Your Comment on the Rangitoopuni application

Please include all the contact details listed below with your comments and indicate whether you can receive further communications from us by email at substantive@fasttrack.govt.nz

1. Contact Details			
Please ensure that you have authority to comment on the application on behalf of those named on this form.			
Organisation name (if relevant)	Auckland Transport		
First name	Siva		
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Postal address	20 Viaduct Harbour Avenue, Auckland 1010		
Home phone / Mobile phone	[redacted]	**Work phone**	
Email ***(a valid email address enables us to communicate efficiently with you)***	[redacted]		

2. We will email you draft conditions of consent for your comment			
☒	I can receive emails and my email address is correct	☐	I cannot receive emails and my postal address is correct

Please provide your comments below, include additional pages as needed.

Thank you for referring the Rangitoopuni fast-track consent (**the Project**) to Auckland Transport (**AT**) for comment. AT is a Council-Controlled Organisation and the Road Controlling Authority for the Auckland region (excluding the State Highway network). AT has the legislated purpose to contribute to an 'effective, efficient and safe Auckland land transport system in the public interest'[1]. In fulfilling this role, AT has an interest in the Project as Road Controlling Authority and as an asset owner.

It is noted that AT and Auckland Council have provided separate but complementary responses on the Project. This memo provides a summary of ATs assessment and position on the Project, and should be read in conjunction with the supporting material attached with this response, namely:

- Annexure A, Technical Note by Martin Peake, Progressive Transport Solutions Limited, dated 10 September 2025; and
- Annexure B, Stormwater Management Memo by Griffin Benton-Lynne, AWA Environmental Limited dated 12 September 2025

Executive Summary

1. Trip Generation: The land is currently primarily zoned Countryside Living in the AUP but has been used for forestry (very small areas are zoned Rural Production). The proposed development will change the use from forestry to dwellings and a retirement village, which will generate additional traffic on both local and wider road networks. This change of use, coupled with the proposed quantum of dwellings and the proposal's non-complying activity status, triggers a need to assess the traffic effects of trips generated by residential development.

2. Network Effects: The proposed development will increase traffic volumes at the SH16 / Coatesville-Riverhead Highway intersection and along SH16, adversely impacting the operation of nearby roads such as Old North Road and Coatesville-Riverhead Highway – the intersection and operation of SH16 are assessed as material constraints for the development of this site. As discussed in the main body of this report, the SH16/Coatesville-Riverhead Highway intersection is acutely congested in the morning peak with lengthy queues and delays, where eastbound SH16 traffic frequently gives way to turning vehicles despite having priority, while flow breakdown on SH16 due to traffic volumes and topography creates shock wave effects that compound congestion at the intersection. While NZTA manages the State Highway network, Auckland Transport is responsible for both Old North Road and Coatesville-Riverhead Highway – both of which will be affected by development traffic contrary to the applicant's assumption that only Old North Road would be used, meaning AT's local road network will bear the direct operational impacts on both already congested routes that serve as primary access to SH16. NZTA's funded Stage 2 upgrade project, which includes converting the intersection to a roundabout and four-laning SH16, is expected to address these constraints, although its delivery timeline remains uncertain[2]. The proposed development should be coordinated with the NZTA project such that the occupancy of dwellings and retirement village units should be contingent on the projects being completed and operational.

3. Safety Considerations: Commute's report highlights increased crash risk at several intersections, particularly at Deacon Road / Riverhead Road, where limited visibility and higher right-turn volumes require mitigation. The surrounding road network has medium to high collective and personal risk ratings—a road safety classification for parts of the network. These ratings are expected to persist due to the rural nature of the roads, even as development progresses in the area.

4. Site Access Design: Five access points are proposed from Old North Road, with varying degrees of compliance with visibility standards:
    - Access 1 - The proposed access arrangement is considered feasible. However, it will require refinement during the Engineering Approval (**EA**) stage. Consent conditions should be imposed to ensure that sight lines from the access point along Old North Road are maintained.
    - Access 2 - The access design is generally appropriate, but there are sightline shortfalls from both the site access and the right-turn bay, with visibility extending over third-party

[1] Section 39 of the Local Government (Auckland Council) Act 2009

[2] https://nzta.govt.nz/media-releases/stage-2-of-sh16-safety-improvements-project-to-move-forward-to-construction.

property—posing a safety concern on this high-speed rural road (80 km/h). These issues will need to be addressed or mitigated by relocating the access.
To facilitate safe access for construction traffic (including heavy vehicles), Accesses 1 and 2 should be upgraded to provide right turn bays.

- Access 4 and Access 5 - Both accesses have visibility shortfalls. Access 4 serves a single residential lot and may benefit from relocation to improve sightlines. Access 5, which serves nine lots, has not accounted for the gradient of Old North Road in its visibility assessment, and mitigation will be required to address potential safety concerns due to limited visibility.
- Gates are proposed at all accesses from Old North Road. These will need to be positioned sufficiently far into the site so that queued vehicles can wait clear of Old North Road whilst the gate is opened.
- AT are aware that these accesses have also been reviewed and commented on by Auckland Council's Traffic Engineer as an overlapping area of interest where the development and the existing road network intersect. AT agrees with the Council Traffic Engineer's assessment.

5. Intersection Upgrades: Upgrades to the Deacon Road / Forestry Road and Deacon Road / Riverhead Road intersections are necessary to address safety impacts from the development. A formal channelised right-turn bay should be provided at the Forestry Road intersection, while mitigation such as advisory speed signs or speed-activated warning signs is needed at the Riverhead Road intersection to manage increased safety risks from higher right-turn volumes and constrained visibility.

6. Infrastructure Integration: The proposed upgrade and vesting of Forestry Road is generally supported, subject to resolving flood hazards (see point 8 below), building consent approval of retaining structures and maintenance responsibilities. Approval from affected property owners will also be required where vehicle access is impacted and works extend into third-party land.

7. Shared Path: The proposed shared path connecting the retirement village to Riverhead is supported. However, there are concerns regarding accessibility and safety, particularly for mobility-impaired users, due to the steep gradient and missing footpath connections along Mill Grove and Duke Street that need to be resolved.

8. Stormwater: AWA's stormwater engineer has identified significant flood safety concerns with the proposed Forestry Road extension, where flood depths of up to 2 metres may occur in parts of the proposed road extension near the downstream end, creating serious risks of vehicle flotation and potential fatalities as vehicles could be swept into the adjacent river. While the Flood Model Report proposes raising Forestry Road as a mitigation measure, the analysis contains limitations and contradictions that make it difficult to assess effectiveness, including inadequate mapping detail, apparent increases in water depth despite mitigation intent, and unclear hazard assessments that may exceed pedestrian and vehicle safety thresholds. The engineer recommends providing detailed flood depth maps for areas with flows exceeding 0.2 metres, conducting energy grade line assessments, clarifying modeling contradictions, and ensuring that large culverts (over 3.4 m²) comply with design standards including adequate maintenance access, all of which must be addressed to ensure flood-related risks are appropriately mitigated and infrastructure meets relevant safety standards before development proceeds.

Key Documents Reviewed

- Integrated Transport Assessment (**ITA**) prepared by Commute, dated 1 May 2025
- Assessment of Environmental Effects (**AEE**) prepared by Campbell Brown, dated 5 May 2025
- Scheme Plans Countryside Living and Retirement Village prepared by Maven, dated April 2025
- Civils drawings prepared by Maven, dated March 2025
- Specialist Comments Response, Commute, 19 August 2025
- Applicant response to specialist queries, 19 August 2025

Specialist Assessment

9. This memo sets out ATs' strategic position which is informed by the technical notes undertaken by Martin Peake of Progressive Transport Solutions Limited (Traffic – Annexure A) and Griffin Benton - Lynne from AWA Environmental Limited(Stormwater – Annexure B) at the instruction of AT.

Key Projects within the Riverhead Area

NZ Transport Agency Project – Stage 2 - SH16 Brigham Creek to Waimauku.

10. Stage 2 of the SH16 Brigham Creek to Waimauku Project aims to improve safety and capacity along SH16 between Brigham Creek Road and Kumeu. Key upgrades include converting the SH16/Coatesville-Riverhead Highway intersection into a roundabout and expanding SH16 to four lanes.

11. Although NZTA announced funding approval on 1 July 2025, the project's timeline remains uncertain. A previous submission in May 2024 anticipated completion by mid-2029 if funding was secured promptly. However, due to delays, the project may extend beyond 2029, as it still requires detailed design, consenting, property acquisition, and construction.

12. Figure 1 shows the location of the Stage 2 project in relation to the Application site

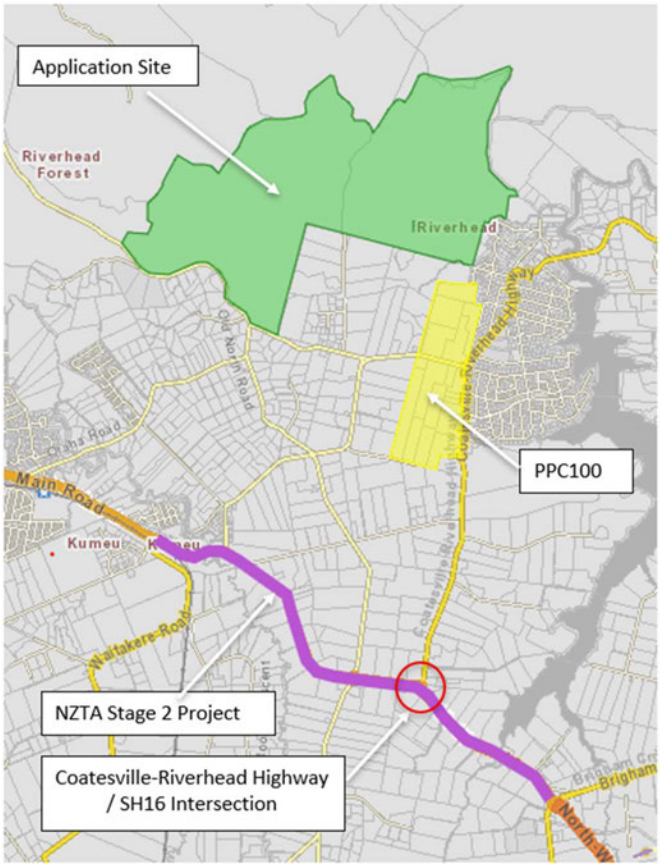


Figure 1 – Location of Stage 2 Waimauku to Brigham Creek Road Safety Improvements Project in purple with intersection upgrade location circled in red

13. NZTA proposes to stage the project in three sections, as shown in Figure 2 below:

    a. Section 1 – Brigham Creek Roundabout to Coatesville Riverhead Highway Intersection

    b. Section 2 - Coatesville Riverhead Roundabout to Taupaki Roundabout

    c. Section 3 - Taupaki Roundabout to Kumeū.

Figure 2 – Sections / staging of NZTA Stage 2 Project

Private Plan Change 100 – Riverhead

14. Private Plan Change 100 (PPC100) proposes rezoning Future Urban Zone land in Riverhead to residential, including a local centre (potentially with a supermarket) and a retirement village. The location of PPC100 in relation to the application site is illustrated in Figure 3.

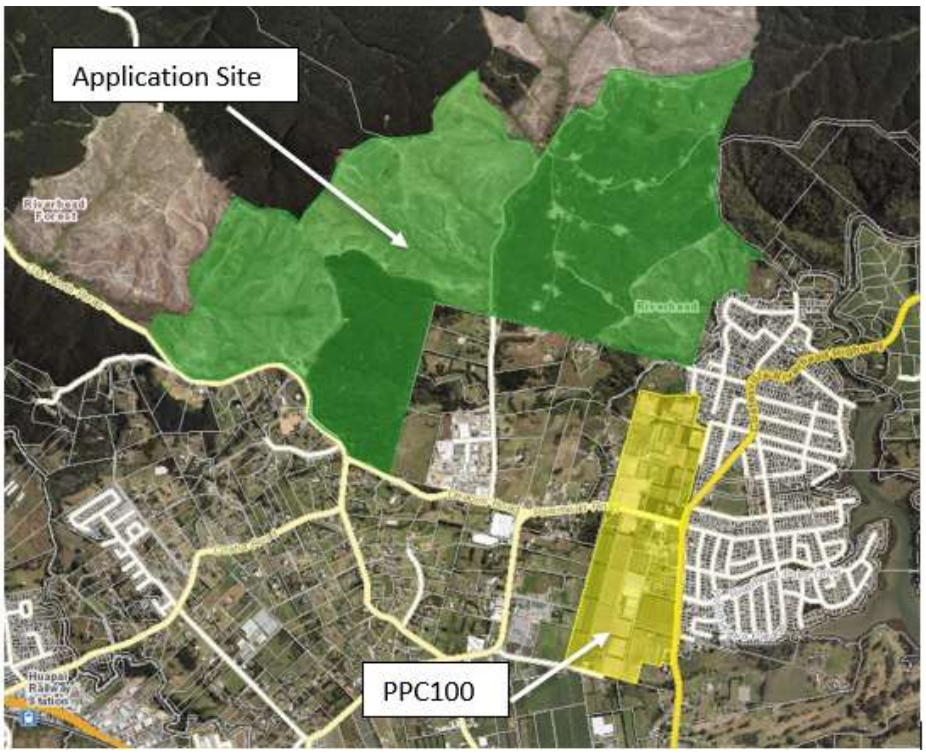


Figure 3 - Location of PPC100 in relation to Application Site

15. Occupation of dwellings (and potentially also subdivision) within the proposed precinct would be contingent on the completion of various transport infrastructure upgrades, including to the SH16 / Coatesville-Riverhead Highway intersection. Additionally, a further limit on development – the precise detail of which has not been settled – is proposed until additional lanes on SH16 south of Coatesville-Riverhead Highway have been implemented. Other required transport upgrades include improvements to intersections at Old Railway Road and Riverland Road, and upgrades to roads and intersections within Riverhead to urban standards.

16. The PPC100 hearing was adjourned in May 2025 to allow expert conferencing on various matters. Conferencing is ongoing at the time of completing this memorandum. Of relevance to transport and this Fast Track Application, one area of focus for conferencing is on the timing and form of upgrades to SH16 and the intersection of SH16 / Coatesville Riverhead Highway, and determining what level of development, if any, could proceed before NZTA's upgrades are completed. In PPC100's precinct provisions as notified, the SH16 / Coatesville-Riverhead Highway intersection is required to be upgraded to a roundabout prior to the first dwelling being constructed (among other upgrades). The quantum of development that could occur prior to the four-laning of SH16 between Coatesville-Riverhead Highway and Brigham Creek Road is a matter that has been in contention in expert conferencing for PPC100 and is unresolved.

Trip Generation and Distribution

17. The Commute Specialist Comments Response highlights that the subject land is already zoned for Rural – Countryside Living, and states that "the site could already be generating traffic which is anticipated by the Unitary Plan". However, the current use is forestry, and the proposed housing represents a change of use. Under AUP Rule E27.6.1, residential subdivisions with capacity to accommodate more than 100 dwellings (see activity (T3B) in Table E27.6.1.1) must assess trip generation as a restricted discretionary activity, making it appropriate to consider effects on the transport network.

18. The activity has an overall status as Non-Complying, which allows for a comprehensive assessment of the development's trip generation impacts. The Auckland Council Memorandum of Strategic and Planning Matters will address the permitted baseline.

19. Commute Specialist Comments Response attempts to establish a kind of baseline by estimating potential trip generation under the site's existing Countryside Living zoning. However, this assessment is considered inaccurate for the following reasons:

    a. Lot Size Assumption - The analysis assumes subdivision into 1-hectare lots, whereas the Auckland Unitary Plan (E39 Subdivision – Rural) requires a minimum lot size of 2 hectares in this zone.
    b. Gross vs Net Area - The assessment is based on the gross site area and does not account for land required for supporting infrastructure (e.g., accessways). A more accurate assessment should be based on the net developable area.

20. In addition, resource consent would be required. As such, the suggested 'anticipated baseline' presented does not provide a reliable comparison for evaluating the trip generation effects of the proposed development.

21. Based on the existing zoning and development controls, the site could generate approximately 152 vehicle trips. In contrast, the proposed development, including the retirement village, is forecast to generate 308 trips, as per the Commute assessment. This suggests that the proposed development would result in approximately double the number of trips compared to what could occur under the current Countryside Living Zone provisions.

