30 November 2020

TfNSW Reference: SYD19/00599
Council Ref: 2017SWC141
PP_2019_CUMB_002_00

Planning Panels Secretariat
Locked Bag 5022
Parramatta NSW 2124

Attention: Suzie Jattan

Dear Ms Jattan,

INTERIM RESPONSE TO SUBMISSION - PLANNING PROPOSAL FOR 1 CRESCENT STREET, HOLROYD

Transport for NSW (TfNSW) appreciates the opportunity to provide comment on the Interim Response to Submissions (RtS) report for the planning proposal at 1 Crescent Street, Holroyd (dated 30 October 2020).

It is noted the interim RtS report submitted focusses on the threshold traffic considerations and includes a traffic response which is accompanied by a preliminary peer review.

It is noted the proponent has requested that TfNSW review the parts of the interim RtS report relevant to traffic capacity modelling, with the aim of reaching a consensus on the traffic capacity of the surrounding network and the proposed development yield.

TfNSW has reviewed the submitted documentation and advises that the Transport Impact Assessment Addendum and traffic modelling needs to be revised to accurately reflect the potential impacts from the proposal, and ensure that any improvements from the proposed upgrades by TfNSW are not adversely diminished as a result of the land use mix and yield proposed.

TfNSW has provided detailed comments to be addressed in the Transport Impact Assessment and traffic modelling at **Attachment A.**

We advise that TfNSW is scheduled to meet with Department of Planning, Industry and Environment (DPIE) & the proponent on Monday 30 November 2020 with the aim to discuss our comments on the matters/issues yet to be resolved.

If you have any questions or further enquiries in relation to this matter, Ilyas Karaman would be pleased to take your call on 0447 212 764 or email: development.sydney@transport.nsw.gov.au

Yours sincerely

Colin Langford
Director, Land Use, Networks & Development
Greater Sydney Division

Attachment A: TfNSW Detailed Comments on the TIA Addendum (dated 30 October 2020) for the Planning Proposal at 1 Crescent Street, Holroyd

TfNSW provides the following comments to be addressed in a revised Transport Impact Assessment (TIA) with traffic modelling, for further consideration.

TfNSW reiterates, the revised TIA should accurately reflect the potential impacts from the proposal and ensure that any improvements from the proposed upgrades by TfNSW are not diminished as a result of the proposal.

Transport Impact Assessment (TIA)

The TIA Addendum findings (Traffic modelling)

Noted TfNSW previous comments relating to the 2 items below have been addressed below:

i. The main Interim RTS report indicates that the modelling has been updated to incorporate the correct design layout for the latest design upgrades at the intersection of Woodville Road/ Parramatta Road/Church Street.

ii. The revised Aimsun modelling assessment compares 2031 With Development scenarios to 2031 Without Development scenarios, which both now include the proposed TfNSW upgrades has been addressed in the latest Aimsun modelling.

General Comment

It is considered that the TIA Addendum in its current form lacks the level of detail required to determine whether individual intersection movements would be significantly impacted by the proposed development.

Recommendation

It is recommended the TIA Addendum be specifically revised to address the issues raised in the **Table 1** below, which will provide a more informed assessment of the individual intersection movements against any potential impacts arising from the planning proposal.

Table 1: The review of the TIA Addendum:

Addendum Section	Comment
Passer-by Trips (page7)	An assumption that 28% of trips accessing the development's retail uses would be "passer-by trips" has been reiterated in the report – that is, 28% of the retail trips are assumed to already travel along The Crescent during the peak hours and will not impact intersections other than the site access. Given the site's location in close proximity to primary network routes (Woodville Rd, Parramatta Rd, M4), 28% is considered to be optimistic. Austroads suggests a figure of 28% as an indication of potential passer-by trips, but this assumption should be reviewed to reflect individual site locations and travel patterns. Recommend a review of this assumption in relation to travel patterns, distributions and volumes on the surrounding road network.

Traffic Distribution (page 9)	An arrival/ departure split of 50% has been assumed for commercial (office) and retail uses in both peak hours. This assumption does not seem appropriate for office uses – an arrival/ departure split of 75%/ 25% in the AM (reverse in the PM) is more typical. Adopting a 50/ 50 split for office uses may be underestimating traffic impact on the surrounding network.
Page 21 and Page 22, Table 6: SCT Intersection Performance	Noted, whilst not a State Road, it is stated on page 21 that "the poor performance at the Pitt Street and Neil Street intersection is not associated with the proposed development". In Table 6 on Page 23, the outputs show that with development traffic added to the network, overall delay increases at that intersection by 16 seconds (LOS E to LOS F) in the AM and by 30 seconds in the PM. This indicates that the development traffic has a notable impact on operation at the intersection. The Addendum report presents intersection SIDRA outputs at the overall intersection level and does not indicate whether any particular intersection movements are impacted by the development traffic. The TIA could be supplemented by analyses at movement level, to confirm if any key movements are being significantly impacted in terms of delay and queuing.
TTPP Aimsun Modelling Tables 7 and 8 (page 23)	Tables 7 and 8 would benefit from having outputs broken down into individual turn movements, and including average maximum queue length outputs by turn movement. At present, it is not possible to determine from the outputs whether any particular intersection movement is significantly impacted or whether queues from any turn movement extend to adjacent intersections. In some instances, intersection approach delays decrease in the 2031 with Development scenario compared to the 2031 Future scenario – no explanation appears to be provided in the report to justify this change. For example, in the AM peak the M4 Motorway exit ramp approach at Church Street has a delay reduction of nearly 50 seconds compared to the 2031 Future scenario.
Aimsun Modelling Results memo: Travel time outputs	Minimal discussion has been provided in the memo in regard to travel time outputs and comparisons between the 2031 Future and 2031 with Development scenarios in terms of development impact. In the PM peak, the following results would warrant further explanation: - Travel times along southbound Church St reduce significantly in the 2031 with Development scenarios – this seems counter-intuitive given the development adds traffic to the network. - Travel times westbound appear to increase by around one minute from Bold St onwards in the 2031 with Development scenario – what is the reason for this impact? There appears to be no discussion in the report while these outputs seem to indicate that there are operational impacts. The travel time outputs have been provided as cumulative travel times along each route. By presenting the outputs in this way, it can be difficult to pinpoint impacts along individual route sections. It is recommended that the travel time outputs are also tabulated by individual section, as well as cumulatively. To better understand overall network operation, separate simulated density and delay plots could be provided from the Aimsun models in 15 minute intervals during the peak hours to illustrate differences in network congestion in the 2031 scenarios.

Traffic modelling

The revised Aimsun & SIDRA modelling undertaken to support the Planning Proposal has been assessed by TfNSW and we note the following matters to be addressed below:

General Comments

There are a number of key issues, which make the overall assessment incomplete and unclear. The issues raised on the Aimsun and SIDRA modelling are considered to be major with regards to their significance, hence the modelling as provided is not considered to be fit for purpose.

A summary of the key issues are provided below with detailed comments provided in **Attachment B:**

- The model development report requires additional analysis and details to justify the model appropriateness.
- The reporting is lacking information on how the development demands have been applied to the Aimsun model. In addition, there are some inconsistencies for example: total demands difference in 2031 base and 2031 development scenarios, adopted traffic distribution, etc.
- The adopted vehicle actuated signal control in the development scenarios is inconsistent with the future base scenario, which uses fixed time signal controls. This makes a comparison of results difficult to analyse.
- The development scenario results show some illogical patterns. For example, travel time results are not in line with the intersection LOS results.
- The reporting focuses on travel times and intersection LOS but lacks results that outline potential impacts of the development on the wider transport network performance – average speed, VHT, VKT, etc. Further, the assessment lacks a discussion/explanation of the results, in particular those that may appear counter intuitive on face value e.g. improved travel times despite increased in traffic demands.

Recommendation

It is recommended that the Aimsun and SIDRA Modelling be revised so that the inconsistencies and the above issues are adequately addressed. Refer to **Attachment B** for specific modelling issues to be addressed.

Issues

Trip Generation Assumptions

a) Engagement and Communications Outcomes Report:

i. The statement in the report (page 11):

"Given the proximity to a number of bus routes and rail stations, it is expected residents will utilise these services available to them."

Comment

Such an assertion should be supported by an analysis of the availability of spare capacity on local bus services and train services, and an assessment of their ability to absorb additional demand. Furthermore, the nearby train stations are a reasonable

distance from the development site, and accessing both Parramatta and Harris Park stations involves crossing highly trafficked arterial roads.

ii. Are there any plans in place to set firm public transport (PT) utilisation targets, monitor PT usage, and develop remedial plans, should the targets not be met?

iii. Will the above PT issues be included in the Green Traffic Plan which is to be "produced at DA stage? [Engagement and Communications Outcomes Report, page 11]

b) TTPP Memorandum dated 30 Oct 2020:

iv. The residential car trip generation rates of 0.29 trips/unit for both AM and PM peaks as outlined in the TTPP Memorandum is considered appropriate.

v. The retail trip generation rates have been drawn from a 2018 study of small suburban shopping centres (11 in Sydney, 9 regional). That study found that the 3 of the Sydney sites with less than 2000m^2 GLFA have much higher trip rates, so these were correctly excluded from the present analysis since the development is proposing a retail site of 5627m^2 GLFA. An average value derived from the remaining 8 sites was used.
The shopping centre field surveys were conducted over 4 days, and the results tabulated as "Wed/Thurs", "Fri", Sat" and "Sun". It is noted that the rates used in the modelling were drawn from the "Wed/Thurs" results (i.e. 7.84 AM; 10.77 PM). However, higher average rates were observed on Friday (8.41 AM; 10.79 PM), Saturday (11.71) and Sunday (11.51). It is recommended that consideration be given to modelling higher trip generation rates for retail.

vi. The proposed 10% reduction in retail trips to account for internal trips is considered appropriate.

vii. The office trip generation rates utilised were 1.6 car trips per 100m^2 (AM) and 1.2 car trips per 100m^2 (PM). These values were as suggested in TDT 2013/04a, although the Technical Direction also notes that most of the surveyed sites had access to the rail network. One of those surveyed sites that was not near a rail station (Norwest; surveyed prior to NW Metro opening) showed a much higher AM car trip generation rate of 2.75 (but a comparable PM rate of 1.17). Given the poor accessibility of the development site to the 3 nearest rail stations, the use of a slightly higher AM trip rate should be further considered.

viii. The proposed 5% reduction in office trips to account for internal trips is considered appropriate.

ix. The adjustments for retail undiverted and diverted drop-in trips are according to the Austroads AGTM Guide Pt 12. It is recommended that given this particular site with its relatively difficult access from Woodville Rd, consideration should be given to adopting slightly lower rates.

Recommendation

The above comments related to trip generation assumptions yet to be addressed, should be revised accordingly.

Suitability of the proposed B4 Zone

Comment

It is noted that RtS (p18) "*The capacity of the site to accommodate a mixed use development, including a certain quantum of retail floor space will be determined once*

an understanding is reached with TfNSW on the traffic capacity of the surrounding road network and intersections is obtained."

Recommendation

TfNSW would welcome further discussions on the proposed retail floor space to be determined having regard to TfNSW feedback on the traffic capacity of the surrounding road network and intersections. Noting that the proposed retail component does contribute to the high traffic generation from the site.

Active Transport Considerations

Comment

Future Transport 2056 emphasises the importance of walking and cycling for short trips and reinforces the importance of walking and cycling to increase the catchment of public transport as part of the whole customer journey.

