

**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 84 (**PC84**) by **MANGAWHAI HILLS LIMITED** to rezone 218.3 ha of land between Tara Road, Cove Road, Moir Road and Old Waipu Road, Mangawhai from Rural Zone to the Mangawhai Hills Development Area.

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**Evidence of Peter Justin Kelly on behalf of Mangawhai Hills Limited**

**Transportation Engineering**

**Dated 29 April 2024**

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Jeremy Brabant

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## Introduction

1. My full name is Peter Kelly. I am a Senior Transportation Engineer at Traffic Planning Consultants Limited (**TPC**). I hold a Bachelor of Applied Science (**Civil Engineering**) from the University of Waterloo, in Waterloo, Ontario, Canada.
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.
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, commercial, and industrial activities.
4. I was instructed by Mangawhai Hills Limited in June 2022 to review the surrounding transportation network and identify potential effects resulting from the proposed Private Plan Change 84 (**PC84**), 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 multiple occasions with an extensive visit and review of the existing roads on 28 November, 2022.
5. 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**

6. 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; and
  - e. Concern Raised in Submissions.

## **Existing Transport Environment**

7. Moir Street is a two-lane arterial road, which runs from Tara Road in the west (continues as Kaiwaka Mangawhai Road) and terminates in the east. It has a posted speed limit of 50 km/h, reducing to 30 km/h in the Mangawhai Village. Footpaths are provided along either the northern side or southern side of the road.
8. Moir Street is estimated to carry some 5,500 vehicles per day nearer to the Plan Change area. Peak hour volumes determined to be approximately 550 vehicles during the AM peak hour and 500 vehicles during the PM peak hour, from a traffic count carried out in November 2022.
9. Tara Road is a two-lane secondary collector road, which runs from Moir Street in the south to Browns Road in the north. It has a posted speed limit of 50 km/h in the south, transitioning to 80 km/h approximately 100 metres north of Darmah Lane. Footpaths are provided on the western side of the road from Moir Street to the north for approximately 1 kilometre.
10. Tara Road is estimated to carry 2,500 vehicles per day. Peak hour volumes determined to be approximately 250 vehicles during the AM peak hour and PM peak hour, from a traffic count carried out in November 2022.

11. Cove Road is a two-lane primary collector road, which runs from Tara Road in the west and transitions into The Centre in the east. It has a speed limit of 80 km/h. No footpaths are provided along Cove Road.
12. Cove Road is estimated to carry 2,500 vehicles per day. Peak hour volumes determined to be approximately 270 vehicles during the AM peak hour and 250 vehicles during the PM peak hour, from a traffic count carried out in November 2022.
13. Other area roads are described in detail within my Transport Assessment (TA);<sup>1</sup> however, their form and function are not considered to be vitally relevant to the balance of my evidence.
14. Within the TA, it was identified from New Zealand Transport Agency's Crash Analysis System (CAS) that 27 crashes had been reported within the study area between 2012 and June 2022. One of these crashes resulted in a serious injury and 12 resulted in minor injuries.
15. In preparing this evidence, I have revisited CAS, to identify if any additional crashes have been reported to the database. One additional (non-injury) crash has been reported since June 2022, noting that any injury crashes which may have occurred in the past month are subject to reporting delays.
16. From the reviewed crash history, it is my opinion that there are no pre-existing safety concerns with Moir Road, Tara Road, Cove Road, or other study area roads, which require remedial measures. I note that Ms Gasson and Mr Hills agree with this position.<sup>2</sup>

## **Description of Proposal**

17. The proposal looks to rezone 218 hectares of land from Rural to Residential. This change is estimated to enable the creation of up to 400-600 residential lots.

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<sup>1</sup> Proposed Private Plan Change Transport Assessment dated May 2023.

<sup>2</sup> Section 42A Report, Appendix 6, Transport Assessment by Commute dated 10 April 2024.

