

BEFORE THE KAIPARA DISTRICT COUNCIL

UNDER the Resource Management Act 1991

IN THE MATTER OF Private Plan Change 81 to the
Kaipara District Council Plan

AND Dargaville Racing Club Inc (The
Applicant)

**STATEMENT OF EVIDENCE OF MATHEW (MAT) ROSS COLLINS ON
BEHALF OF WAKA KOTAHI NEW ZEALAND TRANSPORT AGENCY**

Transport

17 March 2023

1 INTRODUCTION

- 1.1 My full name is Mathew (Mat) Ross Collins. I have been engaged by Waka Kotahi New Zealand Transport Agency (Waka Kotahi) to advise it on the transportation elements and impacts of Plan Change 81.
- 1.2 I hold a Bachelor of Engineering (Hons) from the University of Auckland and have a post-graduate certificate in transportation and land use planning from Simon Fraser University in Vancouver, Canada. At the time of preparing this Statement, I am employed by Flow Transportation Specialists, where I have held the position of Associate and Regional Manager at Flow Canterbury since February 2019. As from 20 March 2023, I will be employed by AECOM as the Team Leader for Transport Advisory (South Island).
- 1.3 I have 7 years of experience as a transportation planner and engineer in public and private sector land development projects, which includes experience with strategic land use and transport planning, plan changes, Integrated Transport Assessments, development consenting, and notices of requirement.
- 1.4 My experience includes advising Waka Kotahi, Auckland Transport and Auckland Council, Kāinga Ora, Selwyn District Council, Whangarei District Council, Kaipara District Council, and various private developers throughout New Zealand. This work has included:
 - (a) Plan Changes including Private Plan Changes 69, 70 – 73, 75, 76, 78 - 82 and the Proposed District Plan in Selwyn District, Private Plan Changes 25, 30, 32, 46, 48, 49, 50, 51, 52, 63, 64 and Plan Change 79 in Auckland, Whangarei District Plan Changes for Urban and Services and Mangawhai Central Plan Change 78.
 - (b) Resource consent applications including large precincts: Drury South Industrial, Drury Residential, Redhills, Silverdale 3, Drury 1, Waiata Shores, and Crown Lynn Yards.
 - (c) Designation, Outline Plan of Works, and resource consent applications for major infrastructure including Healthy Waters St Marys Bay Stormwater Water Quality Programme, Watercare Huia Water Treatment Plant replacement, Watercare Huia 1. Watermain replacement, and several Ministry of Education Schools.

- 1.5 In preparing my Statement of Evidence I have taken into account the Statement of Evidence of Mr James Hughes and Mr Mark Newsome. I identify in my evidence where I rely upon Mr Hughes' and Mr Newsome's evidence.
- 1.6 I have also relied upon technical analysis undertaken by my colleague at Flow, Ms Sharmin Choudhury. Ms Choudhury is a Senior Principal Engineer at Flow and specialises in road safety engineering.
- 1.7 Ms Choudhury holds a Bachelor of Science (Hons) and Master of Science in Architecture from Ahmadu Bello University in Zaria, Nigeria as well as a Master of Engineering Studies in Transportation (First Class Hons) from the University of Auckland in New Zealand. She is also a member of Engineering New Zealand and the technical interest group (Transportation Group). She attended the Safety System Engineering Workshop (Network Safety Assessment, Crash Reduction Studies and Road Safety Audit) in Hamilton, New Zealand in 2018. She has over 13 years of experience in transportation projects predominantly in public sector projects and more recently in private sector land development projects, which include road safety audits, safety improvement projects, developing options for Auckland Transport's speed management plan, and reviewing safety implications of proposed developments.

2 CODE OF CONDUCT

- 2.1 I have read and am familiar with the Environment Court's Code of Conduct for Expert Witnesses, contained in the Environment Court Practice Notes 2014 and 2023, and agree to comply with it. My qualifications as an expert are set out above.
- 2.2 Other than where I state that I am relying on the advice of another person, I confirm that the issues addressed in this Statement are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express. I have no conflict of interest to declare.

3 DEFINITIONS

- 3.1 In my evidence I refer to "speed limit", "design speed", and "operating speed". I have defined these terms below.
- 3.2 The **speed limit** means the posted speed limit of a road, as set by the road controlling authority.
- 3.3 Austroads Guide to Road Design Part 3: Geometric Design defines **design speed** as

(a) *"...a speed fixed for the design and correlation to the geometric features of a carriageway that influence vehicle operation. It is selected during the design process and is related to either the **intended operating speed or the posted speed limit of a road or section of road.**"*

3.4 Austroads Guide to Road Design Part 3: Geometric Design defines **operating speed** as

(a) *"Operating speed can be measured for an existing road. If the operating speed varies along the road, the design speed must vary accordingly. Identification of the operating speed is fundamental to the development of any roadway facility."*

(b) *"Operating speed is the 85th percentile (actual) speed at a point along the road"*

3.5 In general practice when designing roads, or new infrastructure/facilities on existing roads, the **design speed** that is selected is normally slightly greater or equal to the intended 85th percentile **operating speed**.