Building Momentum - State Infrastructure Strategy 2018-2038 includes recommendations related to walking and cycling, including integrating transport with land use; managing travel demand; unlocking capacity in existing assets; and improving population health outcomes through more active transport.

As TfNSW has responded previously, the location of the proposed development is isolated from all modes of public transport. Access to the nearest bus and train networks are considered to be beyond industry standards (maximum walking distance of 400m to a bus top, and 800m to a train station). Direct walk pathway mapping shows the closest railway station (Harris Park) is between 880 and 900m away, while the closest bus stop is 450m away (Woodville Road, 907 bus route).

Pedestrian priority and amenity is poor surrounding the development, most of the footpaths are narrow, are directly next to high volume traffic with no protection and lack of pedestrian priority at crossings.

The planning proposal does not provide any details, timing, or firm commitments to improve pedestrian connectivity to and from the site to encourage the mode shift to public transport. Whilst the Planning Proposal does recommend improving the pedestrian connectivity across Woodville Road to improve the connectivity and safe access to Granville Station, there is no commitment by the proponent to provide this improvement.

Recommendation

TfNSW requests that the revised TIA Addendum and the revised planning proposal provide adequate information with regard to details, timing, and firm commitments to improve pedestrian connectivity to and from the site for the purpose of encouraging the mode shift to public transport.

Future Road Reservation acquisition

Comment

It is noted in the RtS (p20) that the proponent will address the redesign of the development concept to accommodate this reservation once in-principle agreement is established in relation to the traffic modelling assumptions and implications. This will form part of the final RtS document.

Attachment B

TfNSW Operational Traffic Modelling Team Review and Comments

1 Crescent Street Holroyd

18/11/2020

The following sections comprise a summary of TfNSW review of Aimsun and SIDRA models and supporting document(s), prepared by Urbis and TTPP consulting.

The specific documents and traffic model(s) provided for the review are outlined in Table 1.

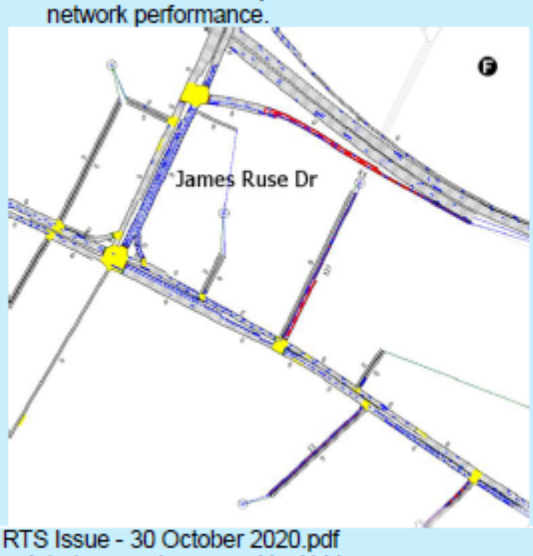
Table 1: Reviewed material

Material	File name	File description	Received date
Aimsun Model	Base for revision.ang	Base Aimsun model	10/11/2020
	Base for revision_2031Future.ang	Future Base model	10/11/2020
	Base for revision_Development.ang	Future with development model	10/11/2020
Aimsun Model path files	ME12 DUE 7-9AM Base Year.apa ME13 DUE 4-6PM Base Year.apa	Path files for Aimsun models	10/11/2020
	RDS_AM.txt RDS_PM.txt	Real data sets for Aimsun models	10/11/2020
SIDRA Model File	16241-Pitt-Walpole,Pitt,Merrylands-201109.sip9	SIDRA model files for assessment of western intersections	10/11/2020
Report	1 Crescent St Holroyd - Interim RTS Issue - 30 October 2020.pdf	Response to submissions interim report prepared by Urbis	10/11/2020
Report	Appendix C - RtS_Engagement outcomes report.pdf	Engagemant	10/11/2020

Table 2: Summary of review comments

Item	Section	Comment	Priority (major, medium, or minor)

General		An overview of the key concerns / issues raised as part of our review is provided below, followed by more detailed commentary on all comments in the rows below:
		• It is unclear whether all SIDRA models presented have been calibrated to an appropriate level to inform the assessment.
		• The Aimsun base model calibration and validation report requires more detail to be provided in order to justify its appropriateness, including:
		  ○ Details on demand adjustment procedures and impact on prior demand matrices
		  ○ Travel time validation for sections requires further work / explanation
		  ○ Congestion plots required to demonstrate that observed speeds / queues / etc. are replicated in the model.
		• Clarification required on the Aimsun traffic demands which do not appear to align with the report – e.g. less demand in the PM peak with development scenario compared to the future base.
		• Clarification required on the adopted distribution of development demands.
		• It is unclear why the development generated trips that wish to travel to/from the west via the Site Access A were excluded from the analysis. According to the RTS report this access has been assessed, presumably using SIDRA.
		• There are concerns about the representation of travel time results and in particular the reduction in travel times along the corridor and for the "with development" scenarios.
		• There are a number of inconsistencies in the intersection delays and travel time results which makes the interpretation of results illogical.
		• Westbound travel times along Parramatta Road in the PM peak show a significant increase (+19%) in the development scenario.
		• Additional model performance metrics required to gain a better appreciation of the development's impact on the entire modelled network – e.g. network performance, congestion plots, additional travel times, etc.
			Major

Item	Section	Comment	Priority (major, medium, or minor)
		• Lack of discussion provided with the results to better articulate the impacts, in particular those that may appear counter intuitive on face value (e.g. improvement travel times / intersection performance but increase traffic). • Model simulation observations appear to indicate a significant traffic blockage at James Ruse Drive which holds traffic back from continuing down to the Parramatta Road / Church Street intersection. As such, the above dot points would help to understanding whether this is an accurate representation of future road network performance. 	
File : 1 Crescent St Holroyd - Interim RTS Issue - 30 October 2020.pdf **Description:** Response to submissions interim report prepared by Urbis			
1	Addenda to transport impact assessment, prepared by TTPP, Page 4	SIDRA modelling has only been carried out for two intersections, while no discussions have been provided in the addenda regarding why only these two were selected by TTPP. There are other intersections along Pitt Street that may also be impacted by the increase in traffic along Pitt Street It is acknowledged that SCT Consulting have also carried out SIDRA assessment for some intersections. It is recommended that further discussions regarding the selection of appropriate intersections	Medium

Item	Section	Comment	Priority (major, medium, or minor)
		to assess be discussed or referenced in the addenda.	
2	Addenda to transport impact assessment, prepared by TTPP, Page 5	It is noted that Intersection of Neil Street and Pitt Street seems to have congestion during the PM peak (Figure 1). Given that it is only 300 meters north of the Pitt Street/ Merrylands Road intersection, It is therefore recommended that it either be included in the SIDRA assessment carried out by TTPP or impacts of queuing (if any) or signal coordination be included in the Pitt Street/ Merrylands Road SIDRA intersection model and appropriate discussion be included in the main body of the report.	Medium
3	Addenda to transport impact assessment, prepared by TTPP, Page 17- SCT Modelling	It is mentioned SIDRA assessment was carried out by SCT Consulting. However, the version of SIDRA software utilised is not mentioned. It is recommended that version of SIDRA utilised by SCT Consulting also be mentioned in the report for reference purposes and to ensure like for like comparison between TTPP models and SCT models.	Minor
4	Addenda to transport impact assessment, prepared by TTPP, Page 18	The addenda states that both intersections assessed in SIDRA operate at LOS B. While this may be true, a comparison of queues or congestion at this intersection for current conditions is not provided in the addenda. Review of Google typical traffic suggests that some queuing/congestion is observed at Pitt Street(Figure 1) in the PM peak which is not indicative of a level of service B. Therefore, it is recommended that a comparison of queue lengths to observed queues or congestion should be provided in the addenda to ensure SIDRA Base models are accurately replicating the current conditions.	Major
5	Addenda to transport impact assessment, prepared by TTPP, Table 7 and 8	The tables outline level of service extracted from the Aimsun models. Some approaches are showing improvements to Level of service with significant growth (20%) as mentioned in the context of the report. It is understood that upgrades at Parramatta Road/ Church Street/ M4 exit Ramp have been included in the future models.	Minor

Item	Section	Comment	Priority (major, medium, or minor)
		It appears counterintuitive that the intersection performance is actually improving in future with more traffic on the network. Therefore, it is recommended that some discussion around these improvements in level of service be provided in the main context of the report.	
6	Aimsun Modelling	It is noted that the base models are based on August 2018 traffic surveys and have been calibrated and validated to these traffic conditions. Since then M4 East and M8 have opened to traffic and can impact the traffic within the study area. While it is acknowledged that this study has been ongoing since before the opening of these major infrastructure projects, further checks or discussions maybe warranted to understand the true impacts of the development proposal.	Noted
7	Addenda to transport impact assessment, Attachment 1, Section 3.12 and 3.13	It is understood that the PRCUTS model demands have been adopted with some manual adjustments made to traffic demands to meet the calibration and validation requirements. It is recommended that more information be provided to outline the adopted demand development process (i.e. how have manual adjustments been applied) as well as more evidence to demonstrate that the integrity of the PRCUTS demand matrices (travel patterns) has been retained.	Major
8	Addenda to transport impact assessment, Attachment 1, Section 5.3	While overall travel time for each route may fall within the criteria, the conclusion that travel times have been validated well may be misleading. Based on the cumulative travel time figures, there appears to be a lack of consistency in travel time progression along each of the routes between the model and observed conditions. It is recommended for the section travel times to be reported and compared against the relevant criteria per the Traffic Modelling Guidelines, as well as provide further discussion on these results. In addition, congestion plots (such as queues, link speeds, etc.) should also be presented to demonstrate that the model is able to replicate the congestion experienced across the entire network.	Major
9	Addenda to transport	Table 6 and 7 indicate that different seeds have been used to report on the different model scenarios. This may have an effect on making a	Major

Item	Section	Comment	Priority (major, medium, or minor)
	impact assessment, Attachment 2, Modelling Results	like-for-like comparison between scenarios as the traffic release rate and conditions may differ between seed numbers. It is recommended that a common median seed value be reported (noting that this can differ between the peaks).	
10	Addenda to transport impact assessment, Attachment 2, Figure 13	While explanation is provided in the report regarding the "hump" observed in the reported travel times, it is still considered questionable for cumulative travel times to decrease. It is recommended that the reporting methodology be reviewed and cumulative travel times be reported. In addition, further discussion is warranted to better understand what is causing the favourable results to the development scenario – i.e. 2031 with development appears to show improved performance even though it should have increased traffic demand.	Major
11	Addenda to transport impact assessment, Attachment 2,	Overall network statistics such as VKT, VHT, overall average delay and overall average speeds have not been reported. These statistics are important to understand the overall impacts of the proposed development on the network especially at Parramatta Road. It is recommended that network statistics be extracted for the future base and with development scenarios and a comparison be provided and discussed in the report.	Major
12	Addenda to transport impact assessment, Attachment 2,	The LOS and travel time results show a number of inconsistencies. For example, the AM peak LOS results (Table 9) show that delays along the Parramatta Road east approach to Church Street will almost double in the development scenario compared to the 2031 base. However, trave time comparison for the same peak period (Table 12) show only minimal changes in travel times along this section of Parramatta Road.	Major
File : 16241-Pitt-Walpole,Pitt,Merrylands-201109.sip9 **Description:** SIDRA Model Files			
13	Pitt Street / Walpole Street-Geometry	Geometry is inconsistent with google map imagery. Geometry needs to be checked and updated in the current models at following locations:	Major