18. The creation of 600 residential lots is estimated to generate up to 4,920 daily vehicle trips and 540 peak hour vehicle trips. This is based off the 85<sup>th</sup> percentile trip generation rates published within the NZ Transport Agency's "Trips and Parking Related to Land-Use"; which are 8.2 daily trips per dwelling and 0.9 peak hour trips per dwelling.
19. In response to discussions had with Ms Gasson, a further sensitivity analysis was undertaken with the lot yield being increased by 1.25, thereby resulting in 750 lots.
20. The creation of 750 residential lots is estimated to generate up to 6,150 daily vehicle trips and 675 peak hour vehicle trips.
21. The proposal is supported by a recommended Structure Plan which provides an indicative road layout, allowing the area to be suitably serviced via new public road connections onto Tara Road, Cove Road, Old Waipu Road and potentially onto Moir Road, via Ulrich Drive or additional land outside the ownership of the applicant. Additionally, a connection to the Mangawhai Central area is considered via Old Waipu Road, but this connection would also be contingent on land not owned by the applicant.
22. Within the recommended Structure Plan there is an indicative walking and cycling network which is considered to enhance the mobility of the area as well as the areas in the immediate surrounds.
23. I note that the recommended Structure Plan and its roads/active infrastructure are a guideline and that the ultimate location and path of roads may be different when constructed. Notwithstanding, it is my opinion that the construction of these various roads; whether done as a whole or independently in a staged manner, allow for the Plan Change Area to be developed in stages, provided that their design accounts for the future internal connections. As such, development of the Plan Change Area land owned by the applicant is not contingent on adjacent properties and those road connections, but rather looks to embrace the neighbouring properties and ensure their ability to subdivide, should it be desired.

## Impact of Development

24. Greater detail on the Assessment of Effects from PC84 is available within my TA, as well as within the Supplementary Transport Assessment (**STA**), which is attached to this evidence. I have summarised what I consider to be the key points of these assessments.
25. Assigning the trip generation from the development to the wider road network, it was determined within the TA that the following intersections, will continue to operate at acceptable levels, under the 2033 Total Traffic Horizon:
- a. Tara Road and Moir Road;
  - b. Tara Road and Garbolino Road;
  - c. Tara Road and Cove Road;
  - d. Cove Road and Old Waipu Road; and
  - e. Moir Road and Ulrich Drive.
26. Ms Gasson and Mr Hills raised concerns with respect to the TA's assessment as there had not been a sensitivity analysis carried out, nor were additional roading network scenarios assessed, should key road connections not eventuate due to ownership being outside the control of the applicant.
27. In response to comments received from Ms Gasson and Mr Hills a two-pronged sensitivity analysis was carried out, with lot yield being increased from 600 lots to 750 lots (1.25x), and background traffic<sup>3</sup> volumes being increased by 1.5x. The 750-lot assessment was referred to as the 'Baseline' assessment, and the 750-lot plus 1.5x background traffic was referred to as the 'Sensitivity' assessment.
28. Four roading layouts were considered and assessed for both the Baseline and Sensitivity traffic volumes. The roading layouts assessed were:

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<sup>3</sup> Background traffic represents increases to the existing road volumes based on generalised growth within the surrounding area.

- a. Recommended Structure Plan full build-out;
  - b. Scenario 1: No connection to Mangawhai Central;
  - c. Scenario 2: No connection to Ulrich Drive/Moir Road; and
  - d. Scenario 3: No connection to Mangawhai Central and no connection to Ulrich Drive/Moir Road.
29. Under the Baseline assessment with 750 lots, it was determined that intersections within the study area continued to operate at generally acceptable levels under all roading layout scenarios.
30. Under the Sensitivity assessment with 750 lots and 1.5x Background Traffic, it was determined that intersections within the study area began to see reduced operations under the various roading layout scenarios, with specific turning movements seeing Level of Service values of 'D' and 'E'.
31. Under scenarios which saw connection through to Mangawhai Central, I consider that the modelled reduced Level of Service was the result of traffic volumes associated with the Heavy Vehicle Route along Garbolino Road, Cove Road, and Old Waipu Road, and was not due to the traffic volumes generated by the Plan Change Area.
32. I considered this to be validated, as Scenarios which did not have the Mangawhai Central connection/Heavy Vehicle route (Scenario 1 and Scenario 3), saw the intersections along the route operate at Level of Service 'A' and 'B'.
33. It is my opinion that if a dedicated Heavy Vehicle Route were to be created to connect to Mangawhai Central, there would be required intersection upgrades associated with the increases in heavy vehicles to ensure the overall safety of the area, specifically at the intersections of Tara Road and Garbolino Road and Tara Road and Cove Road.
34. It is my opinion that the Plan Change area does not significantly impact onto the intersections of Tara Road and Garbolino Road and Tara Road and Cove