22. The trip rate used for residential dwellings (0.85 trips/dwelling) is considered low for a rural area with limited access to amenities and public transport. NZTA research report 453 suggests a more appropriate rate is 1.1–1.4 trips/dwelling. A sensitivity test using 1.1 trips/dwelling is considered more reasonable.

23. Additional traffic from a community facility at Access 2 (used for recreational access) was also assessed. These trips are accepted and not assigned to the wider network, as they reflect existing usage patterns. Trip distribution assumptions are mostly accepted, except for the assignment of all eastbound SH16 traffic to Old North Road. Google Maps data suggests Coatesville-Riverhead Highway may offer similar or better travel times during peak hours. Therefore, traffic is likely to split between both routes, depending on the origin points (e.g., Access 1, Access 2, or Forestry Road). This has implications for the wider network, particularly the SH16/Coatesville-Riverhead Highway intersection.

Traffic Effects

Wider Traffic Effects

24. The operation of State Highway 16 (SH16)—particularly the SH16 / Coatesville-Riverhead Highway intersection and the stretch between Coatesville-Riverhead Highway and Brigham Creek Road—is identified as a key constraint in terms of transport capacity and network performance.

25. While Commute has stated that these constraints are not the developer's responsibility due to the site's distance (approximately 5 km from SH16) and the assumption that wider traffic effects have been accounted for in the Unitary Plan, it is considered that:

    a. Despite the distance, the SH16 corridor and intersection are critical parts of the wider network and do influence the feasibility of development at this site.
    b. Development should be coordinated with the timing of necessary roading upgrades to ensure the network can support additional traffic.
    c. It is agreed that the developer is not responsible for implementing these upgrades, but their timing remains relevant to the overall planning and staging of the development.

26. The operation of SH16 is managed by NZTA, who have been invited to comment on the proposal through the Fast Track process, though their position is currently unknown. While NZTA oversees the State Highway network, Auckland Transport is responsible for the non-state highway roads such as arterial, collector and local roads, including Old North Road and Coatesville-Riverhead Highway. The proposed development has the potential to significantly affect the operation of these local roads, but the extent of these impacts has not yet been quantified.

27. The Coatesville-Riverhead Highway intersection experiences severe morning peak congestion, with long delays and queues on SH16, Coatesville-Riverhead Highway, and Old North Road. Although SH16 traffic has priority, frequent yielding to turning vehicles disrupts flow. This is further worsened by flow breakdown on SH16 between Coatesville-Riverhead Highway and Brigham Creek Road, where high traffic volumes and road topography create a shockwave effect that compounds congestion at the intersection.

28. During the evening peak, westbound traffic experiences delays at the SH16 / Brigham Creek Road roundabout due to a lane merge from two lanes to one. This bottleneck reduces the efficiency of the intersection and causes queuing on SH16, Brigham Creek Road, and Fred Taylor Drive approaches.

29. The Commute ITA included an initial assessment of the SH16 / Old North Road and SH16 / Coatesville-Riverhead Highway intersections, but this has not been updated in the Commute Specialist Comments Response. The original traffic modelling does not accurately reflect current intersection operations, meaning the effects of the proposed development on these key SH16 intersections remain unquantified. Instead, the response assumes that Stage 2 of the SH16 Waimauku to Brigham Creek Road upgrade will be in place to accommodate the projected traffic.

30. The ITA supporting PPC100 similarly assumed future upgrades to the SH16 / Coatesville-Riverhead Highway intersection (specifically a roundabout) and did not assess the existing intersection layout due to its known congestion issues.

31. Development traffic is likely to use both Coatesville-Riverhead Highway and Old North Road to access SH16, rather than solely Old North Road as assessed by Commute. As a result, both already congested routes would be affected by the proposed development.

32. Due to the existing congestion at the SH16 / Coatesville-Riverhead Highway intersection, it is considered that an upgrade of this intersection should be completed prior to the occupancy of dwellings on the subject site. This would help mitigate actual and potential effects on the local road network and align with the proposed Precinct Provisions under PPC100.

33. As Mr Peake observes in his Technical Note, there was some discussion during the PPC100 hearing about allowing up to 30 dwellings to be developed prior to the SH16 / Coatesville-Riverhead Highway intersection upgrade; however, no specific evidence was provided to justify this threshold.

34. The section of SH16 between Coatesville-Riverhead Highway and Brigham Creek Road already experiences operational issues—eastbound in the morning peak and westbound in the evening peak. The proposed development would contribute additional traffic, further exacerbating these existing problems.

35. There was disagreement among traffic experts during PPC100 regarding whether any development could proceed before the four-laning of SH16 between Coatesville-Riverhead Highway and Brigham Creek Road. As Mr Peake notes, while some experts supported limited development, others opposed it based on traffic impacts. The analysis did not account for the current proposed development, so cumulative effects remain unclear. Without further assessment, it is considered that no development should occur prior to the upgrade (4 laning), although there may be scope for some development—subject to additional evidence/assessment.

36. It is considered that no dwellings should be occupied until Section 1 of NZTA's Stage 2 upgrades—specifically the SH16 / Coatesville-Riverhead Highway intersection upgrade and the four-laning of SH16 from that intersection to Brigham Creek Road—are implemented. Consistency in development thresholds between this proposal and PPC100 is important, and any conditions imposed should not be more restrictive than those applied to PPC100, given the subject site is live-zoned. The Commute Specialist Comments Response also supports the implementation of the Section 1 NZTA Stage 2 improvements prior to development.

37. AUP Chapter E21.3(7) requires enabling alternative approaches to site access and infrastructure provision where the occupation, use and development of Treaty settlement land is constrained by access or the availability of infrastructure. Consideration has been given to potential alternative approaches for addressing transport effects on SH16 intersections, particularly Coatesville-Riverhead Highway and Old North Road. However, it is concluded that the NZTA Stage 2 project remains the most appropriate solution.

Local Road Network Effects

38. Traffic modelling using SIDRA was conducted for key local intersections near the development site. The selected intersections and modelling approach are considered appropriate, including scenarios with existing traffic, the proposed development, and cumulative effects with PPC100 (pending approval).

39. The modelling calibration is accepted, though the Deacon Road / Riverhead Road intersection layout is not accurately reflected. However, since it is forecast to operate well within capacity, this is not expected to significantly affect the results.

40. At the Riverhead Road / Coatesville-Riverhead Highway roundabout, the AM peak is forecast to operate at Level of Service (LOS) C overall, with the Riverhead Road approach at LOS E. Assuming it is approved, PPC100 contributes significantly to this, while the proposed development adds only 31 vehicles. The modelling may overstate cumulative effects, as it does not account for pass-by or diverted trips from the local centre.

41. Despite some limitations, the overall traffic modelling does not raise significant concerns for the local network.

Access Operation

42. Vehicle access points on Old North Road (Access 1 and Access 2) were modelled using SIDRA. However, the models do not reflect the proposed engineering layout, which includes a right-turn bay. This omission likely overestimates traffic impacts, as vehicles turning right would otherwise delay through traffic.

43. Despite this, the modelling represents a worst-case scenario and still forecasts acceptable performance at the access points, with no significant queuing or delays expected.

Proposed Accesses

Access 1 – Opposite Pinetone Road

44. The existing site access on Old North Road will be upgraded with a right-turn bay and flush median. However, the design does not fully account for nearby Pinetone Road. It is recommended that right-turn movements to and from Pinetone Road be better integrated into the design. Final details can be resolved during the EA process, and sufficient land appears to be available for any required widening.

45. Visibility splays are generally acceptable, with a land covenant proposed to maintain sightlines to the east. To the west, vegetation and embankments may need to be removed or modified.

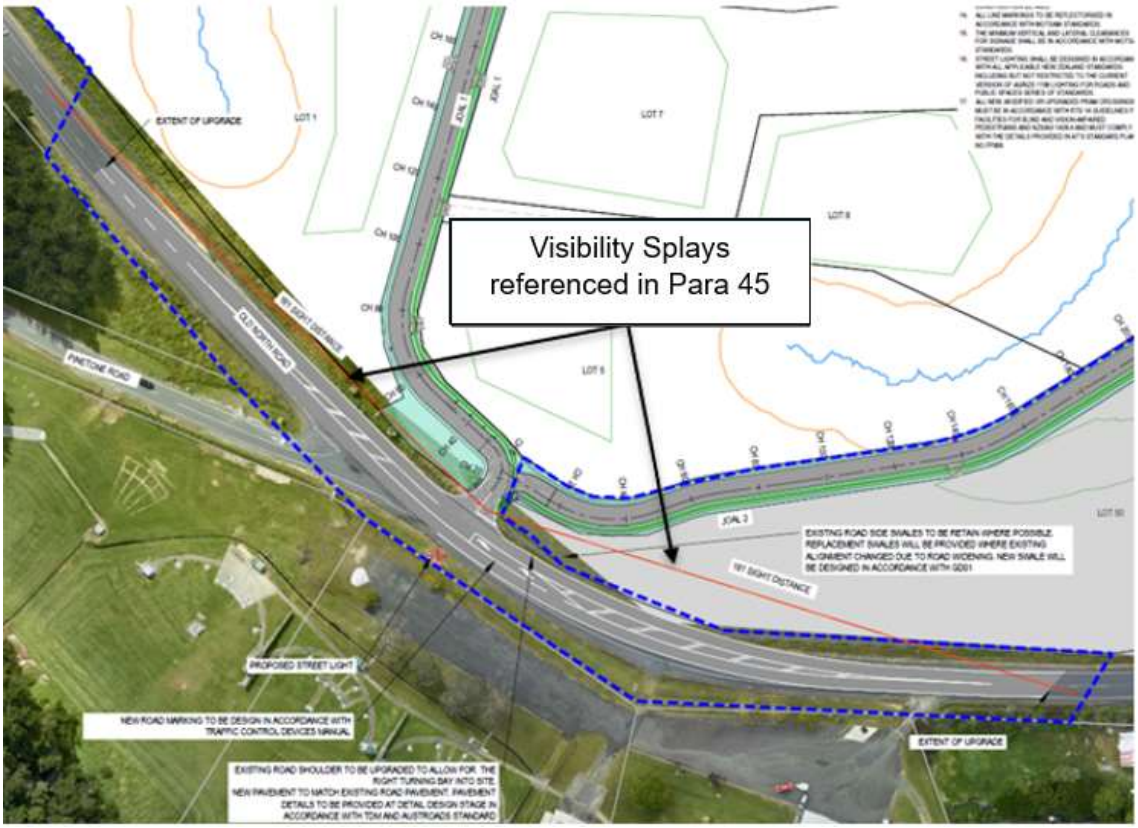


Figure 4 – Proposed Access 1 Layout with visibility splays highlighted

46. Vehicle tracking shows a 10.3m truck slightly encroaching into the right-turn bay, which will need to be addressed at the EPA stage. The access splits into two JOALs, and while queuing is expected to be minimal, the design should ensure vehicles can enter without being blocked by outbound queues.

47. Gates are proposed for both JOALs and will be set back at least 6m, forming a T-shaped turning head to allow vehicles to turn around safely if needed.

48. Access 1 is within 10m of Pinetone Road, triggering vehicle access restrictions under AUP Rules E27.6.4.1(2) and (3). While this requires assessment as a restricted discretionary activity, there are no existing safety concerns, visibility is adequate, and the access is not expected to impact the safe or efficient operation of the road network. Pinetone Road is a low-volume cul-de-sac.

Access 2 - Browns Road

49. Access 2 on Old North Road is to be upgraded with a right-turn pocket, but it is located on the outside of a bend, raising visibility concerns. While sight distances meet AustRoads standards based on surveyed speeds, the visibility splay to the west crosses a neighbouring property where a future fence adjustment could obstruct sightlines. Measures will be needed to preserve visibility, especially given the 80 km/h speed limit. A potential option is to relocate Access 2 to the location of Access 3, with the accessway being diverted around the rear of the proposed community area and parking area.

50. A gate is proposed 35m from Old North Road, allowing queuing space for approximately seven vehicles. However, no assessment has been provided on gate operation or potential queuing impacts. A turnaround area should be included for vehicles unable to enter.

51. Vehicle tracking shows a 10.3m truck slightly encroaching into the right-turn bay, which will need design adjustments at the EPA stage. The access splits into two JOALs, and while traffic volumes are low, the design should ensure vehicles can enter without being blocked by outbound queues.

Access 3 – Old North Road

52. The location of Access 3 and an assessment of visibility is provided in the Commute Specialists Comments Response. Visibility from the access meets the AustRoads standard. Any gates would need to be set back sufficiently far into the site to enable a vehicle to wait clear of Old North Road for the gate to be opened.

Access 4 - Old North Road

53. Access 4 has been assessed for visibility, with sightlines to the east meeting AustRoads standards. However, visibility to the west falls short only 110m is available versus the 131m required. This constraint is due to the vertical alignment of Old North Road.

54. There may be potential to adjust the access location to improve western visibility while maintaining adequate eastern sightlines. An alternative would be for this single residential lot to be accessed from either JOAL 4 of JOAL 5. This would remove the safety risk associated with the shortfall in visibility from Access 4. Any gate installed at Access 4 should be set back far enough to allow vehicles to wait off Old North Road while waiting for entry.

Access 5 - Old North Road

55. Sightlines to the west are slightly below AustRoads standards (157m required, 156m available), and the downhill gradient of Old North Road may further reduce visibility. To the east, visibility is also below standard (145m available vs. 157m required). However, the Commute Specialist Comments Response applies RTS-6 guidelines, which require only 105m for low-use crossings serving fewer than 200 movements per day as this access is serving nine dwellings.

56. Due to constraints from road alignment and property boundaries, relocating the access is unlikely to improve visibility. Mitigation measures, such as warning signage, and the provision of a right-turn bay should be considered. Any gate at Access 5 should be set back far enough to allow vehicles to wait off Old North Road while waiting for entry.

Forestry Road / Deacon Road Access

57. The intersection of Deacon Road and Forestry Road will serve as a key access point for the retirement village and some Countryside Living dwellings. Currently, there is partial lane widening that allows westbound vehicles to pass others turning right into Forestry Road. However, the proposed development will significantly increase right-turning traffic—around 90 vehicles per hour during the PM peak.

58. Although a specific assessment has not been provided, AustRoads guidelines indicate that a channelised right-turn bay is warranted based on traffic volumes. For safety and operational efficiency, it is recommended that a dedicated right-turn bay be implemented as part of the development (refer to Figure 5).

Figure 5 – Forestry Road / Deacon Road Intersection

Deacon Road / Riverhead Road

59. The ITA has reviewed the safety record of the Deacons Road / Riverhead Road intersection and identified a crash trend, particularly involving right-turning movements. Visibility from Deacons Road to the west is limited—only about 120m is available versus the 181m required for an 80 km/h design speed. This shortfall is likely contributing to the crash trend.

60. Although the proposed development does not directly affect visibility, it would triple the volume of right-turning traffic from Deacons Road during the AM peak, increasing crash risk exposure. Mitigation measures such as advisory speed signs or speed-activated warning signs on the western approach are recommended to improve safety (refer to Figure 6).

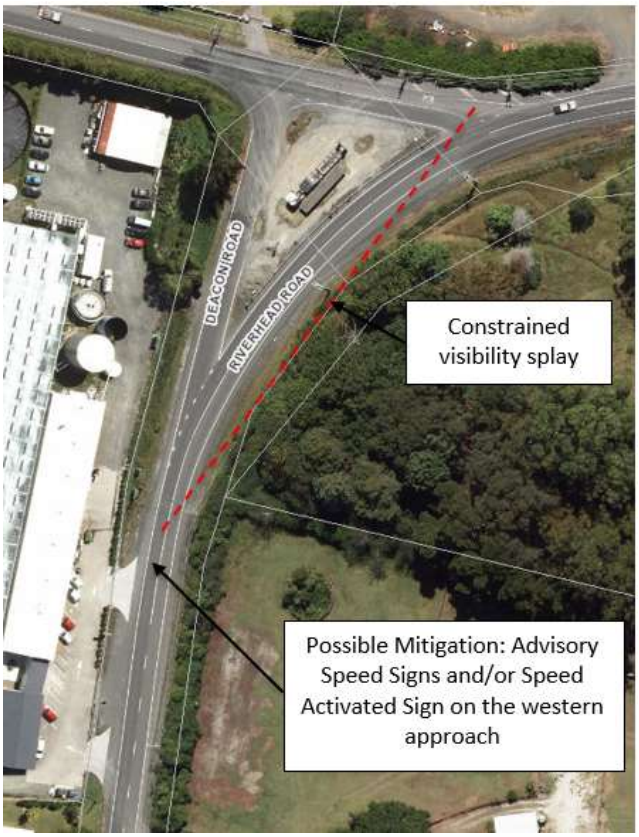


Figure 6 – Deacon Road / Riverhead Road Intersection

Network Safety

61. The Commute Specialist Comments Response includes a safety analysis of the local road network near the site, focusing on key routes connecting to the wider network. A pattern of crashes related to speed and loss of control was identified, influenced by road geometry (e.g., curves and crests) as well as driver behaviour.

