

Before Kaipara District Council

In the Matter of the Resource Management Act 1991 (**RMA**)

And

In the Matter of an application for Private Plan Change 82 (**PC82**) by **MOONLIGHT HEIGHTS LIMITED** to rezone 39.2 ha of land at Awakino Road, Dargaville from Rural Zone to Residential Zone

Evidence of Peter Justin Kelly on behalf of Moonlight Heights Limited

Transportation Engineering

Dated 21 July 2023

Jeremy Brabant

Barrister

Foundry Chambers

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Introduction

1. My full name is Peter Justin Kelly. I am a Senior Transportation Engineer at Traffic Planning Consultants Limited (“TPC”).
2. I have 13 years’ experience as a Transportation Engineer. I have been with TPC since 2017. Prior to that, I gained seven years of experience as a Transportation Engineer with Paradigm Transportation Solutions Limited, an engineering firm based in Waterloo, Ontario, Canada. I hold a Bachelor of Applied Science (Civil Engineering) from the University of Waterloo, in Waterloo, Ontario, Canada.
3. During my time with TPC, I have been engaged by local authorities and the private sector for advice on many matters covering traffic engineering road safety, design and network management. I have extensive experience in assessing transport and access requirements of residential activities.
4. I was instructed by Moonlight Heights Limited in January 2022 to review the surrounding transportation network and identify potential effects resulting from the proposal, as well as to provide design guidance onto the design guidelines/precinct provisions for the area, where pertaining to transport matters. I am familiar with the area to which the application relates. I have visited the site and the surrounding area on 26 January 2022.
5. I prepared the Transport Assessment (“TA”) for the proposed plan change dated 02 June 2022 , along with a response for additional information dated 14 November 2022, both of which are appended to this evidence.
6. Although this is not a hearing before the Environment Court, I record that I have read and agree to and abide by the Environment Court’s Code of Conduct for Expert Witnesses as specified in the Environment Court’s Practice Note 2023. This evidence is within my area of expertise, except where I state that I rely upon the evidence of other expert witnesses as presented to this hearing. I have not omitted to consider any material facts known to me that might alter or detract from the opinions expressed.

Scope of Evidence

7. My evidence will address the following:
 - a. Existing Transport Environment;
 - b. Description of Proposal;
 - c. Impact of Development;
 - d. Council Officer's Section 42A Report;
 - e. Concerns Raised in Submissions.

8. My evidence addresses the transportation related matters for the proposed plan change area

Existing Transport Environment

9. Awakino Road is a two-lane road, which predominantly operates as a collector road, and also directly serves many abutting residential properties. It runs in a general north-south direction, terminating approximately 1 kilometre north of the subject site, and connecting to Victoria Street in the south.

10. Awakino Road has a posted speed limit of 50 km/h and footpaths are predominantly only provided on the western side of the road, terminating at No. 156 Awakino Road.

11. Awakino Road carries varying traffic volumes along its length with more vehicles the closer it is to State Highway 12. These volumes are approximated as:
 - a. Between Jervois Street (SH12) and Ranfurly Street; 320 AM peak hour vehicles and 305 PM peak hour vehicles.

 - b. Between Ranfurly Street and Dargaville Hospital access; 255 AM peak hour vehicles and 200 PM peak hour vehicles.

- c. North of Dargaville Hospital access; 130 AM peak hour vehicles and 105 PM peak hour vehicles.
- 12. Within the TA, it was identified from New Zealand Transport Agency's Crash Analysis System (CAS) that 17 crashes had been reported along Awakino Road between 2017 and 2022. Four of these crashes resulted in minor injuries; all at the intersection of Awakino Road and SH12.
- 13. In preparing this evidence, I have revisited CAS, to expand the previous 5-year history to include any other crashes, which have since been reported. From this, three additional crashes were reported along Awakino Road between 2017-present (*2023 data subject to reporting delays*), with two crashes resulting in injury summarised as:
 - a. Intersection of Awakino Road and Cranley Street, driver failed to give-way at priority control, hitting oncoming vehicle, resulting in a minor injury.
 - b. On Awakino Road, 230 metres south of Phoenix Place, driver suspected to be under influence of alcohol, lost control of vehicle leaving carriageway and entering ditch and hitting power pole. A serious injury was reported.
- 14. From the reviewed crash history, it is my opinion that there are no pre-existing safety concerns with Awakino Road, which require remedial measures.