Road as relatively low volumes of traffic are forecast to travel through these areas under all of the assessed scenarios.

35. Under Scenarios 1-3, the intersection of Tara Road and Moir Road report Level of Service 'D' or 'E' for vehicle turning right from Tara Road onto Moir Road. This decrease in performance is due to additional traffic being assigned to the intersection as there is less overall connectivity to the wider network.
36. While the intersection operates with higher levels of delay compared to existing, I do not consider it to be excessive to the point where remedial measures would need to be implemented from an operational efficiency standpoint. I do consider that within the context of the surrounding environment that improvements would be needed to ensure the overall safety of the intersection based on the increased volumes under the 750-lot, 1.5x sensitivity. The improvement would likely see the implementation of a roundabout at this intersection, or other lane reconfigurations.
37. I do not consider that a roundabout is required to mitigate the effects of the Plan Change at this point in time, as the analysis which indicates its requirement is based on 750 lots, a 1.5x increase to background traffic, as well as no alternate connections to Mangawhai Central or Urlich Drive/Moir Street. My opinion is that the Precinct Plan provisions which require subsequent Transport Assessments to be prepared for subdivision consents enabling new public roads is sufficient to ensure that potential effects are reviewed and appropriately assessed in the future.
38. I note that Ms Gasson and Mr Hills recommend that the Information Requirement DEV1-REQ2.1.i is updated to reflect the five intersections assessed. I agree with this recommendation and consider that it would align well with the comments I have made above.
39. New public road intersections onto Tara Road, Cove Road, Old Waipu Road, and Moir 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. In my experience, design and construction of any of these intersections are subject to extensive review as part of Engineering

Plan Approval, as will a third-party safety assessment completed by a suitably qualified Transportation Engineer to ensure the continued safety and operations of the surrounding network. I considered this to be standard practice within Transportation Engineering and the recommended Precinct Provisions require this to be completed.

40. In November 2022, I visited this site along with my colleague Mr Douglass Blankson, where we completed a preliminary Safe System Assessment (**SSA**) of the existing intersections in the area. We looked to identify areas of concern within the road's design which may contribute to serious or fatal injuries during a road crash event of various types. In summary:

- a. In general, it was considered that the intersections had acceptable formation and sightlines in both directions for vehicles completing turning movements. However, there may be opportunities for improvements to be made to increase overall road safety.
- b. These indicative improvements are identified in detail within my TA as well within my STA. For these identified improvements, I only consider the improvements to visibility at the intersection of Cove Road and Tara Road to be required to mitigate effects from the Plan Change. In this instance I would consider it appropriate for sightline improvements to be undertaken following the development within the Plan Change Area, however the timing is dependent upon the number of lots created and the availability of other connections.
- c. I consider that the recommended Precinct Provisions, which have been revised to require assessment of this intersection from both operation and safety perspectives is suitable to ensure that appropriate mitigation measures are taken to address the scale of a subsequent subdivision activity.

41. The recommended Precinct Provisions look to enable Community Hubs as identified within the recommended Structure Plan. These hubs will facilitate both commercial activities, community facilities, and educational facilities as outlined in DEV1-R5 and DEV1-R5A. Within DEV1-S10 – Traffic Intensity, should a commercial hub be forecast to generate more than 200 daily

vehicle movements, it would be classified as a Restricted Discretionary Activity. Based on the overall size of the Community Hubs, I consider the permitted baseline of 200 daily vehicle movements to be appropriate and can be suitably accommodated within the road network developed by residential subdivision.