62. Risk ratings from KiwRap show that Old North Road (near Access 1 and 2) and Riverhead Road have Medium-High risk, while Old North Road between Riverhead Road and SH16 has a high risk rating. These roads will serve as primary access routes, increasing crash exposure as traffic volumes grow.

63. Although Commute suggests risk may reduce with urbanisation, the area is predominantly zoned Countryside Living, and urban upgrades like kerb and channel are not proposed. Therefore, road conditions are unlikely to change significantly, and risk ratings may increase over time.

64. Specific locations—intersections and accesses—have been identified where the proposed development could affect the safe operation of the local road network.

Upgrade to Forestry Road

65. Forestry Road is proposed to be upgraded and partially vested with Council. The upgrade includes vertical and minor horizontal realignment, with retaining walls and batters required in some areas. The proposed 6.0m carriageway (including channels) meets Auckland Transport's minimum lane width requirements but falls short of the preferred width. Road grades are all below 8%.

66. Vehicle tracking confirms that a 6.3m van and a 10.3m truck can pass without conflict. Retaining walls exceed 4m in height in some sections and will require either building consent (for walls over 1.5m) or Auckland Transport PA 1A–4A certification (for walls under 1.5m).

67. Several vehicle crossings will need to be modified to align with the new road profile, requiring adjustments within private properties. Property owner approval will be necessary where access ways are affected.

Shared Path between Retirement Village and Riverhead

68. A shared path is proposed to connect the retirement village to the eastern boundary of the site, linking to an existing pedestrian access from Mill Grove. The path is expected to be in private ownership but would have an easement in favour of Council for public access.

69. The path has a steep gradient of 11.6% over 362m, which may pose challenges for less mobile users, including those with mobility scooters, unless rest areas are incorporated. A four-wheel-drive golf cart is proposed to use the path, raising safety concerns for pedestrians at the public connection near Mill Grove and the adjacent reserve. It is unclear whether the golf cart can legally travel on public roads to reach Riverhead town centre.

70. Mill Grove connects to Duke Street, but neither road has footpaths between Mill Grove and Coatesville-Riverhead Highway. If the shared path connection is built, there will be a gap in the pedestrian network, limiting safe walking access to the Riverhead centre.

71. The provision of the footpath is supported but there are concerns over the deliverability of the facility within the site and the suitability of the existing active mode network to accommodate active modes travelling between Riverhead and the site.

Construction

72. The ITA states that construction traffic will be managed via a Construction Traffic Management Plan (CTMP), with main access routes via Old North Road and Forestry Road. Given the expected increase in traffic, including heavy vehicles, it is recommended that Accesses 1 and 2 on Old North Road be upgraded to their final design before construction begins. Commute agrees with this recommendation to ensure safe and efficient access during construction.

Stormwater

73. The following comments have been provided by the stormwater engineer (Griffin Benton from AWA Environmental Limited).

74. The Flood Model Report indicates that Forestry Road is proposed to be raised as a mitigation measure to reduce flood hazards associated with the proposed road extension. However, the effectiveness of this intervention is difficult to assess due to limitations in the mapping provided. Specifically, the site boundary lines obscure significant portions of the proposed road, and there is a lack of zoomed-in flood depth maps for key road segments.

75. Preliminary observations suggest that flood depths of up to 2 metres may occur in parts of the proposed road extension near its downstream end. This represents a significant safety hazard for all road users. According to Austroads and ARR Book 6 – Flood Hydraulics, vehicle floatation can occur at depths as shallow as 0.5 metres, while Auckland Transport's Road Drainage chapter of the TDM stipulates that the energy grade line for flows crossing roads should not exceed 0.3 metres.

76. Flood depths of the magnitude indicated could result in vehicles being swept into the adjacent river, posing a serious risk of fatality. This risk is further exacerbated by the anticipated increase in residential population, which will result in a higher number of people relying on this road for access once development is complete.

77. The Flood Model Report identifies that Forestry Road is proposed to be raised as a mitigation measure to reduce existing flood hazards. While the pre- and post-development scenarios (for both blocked and unblocked conditions under the 1% AEP + climate change event) suggest a general reduction in water depths, the comparison maps indicate an increase of more than 50mm within the road corridor in the post-development scenario.

78. It is noted that the maps do not specify the actual depth increase beyond the ">50mm" threshold, which is the upper limit of the legend. This lack of detail makes it difficult to assess the effectiveness of the proposed road raising.

79. The Flood Modelling Report includes result maps that display water depth; however, the comparison maps are presented as water surface elevation, rather than water depth. This approach creates confusion, as no corresponding pre- or post-development water surface elevation maps are provided for reference, and no depth-based comparison maps are included.

80. To enable a clear understanding of the changes in flood depths resulting from the proposed development, it is recommended that the applicant provide water depth comparison maps. These maps would allow for a more transparent assessment of flood impacts and support informed decision-making regarding flood hazard mitigation and road safety.

81. The mapping for the 1% AEP storm event (3.8°C climate change, 50% blockage) shows increased water surface elevations both upstream and downstream along the Forestry Road. The applicant should clarify the cause of these increases and explain how flood hazard appears to decrease despite higher water levels.

82. The depth × velocity hazard maps are unclear due to their scale and lack of detail, making it difficult to identify the road alignment within the road reserve. In the post-development scenario, hazard levels appear to exceed pedestrian and vehicle safety thresholds in several areas, but it is not evident whether these are confined to stream channels or extend into accessible areas. Comparison hazard maps have not been provided and should be included to assess whether hazard levels increase, particularly in high-risk locations such as roads and dwellings.

83. Culverts with a cross-sectional area exceeding 3.4 m²—specifically Culverts 1, 3, and 4—must be designed in accordance with the NZTA Bridge Manual, AT Code of Practice, and Auckland Council Stormwater Code of Practice. For culverts over 6 m², the 1% AEP + 3.8°C climate change water level must sit at least 0.3 m below the soffit to mitigate risk. This requirement must be addressed prior to vesting, and the applicant is strongly advised to confirm compliance before consent is granted.

84. Culverts must be designed with adequate access to both inlet and outlet structures to facilitate ongoing maintenance. This should be addressed at this stage to avoid establishing boundaries that may constrain access during detailed design. Failure to provide access may result in increased maintenance costs and elevated safety risks for maintenance personnel.

85. AT does not have any preference in relation to the number of culverts (rather than more naturalised approaches) to management of watercourses across roading. AT would advise that the consultant needs to consider both options, including cost and determine which is best and meets all the requirements

86. It is strongly recommended that:
    i. The applicant provides updated flood maps which clearly show the existing and proposed public road reserve, as well as the location of the actual road within the road reserve, i.e., where vehicles and pedestrians would be present within the road reserve, so that the hazard can be adequately assessed.
    ii. Zoomed-in maps should also be provided so that it can clearly be seen where the worst-case locations are, and these should be labelled to clearly show the maximum values.
    iii. The maps provided should include depths maps, depth comparison maps and depth x velocity maps for all the scenarios assessed.
    iv. Assessments of the energy grade line for flow within the road reserve should be provided to demonstrate that the proposal will not result in hazardous flow conditions which could endanger road users or prevent the ingress and egress of emergency services.
    v. The proposed public culverts should be demonstrated to meet the requirements NZTA Bridge Manual, AT Code of Practice, and Auckland Council Stormwater Code of Practice and the proposed access should be demonstrated to be adequate. Failure to do so prior to consent could result in the need to apply for a S127, costly rework for the applicant or result in onerous

operation and maintenance costs and/or hazardous conditions for operation and maintenance personnel.

Recommendation

87. Based on the information provided, additional mitigation measures are required to support this application, and to ensure that:

    (a) The proposal's adverse traffic effects are adequately mitigated; and

    (b) There is appropriate integration between land use and infrastructure.

88. The specific issues have been addressed under executive summary / principal issues

Proposed Conditions

89. I offer some initial comments on matters to address through conditions below, if the Panel is minded to grant approval.

90. These suggestions are provided to assist the Panel, but are offered without prejudice to Auckland Transport's ability to make more comprehensive comments on any draft conditions under section 70 of the Fast-track Approvals Act 2024, should the Panel decide to grant approval. The suggestions below are not intended to be the precise wording of conditions but to outline the matters to be addressed or outcomes sought:

    (a) The occupation of any dwellings or retirement units within the development must not occur until Section 1 of the NZTA Stage 2 Waimauku to Brigham Creek Road project is completed and operational. This includes:
        - The upgrade of the SH16 / Coatesville-Riverhead Highway intersection to a roundabout; and
        - The four-laning of SH16 between Coatesville-Riverhead Highway and Brigham Creek Road.

        Mr Peake notes that, while a planning matter, he anticipates that consent notices may be required to secure this requirement, particularly in relation to the residential subdivision.

    (b) Old North Road Access 1 – Access Conditions
        i. A covenant must be registered over the land to the east of Access 1 to ensure the visibility splay remains clear of vegetation and any other obstructions that may impede sightlines between westbound motorists on Old North Road and vehicles exiting Access 1
        ii. Access 1 must be designed to ensure clear sightlines are maintained across the berm within the road reserve to the west of the access
        iii. The resident association must ensure that conditions b (i) & (ii) are maintained at all time.

    (c) All access gates for Access 1, 2, 3, 4 and 5 must be located sufficiently far from the road reserve boundary with Old North Road so that vehicles queued for the gates to open do not extend back onto Old North Road.

    (d) Deacon Road / Forestry Road
        A channelised right turn facility must be provided for the right turn movement from Deacons Road to Forestry Road

    (e) Deacon Road / Riverhead Road
        Advisory speed signs or speed-activated warning signs on the western approach to the Deacon Road/ Riverhead Road intersection must be provided.

    (f) Construction Access
        Access 1 and Access 2 must be upgraded to include right turn bays on Old North Road in accordance with the final approved designs prior to the commencement of construction on site.

    (g) Vehicle Accesses
        i. Access 2 must be moved to the location of Access 3 to address the shortfall in visibility. A right-turn bay should be provided as currently proposed for Access 2

ii. Access 4 must be removed and the lot should be accessed via either JOAL 4 or 5.
iii. Access 5 must include a right turn bay on Old North Road and advanced warning signs of a concealed access should be provided on Old North Road for eastbound traffic

Supporting Documents

- Annexure A: Technical Note by Martin Peake (Progressive Transport Solutions Limited)
- Annexure B: Stormwater Management Memo by Griffin Benton- Lynne (AWA Environmental Limited)

ANNEXURE A

Technical Note by Martin Peake, Progressive Transport Solutions Limited

Technical Note

To:	Siva Jegadeeswaran – Auckland Transport		
From:	Martin Peake – Progressive Transport Solutions Limited		
Project:	**BUN60449727 – Rangitoopuni Developments Limited Partnership**	**Project No.**	**P23015/015**
Subject:	**Review of Traffic Engineering and Road Safety**		
Date:	10 September 2025		

1. Introduction

1.1 Auckland Transport has commissioned Progressive Transport Solutions Limited to undertake a review of the Fast Track Application – Rangitoopuni Developments Limited Partnership for development at Old North Road and Forestry Road, Riverhead. The land is primarily zoned Countryside Living and the proposed development is for 208 vacant lots and for a retirement village of 260 retirement units and 36 care beds. As part of the works Forestry Road is to be upgraded and vested in Auckland Council. This review is on the traffic engineering and road safety aspects of the application.

1.2 In preparing this review the following application documents have been reviewed:

- Integrated Transport Assessment – Commute, 1 May 2025
- Assessment of Environmental Effects – Campbell Brown, 5 May 2025
- Scheme Plans – Countryside Living and Retirement Village
- Civils drawings, Maven
- Specialist Comments Response, Commute, 19 August 2025
- Applicant response to specialist queries, 19 August 2025.

1.3 My review has benefited from my current understanding of the operation of the network in this locality, in particular Coatesville-Riverhead Highway, State Highway 16 (SH16) between Old North Road and Brigham Creek Road given my involvement on Private Plan Change 100 – Riverhead.

2. Qualifications, Experience, and Code of Conduct

2.1 I hold the qualification of a Masters in Civil Engineering with Management from the University of Birmingham in the UK (1993). I am a Chartered Engineer (UK) and a member of the Institution of Civil Engineers, and a member of the Chartered Institution of Highways and Transportation.

2.2 I have over 30 years' experience as a traffic engineer. I have worked for several major consultant engineering firms, and as a Team Leader of one of Auckland Transport's Traffic Operations Teams. I have owned and operated my own traffic engineering consultancy since 2014. In these roles, I have worked in a variety of areas of transportation including traffic engineering, traffic modelling and temporary traffic management. I have provided expert traffic and transportation advice to Auckland Council and Auckland Transport on a range of resource consents, notice of requirements and plan changes across the Auckland region.

2.3 I am familiar with the site and have visited the site on a number of occasions including recently on 11 August 2025.

2.4 I confirm that I have read the Environment Court Practice Note 2023 – Code of Conduct for Expert Witnesses (Code), and have complied with it in the preparation of this Technical Note. I also agree to follow the Code when participating in any subsequent processes, such as expert conferencing, directed by the Panel. I confirm that the opinions I have expressed are within my area of expertise and are my own, except where I have stated that I am relying on the work or evidence of others, which I have specified.

3. Key Projects within the Riverhead area

NZ Transport Agency Project – Stage 2 - SH16 Brigham Creek to Waimauku

3.1 Stage 2 of the SH16 Brigham Creek to Waimauku Project, an NZ Transport Agency (**NZTA**) project, will provide safety and capacity improvements to SH16 between Brigham Creek Road and Kumeu. The project consists of the upgrade of the SH16 / Coatesville-Riverhead Highway intersection to a roundabout and four laning of SH16. The location of this project in relation to the application site is shown in Figure *1*.

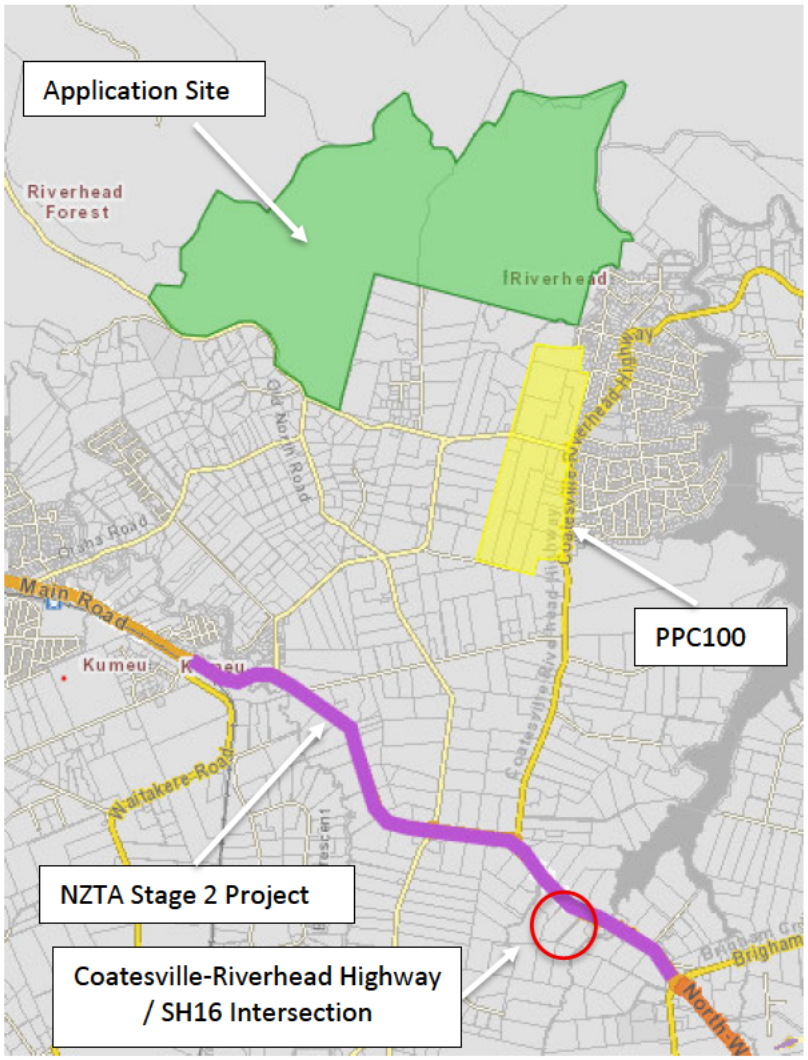


Figure 1 - Location of NZTA Stage 2 Project

3.2 I note that NZTA proposes to stage the project in three sections, as shown in Figure 2 below:

- Section 1 – Brigham Creek Roundabout to Coatesville Riverhead Highway Intersection
- Section 2 - Coatesville Riverhead Roundabout to Taupaki Roundabout
- Section 3 - Taupaki Roundabout to Kumeū.