Description of Proposal

- 15. The proposal looks to rezone 392,610 m² of land from Rural to Residential. This change is estimated to enable the creation of up to 348 residential lots.
- 16. The creation of 348 residential lots is estimated to generate up to 2,853 daily vehicle trips and 313 peak hour vehicle trips. This is based off the 85th percentile trip generation rates of 8.2 daily trips per dwelling and 0.9 peak hour trips per dwelling.

17. The proposal includes a structure plan which provides an indicative road layout, allowing the area to be suitably serviced via new public road connections onto Awakino Road.

Impact of Development and Remedial Measures

18. Assigning the trip generation from the development to the wider road network, it was determined that intersections nearby (Awakino Road and Dargaville Hospital access, Ranfurly Road, and SH12), will continue to operate at acceptable levels.

19. Southbound through and right turn movements at the intersection of Awakino Road and SH12 observe the largest increase in operation delays under the future scenario. Delays are anticipated to increase from approximately 20 seconds to 36 seconds, due to the increase in turning movements within the intersection.

20. Based on the grid pattern road network of the area, should larger delays occur at the intersection of Awakino Road and SH12 it is likely that drivers will utilise other connection points onto SH12 to minimise their delay, thereby distributing traffic across multiple roads, which reduces the overall effects experienced to the wider public.

21. New public road intersections onto Awakino Road are able to be constructed to a high standard, allowing for safe and efficient movement of vehicles from the site onto the existing public road network.

22. The adjacent pedestrian network is able to be upgraded along the western side of Awakino Road, connecting the proposed plan change area to the wider network, helping to enable active modes of transportation.

23. Along the eastern side of Awakino Road, there is potential to construct a shared path along the frontage of the plan change area, connecting into future pedestrian/cyclist facilities within the site area helping to encourage active modes of transportation.

24. I consider whether upgrade of the pedestrian network and/or construction of a section of shared path is appropriate later in this evidence.

Response to S42A Report

25. I have reviewed Council's S42A report in detail, where discussion has been focused on Transport related matters.

26. In Paragraph 152, Ms. Buckingham states that the trip generation from the proposal is expected to have significantly noticeable effects onto intersections along Awakino Road. I disagree with this statement. Operational delays were identified to increase at the intersection of Awakino Road and SH12; delays for the north intersection leg were forecast to increase at worst from 20 seconds (LOS C) to 36 seconds (LOS E). Apart from this intersection leg, effects to the wider network are considered relatively minor.

27. In Paragraph 152, Ms. Buckingham states that LOS E is the threshold for requiring improvements. This is not technically correct, as several factors determine the need for improvements, not solely just the operational delay level of service. Many unsignalised intersections operate at LOS E or LOS F, without improvements being implemented (or being needed to be implemented), as delays during peak hours are a reasonable expectation while commuting.

28. With respect to potential improvements for the intersection of Awakino Road and SH12, it has been agreed upon by Council, NTA, and WK-NZTA (Paragraph 154 of Council S42A) that this intersection can be studied in more detail at subdivision stage, with the caveat that Rule 13.13A is adjusted to "any development which results in the Awakino Precinct generating more than 70 vehicle movements within a peak hour at the intersection of Awakino Road and SH12, shall carry out a Safe System Approach Assessment of the intersection." I agree with the changed wording of this rule.