Item	Section	Comment	Priority (major, medium, or minor)
		• East Approach kerb side exit lane should be a short lane • East approach kerb side lane should be a short lane. There is ½ P parking allowed in PM peak hours of 4-7 pm. See Figure 2	
14	Pitt Street / Merrylands Road	The intersection of Merrylands Road/ Terminal Place is not included in the SIDRA models and is only 25 metres east of the Pitt Street/ Merrylands Road intersection. It is noted the SCT Consulting also did not include this intersection in their assessment. It is also noted that extra bunching factor or any other parameters are not included in the model to account for traffic arrival at the east approach. It is noted that such closely spaced intersections typically run with high signal co-ordination. It is recommended that discussion in the report is provided regarding how this co-ordination has been factored into the base model of this intersection.	Major
15	Pitt Street / Merrylands Road - Geometry	The approach distance at north approach is incorrect as it has been set to default value of 500 metres. Approach distance should be measured to nearest signals i.e. the intersection of Pitt Street and Terminal Place (North). It is recommended that the north approach distance be updated in the models.	Major
16	SIDRA Models	It is acknowledged that SCT consulting has included Pitt Street/ Neil Street intersection in their modelling. As the models or the reports relating to SCT models have not been provided they cannot be reviewed and hence it is not clear if any intersections along Pitt Street or Woodville Road were modelled as networks or are representative of existing conditions or not. It is recommended that intersections that are closely spaced should be modelled as SIDRA networks or parameters such as phasing should be considered appropriately to capture the impacts of signal co-ordination if any between closely spaced intersections.	Noted

Item	Section	Comment	Priority (major, medium, or minor)
File : Base for revision_2031Future.ang, Base for revision_Development.ang **Description:** Aimsun Model Files			
17	Demands	It is noted that 2031 with development total demand (142,670) in the PM peak is less than 2031 base PM peak demand (145,599). It is recommended that these be checked and updated in the models or appropriate explanation be provided for this difference in the report.	Major
18	Demands	It is recommended that additional information on the adopted distribution of the development traffic. A review of the model demand matrices show that the development traffic has been represented as a separate matrix with a dedicated vehicle type (T3Car). However, a detailed interrogation of demand matrices showed that for example – majority of trips from the zone representing the development are assigned to a zone representing Hampstead Road.	Major
19	Signals	The intersection of Woodville Road/ Parramatta Road has been modelled as a fixed signal in the 2031 future scenario whereas as an actuated signal in the 2031 with development scenario. For comparative purposes, it is recommended that the approach for signal coding should be consistent between base and future models.	Major
20	Unreleased vehicles	PM peak results indicate that there are some unreleased vehicles within the network. These were in the circa 10-13% with and without the development traffic respectively. As per comment 8 above, network statics such as unreleased demands, VKT, VHT should be provided and discussed in the report. In the context of this development it may be more appropriate to extract network wide as well as the core area network statistics.	Major

Item	Section	Comment	Priority (major, medium, or minor)
21	Congestion/Hot spots	Simulation runs for both peak periods and for both future base and with development scenarios presented that congestion at James Ruse Drive/ Parramatta Road intersection blocks the through traffic at Parramatta Road (westbound). This potentially restricts the traffic reaching the Woodville Road/ Parramatta Road intersection. Should this bottleneck be released, the performance of the Woodville Road/ Parramatta Road intersection may deteriorate.	Noted

5 February 2021

TfNSW Reference: SYD19/00599
Council Ref: 2017SWC141
PP_2019_CUMB_002_00

Planning Panels Secretariat
Locked Bag 5022
Parramatta NSW 2124

Attention: Suzie Jattan

Dear Ms Jattan,

FURTHER RESPONSE TO ADDITIONAL TRAFFIC REPORT AND MODELLING - PLANNING PROPOSAL FOR 1 CRESCENT STREET, HOLROYD

Transport for NSW (TfNSW) appreciates the opportunity to comment on the additional traffic report dated 21 December 2020 prepared by TTPP, as well as the revised modelling that was undertaken in response to TfNSW comments dated 30 November 2020 for the planning proposal at 1 Crescent Street, Holroyd.

TfNSW has reviewed the submitted documentation and advises that the revised traffic modelling is still not considered fit-for-purpose. The assessment reveals significant issues that are considered fundamental to determining the potential impacts from the proposal, and to validate any of the findings from the additional traffic report by TTPP.

TfNSW reiterates that the Transport assessment and the supporting modelling should accurately reflect the potential impacts from the proposal to ensure that any improvements from the TfNSW upgrades in the area are not diminished as a result of the proposal.

TfNSW has provided detailed comments on the inconsistencies and issues to be addressed in the Transport Impact Assessment and traffic modelling (Aimsun and SIDRA) at **Attachments A** and **B**. This is required in order to determine whether the proposed mix of land uses and yield are appropriate or need to be revised, and to determine equitable contributions towards any mitigation measures as a result of the proposal *prior* to the planning proposal being made should the proposal proceed.

TfNSW would be happy to arrange a meeting between our modelling team and the traffic consultant to work through the model deficiencies, if desired. If you have any questions or further enquiries in relation to this matter, Ilyas Karaman would be pleased to take your call on 0447 212 764 or email: development.sydney@transport.nsw.gov.au

Yours sincerely

Colin Langford
Director, Land Use, Networks & Development
Greater Sydney Division

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Attachment A: TfNSW Detailed Comments on the additional traffic report dated 21 December 2020 for the Planning Proposal at 1 Crescent Street, Holroyd

(February 2021)

TfNSW provides the following comments to be addressed in a revised Transport Impact Assessment (TIA) with traffic modelling, for further consideration.

Traffic modelling

The revised Aimsun & SIDRA modelling undertaken to support the Planning Proposal has been assessed by TfNSW and we note the following matters to be addressed below:

General Comments

It is noted the assessment reveals significant issues, which are considered fundamental in determining the assessment outcomes for potential impacts from the proposal and to validate any findings from the additional traffic report by TTPP. Hence the revised modelling is not considered to be fit for purpose.

A summary of the key issues are provided below with detailed comments provided in **Attachment B:**

- The demands matrices used in the Aimsun model do not match with the traffic generation numbers outlined in the submission documentation. It is noted the demand totals extracted from the model indicate a total of 932 vehicles and 874 vehicles in the AM and PM two-hour peak periods. However, based on the trip generation outlined on Page 12, in Attachment 5, the two hourly trips should be substantially higher than 932 and 874 (potentially almost double).
- There is no evidence provided regarding the SIDRA model calibration.
- Updates to the SIDRA model geometry have been omitted.

Recommendation

It is recommended that the Aimsun and SIDRA Modelling be revised so that the inconsistencies and the above issues are adequately addressed. Refer to Attachment **B** for specific modelling issues to be addressed.

Review of the Additional Traffic Report (Attachments)

Note that whilst the above modelling issues are required to be resolved, additional comments are provided in Table 1 below, which warrant further explanation from that provided in the additional traffic report dated 21 December 2020.

Table 1: The review of the Additional Traffic Report (Attachments)

Traffic Report Section/s	Comment
Executive Summary Response – Table 1	Table 1 states that the assumed proportion of passer-by trips has been reduced to 25% in the updated modelling. However, page 12 of the updated Aimsun modelling results memo indicates an assumption of 28% has been adopted, which is the figure adopted for the previous modelling. It is recommended the assumption of passer-by proportion would require further clarification. Table 1 notes that the error in assumed directional split for commercial uses has been corrected. However, Page 14 of the Updated Aimsun

	Modelling Results Memo indicates the same directional split (50/50) has been applied. This assumption will require further clarification.
Executive Summary Response – Pages 2 & 12	*"The modelling shows that in the 2031 scenario, the subject development will add 144 vehicles in the PM peak to the existing 4800 vehicles at the intersection (i.e 3%) and this will increase the Level of service to LoS E."* The above statement appears to be overly simplistic to play down the impact at the Woodville Rd / Crescent St intersection. Whilst the 3% is a small addition to a busy intersection, maybe equivalent to a couple of years of underlying growth, the inbound movement is a right turn which requires stopping the heavy opposing traffic, with ensuing additional delays. If, say, the 3% was based on a left in / left out movement, the impact would be far, far less. So simply using a 3% figure in this fashion may not be appropriate in this context.
Executive Summary Response – Page 2	*"Council have given recent development approvals to five sites that have a combined total of 1,211 dwellings and 4,424m^2 of commercial and retail development located in relatively close proximity of the Pitt Street – Neil Street intersection."* It is noted that the Neil Street / Pitt Street intersection is just 300m from Merrylands rail station, so any comparison with the more distant Crescent St proposal is not considered to be valid.
Detailed Responses to TfNSW Concerns (SIDRA) (Attachment 2) - Page 8	Commentary is provided on the SIDRA outputs for the Pitt Street / Walpole Street intersection. However, this commentary appears to not highlight that the left turn from Pitt Street north is estimated to worsen from LOS C in the Future Base Case to LOS E in the Future Base Case with the Subject Development (an isolated impact of the proposed development). With only the currently approved developments, this movement is estimated to operate at LOS D. It is recommended that this impact be further discussed regarding potential mitigation measures recommended by TTPP.
Aimsun Modelling Results (Attachment 5) - Page 15	The assumed distribution of trips that travel to/from Parramatta Road has been outlined. However, it seems unclear what these finer-level distribution assumptions are based on. Further detail is recommended, which would assist in ascertaining the validity of such distribution assumptions.
Aimsun Modelling Results (Attachment 5) Page 20	Table 11 - indicates that the Parramatta Road westbound approach worsens from LOS E (66 seconds delay) to LOS F (93 seconds delay) in the AM peak, 2031 Future vs 2031 With Development. There is currently no discussion in the memo with regard to this impact. Further discussion is recommended regarding this impact with recommendations of probable mitigation measures. Similarly, this also applies to the westbound slip lane, which worsens from LOS D to LOS E with the development traffic.
Aimsun Modelling Results	The document states that intersections operate at "acceptable LOS D or better". However, the Church Street/ M4 Exit Ramp intersection is shown to operate at LOS E overall in 2031 With Development (a worsening from LOS D in 2031 Base Case). The M4 Motorway Exit

(Attachment 5) - Page 21	Ramp is estimated to worsen from LOS D to LOS F with the development traffic. There is currently no discussion with regard to this impact, other than referencing to overall intersection LoS. Further discussion is required regarding the impacts with recommendations on probable mitigation measures.
Aimsun Modelling Results Memo (Attachment 5) - Page 22	Table 12 - indicates that travel times in the AM peak along Church Street southbound between Marion Street and Parramatta Road increase by close to two minutes in 2031 With Development. Further discussion is required regarding this impact with recommendations on potential mitigation measures to be considered by TfNSW.

Recommendation

It is recommended that the issues raised in Table 1 be addressed in a revised traffic report.

Trip Generation Assumptions

The following comments are provided regarding trip generation assumptions;

- The 25% passer-by trip assumption for retail is considered appropriate.
- The 75%/25% directional split for office is considered appropriate.
- The use of Thursday traffic generation rates for retail is acceptable.

Public Transport Considerations

Comment: Public Transport Assessment - Attachment 3

The public transport assessment provided in Attachment 3 includes information related to bus and train occupancies from surveys undertaken in August 2016 to January 2017 (bus), and from November 2018 to February 2019 (train). However, the existing public transport capacity is not considered to be the over-riding concern.

The public transport assessment has not provided details on how to improve pedestrian connectivity to and from the site to encourage the mode shift to public transport.