Figure 2 – Sections / Staging of NZTA Stage 2 Project

3.3 NZTA announced on 1 July 2025 that additional funding has been approved for the project. However, there is uncertainty over the timing of the implementation of this project. A submission by the NZTA for Private Plan Change 100 (**PPC100**) in May 2024 (submission #167) stated that, should funding be obtained "in the coming months" of the date of the submission (it has since been approved), it was anticipated that the project would be complete by mid-2029.

3.4 However, given the delay in the approval of the funding, it is possible that the timing of the completion of the project could be post 2029 as the project will still need to go through detailed design, consenting (including obtaining a designation for any widening works), property purchase and construction.

Private Plan Change 100 – Riverhead

3.5 PPC100 seeks to re-zone Future Urban Zone (**FUZ**) land in Riverhead to residential zoning, including a local centre with possible supermarket, and a retirement village. The location of PPC100 is shown in Figure 3.

3.6 The precise transport infrastructure upgrade 'triggers' remain subject to conferencing and decision by the PPC100 panel. However, the occupation of dwellings within the PPC100

precinct (and potentially also subdivision) would be subject to various transport upgrades being completed and operational, including to the SH16 / Coatesville-Riverhead Highway intersection. In addition, a limit on development, the precise detail of which has not been settled, is proposed until additional lanes on SH16 south of Coatesville-Riverhead Highway have been implemented. Other transport upgrades were proposed, including upgrades to the Coatesville-Riverhead Highway intersections with Old Railway Road and Riverland Road, and upgrades to roads to urban standard and intersections within Riverhead itself.

3.7 The hearing for PPC100 was adjourned in May 2025 to enable expert conferencing to occur on a variety of matters. Of particular relevance to this Fast Track Application, the conferencing is required to address the timing and form of upgrades to the SH16 / Coatesville- Riverhead Highway intersection and of SH16 between Coatesville-Riverhead Highway and Brigham Creek Road. Specific matters are what level of development, if any, could occur prior to the NZTA upgrades.

3.8 At the time of writing the conferencing is on-going, and a date for the hearing to reconvene is yet to be determined. Notwithstanding, a decision on the plan change is likely to be several months away.

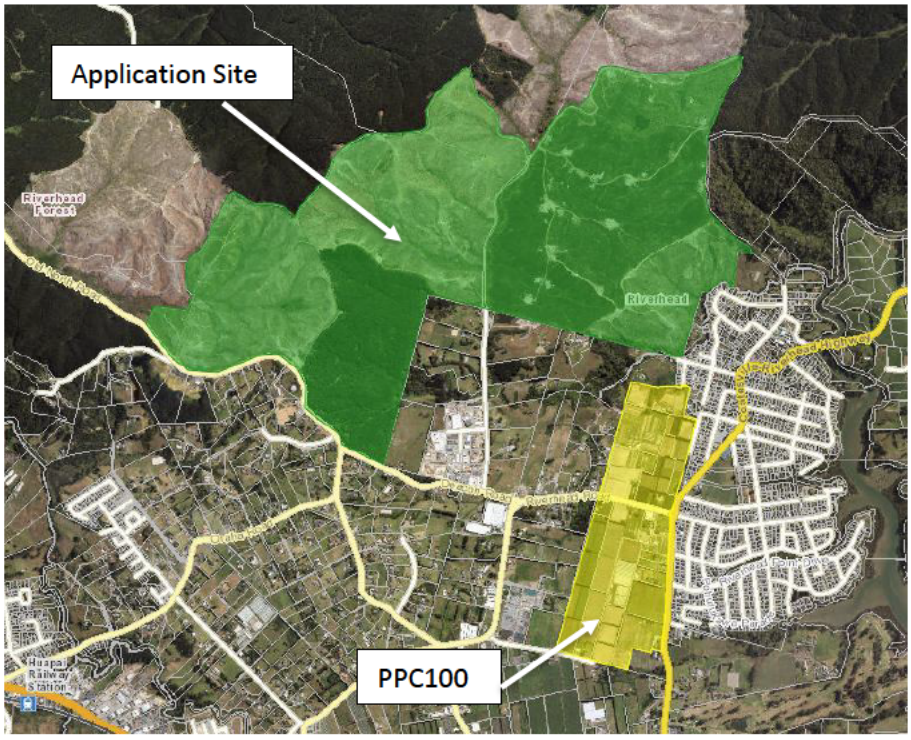


Figure 3 - Location of PPC100 in relation to Application Site

4. Trip Generation and Distribution

4.1 The Commute Specialist Comments Response emphasises that the subject land is already live zoned for Rural – Countryside Living and that the traffic generation from the site has already been anticipated on the road network. However, whilst the land is live zoned, its current use has been for forestry and the application will introduce housing on that land, which is a change of use. The Auckland Unitary Plan Chapter E27.6.1 – Trip Generation identifies that resource consent applications for residential subdivisions with capacity to accommodate more

than 100 dwellings should consider the effects on the transport network of that development as a Restricted Discretionary activity. Therefore, although the land is already live zoned, it is considered appropriate that the trip generation effects of the development on the road network should be considered.

4.2 The Auckland Council Memorandum of Strategic and Planning Matters will address the permitted baseline, but it is understood that the activity has an overall activity status of Non-Complying which, even taking into account Schedule 5, S17(1)(b) of the FTAA provides an assessment which enables a full consideration of the trip generation / transport effects of the development.

4.3 Notwithstanding that I disagree that there is a baseline, the Commute Specialist Comments Response assesses the possible trip generation that could occur from the existing zoning rules as a kind of baseline to demonstrate that the trips from the proposed development would be less than could occur from the site under the Countryside Living Zone. There are issues with this analysis and therefore it is considered that this assessment is incorrect for the following reasons:

a) The baseline on trip generation that Commute is attempting to establish would be subject to a resource consent and is not a permitted activity as of right.

b) The Commute assessment is based on the site being subdivided into 1 Hectare lots, however, E39 Subdivision – Rural[1] requires a minimum lot size of 2 Hectares as a discretionary activity requiring resource consent.

c) The assessment is based on the gross land area and does not take into account land required for infrastructure to support that development, such as access ways. Any assessment should be based on the net developable area.

4.4 Taking the above factors into account, the existing land could generate around 152 trips[2] compared to the 308 trips forecast by Commute for the proposed development (including the retirement village). This high-level analysis shows that the proposed development would result in twice the number of trips, and in any event, a resource consent would be required for the baseline scenario.

4.5 The ITA sets out the trip generation rates forecast.

4.6 The trip rates for the retirement village and the care units are accepted.

4.7 However, the trip rate for the residential component of the development (0.85 trips per dwelling) based on the RTA Guidelines for single dwellings is considered to be low. This is because this site is in a rural area (Countryside Living Zone), it has no access to amenities

[1] AUP Chapter E39 – Subdivision – Rural, Table E39.6.5.2.1 Minimum and minimum average net set areas.
[2] Assessment based on gross land area of 395Ha with a net developable area of 70% assumed, a trip rate of 1.1 trips per dwelling, and providing a net size of each lot of 2 Ha.

within the development or in the surrounding area that are reasonably accessible by public transport, bicycle, or on foot.

4.8 The NZTA Research Report 453 provides trip rates for rural dwellings that range from 1.1 trips per dwelling (50th percentile) to 1.4 trips per dwelling (85th percentile). A higher trip rate in this range for the residential component of the development is considered more appropriate.

4.9 The Commute Specialist Comments Response has undertaken a sensitivity test using a trip rate of 1.1 trips per dwelling for the Countryside Living component of the development. This is considered a more reasonable trip rate for the assessment of the effects.

4.10 The design for the Community Facility at Access 2 includes a car park for non-residents to access walking tracks, therefore, there will be non-development traffic movements associated with the access. The Commute Specialist Comments Response has undertaken a sensitivity test with additional traffic assigned to Access 2. The traffic volumes used for the sensitivity test are accepted. It is agreed with the assessment that these trips do not need to be assigned to the wider network, as many of these will already be on the network as they use the existing informal parking area adjacent to Access 2 for exercise and recreation in the forest area.

4.11 The ITA Section 5.4 briefly summarises the trip distribution. The directional split (in/outbound movements) used in the assessment is considered appropriate. Updated distribution diagrams were provided in the Commute Specialist Comments Response and are generally accepted, except assignment of traffic to Old North Road for citybound vehicles along SH16.

4.12 The distribution has assigned all traffic destined for eastbound SH16 to use Old North Road. This is based on analysis of travel times and distances from Google Maps. The time of day when the assessment was undertaken is not stated.

4.13 From a review of Google Maps on weekdays in August, during the critical AM peak for SH16 and the SH16/Coatesville-Riverhead Highway intersection in particular, Google Maps indicates that the route to SH16 via Coatesville-Riverhead Highway has similar or lower travel times than using Old North Road (as summarised in Attachment 1). Therefore, it is considered that development traffic would be split between Old North Road and Coatesville-Riverhead Highway, particularly when the trip origin is taken into account (e.g. Access 1 or 2, or from Forestry Road).

4.14 As the Coatesville-Riverhead Highway / SH16 intersection is a critical intersection in the wider network, the routing of traffic is important. The wider network effects are discussed further below.

5. Traffic Effects

Wider Traffic Effects

5.1 For the wider road network, State Highway 16 (**SH16**), and in particular the SH16 / Coatesville-Riverhead Highway intersection and the operation of SH16 between Coatesville-Riverhead Highway and Brigham Creek Road are key transport capacity and operational constraints.

5.2 Commute considers[3] that the operation of SH16 and the SH16 / Coatesville-Riverhead Highway intersection is not the developer's responsibility, as the site is some 5km from the State Highway and the wider traffic effects of the development have already been accounted for by the Unitary Plan.

5.3 I have already noted in Section 4 above my disagreement with Commute's comments suggesting that the proposed traffic has already been considered by the Unitary Plan. As to Commute's comments concerning the distance of the site from the State Highway, the extent of the area that needs to be considered as being potentially affected by adverse traffic effects is a matter which needs to be decided in the context of each particular application. In this instance, whilst the distance of the site from SH16 is acknowledged, the Coatesville-Riverhead Highway / SH16 intersection and operation of SH16 is a constraint on the wider network, and in my opinion, a constraint for the development of this site. The traffic distribution analysis I have undertaken demonstrates that development traffic will utilise Coatesville-Riverhead Highway as a primary route to SH16, directly impacting both the Auckland Transport local road network (as discussed further below) and the critical SH16 intersection, meaning that physical distance is less relevant than the direct impact on both networks. Given the nature of this roading network and the potential for flow-on effects from a development of this scale, it is considered that development should be coordinated with the timing of the necessary roading upgrades to support that development. I agree that it is not the developer's responsibility to implement the upgrade.

5.4 The operation of State Highway 16 is the responsibility of the NZTA. NZTA has been invited to comment on the proposals as part of the Fast Track process. At the time of writing, NZTA's position on the effects on SH16 is unknown.

5.5 Whilst NZTA is responsible for the State Highway, Auckland Transport is responsible for the local road network, including Old North Road and Coatesville-Riverhead Highway, and as discussed below, this development has the potential to notably impact the operation of both of these roads, although the effect has not been quantified.

5.6 The Coatesville-Riverhead Highway intersection is acutely congested in the morning peak period with lengthy queues and delays eastbound (towards the city), on SH16, Coatesville-Riverhead Highway and Old North Road. Eastbound motorists on SH16 who have priority over Coatesville-Riverhead Highway frequently give way to vehicles turning to and from Coatesville-Riverhead Highway. These conditions are exacerbated by the operation of the eastbound SH16 between Coatesville-Riverhead Highway and Brigham Creek Road where flow breakdown occurs due to a combination of the volume of traffic and the topography of the road. This flow breakdown has a shock wave effect back to the SH16 / Coatesville-Riverhead Highway intersection, further impacting its operation.

5.7 In the evening peak, there are constraints on westbound capacity on the exit from the SH16 / Brigham Creek Road roundabout where there is a merge from two lanes to one lane. This

[3] Commute Specialist Comments Response, pages 12 and 18.

impacts the efficient operation of this intersection resulting in queues and delays on the westbound SH16, Brigham Creek Road and Fred Taylor Drive roundabout approaches.

5.8 The Commute ITA included an assessment of the SH16 / Old North Road and SH16 / Coatesville-Riverhead Highway intersections, but this has not been updated in the Commute Specialist Comments Response; the ITA analysis cannot be used to understand the effects on SH16 as the traffic modelling does not reflect the actual operation of these key intersections. Therefore, the effects of the development on these SH16 intersections have not been quantified, rather, the Commute Specialist Comments Response has relied on Stage 2 of the SH16 Waimauku to Brigham Creek Road project being in place to accommodate the forecast traffic.

5.9 I note that the ITA that supported PPC100 applied a similar approach based on the assumption that the SH16 / Coatesville-Riverhead Highway intersection would be upgraded to a roundabout; no analysis was undertaken on the existing intersection arrangement in that ITA due to the acknowledged existing congested nature of the existing intersection.

5.10 As outlined in paragraphs 4.12 and 4.13, I consider that development traffic would likely be split between Coatesville-Riverhead Highway and Old North Road, rather than solely confined to Old North Road, when travelling to SH16 (as assessed by Commute). Therefore, both of these congested routes would be affected by development traffic.

5.11 Given the congested nature of the existing SH16 / Coatesville-Riverhead Highway intersection I consider that the intersection will be required to be upgraded prior to the occupancy of dwellings within the subject site. This would address the actual and potential effects on the Auckland Transport road network on Old North Road and Coatesville-Riverhead Highway and would be consistent with the current proposed Precinct Provisions for PPC100.

5.12 I do note that there was some discussion at the PPC100 hearing that a threshold of 30 dwellings could occur prior to the upgrade, however, there was no specific evidence presented to support this threshold.

5.13 With regard to the section of SH16 between Coatesville-Riverhead Highway and Brigham Creek Road, as outlined above, there are operational issues for the eastbound SH16 in the morning peak and westbound in the evening peak. Development traffic would add to these operational issues.

5.14 The subject of the four-laning of SH16 between Coatesville-Riverhead Highway and Brigham Creek Road was a key point of discussion for PPC100 and expert conferencing as to whether any or some development could occur prior to the implementation of this part of the Stage 2 project. There was disagreement between the traffic experts on this matter, with some experts considering some development could occur prior to the four-laning and others considering, on the basis of the assessment provided, that there should be no development. The analysis that was undertaken for PPC100 did not take into account this proposed development, and therefore, the cumulative effects are not understood. In my view, without further analysis, I consider that no development should occur prior to the four-laning. There

may be some scope for development before these upgrades, however, I do not have sufficient information to recommend such a threshold.

5.15 Based on the above analysis, I consider that dwellings should not be occupied prior to the implementation of the NZTA Stage 2 project, both the SH16 / Coatesville-Riverhead Highway intersection upgrade and the four-laning of SH16 between Coatesville-Riverhead Highway and Brigham Creek Road (i.e. Section 1 of the Stage 2 project as depicted in Figure 2 above). The limit on dwellings should also apply to the retirement village, as although they have a lower trip rate than the Countryside Living dwellings, the proposed number of units is greater (296 units (including care beds) compared to 208 dwellings).

5.16 In stating the above recommendation, I acknowledge that the application does not actually seek consent to construct dwellings at this time, rather it provides for the land use activity for the 260 retirement village units and 36 care beds as an Integrated Māori Development, and proposes vacant lots for the residential component of the development. I am aware that the dwellings will become a permitted activity once each lot is established by subdivision and that the application includes a consent notice and other controls around the form of the development. Therefore, the precise wording of any condition to achieve the recommendation of the dwelling / retirement village unit not being occupied prior to the completion of the NZTA Stage 2 Project would need careful consideration.

