BEFORE INDEPENDENT HEARING COMMISSIONERS

APPOINTED BY THE WAIKATO DISTRICT COUNCIL

IN THE MATTER	of the Resource Management Act 1991 (**RMA**)
AND	
IN THE MATTER	of the Proposed Waikato District Plan
BETWEEN	**RANGITAHI LIMITED**
	Submitter [No. 343]
AND	**WAIKATO DISTRICT COUNCIL**
	Local Authority

EVIDENCE-IN-REPLY OF IAN DAVID CLARK FOR RANGITAHI LIMITED

HEARING 25: RAGLAN

(TRANSPORT)

DATED: 3 May 2021

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INTRODUCTION

1. My name is Ian David Clark.

2. I outlined my qualifications, experience, and commitment to comply with the Environment Court Expert Witness Code of Conduct in my Evidence in Chief (**EIC**) on behalf of Rangitahi Limited (**Rangitahi**) for Hearing 25 – Raglan, dated 17 February 2021.

3. I have been retained by Rangitahi to provide Evidence in Reply (**EIR**) in response to matters addressed in the Waikato District Council's (**Council**) s.42A Report for the Raglan Topic and the EIC of Ms Baloyi for the Koning Family Trust and Martin Koning (**Koning**) dated 17 February 2021.

4. My EIC in supports Rangitahi's submission on the Proposed Waikato District Plan (**pWDP**) seeking provision for future urban growth in Raglan West.

5. In preparing this EIR, I have read the following documents:

   (a) The Council's.42A Report;

   (b) Mr Inger's EIR for Rangitahi;

   (c) Ms Baloyi's EIC for Koning; and

   (d) The documents noted at para. [11] of my EIC.

UPGRADE OF ONE LANE BRIDGE

6. The documents at Appendix 3 of the s.42a Report include reviews by Mr Fourie of the transport EIC provided by Ms Baloyi and myself. Mr Fourie notes the differences in opinion, between Ms Baloyi and me, concerning the operation of the one lane bridge. He suggests that our differences may be the result of the different methods of assessment.

7. I accept that the different methods of modelling assessment may have contributed to our different conclusions. However, I note that there are several other factors that will also have contributed, including the base assumptions and the growth assumptions. I address those factors below.

Base Assumptions

8. I was appointed to assist Rangitahi's submissions during 2020. I was unable to collect new traffic flow data, due to ongoing effects of the COVID pandemic which have inhibited or prevented the collection of meaningful new data. I therefore used counts collected in 2013 and applied a sensible growth factor to derive estimates of 2020 flows.

9. Ms Baloyi appears to have been appointed earlier by Koning, and was able to collect new count data in May 2019.

10. A comparison of Ms Baloyi's 2019 flows and my estimated 2020 flows for the weekday evening peak is summarised in Table 1 below.

Table 1: Comparison of Base Flows (weekday evening peak, vehicles/hour)

	Eastbound	**Westbound**	**Two way total on bridge**
Ms Baloyi	225	245	470
Mr Clark	180	235	415

11. The above Table indicates that my flow estimates are some 12% lower than those of Ms Baloyi for the weekday evening peak. However, as noted in para. [31] of my EIC, the flows during the middle of the day (on a day in late January) were higher than those during April in the evening peak. These higher interpeak flows formed the basis of my modelling. Interpeak flows (as per para. [43] of my EIC) were 595 vehicles/hour, about 26% higher than those used by Ms Baloyi, although I acknowledge that Ms Baloyi did also consider higher flows in the summer period.

Growth Assumptions

12. The assumptions of Ms Baloyi regarding growth in traffic flows are set out in paras. [30] to [32] of her EIC. This states that conservative figures of 1.5% were applied to road links within the local area network (including Wainui

Road), while the Rangitahi Peninsula development was assumed to have 500 dwellings and take 40 years to be developed[1].