29. In Paragraph 159 of Council's S42A Report, it is identified by Council, as stated by Mr. Marshall (NTA), that Awakino Road will be required to be

upgraded to urban standards, as a direct result of the proposed plan change (inferred, due to Council proposed change to Precinct Rules). I disagree that the upgrade of Awakino Road to urban standards falls solely on the applicant for the following reasons:

- a. Awakino Road north of approximately No. 95 (Kingdom Hall) is provided with open swale drainage and intermittent kerbing. This road formation continues to approximately No. 199 (Refuse Transfer Station). This extent of road serves approximately 140 residential dwellings.
- b. Where Awakino Road meets Paritai Place, approximately 51 dwellings are served, reducing to some 34 dwellings north of Paritai Place. Reviewing historical information, this appears to have been the case since approximately 2010-2011 (or potentially slightly earlier).
- c. Based on the density of residential dwellings along the western side of Awakino Road south of Paritai Place, it is my opinion that this is already an established urban area/road environment.
- d. Under the current Kaipara Engineering Standards, a road serving 50+ household equivalents shall provide a formed carriageway width of 6.5 metres, with kerb and channel drainage. With an additional 1.0 metre of width being provided if the road accommodates higher volumes of heavy vehicle movements.
- e. In my opinion, it would have been appropriate for this section of Awakino Road to be upgraded to meet the Engineering standards, since the establishment of Paritai Place and Phoenix Place.
- f. Other roads within Dargaville, are under a similar formation and have also been left below standard:
 - i. Gordon Street; east of Awakino Road with open swale drainage, and west of Awakino Road without kerb and channel road edges.

- ii. Carrington Street, Onslow Street, Churchill Street; open swale drainage and without kerb and channel road edges.
 - g. While the Plan Change area will undoubtedly create additional vehicle movement along Awakino Road, it is my opinion that the Applicant is responsible to upgrade Awakino Road only in areas which should not have already been upgraded by Council and/or other developments (Paritai Place and Phoenix Place).
 - h. For these reasons, I support the Precinct Plan Provision requiring the applicant to upgrade Awakino Road from the northern most access point to any subsequent subdivision to approximately 10 metres south of Paritai Place.
30. In Paragraph 159 of Council's S42A Report, it is identified by Council, via support from NTA, that a shared path shall be provided on the eastern side of Awakino Road, from the subject lands to Ranfurly Street, a distance of some 1.2 kilometres. While I agree that this connection would help support active modes of transport within Dargaville and there would be benefit if provided, I dispute that the entirety of this length shall be constructed by the applicant, in order to mitigate effects of the plan change.
- a. North of Ranfurly Street, there are approximately 180 dwellings accessed via Awakino Road (as reviewed via aerial imagery). The plan change would enable approximately 348 additional lots to be created. As such, a total of some 530 residential lots would have access to this shared path.
 - b. Roads within Dargaville are generally straight, moderate grade, low volume, and with good visibility. Considering this, cycling within the carriageway should be easily achieved by cyclists of moderate confidence, or higher. Further a review of the 10-year+ road safety history found that three serious crashes and seven minor injury crashes involving cyclists have occurred, during this time. It is my opinion that cycling can be completed safely within the roads of Dargaville.

- c. From census data for Dargaville, it was found that approximately 10% of all trips completed are done by walking, with 1% being completed by bicycle. Breaking this down between work-trips and education-trips:
 - i. approximately 7% of all work-related trips are completed by walking;
 - ii. 0.5% of work-related trips are completed by cycling;
 - iii. approximately 24.5% of all education-related trips are completed by walking;
 - iv. 1.5% of education-related trips are completed by cycling.
- d. From these rates of established mode share, the plan change area is likely to generate ~4 peak hour cyclist trips, or 43 cyclist trips per day. While the shared path can be reasonably expected to increase cyclist mode share, my expectation is that it would impact more recreational use, as opposed to commuter traffic or discretionary travel. If the implementation of the shared path tripled the mode share proportion, the plan change area could be anticipated to generate 12 peak hour cyclist trips and 129 daily cyclist trips.
- e. With a peak hour generation of 12 cyclist trips, it is my opinion that these trips could be safely accommodated within the carriageway of Awakino Road; following the required upgrades.

