

IN THE MATTER OF the Resource Management Act 1991

AND

IN THE MATTER OF Private Plan Change 95 Pencarrow Estate
Pongakawa to the Western Bay of Plenty
District Plan

**REPLY EVIDENCE OF BRUCE HARRISON (TRAFFIC)
ON BEHALF OF KEVIN AND ANDREA MARSH**

Introduction

1. My full name is Bruce John Harrison. I confirm my qualifications and experience as set out in my statement of evidence dated 24 October 2024.

1. I also confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses, as contained in the Environment Court's Practice Note 2023. I confirm that this evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

2. My reply evidence addresses statements made in the evidence of the NZ Transport Agency and Mike Maassen.

3. In my main evidence, I refer to a Safe System Audit carried out by Abley Consultants dated 18 July 2023. Since my evidence was prepared, NZTA has reviewed the safety audit report and commented on the recommendations. NZTA's main recommendation is to not provide the auxiliary left turn lane, but to instead provide appropriate shoulder widths on the northern side of SH2,

on the approach to the Arawa Road intersection. NZTA has also recommended that the eastbound and westbound through lanes on SH2 be designed to have a smooth continuous curve without any obvious kinks or straight lines. These shall be designed with the appropriate curve superelevation and warp rates. The design will be subject to detailed design and post construction safety audits, carried out by team members suitably qualified and experienced in geometric design.

4. While the originally proposed intersection design was in accordance with the relevant Austroads design guides, which have been adopted for use in NZ, the NZTA review draws on recent research that has been carried out on the safety of left turn deceleration lanes. The purpose of a left turn lane is typically to reduce the risk of rear end crashes involving vehicles reducing speed to turn into the side road. The research has however identified that this increases the risk of crashes involving vehicles turning right out of the side road. NZTA has therefore recommended that the auxiliary left turn lane not be provided, but instead a widened shoulder be provided to ease the left turn into Arawa Road. Given that this recommendation is in line with the latest available research, I consider that the design as recommended by NZTA is appropriate.
5. NZTA's submission is consistent with their comments given in the safety audit. I concur with this submission.
6. Mr Maassen states that a major upgrade of the intersection is required, with widening on both sides of the culvert to allow for a left turn deceleration lane of at least 100 m length and a merge lane for vehicles exiting Arawa Road and turning right and for greater separation of vehicles waiting to turn right into Arawa Road.
7. The design of the left turn deceleration lane, as originally proposed, was in accordance with the requirements of the relevant Austroads design guides. As noted above, a further safety review has now been carried out by NZTA which

draws on recent research on the safety of left turn deceleration lanes. This has identified that the left turn lane increases the risk of crashes involving vehicles turning right out of the side road. NZTA has therefore recommended that the auxiliary left turn lane not be provided, but instead a widened shoulder be provided. Given that this is in line with the latest available research, I consider that this will provide the safest option for the intersection.

8. A merge lane for right turning vehicles exiting Arawa Road is what is commonly referred to as a “seagull intersection”. While there are a number of these intersections in use, such as at the intersection of Te Puke Highway and Bell Road in Papamoa, research again indicates that these intersections have a poor safety record and so are not generally recommended for use in NZ. I therefore consider that this is not an appropriate treatment.

9. The right turn lane on SH2 at the Arawa Road intersection has, until recently, been marked at 2.9 m wide. This is less than the recommended width of 3.5 m, and less than the required minimum width of 3.0 m. This narrow width may have contributed to the safety concerns as described by Mr Maassen. I note that the pavement at the intersection has recently been reconstructed and the right turn lane re-marked, again at a width of 2.9 m to 3.0 m. I recommend that, as part of the improvements to be carried out at the intersection, consideration should be given to increasing the width of the right turn lane to 3.5 m.

Bruce Harrison

12 November 2024