5.17 I consider that there should be consistency in the thresholds adopted for the timing of the NZTA Stage 2 improvements and the occupation of dwellings for this development and any dwellings for PPC100. However, should the position on PPC100 change, I consider that any conditions limiting the quantum of development for the subject application should not be more onerous than those for PPC100 as the subject site is live-zoned land.

5.18 The Commute Specialist Comments Response agreed that the Section 1 of the NZTA Stage 2 Improvements should be implemented prior to development[4].

5.19 I am aware of the provisions of AUP Chapter E21[5] in relation to development of Treaty settlement land and infrastructure. I have given consideration to potential alternative approaches to addressing the transport effects of the development on the SH16 intersections (and in particular Coatesville-Riverhead Highway and Old North Road) but I consider that the NZTA Stage 2 project is most appropriate.

5.20 In coordinating the development with the NZTA project, it is noted that the Stage 2 project is funded although the exact timing of construction has yet to be confirmed.

Local Road Network Effects

5.21 Traffic modelling using the software package SIDRA has been undertaken for key intersections in the vicinity of the site, with results presented in the Commute Specialist Comments Response. The local road intersections selected for modelling are considered appropriate.

[4] Commute Specialist Comments Response, 19 August 2025, Section 1.1.6 – Other Comments, Item 2.
[5] AUP Chapter E21 Policy E21.3(7)

5.22 The modelling has been undertaken for the existing traffic volumes, with the forecast development volumes, and a test with the forecast development volumes with PPC100.

5.23 Whilst PPC100 has yet to be approved, as it is currently going through a hearing, it is considered appropriate that the cumulative effects should be assessed with PPC100 in place, should it be approved.

5.24 The Commute comments on the calibration of the local road intersections are accepted.

5.25 For the Deacon Road / Riverhead Road intersection, this intersection is an unusual layout, and this is not reflected in the traffic model. While the model may not accurately represent the true operation of the intersection, it is forecast to operate well within capacity and thus amendments to the model layout are unlikely to make a substantial difference to the analysis outcomes in this instance.

5.26 The assessment of the Riverhead Road / Coatesville-Riverhead Highway roundabout forecasts that the intersection, with the development and PPC100 traffic, would operate in the AM peak at a Level of Service (LOS) C, with the Riverhead Road approach operating over capacity (LOS E). It is noted that PPC100 adds a significant volume of traffic to the intersection, including the Riverhead Road approach, whereas the proposed development adds a relatively small volume of traffic (31 vehicles).

5.27 As noted in the ITA, the PPC100 forecast flows did not take into account pass-by or trip diversion for the local centre zoning, and therefore, the traffic volumes have not been discounted and thus the cumulative effects may be overrepresented. It is also noted that the modelling for PPC100 forecast that the intersection would operate with a satisfactory level of performance (LOS C). The key difference appears to be the base traffic volumes used in the analysis for PPC100 and for this development.

5.28 Overall, the traffic modelling for the local network intersections does not raise any significant concerns.

Access Operation

5.29 The vehicle accesses on Old North Road have been modelled in SIDRA.

5.30 The modelled layouts of Access 1 and Access 2 do not reflect the layout proposed in the engineering drawings, which include a right-turn bay into the site. This will result in the models overestimating the effects on Old Road North as vehicles waiting to turn right into the site will delay other through vehicles. Whilst the models should include the right turn bay, the assessment represents a worst case.

5.31 The modelling of the vehicle accesses into the site forecast that they would operate with an acceptable level of performance and with no significant queuing or delay.

6. Proposed Accesses

6.1 New or upgraded accesses are proposed onto the existing road network to provide access to the site.

6.2 Layout drawings of Access 1 (opposite Pinetone Road), and Access 2 (via Browns Road) have been provided. No layout plans are available for the other proposed access points from Old North Road but the Commute Specialist Comments Response provides drawings of their location and visibility splays.

6.3 All the vehicle crossings would need to comply with Auckland Transport standards. Whilst exact detail can be determined through the vehicle crossing application process, it will be important that the designs also comply with the Auckland Unitary Plan Standards for Vehicle Crossings set out in Chapter E27 including width at the site boundary and gradients.

6.4 The following comments are made on each access.

Access 1 – Opposite Pinetone Road

6.5 The existing access to the site is to be upgraded with a right-turn bay and flush median markings on Old North Road.

6.6 The design does not sufficiently take into account Pinetone Road. Whilst a matter of detail, the intersection will need to consider how right turn movements to and from Pinetone Road will be accommodated within the proposed intersection. As the proposed access is to be a private JOAL, it may be more appropriate to provide the right turn pocket for movements to and from Pinetone Road whilst providing a space within the flush median markings for vehicles to turn right into the site.

6.7 The drawings show an access is feasible. The exact detail can be determined during the Engineering Plan Approval (**EPA**) process. Widening for the intersection is to be undertaken along the site frontage, and if additional land is required to form the access, then this should be available along the site frontage.

6.8 The visibility splays for the intersection extend over the berms either side of the access. The Scheme Plan drawings indicate that the land to the east of the vehicle crossing would be subject to a land covenant to maintain the sight lines east of the access. This is considered appropriate as vegetation may grow over time that could block the sight lines to the east. To the west of the vehicle crossing, there is a berm and embankment. It is considered that the bank and vegetation would need to be removed or modified to maintain the sight lines. This is highlighted in Figure 4.

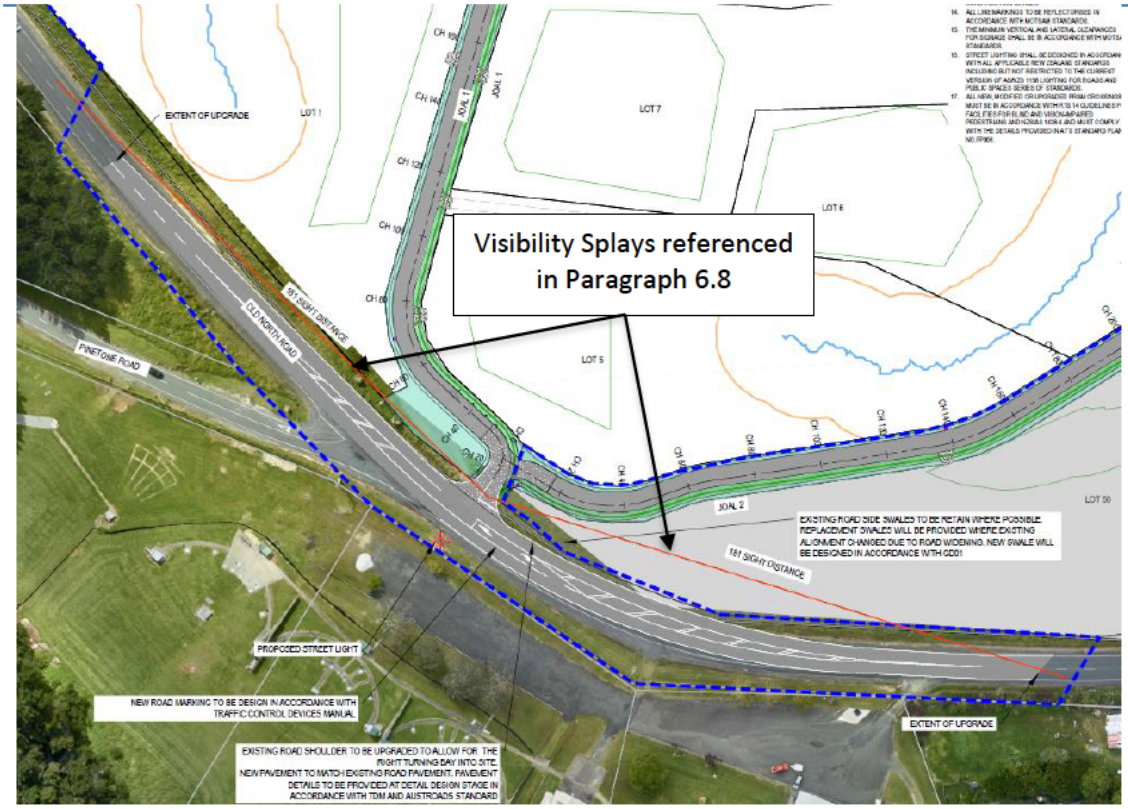


Figure 4 - Proposed Access 1 Layout with visibility splays highlighted

6.9 The Scheme Plans show that some of the land along the site frontage either side of the vehicle crossing will be vested. The extent or form of any modifications for this land to create the vehicle access is not clear.

6.10 Vehicle tracking for the vehicle access shows that a 10.3m truck extends slightly into the right turn pocket. The design will need to be adjusted so that the truck will not conflict with a vehicle waiting in the right turn bay. This is a matter of detail that can be addressed at EPA stage.

6.11 The vehicle access splits into two JOALS just north of the vehicle crossing. The traffic modelling forecasts a short queue, and this would not block back to where the JOAL splits. Whilst this is the case, and the forecast volume of traffic using this access is low, consideration needs to be given to the design so that vehicles turning into the site to travel to the eastern JOALS are not impeded from entering the JOAL should there be a queue exiting the site. This is necessary to avoid traffic queuing back onto Old North Road.

6.12 Gates are proposed on both the JOALs. As stated in the Commute Specialist Comments Response, these would be set back at least 6m from the intersection of the two JOALs. The exact location of the gates can be determined at EP stage. The proposed formation of the JOALS and locations of the gates effectively form a T-shaped turning head, which could allow a vehicle to turn around should it not be able to enter the site. This would prevent the vehicle from reversing out onto Old North Road, causing a safety hazard.

It is considered that Access 1 is within 10m of Pinetone Road, therefore, E27.6.4.1(2) and (3) - Vehicle Access Restrictions would apply due to the change in use of the site. The vehicle crossing should therefore be assessed as a restricted discretionary activity. Notwithstanding,

there does not appear to be any specific existing safety issues associated with this location (including Pinetone Road intersection), there would be adequate visibility from the site access (subject to the recommended conditions to keep visibility splays clear), and there is no existing transport infrastructure (footpaths, cycle lanes or bus lanes) affected by the access. The traffic modelling shows that the intersection would operate efficiently. Furthermore, Pinetone Road has low traffic volumes and is a cul-de-sac. Therefore, it is considered that the proposed vehicle crossing should not affect the safe or efficient operation of the adjacent road network.

Access 2 - Browns Road

6.13 This existing access is to be upgraded with a right-turn pocket. The access is located on the outside of a bend.

6.14 The ITA has considered the sight distances and has reported that these meet the relevant AustRoads Standards. Further detail is provided in the Commute Specialist Comments Response based on surveyed vehicle speeds and this concludes visibility meets the standard. However, the visibility splay to the west from the site access extends across the property boundary on land south of Old North Road. This existing fence line is set back from the property boundary. There is a risk that the fence line could be adjusted in the future, into the visibility splay from Access 2, although, this would impact the visibility from the vehicle crossing for the property to the south.

6.15 Considering a vehicle turning right into the site, the visibility splay to the west also extends across the property boundaries to the south but will be impaired due to the existing fence line. This would restrict visibility to motorists approaching from the west. Measures will be required to mitigate the shortfall in visibility, particularly given the posted speed limit of 80km/h. A potential option is to relocate Access 2 to the location of Access 3, with the accessway being diverted around the rear of the proposed community area and parking area.

6.16 A gate is proposed on Access 2, 35m from Old North Road. Delivery vehicles, such as couriers, would need access from time to time. An assessment has not been provided of the operation of the gate or potential for queuing back from the gate to Old North Road. However, 35m provides space for around 7 vehicles to queue. A suitable area should be provided to enable vehicles to turn around should they be unable to pass through the gate (e.g. no-one is home to let them through the gate).

6.17 Vehicle tracking for the vehicle access shows that the 10.3m truck extends slightly into the right turn pocket. The design will need to be adjusted so that the truck will not conflict with a vehicle waiting in the right turn bay. The vehicle tracking is a matter of detail that can be addressed at EPA stage.

Access 3

6.18 The location of Access 3 and an assessment of visibility is provided in the Commute Specialists Comments Response. Visibility from the access meets the AustRoads standard.

6.19 Any gates would need to be set back sufficiently far into the site to enable a vehicle to wait clear of Old North Road for the gate to be opened.

Access 4

6.20 The location of Access 4 and an assessment of visibility is provided in the Commute Specialists Comments Response.

6.21 Visibility from the access meets the AustRoads standard for visibility to the east.

6.22 There is a short fall in visibility to the west against the AustRoads standard (131m required, but only 110m available). The Commute Specialist Comments Response has assessed the visibility to the west against RTS-6 Guidelines for Design of Vehicle Crossings on the basis that the access only serves one dwelling. RTS-6 requires visibility of 105m for an operating speed of 80km/h. The constraint on visibility is the vertical alignment of Old North Road.

6.23 There may be scope to adjust the location of the vehicle crossing to improve visibility to the west whilst maintaining sufficient visibility to the east, but the vertical alignment of Old North Road is still likely to be a constraint. An alternative would be for this single residential lot to be accessed from either JOAL 4 or JOAL 5. This would remove the safety risk associated with the shortfall in visibility from Access 4.

6.24 Any gates would need to be set back sufficiently far into the site to enable a vehicle to wait clear of Old North Road for the gate to be opened.

Access 5

6.25 The location of Access 5 and an assessment of visibility is provided in the Commute Specialist Comments Response.

6.26 Visibility from the access to the west is just short of the AustRoads standard (157m required, 156m provided). However, the assessment against the AustRoads sight distance has not taken into account the downhill gradient of Old North Road on the approach to the access which would increase the shortfall in visibility.

6.27 There is a short fall of visibility to the east against the AustRoads standard (157m required, but only 145m available). The Commute Specialist Comments Response has assessed the visibility to the west against RTS-6 Guidelines for Visibility at Driveways on the basis that the access serves nine dwellings and is a low use vehicle crossing (less than 200 movements per day). RTS-6 requires visibility of 105m for an operating speed of 80km/h. The constraint on visibility is the horizontal alignment of Old North Road and property boundaries. Adjustments to its location would be unlikely to result in improvements to visibility.

6.28 Mitigation should be considered such as signage highlighting the presence of the vehicle access and the provision of a right-turn bay; these measures would highlight the presence of the vehicle access.

6.29 Any gates would need to be set back sufficiently far into the site to enable a vehicle to wait clear of Old North Road for the gate to be opened.

Forestry Road / Deacon Road Access

6.30 This intersection will be the main access route from the retirement village as well as some of the Countryside Living dwellings. The ITA notes that the existing intersection has some lane widening on the south side of Deacon Road that allows westbound vehicles to pass another vehicle waiting to turn right into Forestry Road. The proposed development will increase the volume of right-turning traffic. An assessment was requested to determine whether further upgrades are required to provide a right-turn bay with the proposed development. A specific assessment has not been provided.

6.31 AustRoads[6] sets out when a right-turn bay is warranted (Channelised Right Turn treatment) based on the major traffic volumes on the priority road and right-turning flows. From the traffic volumes used in the traffic modelling, a right-turn bay is warranted. The proposed development is forecast to add around 90 vehicles per hour to the movement in the PM peak. It is considered that a channelised right-turn bay should be provided for safety and operation (refer to Figure 5).

Figure 5 - Forestry Road / Deacon Road Intersection

Deacon Road / Riverhead Road

6.32 The ITA has assessed the safety record of the intersection[7]. The assessment identifies that there is a crash trend at the intersection. No physical changes at the intersection are proposed.

6.33 The ITA identifies that the visibility from Deacon Road to the west along Riverhead Road is limited due to the alignment of Riverhead Road. The deficiency is not reported but from a review of aerial mapping and based on an 80km/h design speed, 181m of visibility is required but only around 120m is available. It appears that this limited visibility could be a contributory factor to the existing crash trend, as there were a number of crashes that involved right-turning movements at this location. Whilst the development itself does not impact on the

[6] AustRoads Guide to Traffic Management – Part 6 Intersections, Interchanges and Crossing Management, Section 3.3.6 Figure 3-25

[7] Integrated Transport Assessment, Commute, 1 May 2025, Section 7.1

visibility at the intersection, it does triple the right turn volume from Deacon Road in the AM peak[8] thereby increasing the crash risk exposure.

6.34 Mitigation measures may be appropriate, such as advisory speed signs or speed-activated warning signs on the western approach to the intersection (refer to Figure 6).

