BEFORE THE HEARING PANEL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Private Plan Change 20: Titanium Park Limited and Rukuhia Properties Limited - Airport Northern Precinct Extension

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STATEMENT OF EVIDENCE OF VINISH ANAND PRAKASH

(TRANSPORT)

Dated 7 March 2023

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INTRODUCTION

1. My full name is Vinish Anand Prakash.

2. I am based in Hamilton and have worked for Gray Matter Ltd as a civil designer and transportation engineer since February 2014. I hold a Bachelor of Engineering Technology (Civil, 2014) from the Waikato Institute of Technology (WINTEC). I am a Member of Engineering New Zealand.

3. I am familiar with the transport issues arising in and around the Waikato, having provided advice to Hamilton City Council (**HCC**), Matamata-Piako District Council (**MPDC**) and other local authorities and developers on a range of transport related projects in the area. I have the following specific experience relevant to the matters within the scope and purpose of this statement of evidence:

   (a) Consultant transportation engineer for Road Controlling Authorities assisting in the review of consent applications including industrial, commercial, childcare and residential developments within the wider Waikato region.

   (b) Consultant transportation engineer for developers, landowners and local authorities preparing traffic impact assessments for development proposals including schools, industrial, commercial and residential developments.

   (c) Consultant transportation engineer for MPDC reviewing the transportation effects of the wider Lockerbie Estate. I reviewed stages 1-3, the Lockerbie Retirement Village and the Lockerbie Neighbourhood Centre (including a cafe and childcare centre), provided evidence and attended the hearing for Plan Change 56 (stages 4-6). I have also reviewed the engineering plans for Stages 1

and 2 and provided safety engineer comments on behalf of MPDC for the Lockerbie Subdivision Stage 1b Post Construction Road Safety Audit.

(d) Designer and draughtsperson for Road Controlling Authorities and Waka Kotahi assisting with design of minor safety improvements and intersection improvements for local roads, and intersection improvements on state highways.

4. I have been engaged by HCC to provide technical evidence on transport matters on its behalf for Private Plan Change 20, Airport Northern Precinct (**PPC20** or **Northern Precinct**). I attended transport expert witness caucusing on 10 February 2023 and 15 February 2023. I signed the Joint Witness Statements (**JWS**) produced in those caucusing sessions dated 10 and 15 February 2023.

CODE OF CONDUCT

5. I have read the Environment Court Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2023 and agree to comply with it. I confirm that the opinions expressed in this statement 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 materials or facts known to me that might alter or detract from the opinions I have expressed.

SCOPE OF EVIDENCE

6. The purpose of this statement of evidence is to address transportation matters arising under PPC20 which are important for the proper integration of the proposed industrial land use activities at Hamilton Airport and the adjacent land uses, including the current and planned

transport network, and the future residential workface within the Peacocke Growth Cell, immediately to the north of the PPC20 area within Hamilton City.

7. In preparing this evidence I have reviewed:

   (a) The Request for PPC20;

   (b) Transport-related submissions;

   (c) BBO Modelling Memo (PPC20 Caucus – Transportation Assessment Information), dated 22 February 2023 (**Modelling Memo**);

   (d) Statement of Evidence of James Tinnion-Morgan on behalf of Waipa District Council which is Appendix 2 to the Section 42A Report;

   (e) Statement of Evidence of Cameron Beswick Inder (Transport), dated 28 February 2023; and

   (f) Statement of Evidence of Nicholas Colyn Grala (Planning) dated 28 February 2023.

EXECUTIVE SUMMARY

8. While generally supportive of PPC20, HCC's submission on PPC20 raised several transport-related concerns. Some of those concerns have since been resolved through conferencing and in the evidence filed by the applicant. However, I continue to have concerns relating to walking and cycling on Faiping Road and Peacockes Road, capacity improvements at the Raynes Road roundabouts and left turns out of the Raynes Road access have not been addressed.

9. I consider that further mitigation is required which would come in the form of additional plan provisions added to the transport upgrades table included in Rule 10.4.2.13A.

10. In summary:

(a) I consider that the existing grades on Faiping Road are not appropriate for cycling. I support the amendments to Rule 10.4.2.13A agreed to at expert witness caucusing for the walking and cycling transport upgrade that is now included in the amended plan provisions appended to Mr Grala's evidence, as it provides flexibility in the location of the route. I defer to the planners regarding whether more flexibility is required.

(b) I consider that the walking and cycling provisions in Rule 10.4.2.13A require amendment to include a 2.5m shared path connecting Faiping Road to a walking and cycling facility on Peacockes Road.

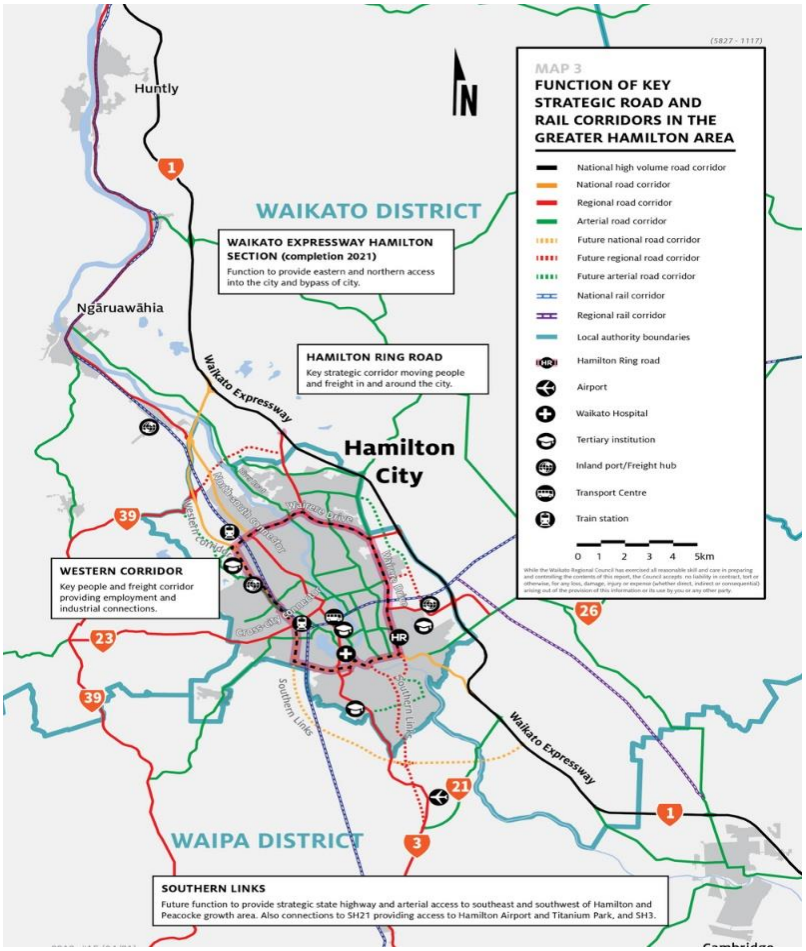
(c) I consider that the proposed Raynes access/Raynes Road intersection may not adequately restrict light vehicle movements meaning that the effects on Raynes Road and Peacockes Road may be under-stated. I consider that the risk of this occurring could be managed by requiring that the initial stages of development only have access to SH 3 and that the Raynes Road access is only provided once Peacockes Road has been upgraded.

(d) I support the inclusion of a trigger for capacity upgrades at the SH3/Raynes Road intersection in Rule 10.4.2.13A. However, the current design only includes a single lane roundabout and there are constraints that may limit the addition of dual lane approaches. In my view, this is a matter that needs to be discussed and resolved between Waka Kotahi and the Applicant.

(e) I agree with Mr Tinnion-Morgan[1] that it would be preferable to deliver a dual lane roundabout at the SH21/Raynes Road intersection from the outset to minimise disruption and potential adverse effects on other parts of the road network. I am particularly concerned about the effects on Peacockes Road prior to urbanisation.

