

**BEFORE THE INDEPENDENT HEARINGS PANEL**

**UNDER** the Resource Management Act 1991 (RMA)  
**IN THE MATTER** of the Far North Proposed District Plan - Hearing 15D:  
Rezoning Kerikeri-Waipapa

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**STATEMENT OF EVIDENCE OF PHILLIP ROBERT BROWN  
ON BEHALF OF KIWI FRESH ORANGE COMPANY LIMITED**

**TRANSPORT**

**16 June 2025**

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## INTRODUCTION

- 1 My full name is Phillip Robert Brown.
- 2 I have been asked by Kiwi Fresh Orange Company Limited (**KFO**) to provide independent expert traffic engineering advice on the Proposed Far North District Plan (**FNPDP**).
- 3 This evidence relates to KFO's submission on Hearing 15D: Rezoning Kerikeri-Waipapa. KFO owns 197 ha of land between Kerikeri and Waipapa (**Site**), which is proposed to be zoned for Rural Production. KFO's submission seeks a live urban zoning of the Site, comprising a mix of general residential, mixed urban and natural open space.
- 4 Through my involvement in this project, I have visited the Site and the surrounding area a number of times, have been responsible for the collection of additional data to assist with the Council's modelling, and have assessed the potential opportunities and constraints for new roading and active mode connections in a number of locations. These assessments have been done both on-site and also, when required, in the form of higher-level concept/indicative engineering designs in consultation with the project's Civil Engineer, Mr Ehlers.
- 5 I am also familiar with the Kerikeri and Waipapa areas through other work I have been involved in, with this including the review of a resource consent for a major residential development and work on retail projects in the Waipapa area.
- 6 Very early in my career I was also involved in work associated with the traffic management measures through the Kerikeri commercial area (some of which still exist) and also the alignment of a conceptual road that was then known as the 'Kerikeri Bypass'. This has now been built, is known as the Twin Coast Discovery Highway, and provides a roading connection that has allowed the Stone Store to have the passing through traffic removed from its local area.
- 7 I also wish to advise that a significant proportion of the work and the details associated with the modelling have been undertaken by my colleague, Mr Amit Arthanari, on my behalf. This was necessary due to me having surgery that then required an extended period of time to recover.

I am therefore reliant on the work done, and the advice provided to me, by Mr Arthanari in the preparation of this evidence.

### **QUALIFICATIONS AND EXPERIENCE**

- 8 I am the Managing Director of Traffic Engineering & Management Ltd (also known as TEAM). I have been in this position since 2005.
- 9 I have a B.E (Civil) from Auckland University, am a Chartered Member of Engineering NZ and their Transportation Group, am a Chartered Professional Engineer (CPEng), am on the International Register of Professional Engineers (IntPE) and am a Member of the Institute of Road Transport Engineers of NZ. My academic background also includes postgraduate courses in traffic and transport engineering at Auckland University, and specialised heavy vehicle dynamics run by the University of Cambridge, in association with the University of Michigan.
- 10 I have been in the field of traffic engineering for 40 years and have previously worked for Traffic Planning Consultants Limited (16 years) and Beca Carter Hollings and Ferner Limited (3 years).
- 11 My experience over this time includes the assessment of a considerable number of projects that span the full range of land use activities. These include commercial, industrial and the full range of residential developments involving large scale lifestyle projects to high-density developments and subdivisions. My experience also includes me being the lead Traffic Engineer that led to the establishment of the large 'Stonefields' area in Auckland, and me being a Commissioner on several significant projects, including the Plan Change that facilitated the commercial, industrial and residential intensification of Pokeno.

### **CODE OF CONDUCT**

- 12 Although this is not a hearing before the Environment Court, I record that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023 and agree to comply with it.
- 13 I confirm that the issues addressed in this brief of evidence are within my area of expertise, except where I state that I have relied on the evidence of other persons. I have not omitted to consider material facts known to me that might alter or detract from the opinions I have expressed.

- 14 I would also like to record the fact that none of my work or any part of this evidence has involved the use of, or relied on, any Artificial Intelligence (AI) product.