31. In Paragraph 159 of Council's S42A Report, it is identified by Council, via support from NTA, the requirement of a supporting treatment (flush pedestrian crossing) upon establishing 20 lots and a primary treatment (raised pedestrian crossing) when establishing 100 lots. Within the supporting NTA report, the supporting treatment is to be located near the plan change area on Awakino Road, north of Phoenix Place.

- a. I agree with this recommendation (as recommended within my additional information response provided to Council) for a supporting treatment pedestrian crossing to be provided across

Awakino Road, in a location near the intersection which will service the subdivision.

- b. The primary treatment is suggested to be located across Awakino Road, near Ranfurly Street. I agree that such a facility would be beneficial to implement and should be considered as part of network improvements being carried out under the Dargaville Connectivity Improvements. However, I disagree with the requirement of this facility in order to mitigate effects resulting from the plan change for the following reasons:
- i. When data was collected at the intersection of Awakino Road and Ranfurly Street, a total of 12 pedestrian movements were counted travelling across Awakino Road between 6:30am and 9:30am. Between 3:00pm and 6:00pm, 20 pedestrian movements were counted travelling across Awakino Road.
 - ii. Awakino Road is forecast to accommodate upwards of 580 vehicle movements during peak hours split 40-60 northbound-southbound in the AM and the reverse in the PM.
 - iii. Visibility along Awakino Road at its intersection with Ranfurly Street extends some 160 metres to the north and more than 200 metres to the south. Based on an 85th percentile operating speed of 60 km/h and a pedestrian walk speed of 1.2 m/s, a pedestrian crossing sight distance of 112 metres is required based on the width of Awakino Road.
 - iv. Based on the likely volumes of pedestrians and vehicles travelling through this intersection, the available sightlines, and supported by the road safety history, it is my opinion that this intersection will continue to operate at suitable standard from a safety and operations perspective under the anticipated future conditions.

- c. The Plan Change is not considered likely to generate a significant number of pedestrian/cyclist movements across Awakino Road near Ranfurly Street, less with the establishment of a supporting treatment closer to the site, as pedestrians may utilise this crossing point thereby not having to cross Awakino Road further to the south.
- d. It is my opinion that Awakino Road near Ranfurly Street would benefit (as any safety improvement is a benefit) from the implementation of a primary treatment crossing facility. It is my opinion that this facility should be constructed as part of the shared path improvements schedule by Council between SH12 and Ranfurly Road, and not as an effect mitigation for the proposed Plan Change.

32. Paragraph 160 of Council's S42A Report, commentary is provided with respect to allowing for a future connection between the plan change areas and Connection C of the Dargaville Spatial Plan. I disagree with indicating this connection within the proposed Precinct Plan, as due to topography, wetland, and farmland constraints between the Plan Change area and Connection C, it is not considered feasible to establish this connection in a practical manner. As such, it is my opinion that no connection should be provided for within the Precinct Plan.

33. In Paragraph 161 of Council's S42A Report, several changes are identified for the precinct provisions, following feedback from NTA. The following comments on the proposed changes:

- a. "1.8-metre-wide footpaths are to be provided where serving 4-6 household equivalents."
 - i. Under the proposed Precinct Plan Rules, an access serving 4-6 household equivalents would be required to provide a formed width of 5.5 metres. This width is more than suitable to safely accommodate the likely vehicle, pedestrians, and cyclist movements from a residential development with this many households. It would likely

generate some 3-5 peak hour vehicle movements, with a low probability of more than one vehicle utilising the access at a given time. As such, I consider the proposed rules, relating to formed width are safe and appropriate without the need to also accommodate a 1.8-metre-wide footpath.