STRATEGIC CONTEXT

11. PPC20 proposes to zone 130 hectares (**ha**) of land to Airport Business Zone. The site is bordered by the state highway network, SH 3 to the west and SH 21 to the east with the Southern Links designation to the north. The Regional Land Transport Plan 2021-2051 (Map 3) identifies the convergence of these strategic road corridors surrounding the plan change area.



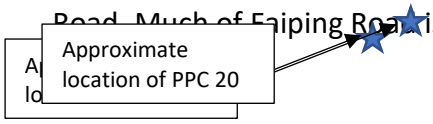
[1] Appendix 2 to the Section 42A report, Statement of Evidence of James Tinnion-Morgan on Behalf of Waipa District Council, para 5.52.

Figure 1: Function of key strategic road and rail corridors in the greater Hamilton area[2]

12. SH 3 is a regional road corridor that provides a key interregional freight and transport corridor connecting the Waikato and Taranaki[3] whilst SH 21 is an arterial road corridor[4] which provides a connection between SH 3 and SH 1 (Waikato Expressway). In my view, maintaining efficiency and road safety within these key strategic corridors is fundamental for operation of the land transport network and the airport.

FAIPING ROAD

13. The PPC20 proposal relies on providing walking, cycling and public transport access between Raynes Road and Peacockes Road via Faiping Road. Much of Faiping Road is unformed road reserve.



14. I am concerned about the steepness of Faiping Road and whether the grades are appropriate for walking and cycling. I completed a site visit to Faiping Road on 15th February 2023. I measured the grades on Faiping Road and they ranged from 10-16%[5] over a 150m length (approximate length of grade).

Figure 2: Faiping Road

[2] https://waikatoregion.govt.nz/assets/WRC/WRC-2019/Final-Map-3-RLTP-2021-2051.jpg
[3] https://waikatoregion.govt.nz/assets/WRC/2021-2051-RLTP.pdf
[4] https://waikatoregion.govt.nz/assets/WRC/WRC-2019/Final-Map-3-RLTP-2021-2051.jpg
[5] Grades vary based on where measurement was taken along the Faiping Road.

15. Austroads Cycling Aspects of Austroads Guides provides recommendations and guidance on appropriate grades for cycling based on the length of grade. Typically grades over 10% for a length greater than 20m are not considered to be acceptable for ease of cycling uphill[6].

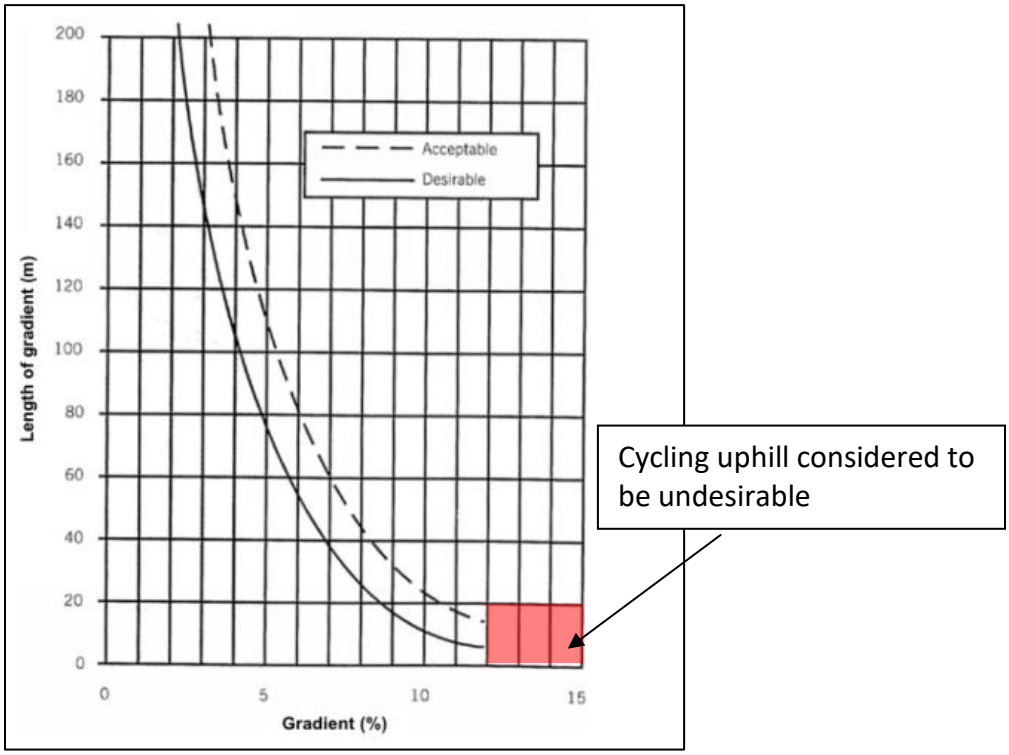


Figure 3: Desirable uphill gradients for ease of cycling (Austroads Cycling Aspects of Austroads, Figure 7.4

16. Austroads states that grades steeper than 5% should not be provided unless it is unavoidable. Austroads[7] also states that "As a guide, a gradient greater than 10% over 50m with horizontal curves or a gradient of 12% over 50m on a straight path should be avoided".

17. Based on cycleway design guidelines, I consider that the existing grades are not appropriate for cycling and that further investigation is required to determine the most appropriate walking and cycling route.

18. The HCC submission also sought alternative routes due to a potential

[6] Austroads Cycling Aspects of Austroads, Section 7.5.5, Figure 7.4.
[7] Austroads Cycling Aspects of Austroads, Section 7.5.5.

change in land use adjacent to Faiping Road. I acknowledge that the routes identified in Appendix 3 to the HCC Submission[8] (attached at **Attachment 1**) are less direct than Faiping Road. The route options included in HCC's submission demonstrate that there are alternatives if the future land use and design constraints do not allow for a direct walking and cycling route along Faiping Road.

19. I am satisfied that the proposed amendments to Rule 10.4.2.13A.7, which sets out the requirements for transport upgrades, to include the words "or a suitable alternative" as discussed at the expert witness caucusing[9] provides the necessary flexibility for the location of the walking and cycling connection to be reviewed in future. I note that this agreement is reflected in the updated Plan provisions[10] appended to Mr Grala's planning evidence. I defer to the planners regarding whether additional or alternative wording is needed to establish flexibility.

20. I consider that the concerns that I have raised relating to cycling grades can be resolved as part of future resource consents and engineering plan approval processes. In my view this should include a Safe System Audit of the proposed walking and cycling facility at the time of detailed design.

WALKING AND CYCLING ON PEACOCKES ROAD

21. I support the provision of walking and cycling facilities connecting the plan change area to Peacockes Road. However, I consider that the walking and cycling infrastructure should be continuous to other walking and cycling infrastructure on Peacockes Road so that the entire route is safe.

22. The distance from the end of Middle Road to where Whatukooruru Drive will form an intersection with Peacockes Road is approximately 4.4km. At

[8] Waipa PPC20 Submission 23.
[9] JWS (Transport & Planning 1) – 10th February 2023, para 3.2.2.
[10] Statement of Evidence of Nicholas Colyn Grala, Annexure 2.

an average walking speed of 1.5 m/s it will take a pedestrian approximately 50 minutes to walk from the Whatukooruru Drive/Peacockes Road intersection to the end of Middle Road. Given the journey time, I consider that commuter walking to be very unlikely. However, I consider that a 4.4 km travel distance is likely to be attractive for cyclists as the travel time will be 13 minutes[11].

23. I am concerned that the proposed cycling facility stops at the Faiping Road/Peacockes Road intersection and there are no dedicated facilities on Peacockes Road. The current proposal requires cyclists to cycle within the traffic lane on Peacockes Road. As recorded in the JWS dated 10 February 2023, Mr Inder, Mr Balachandran and Ms Makinson considered that Peacockes Road in its current state is suitable for cycling[12].

