

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Proposed Plan Change 2 (Pukehangi Heights) to the Rotorua District Plan

STATEMENT OF EVIDENCE OF GRAHAM MICHAEL NORMAN

TRAFFIC ENGINEER

ON BEHALF OF TE ARAWA GROUP HOLDINGS LIMITED

18 September 2020

1.0 QUALIFICATIONS AND EXPERTISE

- 1.1 My full name is Graham Michael Norman. I am a Principal Transport Consultant at Commute Transportation Consultants Limited in Auckland.
- 1.2 I am a Chartered Professional Engineer and hold the degree of a Bachelor of Civil Engineering from the University of Auckland (2008). I am a Chartered Member of Engineering New Zealand (CMEngNZ) and a Chartered Professional Engineer (CPEng).
- 1.3 I have 11 years' experience as a specialist traffic engineer and transport planner and I frequently provide advice to private and public-sector clients on a wide range of traffic engineering and transportation planning matters.
- 1.4 I have been involved in a range of resource consent and policy development matters from both a regulatory and consultancy viewpoint.
- 1.5 In this matter, I have been engaged by Te Arawa Group Holdings Limited (TAGH) to review planning provisions under the ambit of Proposed Plan Change 2 (Pukehangi Heights) (**PPC2**) to the Rotorua District Plan (**District Plan**); with a particular focus on matters relating to construction access.
- 1.6 I have been to the site on a number of occasions including a full site walkover in September 2019 where I met a number of residents on Matipo Avenue.

2.0 CODE OF CONDUCT

- 2.1 I have read the Code of Conduct for Expert Witnesses issued as part of the Environment Court Practice Notes. I agree to comply with the code and am satisfied the matters I address in my evidence are within my expertise. I am not aware of any material facts that I have omitted that might alter or detract from the opinions I express in my evidence.

3.0 EXECUTIVE SUMMARY

- 3.1 TAGH own a portion of the land ('Area A') within the **(PPC2)** area. **PPC2** performance standards exclude the option for construction vehicles to use Matipo Avenue.
- 3.2 The performance standards in relation to construction access largely reflect the current District Plan performance standards for the Twin Oaks development area; however, they further limit construction access for TAGH land as current standards allow construction access via Matipo Avenue for a limited residential portion of the site.
- 3.3 I have been engaged to provide expert traffic advice with regard to construction access for the TAGH site ('Area A'). I have considered and assessed a range of options for construction access for the TAGH site ('Area A'). There is no obvious preferred option for construction access at this point given uncertainty and lack of more detailed information on construction staging, methodology and design.
- 3.4 With regard to the option to use Matipo Avenue for construction access I find no traffic engineering reason to exclude Matipo Avenue as an option for construction access at this plan change stage. This opinion is shared with other traffic experts who have assessed this matter.
- 3.5 I consider it premature to restrict construction access options at this plan change stage and consider the development of a construction traffic management plan as an appropriate mechanism to manage construction traffic effects.

4.0 SCOPE OF EVIDENCE

- 4.1 The scope of my evidence relates to proposed plan provisions insofar as they relate to the issue of construction access.
- 4.2 TAGH made the following primary submission in relation to the issue of construction access ...

“TAGH has taken expert traffic engineering advice. As a consequence of this advice, TAGH is of the view that Matipo Avenue is still a valid option for construction traffic and should be retained as an option for such in the future; particularly given that the Hunt Farm (‘Area B’) to the northwest is held in private ownership and that Great West Road, while providing legal access to ‘Area A’, would result in significant environmental effects, primarily due to earthworks incidental to the construction of a temporary access road”.

Relief Sought:

A5.2.3.4 (12) to be revised with amended wording as follows:

For the subdivision and development of Area A, construction traffic shall gain access via either:

- (a) Area B from Pukehangi Road;
- (b) Matipo Avenue; or
- (c) An access road from Great West Road.

a-A Construction Traffic Management Plan shall be submitted, which shall include (but not be limited to):

- Pavement rehabilitation conditions and monitoring
- Temporary speed limits
- Parking restrictions
- Hours of operation
- Details of truck wash facilities
- Application of turning restrictions and truck routes

that includes measures such that:

- (a) All construction traffic is restricted from gaining access from Matipo Avenue, other than for the purpose of constructing an intersection with Matipo Avenue;
- (b) All construction traffic gains access from a temporary access road from the Great West Road boundary or Area B from Pukehangi Road, other than for the purpose of constructing an intersection with Matipo Avenue; and
- (c) Prior to commencing construction, signage is erected and displayed and maintained on and near the entrance of Matipo Avenue during construction of the development advising of the restrictions on construction traffic using Matipo Avenue for access and directing such traffic to the approved site access.

