

IN THE MATTER of the Resource Management Act 1991
("RMA" or "the Act")

AND

IN THE MATTER of an application to **HAMILTON CITY COUNCIL** for private plan change 7 ("PC7") to the operative Hamilton City District Plan by **GREEN SEED CONSULTANTS LIMITED**

FURTHER REPLY STATEMENT OF EVIDENCE OF LEO DONALD HILLS

1. INTRODUCTION

1.1 My name is Leo Donald Hills. I am a director of Commute Transportation Limited. I outlined my qualifications, experience and commitment to comply with the Environment Court Expert Witness Code of Conduct in my evidence in chief ("**EIC**") dated 24 September 2021. I maintain that commitment.

Purpose of further reply evidence

1.2 Following discussion with the Commissioner, this further statement of reply evidence addresses traffic safety issues raised by submitters and Mr Alastair Black in his EIC dated 22 October 2021.

2. SAFETY EFFECTS

General comment on Mr Blacks evidence

2.1 As reflected in the various Transport JWS (and reflected in evidence by Ms Fraser-Smith / Mr Mark Tollemache), I previously understood that the only remaining matters of disagreement between myself and Mr Black were two external upgrades at the Rotokauri Road / Exelby Road intersection and the need to upgrade Exelby Road (north of Burbush Road), as a result of PC7.

2.2 However, from a review of Mr Black's EIC, I now understand there are a few additional matters and additional analysis that Mr Black has undertaken. As a result, Mr Black concludes there are further external upgrades required as noted in Attachment 4 of his EIC, namely:

- (a) Exelby Road south of Burbush (additional upgrade to 9.5m carriageway width after 700 dwellings / lots unless the minor arterial is constructed (Item 1a and 1b in Attachment 4 of Mr Black's EIC);

- (b) Burbush Road (additional upgrade to 9.5m carriageway width after 700 dwellings / lots unless the minor arterial is constructed (Item 3a and 3b in Attachment 4 of Mr Black's EIC).

2.3 However, I note that Mr Black concludes as follows:

"I remain of the view that from a transport planning perspective, the ultimate location and transport connections for PC7 generally appear appropriate and provide good links to significant transport corridors (SH1, SH39 and the minor arterial)"¹; and

"I support the proposed provisions agreed during expert conferencing."²

2.4 As such, the main area of disagreement between myself and Mr Black is still limited and relates to the external upgrades required.

Burbush Road and Exelby Road south of Burbush Road

2.5 Firstly, I reiterate that the proposed upgrades in the planning provisions to widen the carriageway to 7.7m (after 500 dwellings or access to Burbush Road) is solely for safety reasons, to address and mitigate the effects of the additional volumes generated by the PC7 site on the existing rural road network. The upgrade threshold chosen (essentially 2,500 vpd) is when the road essentially changes classification from local to collector road. Congestion along this corridor is unlikely to occur at this level and as such the upgrade to this stretch of road (2.5km) is solely for safety reasons.

2.6 This is further evidenced by Mr Black's calculations, which show the theoretical crash rate will reduce well below that existing as a result of the widening (from 1.06 to 0.67 injury crashes per year).

2.7 The analysis Mr Black has undertaken relies on changes in safety using Waka Kotahi Crash Estimation Compendium ("**Compendium**") by trying to retain exactly the same crash rates as occurs currently. In my opinion, any development that creates traffic will in some way increase potential vehicle conflict and thus have some effect to safety. However, it is not appropriate to expect that new developments will have absolutely no effect on traffic safety for all roads or should address existing deficiencies.

2.8 I have now reviewed the analysis undertaken by Mr Black and consider Mr Black's calculations using the Compendium to be appropriately assessed. I note that this assessment calculates total injury crashes, however in recent years there has been a more emphasis on serious and fatal crashes (e.g. Vision Zero).

¹ EIC Black, at [91].

² Ibid, at [92].

