 2019 8:35:46 AM
Importance: High

Regards

Andrew Johnson
Director | Ason Group

M: +61 402 228 301 | **T:** +61 2 9083 6601 | **E:** andrew.johnson@asongroup.com.au
A: Suite 5.02, Level 5, 1 Castlereagh Street, Sydney NSW 2000

From: AMIN Ahsanul <Ahsanul.AMIN@rms.nsw.gov.au>
Sent: Friday, 2 March 2018 4:08 PM
To: Andy Nixey <Andy.Nixey@planning.nsw.gov.au>; Andrew Johnson <andrew.johnson@asongroup.com.au>
Cc: THORPE Lindsay <Lindsay.THORPE@rms.nsw.gov.au>; HAMILTON Brad <Bradley.HAMILTON@rms.nsw.gov.au>
Subject: RMA response for SYD17/00415/04 - Ivanhoe Estate re-development at the Cnr of Herring Road & Ivanhoe Place in Macquarie Park. Proposed U-turn facility and funding for intersection upgrade works.
Importance: High

Dear Andy/Andrew,

Refer to our meeting on 21 February 2018 at DP&E Office regarding the above mentioned development application in Ivanhoe Place, Macquarie Park and further discussion on U-turn facility with in the Estate and advise as follows.

Roads and Maritime has agreed with the proposed cul-de-sac or turn head part of Stage-1 development subject to the following conditions:

- For Stage-2 (Ultimate) development: if a roundabout cannot be built then the U-turn movement facility will need to be provided within Ivanhoe Estate's local road network. It was mentioned in the submission that re-routing options throughout Macquarie Park would generate the travel time greater than 4 mins, which is not acceptable. Therefore, travel time assessment of performing the U-turn by going round the Ivanhoe Estate block in the internal road network, should be included in further submission.
- For Stage-1 Ivanhoe Estate development: a cul-se-sac turn head will need to be provided to allow U-turn movements and/or once Stage 2 BPIP works has been completed. The turn head shall be designed to allow for 8.8m service vehicle (Garbage Truck) to perform a U-turn to service Stage 1 development once it is open.
- In due course, Roads and Maritime will be seeking in line with the Urban Activation Precinct for Herring Road, a full contribution for the development and implementation of the traffic signals at Herring Road/Ivanhoe Place intersection

and partial contribution towards intersection upgrade works for the additional traffic demand from the Estate on Epping Road / Herring Road signalised intersection.

Should you have any further enquiries regarding the above please do not hesitate to contact me on 02-8849 2762 during business hours or e-mail at development.sydney@rms.nsw.gov.au.

Kind regards,

Ahsanul Amin
A/Senior Land Use Planner
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Every journey matters

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