24. I disagree that Peacockes Road in its current state is appropriate for commuter cycling. There are no existing treatments for cyclists (i.e. separated cycle lane or shared path) on Peacockes Road. Cyclists that do wish to cycle will be required to cycle in the lane in a high speed environment that I consider to be unsafe due to the potential conflict speeds being higher than survivable conflict speeds (30km/h) for cyclists[13].

25. Waka Kotahi's MegaMaps (Road to Zero Edition 1) identifies the land use on Peacockes Road as either Urban Residential or Urban Fringe. The southern section of Peacockes Road consists of a 6m wide carriageway and wide grass berms which range from 5-9.5m wide. The traffic volume on Peacockes Road is 658 veh/day[14] but it is likely to increase once the Waikato River Bridge project is completed as it is likely be an attractive

[11] Based on 20km/h cycling speed, https://www.nzta.govt.nz/walking-cycling-and-public-transport/cycling/cycling-standards-and-guidance/cycling-network-guidance/cycle-network-and-route-planning-guide/principles/people-who-cycle/#commuter
[12] JWS (Transport & Planning), 10 February 2023, para 3.2.2.
[13] Waka Kotahi Safe System Audit Guidelines, Table 1 Safe Impact Speeds for Different Situations
[14] Mobileroad.org

route for commuters from the south heading to the Waikato University, Ruakura, Wairere Drive etc.

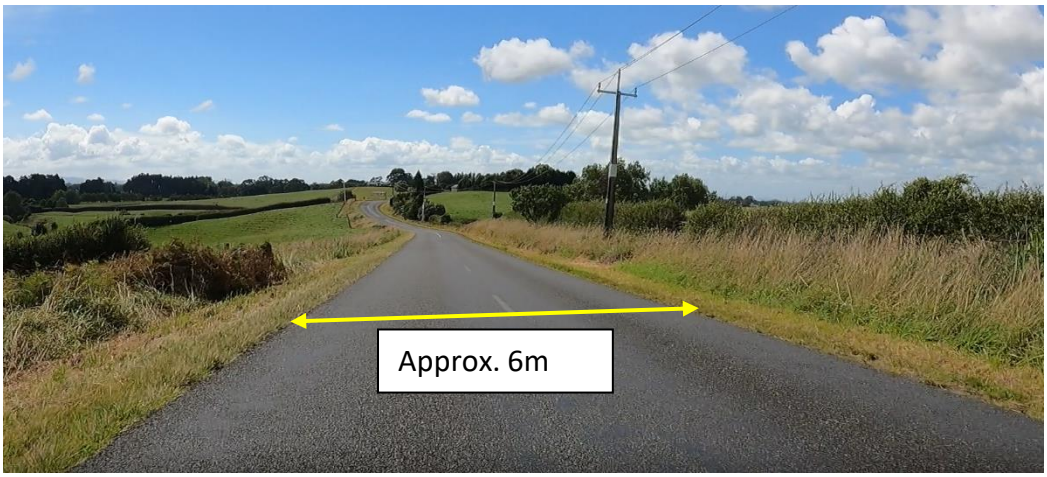


Figure 4: Peacockes Road (southern section) cross section

26. The current posted speed limit in the National Speed Limit Register for this section of Peacockes Road is 80km/h. MegaMaps indicates that the mean operating speed on Peacockes Road is 60 – 63 km/h.

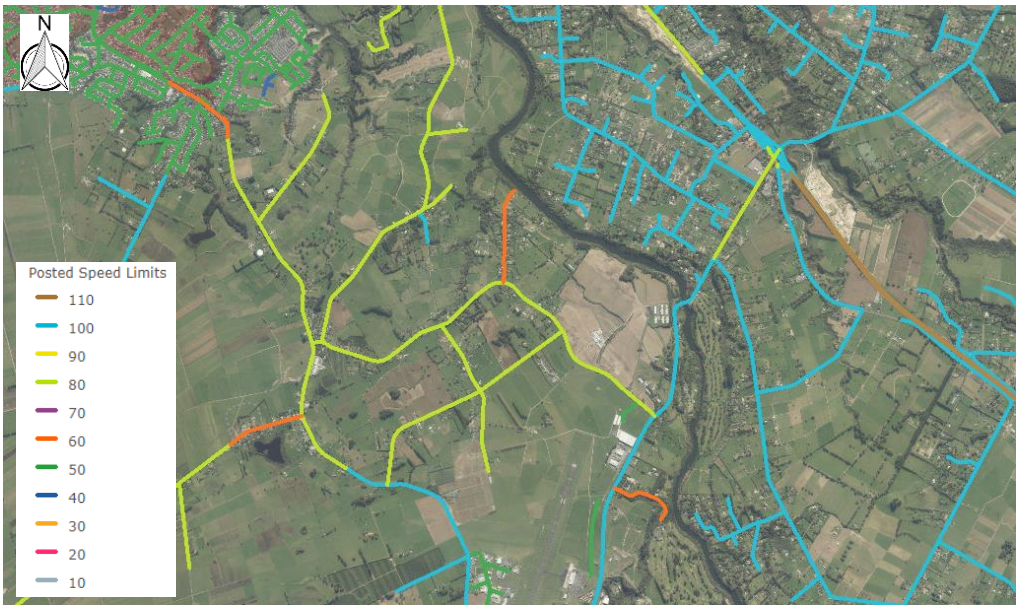


Figure 5: Existing posted speed limits on the surrounding road network[15]

27. Austroads Cycling Aspects of Austroads Guides (Figure 2-2) provides

[15] Waka Kotahi MegaMaps, Road to Zero Edition 1.

guidance on separation of cyclists and motor vehicles for bicycle routes. The figure below indicates that at 85th%ile speeds of 60km/h or greater physical segregation is recommended.

28. The expected and desired cycle mode share aspirations for the development are set out in the further information response prepared by Harrison Grierson[16]. The further information states that the expected mode share for cycling is 125 cyclists/hr and the desired mode share is 250 cyclists/hr.

29. As shown in Figure 6 below, even with very low cyclist and motor vehicle exposure, physical separation with a verge is required where the 85th %ile speed exceeds 60km/h.

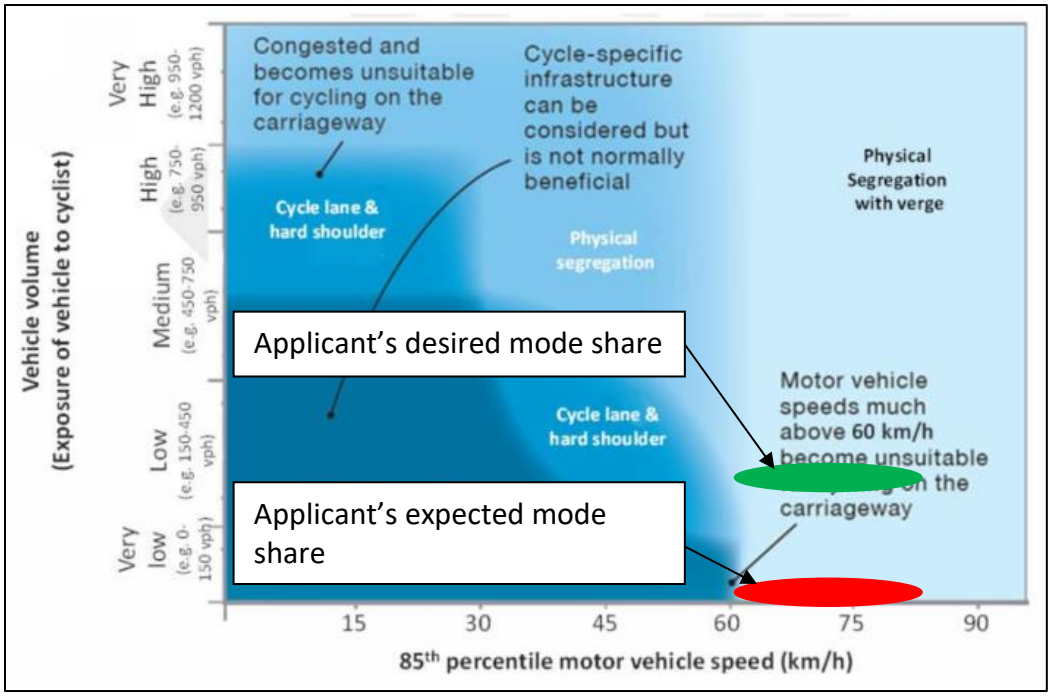


Figure 6: Guidance on the separation of cyclists and motor vehicles for the preferred bicycle route[17]

30. I acknowledge that future urbanisation on Peacockes Road will include walking and cycling facilities. However, there is uncertainty as to when the

[16] PPC 20 – Response to Request for Further Information, Harrison Grierson (dated 18 August 2022), Table 1.
[17] Austroads, Cycling Aspects of Austroads Guides – Figure 2.2.

walking and cycling linkages on the southern section of Peacockes Road will be constructed. I am concerned that it will not be in place when development occurs within the Northern Precinct.