### **SCOPE OF EVIDENCE**

- 15 The focus of my evidence is on the traffic and transport implications of KFO's submission, in particular, to explain the work that has been completed since KFO's submission and the work that remains ongoing.
- 16 This evidence is structured as follows:
- (a) Summary of Evidence
  - (b) Traffic Impact Assessment/ Report
  - (c) Transport Planning Policy
  - (d) Modelling
- 17 At the time of writing, traffic modelling is being undertaken as part of the wider transport assessment to inform and support the rezoning sought by KFO.
- 18 Flow Transportation Specialists Ltd (**Flow**) has been engaged by KFO to undertake this modelling work due to their micro simulation expertise and their current involvement in developing the Kerikeri Transport Model in AIMSUN for the FNPDP.

### **SUMMARY OF EVIDENCE**

- 19 Good transport connections can be provided to and through the KFO land for both vehicular and active mode uses.<sup>1</sup> The proposed primary connections can also provide resilience to, and an alternative route from, State Highway 10 when its low point across the Waipেকakoura River is in flood.
- 20 A number of access options have been considered, and I have concluded that those that have been identified as being suitable are all appropriate. KFO has consulted, and I understand will continue to consult with, third party landowners in relation to the access options.

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<sup>1</sup> Pedestrians, cyclists, scooter riders etc

- 21 In the time since the traffic impact assessment was prepared, further consideration has been given to anticipated development yields and this has resulted in the details being modelled remaining within the range that was previously anticipated, but more so at the lower end of the range.
- 22 It has also been conservatively assumed that a significant proportion of the full development yield is realised within a 10-year horizon – which means that its impact is factored into the mid-term 10-year modelling horizon that is being considered by Flow for Council. The balance of the potential development would occur beyond that 10-year planning and modelling horizon.
- 23 With other land use activities also being considered, my staff have engaged with Flow to understand the range of scenarios being considered. From these, Flow has recommended that the traffic impacts arising from the KFO development should be assessed against a selected set of scenarios that have been developed from the work they have done for Council.
- 24 As the modelling of this work is, at the time of writing, currently being carried out, the impacts of the anticipated yields and any mitigation that may be required on the network, is yet to be fully understood in the context of the other scenarios that are being tested for Council.
- 25 It is for this reason that these impacts and the mitigation required (including any potential staging) will be contained in a report that will be prepared by Flow. This will then be provided in the form of a technical appendix to a supplementary statement of evidence I expect to be preparing once the results are available and have been considered.

#### **TRAFFIC IMPACT ASSESSMENT**

- 26 The Integrated Transport Assessment (**ITA**) provided a comprehensive assessment of the submission and addressed a wide range of high-level matters as well as the following more detailed considerations that are of equal importance:
- (a) Street design and the provision of off-road facilities,
  - (b) Potential yield and staging, traffic generation and distribution,
  - (c) Access options and intersection design,

- (d) Road safety, design and parking-related matters,
- (e) Active mode and passenger transport matters, and
- (f) Emergency access and servicing.

27 I also stated that Council's Long-Term Plan for 2021-31 anticipates a package of forward works that has a greater emphasis on walking and cycling, and also having a focus on improving the Kerikeri and Waipapa roading networks so that it has greater capacity and is better able to support the future growth.

### ***Street and Off-Road Design***

28 Regarding the design of the streets and provision of off-road facilities for active modes, the alignment of the internal primary roading network has considered the opportunities and challenges of the Site's topography, as well as the constraints imposed by the management of the stormwater for flood events.

29 I also consider that the Council's roading standards can be accommodated, with the design of the streets likely to result in none of them being Arterial Roads.

30 Instead, I consider that the primary roading network, being the connections to SH10, Waitotara Road/Waipapa Road and potentially the Fairway Drive/Golf View Road connection, will be in the form of either:

- (a) A Primary Collector road (potentially the links to SH10 and Waitotara Road/Waipapa Road); or
- (b) A Secondary Collector road (the link to Kerikeri via Fairway Drive/Golf View Road).

31 I also consider that the link between SH10 and Waipapa Road will provide essential network resilience when SH10 is closed at the river by significant flood events. Although this is not an 'everyday' occurrence, I am informed that when it floods, the impacts can be great. This means that this new connection will play a significant role in providing connectivity through the area during these low-frequency, but high consequence events.