- 2.9 However, the analysis Mr Black has used only applies rural roads with speeds greater or equal to 80km/hr. The Compendium does not have any similar analysis for rural roads less than 80km/hr (which is likely to occur in future) but only urban roads of 70km/hr or less. Worldwide research shows that reducing speeds will both reduce the injury crash rate per year and the severity of the crashes. As such while injury crash rates may reduce with wider shoulders / widths as Mr Black suggests, this can also be achieved by other means especially with reduced traffic speeds.
- 2.10 Through Mr Black's evidence, I understand that Exelby Road and Burbush Road are included as part of Hamilton City Council's ("**Council**") speed limit review for this financial year (60km/hr). While I agree with Mr Black that there is no certainty that the review will result in speed limit reductions, I note that if it does, this would likely reduce vehicle speeds along these rural roads and thus improve safety.
- 2.11 Mr Black has expressed further concerns that the increase in traffic on Burbush Road and Exelby Road (south of Burbush) means that the seal widening to 7.7m may not be sufficient. He disagrees that the traffic volumes on Exelby Road (south of Burbush Road) as I have estimated "*will be approximately 5,000 veh/day*" and considers the daily traffic volumes to be approximately 7,400 vpd. I note that in calculating the 7,400 vpd, Mr Black now uses a peak hour factor of 10%³ rather than 15%⁴ as previously used in his section 42A report (and which I have also adopted in my evidence, and thus accounts for the discrepancy in my calculation of 5,000 vpd in my reply evidence). In my opinion this indicates that there is potential for variability in the peak hour factor and therefore the future daily volumes could exist anywhere between 5,000 vpd to 7,400 vpd.
- 2.12 With respect to paragraph 34 of Mr Black's EIC (which responds to paragraph 3.33 of my reply statement), I note as follows:
- (a) The traffic volume on Burbush Road / Exelby Road link that Mr Black cites (up to 7,400 vpd) assumes no other roading links are created in Rotokauri south before all 2,000 dwellings are created in PC7 (this is unlikely to eventuate given Rotokauri south is already developing). I remain of the view that full development is unlikely to occur without other development being constructed to the south as:
- (i) The area to the south is included within the Stage 1 land and includes the Rotokauri Rise development. This development is understood to be completed over a 10-year period (potentially 2018-2028).
- (ii) Mr Black considers that the current network could be the only transport network in the area for a period of approximately 15 years. In this

³ Ibid, at Attachment 2 (far right table).

⁴ See page 7, Footnote 8 of Mr Black's 'Updated Transportation Review' (Appendix D to the Council Report).

regard, while the Rotokauri Stage 2 application for the Infrastructure Acceleration Fund was not successful, I note that the Stage 1 bid has been put on a reserve list which may see it elevated to the next stage at a later date. In this regard, there is potential that the Stage 1 bid could be considered within the next 15 years.

- (b) There is potential for further upgrades to be required in the future as a result of PC7, however the number of uncertainties relating to the nature of the future road network (including speed reductions) make it difficult to provide a trigger or outline the extent of all the upgrades required at this point in time. In my opinion, the planning provisions for PC7 ensure that the surrounding relevant transport network (including the locations of concern identified by Mr Black) will be assessed as part of any future proposal for development within the PC7 site through the process of an ITA. All ITA's will need to take into account the specific consideration of demand, safety, levels of service and options for mitigation at a number of intersections and transport corridors (including those identified by Mr Black). Therefore, should further mitigation be required, this can be addressed at that time.
- (c) I consider it is important to note that Council will be involved in reviewing each ITA and that consent is required for each development proposed within the site. Thus, there are limitations in place to restrict development in the PC7 area should the transport network not be able to cope with the additional traffic volumes. I therefore remain of the view that the best way to determine an appropriate upgrade is through the process of an ITA whereby each intersection / road outlined in the ITA specifics is assessed to determine if it can accommodate the additional volumes from the proposal at that time.

2.13 I note that in the hearing, the hearing Chair, Mr Hill queried whether it may be appropriate to include an additional trigger for an ITA to be undertaken when the cumulative lots / units in the PC7 land reaches 700, to address Items 1A and 3A from Attachment 4 of Mr Black's EIC. I confirm (as advised verbally during the hearing) that from a transport perspective, I have no issues with this and consider that this would be an appropriate way to ensure Mr Black's points are still considered going forward should the worst case happen.

Exelby Road (north of Burbush Road)

2.14 Mr Black states that:⁵

"On Exelby Road (north of Burbush Road), the 2021 network with 2,000 dwellings results in a daily traffic volume of approximately

⁵ Supra Note 1, at [47].

1,300veh/day. This is lower than the agreed seal widening threshold of 2,500veh/day which is based on addressing efficiency effects and change in function of the transport corridor."

- 2.15 In the case of Exelby Road (north), of all the modelling results undertaken over the last two years shows the volumes along this corridor (fronting the site) do not exceed 1,500 vpd and therefore are well below the threshold of 2,500 vpd where the road essentially changes classification. I note that by the year 2041, a new development (outside the subject site) connecting to Node 569 in the model is planned to generate a significant number of trips on Exelby Road (between that developments connection to Exelby Road and the Burbush Road / Exelby Road intersection). Only once this development is established does the modelling show Exelby Road (north of Burbush Road) will cater for more than 2,500 vpd (again this development is outside the current Plan Change). I note that Exelby Road (north of Burbush Road) has no reported crashes in the past five years.
- 2.16 It is important to note that this section of the corridor is included within the ITA specifics and therefore any development that occurs within the site will require an assessment of this corridor at that time (regardless of if the proposal provides a connection to Exelby Road or not).

Exelby Road / Burbush Road intersection

- 2.17 Mr Black now agrees that this intersection should be upgraded to a single priority-controlled intersection with a right turn bay. I note that the design of the intersection (including safety considerations) will need to be considered as part of future stages to ensure compliance with the relevant standards.

