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Memorandum From: Cameron Inder

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To: Jonathon Brooke Project No: 142800.31

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CC: Cliff Newton-Smith Date: 06/05/19

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Subject: 2031 Te Rapa North Traffic Model – Further Pak n Save Test Scenarios

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## Report Purpose

Hamilton City Council has requested a further two access options be modelled in the 2031 Saturday Peak Te Rapa North Micro-simulation model, to test the effects of the Pak n Save Te Rapa (PnS) supermarket proposal on the surrounding network. This brief report describes the test scenarios and the results obtained from the model.

The supermarket proposal was modelled previously in the 2031 Saturday Midday Peak Te Rapa North model with three accesses to the site as shown in Figure 1:

1. Left In / Left Out to Te Rapa Road
2. Left in / Left Out to Eagle Way
3. All movements access on New Road Extension.

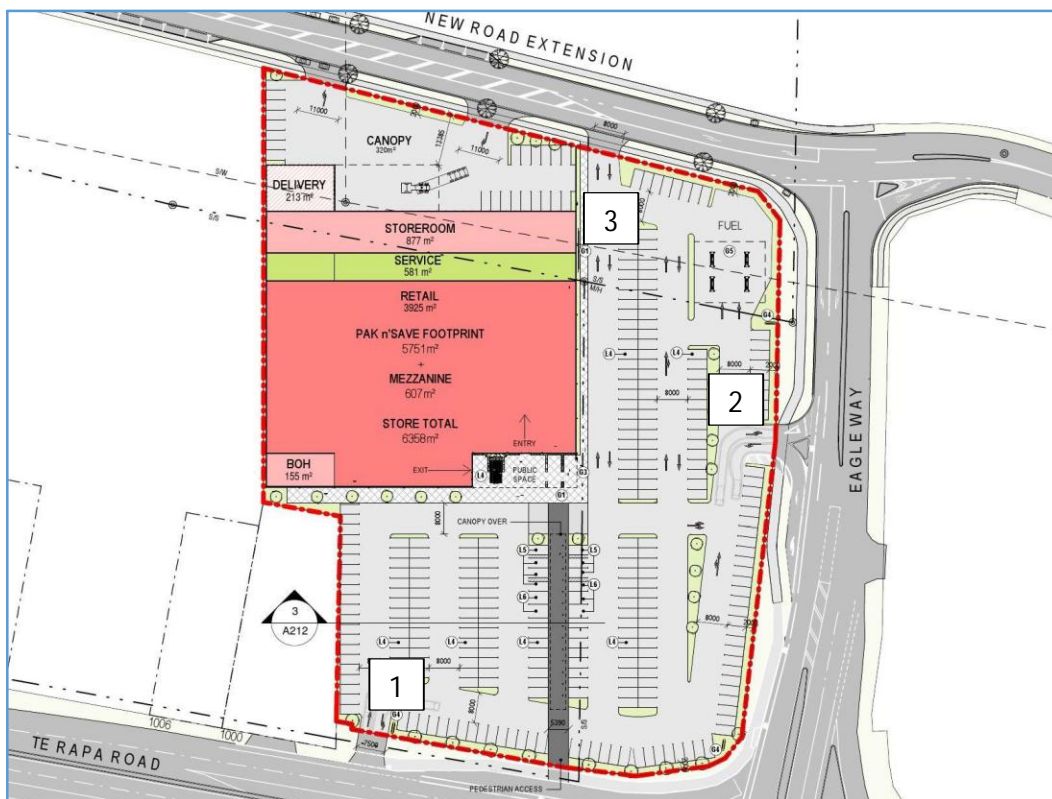


Figure 1: Proposed Pak n Save Te Rapa Access Configuration

The further requested access option tests are:

Test 1 – Remove the PnS entrance way to Te Rapa Road (Left In, Left out access) completely

Test 2 – Remove the left turn out of PnS to Te Rapa Road (retain the left turn in).