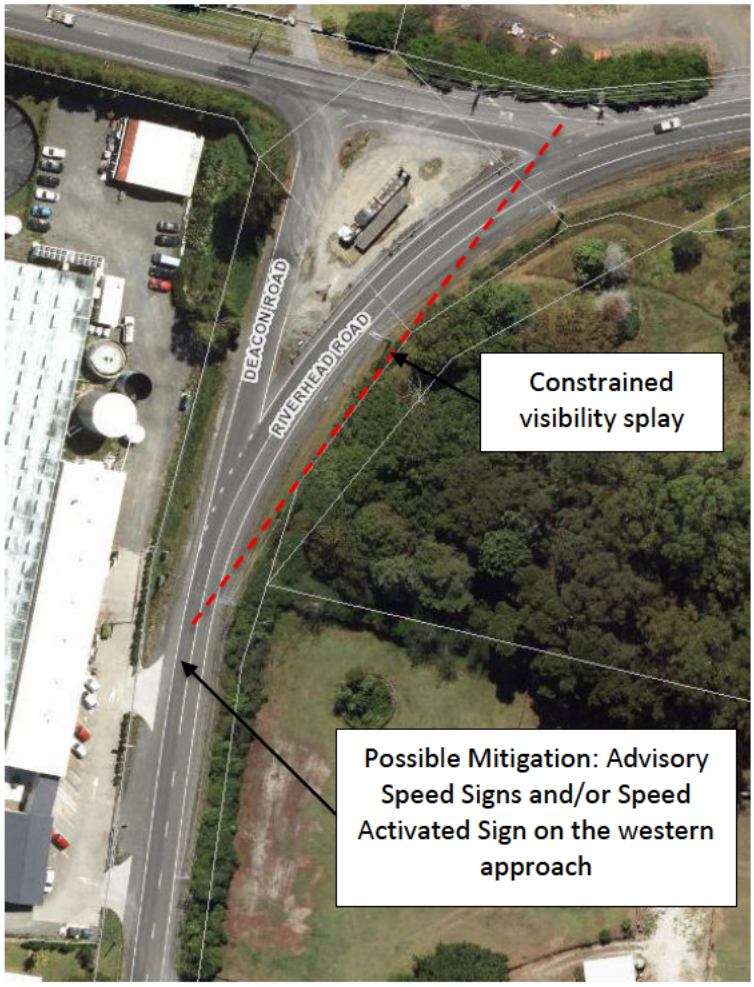


Figure 6 - Deacon Road / Riverhead Road Intersection

Network Safety

6.35 The Commute Specialist Comments Response provides analysis of the safety performance of the local road network in the vicinity of the site, particularly the key routes connecting the site to the wider road network. These reveal a pattern of crashes associated with speed and loss of control. Whilst driver behaviour is a contributory factor, the nature of the roads is also a factor (including horizontal and crest curves).

6.36 Examination of the KiwRap-Urban Collective and Personal Risk ratings for these rural roads show that the Old Road North Road, adjacent to Access 1 and 2, and Riverhead Road have a Medium-High risk rating and Old North Road between Riverhead Road and SH16 has a High risk rating. All these roads will be used as the primary routes to access the site from the wider road network and will increase the exposure of crashes on these rural roads.

[8] Approximately 80 additional vehicles are forecast to make the turn in the AM peak compared to about 45 existing right turn vehicle movements

6.37 The Commute Specialist Comments Response states that as the area is gradually urbanised, there will be lower risk ratings. Commute also considered that as the land is already live zoned for Countryside Living it could already be generating traffic and therefore development is anticipated and aligns with the Unitary Plan.

6.38 The predominant zoning within the area is Countryside Living. Therefore, it is considered that the roads are unlikely to be urbanised with kerb and channel when it is gradually developed. This is evident in the subject application where kerb and channel is not proposed along the site frontages along Old North Road. Therefore, whilst there are some upgrades in relation to turning bays at accesses, the overall nature of the roads is unlikely to change substantially from what is currently present. Therefore, it is considered that the risk rating is unlikely to reduce over time, rather it will increase as traffic volumes increase with development.

6.39 Specific locations have been identified in the assessment at intersections and accesses, where the proposed development is assessed to affect the safe operation of the local road network in the vicinity of the site.

7. Upgrade to Forestry Road

7.1 Forestry Road is proposed to be upgraded and the northern part of the road vested with Council. The upgrade includes altering the vertical alignment of the road and some minor horizontal realignment. Some retaining walls and batters are required.

7.2 The carriageway is proposed to have a width of 6.0m (including channels) which provides for 2.7m wide lanes. These would meet the minimum lane width requirement in Auckland Transport's Transport Design Manual (TDM) but would be less than the preferred width. The proposed grades along the road are all less than 8%.

7.3 Vehicle tracking has been provided along the upgraded sections of Forestry Road to demonstrate that a 6.3m van and a 10.3m truck would be able to pass without conflicting.

7.4 The proposed retaining walls vary in height along the length of the road and are in excess of 4m in places. Auckland Transport should confirm the acceptability of these retaining walls and other structures or embankments for vesting.

7.5 Several vehicle crossings will need to be modified to tie in with the modified vertical alignment of Forestry Road. The civils drawings show that the access ways associated with these vehicle crossings will need to be adjusted some way into the properties. Property owner approval will be required where alterations to vehicle access ways are proposed.

8. Shared Path between Retirement Village and Riverhead

8.1 A shared path is proposed to connect between the retirement village and the eastern boundary of the site. A connection would be provided from the boundary through to an existing pedestrian access way from Mill Grove.

8.2 It is understood that the proposed shared path would be a private path but that there would be an easement in favor of Auckland Council for public access; the footpath is a matter for Council to assess. Notwithstanding, it is noted that the footpath has a gradient 11.6% over a distance of

362m. This would present challenges for some pedestrians due to the grade if there are no rest areas incorporated into the design. This is of particular relevance as the path could be used by less mobile pedestrians or those with mobility scooters from the retirement village.

8.3 It is understood that the path is proposed to be used by a four-wheeled drive golf carts that would not be used beyond the site boundary. This is considered appropriate, as the use of golf carts beyond the site potentially poses a hazard to pedestrians on the public footpath connection from Mill Grove across the bridge and in the reserve area, and there is uncertainty as to the legality of using such a vehicle on the public roads to connect to the centre of Riverhead. I consider a condition of consent should be imposed to prevent golf carts being used beyond the site.

8.4 Mill Grove connects to Duke Street. There are no footpaths on Mill Grove or on Duke Street between Mill Grove and Coatesville-Riverhead Highway. Therefore, if the connection to Mill Grove is constructed, there will be a gap in the walking network for pedestrians to walk to the centre of Riverhead.

8.5 The provision of the footpath is supported but there are concerns over the deliverability of the facility within the site and the suitability of the existing active mode network to accommodate active modes travelling between Riverhead and the site.

9. JOAL Design

9.1 The design of the JOALs is in the remit of Council to comment. However, it is noted that several of the JOALs are proposed to have easements over them for pedestrian Right of Ways in favour of Auckland Council. The purpose of the pedestrian ROWs or what they connect to is not stated. There are no pedestrian facilities proposed along these JOALS and therefore pedestrians would be sharing them with traffic.

9.2 For the JOALS accessed from Access 1, there is no car parking for the public adjacent to the road reserve. If there is anticipated demand for the public to access walking tracks via the JOALS, then parking will be required in the vicinity of Old North Road; the JOALS are intended for private vehicle use only with gates preventing public access. There is no suitable location within the road reserve for motorists to park, which could cause a safety hazard if vehicles park along Old North Road.

10. Construction

10.1 The ITA states that construction traffic can be managed through a CTMP and that the main accesses will be via Old North Road and Forestry Road.

10.2 The construction is likely to include earthworks and the use of heavy vehicles. It is considered that Accesses 1 and 2 on Old North Road should be upgraded to their final form to allow for construction within the site. This is due to the increased traffic movements at these locations compared to the existing situation and the fact that this traffic will include heavy vehicle movements.

10.3 Commute concur that Access 1 and 2 should be upgraded before construction begins on site[9].

11. Summary and Conclusions

11.1 This review has assessed the traffic engineering and road safety implications of the proposed Rangitoopuni development, comprising 208 vacant lots for dwellings and a retirement village with 260 units and 36 care beds. While the site is (mostly) zoned Countryside Living, the nature of the proposal represents a significant change in land use, warranting consideration of trip generation, access design, and network impacts.

11.2 The extent of network effects assessment has been determined based on the specific characteristics of this development and the potential for flow-on effects. The traffic distribution analysis demonstrates that development traffic will utilise Coatesville-Riverhead Highway as a primary route to SH16, directly impacting both the Auckland Transport local road network and the critical SH16 intersection, meaning that physical distance is less relevant than the direct impact on both networks.

11.3 Key findings are summarised as follows:

- **Trip Generation**: The land is currently primarily zoned Countryside Living but has currently been used for forestry. The proposed development will change the use of the land to dwellings and a retirement village and will add traffic to the surrounding local road and wider road networks. The change of activity, coupled with the proposed quantum of dwellings enabled, triggers a need to assess the traffic effects of the residential development.
- **Network Effects**: The development will increase traffic volumes at the SH16 / Coatesville-Riverhead Highway intersection and on SH16 which would adversely affect the operation of the local roads (Old North Road and Coatesville-Riverhead Highway). The NZTA Stage 2 SH16 Waimauku to Brigham Creek Road project upgrades the SH16 / Coatesville-Riverhead Highway intersection to a roundabout and would four-lane SH16. This project is funded and will address the existing constraints, although the exact timing of when it will be delivered is uncertain. The development should be coordinated with the NZTA project such that occupancy of dwellings should be contingent on the implementation of the project (i.e. the project being completed and operational).
- **Safety Considerations**: The review identifies increased crash exposure at several intersections, particularly Deacon Road / Riverhead Road, where visibility limitations and increased right- turn volumes warrant mitigation. The surrounding road network exhibits medium to high collective and personal risk ratings, which are unlikely to reduce even as development occurs in the area as the roads will remain largely rural in nature.
- **Site Access Design**: Five access points are proposed from Old North Road, with varying degrees of compliance with visibility standards.
    - Access 1: This is considered feasible but requires refinement of the design during the Engineering Plan approval stage, and conditions imposed to ensure that sight lines from the access along Old North Road are maintained.

[9] Commute Specialist Comments Response, 19 August 2025, Section 1.1.6 Item 5.

- Assess 2: The form of the access is considered appropriate, however, there are shortfalls in the sightlines from the site access and from the right turning bay where the visibility splay extends over third-party property. This is a safety concern on this high-speed rural road. This will require addressing and / or mitigation, such as relocating the access. Some refinements to the design will also be required at EP stage for vehicle tracking.
- Access 3: No particular concerns are noted on this access.
- Access 4 and Access 5: There are short falls in the visibility at both of these accesses. Access 4 serves a single residential lot and there may be scope to improve the sightlines by relocating the access slightly, although the vertical alignment of Old North Road may still be a constraint; an alternative access arrangement for this lot would be preferable. For Access 5, the visibility assessment has not taken into account the gradient of Old North Road and as this access serves nine lots, mitigation will be required to address potential safety due to shortfalls in available visibility.
- Gates are proposed at all accesses from Old North Road. These will need to be positioned sufficiently far into the site so that queued vehicles can wait clear of Old North Road whilst the gate is opened.

- **Upgrades to the Deacon Road / Forestry Road intersection and Deacon Road / Riverhead Road intersections** are considered necessary to address safety effects of the development. For the Forestry Road intersection, a formal channelised right turn bay should be provided, and at the Riverhead Road intersection mitigation is required to address increased safety risks due to the increase in traffic volumes making the right turn out of Deacon Road where visibility is constrained.
- **Infrastructure Integration**: The proposed upgrade and vesting of Forestry Road is generally supported, subject to confirmation with Auckland Transport of the acceptability of retaining structures and maintenance responsibilities. Approval will be required from property owners where vehicle accesses are affected by the Forestry Road upgrade and works are required in third party land.
- The shared path linking the retirement village to Riverhead raises accessibility and safety concerns, particularly for mobility-impaired users due to the gradient of the proposed path and missing footpath connections along Mill Grove and Duke Street.
- To facilitate safe access for construction traffic (including heavy vehicles), Accesses 1 and 2 should be upgraded to provide right turn bays.

11.4 Overall, the development's scale and rural context necessitate targeted infrastructure upgrades and careful coordination with broader network improvements to ensure safe and efficient integration into the transport system.

11.5 It is considered that conditions are required on the following matters to address effects:

a) The occupation of dwellings or retirement units must be coordinated with the completion and operation of Section 1 of the NZTA Stage 2 – Waimauku to Brigham Creek Road

Project, specifically the upgrade of the SH16 / Coatesville-Riverhead Highway Intersection to a roundabout and the four-laning of SH16 between Coatesville-Riverhead Highway and Brigham Creek Road. Whilst a planning matter, I anticipate that consent notices may be required to secure this requirement, particularly in relation to the residential subdivision.

b) Old North Road Access 1 – Access Conditions

i. A covenant must be provided over land to the east of the access to keep the visibility splay clear of vegetation and other obstructions to the sight lines between westbound motorists on Old North Road and motorists exiting Access 1; and

ii. Access 1 must be designed to provide clear sight lines across the berm within the road reserve to the west of the access.

c) Access Gates:

All access gates for Access 1, 2, 3, 4 and 5 must be located sufficiently far from the road reserve boundary with Old North Road so that vehicles queued for the gates to open do not extend back onto Old North Road.

d) Deacon Road / Forestry Road

A channelised right turn facility must be provided for the right turn movement from Deacon Road to Forestry Road.

e) Deacon Road / Riverhead Road

A speed-activated sign must be installed on the eastbound Riverhead Road approach to the intersection, and advisory speed signs must be investigated on the same approach to the intersection.

f) Construction Access

Access 1 and Access 2 must be upgraded to include right turn bays on Old North Road in accordance with the final approved designs prior to the commencement of construction on site.

g) Vehicle Accesses

i. Access 2 must be moved to the location of Access 3 to address the shortfall in visibility. A right-turn bay should be provided as currently proposed for Access 2.

ii. Access 4 must be removed and the lot should be accessed via either JOAL 4 or 5.

iii. Access 5 must include a right turn bay on Old North Road and advanced warning signs of a concealed access should be provided on Old North Road for eastbound traffic.

h) Retirement Village Shared Path

i. Golf carts using the shared path must not be permitted to be used with the Mill Grove public reserve or on the public roads or footpaths.

In relation to the recommended conditions 11.5 (b), (c), and (g), I consider that if the Expert Panel were minded to approve the application, that these matters would be best addressed prior to the decision so that all appropriate matters and effects can be properly considered.