The closest bus stops are shown to be approximately 650 metres (Church St) or 1 km (Pitt St) from the development. It is considered this distance will act as a disincentive for residents, workers and visitors to use buses as public transport, with only those without alternative means likely to use this travel option.

The executive summary on page 10 states "*I do accept that the connections between the site and the stations need to be improved. However, in the early days of this proposal, it was clear that Council were working on their own measures to provide active travel improvements and would be seeking contributions to assist in the delivery of these. Consequently, it was their intention to work with Council to provide these improvements but the detail of such measures would be worked up with Council during the DA process.*

TfNSW advises the assessment of public transport cannot be deferred to the DA stage, and reiterates that the location of the proposed development is considered to be isolated from all modes of public transport. Pedestrian priority and amenity is poor surrounding the development, with most of the footpaths being narrow and directly next to high volume traffic with no protection and lack of pedestrian priority at crossings.

Further, the planning proposal and subsequent supporting documentation does not provide any details, timing, or firm commitments to improve pedestrian connectivity to and from the site to encourage the mode shift to public transport. Whilst the Planning Proposal report does recommend improving the pedestrian connectivity across Woodville Road to improve the connectivity and safe access to Granville Station, there is no commitment by the proponent to provide this improvement, including necessary land components.

Recommendation

TfNSW requests that the revised TIA Addendum and the revised planning proposal provide adequate information with regard to details, timing, and firm commitments to improve pedestrian connectivity to and from the site for the purpose of encouraging the mode shift to public transport.

Attachment B

Transport Roads & Maritime Services

TfNSW Operational Traffic Modelling Team Review and Comments

1 Crescent Street Holroyd.

19/01/2021

The following sections comprise a summary of TfNSW operational traffic modelling team's review of Aimsun and SIDRA models and supporting document(s) prepared by TTPP consulting.

The specific documents and traffic model(s) provided for the review are outlined in Table 1.

Table 1: Reviewed material

Material	File name	File description
SIDRA Model File	16241-Crescent Parklands-201216.sip9	SIDRA Model files for assessment of western intersections
Aimsun Model Files	Base for revision.ang	Base Aimsun model
	Base for revision_2031Future.ang	Future Base Aimsun model
	Base for revision_Development.ang	Future with development model
	Base for revision_Development sensitivity.ang	Future with development – sensitivity test model
Aimsun Model Path Files	ME12 DUE 7-9AM Base Year.apa ME13 DUE 4-6PM Base Year.apa	Path files for Aimsun models
	RDS_AM.txt RDS_PM.txt	Real data sets for Aimsun models
Report	620.12646-L02-v1.1 Peer Review 2020 12 21.pdf	Peer review undertaken by SLR consulting
Report	16241-L04V01-20201221-Response to submissions.pdf	Response to Department of Planning, Industry and Environment prepared by TTPP

Table 2 provides a summary of review comments.

Table 2: Summary of review comments

Item	Section	Comment	Priority (major, medium, or minor)
General	Response to submissions	In general, the revised modelling is not considered to be fit for purpose. Whilst some of the previous comments raised have either been addressed or clarified in the response to submission document, there are still some outstanding comments that will need to be addressed before finalising the models and the corresponding results.	Noted
	Existing SIDRA calibration	The response to submissions document outlines that the two intersections assessed in SIDRA have been calibrated to existing conditions. However, evidence of such calibration has not been provided to date. Examples may include one of the following: • Documented site observations and comparison to SIDRA results • Photos or video snapshots from site observations or survey videos presenting queues. It is recommended that evidence of SIDRA model calibration be included in the reporting.	Major
	Aimsun Model Demands	There are still some inconsistencies in the traffic demand. Attachment 5 of the response to submissions document outlines the number of vehicles generated by the subject development: 840 vph in AM peak and 961 vph in the PM peak respectively. The demand matrices applied in the Aimsun models show a total of 932 vehicles (two hours) in the AM peak and 874 vehicles (two hours) in the PM peak. Assuming the trip generation number in the report is correct, the applied development vehicles should be almost double to what has been applied in the models. It is recommended that correct development trips be applied to the model and results be updated accordingly.	Major

File: 16241-Crescent Parklands-201216.sip9 Description: SIDRA Model File			
	Pitt Street / Merrylands Road - Geometry	The approach distance at the north approach is still set to default value of 500. However, in the response document, Annexure 2, Table 1 - comment 15 states that the approach distance have been updated. Please update the approach distance for north approach to 140 metres.	Major
File: 16241-L04\V01-20201221-Response to submissions.pdf Description: Response to submissions			
	Table 5	The results presented indicate that the subject development traffic increases the delay by approximately 30 seconds when compared to Future base results at Pitt Street (North) approach. 95 percentile queues of 158 meters have been presented at this approach with the subject development traffic. It is acknowledged that the end conclusion will remain the same, however, discussion of such results is warranted either in the main report or the corresponding addenda that have been provided.	Minor
	Attachment 5, Development Traffic Generation Page 12	The total estimated development trips are 840 and 961 per hour in the AM and PM periods respectively. The demand totals extracted from the model indicate a total of 932 vehicles and 874 vehicles in the AM and PM two-hour peak periods. Based on the trip generation outlined on Page 12, the two hourly trips should be substantially higher than 932 and 874 (potentially almost double). It is recommended that model demands be checked, and models be updated accordingly.	Major
	Attachment 5- Network Congestion Plots	Simulated density plots have been presented, however the time stamp of these plots have not been included. Please include a legend in the graphs to clarify if these are average density plots or represent the network at a particular time stamp.	Minor
File : Base for revision.ang, Base for revision_2031Future.ang, Base for revision_Development.ang Description: Aimsun model files			
	Base for revision_Development.ang, Development Traffic	As outlined in the comment above, the development traffic applied in the models do not match what has been presented in the response to submission document and needs to be checked and updated if required.	Major

31 March 2021

TfNSW Reference: SYD19/00599
Council Ref: 2017SWC141
PP_2019_CUMB_002_00

Planning Panels Secretariat
Locked Bag 5022
Parramatta NSW 2124

Attention: Suzie Jattan

Dear Ms Jattan,

FURTHER RESPONSE TO ADDITIONAL TRAFFIC REPORT AND MODELLING - PLANNING PROPOSAL FOR 1 CRESCENT STREET, HOLROYD

Transport for NSW (TfNSW) appreciates the opportunity to comment on the Traffic Report (16 February, 2021) and the Aimsun Model Sensitivity Test (26 February, 2021) including the revised Aimsun and SIDRA modelling, in response to TfNSW comments dated 5 February 2021, for the planning proposal at 1 Crescent Street, Holroyd.

Our response also includes verbal comments and advice provided at the meeting held 23 February, 2021 with the proponent and the Department of Planning, Industry and the Environment.

TfNSW has reviewed the submitted revised documentation and modelling, and advises that the modelling for the future case model is still not considered fit-for- purpose. The modelling is considered to be unreliable, noting the methodology for the Aimsun Model Sensitivity Test is not in accordance with TfNSW Modelling Guidelines.

The base model as a tool for option testing is now considered acceptable provided the full traffic demand is reinstated into the Aimsun model, as per the detailed comments provided in **Attachment A**.

The assessment of the modelling to date indicates the impact of this proposed development on the surrounding transport network overall, appears to be significant. TfNSW reiterates that the Transport assessment and the supporting modelling should accurately reflect the potential impacts from the proposal to ensure that any improvements from the TfNSW planned upgrades in the area are not diminished as a result of the proposal.

Once it is understood, whether the proposal can be supported in its current or any revised form in terms of mix of land uses, controls and yield can be determined, along with equitable contributions towards any mitigation measures as a result of the proposal *prior* to it being made, should it proceed.

TfNSW has provided detailed comments on the issues to be addressed in the traffic assessment, traffic modelling (Aimsun and SIDRA) and the Sensitivity Test at **Attachments A** and **B.**

Transport for NSW
27-31 Argyle Street, Parramatta NSW 2150 | PO Box 973, Parramatta CBD NSW 2124
P 131782 | **W** transport.nsw.gov.au | ABN 18 804 239 602

TfNSW has provided several submissions on the planning proposal and the modelling since the public exhibition, and we advise that the planning proposal in its current form cannot be supported as there are significant matters that still require addressing at this stage of the process to reduce safety and efficiency impacts on the network. We would be happy to meet to discuss our comments with the Panel should this assist.

If you have any questions or further enquiries in relation to this matter, Ilyas Karaman would be pleased to take your call on 0447 212 764 or email: development.sydney@transport.nsw.gov.au

Yours sincerely

Cheramie Marsden
Senior Manager Strategic Land Use
Land Use, Networks & Development, Greater Sydney Division

Attachment A: TfNSW Detailed Comments on the additional traffic report (16 February 2021), Aimsun Model Sensitivity Test (26 February 2021) and supporting SIDRA & Aimsun modelling files submitted for the Planning Proposal, 1 Crescent Street, Holroyd

(Provided March 2021)

TfNSW provides the following comments to be addressed in a revised Transport Impact Assessment (TIA) with traffic modelling.

Aimsun Traffic modelling

General Comments

The revised Aimsun modelling and the additional traffic report (16 February, 2021) undertaken to support the Planning Proposal has been assessed by TfNSW. We advise that the modelling for the future case model is still not considered fit-for- purpose.

However, we have relayed that the base model as a tool for option testing is considered to be acceptable. TfNSW further advises that, in order to assess the full traffic impacts of the development and road network performance at the intersections to the west, this model should be used in conjunction with a supplementary model (currently in SIDRA), covering key intersections to the west of the study area.

This requires that the full traffic demand be included in the Aimsun model, noting TfNSW previous comments (5 February 2021) raised inconsistencies observed in the traffic demand – notably that from 840 trips per hour there were 932 trips per two hours in the Aimsun model during the AM peak.

The response provided by the traffic consultant, TTPP in the traffic report (16 February 2021), explained that these trips to the west had been removed from the model. These removed trips for the AM peak, as an example, represent approximately 40 percent of the generated trips.

Recommendation/s:

1. That the trips going to the west via 1 Crescent St, not be removed, and be included/sent to the west via the zone along 1 Crescent St.

2. Include development accesses in the model as the future Aimsun model is unable to properly reflect the interaction of existing traffic along Crescent St with movements into/ out of the development. If there is any reduced traffic on Crescent St, we may be seeing movements into / out of the development being obtained more easily, than if they were included, i.e. a right turn into the development would be obtained more easily if there is no opposing traffic heading towards the east.

3. Further information is required on how the trips are distributed, with the proportion of trips assigned to different zones to be provided.

4. A map should be provided to clearly showing exactly which were the “relevant SA1s and DZNs” that were used to develop the residential and employment distributions between western orientation and eastern. The accessibility of nearby zones is

severely affected by the barrier effect of the rail line and the M4, and to a lesser extent, Woodville Rd. The proposal will introduce residential, retail and office space to a precinct that currently has no residential at all, therefore how much can be relied upon from travel patterns exhibited in other nearby zones?

Additional Comments: Traffic Report (16 February, 2021)

The analysis from the density plots and the modelling provided, indicates the impact of this proposed development overall, appears to be significant. The additional Traffic Report (16 February, 2021) focused on intersection level statistics; however, the network-wide statistics are expected to better show the negative impacts on the whole network.

1. Page 14 of the response document, fourth row:
   Concerns were previously raised that the 2031 Future (Base Case) vs 2031 With Development Aimsun modelling shows an increase in delay of around 30 seconds compounded to 13 minutes in the peak hour (*40 seconds in the refined Aimsun results*) in the AM peak for the Parramatta Rd east approach to Woodville Rd (LOS E to LOS F). TTPP's response is that this intersection is "sensitive to additional traffic", and that overall it still operates acceptably. Seemingly, no discussion has been provided on what is causing this impact or how it could be mitigated.

