**IN THE MATTER** of the Resource Management Act 1991

**AND**

**IN THE MATTER** of a submission in respect of the **PROPOSED WAIKATO DISTRICT PLAN** by **AMBURY PROPERTIES LIMITED** pursuant to Clause 6 of Schedule 1 of the Act seeking the rezoning of land at Ohinewai

## SUPPLEMENTARY STATEMENT OF CAMERON BESWICK INDER

1. My name is Cameron Beswick Inder. I am a transportation engineer and the Transportation Engineering Manager at Bloxam Burnett & Olliver ("BBO"), a firm of consulting engineers, planners and surveyors based in Hamilton. I have been employed by BBO since 2004.

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").

### Purpose of this supplementary statement

3. This supplementary statement is in relation to concerns raised by Ms McMinn and Mr Swears regarding some large trucks tracking over the centreline when turning left from the southbound off-ramp on to the Tahuna Road rail overbridge, and as reflected in the s42A rebuttal.

4. Ms McMinn[1] states that:

> *"Ideally the bridge should be widened to accommodate 3.5m lanes, 1.5m shoulders as well as widening at the SH1 southbound off-ramp to accommodate the left turning swept paths".*

5. I stated several reasons in my Summary Evidence as to why I disagree with the wisdom of widening the bridge, not least of which being that a structural engineer has inspected the bridge and advised that it is not feasible to widen it due to the type and age of the structure. The only practical solution would involve a complete bridge replacement.

6. I further outlined in the Summary Statement my reasons as to why replacing it is not, in my opinion, justified. Firstly there is actually no evidence of the width being a safety issue, and secondly due to the significant cost owing to "knock-on" complexities relating to KiwiRail clearance envelope standards..

[1] Naomi McMinn to Chloe Trenouth and Emily Buckingham 3/9/2020

7. However, more significantly, I consider that providing a wider bridge with 1.5m shoulders would only serve to encourage cycling over the bridge which would, in turn, exacerbate the safety risk to cyclists crossing the on and off ramp intersections and travelling over the expressway bridge. The route would look more appeaing and thus effectively undermine the purpose and provision of the significantly safer solution provided by the proposed separate shared path bridge over the rail and expressway.

8. In my view, the most appropriate solution in this case is to dissuade cyclists from wanting to cross the rail and expressway at the Interchange when there is a much safer and attractive path to the south. Any solution to address turning trucks tracking over the centreline should not involve widening the bridge.

**Alternative Solutions to Replacement of the Rail Bridge**

9. Given my reasoning as outlined above, and the fact that Ms McMinn and Mr Swears consider the truck tracking issue to be a significant concern, I have undertaken further investigation work on this matter since my Summary Statement was filed.

10. I revisited the site last week with a structural engineer and a surveyor to obtain topographical survey points of the existing bridge abutments (rail and expressway overbridges), guardrails and bridge parapet positions. The surveyor also obtained levels and positions on the southbound off-ramp and the area of embankment to the west of the off-ramp lane.

11. Using this data, and from my own observations, I have established that there is an alternative solution, that would assist to increase the space for the tracking path and therefore reduce the perception by truck drivers that they need to cross the centreline to avoid hitting the rail bridge abutment.

12. I specifically use the word "perception" here because, from my observations, it is not absolutely necessary for large trucks to cross the centreline to successfully complete the turn. Some large trucks do not cross the centreline, and some do while leaving a large gap to the bridge abutment. Those that do cross the centreline appear to mostly because it is convenient and they can do so without causing any problem. Those drivers wait for opposing traffic to clear then make the turn. From my observations, the trailer of large trucks that do not cross the centre line, tracks close to the rail overbridge abutment parapet. The photo that I took below on site illustrates the gap this driver afforded himself while the front wheels went slightly over the centreline, and the body path crossed approximately 0.5m over the line.


13. Two alternative measures exist, one being a fairly minor cost and the other a significant piece of work but far less complex and expensive than a replacement bridge.

*Relocating the steel guard rail*

14. The first alternative measure involves relocating the steel guard rail that currently connects to the northeast rail bridge abutment parapet, to instead connect to the wingwall in a similar way to the guardrail on the opposite side (circled in red below). The red dashed line illustrates the approximate realignment of the guard rail, to illustrate my point. This increases the clearance width up to the bridge. It is feasible from a construction point of view to restablish the guardrail further back, and from the structural engineers advice, for the connecting to the wingwall instead of the parapet.

