IN THE MATTER	**of applications pursuant to the Resource Management Act 1991**
BY	**Foodstuffs North Island Limited**
FOR	**Resource consent for the construction and operation of a new supermarket with an associated drive through fuel facility including car parking and all other enabling works.**

SUPPLEMENTARY STATEMENT OF EVIDENCE (TRAFFIC)

Mike Meister

10 September 2019

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1 INTRODUCTION

1 My full name is Michael Peter Meister. My qualification and experience are set out in my primary evidence in chief (EIC).

2 In preparing this addendum to my EIC, I have participated in caucusing with the Applicant and traffic engineers acting on behalf of The Base and Countdown submitters. I have also read the following further information:

a Updated Transport Assessment – Further Information prepared by Traffic Planning Consultants Ltd, 6 August 2019;

b Updated Site Plans, dated 8 August 2019;

c Traffic Modelling outputs prepared by BBO, 16 June 2019 and 6 September 2019; and,

d Foodstuffs North Island Limited Caucusing Notes, Dated 30 July 2019

2 UPDATED PROPOSAL

3 On page 2 of the Updated Transport Assessment, the applicant lists the changes to the Pak'n Save proposal. Several of these relate to safety improvements and rearrangement of the internal site layout to address safety concerns raised during caucusing. Matters in relation to these are addressed by Mr Alastair Black on behalf of HCC.

4 With respect to traffic, there are three key changes to the original proposal that the applicant has made to address concerns raised during caucusing. These are:

a Site access from Te Rapa Road is now entry only and includes a left turn deceleration lane. The left turn exit onto Te Rapa Road is no longer provided;

b At the Maui St extension/Eagle Way/Karewa Place intersection, a roundabout will be built. This replaces the previous proposed priority Tee intersection; and,

c On Eagle Way, the left turn lane into Pak n Save and the right turn lane into Countdown have been extended.

5 In my EIC, I questioned whether the Pak'n Save proposal could operate without any access from Te Rapa Road. On behalf of HCC, BBO tested this scenario using the 2031 Vissim Model. Based on my review of the Vissim model outputs I do not consider this an acceptable solution due to the significant adverse effects on surrounding intersections, with high delays to motorists and long queues. It is therefore my conclusion that left turn access into the Pak'n Save site from Te Rapa Road is necessary to mitigate traffic effects of the proposal.

6 I also support the change of intersection control at the Eagle Way/Karewa Place to a roundabout as this will allow vehicles to now exit Pak'n Save via Eagle Way in order to return to Te Rapa Road.

3 Updated 2031 Vissim Model Outputs

7 The applicants Updated Transport Assessment includes the new June 2019 Vissim modelling results provided by Mr Cameron Inder of BBO for the revised Pak'n Save proposal. However, my recent discussion with Mr Inder identified that these model outputs are based on the applicant's trip distribution, and not the BBO distribution.

8 As stated in my EIC[1] my preference is to use the BBO distribution which is my view is a more robust method. On 4th September 2019, I therefore requested a new Vissim model run using the BBO distribution so I could compare the network performance results with those presented in my EIC.

9 To clearly identify the different Vissim model outcomes, I have prepared a table which summarises the 2031 network performance results at the key intersections using both the Applicant's and BBO trip distributions for the updated Pak'n Save proposal. My table is appended to this supplementary evidence as **Attachment 4** which supercedes **Attachment 1 and 2** of my EIC.

10 Using **Attachment 4**, my conclusions below now replace paragraph 25 of my EIC. Note, because not all the Pukete Road/Wairere Drive intersection movements were

[1] Paragraph XX of EIC

provided in the Vissim outputs, the junction has been excluded from my supplementary evidence to avoid skewing the modelling results (as is likely to have occurred in my EIC).

a The overall predicted 2031 network delays for the four key intersections are acceptable as they are only marginally higher (35.7 to 35.9s/veh) with Pak'n Save than the Baseline (33.3s/veh), regardless of the adopted trip distribution method;

b Total vehicle numbers using the four key intersection movements with the Pak'n Save proposal vary between 15,217 and 15,782 vehicles/hour, which is only marginally higher (max 5.7%) than the Baseline flow of 14,930 vehicles/hour. This increase is considered acceptable;

c With the Pak'n Save proposal and BBO distribution, both the major intersections of Te Rapa Rd/Wairere Dr and Te Rapa Rd/Base Parade, are predicted to perform with marginally better (-0.6% to -2.2%) overall delay than the Baseline. Although the Applicant's distribution method indicates both intersections are predicted to operate with higher overall delays, I consider this to be still acceptable given the increase is between +1.8% and +10.3% of the Baseline delays;

d Maximum movement delays at the Te Rapa Road/Wairere Drive and Te Rapa Road/The Base/Eagle Way intersections exceed the desired levels of service (55s/veh) stated in the District Plan for both the Baseline and Pak'n Save proposal. However, on balance, the intersection movement delays caused by the Pak'n Save proposal using either distribution method is in my view acceptable, particularly as max movement delays of up to 117s/veh are expected to occur in the Baseline;