32 I also consider that the comprehensive network of on-road and off-road paths for active modes (particularly those who will walk and cycle) will provide the 'missing link' for the connectivity between Waipapa and

Kerikeri. It will also provide a connection between Kerikeri and the Council's new sports hub. Some of these links are expected to also be provided through off-road environments in flood plains.

### ***Potential Yield***

33 The ITA provided low, medium and high development scenarios based on the information I have been provided by Mr Thompson, the independent economist engaged by KFO, with the most likely yield being between the Low and Medium scenarios as follows:

- (a) 54,500m<sup>2</sup> total retail/commercial/industrial GFA.
- (b) 1500-2000 dwellings.

34 More recently, these expectations have been revisited, and due to other proposed development (including substantial other retail, commercial, industrial development) and demand for certain housing typologies, it is now considered that the following development scenario is most likely to occur:

- (a) 24,750 m<sup>2</sup> total retail/commercial/industrial GFA.
- (b) 1600 dwellings.

35 This scenario has informed the modelling that Flow has been engaged to undertake (addressed further below). However, conservatively, it has been assumed that this development would occur within the first 10 years after the FNPDP becomes operative (with any further development on the KFO site to occur after that time horizon).

36 In effect, the yield for the non-residential land uses has been more than halved, and the number of residential dwellings is at the lower end of the previously anticipated range for the 10-year horizon.

37 As I indicated above, the balance of the potential development would occur beyond that 10-year planning and modelling horizon.

38 My assessment also noted that the residential yield is expected to reflect the anticipated future demographic characteristics of the greater Kerikeri area, and I am informed that this is expected to have the following general composition:

- (a) 'Empty Nesters' and retirees: 40%

- (b) Families with children: 30%
- (c) Younger singles and couples: 20%
- (d) Other/mixed: 10%
- 39 This anticipated proportion of empty nesters and retirees will have a significant and suppressing effect on the traffic generation of the area during the important commuter peak periods.
- 40 It is for this reason that detailed traffic surveys were done at three residential locations<sup>2</sup> in the area to identify real-world traffic generation rates for the morning and afternoon peak commuter periods, as well as provide the inbound and outbound distribution patterns.
- 41 I consider that the availability and use of this local data is more reflective of what can be expected than the use of generic rates and generalised assumptions on the inbound/outbound distribution that would otherwise have had to be made.
- 42 Although I considered that all of the generation rates are very modest when compared to industry-accepted standard generation rates, for the purposes of the required assessment I have conservatively used the higher rates from the Aranga Road site, despite the benefits of the infrastructure available for active modes.
- 43 The totality of the generation will then be distributed over the three proposed accesses using the distribution procedures incorporated into the AIMSUN model.
- 44 By considering this area in totality and in the context of the wider area, the model will also be able to determine what, if any, traffic chooses to travel through the KFO area as a 'short-cut' between Kerikeri and Waipapa (and vice versa) as a means to avoid the existing alternative and potentially more indirect routes. Having this information will therefore allow refinement of the proposed roading network to make this rerouting less attractive through design and/or traffic management elements.
- 45 In effect, this modelling will provide a holistic picture of the impacts of not only the anticipated development potential of the land, but also the use of

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<sup>2</sup> Waitotara Road, Aranga Road (and side roads), Access Road (and side roads)

the roading network by others if some choose to avoid less preferred alternative routes.

### ***Network Access & Intersection Design***

46 Three points of access to the Site are proposed from the existing road network.

#### *Waitotara Road Access*

47 The first is from Waitotara Road, where a realignment of the existing road will occur and this will cross a stream to access the development area.

48 The intersection of Waipapa Road and Waitotara Road is presently a Stop-controlled priority intersection with no dedicated turning facilities on Waipapa Road. The proposed rezoning and the roading connection into the subject Site is expected to result in the need to upgrade this intersection on all of its approaches.

49 Specifically, it is expected that there will be the need for left turn and right turning lanes on Waipapa Road (depending on demands).

50 As the transport model will be considering the operational and performance details of the intersection, it is expected that the modelling will identify the details of the upgrading works required for the future modelled time horizons.