2. Page 14 of the response document, fifth row:
   Concerns were previously raised in relation to the estimated impact on the Church St/ M4 off-ramp intersection in the 2031 Aimsun modelling, which is forecast to worsen from LOS D to LOS F on the off-ramp approach (LOS D to LOS E for the intersection overall). TTPP has suggested "further analysis can be undertaken on each approach", but seemingly no discussion has been provided on what is causing the impact or how it may be mitigated. It is also requested that 95 percentile queue lengths be reported for the M4 off-load to Church Street for base and development scenarios.

3. Page 14 of the response document, sixth row:
   TTPP recognises that some additional delay is estimated southbound on Church St to the M4 off-ramp intersection (*increase in travel time of close to 1 minute in 2031 AM peak with the development in the refined Aimsun results*). This is explained by TTPP as due to the short storage area between the M4 off-ramp and the signal at Parramatta Rd, but seemingly no discussion has been provided on potential mitigation measures.

4. TTPP has updated the Aimsun modelling since the last round of comments to consider a different trip distribution for the development based on a retail economic report. The estimated impacts highlighted previously at Church St/ M4 Off-ramp and Parramatta Rd/ Woodville Rd seemingly remain in the revised modelling.

5. TTPP claims that some minor reductions in the proposed retail yield at the development would likely result in all intersections remaining in the same LOS band in 2031 Future vs 2031 With Development. No supporting analysis appears to be provided to justify this claim and it's unclear whether approach-specific impacts could be mitigated in this way.

Recommendation/s

It is recommended that the key issues identified are adequately addressed in a revised Transport Impact Assessment (TIA).

SIDRA Traffic modelling

General Comments
The revised SIDRA modelling, simulated density plots and the additional traffic report (16 February, 2021) undertaken to support the Planning Proposal has been assessed by TfNSW with the following issues identified.

1. Trip Generation and Traffic Demands
It is understood that the total trip generation and distribution has been updated both in the Aimsun and SIDRA models. The retail traffic distribution plots in Figure 2 and Figure 3 (page 22 of the Traffic Report) do not add up, and although this may be a result of 11% of properties in the West Trade Area creating traffic, there is likely to be a better way of demonstrating this demand so that the numbers can be followed. In particular, traffic from Woodville Road/ Parramatta Road heading to the site in the AM peak period would equal 33vph, yet there are 45vph shown turning right from Woodville Road to Crescent Street. This in turn, increases to 98vph turning right into Site Access A, which is greater than the sum of left and right turning vehicles from Woodville Road. A similar issue occurs in the PM peak.

It is recommended that the traffic distribution plots are reviewed. Furthermore, in the PM peak, it is unclear how 138vph can turn right into Site Access C, when the plots show that only 57vph would be travelling past Site Access B and how a total of 138vph are turning from Walpole Street into Pitt Street. Subsequently, it is recommended a detailed step by step process for the final trip generation and distribution calculations be included in the main report for consistency and checking purposes. This should separate the retail and residential land uses and the various model scenarios.

2. Traffic Distribution
Figure 4 (page 27 of the Traffic Report) presents SIDRA Modelling Results for the Merrylands Town Centre, and summarises that the re-distribution of retail traffic would not affect the operation of the local road intersections to any great extent.

It is unclear which SIDRA modelling scenarios (+ Subject Development, + Approved Development or + All Development) Figure 4 is comparing, and therefore it is not possible to check the presented results against the SIDRA Modelling Results in Attachment Two (either page 18 or 52 of the Traffic Report), or to identify which approach the LOS and delay increases are occurring. Furthermore, the presented results do not quantify if it is the Intersection or Worst Movement results being presented?

It is recommended that further clarification be provided for the above issue.

3. SIDRA Calibration
Attachment Two contains a “SIDRA Calibration Table” (on page 16 of the Traffic Report), which demonstrates the Observed Max Queue and the Modelled 85th percentile Queue Lengths in vehicles. Notes have not been provided to describe whether the model calibration was undertaken for the models in order to achieve these results, or whether these are the result of adopting the surveyed traffic volumes, SCATS signal phase times and all other default SIDRA parameters. Notwithstanding, there are some relatively

large differences observed between results at the Pitt Street / Walpole Street intersection, with up to 9 vehicles or approximately 45m in length. Accordingly, the modelled queue length is longer than the surveyed queue length. While the results may be conservative (on the high side) and possibly not an issue, it is noted that SIDRA typically advises that the average surveyed queue lengths and 50th percentile model queue lengths should be compared for model calibration.

For the Pitt Street / Merrylands Road intersection, a difference of 4 vehicles (less) was presented in the modelled 95th percentile queue length results on the west approach in the PM peak. In the context of the site, this would be suggesting that queue lengths do not extend past Reyes Lane and through the zebra crossing. This may be important to note for the impact on the area and therefore it is suggested that this approach should be calibrated further, especially since the queue is anticipated to almost double and increase from 42m in the Existing PM model to 79m in the Future PM 2031 + All Developments model (page 18 of the Traffic Report).

4. SIDRA Calibration – Phase Times

The draft report (Page 7 of the Traffic Report) identifies that a minor redistribution of phase time has been made (+/- 2 seconds) between A Phase and B Phase in the AM and PM peak periods. It is noted that User Given Phase times have been entered into the existing conditions model, which prevents SIDRA from calculating phase splits in the future year models. However, it is acknowledged that the right turn demands from the south approach have increased in the future year models and therefore it makes sense that SIDRA and SCATS would typically allocate more green time to the right turn movement from the south. As such, these minor amendments are considered acceptable.

5. SIDRA Calibration – Lane Movements

In the response to TfNSW (Page 12 of the Traffic Report), the respondent states that the Lane Movements for right turn vehicles from Walpole Street into Pitt Street have been adjusted so that 75% of vehicles turn into the kerbside lane and 25% turn into the median lane. A review of the revised models has shown that changes to the Lane Movements has only been made to the “Future PM (2031) + All Dev” model, and that this has actually been applied as 60% to the kerbside lane and 40% to the median lane. Although the justification for why this may have been changed appears sound, it is noted that the response is incorrect, and that it has not been applied to any other scenarios. It is recommended the above be reviewed and applied consistently.

Recommendation

The above illustrates that there are still a number of inconsistencies, which warrant further explanation and information. It is recommended that the key issues raised are adequately addressed in a revised Transport Impact Assessment with revised SIDRA modelling as required.

Aimsun Model Sensitivity Test

General Comments

The assessment reveals the performance graphs are based on just a single seed value, which has produced some odd results, i.e. adding additional traffic on the network and resulting in a lower average intersection delay.

TfNSW advises the process should always commence with an analysis of 5 seed value runs in the base model. Following this, there is then an option to select the seed run that

produces the median / average value of some broad indicator like network VHT/VKT as the basis for later comparisons.

Further, it is understood the traffic consultant (TTPP) had previously run the models in the base case for five different seed values and identified the median seed based on network wide statistics. However, in the future cases, a single seed was used for the reporting, which was not the same seed number across the future options.

Given that there were 5 seed runs for each future option, whereby, the median seed was chosen for each scenario, which varied form scenario to scenario.

Accordingly, should the future models be run reported for a single seed, it needs to remain consistent across future options.

The alternative option for reporting the outputs of the future scenario testing is by using the average of the seeds after removing outliers.

Further commentary has been provided by the Operational Modelling Team in highlighted text in the PDF document, Aimsun Model Sensitivity Test, to assist and clarify issues at **Attachment B.**

Additional Comments
The trend of modelling outputs in the absence of further explanation appears to be inconsistent or counter intuitive, where in some cases, the increase in retail yield results in a reduction of delays.

Noting the following:

- Despite the conclusion drawn by TTPP, it appears that certain critical movements / approaches are expected to have significant performance impacts. For example:
    - The Church Street southbound approach to the M4 off-ramp worsens from 59 seconds of delay (LOS E) to 77 seconds (LOS F) in the 2031 PM peak under 50% Retail scenario.
    - Travel time southbound between Marion Street and Parramatta Road increases by 55 seconds (~45% increase) in the 2031 AM peak.

Memo section/ page	**Comment/s**
Level of Service, page 3/ 4	2031 AM peak ○ On the Parramatta Rd westbound approach (through/right movements), delay increases to 96 seconds in the 75% Retail scenario, then reduces to 57 seconds in the 85% Retail scenario. Delay also reduces for the left turn slip lane in the 85% scenario. In the absence of further explanation, this pattern of outputs appears to be counter intuitive. The outputs also indicate that that a 50% retail yield would result in LOS F on this critical movement, worsening from LOS D in the Do Minimum scenario. 2031 PM peak ○ The Church St southbound approach to the M4 Off-ramp worsens from 59 seconds delay (LOS E) to 77 seconds delay (LOS F) in the 50% Retail scenario.

	These outputs appear to indicate that there may be a significant impact to specific movements at the Church St/ M4 off-ramp and Church St/ Parramatta Rd intersection with a retail yield of between 50-75%.
Level of Service, page 5	The average intersection delay graphs for 2031 AM indicate that delay reduces in the 85% retail scenario in comparison to the 75% retail comparison. This pattern of outputs requires further clarification.
Travel Time, page 8/ 10	<u>2031 AM peak</u> o Travel times southbound along Church St increase by 55 seconds between Marion St and Parramatta Rd in the 50% Retail scenario compared to the Do-minimum. This indicates a southbound impact along Church St in the AM peak, which is seemingly not reflected in the intersection LOS outputs. o Travel times westbound from Berry Street to Church Street appear to be highly comparable (4:09s vs 4:14s) between the Do Minimum and 75% Retail scenarios. However, LOS appears to depict contradictory findings with significant delay increase (by 45 seconds) for the westbound through movement.

<u>Recommendation</u>
It is recommended that the Aimsun Model Sensitivity Test be revised so that the inconsistencies and the above issues are adequately addressed in a revised Transport Impact Assessment (TIA).

Economic Report
The Economic Report (19 January, 2021) by Urbis has been assessed by TfNSW with the following issues identified:

1. The report on page 2 states the key assumptions for the retail centre would comprise of a full-line 8,500 sq.m supermarket, plus supporting retail and non-retail uses typical of a neighbourhood shopping centre. However, the planning proposal report (May, 2020) states the maximum amount of floor space for 'retail premises' permitted on the site being be limited to no greater than 7,500 sq.m gross floor area.

   Further clarification, is sought on the maximum area of retail proposed for the overall development, and whether the area of retail is to be capped as per the planning proposal report?

2. It is also noted in the key assumptions that “the development comprised of a full-line 8,500 sq.m supermarket plus supporting retail and non-retail uses is typical of a neighbourhood shopping centre.”

   Transport reiterates our previous advice (4 September 2020) that to assist in minimising the traffic impacts from the proposal, consideration be given to substituting the proposed B4 Mixed use Zone with the B1 Local Neighbourhood zone. This would be more appropriate and in line with the master plan vision for a neighbourhood retail centre, as it would limit a supermarket to that of a ‘neighbourhood’ size, being a maximum of 1000sqm, helping to reduce the potential traffic impacts.

3. Table 2 shows the “Estimated Distribution of Visitation/Trade”. It is based on an assumed “Trade Area”, but there is little supporting evidence provided on how this trade area was determined. As such, it appears to be subjective; based on some assumed trip time catchment in each direction, and on how many residences are contained in each of the surrounding quadrants? Or, is it to be based on the catchment area of similar retail developments? More detail should be provided on how this trade area was determined to understand the assumptions used and whether they are suitable for this type of location and mix of uses.

