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Dear Tessa

INTERIM ADDENDUM TO WEST GATE TUNNEL PROJECT TRANSPORT EVIDENCE STATEMENT - MATTER 21701517

This addendum letter has been prepared to supplement my Expert Evidence Report (referred to as 'Report') to the Inquiry and Advisory Committee (IAC) of the West Gate Tunnel (WGT) Project.

The first part of this letter provides additional comments following a brief review of the micro-simulation model used for the WGT Transport Impact Assessment (TIA). The second part of this letter provides comments in relation to the responses to IAC's notes and requests, and new information supplied by the Western Distributor Authority (WDA).

Following review of this information, additional mitigation measures have been recommended.

Micro-Simulation Modelling

Chirag Safi and I were provided an opportunity to meet with the Western Distributor Authority (WDA) (Paul Smith attended) and its consultant, GHD, to discuss the micro-simulation modelling process and to view some of the visual animation of the micro-simulation model. The latter was limited to approximately the peak 15-minutes of the AM and PM peak periods. We requested a considerable amount of data for traffic movements, both before and after, and any SIDRA assessments that may have been undertaken. We stressed the urgency of obtaining the information.

I made a further request to Paul Smith for a copy of the model so that we could carry out further detailed testing/analysis. He said he could not provide a copy, reasoning that it 'might change the model'. I responded that that was not possible as GHD would be keeping their model, and we could not change their version. I also mentioned that, acting

for Frankston City Council in relation to the Western Port Highway upgrade to Freeway Planning Panel, we were provided with the model and were able to demonstrate severe shortcomings with it.

At the time of writing, no further information or data has been provided.

“Reinforced” Comments

The following comments from my Report are strengthened:

- The micro-simulation model solely focused on the project corridor and the interchanges.
- The modelling assumed that any complementary improvements outside of the immediate project corridor would be carried out by VicRoads or local councils independently, and so were not modelled.
- Critical modelling shortcomings included:
 - The proposed extended fifth WBD lane was shown to east of Kororoit Creek Road where the model extent finished – thus showing good operations outbound in the PM peak. Had it been extended to beyond the Kororoit Creek Road outbound on-ramp, it would have showed that the lane would need to be extended -most likely to Forsyth Road (a need also identified by VicRoads);
 - Interchange upgrades at Millers Road and Melbourne Road were incorporated, but upgrades to Millers Road, Geelong Road, Grieve Parade, Blackshaws Road and Melbourne Road to accommodate ‘induced’ demand or ‘diverted’ truck volumes were not;
 - The eastern extent of the model was on the West Gate Bridge;
 - M80 Western Ring Road model extent finished before the Boundary Road interchange.

New Comments

- There are some inconsistencies between the preferred design and micro-simulation models. For example, the micro-simulation model extended the third WBD lane exiting the tunnel into West Gate Freeway Distributor Road, and as such, implications of the lane drop are not captured. As modelled, there was flow breakdown in this merge during the PM peak.
- Simulated traffic volumes appeared to be unreasonably low. The peak hour volumes on the West Gate Bridge were not expected to change relative to the current conditions, although the simulation showed substantially lower densities and near free-flow conditions - which is not explained.
- Some local street intersections are modelled to “proxy” their operations or to allow for maximum throughput onto the project corridor:

- For example, the Altona Gate Shopping Centre intersection was modelled as a “dummy” intersection without cross streets. While it was claimed that the total traffic volumes on Millers Road reflect the shopping centre traffic, the implications of increased traffic volumes on Millers Road on the cross-street intersections cannot be identified if it’s not modelled. My observation of this intersection is that it is often congested and generates right turn queues that block SBD Millers Road through traffic create longer queues. Increased traffic volumes in SBD Millers Road could extend the queues further north and affect the interchange operations.
- Another example is Geelong Road and Millers Road intersection, which was set with no signal control to allow maximum throughout in the SBD on Millers Road. However, increased truck volumes in NBD Millers Road could potentially create longer queues at the Geelong Road intersection which in turn could restrict the existing movements from the local streets.
- Significant queueing occurred in Millers Road northbound between the WBD ramps and Blackshaws Road. This can be attributed to increased traffic volume due to the WGT project. This occurred without the shopping centre access being included.
- It appeared that the queues in the SBD right turn lane leading to the WBD on-ramp extended back so as to affect the Federation Trail crossing and side streets.