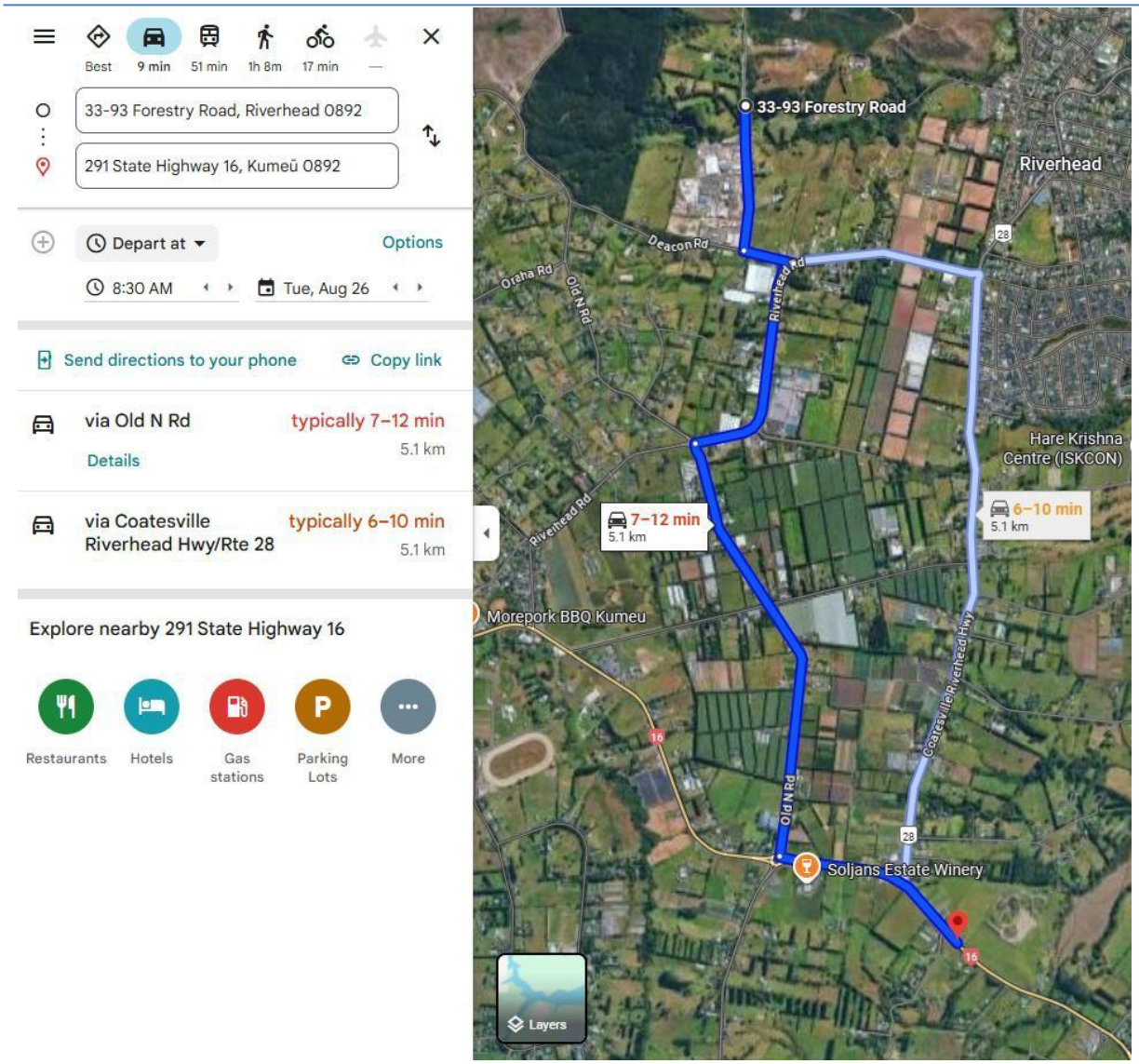
Attachment 1 – Route Assessment

An assessment of the potential routing of vehicles from the development to SH16 east of Coatesville-Riverhead Highway has been undertaken using Google Maps.

The Commute Specialist Comments Response provides extracts from Google Maps that show relative journey times from Access 2. The time of day as to when these journeys have been assessed is not stated. The most critical period for routing of traffic is considered to be the AM peak. A similar exercise to that presented in the Commute Response has been undertaken but specifically based on journeys in the AM peak. In addition, the assessment has considered traffic from an origin at Access 2 and from an origin on Forestry Road as it was considered that this may influence route choice.

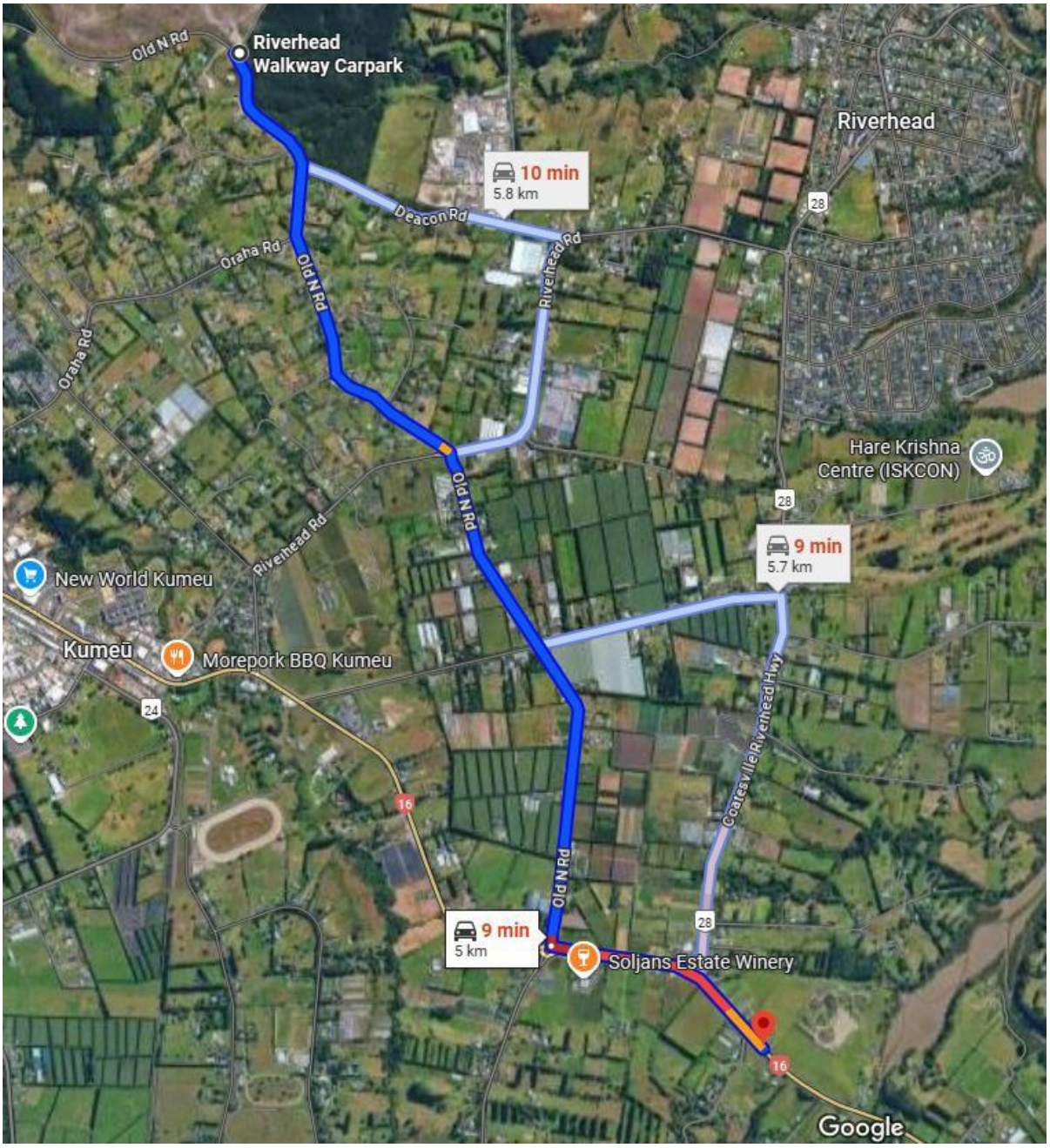
These are illustrated below.

Origin of trip: Forestry Road - Leave at 8:53am on Thursday 21st August 2025 from Forestry Road

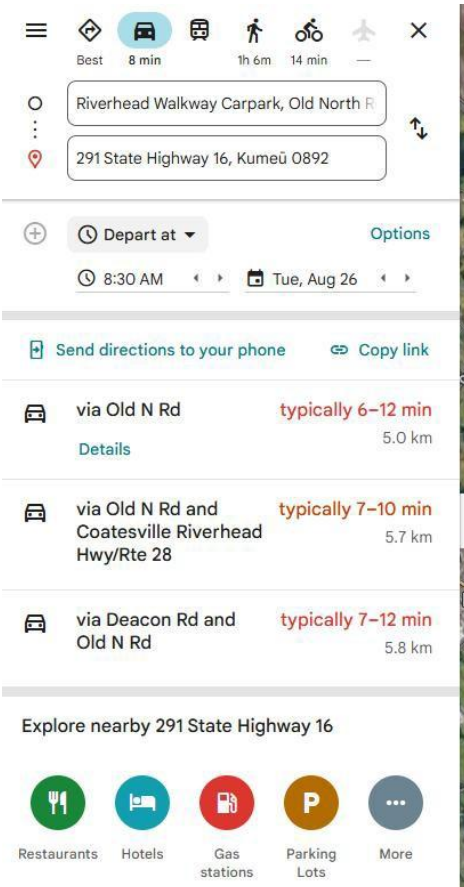


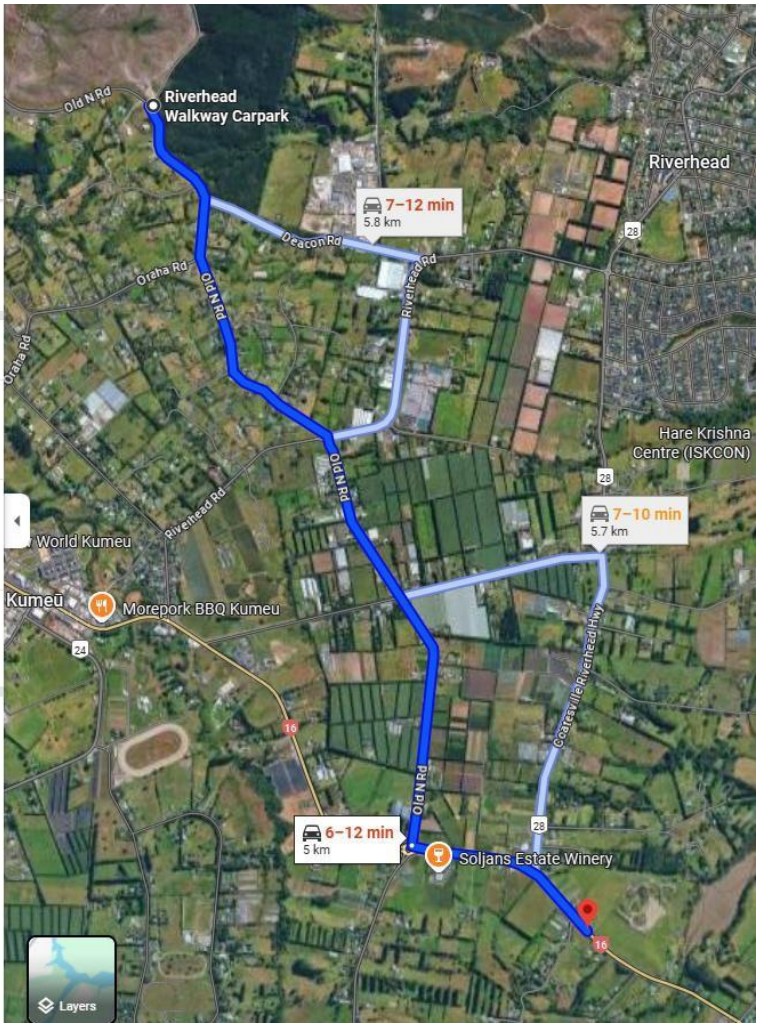
From an origin on Forestry Road in the AM peak on Thursday 21st August 2025, Google Directions indicated that to travel to SH16 east of the Coatesville-Riverhead Highway intersection using Coatesville-Riverhead Highway was quicker than Old North Road. A more general assessment for a trip starting at 8.30am on a Tuesday in August revealed that the range in journey times via Coatesville-Riverhead Highway was 6 to 10 minutes, and the range in journey times via Old North Road was 7 to 12 minutes. This suggests, that in the morning peak period that using Coatesville-Riverhead Highway is typically quicker than Old North Road and more reliable.

Origin of Trip - Access 2 - Leave from Access 2 at 8:49am on Thursday 21st August 2025



Typical times at 8.30am Tuesday morning in August





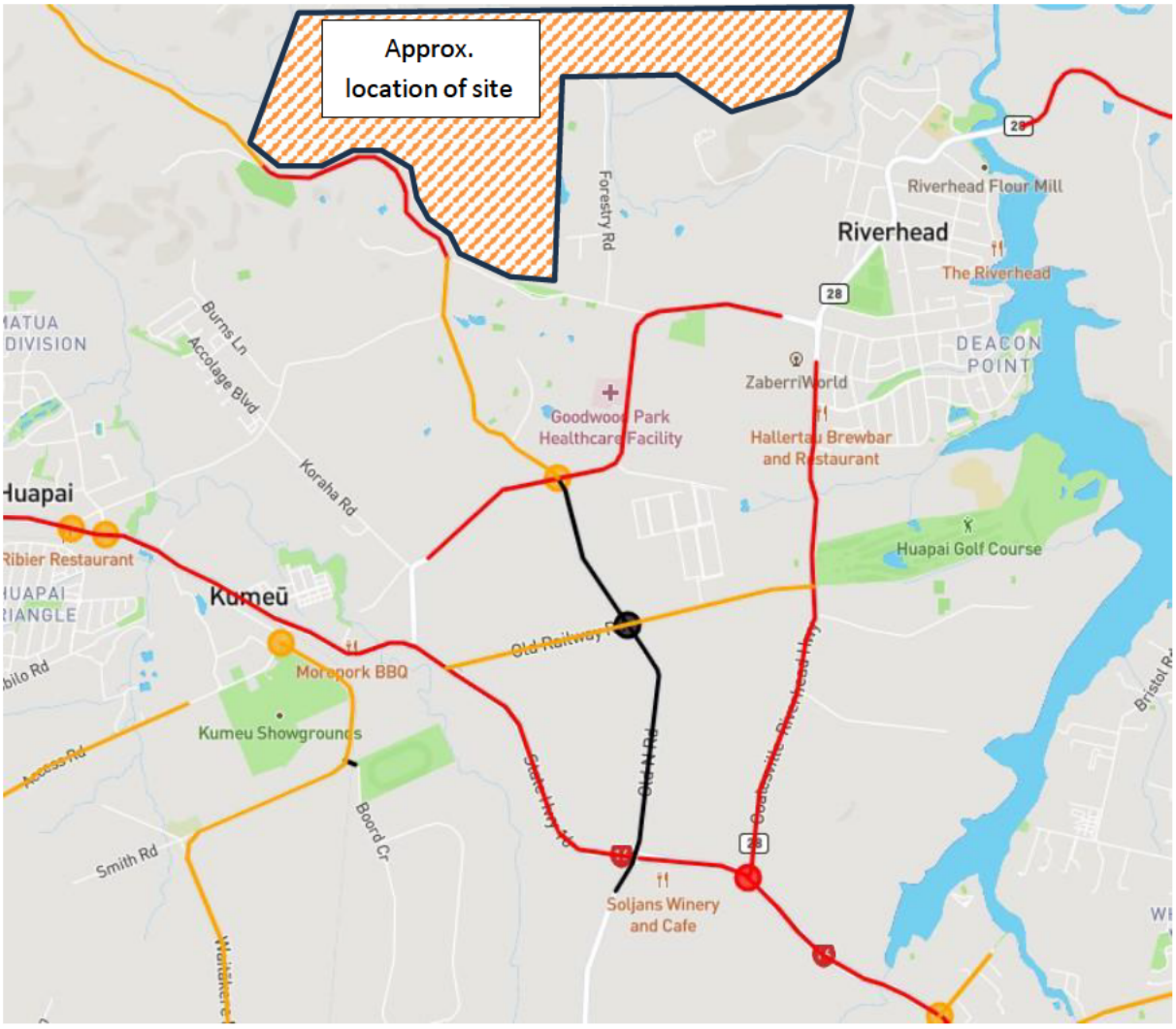
For motorists from Access 2, a similar exercise was performed. For the trip on Thursday 21st August 2025, this showed that the travel times via Coatesville-Riverhead Highway compared to Old North Road were the same. The range of travel times for a Tuesday in August showed that the trip via Coatesville-Riverhead Highway was 7-10 minutes compared to 6-12 minutes via Old North Road. Whilst this shows it could be quicker to use Old North Road, with the greater range in travel times, there is less certainty in the time taken to undertake this leg of the journey. Google Maps suggests for vehicles using Access 2 the use of Old Railway Road and Coatesville-Riverhead Highway as an alternative to Old North Road to reach SH16. This aligns with anecdotal evidence that some motorists use this alternative route to avoid congestion on Old North Road.

The operation of the Coatesville-Riverhead Highway / SH16 intersection often operates with reverse priority with motorists on SH16 giving way to vehicles exiting Coatesville-Riverhead Highway; this assists motorists using Coatesville-Riverhead Highway and may increase the attractiveness of this route over Old North Road.