4. Page 2, the key assumptions state that “the centre will provide convenient access to sufficient customer car parking.”

   It is noted the Transport Impact Assessment (August 2020) had a minimum of 155 car spaces and a maximum of 517 car spaces. Further, should ample, easy parking be available, this shopping precinct may be more attractive than the congested shopping conditions in Parramatta Westfield and Stockland Merrylands, and thus attract more external trips.

5. Table 1 in the report shows 3,360 on-site residents in 2031, in “around 1200” units (actually 1255). Assuming it is 1255, this equates to 2.7 people per unit. Noted, Wolli Creek has 6,394 people in 2892 dwellings (almost all units), an average of 2.2 people per dwelling. As such, the on-site resident population may be 20% lower than expected, and hence the on-site retail demand may not be as high as expected, if the 2.7 people per unit figure is not achieved.

Recommendation
The above issues as identified from the Economic Report be adequately addressed.

Public Transport
TfNSW understands from the proponent’s response that a separate revised and detailed public transport assessment will be provided. TfNSW advises that the public transport assessment should be provided together with the traffic impact assessment, to the inform the full suite of transport measures as required to support the planning proposal.

The information to-date has not provided adequate information with regard to details, timing, and firm commitments to improve pedestrian connectivity to and from the site for the purpose of encouraging the mode shift to public transport.

Recommendation

TfNSW requests that a detailed public transport assessment be provided within a revised Transport Impact Assessment, which provides adequate information with regard to details, timing, and firm commitments to improve pedestrian connectivity to and from the site for the purpose of encouraging the mode shift to public transport.

Other Comments
TfNSW advises the above issues are considered to be fundamental to determining the potential impacts from the proposal, and to validate any of the findings from the modelling, additional traffic report and sensitivity test.

TfNSW reiterates that the Transport assessment and the supporting modelling should accurately reflect the potential impacts from the proposal to ensure that any improvements from the TfNSW planned upgrades in the area are not diminished as a result of the proposal.

Separate Attachment B:

TfNSW Comments enclosed in the Aimsun Model Sensitivity Testing (26 February, 2021)

Memorandum

To: TBA

From: Stephen Read

Date: 26 February 2021

TTPP REF: 16241

CC: [Name]

RE: CRESCENT PARKLANDS – AIMSUN MICROSIMULATION MODEL SENSITIVITY TESTING

As requested, please find herein The Transport Planning Partnership's (TTPP) sensitivity testing of the reduced retail yields.

Overview

The modelling for the Crescent Parklands development was undertaken using the PRCUTS Aimsun model that was calibrated for micro-simulation. Since issuing results in December the modelling has been revised. Most significantly in January 2021 the trip distribution for the retail components were revised based on economic analysis of the customer catchment.

The results of the revised modelling from January 2021 indicated some minor improvements in intersection performance. This document presents sensitivity testing of the retail yield and the impacts this has on the road network performance.

The model was rerun based on reduced traffic demands based on 50%, 75%, 85% and 90% of the retail yield. This was benchmarked against the 2031 Do Minimum case and the 2031 Development scenario with 100% of the proposed retail yield.

In addition to the sensitivity testing it should be noted that a 5 second change to the offset between the Church Street / M4 Exit Ramp intersection and the Woodville Road / Parramatta Road intersection in the morning peak. The changes were translated through each of development model scenarios.

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The road network performance is reported as intersection Level of Service and Travel Times along Church Street and Parramatta Road. The results are reported for a single seed run as stipulated in correspondence with TfNSW. This results in some 'noise' in the results which is a consequence of the randomness inherent in micro-simulation modelling.

Level of Service

The commonly used measure of intersection performance, as defined by the Roads and Maritime, is vehicle delay. The AIMSUN model determines the average delay (seconds per vehicle) that vehicles encounter and provides a measure of the level of service (LoS). At priority controlled (give-way and stop controlled) and roundabout intersection, the LoS is based on the modelled delay for the most delayed movement.

Table 1 shows the criteria that is adopted in assessing the LoS of intersections.

Table 1: TfNSW Intersection Level of Service Criteria

Level of Service	Average Delay (seconds per vehicle)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity – at traffic signals, incidents will cause excessive delays, roundabouts require other control mode	At capacity, requires other control mode
F	Greater than 71	Unsatisfactory with excessive queuing	Unsatisfactory with excessive queuing; requires other control mode

Source: Roads and Maritime Guide to Traffic Generating Developments, 2002

The intersection results are shown in Table 2 and Table 3 for the morning and evening peaks respectively.

The intersection average delays have also been graphed with a trend line in Figure 1 and Figure 2 for the morning and evening peaks respectively.

Table 2: Morning Peak Hour

	2031 Do Minimum		2031 50% Retail		2031 75% Retail		2031 85% Retail		2031 90% Retail		2031 100% Retail	
Approach	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS
Woodville Road NB	21	B	25	B	25	B	22	B	29	C	32	C
Crescent Street	36	C	34	C	33	C	35	C	38	C	36	C
Woodville Road SB	5	A	4	A	5	A	4	A	5	A	6	A
Intersection	17	B	20	B	19	B	18	B	23	B	24	B

Approach	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS
Woodville Road NB	29	C	32	C	30	C	32	C	35	C	36	C
Woodville Road NB left slip	6	A	8	A	7	A	7	A	8	A	9	A
Church Street SB	38	C	38	C	41	C	40	C	42	D	41	C
Church Street SB left slip	6	A	9	A	8	A	14	B	26	B	17	B
Parramatta Road WB	51	D	73	F	96	F	57	E	84	F	105	F
Parramatta Road WB Slip	32	C	51	D	67	E	36	C	56	E	66	E
Intersection	29	C	36	C	42	D	34	C	44	D	48	D

Approach	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS
Church Street NB	32	C	31	C	31	C	31	C	31	C	33	C
Church Street SB	30	C	31	C	33	C	33	C	57	E	36	C
M4 Motorway exit ramp	51	D	48	D	52	D	51	D	65	E	48	D
Intersection	39	C	38	C	40	C	40	C	51	D	40	C

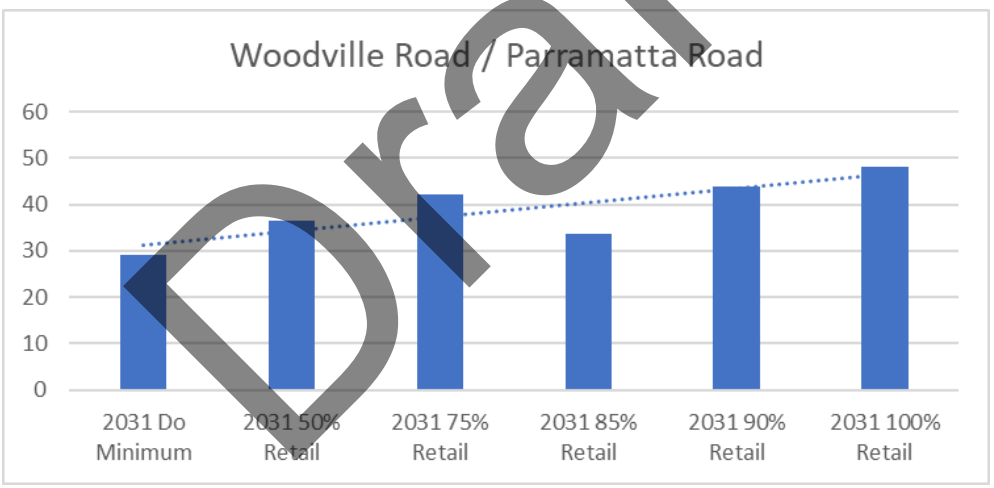
Table 3: Evening Peak Hour

	2031 Do Minimum		2031 50% Retail		2031 75% Retail		2031 85% Retail		2031 90% Retail		2031 100% Retail	
Approach	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS
Woodville Road NB	12	A	15	B	15	B	14	A	13	A	21	B
Crescent Street	33	C	34	C	34	C	33	C	35	C	40	C
Woodville Road SB	7	A	8	A	8	A	9	A	8	A	9	A
Intersection	11	A	14	A	14	A	13	A	13	A	18	B

Approach	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS
Woodville Road NB	33	C	38	C	36	C	34	C	34	C	44	D
Woodville Road NB left slip	13	A	13	A	13	A	14	B	13	A	14	B
Church Street SB	36	C	33	C	32	C	33	C	31	C	33	C
Church Street SB left slip	5	A	6	A	6	A	5	A	6	A	4	A
Parramatta Road WB	60	E	56	E	56	E	60	E	64	E	61	E
Parramatta Road WB Slip	44	D	45	D	42	C	42	C	48	D	45	D
Intersection	33	C	32	C	31	C	32	C	32	C	35	C

Approach	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS	Ave. Del.	LoS
Church Street NB	28	B	23	B	23	B	22	B	23	B	23	B
Church Street SB	59	E	77	F	71	F	80	F	67	E	84	F
M4 Motorway exit ramp	48	D	39	C	39	C	40	C	38	C	38	C
Intersection	48	D	50	D	48	D	51	D	46	D	52	D