31. The northern section of Peacockes Road is currently being urbanised and the urbanisation is likely to be completed by the end of 2025. This upgrade includes separated cycle facilities on both sides of the road. The planned infrastructure upgrades for the northern section of Peacocke are summarised in Figure 7 below and shown on Figure 8 as yellow lines.

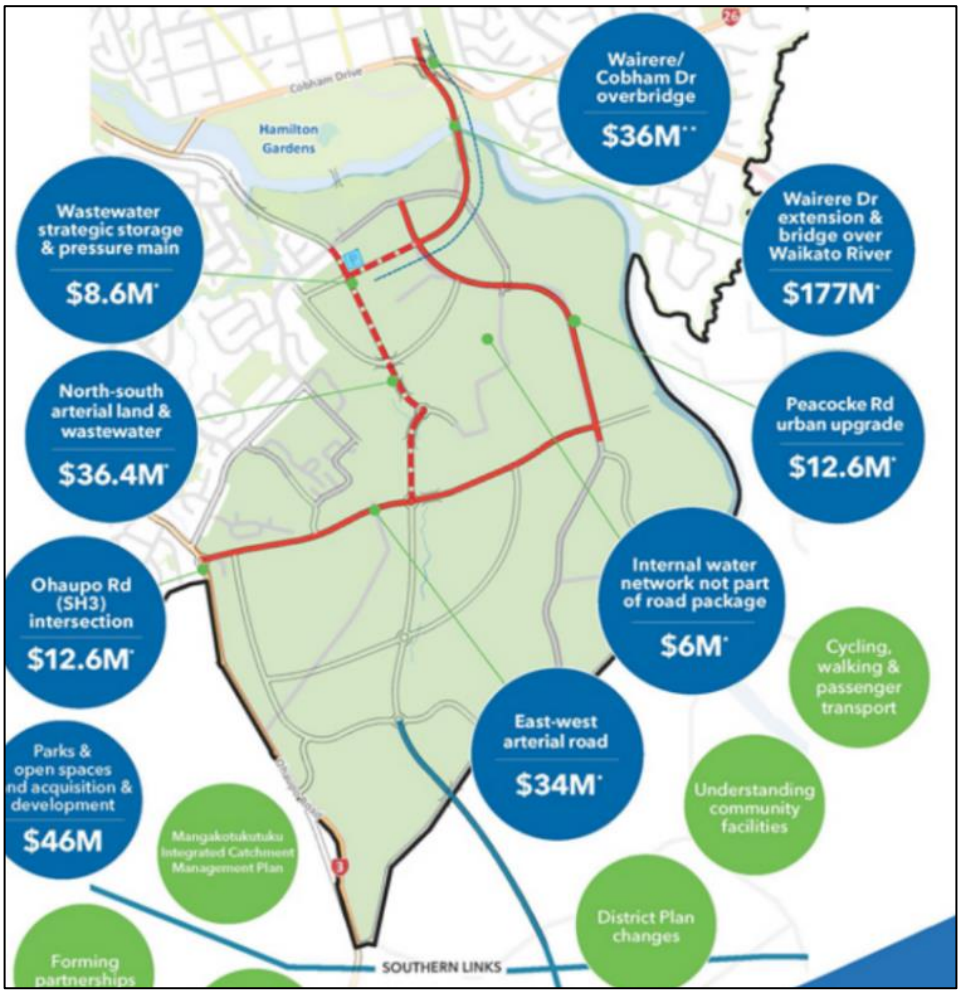


Figure 7: Peacocke Infrastructure[18]

32. My understanding is that HCC has no immediate plans to upgrade the southern section of Peacockes Road and that it will be progressively

[18] https://hamilton.govt.nz/strategies-plans-and-projects/projects/peacocke/

upgraded to urban minor arterial standard as the adjacent land is developed. It is likely that development within the Northern Precinct will have commenced prior to the full upgrade of Peacockes Road. This means that a continuous safe cycling connection will not be provided to Peacockes Road where cyclists are likely to be coming to and from. There will be a gap of approximately 1.6km[19] between Faiping Road and the intersection of Peacockes Road/ Whatukooruru Drive.

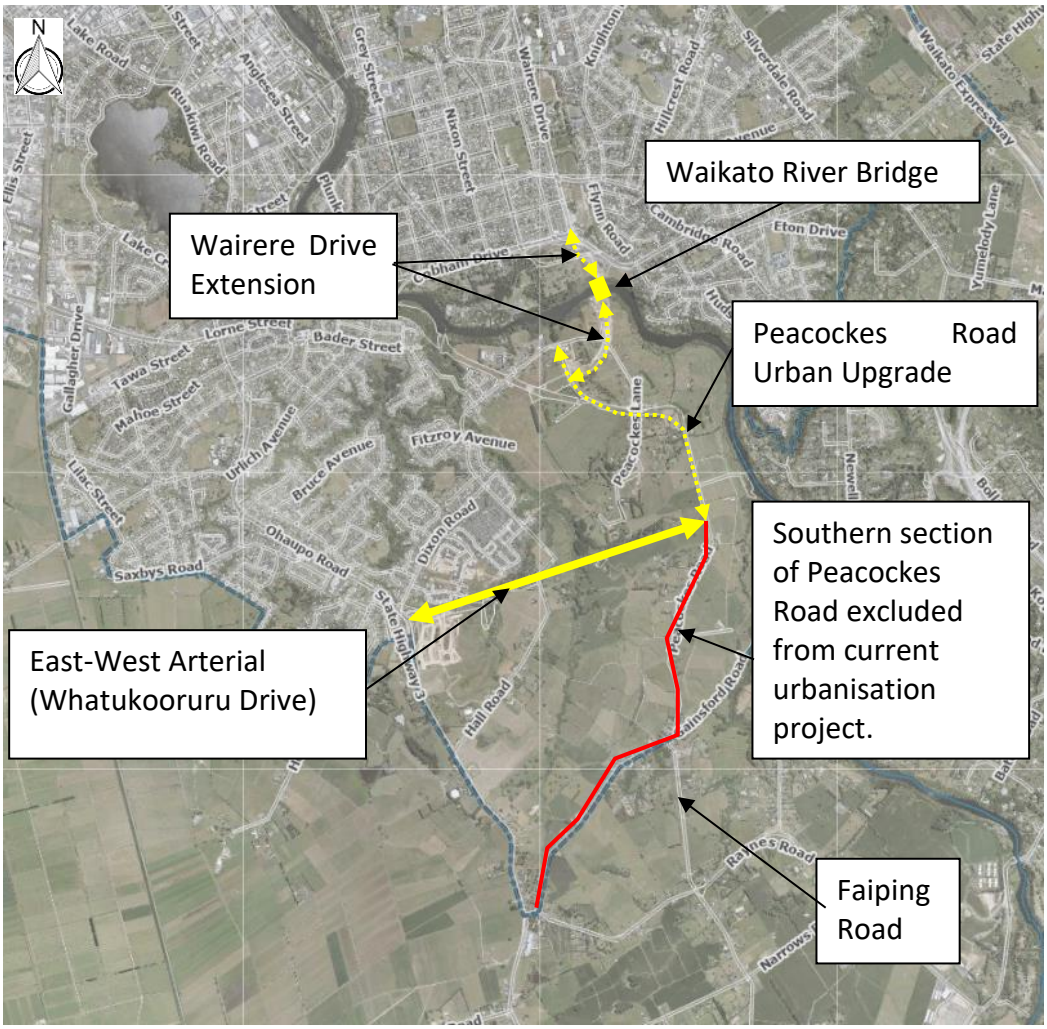


Figure 8: Peacockes area key transport links

33. I consider that not providing a continuous separated connection in a high speed environment will result in commuters relying on private vehicles to travel to and from site rather than cycling as they may consider Peacockes

[19] Measured on Google Maps.