- b. “Reversing from dwellings onto the road network should not be provided for.”
 - i. I disagree with this recommendation. While both the Operative Plan and Exposure Draft Plan for Kaipara do not permit reverse manoeuvring; the Precinct Plan has sought to enable this, subject to its location, so allow for more efficient use of land and avoiding further resource consent applications at land-use stage of subsequent lot development.
 - ii. Many dwellings within Dargaville currently have vehicles reversing onto the road, as well as many other Councils within New Zealand permit reverse manoeuvring onto local roads, where serving a single dwelling.
 - iii. Where reversing onto a local road, or lower volume collector roads, drivers can safely identify oncoming vehicles, pedestrian, and cyclist, as operating speeds are typically lower.
 - iv. The Precinct Plan restricts fencing heights and opaque treatments, such that visibility to the footpaths/shared paths will be suitable to operate safely.
 - v. The Precinct Plan sets out minimum separation distances for vehicle crossings, providing refuge space between crossings and creation of uninterrupted footpath.

- vi. Providing on-site manoeuvring for each lot, requires additional hardstand area to provided, thereby increasing the associated carbon footprint of the site.
 - vii. Often turnaround areas within a Lot are utilised as additional parking, with drivers reversing from the site regardless.
 - viii. It is my opinion that permitting reverse manoeuvring, while restricting its location at intersections, separation of vehicle crossings and enabling good inter-visibility with the footpath/shared path can be completed safely.
- c. "On-street parking to be provided at a rate of 1 per 2 dwellings on the loop road and 1 per 4 dwellings on all others."
- i. This adjustment of on-street parking provision is accepted and has been reflected within the Precinct Provisions.
- d. "Add notes referring to Austroads and Pedestrian Network Guidance under Table 13.1"
- i. This adjustment is accepted and modified to account for variations allowed for within the Precinct Provisions, refer to Note 7 and Note 8 of Table 13.1.

34. In Paragraph 161 of Council's S42A Report, changes to the wording where relating to the KDC Engineering Standards is proposed, to allow for future standards to apply as appropriate and not superseded by the Precinct Provisions. I agree with this change.

35. In Paragraph 162 of Council's S42A Report, Ms Buckingham concludes that subject to the changes as identified by NTA, the transportation effects of PPC82 will be no more than minor. I agree with this statement, with the caveat that my conclusion is reached subject to my objections above, notably that I do not support:

- a. Requiring the balance of Awakino Road to be upgraded to urban standards at the full cost to the applicant.
- b. Requiring a shared path to be constructed at the full cost of the applicant along the eastern side of Awakino Road from the site to Ranfurly Street.
- c. Establishing a primary facility across Awakino Road near Ranfurly Street.
- d. Establishing a connection within the Precinct Plan to connect the Plan Change area to Connection C.
- e. Removal of permitting reversing from properties.

Response to Submitters

36. There are several submissions that are relevant to traffic matters. Rather than deal with each individual submission, I have addressed main matters raised by submitters in general, and where appropriate have commented on individual submissions.
37. It was identified that the Dargaville Transfer Station will see an upgrade in the form of a weigh bridge. While this upgrade would be subject to its own approvals, it is my opinion and anticipation that the weigh bridge will not result in any significant increase in vehicle traffic along Awakino Road, but rather will allow for more accurate operations on site. As such, it has not been considered within my assessment.
38. Several submissions related to general increased traffic intensity along Awakino Road and the associated delays resulting in negative impacts. While I agree the proposal will create additional vehicle traffic volumes along Awakino Road, the modelling I have completed based on collected data and future estimates found that delays will be relatively minor from an overall Transportation Engineering perspective. It is noted that these delays may seem 'extreme' to some residents who have lived in the area for a long time and have experienced limited growth in the area, however it is my

opinion that these increases to delays remain within acceptable levels for the road network.