WDA Responses to IAC Comments

The IAC’s comments, the WDA responses, and subsequent comments from me are provided below.

IAC Note #4:

Further information on intersection performances where the level of service for a movement is below D in the 2031 project case, particularly the expected queue lengths and ability to accommodate expected queue lengths, by lane, and any consideration and constraints, to upgrade intersections to improve the level of service on the individual approaches.

WDA Response related to #4:

Microsimulation modelling has been performed for a number of intersections along the project corridor, including typically one intersection beyond the project itself. The layout tested within the microsimulation model is based on the layout provided by CPBJH. No attempt has been made as part of the Transport Impact Assessment to further upgrade the intersections to address any issues identified.

Traffic performance data has been extracted from the microsimulation model based on approaches, rather than individual lanes, this includes all lanes, both turning and through lanes. The queue length data provided is the 95th percentile queue length of the longest queue on each approach. This data has been provided for all intersections rather than just those which has a level of service below D.

My Comments related to #4:

The WDA response misrepresents the extent of the microsimulation models. The 'One intersection beyond the project' concept has not been adhered to. Instead of only one intersection, the critical intersections (to be identified in consultation with the local councils) should be included in the microsimulation modelling.

It is important to obtain traffic performance data for individual lanes to form an opinion on probable mitigation measures. It is 'standard practice' to use SIDRA models for this exercise, and report on a movement (e.g. a right turn from the north) basis. While the complete data was not provided, based on the review of the performance tables, I note the following:

- Queues on NBD Williamstown-Melbourne Road approach to the West Gate Freeway interchange predicted to extend into the Avenue intersection for the 7-8 AM period;
- Queues on SBD Millers Road approach to the West Gate Freeway predicted to extend past the Federation Trail Crossing and Cypress Avenue to the north for the 7-8 AM, 8-9 AM and 4-5 PM periods;
- Queues on NBD Millers Road approach to the West Gate Freeway predicted to extend into Marigold Avenue intersection to the south for the 8-9 AM, 4-5 PM and 5-6PM periods;
- Queues at the Williamstown Road off-ramp approach predicted to extend to the West Gate Freeway for the 5-6 PM period;

I was unable to determine compounding effects of queues on Millers Road and Melbourne Road due to insufficient data. I again request intersection performance data be provided at the following:

1. Millers Road/Altona Gate Shopping Centre
2. Millers Road/Beuron Road
3. Millers Road/Blackshaws Road
4. Millers Road/Geelong Road
5. Melbourne Road/the Avenue
6. Melbourne Road/Hudsons Road

IAC Note #5:

An assessment of the intersection performance on the intersection of Millers Road and Princes Highway and the intersection of Millers Road and Cypress Avenue.

WDA Response related to #5:

SIDRA modelling of the intersections of Geelong Road/Millers Road and Millers Road/Cypress Avenue have been undertaken. The results of these are provided in Table 1 and Table 2 respectively.

The Geelong Road/Millers Road intersection has been modelled for 2031 no project, and 2031 with project. It should be noted that VicRoads is currently investigating potential improvements to this intersection.

The Millers Road/Cypress Avenue intersection has been modelled for 2031 with project.

My Comments related to #5:

The Geelong Road/Millers Road intersection would operate with level of service 'F' during the AM and PM peak hours, although the delays and degree of saturation would improve with the WGT project relative to the 2031 No Project conditions. Given VicRoads is currently investigating potential improvements to this intersection, the WDA response is satisfactory, in my opinion.

Under 2031 with project conditions, the vehicles exiting Cypress Avenue onto Millers Road are estimated to experience an average delay of approximately 3.5min during the PM peak hour. This is considered significant and has potential to impact resident's ability to safely and efficiently turn onto Millers Road. Similar delays could be experienced at other local streets between Cypress Avenue and Geelong Road, primarily due to an increase in truck traffic along Millers Road.