Road unsafe. This means that the Applicant's mode share aspirations may not be achieved. If commuters do choose to cycle there is an increased risk of high severity crashes involving cyclists on the southern section of Peacockes Road that has not been appropriately mitigated.

34. I recommend that the proposal is amended to ensure that an interim separated cycling connection is provided from the Northern Precinct to connect to the planned walking and cycling facility on Peacockes Road.

35. I consider that the walking and cycling transport upgrade provision included in the transport upgrades table in Rule 10.4.2.13A.7 be amended as follows (my proposed addition is underlined):

7.	a. Construction of new walking and cycling shared path connecting Peacocke Road to the Northern Precinct via Middle Road and Faiping Road or a suitable alternative. b. Construction of a 2.5m wide shared path from Faiping Road to the existing separated walking and cycling facility at the intersection of Peacockes Road and Whatukooruru Drive.	To be completed prior to: • Any section 224c certificate for subdivision under the RMA being issued for the completion of any subdivision within Northern Precinct; or • Any industrial / commercial activity being able to generate traffic.

RAYNES ROAD RESTRICTED ACCESS INTERSECTION

36. The proposal includes a new access on Raynes Road. The new intersection is intended to be right out and left in movements only. With the uncertainty on timing of Southern Links, I understand that this intersection could be in place for some time (i.e. more than 10 years).

37. I acknowledge that the R-3 "No Left Turn" sign is a regulatory sign and by

law, drivers are required to abide by the restriction. In my view, there may be a level of non-compliance which may result in unanticipated increase in traffic leading to safety or efficiency effects on Peacockes Road or Raynes Road.

38. I have used Google Maps to determine the difference in travel distance to the Peacockes Town Centre from the two proposed accesses into the Northern Precinct. I have estimated the locations of the proposed access points.

39. Based on Google Maps if a vehicle were to travel to the Peacockes Road/Whatukooruru Drive intersection via the Raynes Road access, the journey length would be approximately 6.4km.

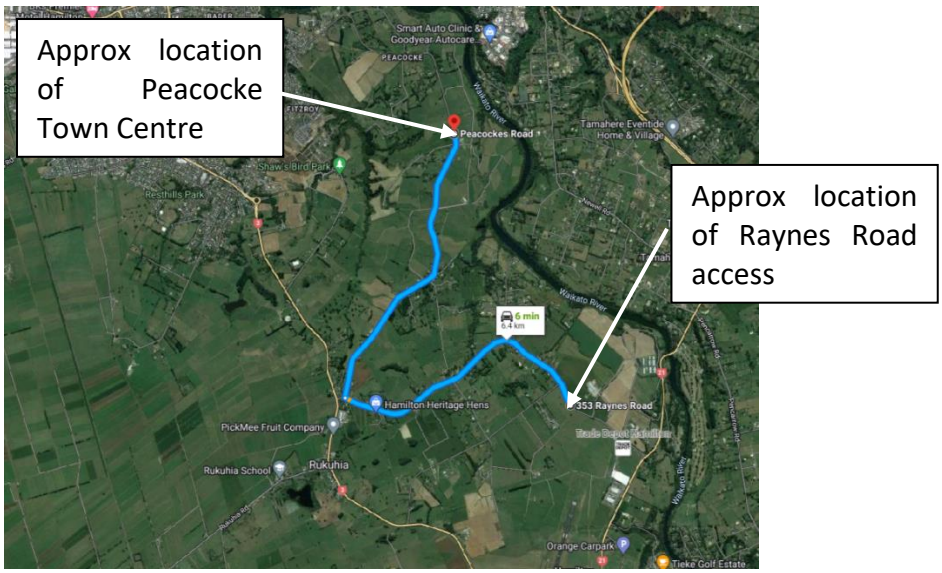


Figure 9: Journey distance from Raynes Road access to Peacockes Town Centre

40. Based on Google Maps if a vehicle were to travel to the Peacockes Road/Whatukooruru Drive intersection via the SH 3 access, the journey length would be approximately 6.1km. However, commuters from the northern section of the Northern Precinct would need to commute up to an additional 2km through the Northern Precinct to get to the SH 3 access. Therefore, the total journey distance would be approximately 8.1 km.

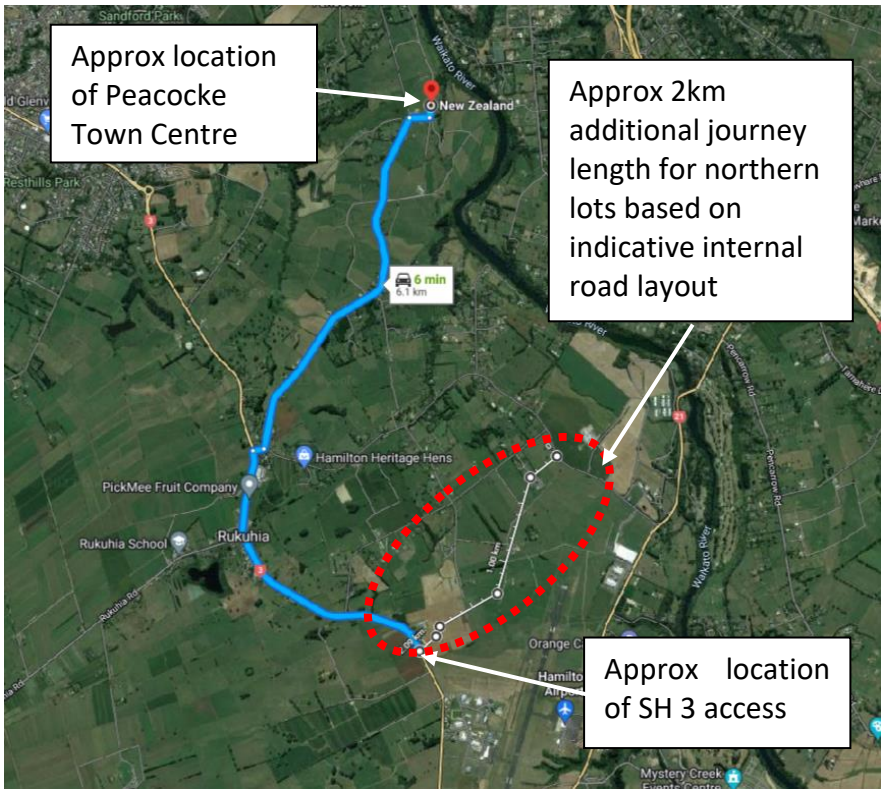


Figure 10: Journey distance from SH 3 access to Peacockes Town Centre

41. Although the distance from the SH 3 access to Peacockes Road is shorter, the total journey length for commuters in the northern section will be up to 2km longer. I am concerned that the longer travel distance for northern lots, combined with commuter perception of greater delays on SH 3 will result in non-compliant use of the Raynes Road access and vehicles heading north via Peacockes Road. In my view there is a risk that this could result in unanticipated deterioration of network safety and capacity.

42. In my view the risk of drivers ignoring the regulatory signs is highest for those trips to/from the northern part of the plan change area. The risk of this occurring could be managed by requiring that the initial stages of development to only have access to SH 3 and that the Raynes Road access is only provided once Peacockes Road has been upgraded.