Intersection Location/Type	Max Movement Delay (s/veh)		
	Baseline	Pak'n Save Applicant	Pak'n Save BBO
Te Rapa/Wairere/Avalon – Signals	71	85	107
Te Rapa/Base/Eagle Way – Signals	117	126	84
Eagle Way/Karewa – Baseline Tee and Pak'n Save a roundabout.	21	34	35
Wairere/Karewa – Left Turn in/out in Baseline, Partial signals with Pak' n Save	6	30	21

Max Movement Delay – 2031 Vissim model prediction

e Overall, the maximum approach queues with the Pak'n Save proposal are considered acceptable when compared with the Baseline, as shown in my table below. The maximum queue of 235m at the Wairere Drive /Karewa Road intersection applies to the left turn exit on Karewa Place, which can be accommodated without affecting other traffic movements at the intersection. Likewise, the 354m max queue for the southbound through movement at Te Rapa Rd/Wairere Dr intersection can be accommodated within the existing available lane length;

Location	Max Approach Queues (m)		Highest Average Approach Queues (m)	
	Baseline	Pak'n Save Applicant or BBO	Baseline	Pak'n Save Applicant or BBO
Te Rapa/Wairere/Avalon	202	247 or 354	68	78 or 113
Te Rapa/Base/Eagle Way	209	202 or 158	103	106 or 57
Eagle Way/Karewa	267	211 or 143	24	37 or 29
Wairere/Karewa	93	169 or 235	4	18 or 50

Intersection Queue Lengths - 2031 Vissim model prediction

f The Countdown access on Eagle Way is expected to experience an increase in overall delays between 9.3% and 26.1% respectively for the Applicant and BBO distribution methods respectively. However, of the four turning movements, three operate within 3s/veh of the Baseline delay, with the other movement within 11 s/veh (increasing from 13s/veh to 24s/veh). In my view these results are acceptable; and,

g The Vissim model predicts that the maximum queue associated with the right turn movement into Countdown under both the Baseline and Pak'n Save proposal (92m to 122m) is longer than the available lane length on Eagle Way, which if occurs, could block back through the Te Rapa Rd/Base Parade intersection. However, as occurs at other Hamilton intersections (such as Greenwood St/Massey St intersection), I would expect the traffic to queue up in the upstream approach lane and not enter the intersection until it is clear. On this basis, the predicted max queue is acceptable, particularly as I note the average queue is considerably shorter at between 10m and 26m, which is well within the available right turn entrance lane length into Countdown.

4 Overall Summary

11 For the reasons discussed in my EIC and this supplementary evidence, it is my opinion that the following measures are required to mitigate the revised Pak'n Save impacts on the surrounding road network;

a A left turn entry into the Pak'n Save site from Te Rapa Road is a required to avoid unacceptable delays and queues on the wider road network if this access was not provided.;

b A new roundabout at the intersection of Eagle Way/Wairewa Place is a required to offset the removal of the left turn out of Pak'n Save onto Te Rapa Road as traffic can now exit onto Eagle Way if drivers wish to travel back to Te Rapa Road; and,

c A new partially controlled traffic signal intersection at Wairere Drive/Karewa Place in conjunction with a maximum speed limit of 60km/h on Wairere Drive between the Avalon Drive and Pukete Dr intersections. This should include a raised safety platform on the Wairere Drive eastbound direction. As stated in the caucusing notes, I agree that in implementation of raised safety platforms on Wairere Drive at the Avalon Drive and Pukete Road intersections is a matter for the road safety audit team to consider.

12 Whilst the overall intersection delay at the Countdown access in 2031 is expected to be higher than the Baseline, the individual movement delays are considered acceptable, with a maximum average predicted delay/vehicle of 36s/veh, which is only 3s/veh higher than the maximum predicted Baseline delay.

13 Overall, I am of the view, that the revised Pak' n Save proposal with the above mitigation measures will result in an acceptable 2031 network performance when compared with the predicted 2031 Baseline. That is, traffic flows are likely to be within 6% and network delays within 2.2% when the preferred BBO distribution method is adopted. Even, if the Applicant's distribution method is considered closer to reality, the network delays are still expected to be within +10% of the expected Baseline, which in my view is also acceptable.

Michael Peter Meister
Technical Director – Transport
WSP Opus, 10 September 2019