Rotokauri Road / Exelby Road intersection

- 2.18 Similar to Exelby Road (mid-block), Mr Black has used the predicted traffic volumes and Compendium equations to assess the theoretical crash rate at the Rotokauri Road / Exelby Road intersection for the various scenarios of development within PC7 for 2021 (including 150, 500 and 2000 dwellings). Two intersection forms have been included within Mr Black's assessment including the existing priority control layout and a potential roundabout layout. I have summarised Mr Black's findings below:
- (a) There is no change to the predicted crash rate at the Exelby Road / Rotokauri Road intersection (before and after the development of 500 dwellings within the site);
 - (b) Compared with the base scenario, the crash rate is expected to increase from 0.21 to 0.35 injury crashes per year. This is one injury crash every 4.8 years to one every 2.9 years.

(c) Upgrading the intersection to a roundabout control reduces the crash rate to 0.17 injury crashes per year.

2.19 Mr Black considers the safe system treatment for this intersection is a roundabout as it will reduce both the crash rate and the severity of a crash due to the lower vehicles speeds. In this regard, I note that while an upgrade of the intersection (and most intersections) to a roundabout control would achieve this, other mitigation measures have not been considered.

2.20 I again note that the analysis Mr Black has used is based on a "High-speed (Rural) Roundabouts ($\geq 80\text{km/h}$ on main road)" vs a "High-speed (Rural) Priority and Signalised Cross roads and T-junctions ($\geq 80\text{km/h}$ on main road)". Again there is no lower speed rural intersection model on the Compendium.

2.21 Mr Black outlines that:⁶

"I have further reviewed the revised modelling attached to JWS #4 to consider the effects at this intersection. In the 500 dwelling scenario there are 152veh/hr turning right from Rotokauri Road into Exelby Road increasing to 428veh/hr in the PM peak (or one turning vehicle every 8 seconds). This is significantly higher than the 15-16veh/hr considered by Mr Hills in his evidence."³

2.22 To clarify, the 15-16 vph Mr Black is referring to above is the potential increase at the intersection should 200 dwellings be established within the site (as Mr Black had previously recommended a roundabout be installed here once 200 dwellings within PC7 were established).

2.23 During the hearing, Mr Black noted that a roundabout is unlikely to be warranted at the Rotokauri Road / Exelby Road intersection if the minor arterial is constructed before the development reaching 500 dwellings, which I fully agree with.

2.24 In this regard, in my opinion the upgrade of this intersection should not be tied to one developer sited over 2.5km away and where no existing safety issues have been reported. I therefore still consider the best way to determine an appropriate upgrade is through the process of an ITA whereby each intersection / road outlined in the ITA specifics is assessed to determine if it can accommodate the additional volumes from the proposal at that time (and if not appropriate mitigation is considered).

Exelby Road / Lee Road intersection

2.25 While Mr Black disagrees with my comments on the effects at the Lee Road intersection, he does consider the potentially safety effects could be addressed by specifically adding

⁶ Ibid, at [59].

this intersection to the list of matters to be addressed in the information requirements for which the planning provisions now include. I therefore consider no further commentary is required on this matter.

- 2.26 I reiterate that a search of the existing crash record does not indicate any existing safety issues at this intersection i.e. 0 crashes over the past 10 years.

Triggers

- 2.27 Overall, in my opinion the additional measures / issues raised by submitters and Mr Black, while important, are not issues that will definitely occur as a result of PC7. Due to these potential issues, the planning provisions proposed by Green Seed have been amended to include further assessment with the required ITA's to include specific consideration relevant to PC7. Essentially, the required ITAs will require further assessment of the surrounding roading network closer to the time of implementation and take into account other developments and roading upgrades that may or may not have occurred.
- 2.28 These plan provisions include specific items that provide guidance for future traffic engineers undertaking such assessments that are specific to PC7 and its location (e.g., they specifically identified matters relevant to PC7, and Mr Black's concerns, which must be addressed in their assessment).

3. CONCLUDING COMMENTS

- 3.1 There are still limited matters of disagreement between myself and Mr Black (however these are greater than I previously reported in my EIC and reply evidence). These relate to some of the required transport triggers and upgrades external to the site.
- 3.2 I consider that the remaining issues Mr Black has identified are best addressed in future ITAs as these are far from certain and in my opinion represent a worst-case scenario. That said, I have also recommended that the provisions relating to the future required ITA be modified / improved as per the changes outlined in Ms Fraser-Smith and Mr Tollemache's further reply evidence and through a provision suggested by the Chair whereby any development over 700 dwellings specifically requires an ITA and specifically address the potential for additional widening on Burbush Road / Exelby Road (south).
- 3.3 Overall, nothing raised in the transportation-related evidence filed by Mr Black or by submitters relating to traffic safety has changed or altered the overall conclusions set out in my EIC (noting the updated provisions).

Leo Donald Hills
19 November 2021