43. I consider that the proposed concept design is likely to restrict movements for heavy vehicles. However, I am concerned that the current design does not physically restrict movements for light vehicles (cars, vans, motorbikes,

etc) which could result in vehicles not complying with turning restrictions at the intersection. During expert witness caucusing[20] I raised concerns as to the effectiveness of the proposed concept design.

44. I have scaled the BBO drawings[21] in AutoCAD and completed vehicle tracking for a 90-percentile car to demonstrate that a car can still left turn out of the development road and on-to Raynes Road.

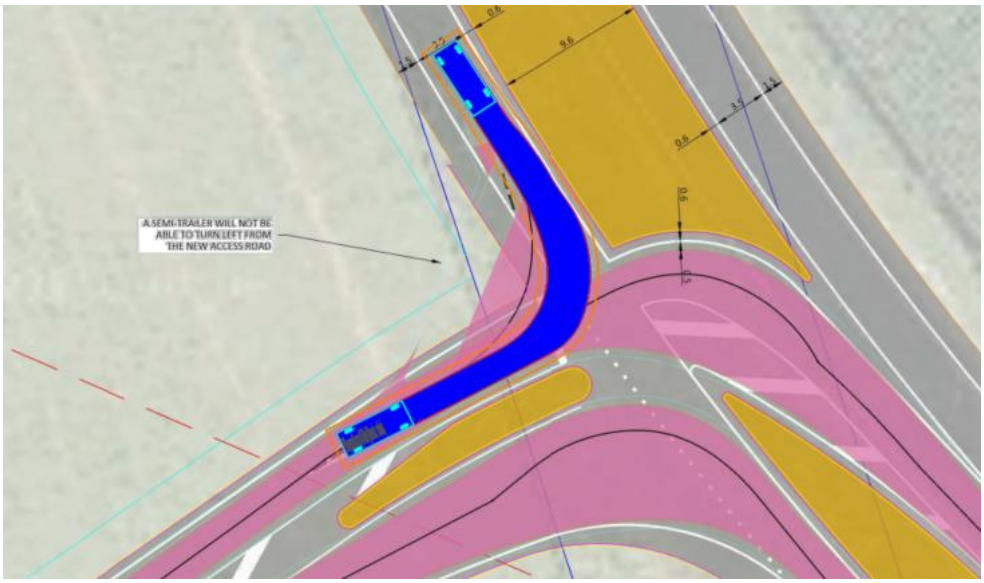


Figure 11: Vehicle tracking indicates 90 percentile car can left-turn

45. I support the intention of restricting movements at this intersection. However, I consider that the proposal does not appropriately mitigate the risk of an increase in traffic on Peacockes Road and Raynes Road prior to urbanisation of Peacockes Road.

46. I support the wording added to Rule 10.4.2.13A as part of expert caucusing[22] to provide more certainty around the movement restrictions. However, I consider that further mitigation is required to ensure that the proposed intersection operates as intended and that unanticipated adverse effects on Peacockes Road and Raynes Road do not arise.

[20] JWS (Transport & Planning(2)), 15 February 2023, para 3.1.3.
[21] Drawing number 144380_06_0033, Rev A (date 15-04-21).
[22] JWS (Transport & Planning(2)), 15 February 2023, para 3.1.3.

47. As recorded in the JWS dated 15 February 2022,[23] I consider that ongoing monitoring of the intersection is required. While monitoring would provide an indication of non-compliance at the intersection, it would not mitigate the effects on the wider network, in particular Peacockes Road. So while I maintain my support for proposed Rule 10.4.2.13A, I have concerns regarding the potential level of non-compliance with the imposed turning restrictions at item 6 of the Rule. I consider an effective approach to manage the risk (beyond simply monitoring the intersection) would be by requiring that the initial stages of the development only have access to the SH 3 access and that the Raynes Road access is only provided once Peacockes Road has been upgraded.

48. In relation to HCC's submission regarding staging of access, Mr Inder[24] states that "In terms of development staging effects, the trips generated by the Plan Change area are distributed to the state highway network whether the Raynes Road access or the SH3 access is constructed first. It is difficult to understand how HCC sees risk of increased traffic on their network due to PC20 and the associated access points, and they do not state which part of their network they specifically concerned with." As discussed at expert caucusing and in paragraphs 36-47 above, I have concerns relating to the effectiveness of the Raynes Road access concept design as it does not physically restrict left turn movements.

49. I acknowledge that final layout will be subject to detailed design and in my view the revised provisions in Rule 10.4.2.13A ensures the intent of the intersection is captured. However, I remain concerned that if access to Raynes Road is provided first then the risk of non-compliance at the Raynes Road access is higher as the shortest route to Peacockes Road will be via a left turn at the intersection.

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[23] JWS (Transport & Planning(2)), 15 February 2023, para 3.1.3.
[24] Statement of Evidence of Cameron Beswick Inder (Transport), dated 28 February 2023, paragraph 185.

50. As discussed in paragraph 47 above, I consider a more effective approach to manage the risk would be by requiring that the initial stages of the development to only have access to the SH 3 access and that the Raynes Road access is only provided once Peacockes Road has been upgraded.

STATE HIGHWAY 3/RAYNES ROAD INTERSECTION

51. Section 2 of the modelling report prepared by BBO[25] states that "The roundabout design will most likely need to reflect the layout shown in Figure 5 to accommodate the future projected traffic flows at this intersection. This applies to Options 4 and 6 discussed in this memorandum".

52. The figure that the statement in paragraph 51 above refers to is shown below. The arrangement includes dual northbound lanes at the roundabout.

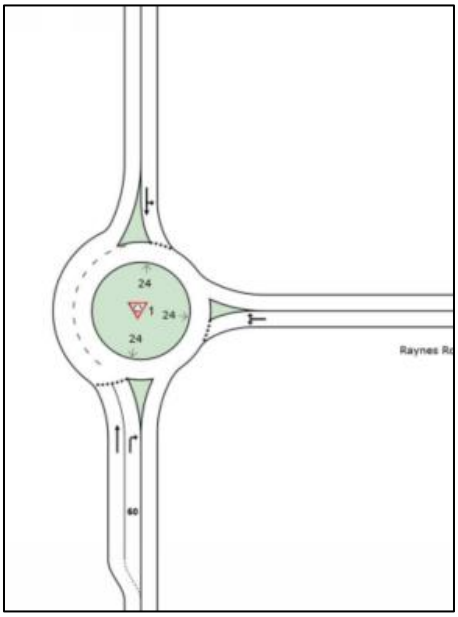

Figure 12: Proposed dual northbound lanes at SH3/Raynes Road

53. At expert caucusing, provision for dual laning the northbound approach at

[25] Appendix C of BBO ITA, Northern Precinct Alternative Access Options Assessment, dated 16 June 2021.

the SH3/Raynes Road roundabout in the plan provisions was agreed[26]. I support the inclusion of the trigger for these works.

54. Waka Kotahi has engaged Gray Matter Ltd to design the SH3/Raynes Road roundabout as part of a Speed and Infrastructure Programme (SIP) project and the current design is a single lane roundabout. I understand that there are constraints that may restrict future construction of dual lanes on the northbound SH 3 approach. I understand that the Applicant is entering into a private development agreement with Waka Kotahi for these works. I consider this to be the most appropriate way to provide dual lanes on the SH3 northbound approach.

STATE HIGHWAY 21/RAYNES ROAD INTERSECTION

55. As part of HCC's transportation submission, I raised concerns relating to the timing of capacity upgrades at the Raynes Road/SH21 roundabout.

56. I am concerned that works to upgrade this intersection from a single lane roundabout to a dual lane roundabout may result in adverse effects on the road network if commuters decide to avoid the intersection and use alternative routes. For example, during construction drivers are more likely to ignore the bans on turns at the Raynes access to avoid construction related delays, increasing the number of trips using Peacockes Road and Raynes Road.

57. I agree with Mr Tinnion-Morgan[27] that it would be preferable to deliver a dual lane roundabout from the outset to minimise disruption and potential adverse effects on other parts of the road network.