42. I also note that these Community Hubs will likely see a large proportion of their traffic generation being associated with other parts of the Plan Change area, thereby minimising the potential impact onto the wider network. Further, I consider that the Community Hubs will likely reduce the overall trip generation of the Plan Change area by allowing for 'internal capture' whereby individuals will be able to make use of amenities in their immediate neighbourhood as opposed to having to travel to Mangawhai Village, Mangawhai Central, etc.

### **Response to s 42A Report**

43. I have reviewed Council's S42A report in detail, where discussion has been focused on Transport related matters as well as the Hearing Report prepared by Ms Gasson and Mr Hills.
44. Concerns were raised by Mr Cleese, as identified by Ms Gasson and Mr Hills, with respect to the anticipated development yield of 600 lots within the TA and its assessment, as it would be difficult to track the number of lots created within the Plan Change Area and potentially there may be some effects arising which have not been identified under the original assessment.
- a. As I have included in my evidence above and within my STA, further traffic modelling and assessment was completed for the study area with 750 lots. From this I consider that the surrounding road network will continue to operate at suitable levels based on the forecast traffic volumes for the site and a 2033 horizon year with an elevated yield.
45. Concerns were raised by Mr Cleese, as identified by Ms Gasson and Mr Hills with respect to the potential for some of the roading connections shown on

original Structure Plan to not be constructed. I expect that they carry the same concerns with the recommended Structure Plan. As such, they sought further clarification as to what network operations would look like should external road connections not be constructed.

- a. As I have included in my evidence above and within my STA, traffic modelling and assessment was completed for the study area based on four roading layout scenarios; which consisted of:
  - i. Full build-out of the recommended Structure Plan;
  - ii. No connection to Mangawhai Central, with connection(s) to Moir Road (via Ulrich Drive or directly);
  - iii. No connection(s) to Moir Road, with connection to Mangawhai Central; and
  - iv. No connection to Mangawhai Central and no connection(s) to Moir Road (via Ulrich Drive or directly).
- b. From this further scenario modelling, I consider that the surrounding network continues to operate within acceptable levels, with no significant delays which would require further mitigation.
- c. I have also modelled the identified scenarios with a factor of 1.5x applied to the background traffic volumes as a means of further sensitivity testing. This analysis showed that intersections in the area begin to see reduced operations, with Level of Service 'D' and 'E' being reported. I do not consider that there would be any wider infrastructure upgrades required as a result of this assessment to be captured within the recommended Precinct Provisions. Rather, I find the provided rules requiring subsequent Transport Assessments to be prepared (as more details are known about the development yield and receiving environment/future environment), are appropriate to ensure that any effects arising from development in the Plan Change area are appropriately identified and mitigated.

46. With further regard to the wider roading network connections, it is acknowledged that the connections through to both Mangawhai Central and Moir Road have the potential to never be realised. I consider that these connections will enable a more integrated and well-connected road network, however they are not required for the full development of land owned by the Applicant to proceed, nor for staged/partial development of the Plan Change area to occur.
47. It is my understanding that land will not be appropriated by Council to facilitate the construction of these roads (acknowledging there is potential for Council's stance to change in the future, but this would be subject to further notification processes). The recommended Structure Plan has included these connections to provide guidance for future development, should it occur. As such, development of any specific lot within the Plan Change area would need to consider the wider plan and is a means to enable good long-term outcomes and aims to prevent land parcels from becoming unable to be developed in the future.
48. If a road connection were to be pursued through these lands it would be contingent upon private agreements between landowners and is a process that sits outside that of the Plan Change application. I consider that this is acceptable.
49. With respect to roading connections through Old Waipu Road (towards Mangawhai Central), it is my understanding that if this link were to be constructed it would be contingent upon an agreement with private landowners to likely connect to Eagle Ray Road. It is my understanding that this connection was previously identified as part of PC78 and is an anticipated long-term outcome for the area. It would be my expectation that the costs associated with this connection would be predominantly borne by the Applicant and that there may be potential cost sharing with Council in the event this would also form part of a Heavy Vehicle Route, should long term plan funding be available.
- a. I also acknowledge that previous discussions with Council and NTA representatives outlined that with this connection made through to

Mangawhai Central, the anticipated outcome would be to restrict access/connection to Old Waipu Road (south), thereby preventing effects onto the intersection of Molesworth Drive and Old Waipu Road.