## Methodology

The PnS supermarket was added into the 2031 Saturday Midday Peak Baseline model and results reported in the Memo “2031 Model Build and Pak n Save Testing\_R1” dated 16 April 2019, for four scenarios as follows:

1. PnS predicted trip distribution; Kawera / Eagle priority control, Kawera / Wairere Signals
2. PnS predicted trip distribution; Kawera / Eagle Signals, Kawera / Wairere Signals
3. BBO trip distribution; Kawera / Eagle priority control, Kawera / Wairere Signals
4. BBO trip distribution; Kawera / Eagle Signals, Kawera / Wairere Signals

Tests 1 and 2 of this report were to be applied using the model with Scenario 1 attributes.

Test 1 was created firstly by deleting the Te Rapa Road access entirely from the network, then the Origin / Destination matrix trips were reassigned over the network and the dynamic route choice model run until journey time and turning movement volume convergence parameters were met. Following convergence, the model was run with the results for four random seed variables output and averaged for reporting in this memo. Test 2 repeated the steps for Test 1, except removing only the left out movement to Te Rapa Road. The Left In movement remained permitted.

## Result Summary

Modelled results of average vehicle delay and queue lengths (metres) for Tests 1 and 2 are attached in Appendix A. The fundamental outcome of both further tests is that significantly more congestion exists on Eagle Way than previous model tests (16 April 2019). As expected, the worst case is Test 1 given both the entry and exit on Te Rapa Road are removed in this option.

Both test scenarios regularly cause the eastbound traffic queue on Eagle Way to extend back through and block the Te Rapa / Eagle / Base Parade signal intersection. This in turn blocks the left turn in and right turn in to Eagle Way from Te Rapa Road. Also queues on The Base Parade are visually more extensive in Tests 1 and 2 than the previous models with all PnS accesses proposed. This blockage in The Base extends into both north and south legs of Maahanga Drive, exasperating the delays and congestion for traffic exiting The Base from the car park. Again, this queue blockage effect is worse in Test 1 than Test 2 given that the demand on Eagle Way is greater in Test 1.

Also in Test 1, the right turn into Pak n Save on the New Road Extension experiences significant queues for much of the peak period. This queue blocks southbound traffic (not entering PnS) from getting to the Eagle / Karewa intersection. Because of this blockage the queue and delay for the right turn into Eagle Way does not appear excessive in the results. But that is clearly an artificial result when observing the model runs.

Regards,

Bloxam Burnett and Olliver Ltd

A handwritten signature in blue ink, appearing to read "Cameron Inder".