Figure 1: Intersection Average Delay Morning Peak



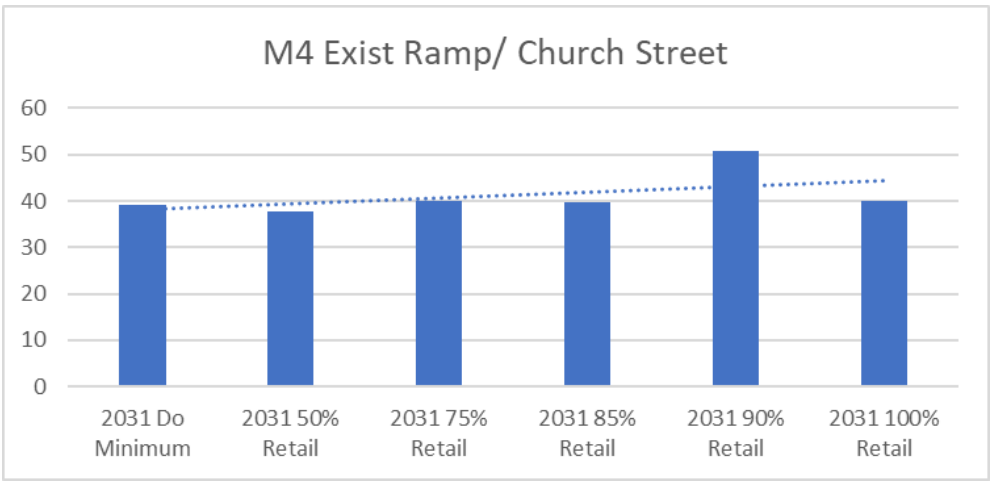
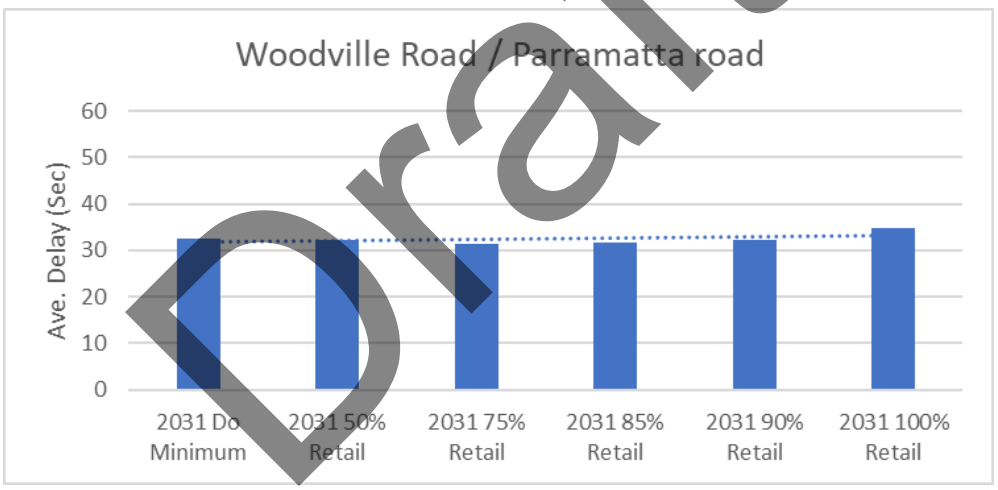
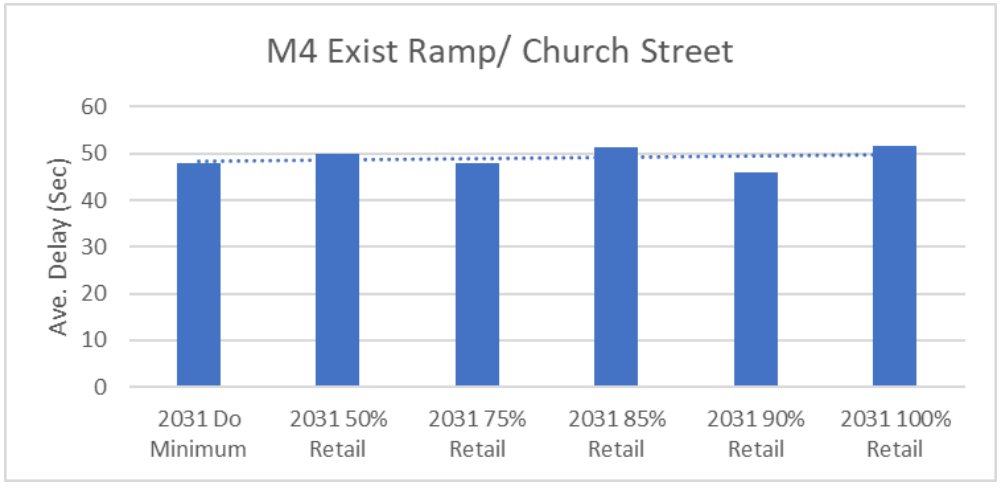


Figure 2: Intersection Average Delay Evening Peak





The results indicate that in the morning peak:

- Under all scenarios there is trend to increase intersection delay however all intersections reported were operating at Level of Service D or better.
- The M4 Motorway Exit ramp would have delays that range from 36 seconds for the Do Minimum case up to 65 seconds for the 90% demand case. The 90% demand case appears to be an outlier in the data.
- The intersection of Parramatta Road / Woodville Road crosses the threshold from Level of Service C to D in most of the development scenarios with the delays ranging form 36 to 48 seconds. The additional delay can be attributed to the Parramatta Road approach which increases from 51 seconds to 66 seconds under the full development scenario.

In the evening peak:

- The intersection Levels of Service remain in the same bands for each scenario.
- All intersections would operate at Level of Service D or better.
- The M4 Motorway exit ramp delay remains stable between 38 and 40 seconds delay while the Church Street southbound approach at this intersection range from 67 seconds to 84 seconds with the 90% demand being at the lower end.

Travel Time

Travel times were also recorded along Church Street and Parramatta Road Between Marion Street and James Ruse Drive. The morning results are shown in Table 4 and Table 5 for the eastbound and westbound direction respectively and plotted vs distance in Figure 3 and Figure 4

Table 4: Morning Peak Hour Eastbound Travel Times

Road	Side Street	Base	2031 Future	2031 50% Retail	2031 75% Retail	2031 85% Retail	2031 90% Retail	2031 100% Retail
Church St	Marion St	0:00	0:00	0:00	0:00	0:00	0:00	0:00
Church St	Raymond St	0:39	0:56	1:07	1:09	1:02	2:32	1:16
Church St	Western Mwy Off-Ramp	1:39	1:42	2:38	2:24	2:26	4:48	2:51
Church St	Parramatta Rd	2:00	1:53	2:48	2:34	2:52	5:28	3:21
Parramatta Rd	Mort St	2:19	2:15	3:40	3:05	3:39	6:34	4:14
Parramatta Rd	Bold St	3:02	3:47	5:24	5:12	5:37	8:25	5:59
Parramatta Rd	Good St	3:47	4:26	5:48	5:59	6:05	9:15	6:26
Parramatta Rd	Railway Crossing	5:44	6:34	8:07	7:18	8:08	11:11	8:36
Parramatta Rd	Marsh St	5:55	6:51	8:20	7:30	8:24	11:22	8:51
Parramatta Rd	James Ruse Dr	7:29	7:53	9:17	8:13	9:31	12:16	9:50

Figure 3: Morning Peak Eastbound travel time vs distance

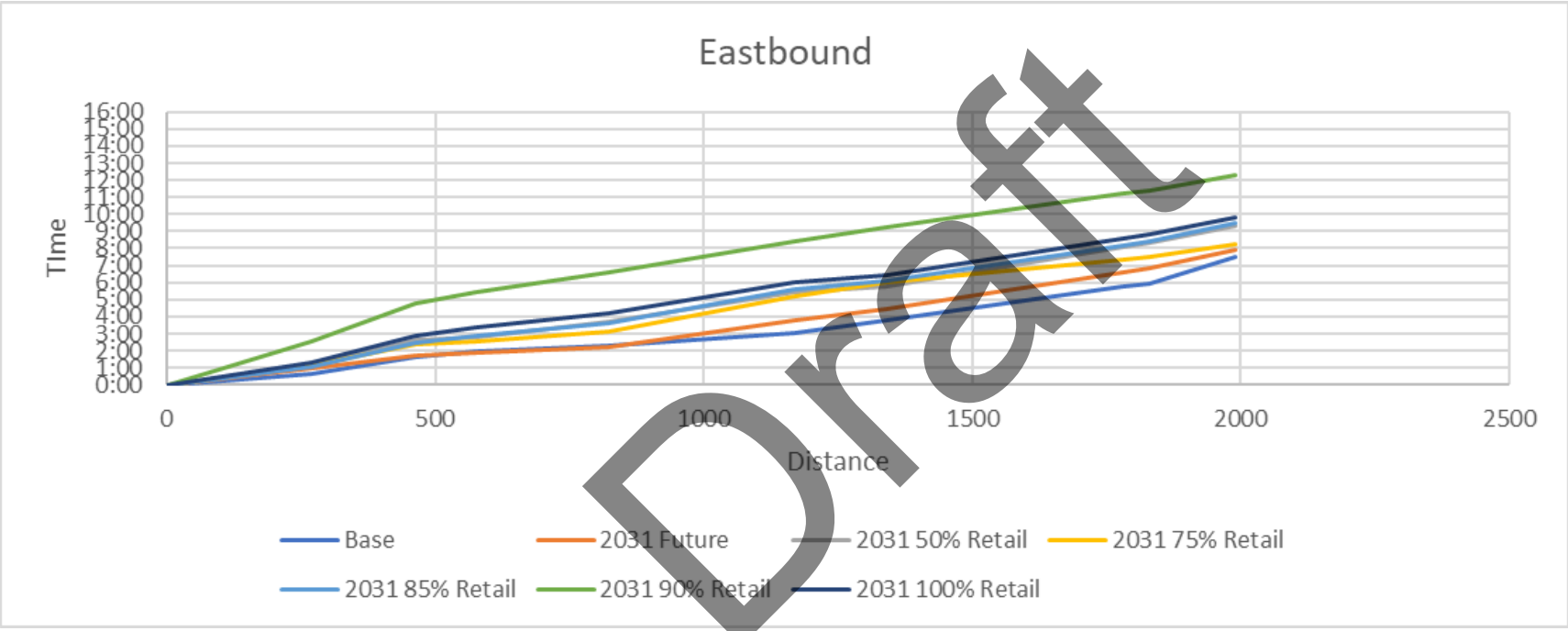
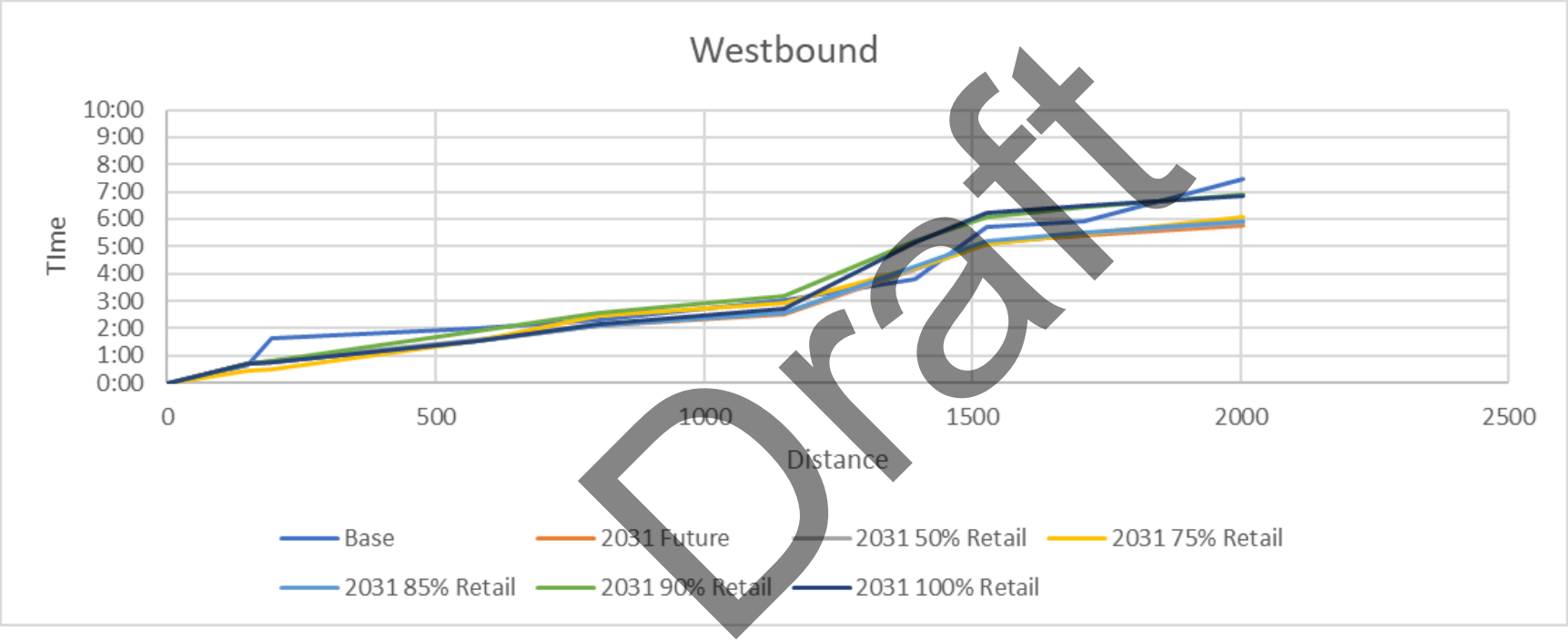


Table 5: Morning Peak Hour Westbound Travel Times

Road	Side Street	Base	2031 Future	2031 50% Retail	2031 75% Retail	2031 85% Retail	2031 90% Retail	2031 100% Retail
Parramatta Rd	Berry St	0:00	0:00	0:00	0:00	0:00	0:00	0:00
Parramatta Rd	Marsh St	0:39	0:42	0:43	0:25	0:41	0:43	0:41
Parramatta Rd	Railway Crossing	1:39	0:45	0:47	0:28	0:45	0:47	0:45
Parramatta Rd	Good St	2:00	1:32	1:35	1:32	1:32	1:54	1:33
Parramatta Rd	Bold St	2:19	2:05	2:08	2:28	2:06	2:35	2:10
Parramatta Rd	Mort St	3:02	2:31	2:34	2:55	2:32	3:10	2:44
Parramatta Rd	Church St	3:47	4:09	4:08	4:14	4:16	5:12	5:08
Church St	Western Mwy Off-Ramp	5:44	5:07	5:06	5:06	5:11	6:05	6:12
Church St	Boundary St	5:55	5:24	5:27	5:26	5:29	6:26	6:29
Church St	Marion St	7:29	5:47	5:52	6:05	5:54	6:54	6:52

Figure 4: Morning Peak Westtbound travel time vs distance



The morning peak results show that in terms of travel time:

- The 90% scenario appears to be an outlier in the model results.
- Eastbound the travel times range from 7minutes 53 seconds to 9minutes 50 seconds which is a 2 minute increase in travel time.
- The 75% retail scenario shows and increase of only 20 seconds eastbound through this appears to be an outlier result with most or the retail scenarios resulting in an increase of about 1 minute and 30 seconds.