50. In paragraph 182 of the Council S42a Report, it is identified that an alternative testing trigger rule could be introduced when more than 50 houses are proposed, if further sensitivity testing is not completed in advance of the hearing. As I have completed this additional sensitivity testing, which I consider demonstrates acceptable future operations, it is my opinion that there is no need for such a rule to be implemented into the recommended Precinct Provisions.

51. Paragraphs 183 and 190 of Council's S42a Report note the limited provision of footpath facilities presently along Tara Road and the importance of these facilities to be provided in the event that no alternative active mode connections are available. I agree with these statements and consider that DEV1-REQ2.1.i, suitably outlines the requirements for an assessment of safety and efficiency of the transport network. This subsequent assessment will be able to identify network improvements to ensure the safe movement of vehicles, pedestrians, and cyclists.

a. I anticipate that as a minimum Tara Road will see a footpath extension to connect to the southern most road connection to the Plan Change area, along with a pedestrian crossing facility to allow for the safe crossing of Tara Road.

52. Ms Gasson is of the view that the future intersection of Tara Road and the proposed east-west road within the Plan Change area (opposite Moana Views Road) would need to be designed dependent upon the availability of other roading connections. I agree with this comment but note that the recommended Structure Plan no longer proposes an intersection in this location. Notwithstanding, I value this opinion and consider that it applies to all future intersections created by the Plan Change Area. It is my opinion that the recommended Precinct Provisions and associated rules have

suitable triggers that require appropriate assessment and design response to the surrounding environment to enable a safe and efficient road network.

53. Mr Clease, in paragraph 186 of the S42A Report expresses concerns with respect to overall network connectivity and wayfinding, should connections to Moir Road not be formed and provides an opinion on where alternative roading connections may be positioned. I agree with these comments and consider that the recommended Structure Plan suitably provides for greater connectivity and reduces the amount of 'switchback' traffic movements, as much is practicable.
54. Ms Glasson and Mr Hills recommend that any development which results in a new connection onto Old Waipu Road, should be accompanied by the upgrading of Old Waipu Road to a formed road between the new intersection and Cove Road. I agree with this comment and consider that the recommended Precinct Provisions have been set out appropriately to require this upgrade (without the improvement being written into the recommended Precinct Provisions explicitly).
55. Ms Glasson and Mr Hills recommend that the intersection of Tara Road and Moana Views Road be controlled following the provision of a new road connection to the east. I note that the recommended Structure Plan no longer indicates a road in this specific location, but I agree with this comment and the spirit behind it, to apply to all new intersections. I consider that the recommended Precinct Provisions have been set out appropriately to require such upgrades (without the particular improvement being written into the recommended Precinct Provisions explicitly).
56. Ms Glasson and Mr Hills recommend that the provision of secondary roads with a 16-metre width be classified as a restricted discretionary activity. I disagree with this recommendation, as the construction of new roads within the Plan Change area requires roads to be located and constructed in accordance with the recommended Structure Plan (DEV1-S13). Where compliance is not achieved, appropriate matters of discretion are provided to ensure the adequacy and safety of the road and wider network is

maintained. I do not consider that providing an additional restricted discretionary activity status within the recommended Precinct Provisions will have any additional benefit beyond what is already in place.