4 SCOPE OF EVIDENCE AND KEY POINTS

4.1 I was engaged by Waka Kotahi to assess the transport effects of the Plan Change proposal, and to advise on appropriate measures or responses to address those effects.

4.2 In the course of undertaking that work, I have:

(a) reviewed the notified Plan Change material, material provided by Stantec (acting for the applicant) during informal caucusing, Council's s42a report, and the applicant's evidence, as relevant to transport matters; and

(b) instructed my colleague Ms Choudhury to undertake Safe Systems Assessments (SSA) of several options for the upgrade of the SH1/Awakino Point North Road intersection and have used this information and analysis to inform my opinion of the Plan Change's transport implications.

4.3 The key points I make in my Statement of Evidence are:

(a) Overall, I consider that the Awakino Point North Road intersection with SH14 will require an upgrade to a roundabout intersection form in order to mitigate

the effects of traffic associated with the Plan Change and the activities it will provide for, and in order to ensure a safe traffic environment.

- (b) The current operating speed in the vicinity of the SH14/Awakino Point North Road intersection is likely to be around 100 km/hr based on the horizontal radius of SH14. At this speed there is insufficient sight distance available to allow drivers to safely undertake turning manoeuvres at the priority tee intersection proposed in the Applicant's Integrated Transport Assessment.
- (c) To reduce the operating speed and improve safety at the SH14/Awakino Point North Road intersection, Mr McKenzie (Transport Expert for the Applicant) has recommended a series of measures on SH14, including proposing a reduction in the State Highway speed limit (referred to as Options 3 and 4 in Attachment 3 in Mr McKenzie's evidence).
- (d) The safety outcomes of Options 3 and 4 would be significantly compromised in the absence of a speed limit reduction (which Mr Hughes notes in his evidence is unlikely to occur).
- (e) In the absence of a speed limit reduction, safe intersection sight distances will not be achieved under Options 3 and 4. Further, the raised tables proposed by Mr McKenzie may have a negative effect on safety, as they're out of context with the rural nature of SH14 to the north and the south of the Awakino Point North Road intersection.
- (f) In contrast, a roundabout is not dependent on a reduction of the speed limit, as the geometry of the roundabout encourages a lower operating speed, provided drivers have sufficient time to observe the roundabout and adjust their speed when approaching SH14 from the north and south of Awakino Point North Road. In essence, the roundabout is "self-explaining" to drivers.
- (g) My analysis leads me to conclude that a roundabout intersection will appropriately mitigate the transport impacts of the Plan Change (regardless of the speed limit on SH14), whereas a priority tee intersection (in absence of a reduction in the speed limit on SH14) will not.
- (h) I recommend that the Trifecta Development Area Provisions are amended to ensure that Council has discretion over transport safety effects at the SH14/Awakino Point North Road intersection for any consent application relating to earthworks and/or building construction activities within the Plan

Change site. This is covered in further detail in the Statement of Evidence prepared by Tessa Robins.

- (i) While I support the Applicant's proposal to provide the shared use path, as a means to enable transport choice, I consider that further detail is required to understand whether this can function safely, particularly at the SH14/Awakino Point East Road intersection.

4.4 My evidence should be read alongside that of Ms Robins, Mr Hughes and Mr Newsome.

5 Discussion of SH14/Awakino Point North Road improvements

5.1 Mr McKenzie, Mr Hills (Transport Expert for Council) and I all agree that the Awakino Point North Road intersection with SH14 has inadequate sight distance and that the operating speed on SH14 needs to be reduced to a maximum of 90 km/hr to achieve appropriate safety outcomes. I note that a reduction in the operating speed can be independent of any changes to the speed limit, however this is dependent on how the intersection is designed.

5.2 In its submission, Waka Kotahi sought that the SH14/Awakino Point North Road be upgraded to a roundabout as this provided a safer outcome than the standard priority tee intersection proposed in the notified Integrated Transport Assessment (ITA).

5.3 Following Waka Kotahi submission, Mr McKenzie, Mr Hills and I met twice (along with colleagues from Stantec and Flow) to discuss options for improving safety at the intersection.

5.4 Through this discussion Mr McKenzie proposed several amendments to the standard priority tee intersection proposed in the ITA (Option 1), which he refers to as Option 3 and Option 4 in Attachment 3 of his Evidence. Mr McKenzie discusses these amendments in paragraphs 9.6 to 9.10 and Attachment 3 of his Evidence, which I summarise below:

- (a) Addition of rumble strips on SH14 on the northern and southern approaches to the intersection.
- (b) Addition of raised speed tables on SH14 on the northern and southern approaches to the intersection.
- (c) Addition of a solid median on SH14 to the north and south of the intersection.

(d) A reduction in the posted speed limit to 70 km/hr.

(e) A raised platform for pedestrians on Awakino Point North Road (Option 4 only).