The afternoon peak travel times are shown in Table 6 and Table 7 for eastbound and westbound directions and plotted on Figure 5 and Figure 6.

Table 6: Evening Peak Hour Eastbound Travel Times

Road	Side Street	Base	2031 Future	2031 50% Retail	2031 75% Retail	2031 85% Retail	2031 90% Retail	2031 100% Retail
Church St	Marion St	0:00	0:00	0:00	0:00	0:00	0:00	0:00
Church St	Raymond St	0:39	0:59	1:09	1:01	1:09	1:05	1:40
Church St	Western Mwy Off-Ramp	1:42	2:19	2:24	2:11	2:25	2:18	2:52
Church St	Parramatta Rd	1:53	2:26	2:34	2:21	2:34	2:27	3:00
Parramatta Rd	Mort St	2:10	2:45	3:05	2:58	3:03	3:05	3:19
Parramatta Rd	Bold St	2:42	4:04	5:12	4:38	4:59	5:13	4:45
Parramatta Rd	Good St	3:20	4:54	5:59	5:28	5:46	6:04	5:30
Parramatta Rd	Railway Crossing	3:57	6:01	7:30	6:54	7:31	7:29	6:55
Parramatta Rd	Marsh St	4:07	6:10	8:13	7:48	8:19	8:11	7:46
Parramatta Rd	James Ruse Dr	4:33	6:45	8:36	8:16	8:44	8:35	8:10

Figure 5: Evening Peak Eastbound travel time vs distance

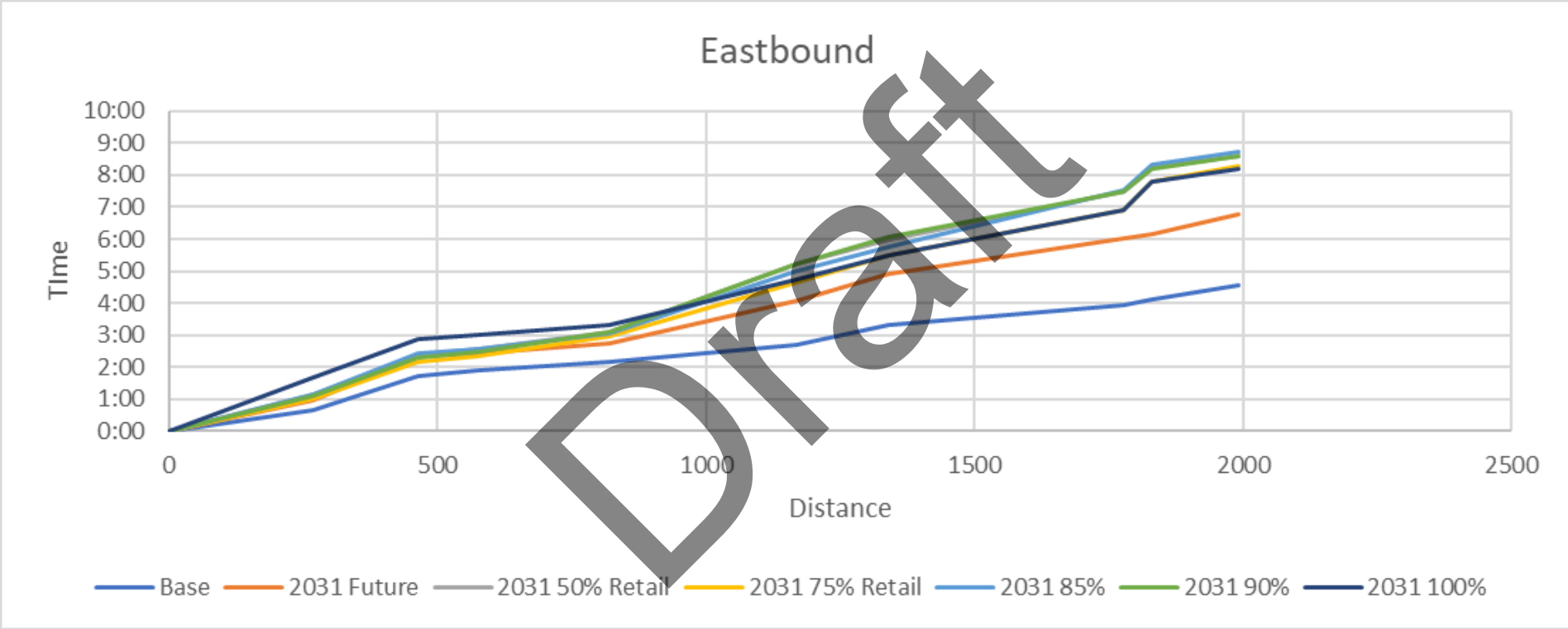
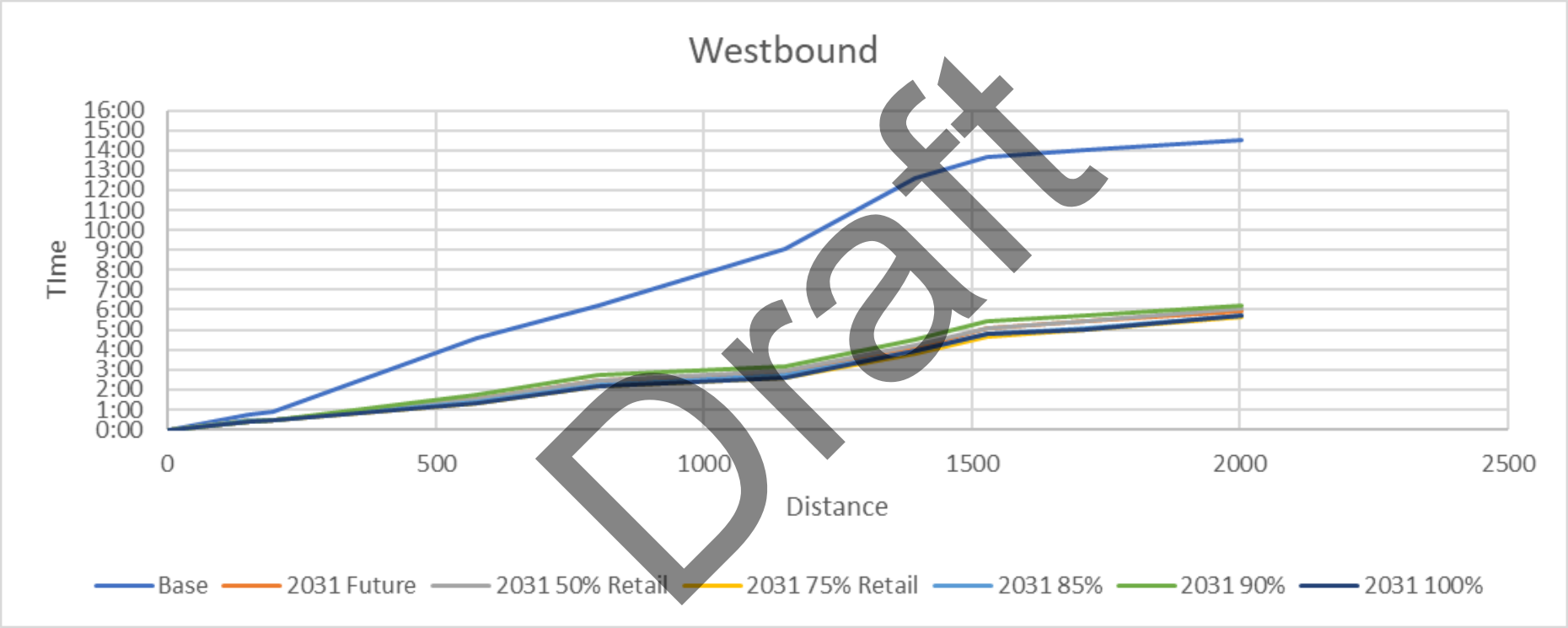


Table 7: Evening Peak Hour Westbound Travel Times

Road	Side Street	Base	2031 Future	2031 50% Retail	2031 75% Retail	2031 85% Retail	2031 90% Retail	2031 100% Retail
Parramatta Rd	Berry St	0:00	0:00	0:00	0:00	0:00	0:00	0:00
Parramatta Rd	Marsh St	0:45	0:24	0:25	0:26	0:26	0:25	0:23
Parramatta Rd	Railway Crossing	0:55	0:27	0:28	0:29	0:29	0:28	0:27
Parramatta Rd	Good St	4:34	1:30	1:32	1:20	1:22	1:46	1:17
Parramatta Rd	Bold St	6:13	2:25	2:28	2:09	2:16	2:45	2:10
Parramatta Rd	Mort St	9:04	2:48	2:55	2:34	2:42	3:11	2:36
Parramatta Rd	Church St	12:34	4:07	4:14	3:49	3:56	4:32	3:55
Church St	Western Mwy Off-Ramp	13:41	5:06	5:06	4:41	4:48	5:24	4:46
Church St	Boundary St	14:02	5:25	5:26	5:00	5:04	5:42	5:02
Church St	Marion St	14:29	5:57	6:05	5:39	5:44	6:14	5:44

Figure 6: Evening Peak Westbound travel time vs distance



The evening peak results showed that:

- The eastbound travel times increase by 1minute 30 to 2 minutes for the development scenarios.
- Westbound travel times remain similar to the Do Minimum with a range of 5 minutes 39 seconds to 6 minute 14 seconds.

Conclusion

The updated modelling shows that all scenarios would result in acceptable levels of service D. However, in the morning peak the intersection of Woodville Road and Parramatta Road would cross the threshold from Level of Service C to Level of Service D for most of the scenarios. The 85% of retail scenario showed a result that was within the Level of Service C range.

In both the morning and evening peak periods the model shows an increase in travel times in the eastbound direction of up to 2 minutes with the development while the westbound travel times remain similar to the do minimum. These eastbound travel times are relatively unaffected by changes in the retail volumes as the revised retail distribution has not assigned many retail trips to Parramatta Road. **There is no guidance on what an acceptable level of travel time increase is.**