57. Ms Glasson and Mr Hills recommend that private accesses serving more than 10 dwellings should be provided with a 1.4-metre-wide footpath. I agree with this recommendation upon further reflection and Table DEV1.1 has been updated to reflect that private accessways serving 7-30 units/lots (or which is longer than 50 metres in length), be provided with a 1.4-metre-wide footpath on at least one side of the access.
58. Ms Glasson and Mr Hills recommend that Table DEV1.1 be updated to set access thresholds based upon household equivalents as opposed to units/lots, to better align with wider terminology within the District Plan and to remove potential ambiguity with lots potentially having more than one dwelling as per DEV1-R2. DEV1-R2 has since been updated to remove the permitted activity status for two residential units per site. With this change I consider that the Table DEV1.1 is appropriate to refer to units/lots. Further I note that DEV1-S12 and DEV1-S13A provide that no more than 30 units/lots/household equivalents be constructed along a private access, with development exceeding this trigger being treated as a Restricted Discretionary activity.
59. Ms Glasson and Mr Hills recommend that pedestrian facilities are provided on both sides of Primary Roads within the Plan Change area, along with one side being provided with a shared path. I agree with this recommendation and the recommended Precinct Provisions have been updated to reflect that position.
60. Ms Glasson and Mr Hills recommend that gradients within private accessways be refined to have a permitted maximum gradient of 20%, where serving seven or fewer lots, and a permitted maximum gradient of 12.5%, where serving eight or more lots. My opinion is that the original gradients indicated (20-25%) can be appropriate for use in certain circumstances, but I agree with Ms Glasson and Mr Hills that providing a lower permitted threshold would be more appropriate, and should steeper

gradients be required, they would be a Restricted Discretionary activity and subject to appropriate design review and assessment. The recommended Precinct Provisions have been updated to reflect this.

61. Ms Glasson and Mr Hills agree that it would be appropriate to review the speed limits on the north portion of Tara Road, Cove Road, and Old Waipu Road North. I agree with them that speed limit reductions sit outside of the plan change process and note that should the plan change be successful, there is additional justification provided to lower speed limits as the area transitions from a rural environment to a residential neighbourhood.
62. Ms Glasson and Mr Hills comment on the available sightlines at potential intersection locations and how these have not been assessed as part of the TA, as well as with the operations of these intersections. I acknowledge that this has not been undertaken at this stage, as I consider that it would be more appropriate to undertake this level of detailed assessment at a subsequent subdivision stage, when more detail is known with respect to final location of roading, as well as anticipated traffic volumes.
63. Ms Glasson and Mr Hills recommend that DEV-REQ2.1.i be updated to specify the area intersections which should be assessed as part of subsequent assessments. I agree with this recommendation and the recommended Precinct Provisions have been updated to reflect this. They also recommend a note to consider all previously consented applications in the Plan Change area. I consider that this is suitably captured under DEV-REQ2.1.d.
64. Ms Glasson and Mr Hills recommend that DEV1-R19.1.b be amended to ensure connectivity as the Plan Change area is built out. From the rules provided, a development which did not follow the recommended Structure Plan (and its designed connectivity) would be a Discretionary activity and therefore would require suitable assessment and consideration in order for a consent to be granted. Considering this, it is my view that the rule as written is acceptable to ensure the outcomes proposed as part of the Plan Change.

65. I consider that matters raised by Mr Clease, Ms Glasson, and Mr Hills within their associated reports have been either addressed through the STA, through adjustments to the recommended Precinct Provisions or within additional information provided within my evidence.

### **Response to Submitters**

66. I have reviewed the submissions where the comments received pertain to my area of expertise. I consider that submitters raised concerns predominantly with respect to increases to congestion, infrastructure upgrades, and general road safety.

67. I have looked to respond to submitters concerns in general, as such where multiple comments are received on similar topics, they will be responded to thematically, as opposed to responding to each submitter individually.