5.5 In my view the suitability of Option 3 and 4 hinge on a reduction in the speed limit, as I consider that the other measures proposed by Mr McKenzie will not sufficiently reduce the operating speed on SH14 without a supporting reduction in the speed limit. Mr Hughes has confirmed that a reduction in the speed limit is unlikely to occur.

5.6 I therefore confirm my opinion that a priority tee intersection will not address safety effects at the SH14/Awakino Point North Road, in the absence of a speed limit reduction.

6 Discussion of the speed limit and the operating speed on SH14

6.1 Currently the speed limit on SH14 near the PC81 site is 100 km/hr.

6.2 Mr McKenzie's Options 3 and 4 for the SH14/Awakino Point North Road intersection rely in part on a reduction in the speed limit on SH14 to achieve safer outcomes.

6.3 As discussed in Mr Hughes' evidence, a speed limit reduction is unlikely to occur. This is highly significant as a speed limit reduction is critical to the success of Options 3 and 4.

6.4 If the operating speed is not be reduced to 70 km/hr, Options 3 and 4 may have a negative effect on safety as the raised speed tables (which are designed for users to traverse the table at a comfortable maximum of 50 km/h speed), will cause crashes at higher speeds. The speed table can be designed to cater to higher approach speeds but would then be less efficient at reducing drivers' speeds at the intersection, therefore increasing the risk of fatalities.

6.5 In contrast, a roundabout is not dependent on a reduction of the speed limit, as the geometry of the roundabout encourages a lower operating speed, provided drivers have sufficient time to observe the roundabout and adjust their speed when approaching SH14 from the north and south of Awakino Point North Road. In essence, the roundabout is "self-explaining" to drivers.

6.6 I therefore repeat that I consider that a roundabout to be the appropriate solution, as its effectiveness at reducing the operating speed, and therefore safety effects, does not hinge on whether the speed limit on SH14 will be reduced.

7 SH14/Awakino Point North Road intersection upgrade timing

- 7.1 The ITA recommends that the SH14/Awakino Point North Road intersection is upgraded prior to the occupation of the first dwelling or prior to any industrial activities becoming operational.
- 7.2 However, as discussed in the ITA and my evidence there is insufficient sight distance for drivers turning into and out of the Awakino Point North Road intersection based on the existing operating speed.
- 7.3 As the likelihood of a collision increases with more traffic turning to and from the intersection, in my view, the current intersection should be upgraded prior to any construction works that will generate vehicle movements through the SH14/Awakino Point North Road intersection (e.g. importing or exporting fill from earthworks or delivery of construction aggregate/materials etc). Otherwise, this activity will create adverse safety effects at the intersection.
- 7.4 However, I agree with Mr McKenzie where in paragraph 9.12 of his evidence he considers that temporary traffic management could be used at the SH14/Awakino Point North Road intersection to manage transport safety effects that will result from earthworks/construction activity within the Plan Change site.
- 7.5 I recommend that the Trifecta Development Area Provisions are amended to ensure that Council has discretion over transport safety effects at the SH14/Awakino Point North Road intersection for any consent application relating to earthworks and/or building construction activities within the Plan Change site, to allow consideration of temporary traffic management measures as suggested by Mr McKenzie in lieu of the intersection being upgraded prior to any construction works on the Plan Change site.

8 Conclusions

- 8.1 To reduce the operating speed and improve safety at the SH14/Awakino Point North Road intersection, Mr McKenzie has suggested a series of measures on SH14, including proposing a reduction in the state highway Speed Limit (Option 4).
- 8.2 In my view the suitability of Option 4 hinges on a reduction in the speed limit, as I consider that the other measures proposed by Mr McKenzie will not sufficiently reduce the operating speed on SH14 without a supporting reduction in the speed limit. Mr Hughes has advised that a reduction in the speed limit is unlikely to occur.

- 8.3 If the operating speed is not be reduced to 70 km/hr, Option 4 may have a negative effect on safety as the raised speed tables (which are designed for users to traverse the table at a comfortable maximum of 50 km/h speed), will cause crashes at higher speeds. The speed table can be designed to cater to higher approach speeds but would then be less efficient at reducing drivers' speeds at the intersection, therefore increasing the risk of fatalities.
- 8.4 In contrast, a roundabout is not dependent on a reduction of the speed limit, as the geometry of the roundabout encourages a lower approach speed, provided drivers have sufficient time to observe the roundabout and adjust their speed when approaching SH14 from the north and south of Awakino Point North Road. In essence, the roundabout is "self-explaining" to drivers.
- 8.5 I therefore consider a roundabout to be the appropriate solution, as its effectiveness at managing speed, and therefore safety effects, does not hinge on whether the speed limit on SH14 will be reduced.
- 8.6 I recommend that the Trifecta Development Area Provisions are amended to ensure that Council has discretion over transport safety effects at the SH14/Awakino Point North Road intersection for any consent application relating to earthworks and/or building construction activities within the Plan Change site.
- 8.7 While I support the Applicant's proposal to provide the shared use path, as a means to enable transport choice, I consider that further detail is required to understand whether this can function safely, particularly at the SH14/Awakino Point East Road intersection.



Mat Collins
17 March 2023