To avoid doubt, “construction traffic” means heavy and light vehicles associated with subdivision and development, including but not limited to earthworks and the construction of infrastructure, but

residential units, village facilities and a 30-bed hospital to service the retirement facility within the rural zoned land. The Twin Oaks development concept is included in the District Plan and shown in Figure 4-2 below.

Figure 4-2: Twin Oaks development area (District plan)



5.3 The Twin Oaks development plan was subject to an Environment Court Appeal (ENV-2015-AKL-000014) by the Matipo Avenue Residents Group. A compromise was reached, which can be summarised as follows:

- No construction traffic on Matipo Avenue, with a temporary construction access via Great West Road.
- Construction traffic for the lower terrace residential development area can use Matipo Avenue.
- Service vehicles for the retirement village shall not use Matipo Avenue between the hours of 8am-6pm on weekdays and 10am-2pm on weekends.
- Limits to the floor area and number of units and floor areas.
- Provide an additional road access to the north of the site to a future road in the Hunt Block.

6.0 CONSTRUCTION ACCESS OPTIONS

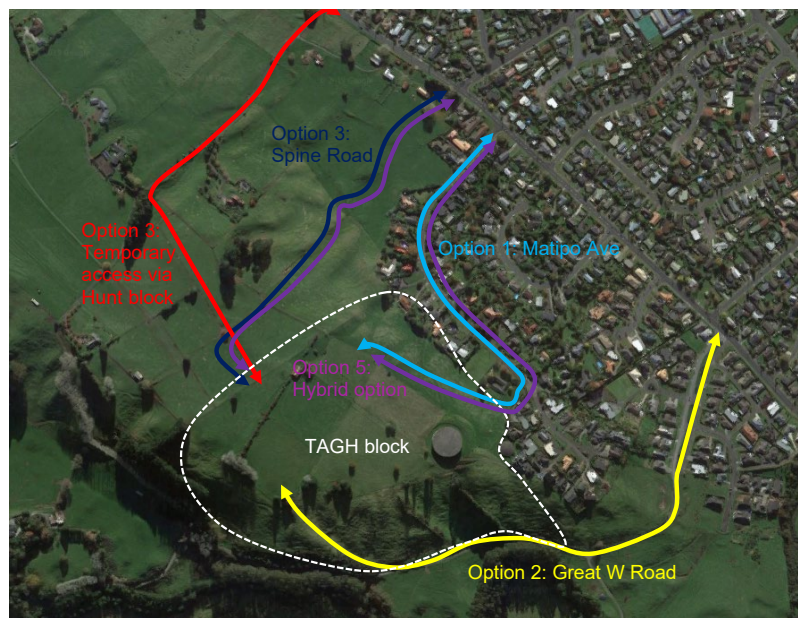
6.1 During the plan change process, I have been engaged by TAGH to assess a range of options for construction access to their land

('Area A'). I outline below each of the options considered and an assessment for each.

6.2 Based on the review of the **(PPC2)** provisions, previous consent applications, discussions with TAGH, and Matipo Avenue residents, the following options for construction access to the TAGH block ('Area A') have been identified:

1. Matipo Avenue - Use of Matipo Avenue for all construction traffic.
2. Great West Road with temporary construction access
3. Spine Road – Use of the future spine road via Hunt Block for construction traffic.
4. Temporary construction access via Hunt Block – Development of a construction haul road via the Hunt farm.
5. Hybrid Option (Option 1 and 3/4) - using Matipo Avenue for a portion of site construction traffic and the Spine Road and/or temporary haul road for the remainder of construction vehicles.

Figure 5-1: Options considered for construction access



Option 1 – Matipo Avenue

6.3 This option involves the use of Matipo Avenue as construction access to the TAGH site ('Area A'). During the previous Twin Oaks

development application, the key issues around use of Matipo Avenue for construction access included noise effects, pavement damage and road safety.

- 6.4 I do not have expertise in noise effects or pavement design, so I am not qualified to comment on the effects of construction traffic in these areas. I do note however, that it is commonplace to manage noise and pavement effects within the ambit of a construction traffic management plan. Noise effects can be mitigated through restrictions in timing for construction vehicles and pavement damage can be measured and remedied following the construction period.
- 6.5 I have reviewed Matipo Avenue from a road safety perspective. I have checked sight distance at the Matipo Avenue / Pukehangi Road intersection. I measured sight distance to the North as 118m while to the south over 200m clear sight distance is provided. Given the current 60km/h speed environment, the Austroad Guidelines suggest a minimum of 123m. Given the intersection is existing and would be used on a temporary basis by construction vehicles, AUSTROADS sets out a lesser standard (EDD¹ sight distance requirements) which apply in this circumstance. The available sight distance complies with AUSTROADS EED requirements. As such, I am of the view that the available sight distance is adequate to safely accommodate construction traffic.
- 6.6 I note a road safety audit was completed by Harrison Transportation in 2015. This audit highlighted sight distance to the north as having a slight deficiency, however, it did not raise a safety concern with the current intersection arrangement.
- 6.7 Furthermore, I have undertaken a search on the NZTA CAS database for crashes at the intersection between Matipo Avenue / Pukehangi Road. In the 5-year period 2015-2019, including all available 2020 data, no crashes have been recorded at the intersection. One non injury crash is recorded on Pukehangi Road