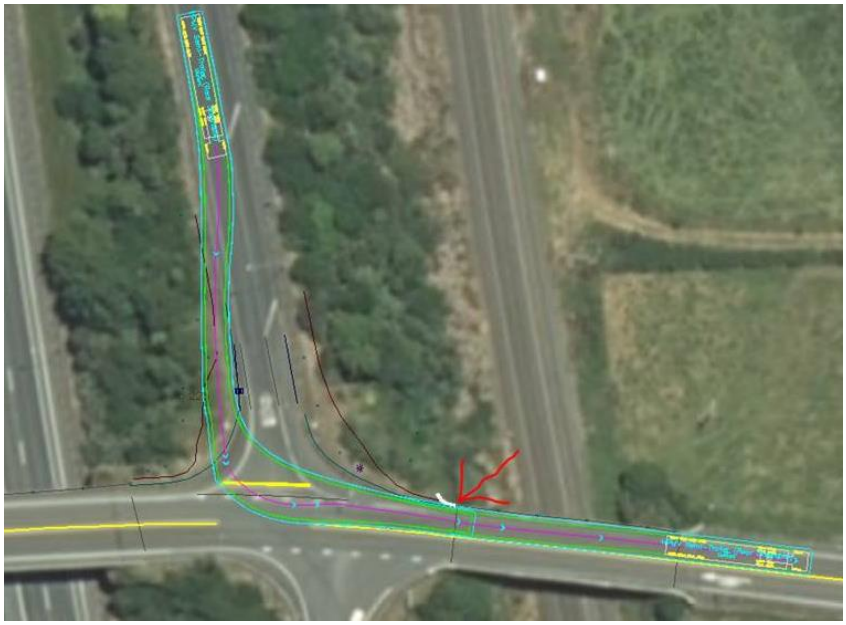
15. This is likely to assist to relieve the perception to truck drivers that the bridge approach is too narrow without crossing the centre line.

*Realign the top of the southbound off-ramp westwards*

16. The second more extensive alternative measure is to realign the top of the southbound off-ramp westwards to increase the swepth path area. From our survey data I consider that there is sufficient space to achieve this but it will require a fairly substantial retaining wall and some raising of the off-ramp level and intersection with Tahuna Road to mitigate the resulting reduction in sight distance looking to the west over the expressway bridge.

17. An additional benefit is that the alignment shift would also provide more backdrop to the intersection (Tee's it up) and therefore assist to mitigate an existing issue with some drivers not seeing there is an intersection, and driving straight through to the on-ramp.

18. The screen photograph below from Auto-CAD illustrates the benefit of the suggested realignment to the truck swept path. It is still tight where the arrow is shown at the bridge abutment, but it passes through including the 0.5m clearance envelope (light blue outline) without crossing the centreline.



19. I reiterate that this option involves significant works that would be costly and not straightforward. And I consider that the potential effects of the slight encroachment of he centreline by large trucks, when they wait for opposing traffic to pass is minor and does not justify the cost of this second measure in a similar way that replacement of the rail bridge is not justified.

20. However, if the Panel are of the view that something more is needed other than relocating the guard rail as per the first alternative measure, then realigning the off-ramp in my opinion is certainly more feasible than replacing the rail overbridge. And importantly, it would not serve to encourage cycling over the rail and expressway at Ohinewai Interchange.

**Suggested cycling and walking bridge at the Interchange**

21. One further point I wish to clarify, given Ms McMinn suggests a cycling and walking bridge be provided at the Interchange[2], is that this has been carefully considered as identified in the ITA report and my EIC, but ruled out as not being feasible. Not only would this solution increase the safety risk and complications for crossing pedestrians and cyclists across the on and off-

[2] Item 14, Naomi McMinn to Chloe Trenouth and Emily Buckingham 3/9/2020

ramps, it is structurally extremely difficult and complex. It would effectively require a full rebuild of the rail overbridge and interchange bridge.

**Conclusion**

22. In conclusion on the issue of placing a walking and cycling bridge at the interchange, I note the following:

    (a) Widening both bridges is not feasible due to their design.

    (b) Structural engineering advice I have received is that any separate walking and cycling structure would have to be located a sufficient distance away from the existing bridges for seismic response reasons. This would mean the new structure could not utilise the existing MSE wall abutments, so all new earth embankments would need to be created in a location where ground conditions were demonstrated to be problematic at the time the Interchange was built. Differential settlement would become an issue between the two embankments.

    (c) The complexities are therefore significant and in my view, are not justified compared to the proposed separate bridge 315m to the south.

**Cameron Inder**
**11 September 2020**