68. Several submissions raised concerns that the trip generation used to forecast potential vehicle movements was not appropriate as it utilised 'normal' house numbers. It is unclear to me whether this is in reference to the number of lots assessed, or if it is in reference to the trip generation rate utilised per dwelling.

a. I have performed additional sensitivity testing for the site, utilising a factor of 1.25, resulting in 750 lots. Results from my analysis found that while average delays did increase, the studied intersections operated at acceptable levels (Level of Service 'C' or better).

b. The trip generation rates utilised were taken from the 85<sup>th</sup> percentile rates identified in the NZ Transport Agency publication "Trips and Parking Related to Land-Use". With 750 dwellings assessed in the STA, I consider this trip generation rate to be conservative. With a larger number of dwellings, it can be expected that trip generation rates regress to the mean, as some dwellings will produce no vehicle movements on an average day (vacant holiday homes), some will produce few vehicle movements (work from home arrangements, with no children), and other will produce more vehicle movements (work out of home, multiple children).

The above publication identifies a 50<sup>th</sup> percentile rate of 6.9 daily trips per dwelling (a 16% reduction from the 85<sup>th</sup> percentile). Considering this, I maintain the opinion that the utilised trip generation rates are appropriate. I also note that Ms Glasson and Mr Hills share this view.

69. Multiple submissions raised concerns with respect to one of the proposed Primary Roads within the original Structure Plan being located opposite Moana Views Road. I note that the recommended Structure Plan presented as part of this hearing process, no longer identifies an intersection in this location. Notwithstanding, I understand the concern and consider that it may apply to alternate intersection locations. It is my opinion that all future intersection locations will undergo detailed engineering design and review to ensure that the design is safe and efficient. I note that the recommended Precinct Provisions require that any subdivision application that involves a new road to be supported by an Integrated Transport Assessment and Safe System Assessment.
70. Several submissions identified concerns with respect to the additional traffic which would be expected as part of construction activities. While this is a valid concern, I consider that effects arising from construction traffic to be relatively minor in the wider context of the application. The full development of the Plan Change area would see much higher traffic volumes relative to those added to the network for construction activities. In my opinion effects arising from construction activities can be suitably mitigated through the preparation of a Construction Traffic Management Plan, which are typically required as conditions of consent for larger projects, and this would be an appropriate response. Further I note that under DEV1-S13, adverse effects arising from construction are a matter of discretion for new public road construction.
71. Some submissions raised concerns with respect to staging of the future development within the Plan Change area and the timing of road improvements and roads identified within the recommended Structure Plan. It is my expectation that the area will develop progressively over the next 10 years, with development likely occurring in close proximity to Tara

Road and Cove Road, and then working deeper into the site. This methodology would allow for additional roads to be completed minimising effects onto residents within the area. I do not consider that as part of a Plan Change that all the future staging aspects of subsequent subdivisions would be known, but rather these details would be developed as part of the initial master planning and subdivision planning of the wider area. Lastly, I note that I do not consider any one part of the Plan Change area is beholden to external landowners to construct roads which would service the wider Plan Change area.

72. Many submitters raised concerns with respect to general road safety in the area. I agree with these submitters that future development must assess the need to make improvements to the wider road network to ensure safe and efficient movement of vehicles in the context of additional traffic generation and demonstrated effects resulting. While my TA has made some preliminary recommendations for potential improvements, I do not consider these to be prescribed within the recommended Precinct Provisions, as there are already sufficient processes identified to require further Transport Assessments and Safe System Assessments. I consider that completing these assessments in the future when more detailed information is known, would be more appropriate and can enable more considered and more appropriate improvements to be implemented, as required.
73. Submitters raised concerns with a future connection to Old Waipu Road (south) and by extension to Molesworth Drive and requested that this connection not be provided. It is my understanding that there is no proposal to facilitate a connection of this nature as part of the Plan Change area or recommended Structure Plan, but rather the connection would be into the rear areas of the Mangawhai Central area. It is my opinion that no vehicle connection will be made to Old Waipu Road (south), however an active mode (walking and cycling) connection would be desired and appropriate to provide as part of this future connection.
74. Some concerns were raised through submissions with respect to the formation of secondary roads and whether the design would be suitable to

accommodate two-way vehicle movement. The proposed formation of secondary roads will see a 6.0-metre-wide carriageway, with on-street parking provided in the form of indented parking bays. I consider that this formation width is suitable for two-way vehicle movement and helps to contribute to a safer road through lower operating speeds, as wider roads contribute to higher speeds due to lack of side-friction.

