MEMORANDUM

HARRIES
TRANSPORTATION ENGINEERS LTD.

To:	Anthony Blomfield – Bentley & Co. Ltd	**From:**	Brett Harries
cc:		**HTE File:**	cen02
cc:		**Date:**	27 June 2025

Re: Jaafar Holdings Ltd – 44 Mt Wellington Highway
Variation to Conditions 1 and 10 of Resource Consent LUC60326896
Response to Supplementary Further Information Request - Traffic

This memorandum responds to a Supplementary Further Information Request received from Auckland Council by email dated 16 June 2025 ("Supplementary RFI"). It is as follows

> *"We acknowledge the applicant's response to Query 1 in relation to the visibility of the billboard and interaction with the interchange traffic signals; however, it does not fully address the intent of the original query. Specifically, the assessment should focus on the extent to which a westbound motorist is exposed to billboard image changes while approaching the traffic signals, up to the intersection limit line or signal head.*
>
> *We request that the analysis be refined to outline the impact of the proposed dwell time (8 seconds vs 30 seconds) on driver exposure on the southbound approach, including:*
>
> - *The number of image changes a driver may experience when approaching the primary signal head for the southern interchange on Mt Wellington highway westbound*
> - *The impacts associated with each traffic lane/movement, considering the signal head drivers of each lane/movement, will be focussed*
>
> *The analysis should take into consideration the distance the billboard is setback from impacted signal heads, the turning movements at the interchange and the operation of interchange platoons."*

This response to the further query above should be read in conjunction with:

a) the Traffic Engineering Report "*Proposed Consent Variation - Digital Billboard Dwell Time – 440 Mt Wellington Highway, Mt Wellington*" dated 17 March 2025 ("TER"); and

b) the memorandum "*Response to Further Information Request – Traffic*" dated 28 May 2025 ("First RFI Response").

In essence, the Supplementary RFI seeks refinement of the analysis provided in response to Query 1 of the First RFI, primarily insofar that it requests more specific assessment of exactly what a southbound driver sees of the standard primary traffic signal in relation to the billboard. The assessments already provided in response to Query 1 of the First RFI were more wide-ranging and conservative insofar they considered the longer visibility distances to the billboard beyond any commensurate visibility to the signal lantern, and it assumed that all drivers in all lanes (i.e. including the right turn lane onto the westbound on-ramp) would be reliant on the standard primary which in practice is not the case. This latter point is discussed further below.

In terms of response to the query's question regarding platoon effects, this was touched on in the TER. It was noted that for southbound traffic approaching the proposed billboard, they would have arrived either from the Southern Motorway eastbound off-ramp, or as through traffic from Mt Wellington Highway. Either way, they would have to pass through the northern (i.e. upstream) of the two signalised intersections that make up the interchange, and in that regard there would be a very high degree of platooning for southbound motorists as they pass through the nearby upstream intersection before entering the subject (downstream) intersection.

Further, as the upstream intersection and the subject downstream intersection are coordinated, this means that essentially all vehicles within each platoon would proceed through the subject downstream intersection on a green wave. The coordination of the two signalised intersections is such that the upstream intersection operation leads the downstream intersection operation. The coordination between the two signalised intersections means traffic travelling through the subject intersection (in either Lane 1 or 2), will rarely ever get to see a red signal displayed at the downstream intersection, or be queued for at the downstream intersection. Consequently, this means that vehicles will generally be free-flowing.

The standard primary (and standard tertiary) signals have only one aspect that has as its only function an through-arrow display. As noted above, only Lanes 1 and 2 accommodate through movements. This means that these two signals do nothing to inform the right turn movement, and would be of no interest or relevance to right-turning drivers.

Accordingly, and in order to best respond to the further analyses required by the Supplementary RFI, only Lanes 1 and 2 are considered over the lengths of each approach from the commencement of visual overlapping of the primary signal with the billboard behind, through to the limit line for the southbound approach. As noted in Section 3.3 of the TER, the commencement of visual overlapping in Lane 1 occurs at 40.5m from the limit line, and in Lane 2 it commences 78m from the limit line.

When applying the travel speeds through each of these distances in each approach lane, consideration has been given to the fact that through vehicles will generally be moving

through on a coordinated green wave. Accordingly, the analyses have assumed that the measured 85th percentile and measured mean speeds of southbound vehicles will apply to each approach lane.

Table 1 below summarises the results of these analyses, where the maximum number of image transitions has been determined over the distances as detailed above for each of the current 30-second and proposed 8-second dwell times.

	Southbound Lane 1	Southbound Lane 2
	Signal interaction distance 40.5m	Signal interaction distance 78m
85th Percentile Speed 54km/h – Maximum No. of Transitions		
30 sec dwell time	1	1
8 sec. dwell time	1	1
Mean Speed 47.6km/h - Maximum No. of Transitions		
30 sec dwell time	1	1
8 sec. dwell time	1	1

Table 1: maximum number of visible transitions for 8-second and 30-second dwell times

As apparent from the above table, the analyses demonstrate that when considering the lengths of the southbound approach lanes where there may be the potential for visual interaction between the traffic signals and the existing billboard behind, there will be no change to the maximum number of possible image changes that will be visible to drivers, i.e. for both the current 30-second and the proposed 8-second dwell times, drivers will either see no image changes at all, or at most will see just one image change.

Accordingly, this response to the Supplementary RFI further confirms the assessments previously provided and the conclusion reached in the TER that the proposed variation to enable an 8-second dwell time can be achieved in the knowledge that its potential adverse road safety effects will in practice be less than minor, if not negligible. Accordingly, it can be confirmed that the proposed dwell time variation will be appropriate and acceptable from both traffic operations and road safety perspectives. It is fully supported by research and practical trials; it is consistent with industry best practice in New Zealand; and it will ensure that appropriate levels of road safety are maintained.

B Harries

Harries Transportation Engineers Limited