Cameron Inder

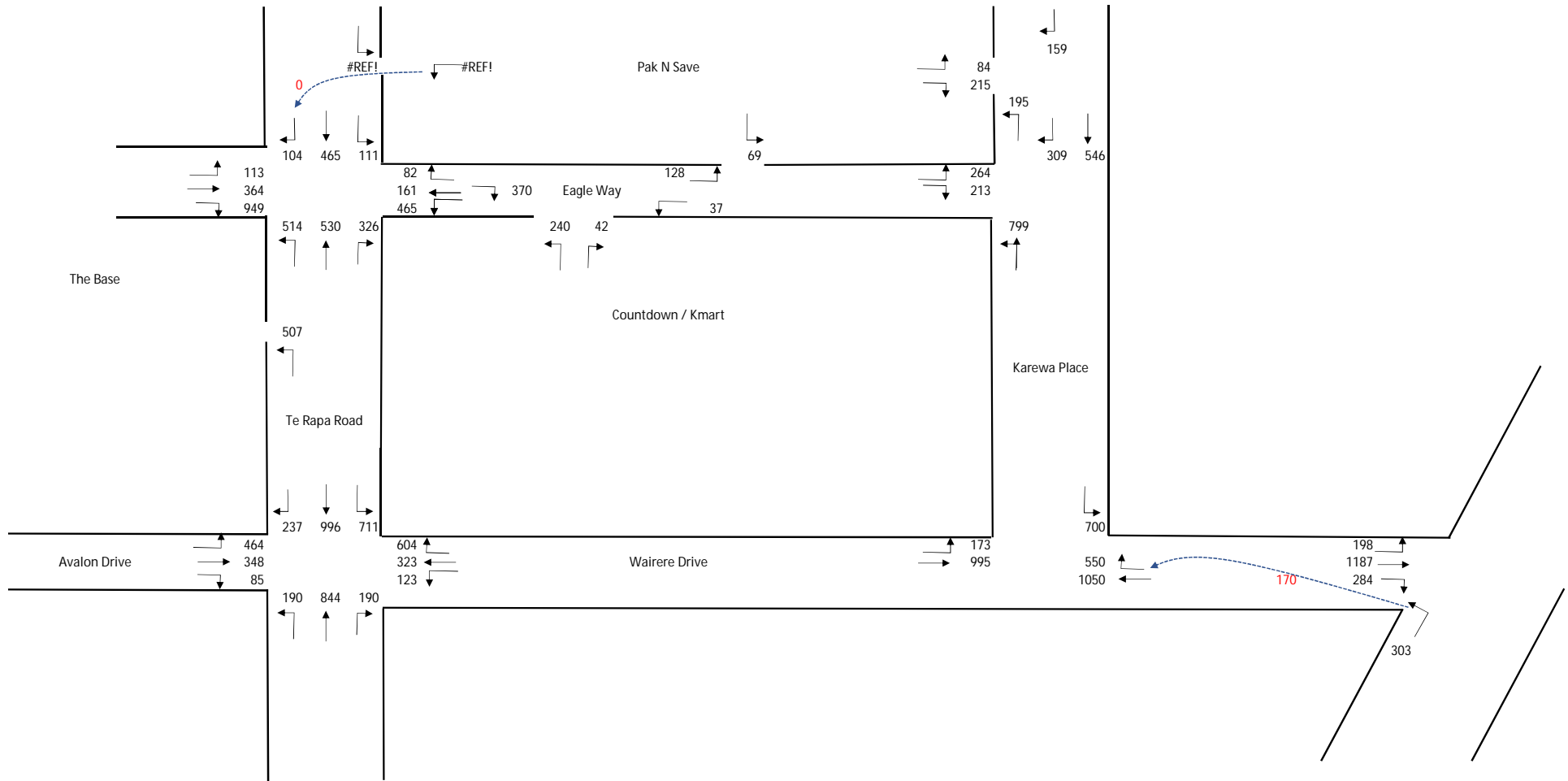
Senior Transportation Engineer

### Appendices:

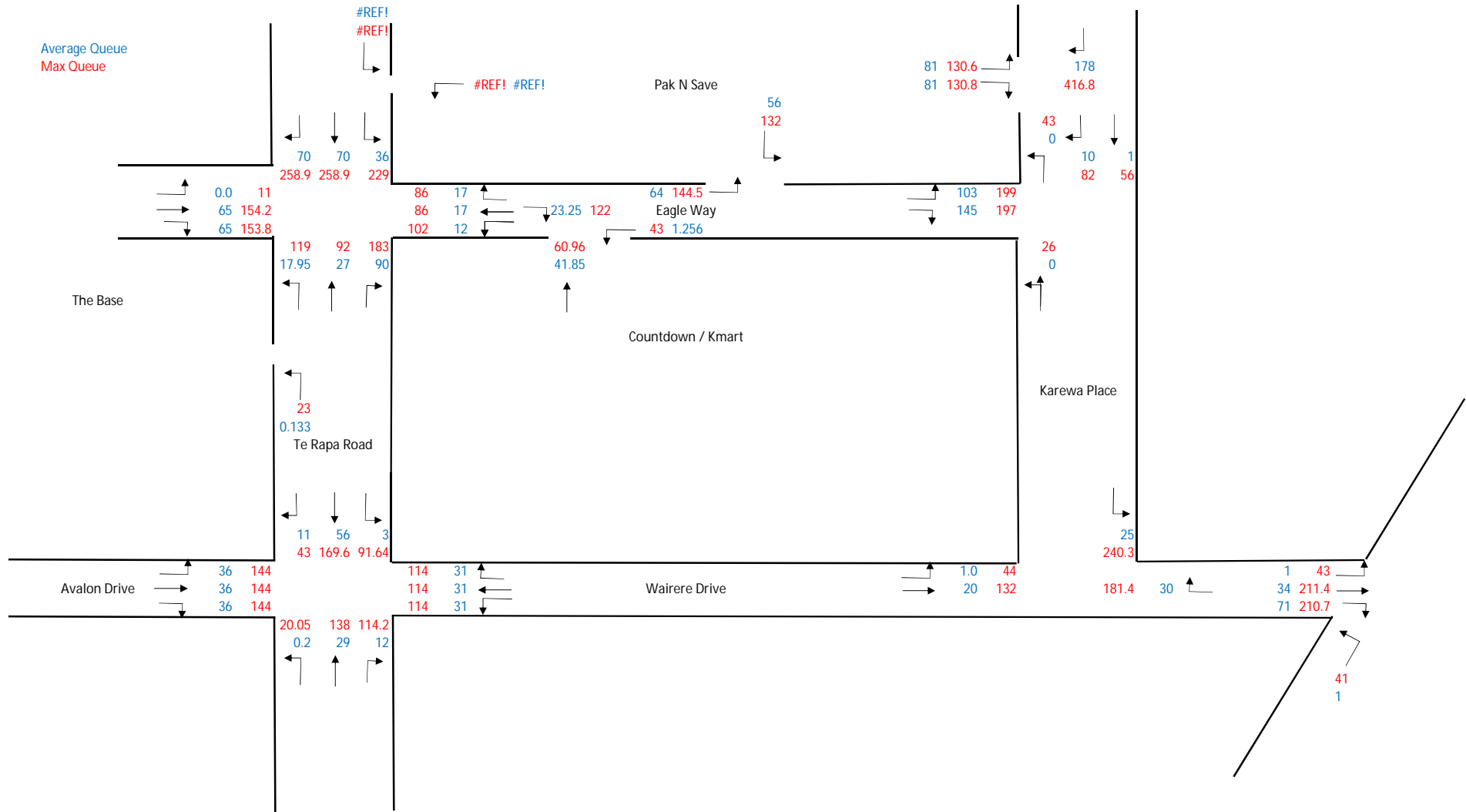
- A. 2031 Baseline + Pak N Save Scenario 1 BBO splits
- B. 2031 Baseline + Pak N Save Scenario 1 BBO splits

# Appendix A

2031 Flow Summary: Saturday Midday Peak with Pak n Save: No Te Rapa Road Access: Priority Control Kawera Place / Eagle Way Intersection

