



9 December 2020

Mr Chris Ritchie
Director, Industry Assessments
Department of Planning, Industry and Environment
Locked Bag 5022
Parramatta NSW 2124

Attention: Laurise Yousif

Dear Mr. Ritchie,

**REVIEW OF SIDRA MODEL AND ROAD SAFETY AUDIT
ORICA SOUTHLANDS WAREHOUSE ESTATE
28 MCPHERSON STREET, BANKSMEADOW**

Thank you for referring the abovementioned application which was referred to Transport for NSW (TfNSW) for comment. TfNSW has reviewed the submitted information and provides the following comments for the Department's consideration:

SIDRA MODEL

Comment:

Traffic generation from the development site will be concentrated at the intersection of Exell Street and Botany Road. Exell Street, on approach to Botany Road, currently experiences high delays and long queue lengths during peak times. However, this delay is not reflected in the proponent's SIDRA analysis, where it was shown that delay does not exceed 12 sec/vehicle that is Level of Service (LoS) A / free flow.

TfNSW believes that the reason for this discrepancy between the SIDRA analysis and the actual site conditions can be explained by the values used for the calibration parameters in the base model. The calibration parameters of interest here are Critical Gap and Follow-up Headway. Specifically:

- The Critical Gap is defined as the minimum time (headway) between successive vehicles in the opposing (major) traffic stream that is acceptable for entry by opposed (minor) stream vehicles.
- Follow-up Headway is the average headway between successive opposed (minor) stream vehicles entering a gap available in the opposing (major) traffic stream. Small changes in these parameters have a significant impact on capacity and performance estimates.
- The default values in SIDRA are five (5) seconds for the critical gap and three (3) seconds for follow-up headway. By adopting these values, and the volumes at the intersection, TfNSW were able to replicate a result similar to that provided in the proponent's report.

However, where a turning lane caters for a high percentage of heavy vehicles, as occurs out of Exell Street (53.6%), an adjustment to these default values should be undertaken. Austroads' *Guide to Road Design Part 4A (AGRD 4A)* provides a range of values for critical gap and follow-up headway for different intersection types, as a guide. The highest value for critical gap is eight (8) seconds, and that for follow-up headway is five (5) seconds, per AGRD 4A.

If the default values for critical gap and follow-up headway are used, then queue length for Exell Street is 21 metres, which is similar to the applicant's output per *Table 5: Botany Road and Exell Street intersection performance* of their report. However, if the critical gap value is increased from 5 seconds (default value) to 8 seconds (highest value per AGRD 4A) and the follow-up headway is increased from 3 seconds (default value) to 5 seconds (highest value per AGRD 4A), then the queue length in Exell Street increases dramatically from 21 metres to 561 metres, and the average delay increases from 13.2 sec/vehicle (LoS B) to 475.6 sec/vehicle (LoS F).

Although these maximum values for critical gap and follow-up headway may not be observed, these results are more in line with actual site observations where delays and queue lengths out of Exell Street during peak times are unacceptable and typical of a LOS (F).

In summary, the values for critical gap and follow-up headway used by the proponent in the base model have not been adjusted, and hence the queue length and delay reported is incongruent with actual site observations. The intersection of Botany Street and Exell Street is already saturated, meaning that the expected 28% increase in trips to this intersection would have a noticeably negative impact not only on the proposed development operations but also on other road users accessing Exell Street and McPherson Street.

Recommendation:

As the expected 28% increase in trips to Botany Street and Exell Street, which is already underperforming will further impact both the local and classified road networks, surrounding sites and the proposed development's operations. Therefore, TfNSW recommends that the site is conditioned to undertaking road works in the form of creating a zipper merge eastbound along Botany Road to end approximately 100 metres east of Exell Street. Specifically:

- To cater for heavy vehicle swept paths, use of the pavement on the southern side of Botany Road is necessary, as well as removal of parking from opposite Exell Street 100 metres to the east. Lane widths are to be a minimum of 3.5 metres; and
- Provision of a separator between the left turn out of Exell Street and the through eastbound lane from the triangular island east for 60 metres. The feasibility of the concept needs to be investigated in accordance with relevant documents, Australian Standards, Austroads' *Road Design and Traffic Management Guidelines*.

ROAD SAFETY AUDIT (RSA)

Comment:

The proposed driveway is located well within the local road network and a cul-de-sac and should be referred to the local Council, who are the roads authority for review and comment.

Recommendation:

In addition to the above, TfNSW provides the proponent with the following comments on the RSA for consideration:

- Having heavy vehicles and passenger vehicles share a common driveway is considered inappropriate from a safety and operational perspective. TfNSW would recommend separate vehicle crossovers to minimise conflict;
- Similarly, in regards to the internal layout, having passenger vehicle parking spaces located in areas exposed to heavy vehicle conflict is also inappropriate, however TfNSW notes the issues with the large internal easement that bisects the property e.g. requiring offsets to buildings and no permanent structures; and
- Also, there is an absence of defined internal pedestrian/bike pathways – the single pathway provided along the west boundary line appears to be insufficient.

If you have any further inquiries in relation to this development application please contact Narelle Gonzales, Development Assessment Officer, on 0409 541 879 or by email at: development.sydney@transport.nsw.gov.au.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'B. Pegg', with a stylized flourish at the end.

Brendan Pegg
Senior Land Use Planner
Planning and Programs, Greater Sydney Division