**Before the Independent Hearings Panel**
**At Masterton**

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| Under | the Resource Management Act 1991 (the Act) |
| In the matter of | a request by Welhom Developments Limited to Masterton District Council for a private plan change to the Combined Wairarapa District Plan |
| Between | **Welhom Developments Limited**<br>Requestor |
| And | **Waka Kotahi NZ Transport Agency**<br>Submitter |

# Summary statement of evidence of Richard Landon-Lane for Waka Kotahi NZ Transport Agency

Dated 9 March 2023

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**SUMMARY**

1 My full name is Richard James Landon-Lane. I am a Principal Traffic & Safety Engineer at Waka Kotahi

2 I have undertaken crash prediction modelling for the two possible Plan Change scenarios, and compared these to the existing environment. Based on the expected traffic volumes, the modelling predicts a more than minor increase in death & serious injury (DSI) crashes will result from the proposed Plan Change. The modelling also shows this risk could be mitigated by the installation of a roundabout.

3 I will point out that the crash prediction models are simply mathematical equations and rely solely on vehicle count inputs. They do not take into account any "pros & cons" specific to a particular site. With respect to the Cashmere Oaks intersection, risk factors are the expected heavy right-turn out movement and the possibility of more elderly residents, conversely the site appears to have reasonable sight visibility. Due to these limitations and the fact I have used potentially lower traffic growth, I consider the models are slightly conservative, but are nevertheless are a useful tool as an indicator for how we would expect the future crash record to trend.

4 These modelling results are as expected, either of the Plan Change scenarios is adding additional traffic (1834-2286vpd extra) to a rural intersection. This logically increases the risk of DSI crashes (56-67% increase for these traffic volumes). With respect to testing the traffic volumes against a roundabout, again the model result is expected, both in New Zealand & internationally roundabouts generally reduce the crash risk. In either of the plan change scenarios, the modelling results indicates that a roundabout would actually reduce the expected crash risk for the expected traffic volumes.

5 In response to Ms Muirson's summary evidence that the "model parameters need to be adjusted given the overall downward trend in crashes",[1] I note:

5.1 The Waka Kotahi Crash Estimation Compendium states that the growth rate "*may* need to be adjusted given the downwards trends in crashes", therefore, it is not mandatory to reduce the growth rate;

5.2 While there was a downward DSI crash trend in the past, I consider this is not the current situation.

[1] Muirson Summary, para 3.19.

6 I note the evidence of Ms Muirson outlines some potential mitigation measures for the Cashmere Oaks intersection, I will briefly comment on the likely effect they would have on the modelling results.

6.1 Refreshed line markings: I consider this is a basic “business as usual” treatment that would be completed as part of a routine maintenance regimen. It will have no effect on the modelling results.

6.2 Gating of the Give-Way signs. This treatment is more appropriate for rural intersections where motorists have arrived from a longer journey and the goal is to highlight to unfamiliar drivers that there is an intersection. Given Cashmere Oaks is essentially a closed system, i.e. drivers have entered the road system in order to be able to exit from it. I don’t expect drivers from Cashmere Oaks to be surprised at the appearance of this intersection. Therefore I don’t expect it to have any meaningful effect on the modelling results.

6.3 Installation of a diverge chevron board. Similar to the gated give way signs proposal, this treatment is more suitable to highlight to unfamiliar drivers that they have arrived at the intersection. It is commonly used at Rural intersections where drivers on the side road are expected to have higher speeds. I would not expect drivers on Cashmere Oaks to be approaching at high speed. Therefore I don’t expect this proposed treatment to have a meaningful effect on the modelling results.

6.4 Installation of safety barrier alongside the eastern side of the intersection. A side safety barrier installation is normally used to address impact-type crashes with a hazard off the side of the road. Typically these would be “loss of control” type crashes. For intersection safety risks, the overwhelming concern is crashes involving impacts between two or more vehicles. So while a side safety barrier will reduce the severity of some loss of control type crashes, these are not the type of crashes which the intersection crash models are focussed on, therefore I don’t expect this proposed treatment to have a meaningful effect on the modelling results.

6.5 Installation of an intersection speed zone on both SH2 approaches. The use of intersection speed zones is a retroactive treatment to address an existing crash history at sites with excessive speeds. This is the situation which is desirably avoided, waiting for a DSI crash history to develop before treatment. Also the Cashmere Oaks intersection does not appear to have excessive speeds relative to its current posted speed limit. So

while intersection speed zones in New Zealand have had favourable effects on DSI reduction, their scope has been limited to installations at existing problem sites.

6.6 Lighting improvements at the intersection. The intersection already has highway lighting. The crash prediction models which were used will have had some intersections used in their calibration process which were lit. Therefore I don't expect this proposed treatment to have a meaningful effect on the modelling results.

6.7 Vegetation trimming – Similar to refreshed line markings, this should be part of a "business as usual" maintenance regimen. Therefore I don't expect this proposed treatment to have any effect on the modelling results.

7 None of the mitigations proposed with the Plan Change will meaningfully mitigate intersection crash risks. The development provided for by the Plan Change will increase crash risks. The modelling I have done predicts the likelihood of a DSI crash and the increased rate of a DSI crash from the Plan Change activities. A DSI crash has high consequences and is a likelihood and should be mitigated appropriately. I consider a roundabout is a well-known safety intervention measure that the modelling predicts would not only mitigate the additional crash risk but would also potentially reduce the crash risk compared to the existing environment.

**Richard Landon-Lane**

**9 March 2023**