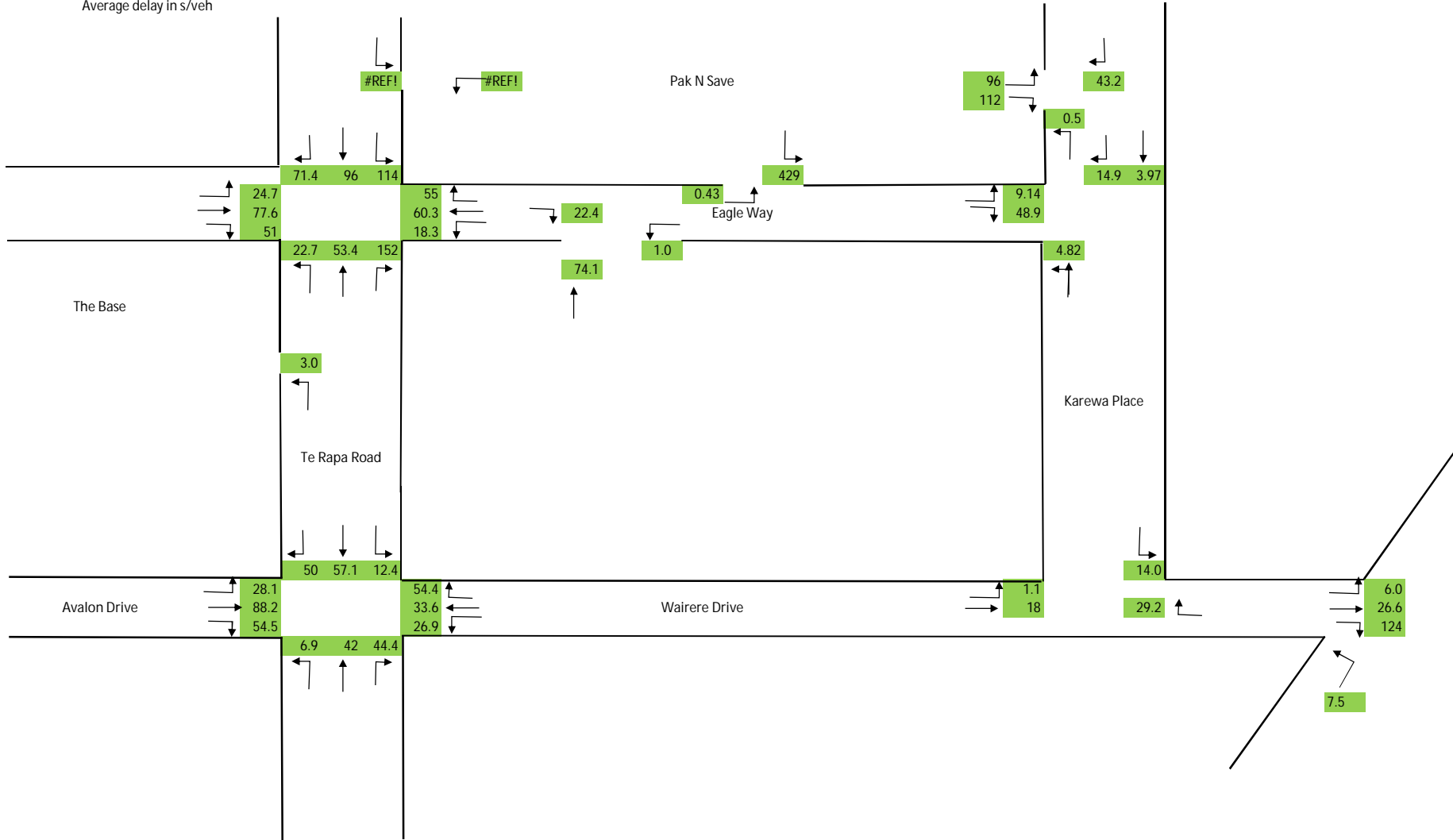


2031 Queue Summary: Saturday Midday Peak with Pak n Save: No Te Rapa Road Access: Priority Control Kawera Place / Eagle Way Intersection



2031 Average Delay Summary: Saturday Midday Peak with Pak n Save; No Te Rapa Road Access; Priority Control Kawera Place / Eagle Way Intersection