¹ Austroads, 2017. Guide to Road design: Part 4a unsignalized and signalised intersections. Appendix A. Extended Design Domain (EDD) for Intersections

30m north of the intersection involving a vehicle overtaking another travelling in the same direction and losing control. As such, there is no evidence of an existing safety issue at the intersection.

6.8 One non-injury crash has been recorded at the intersection of Pukehangi Road and Great West Road involving a right turning vehicle being hit by an overtaking vehicle.

6.9 Based on my observations, Matipo Avenue provides the following:

- A sealed carriage way of 7.9 – 8.0m for the northern section widening to 8.5m beyond the first cul-de-sac head.
- A maximum gradient of 12.5-13% (approximately 1:8)
- Horizontal curves of approximately 60-75m
- Vertical crest curve with stopping sight distance of around 50m
- A footpath on one side of the road (eastern side on northern end, western side on southern end)

6.10 With regards to the ability of the existing Matipo Avenue geometry to accommodate heavy vehicle traffic, I note the following:

- The carriageway width is appropriate to accommodate heavy vehicles, however management of on street parking may be required subject to the current level of on street parking.
- The gradient, while high, is within the acceptable range for heavy vehicles. Speed management is likely to be required to ensure the heavy vehicles do not pose additional safety risk on current users.
- Sight distance is limited by a vertical curve and vegetation (partially within the road reserve). While vegetation pruning will improve the situation, a

temporary speed limit is likely to be required to manage construction vehicles.

- Footpaths are only provided on one side of the road. This is considered an existing deficiency and is not expected to be exacerbated by construction.

6.11 Overall, subject to speed management and potential parking management, it is my opinion that Matipo Avenue would be appropriate to accommodate heavy vehicles from a geometric perspective. In my view a typical construction traffic management plan would be sufficient to manage speed and on street parking.

Option 2: Great Western Road

6.12 Great West Road forms the southern border of the site. Great West Road is sealed for the first 260m before turning into a narrow metal road, which currently provides access to selected properties. This option is to provide construction access from this road only. This option was identified in the previous plan change for the Twin Oaks development. In order for construction access to be provided, a temporary haul road would be required from Great West Road to the TAGH site ('Area A'). This option has two key issues:

- Topography and cost – while no detailed design has been undertaken for this option, there are significant grade differences between Great West Road and the upper terrace within the TAGH site ('Area A'). Significant earthworks would be required to construct a haul road through this terrain.
- Environmental effects – with a large quantity of earthworks required there is the potential for high environmental impacts as a consequence of pursuing this option.

Option 3: Spine Road

- 6.13 As part of the development of the Hunt Block, a Spine Road is proposed to serve the development area. This option would make use of this Spine Road for construction access of the TAGH site ('Area A').
- 6.14 While this option is desirable from an effect's-based perspective, it relies on access through another private property at present and is dependent on staging and sequencing of the development of the Hunt block. This is outside the control of TAGH.

Option 4: Temporary construction access via Hunt Block

- 6.15 This option is similar to Option 3 but proposes a temporary construction access through the Hunt Block instead of waiting for the construction of the Spine Road. In a similar vein to Option 3, this option relies on access through another private property at present and is outside the control of TAGH.

Option 5: Hybrid Option (Option 1 and 3/4)

- 6.16 This option provides construction access to the TAGH site ('Area A') via a combination of both Matipo Avenue and access through the Hunt block. It provides flexibility and ability to manage effects on Matipo Avenue at the time of construction.
- 6.17 I note that part of the TAGH site is currently zoned as 'Residential 1' within the Rotorua District Plan and as such has capacity for a residential development of up to 20 houses², for which construction access would be via Matipo Avenue as per the Rotorua District Plan A5.8.3.1d.v.

² Boffa Miskell, 2019. Pukehangi Heights Development Area - Section 32 evaluation report. Section 4.2.3.