IAC Note #6:

An origin-destination assessment of trucks using Millers Road north of West Gate Freeway in the 2031 with project scenario.

WDA Response related to #6:

Select link plots have been generated using the VLC strategic model for Millers Road in 2031 with the West Gate Tunnel Project. These have been produced for each direction separately for ease of analysis and show daily truck movements.

The plots are designed to show where vehicles come from and travel to when crossing a location along Millers Road. The values presented on the plots are proportions of vehicles rather than actual volumes for ease of analysis.

The northbound plot (Figure 1 attached) shows that the bulk of traffic travelling north of Millers Road comes from the West Gate Freeway east of Millers Road, with 42% coming through the West Gate Tunnel and 25% coming across the West Gate Bridge. There is also some traffic travelling along the West Gate Freeway west of Millers Road, with these vehicles most likely having a destination within Brooklyn or Tottenham.

The bulk of northbound vehicles travelling along Millers Road are heading into Brooklyn and Tottenham. Some vehicles are choosing to exit the freeway at Millers Road to travel to Little Boundary Road.

The southbound plot (Figure 2 attached) shows that the bulk of traffic travelling to Millers Road is coming from the Brooklyn and Tottenham area. However, it is also showing that 14% of vehicles are exiting Princes Freeway West at the Geelong Road ramp to then travel south along Millers Road.

The plot also shows that the bulk of vehicles heading south on Millers Road are heading east along the West Gate Freeway, with 49% heading into the West Gate Tunnel and 24% heading across the West Gate Freeway.

My Comments related to #6:

The WDA response and select link maps confirm that Millers Road would be utilised as a toll avoidance route. Trucks travelling between West Gate Freeway (east) and Little Boundary Road are shown to travel northbound on Millers Road, instead of Grieve Parade. I am confident that if the tolling point between Grieve Parade and Millers Road is removed, these trucks would exit the freeway at Grieve Parade.

Similarly, a substantial number of trucks from the west is shown to avoid the toll point between Grieve Parade and Millers Road by exiting early at the Geelong Road ramp and then travelling southbound on Millers Road to access the distribution centres in North Altona.

Recommended Additional Mitigation Measures

- GHD remarked that the main reason for the additional truck traffic on Millers Road north of WGF was the toll point between Grieve Parade and Millers Road. This toll point between Grieve Parade and Millers Road needs to be removed to reduce the increase in truck traffic on Millers Road. This is anticipated to minimise the toll diversion from Grieve Parade to Millers Road, and redirect the trucks onto West Gate Freeway. Alternatively, with the designs and toll points in their proposed form through the date of this letter, construct west-facing ramps between Dohertys Road and Princes Freeway to relieve Millers Road from diverted truck traffic.
- Add “Keep Clear” area on Millers Road northbound at the exit from the strip shopping centre south of the interchange.
- With the designs and tolling points in their proposed form through the date of this letter, add “Keep Clear” areas on Millers Road at the following side street intersections.
 - Stenhouse Avenue
 - Eames Avenue
 - Cypress Avenue
- In order to reduce side street delays, the Millers Road / Cypress Avenue intersection should be signalised (or one of the intersections to the north). This would need to be determined by a local area traffic study in consultation with Council.
- With the designs and tolling points in their proposed form through the date of this letter, signalise the Primula Avenue intersection with Millers Road and operate it linked to the EBD ramps.
- Construct second left turn from north to east between Millers Road and West Gate Freeway.

- With the designs and tolling points in their proposed form through the date of this letter, grade separate the Federation Trail across Millers Road.

It should be noted that we have not yet been provided with the 'promised' data from our visit to GHD to view the models. I will update this Addendum if and when further information is supplied by WDA/GHD. If you require any further information, please contact me on 0419-334404, or 9804-3610.

Yours sincerely

O'BRIEN TRAFFIC

A handwritten signature in blue ink that reads "Andrew O'Brien".

Andrew O'Brien
Chairman and Director