13. Based on Ms Baloyi's 1.5% annual rate, plus the assumptions regarding the rate of development of the Rangitahi Peninsula (set out at page 37 of the Integrated Transport Assessment (**ITA**)), the forecast flow on the Wainui Bridge in 2050 would be 820 vehicles/hour, two way in the evening peak[2], for a scenario without live-zoning the Koning land or further live-zoning on the Rangitahi Peninsula. This gives a total growth figure of 2.4% per year between 2019 and 2050.

14. My assumptions are set out at paras [44] to [47] of my EIC. These assumptions are not based on a simple percentage per year. Rather, they are based on the most likely growth scenario set out under para [32] of Dr Fairgray's EIC dated 17 February 2021. Dr Fairgray states that the most likely short to medium term scenario to 2030 includes an additional 520 to 620 dwellings. I have used the mid figure of 550 dwellings; 260 east of the bridge and 290 west of the bridge, which is consistent with Dr Fairgray's evidence. This includes ongoing development of the Rangitahi Peninsula but it does not account for any further rezoning within Raglan West.

15. While my EIC evidence does not expressly identify the resulting annual growth percentages, these can be derived from Table 2 as follows:

Table 2: Forecast Growth in Traffic Flows on Wainui Bridge

	Percent growth in traffic
2020 to 2030	2.9%
2020 to 2050	2.7%

1 I note that the assumed 40-year timeframe is significantly longer than the 5 to 10 year time period stated in para. [14] of Mr Peacocke's EIC dated 17 February 2021 for full completion of development within the Rangitahi Peninsula Structure Plan area (to issue of titles)

2 I have derived this number by factoring the 470 vehicles/hour in Table 1 above by 1.465, giving 1.5% growth per year for 31 years from 2019 to 2050. This gives 689 vehicles/hour. I have then applied the Rangitahi traffic predictions set out in Table 9 on page 37 of the ITA appended to Ms Baloyi's evidence, namely the 72 vph between 2021 and 2041, plus 9/20ths of the forecast traffic from 2041 to 2061. This gives 72 + (0.45 x 126) = 129. 689 + 129 = 818.

2020 to 2070	2.4%

16. It can be seen that the net growth from 2020 to 2050 is predicted to be around 2.7% per year, which is slightly higher than the figures derived from Ms Baloyi's EIC.

17. My forecast for 2050 was 1085 vehicles/hour on the Wainui Bridge, in the interpeak, which is significantly higher than Ms Baloyi's figure of 820 in the evening peak (also in 2050).

Modelling Methodology

18. As noted by Mr Fourie, Ms Baloyi and I have adopted different modelling methodologies:

    (a) Ms Baloyi used the VISSIM software; and

    (b) I relied on a spreadsheet model developed specifically for this Hearing, in terms of the operation of the bridge under its current one lane configuration. I tested the effects of signalising the current arrangement using SIDRA.

19. I note that Ms Baloyi's states, on page 42 of the ITA appended to EIC, that VISSIM was used as SIDRA does not have the capability to simulate alternative two-way traffic movements on one lane road links. I agree, which was why I used a spreadsheet approach. However, I consider that SIDRA can simulate the effects of two-way traffic movements on one lane road links under signalised control.

20. It is important to note that:

    (a) Ms Baloyi concludes that the one lane bridge (with the current priority control) would not have sufficient capacity to accommodate the 2024 baseline demand (both under "normal" conditions, and during the busier summer period), while it is my view (against seemingly higher forecast flows) that an upgrade would not be required until after 2030; and

(b) Ms Baloyi concludes that the one lane bridge (with signal control) would operate satisfactorily to 2044 (even with further rezoning (of the Koning land), while it is my view that while signals may improve safety, they will perform worse from an operational/efficiency point of view.

21. It is difficult to offer definitive comment on the above differences. I have not had access to the VISSIM model developed by Ms Baloyi. Nor have I seen details of the validation of the base VISSIM model, to see if the queues and delays reasonably match current conditions.