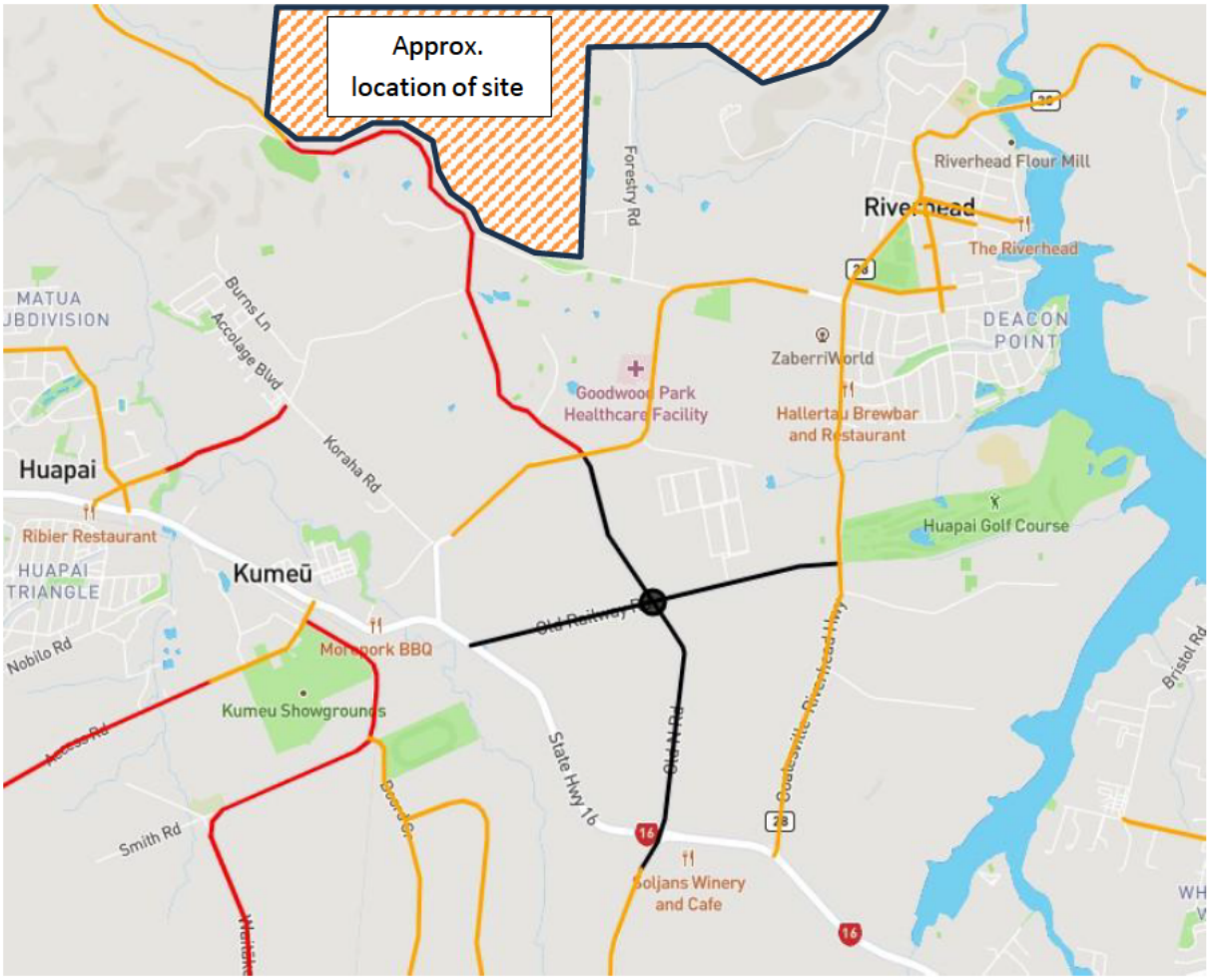
Attachment 2 – KiwiRap – Urban Risk Assessments

The diagrams below show the collective and personal risks for the road network in the vicinity of the site.

Collective Risk



Personal Risk



Key High Medium High Medium Low Medium Low

ANNEXURE B

Stormwater Management Memo by Griffin Benton-Lynne, AWA Environmental Limited

MEMO

TO:	Siva Jegadeeswaran	**DATE:**	12th September 2025
FROM:	Griffin Benton-Lynne	**PROJECT NO.:**	BUN60449727
COPY:	Emad Al-Mundhiry		
SUBJECT:	Review for Auckland Transport of Stormwater Management for Rangitoopuni Fast Track		

1. INTRODUCTION

1.1 Auckland Transport has commissioned Awa Environmental Limited to undertake a review of the Fast Track Application – Rangitoopuni Developments Limited Partnership for development at Old North Road and Forestry Road, Riverhead. The proposal is the development of 208 vacant lots and for a retirement village of 260 retirement units and 36 care beds. As part of the works Forestry Road is to be upgraded, extended, and the extension vested in Auckland Council. This review is on the stormwater engineering and flood management as pertains to Auckland Transport assets.

1.2 In preparing this review the following application documents have been reviewed:

- Stormwater Management Plan – Maven, 30 April 2025
- Flood Assessment Report – Maven, 5 May 2025
- Civil Infrastructure Report – Maven, 30 April 2025
- Civil Drawings – Maven, March 2025

2. QUALIFICATIONS, EXPERIENCE AND CODE OF CONDUCT

2.1 I hold the qualification of a Bachelors Degree (Honours) in Natural Resource Engineering from the University of Canterbury (2018). I am a member of Engineering New Zealand.

2.2 I have over 6 years of experience as a water infrastructure engineer. I have worked for two engineering consultancies in Auckland and have been providing review services for Auckland Transport as a stormwater Subject Matter Expert (SME) for over 4 years. I have provided advice to Auckland Transport on a range of resource consents, plan changes, engineering applications, as well as a number of Fast Track consents. I have also prepared design projects on multiple stormwater projects, including flooding, drainage, and stormwater management for Auckland Council, Auckland Transport and other public institutions around New Zealand.

2.3 I have not visited the subject site. My review and comments are based on information provided by the applicant and publicly available information.

2.4 I confirm that I have read the Environment Court Practice Note 2023 – Code of Conduct for Expert Witnesses (Code) and have complied with it in the preparation of this memorandum. I also agree to follow the Code when participating in any subsequent processes, such as expert conferencing, directed by the Panel. I confirm that the opinions I have expressed are within my area of expertise and are my own, except where I have stated that I am relying on the work or evidence of others, which I have specified.

3. FLOODING

3.1 The existing Forestry Road and the proposed extension are located within the Riverhead Catchment. The existing road is subject to significant flood risk due to the large stream adjacent to the road, which has a catchment area of approximately 515ha. There are also a number of tributaries and overland flow paths which cross the existing Forestry Road and the proposed extension.

3.2 To mitigate the risk to road users within the existing road, the applicant proposes to raise the level of the road and increase the size of existing culverts or install new culverts.

3.3 In assessing the flood hazard to the road users, Auckland Transport has limits for pedestrian safety based on the flow depth multiplied by the flow velocity (depth x velocity) in the Road Drainage Chapter of Auckland Transports Transport Design Manual, which sets out a limit of $0.4m^2/s$ where pedestrians are likely to be present. Where there are transverse flows on the road, Auckland Transport sets the limit for vehicles safety at an energy grade line of 0.3m. The energy grade line is used to assess the risk of a vehicle being swept out of the road reserve.

3.4 Auckland Transport also makes use of international guidelines, such as the Australian Rainfall & Runoff Book 6 – Flood Hydraulics. This document sets the safe limit for flow depth at 0.3m for small vehicles as floatation can occur at this depth. At 0.5m all vehicles are considered susceptible to floatation. Where these limits are exceeded, there is a risk that vehicles can be swept into deeper areas where the risk to human life can be significant.

3.5 The results of the modelling undertaken are detailed in the Flood Assessment prepared by the applicant. However, the effectiveness of the proposal is difficult to assess due to limitations in the mapping provided. Specifically, the site boundary lines in the result maps provided in the appendices of the Flood Assessment Report obscure significant portions of the proposed road reserve, and there is a lack of zoomed-in maps for road segments. It is also unclear where the proposed road is located within the road reserve as this is generally not shown or is partially obscured by the site boundaries.

3.6 The result map '*1%AEP Storm with (3.8 degree Climate Change) Depths Postdevelopment*' provide by the applicant show flow depths which appear to be up to 2m within the road reserve at the proposed extension, near to the existing road. Where these depths are in relation to the proposed road are unclear. These depths present a significant hazard to road users if located where vehicles or pedestrians are likely to be located.

3.7 A zoomed-in map of the existing road was provided by the applicant, titled '*1%AEP (i.e 100yr) CC Depths Postdevelopment (Forestry Road)',* which shows the flood depths within the area of Foresty Road, as well as some specific points depths within the road (refer to Figure 1 below). However, these points are located on either side of the worst-case locations within the road, i.e., 64 and 85 Forestry

Road. In these two locations depths exceed 200mm, which contradicts the applicant's assertion in Section 9.2 of the Flood Risk Assessment that following raising the road the maximum depths do not exceed 200mm. It is not clear what the actual modelled depths are, but the legend indicates these two areas are between 200 – 500mm in depth. The worst-case depths should be confirmed as excessive depths could prevent the ingress and egress of emergency services and may be hazardous to road users.

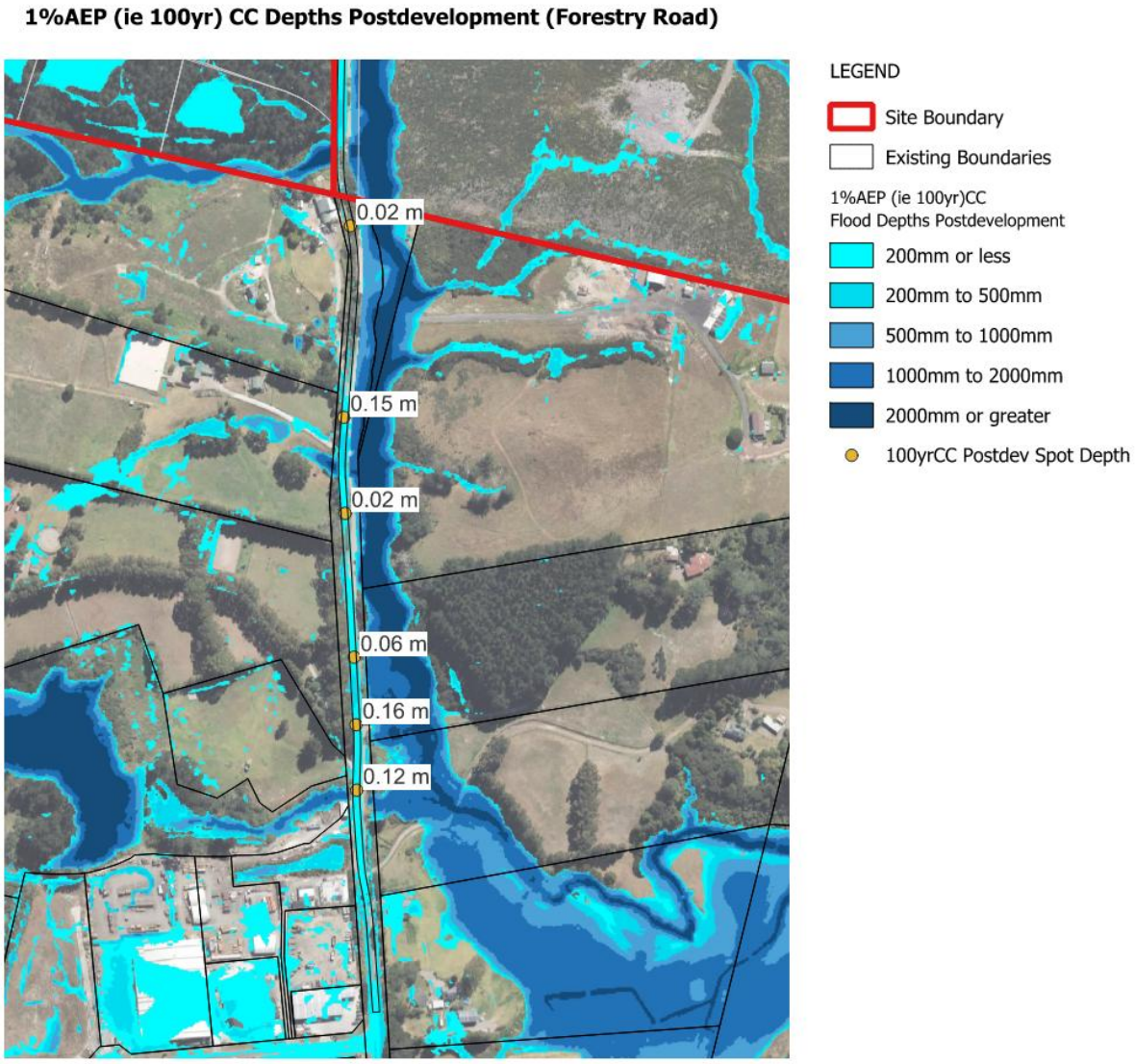


Figure 1: Post Development Depth Map Provided by the Applicant

3.8 The two areas described above in 3.7 appear to be areas of transverse flow. No assessment of the energy grade line has been provided, and it has not been demonstrated that these areas are safe for vehicles to traverse.

3.9 The comparison maps provided show the difference in water level for the pre-development and post-development scenarios, but no depth comparison maps are provided. While water level differences can be useful in assessing the impacts of the proposal, the key information is the depth difference as depth is directly related to hazard, while water level is not necessarily. This is especially true when the

ground surface levels are changing as this can impact the water level but does not necessarily represent an improvement.

3.10 Depth x velocity hazard maps are provided and these show significant hazard within the road reserve. However, it is unclear the risk this poses to road users as the location of carriageway and footpaths are not shown with the maps. Additionally, where the proposed road extension is located the results are obscured by the site boundary line and the hazard to road users cannot be confirmed.

3.11 Auckland Transport is aware that Auckland Council has requested the applicant's stormwater model so that the model can be verified and understood. This is strongly supported as verification will increase the confidence that the risk to the public has been adequately assessed and that the proposal can be supported by Auckland Transport.

3.12 Auckland Transport is also aware that changes to the model inputs and parameters have been requested by Auckland Council. Should any changes be made to the model, Auckland Transport, as the Road Controlling Authority, would want to see the results of these changes to ensure that this does not result in hazardous conditions for road users or negatively impacting Auckland Transport assets.

4. CULVERTS

4.1 A number of culvert upgrades and new culverts are proposed within the public road as part of this application. These culverts range in size from 1.5m x 1.5m to 4m x 2m. Culverts with a cross-sectional area exceeding 3.4m²—specifically Culverts 1, 3, and 4—must be designed in accordance with the NZTA Bridge Manual, AT Code of Practice, and Auckland Council Stormwater Code of Practice, with the most onerous requirement taking precedent. Culvert 1 is shown on drawing C401-1, Culvert 3 and 4 are shown on drawing C401-3.

4.2 For culverts over 6m², the 1% AEP + 3.8°C climate change water level must sit at least 0.3 m below the soffit to mitigate risk. This requirement must be addressed prior to vesting, and the applicant is strongly advised to demonstrate compliance before consent is granted.

4.3 Culverts must be designed with adequate access to both inlet and outlet structures to facilitate ongoing maintenance. This should be addressed at this stage to avoid establishing boundaries that may constrain access during detailed design. Failure to provide access may result in increased maintenance costs and elevated safety risks for maintenance personnel.

4.4 A question was raised as to whether Auckland Transport has a preference for culverts or bridges. Auckland Transport does not have a specific preference as the use of either culverts or bridges will depend on site specific features and constraints, as well as the cost of either option. Auckland Transport would advise that the consultant needs to consider both options, including cost and determine which is best to meet all the requirements.

5. RECOMMENDATIONS

Based on the information provided by the applicant, the proposal cannot be supported from a stormwater perspective as there is insufficient information to demonstrate this development will not

result in hazardous conditions or adverse effects. In order to undertake a thorough assessment of the proposed development, the following is recommended:

5.1 It is strongly recommended that the applicant provide updated flood maps which clearly show the existing and proposed public road reserve, as well as the location of the actual road within the road reserve, i.e., where vehicles and pedestrians would be present within the road reserve, so that the hazard can be adequately assessed.

5.2 Zoomed-in maps should also be provided so that it can clearly be seen where the worst-case locations are, and these should be labelled to clearly show the maximum values.

5.3 The maps provided should include depths maps, depth comparison maps and depth x velocity maps for all the scenarios assessed.

5.4 Assessments of the energy grade line for flow within the road reserve should be provided to demonstrate that the proposal will not result in hazardous flow conditions which could endanger road users or prevent the ingress and egress of emergency services.

5.5 The proposed public culverts should be demonstrated to meet the requirements NZTA Bridge Manual, AT Code of Practice, and Auckland Council Stormwater Code of Practice and the proposed access should be demonstrated to be adequate. Failure to do so prior to consent could result in the need to apply for a S127, costly rework for the applicant or result in onerous operation and maintenance costs and/or hazardous conditions for operation and maintenance personnel.

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