ATTACHMENT 9

Traffic Survey Data

Council resolved the following at its Ordinary Meeting of 9 February 2011:

"*That in view of the difficult situation Council finds itself in relation to the DA before the JRPP for a multi-storey development on Merriville Road, that Council urgently undertake a detailed multi-day traffic count at the intersection of Merriville Road and Old Windsor Road, Kellyville Ridge."*

In response to the above resolution, Council's Senior Traffic Management Officer was instructed to undertake a traffic and queue length survey on Merriville Road between the proposed development access at 6 Merriville Road and Windsor Road, and prepared the following report. The survey was undertaken during the peak hour morning and afternoon periods.

The approximate distance between the proposed roundabout and the Windsor Road traffic signals is 114m. The queue length survey, at the intersection of Windsor Road and Merriville Road, undertaken in February 2011 indicated that the maximum number of vehicles queuing at the intersection at any one time (i.e. one signal cycle) is 17 vehicles. This equates to a distance of approximately 100m. Based on the queue length survey the existing queue at this intersection is therefore just out of the proposed roundabout.

Currently there are 2 right turn lanes and 1 left turn lane on the approach to the intersection. Therefore, it is evident that if the number of lanes is reduced the queue length back from the traffic signals would increase and impact on the operation of the proposed roundabout. To address this issue it has therefore been proposed that 2 approach lanes and 2 exit lanes be provided for the eastbound traffic through the proposed roundabout, and that the single westbound lane be maintained.

INTERSECTION MODEL

The proposed roundabout has been analysed with SIDRA software with the proposed lane configuration of 2 approach and exit lanes for the eastbound traffic, and 1 approach and exit lane for westbound traffic. The operation of the roundabout has also been tested for the future years 2020, 2025 and 2030 allowing a 2% growth of the background traffic.

RESULTS

The output results of the intersection analysis for the proposed roundabout, for current and future years, are tabulated below:

Proposed roundabout on Merriville Road at the entry to the development site

Year	Level of Service	Average Delay	Queue Length West Approach	Queue Length East Approach
2011 AM	A	8.6 sec	2 veh	8 veh
2011 PM	A	8.8 sec	2 veh	7 veh
2020 AM	A	8.9 sec	3 veh	10 veh
2020 PM	A	8.8 sec	2 veh	8 veh

2025 AM	A	9.0 sec	3 veh	13 veh
2025 PM	A	8.9 sec	2 veh	9 veh
2030 AM	A	9.0 sec	3 veh	15 veh
2030 PM	A	8.9 sec	2 veh	10 veh

Note: For Level of Service (LOS), please refer to the table below.

In the analysis a 2% growth in the background traffic is allowed as a worst case scenario. In reality this would be less. The results of the analysis indicate that the proposed roundabout, with the proposed lane configuration of 2 approach and exit lanes for eastbound traffic and 1 approach and exit lane for westbound traffic, will operate at Level of Service "A" with minimal average delay until 2030. The queue length on the west approach of the roundabout will be 3 vehicles and 15 vehicles on the east approach in 2030. The queue distance for 15 vehicles is approximately 90m, which is less than the available distance of 114m between Windsor Road and the proposed roundabout. Therefore the proposed configuration of the roundabout can accommodate the existing and future queue lengths in the available space between Windsor Road and the proposed roundabout. Therefore, the analysis undertaken with the recent traffic and queue length survey is comparable with the previous analysis undertaken in 2010.

Average Delay Per Vehicle In Seconds	Levels of Service (LOS)
0 to 14	= "A" Good
15 to 28	= "B" Good with minimal delays and spare capacity
29 to 42	= "C" Satisfactory with spare capacity
43 to 56	= "D" Satisfactory but operating near capacity
57 to 70	= "E" At capacity and incidents will cause excessive delays. Roundabouts require other control modes.
>70	= "F" Unsatisfactory and requires additional capacity

Note: For traffic signals, the average delay per vehicle in seconds is calculated as delay/(all vehicles). For roundabouts, the average delay per vehicle in seconds is selected for the movement with the highest average delay per vehicle.