51 Again, this shows why the assessment of the network is being done in a holistic manner using a common assessment tool, as it allows the influences of all of the factors to be considered in totality.

#### *SH10 Access*

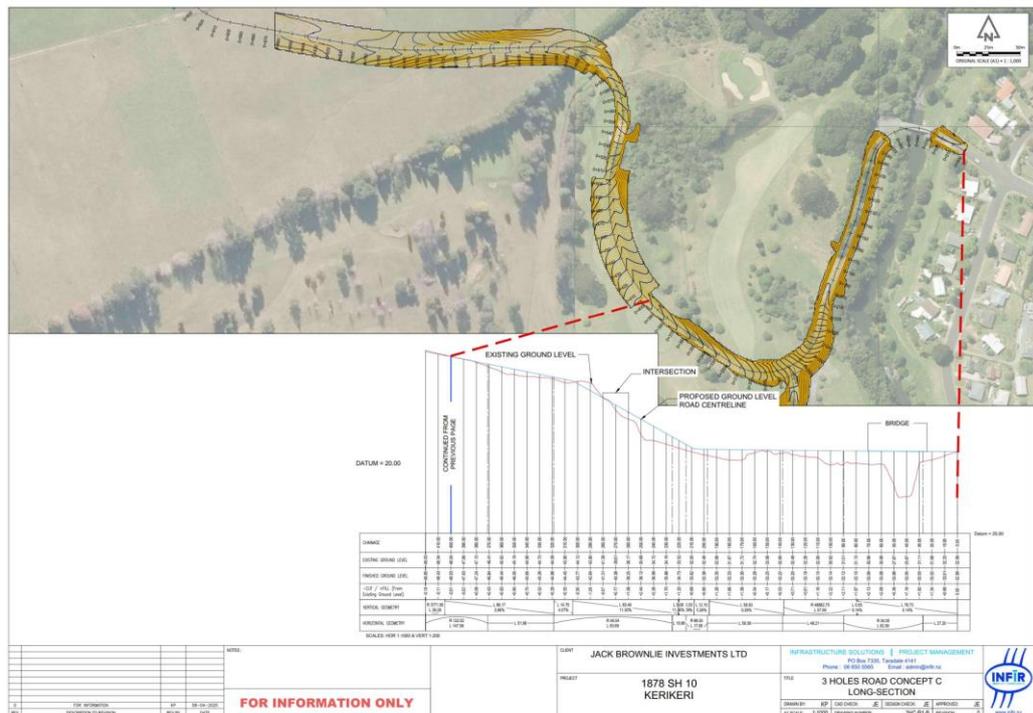
52 The second is in the form of a large roundabout to SH10. The concept geometric design that has been carried out to current design standards shows that this roundabout does not require any land from unrelated parties.



- 53 To ensure that the various design requirements are met, the alignment of SH10 on the northern and southern legs needs to be shifted into the subject Site.
- 54 The design principles of this roundabout have been guided by the recently constructed roundabout on SH10 in Waipapa as well as the roundabout located at the intersection of SH10 with Kerikeri Road. Both of these roundabouts are able to accommodate a significant quantum of traffic, which is expected to be greater than what is expected at this roundabout.

#### *Fairway Drive/Golf View Road Access*

- 55 The third option is a new access road that will become an extension of Fairway Drive/Golf View Road and will pass through the golf course.
- 56 Although the alignment and engineering details of this route are complex and are described in the evidence of Mr Elhers, the following long section and cross sections show the general details from east of the existing one-lane bridge over the river to the upper plateau within the Site.



- 57 These plans also show the fact that the one-lane bridge will be replaced with a wider bridge that will allow for the simultaneous movement of two-way traffic as well as the lifting of the bridge by circa 2 metres to ensure that its surface is above design flood levels.
- 58 I consider that this is a substantive upgrade to the access that is presently provided, and will provide a good, and much improved, connection to and from the Kerikeri commercial area.
- 59 Similar to the other access points being considered, the AIMSUN model will estimate how much this access will be used based on the anticipated traffic generation of the development, as well as any additional potential usage that may occur as a result of redistributed trips on the network.