EFFECTS AT INTERSECTIONS WITHIN HCC BOUNDARIES

[26] JWS (Transport & Planning(2)), 15 February 2023, Attachment 1.
[27] Appendix 2 to the Section 42A report, Statement of Evidence of James Tinnion-Morgan on Behalf of Waipa District Council, dated 21 February, para 5.52.

58. HCC's submission raises concerns about the effects at intersections along SH3 modelled in the ITA[28]. The submission sought more information to understand the effects at the SH3/Normandy Avenue, SH3/Collins Road, and SH3 Raynes Road intersections, and inclusion of modelling for the SH3/Saxbys Road/Tomin Road intersection.

59. BBO's Modelling Memo[29] (provided post-expert caucusing) includes intersection modelling for the WRTM 2031 base model and the 2031 base model with the Northern Precinct development. Generally, I agree that the modelling provided for the intersections within Hamilton City is reasonable. However, I have concerns with the modelling provided for the SH 3/Saxbys Road/ Tomin Road intersection.

60. The Modelling Memo states that the WRTM 2031 model for both with and without development includes 0 veh/hr for some of the movements at the intersection. BBO describe this as an issue related to model calibration. Where the model showed 0 veh/hr, BBO have added 50 veh/hr for each outbound movement and 25 veh/hr for each inbound movements in the AM peak and vice versa for the PM peak. However, there is no information to support the additional traffic volume added to the intersection and there is a risk that traffic, and intersection performance, at the intersection may be underestimated.

61. The summary of the intersection performance[30] in the Modelling Memo indicates that the intersection performs adequately[31] with and without the development. Based on the information provided, I consider it is unlikely that development at the Northern Precinct will trigger the need for

[28] BBO, Integrated Transport Assessment. v2, April 2022 (Appendix 3 of Harrison Grierson Request for Private Plan Change, dated July 2022).
[29] BBO Memo, PPC20 Caucus – Transportation Assessment Information, dated 22 February 2023.
[30] BBO Modelling Memo, dated 22 February 2023, Table 1 and Table 2.
[31] LOS A in AM peak and LOS A in PM peak.

intervention at this intersection.

RESPONSE TO APPLICANT'S EVIDENCE

62. I have read the transport evidence prepared by Mr Inder[32]. In his evidence Mr Inder has provided comments on HCC's transport-related submission points, and the concerns I raised at expert witness caucusing.

63. I consider the following to be the key points of disagreement:

    (a) Faiping Road cycling suitability; and

    (b) Cycling on Peacockes Road.

Faiping Road Cycling

64. Mr Inder[33] has stated that he does not agree that Faiping Road may be unsuitable for cycling.

65. I have outlined my concerns relating to the grades on Faiping Road in paragraphs 13-20 above and have relied on best practice design principles which are set out in Austroads Cycling Aspects of Austroads.

66. Mr Inder[34] has referred to the Bike Waikato further submission which states that:

> We do not agree that the grade of Faiping Road will deter cyclists (whether commuter or recreational). When given the choice of an unprotected on-road option with that of an offroad option, the vast majority of cyclists will choose the safer off-road dedicated facility, unless it is a considerable longer trip. In the case of the proposed Faiping Road, it is a shorter, more direct option. Furthermore, with the

[32] Statement of Evidence of Cameron Beswick Inder (Transport), dated 28 February 2023.
[33] Statement of Evidence of Cameron Beswick Inder (Transport), dated 28 February 2023, para 80(a).
[34] Statement of Evidence of Cameron Beswick Inder (Transport), dated 28 February 2023, para 98.

> further uptake of E-bikes, grades are less of an issue as they might be for some cyclists.

67. It appears that the Bike Waikato view of grades on Faiping Road is based on their opinion of what cyclists may choose to do, whereas I have relied on best practice design guidelines to inform my opinion.

68. While I disagree with Mr Inder and Bike Waikato for the reasons outlined in paragraphs 13-20 above, I consider that my concerns relating to cycling grades can be resolved as part of future resource consents and engineering plan approval processes.

69. In summary, I consider that the updated wording to the walking and cycling provision included in Rule 10.4.2.13A provides the necessary flexibility for the location of the walking and cycling route.

Cycling on Peacockes Road

70. As recorded in the JWS dated 10 February 2023, Mr Inder[35] considers Peacockes Road suitable for cycling. However, in response to Mr Christopher Hickey's submission,[36] Mr Inder[37] states that "Although, a path along Raynes Road will be approximately 200 m shorter than the path through the Site, **the current speed limit of 80 km/h on Raynes Road increases the risk of serious and fatal accidents for pedestrians and cyclists**" (emphasis added).

71. In my view, Raynes Road and Peacockes Road (southern section) are very similar road environments, and it is unclear why his opinion on the safety of cycling appears to differ between the two roads.

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[35] JWS (Transport & Planning), 10 February 2023, para 3.2.2.
[36] Submitter No.22.
[37] Statement of Evidence of Cameron Beswick Inder (Transport), dated 28 February 2023, para 106.

72. I do not consider the alignment and speed limit on Peacockes Road to be suitable for on-road cycling. In my view, there is a need to provide a safe connection from Faiping Road to the cycling facilities planned at the Peacockes Road/Whatukooruru Drive intersection. As stated in paragraph 35, I recommend that provision for an interim walking and cycling facility along Peacockes Road be added to Rule 10.4.2.13A.

Other Matters Raised in HCC's Submission

73. Below I provide clarification on the following matters discussed in Mr Inder's evidence:

    (a) HCC submission regarding wider network effects;

    (b) HCC submission regarding Future Southern Links connection;

    (c) Retail trip generation;

    (d) Pre-Southern Links development; and

    (e) Raynes Road Access future form.

74. In relation to wider network effects Mr Inder[38] states "Although the list of concerns seems extensive, it appears evident that little attention has been given by HCC to the assessment of wider network effects in the ITA or the WRTM modelling work that supports that assessment of wider network effects". The ITA did not include information or modelling of baseline scenarios or modelling of the Ohaupo Road/Saxbys Road/Tomin Road intersection. As discussed in paragraphs 58-61 above, following expert caucusing Mr Inder has provided further modelling information which has addressed my concern.

[38] Statement of Evidence of Cameron Beswick Inder (Transport), dated 28 February 2023, para 65(b).

75. HCC's submission raised concerns regarding the retail component of the development[39] which was assessed as generating 4 trips/100m² GFA/hr. I raised concerns that published rates[40] indicate that retail activities can generate 17.2-42.5 trips/100m² GFA during peak hour, significantly more than used in the ITA.

76. Mr Inder[41] states that "Given the intent of the retail floor area caps in the plan provisions, I am confident that external trips to the retail activities within the Site will be low and therefore 4 trips/100m^2 GFA (representative of the external (new) trip component within large shopping centres) is a reasonable proxy".

77. If Mr Inder's assessment of 4 trips/100m² GFA is assumed to be external trips to the network then based on published trip generation rates of 17.2-42.5 trips/100m² GFA, he expects that pass-by[42], diverted[43] and internal trips will compromise 77-91% of all retail trips[44]. In my view this appears high.

78. The ITE[45] provides guidance on percentage of pass-by and diverted trips for different activities. For a shopping centre activity, on average 34% of all trips are pass-by trips. This means that 43-57%[46] of all retail trips will be internal to the plan change area. The retail component contributes

[39] HCC Submission point 23.4.
[40] Waka Kotahi Research Report 453, Table C.1 – Retail – Medium shopping centre 85th%ile rate = 17.2 veh/hr/100m² GFA and Retail Shop activity = 42.5 veh/hr/100m² GFA.
[41] Statement of Evidence of Cameron Beswick Inder (Transport), dated 28 February 2023, para 182.
[42] ITE Trip Generation Handbook, 3rd Edition, Pass-by trip definition - A pass-by trip is made as an intermediate stop on the way from an origin to a primary trip destination without a route diversion.
[43] ITE Trip Generation Handbook, 3rd Edition, diverted trip definition A diverted trip is attracted from the traffic volume on roadways within the vicinity of the generator but without direct access to the site.
[44] 100-((4/17.2) x100) = 77% and 100-((4/42.5) x 100) = 91%.
[45] ITE Trip Generation Handbook, 3rd Edition – Institute of Transportation Engineers, Page 190
[46] 71% - 34% = 43%.

approximately 8% of the external trip generation[47] and in my view is a relatively small proportion of the trips.