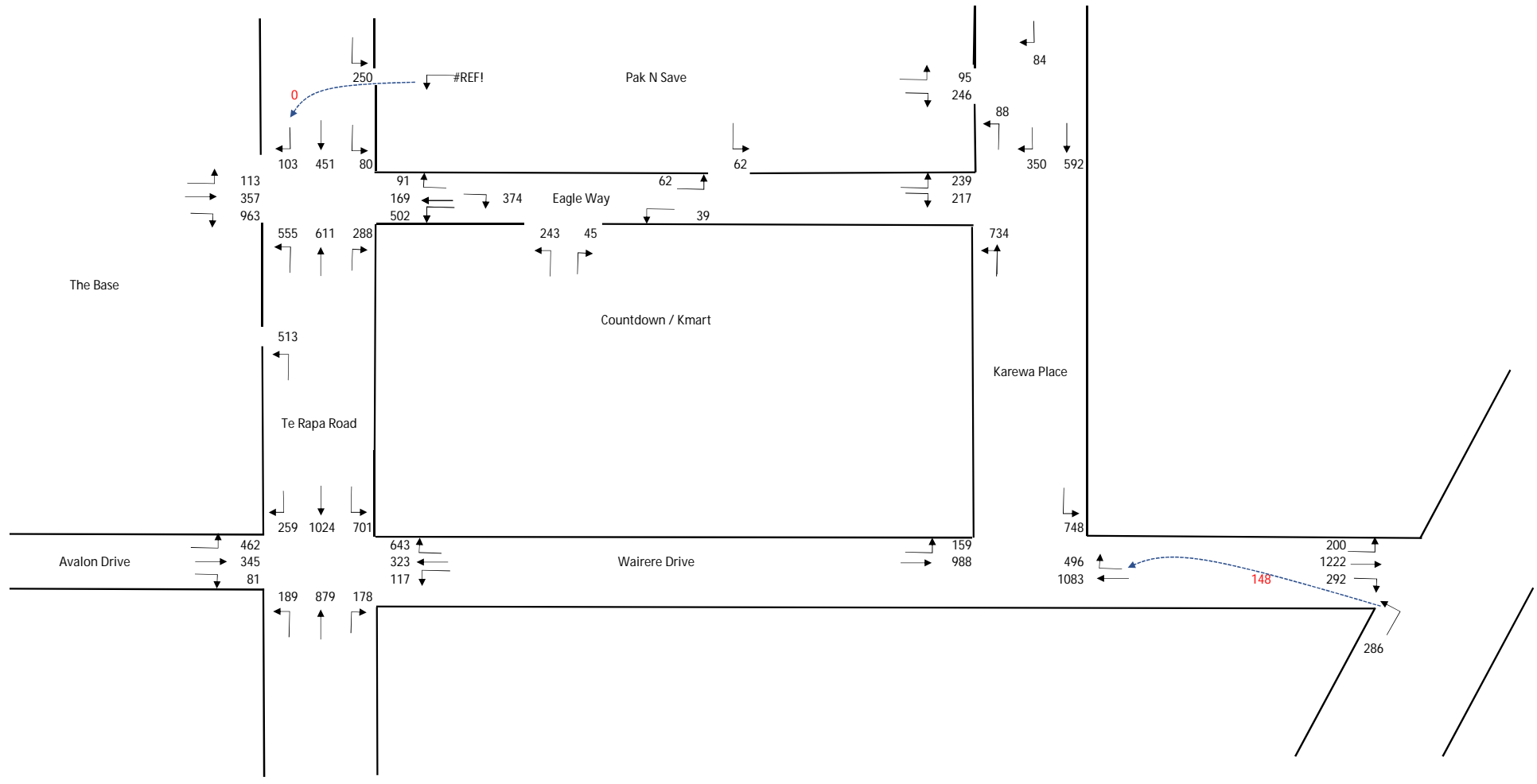
Average delay in s/veh



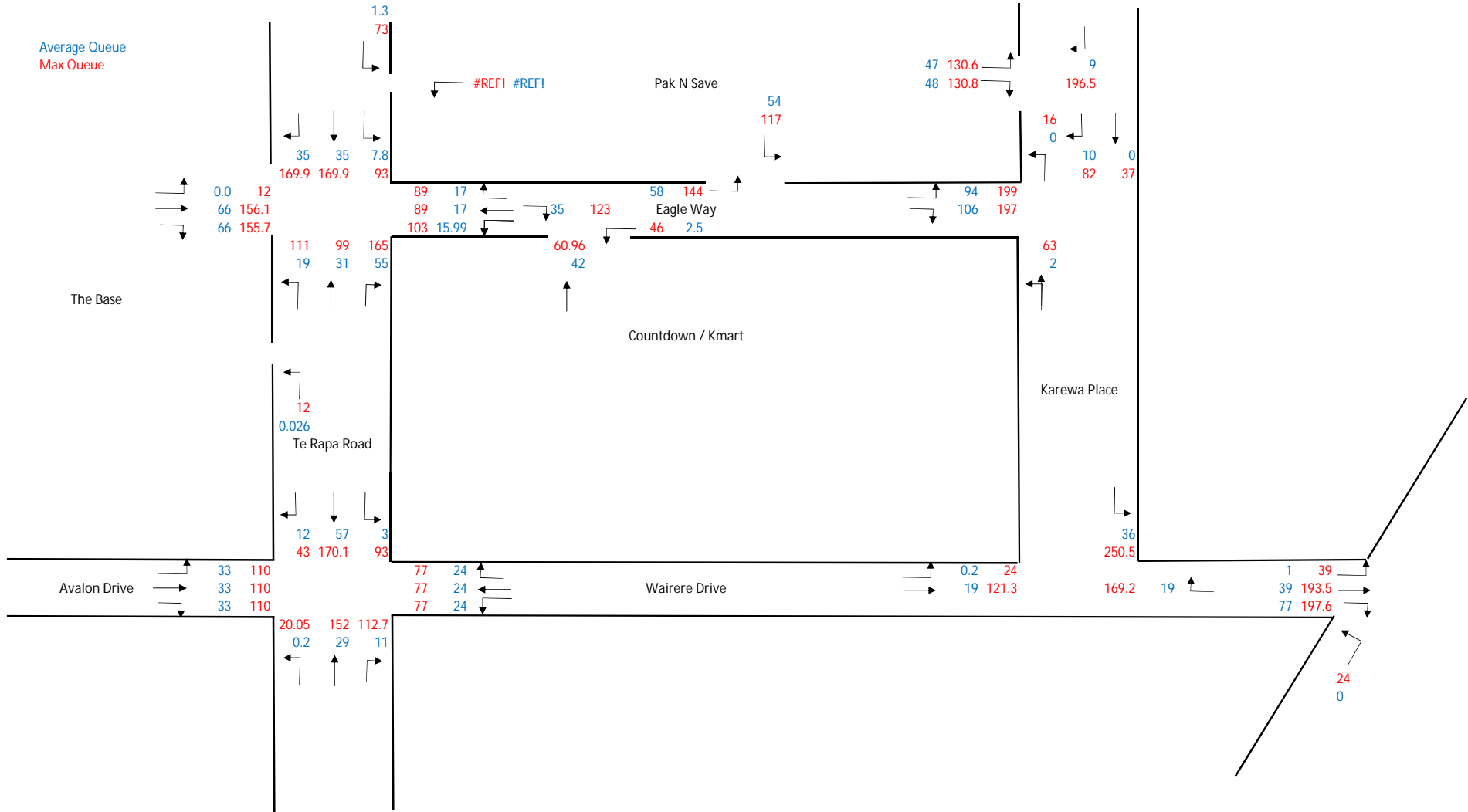
# Appendix B



2031 Flow Summary: Saturday Midday Peak with Pak n Save; Te Rapa Road Access LEFT IN ONLY; Priority Control Kawera Place / Eagle Way Intersection



2031 Queue Summary: Saturday Midday Peak with Pak n Save: Te Rapa Road Access LEFT IN ONLY; Priority Control Kawera Place / Eagle Way Intersection



2031 Average Delay Summary: Saturday Midday Peak with Pak n Save; Te Rapa Road Access LEFT IN ONLY; Priority Control Kawera Place / Eagle Way Intersection

Average delay in s/veh