### ***Road Safety, Design and Parking-related matters***

- 60 Once rezoned, I expect that the design details of the new transport infrastructure, and its connections to existing infrastructure for both motorised and active modes, will be in accordance with the latest design standards of Council as well as best-practice procedures from engineering and urban design perspectives. This will ensure that road safety matters such as design speeds, available visibility, road width and cross-sectional details, along with the provision of on-street parking resources in areas of

anticipated demand will all be acceptable to Council for the local area before they are constructed.

61 I also expect that the key components of this infrastructure, such as the intersections with the existing road network, will be subjected to independent Safety Audits undertaken by experienced and qualified personnel.

62 In light of this, I expect that the infrastructure envisaged by the proposed Structure Plan will be provided to the required standards and will be appropriate for the anticipated modelled traffic demands. As this is a matter for detailed design, I do not consider that it is an impediment to rezoning the Site.

### ***Active Mode and Passenger Transport matters***

63 I consider the submission and Structure Plan for the subject site will allow for the construction of a comprehensive, well-connected and integrated network of on-road and off-road paths for active modes.

64 These will provide more direct connections for walking and cycling between the expanding Kerikeri and Waipapa areas, as well as to and from the Council's new Sports Hub.

65 I also consider that the provision of this infrastructure, which will be Council-owned, provides the 'missing link' that presently exists between these areas in terms of connectivity for active modes.

66 Although only very limited regional passenger transport services are currently provided between Kerikeri and neighbouring towns, in time, I expect that the demand and need for these services will grow.

67 With Council's Integrated Transport Strategy acknowledging the need to identify and consider a range of future measures, I consider that it is essential for vehicular connectivity to be provided between Kerikeri, SH10 and Waipapa Road so that any future services can be provided through this area for integration with the wider network.

68 It is for these reasons that I expect the detailed design of the internal primary roading network will consider their adequacy for bus services as well as the possible locations of bus stops along the primary roading corridors. This will ensure that these are designed to provide for imminent or future passenger transport services that integrate the Waipapa, KFO

and Kerikeri areas without the need to carry out retrospective physical works at a later date.

69 In the meantime, I do not consider that the details proposed at this stage inhibit the provision of these facilities at the time of detailed design date.

### ***Emergency Vehicle Access and Servicing***

70 It is a fundamental principle of transport planning and road design to ensure that the primary roading connections, as well as the hierarchy of lower-level local roads, provide the connectivity required for service vehicles and emergency services.

71 I therefore consider that these needs of these essential services will be appropriately addressed at the detailed design stage.

72 In the meantime, I do not consider that the details proposed at this stage inhibit the provision of these facilities at the detailed design stage.

### **TRANSPORT PLANNING POLICY**

73 My transport assessment considered a wide range of transport planning policy documents including the:

- (a) National Policy Statement on Urban Development;
- (b) Government Policy Statement on Land Transport;
- (c) Northland Regional Land Transport Plan; and
- (d) The Strategic Direction, as well as the Objectives of the Transport section, of the Proposed Far North District Council District Plan (given its transitional state).

74 I consider that the rezoning, proposed Structure Planning and the detailed design that will need to be done in the future will be consistent with these Policies and the Transport Objectives of the Proposed District Plan, with particular benefits being achieved by:

- (a) The network resilience provided to SH10 in the event of it being closed due to flooding.
- (b) The provision of strong integrated connections for active modes between Waipapa and Kerikeri, that can also include the Council's proposed Sports Hub.

- (c) The integration of motorised and non-motorised transport needs in an area between the two recognised growth areas of Kerikeri and Waipapa.

## **MODELLING**

- 75 At the time of writing, traffic modelling is being undertaken as part of the wider transport assessment to inform and support the rezoning sought by KFO.
- 76 This modelling work has been commissioned by KFO to provide a strategic understanding of the transport implications associated with the proposed urbanisation of the KFO land located between Kerikeri and Waipapa.
- 77 Flow has been engaged by KFO to undertake this modelling work due to their micro simulation expertise and their current involvement in developing the Kerikeri Transport Model in AIMSUN for the FNPDP.
- 78 The use of the Kerikeri Transport Model and Flow for this purpose has been approved by FNDC and allows the assessment of the transport effects to use a common, calibrated and validated modelling platform for this and Council's own assessments.