7.0 TAGH'S SUBMISSION POINT AND COUNCIL PLANNERS' RECOMMENDATION

7.1 Council's Section 42A Planning Report considers submissions from both MARIS (supportive) and TAGH, the Hunt family and Paul Sumner (not supportive) with regards to subdivision performance standards A5.2.3.4.12 and A5.2.4.4.8. The MARIS submission states the following reasons for avoidance of Matipo Avenue for construction traffic:

- The steep gradient of Matipo Avenue (i.e. steeper than 1:8 at top end);
- Narrow carriageway of Matipo Avenue;
- Unsafe intersection of Matipo Avenue and Pukehāngi Road;
- Amenity impacts on Matipo Avenue

7.2 The Council's Section 42A Planning Report recommends the retention of subdivision performance standards A5.2.3.4.12 and A5.2.4.4.8. Should access via Matipo Avenue be promoted it would need to be assessed as a discretionary activity given it does not meet the performance standards.

7.3 With regard to the gradient of Matipo Avenue, I consider the grade of 12.5-13.0% (approximately 1:8) to be within the capacity of the majority of construction vehicles. The Rotorua Civil Engineering Industry Standard 2000 (Version 2004) states a maximum grade of 1:8 for roads within the region, however it is not uncommon for existing local roads to exceed this.

7.4 It should be noted that the initial estimate suggests a haul road via Great West Road would need to be an average of 12.5% representing a steeper overall route and due to the temporary nature, it is unlikely to be sealed. On this basis, as an alternative Great West Road would be steeper and more difficult for construction vehicles to access the upper terrace of the TAGH site ('Area A').

- 7.5 The carriageway width on Matipo Avenue is nominally 8.0m in width over the section in question. On street parking is permitted over the length of the road. I consider the carriageway itself adequate to accommodate two-way movement of traffic including construction vehicles. On street parking has potential to inhibit the ability for continuous two-way movements, however, based on my observations, parking utilisation is relatively low during business hours with ample off-street parking provided. A number of vehicles have been observed to park on the berm as opposed to on street.
- 7.6 I consider the management of on street parking as something which could be adequately addressed through development of a construction traffic management plan at the resource consent stage.
- 7.7 With regard to the intersection between Matipo Avenue and Pukehangi Road, I have commented on the available sight distance at the intersection in paragraph 5.5. A search of the CAS database indicates no crashes have been recorded to the intersection in the past 5 years as outlined in paragraph 5.7. A road safety audit was undertaken by Harrison Transportation and this did not identify a safety concern with the intersection.
- 7.8 With regard to amenity impacts, I consider the issues of traffic safety and ability of construction vehicles to physically use the route as issues which contribute to the amenity of a residential street along with numerous other issues outside my area of expertise. I have discussed road safety implications and the practicality of Matipo Avenue as a construction access in Paragraphs 5.3 to 5.11 of my evidence.
- 7.9 I concur with the Stantec ITA dated August 2020, which states the following with regards to construction traffic:

“3.6 Construction Traffic

It is premature to consider construction traffic volumes at the time of a Plan Change. A Construction Management Plan will be needed as part of resource consents prior to

subdivision approval, and this will depend in turn on the way in which each property is developed.”

- 7.10 The last sentence of the Stantec paragraph is the pertinent one. Without Matipo Avenue retained as an option for construction access, the TAGH block could become land locked relying on either third-party discretion or an option with higher environmental impacts and costs.
- 7.11 The subdivision performance standards A5.2.3.4.12 and A5.2.4.4.8 effectively restricts construction access to the TAGH site ('Area A') via Matipo Avenue. I consider the performance standards as written to provide further restrictions over construction access than is currently allowed in the context of the Twin Oaks development area. While the consented retirement village includes a restriction on construction traffic using Matipo Avenue, the residential development area (currently zoned as 'Residential 1' in the district plan) has no such restriction.
- 7.12 Based on my assessment and knowledge of the site, I am of the opinion that there are no safety reasons as to why Matipo Avenue could not be used for construction access to the TAGH site ('Area A') at this plan change stage. I note my conclusions on this matter are shared with other traffic experts, all of whom have considered this issue including Stantec, Harrison Transportation and the evidence of Mr Edwards in the Council hearing for the District plan review³.
- 7.13 Any construction access option would clearly be subject to a range of 'checks and balances' to ensure traffic safety and convenience at the time of construction.

³ R J Edwards, 2014. Expert evidence in the district plan review – Twin Oaks for the Matipo Avenue site, 1 April 2014.

8.0 CONCLUSION

- 8.1 TAGH seeks an amendment to subdivision performance standards A5.2.3.4.12 and A5.2.4.4.8, which would enable Matipo Avenue to be considered as one of a range of options for construction traffic.
- 8.2 From a traffic engineering perspective, I see no critical issues or effects that should exclude Matipo Avenue as an option for construction traffic that could not be managed by a typical construction traffic management plan.
- 8.3 The relief sought retains options for construction access to the TAGH site ('Area A'), and importantly removes the potential reliance on getting third party approval for access or gaining access to the site with high environmental impacts.

Graham Michael Norman

18 September 2020