75. In reviewing information from Submitter 43, concerns and opposition was raised about the original Structure Plan with respect to the southern Primary Road connecting into Ulrich Drive. It was suggested that the paper road existing in this area would be more appropriate to use for the Primary Road. Further concerns were raised with the volume of traffic which may be expected along this Primary Road. I look to provide additional information with respect to these concerns below:

- a. The Structure Plan and Primary Road in this location would only be given effect to, should the landowner in this area decide to proceed with a development which would require additional public road infrastructure. I have reviewed the submitter's approved Resource Consent plans for their site and do not consider that the Primary Road in this location would adversely impact on their development, as consented. I acknowledge that I am not aware of any of their alternate development plans in the northeastern section of the property and agree that there is potential for the road to impact on this portion of the site.
- b. I again reiterate that this section of Primary Road would only be constructed should the landowner choose.
- c. There is potential for the majority of the Primary Road to be constructed within the paper road designation, however I am not familiar with the topography in this area and its suitability for a new road. I also note that the paper road designation does not connect to the legal boundaries of Ulrich Drive, and as such it would require a portion of the land from submitter 43 to facilitate this connection, should they be agreeable.

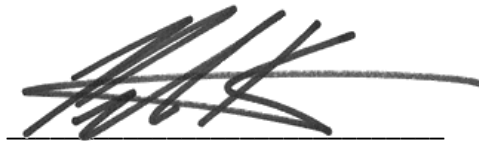
- d. I do not consider that the Plan Change area's overall serviceability is contingent upon the formation of this Primary Road, however it is my opinion that it would provide additional overall connectivity and represent a better overall outcome, solely from a transportation network standpoint.
- e. In the event that this Primary Road was to be constructed, it is likely that improvements would also be required at the intersection of Moir Road and Ulrich Drive to ensure suitable safety outcomes.
- f. With respect to traffic volumes, sensitivity scenarios I have modelled which include this connection see two-way peak hour traffic volumes of approximately 400 vehicles. I do not consider this level of peak hour vehicle movement to be excessive for the planned designed environment. I do not consider that this volume of traffic would have significant safety effects onto the known planned operations of the submitter's property, and it is my opinion that any potential effects could be responded to through good design.
- g. I consider that the proposed Primary Road is appropriate to be located in this general location, whether it be within the paper road or elsewhere and my understanding is that this road will only ever be constructed with the willing participation of the respective landowner(s).

## **Conclusion**

76. The creation of 600 residential lots is estimated to generate up to 4,920 daily vehicle trips and 540 peak hour vehicle trips. This is based off the 85<sup>th</sup> percentile trip generation rates published within the NZ Transport Agency's "Trips and Parking Related to Land-Use"; which are 8.2 daily trips per dwelling and 0.9 peak hour trips per dwelling.
- a. The Plan Change area has also undergone a sensitivity analysis for development yield with 750 lots, which was estimated to generate up to 6,150 daily vehicle trips and 675 peak hour vehicle trips.

77. Under a 2033 horizon, with 750 lots, assessment was carried out for four different scenarios dependent on future roading connections within non-applicant land. It was determined that intersections within the study area continued to operate at generally acceptable levels.
78. Under a 2033 horizon, with 750 lots, and a 1.5x sensitivity factor applied to background traffic, assessment was carried out for four different scenarios dependent on future roading connections within non-applicant land. It was determined that intersections within the study area begin to operate with increased delays and would likely require improvements to ensure positive safety outcomes.
79. The recommended Precinct Provisions require subsequent Transport Assessments and Safe System Assessments to be carried out with the establishment of new public roads, thereby ensuring that any resultant effects can be appropriately mitigated.
80. The recommended Precinct Provisions are appropriate to enable the safe and efficient movement of vehicles, pedestrians, and cyclists to and from the subject lands of PPC84.

This evidence has been prepared in full by:

A handwritten signature in black ink, appearing to read 'PJ Kelly', written over a horizontal line.

**Peter Justin Kelly**

Dated 29 April 2024