39. Several submissions related to the formed environment of Awakino Road, where there is no kerbing and open drainage. As part of the Precinct Plan Provisions, the upgrade of Awakino Road will be undertaken adjoining the frontage of the Plan Change area. It is noted that it is not proposed to upgrade Awakino Road in areas which should have been previously upgraded by Council or other residential developments.
40. It is noted that Awakino Road has been identified generally as a 7-metre-wide road, with on-street parking either side. Typically, on-street parking utilises 2.1 metres of width. As such, vehicles parked on both sides directly opposite one another would utilise 4.2 metres of the road carriageway, leaving 2.8 metres available for through traffic. While typically, road lanes are 3.0-3.5 metres, the width of most standard refuse trucks (likely the largest vehicle routinely utilising Awakino Road), is 2.5 metres, which allows for 0.15m clearance either side of the truck. This width, while tight and supportive of lower operating speeds when passing, is consistent with the widths identified within the Kaipara Engineering Standards.
41. #11 Waka Kotahi – New Zealand Transport Agency, made submissions on the provision of active mode transport connections to the site and to the wider area. It is considered that this matter has been addressed suitably within Paragraphs 30-32 above.
42. #17 FENZ identified within their submission opposition to an access width of 3.0 metres, where serving up to 6 dwellings (Rule 13.10.25.g.ii). It is noted that this rule has been transcribed via Table 13.1 incorrectly. Table 13.1 is the correct provision, which requires an access serving 4-6 dwellings, to be formed with a width of 5.5 metres.
43. A submission from #19 B & N Lowe and others, raised concern regarding the provision of the Loop Road from the Structure Plan within land not controlled by the applicant. It is noted that the Structure Plan is intended to be indicative only and the final positioning of the road network is subject to detailed design and land availability. A significant proportion of the Loop

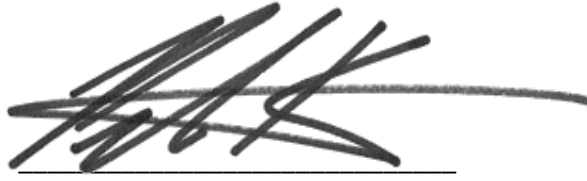
Road is already within land owned by the applicant and there is the opportunity to provide alternate roading connections within the site to achieve a similar outcome, with the potential to connect in the future should land become available. All enabling infrastructure to support any subsequent subdivision will be placed within land fully controlled by the applicant, or within land over which legal rights have been granted.

Conclusion

44. The proposal is likely to see the establishment of up to 348 residential lots, conservatively estimated to generate some 2,853 daily vehicle movements and 313 peak hour vehicle movements.
45. Vehicle movements to and from the subject lands can be accommodated within the surrounding road network, subject to the following improvements:
 - a. Upgrading of Awakino Road from approximately #95 Awakino Road to the north to the subject site.
 - b. Establishing a shared path along the eastern side of Awakino Road from the subject site to the access to Dargaville Hospital, at the applicant's expense.
 - c. Establishing a supporting pedestrian crossing facility along Awakino Road near the site's frontage.
46. Operational effects onto the vehicle road network are anticipated to be generally minor, with delay increases observed for southbound vehicles at the intersection of Awakino Road and SH12.
47. Following the generation of 70 peak hour vehicle trips from the Awakino Precinct, a Safe System Approach Assessment shall be carried out at the intersection of Awakino Road and SH12.
48. The Precinct Plan Provisions, as proposed and adjusted following additional feedback from Council and Public Submissions, are appropriate to enable

the safe and efficient movement of vehicles, pedestrians, and cyclists to and from the subject lands of PPC82.

This evidence has been prepared in full by:

A handwritten signature in black ink, consisting of several overlapping, slanted strokes that form a stylized representation of the name 'Peter Justin Kelly'. The signature is positioned above a solid horizontal line.

Peter Justin Kelly

Dated 12 July 2023