### **Kerikeri Transport Model**

- 79 The purpose of this traffic model is to provide Council with a forecasting tool that will inform transport investment.
- 80 Flow developed a base model and forecast model of the Kerikeri and Waipapa area in the AIMSUN micro-simulation modelling package.
- 81 The base model reflects the existing travel behaviour about Kerikeri and Waipapa and includes existing traffic demands and land use activities (year 2022). The Kerikeri Transport Model considers typical weekday morning and evening commuter periods.
- 82 The forecast model represents a 10-year forecast land use and traffic demand scenario based on the FNPDP and a 'Do Minimum' road network.

### **Assessment of the Proposal**

- 83 Flow has used this Kerikeri Transport Model to understand the potential traffic effects of the proposal. This work has been assisted by the

guidance provided on the development details by my colleague Mr Arthanari.

- 84 The scope of the traffic modelling assessment includes the following:
- (a) Updating the Kerikeri Transport Model to include the proposed development, the proposed network changes and land use changes.
  - (b) Modelling of three key scenarios in line with PDP timeframes:
    - (i) Base year (2022).
    - (ii) Forecast year (2032) with PDP land use scenario with a Do Minimum road network.
    - (iii) Forecast year (2032) with the Brownlie development included.
  - (c) A review of the key intersections that are expected to accommodate the traffic generated by the subject area are:
    - (i) SH10/Puketotora Road roundabout (proposed),
    - (ii) Waitotara Drive/Waipapa Road intersection (currently give-way controlled),
    - (iii) Fairway Drive/Golf View Road access.
  - (d) Modelling outputs will include:
    - (i) Journey times on the three key routes (SH10, Kerikeri Road and Waipapa Road),
    - (ii) Level of Service at key intersections,
    - (iii) Distribution of the generated traffic on the local and wider roading network,
    - (iv) The potential or otherwise for the proposed road network in the Plan Change area to be used as a 'short-cut' by motorists to move between Kerikeri and Waipapa to avoid the use of existing roading connections,
    - (v) Model flow comparisons between the three key scenarios discussed previously.

- 85 As previously discussed, the forecast land use changes are expected to be staged and as such the component of the total development anticipated within the medium-term modelling horizon is as follows:
- (a) 24,750 m<sup>2</sup> total Retail/Commercial/Industrial.
  - (b) 1600 dwellings.
- 86 Due to timing constraints associated with the evidence deadlines and lead times required for modelling timeframes, the outcome from the modelling, including the report prepared by Flow on the results of the modelling and the mitigation required (including any potential staging of the mitigation) are not presently available.
- 87 When it is, it will be provided in the form of a technical appendix to a supplementary statement of evidence I expect to be preparing once the results are understood.

## **CONCLUSION**

- 88 This draft Integrated Transport Assessment for the submission to the Proposed District Plan has considered the proposed details, including the Structure Plan options.
- 89 From this work, it has been established that there are significant advantages to the local and regional area in having the proposed details due to the:
- (a) Integration of the currently separated and distinct growth areas of Waipapa and Kerikeri – particularly for active modes.
  - (b) Integration of active modes between Council's Sports Hub and Kerikeri.
  - (c) Network resilience provided to SH10 by a key part of the internal primary roading network when SH10 is closed due to flooding.
- 90 Having considered a range of access options, the identified access arrangement along with the anticipated development yields are being considered in the Council's transportation model that also includes Council's own spatial planning and assessment of growth.

- 91 This will allow a holistic approach to be taken to the assessment and allow the influences of all of the details to be considered in totality, rather than in isolation to achieve a more informed and inclusive outcome.
- 92 On this basis, the submission to the Proposed District Plan for the rezoning of the land within the subject site is supported from a transport planning perspective in the knowledge that modelling will consider the holistic situation and the details of any mitigation that may be required, whilst having regard to the other spatial planning matters being considered by Council.
- 93 These results will be provided in the form of a technical appendix to a supplementary statement of evidence once the results are understood.

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**Phillip Robert Brown**

**16 June 2025**