22. Nevertheless, in my view Ms Baloyi's conclusions regarding the effects of signals are optimistic. This is because the intergreen times for traffic signals in this location would need to be quite long. Further, they would need to be set quite conservatively to ensure vehicles from one direction clear the bridge before a vehicle from the other direction could move onto the bridge. On the other hand, traffic conditions with priority controls can be more responsive, and a vehicle can start as soon as the bridge is clear. As a result, I consider that the proposed signals would adversely affect queues and lead to longer delays.

EVIDENCE OF MS BALOYI

23. The paragraphs above refer to a number of points in Ms Baloyi's EIC. I add the following additional comments:

(a) At para. [24] Ms Baloyi notes that the daily trip generation for the Koning development is likely to be up to 2,400 vehicles/day, using the trip rates previously agreed for the now zoned development on the Rangitahi Peninsula;

(b) In paras. [27] to [29] Ms Baloyi considers the likely trip distribution from the Koning development. It is apparent from Figure 6 that 100% of the trips are expected to pass over the Wainui Bridge;

(c) Therefore, the additional trips on the Wainui Bridge, due to the Koning development, should be 2,400 vehicles/day, not 960 vehicles/day as set out in Table 1 of Ms Baloyi's EIC (Te Hutewai Road to One Way Bridge). I expect this is a calculation error in the table (and following

text) rather than an error which would affect the traffic modelling issues discussed above; and

(d) At para. [18a], Ms Baloyi describes the potential to extend the proposed collector road west to provide a "much needed" east-west link between the southern extent of the Rangitahi Peninsula Development through to Ngarunui Beach. As I set out in paras. 68 and 71 of my EIC, I agree that such a link would improve the connectivity of the Rangitahi Peninsula with identified growth areas to the west in future. At para. [19] Ms Baloyi recommends further discussions regarding this road link with Council and affected property owners. I am not aware of any such discussions having occurred but I agree that this is an important matter. Rangitahi's submission has sought a Raglan-wide spatial planning process that would allow issues, such as a future east-west link, to be considered in appropriate detail.

REPORT OF MR FOURIE

24. I note that Mr Fourie suggests that the Opus ITA should be provided for review. However, in my EIC I stated that the Opus ITA was prepared in 2013 for Private Plan Change 12 (i.e. the zoning that is now operative). That report included traffic data that I have referred to (for reasons set out above). The report has little other relevance, as it considered the need for transport upgrades that have now been implemented, such as the bridge from Opoturu Road to Rangitahi Peninsula, the upgrade along Opoturu Road, and the upgrade of the Wainui Road/Opoturu Road intersection.

DRAFT LONG TERM PLAN

25. Since the completion of my EIC, Waikato District Council has submitted a draft updated Long Term Plan for 2021 to 2031, for consultation. This includes the Wainui Bridge within its list of capital projects, stating that $10m is to be spent between 2031-2035[3]. This is later than was proposed in the current LTP for 2018 to 2028 (as stated in paras. [22] to [23] of my EIC). This revised timing is still consistent with my EIC, as I stated that the bridge upgrade would be

3 https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.waik-shape.files/1016/1775/4043/DRAFT_Infrastructure_Strategy.pdf, page 38.

required soon after 2030 for acceptable levels of service to be retained (noting that earlier replacement may be required for structural reasons noted in the current LTP). The LTP also identifies funding for new roads in Rangitahi South in 2031, which appears to support planned provision for growth in this area.

CONCLUSION

26. For the reasons set out in my EIC, and further addressed in this EIR, my assessment of the current single lane bridge indicates that an increase in capacity will be required soon after 2030 due to my predicted increase in traffic volumes, even without rezoning any additional land. The addition of signal controls to the one lane bridge would, in my view, be likely to increase delays. Taking account of the draft LTP's timeline for upgrading the bridge, I consider that FUZ is the most appropriate zoning for Rangitahi South and Raglan West.

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Ian Clark
3 May 2021