79. In my view, the Applicant's industrial trip generation rate of 20.9 trips/ha/hr is conservative. By way of comparison, the Hamilton City Operative District Plan uses a trip generation rate of 15 trips/ha (gross site area)/hr as a threshold for further transport assessments[48] within Area A within the Rotokauri Structure Plan[49]. If 130ha (gross area)[50] were assessed based on 15 trips/ha/hr, the trip generation would be 1,950 veh/hr which is approximately 550 veh/hr less than the Applicant's trip generation of 2,500 veh/hr.

80. While I consider the external trip generation assessment for the retail activity to be low, I agree with the Waka Kotahi submission[51] that the total trip generation for the Northern Precinct is conservative. I consider the conservative nature of the industrial trip generation rates provides a level of comfort that minimises the risk of significant adverse effects due to an increase in primary trips generated by the retail activity. I note that the proposed provisions[52] cap the total non-ancillary retail within the Northern Precinct to 5,000m^2 GFA with individual floor areas to be less than 450m^2 (except one retail shop, which can be up to 1,000m^2 GFA)[53].

81. Mr Akehurst has recommended[54] that the 5,000m² retail cap be reduced to 1,000m² and possibly allow some trade focused retail. In my assessment, if retail in the Northern Precinct was capped at 1,000m², the retail component could generate 40 veh/hr (external trips)[55]. This is 160

[47] Based on Table 5.
[48] HCC District Plan Rule 25.14.4.3e)i).
[49] HCC District Plan Appendix 15, 15-7 Figure 15-7a.
[50] Statement of Evidence of Cameron Beswick Inder (Transport), dated 28 February 2023, para 27(c).
[51] Waka Kotahi Submission Point 18.1.
[52] Proposed District Plan Rule 10.4.2.11 A and 10.4.2.12.
[53] Proposed District Plan Provision Rule 10.4.2.11A and 10.4.2.12.
[54] Statement of Evidence of Gregory Michael Akehurst, Economics, para 14.
[55] based on 4 trips/100m².

veh/hr lower than the retail trip generation assessed in the ITA[56].

82. As discussed in paragraph 79 above, I consider that the conservative nature of the industrial trip generation minimises the risk of significant adverse transport effects due to potential for higher trip generation from the retail activity. I consider that if the retail component was capped at 1,000m² then this would provide an even greater level of comfort.

83. Mr Inder[57] comments on HCC's submission which sought further information regarding the intersection form of the realigned Raynes Road/Narrows Road intersection. Mr Inder[58] states that "Issue 163(b) is effectively another wider network effect issue raised by HCC which I have addressed sufficiently in my evidence and that the JWS also addressed by confirming that the modelling and assessment work was consider by all Transport experts in attendance, to be appropriate and no further issues or concerns about wider network effects were identified. This included HCC's transport experts." I do not dispute the modelling conclusions.

84. I was concerned that the future layout of the realigned Narrows Road /Raynes Road/Raynes Road Access intersection has not been confirmed. Drawing 144380_06_0031 in Attachment 1 of Mr Inder's evidence indicates a stub leg with no intersection shown on the realigned Raynes Road. Upon further review of the available information, I consider that the intersection form will be best determined during detailed design of the Southern Links project by Waka Kotahi.

[56] BBO ITA, dated April 2022, Table 5.
[57] Statement of Evidence of Cameron Beswick Inder (Transport), dated 28 February 2023, para 163(b).
[58] Statement of Evidence of Cameron Beswick Inder (Transport), dated 28 February 2023, para 165.

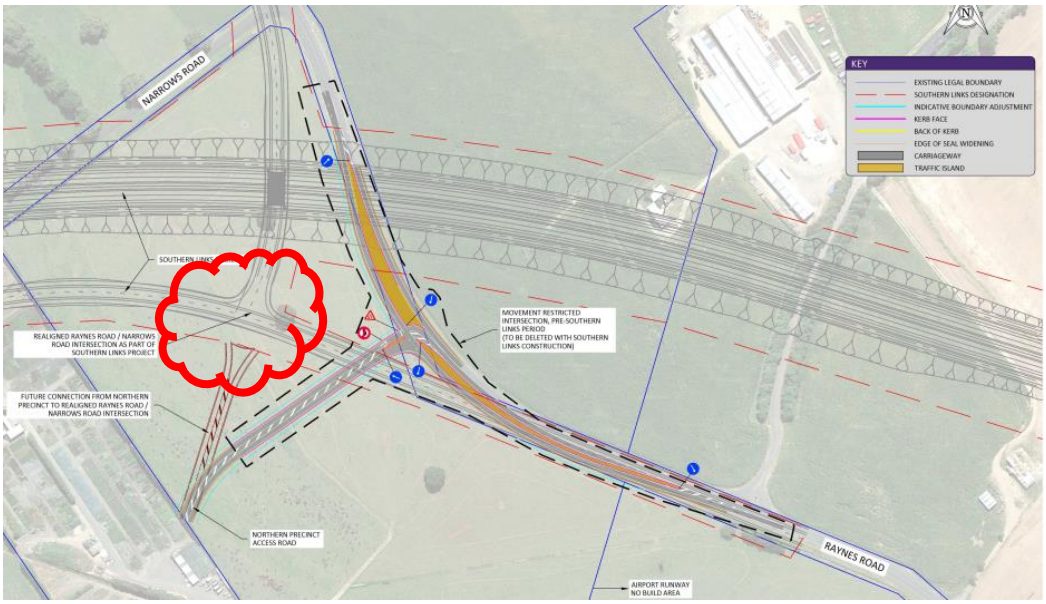

Figure 13: Future Raynes Access Stub Leg

85. In relation to HCC's submission (submission point 23.3) regarding a future direct connection from Southern Links to the Northern Precinct, any future connections to Southern Links will be subject to Waka Kotahi approval.

CONCLUSION

86. In summary:

(a) I consider that the existing grades on Faiping Road are not appropriate for cycling. I support the amendments to Rule 10.4.2.13A agreed to at the expert witness caucusing for the walking and cycling transport upgrade that is now included in the amended plan provisions appended to Mr Grala's evidence, as it provides flexibility in the location of the route.

(b) For the reasons explained above, I consider that the walking and cycling provisions in Rule 10.4.2.13A require amendment to include a 2.5m shared path connecting Faiping Road to a walking and cycling facility on Peacockes Road, as proposed above.

(c) I consider that the proposed Raynes access/Raynes Road intersection may not adequately restrict light vehicle movements meaning that the effects on Raynes Road and Peacockes Road may be understated. I consider that the risk of this occurring could be managed by requiring that the initial stages of development only have access to SH3 and that the Raynes Road access is only provided once Peacockes Road has been upgraded.

(d) I support the inclusion of a trigger for capacity upgrades at the SH3/Raynes Road intersection in Rule 10.4.2.13A However, the current design only includes a single lane roundabout and there are constraints that may limit the addition of dual lane approaches. In my view, this is a matter that needs to be discussed and resolved between Waka Kotahi and the Applicant.

(e) I agree with Mr Tinnion-Morgan[59] that it would be preferable to deliver a dual lane roundabout at the SH21/ Raynes Road intersection from the outset to minimise disruption and potential adverse effects on other parts of the road network. I am particularly concerned about the effects on Peacockes Road prior to urbanisation.

Vinish Anand Prakash

7 March 2023

[59] Appendix 2 to the Section 42A report, Statement of Evidence of James Tinnion-Morgan on Behalf of Waipa District Council, para 5.52.

Attachment 1: Alternative Walking and Cycling Routes