Fast-track Approvals Act 2024 – Delmore Substantive Application Technical Addendum

FTAA-2502-1015 / BUN60444768

1.0 Technical Specialist – Auckland Transport

From:	Tessa Craig, Development Planning Team Lead North/West, Auckland Transport
Date:	18th July 2025

2.0 Executive Summary / Principal Issues

1. Whilst acknowledging the portion of NoR 6 to be constructed by the Applicant, AT continues to dispute the purported regional benefits of providing only a section of NoR 6. Indeed, the Memorandum of Counsel for the Applicant with Response to Comments, dated 5 July 2025, states at point 5.3 "The Northern Project **cannot achieve its purpose without all its parts**, and the NOR 6 road is a critical part of connecting all development on the eastern side of SH1.74".
2. Therefore, only providing a section of NoR 6 cannot be considered to provide any regional benefits, given the road will terminate and not provide any through connection until the point AT can fund and construct the remaining section. AT do not have any funding to construct the southern section of NoR 6, allowing the actual regional benefits to be realized until 2048+. The resulting development, if consented will have poor transport outcomes due to the congestion caused at the Grand Drive/SH1 interchange, the inability to service via public transport until the full NoR 6 is constructed and road safety impacts at the tie in to the existing rural network, unsuitable to accommodate such a level of traffic.
3. In addition, the proposal moves the alignment of NoR 6 from land that the applicant owns and a paper road (owned by AT) to an alternative alignment on neighbouring land, requiring AT to acquire land at the time the southern extent of NoR 6 is able to be constructed.
4. Significant adverse impacts remain in relation to delivery and alignment of NoR 6, roading hierarchy including non-provision of collector roads, public transport opportunities and car dependency that are out of proportion to the benefits.
5. In addition to these principal issues, stormwater and flood hazard information provided to date remains inadequate to demonstrate the development will not cause adverse road user and pedestrian safety hazards.

<u>The key outstanding and new issues are as follows:</u>

- NoR 6 purported regional benefits, alignment, extent and cost implications
- Grand Drive/ SH1 interchange adverse impacts
- Road Design and Road Safety
- Interim upgrades required along the existing rural network on Upper Ōrewa Road and Russell Road
- Public transport serviceability / inability to service development by public transport until 2048+
- Internal road layout concerns including lack of arterial roads
- Stormwater mitigation to demonstrate road user and pedestrian safety, culvert sizing under State Highway 1; and
- Waste water trucks accessing Russell Road.

The key outstanding and new information gaps are as follows:

- Trip generation rate, sensitivity modelling and mitigation at Grand Drive/SH1 interchange
- Stormwater management information.

3.0 Specialist Assessment – Previous Memo / Comments Overview

Summary of 25/06 Issues identified

- NoR 6 purported regional benefits, alignment (pushed onto land outside of Applicant or AT's ownership onto neighbouring site), extent (only partly provided), and cost implications
- Grand Drive / SH1 interchange improvements required
- Road safety including required upgrades to existing network and road design
- Public transport (AT's ability to operate ad frequency overstated) and active mode facilities (insufficient)
- Stormwater and flood risk management not appropriately addressed, considered or mitigated
- Consent conditions that are required, not included in the draft set

4.0 Specialist Assessment – Material Reviewed

Review of 07/07 Updates

Additional material reviewed by AT:

- Delmore Fast Track Approval Application Assessment of Environmental Effects and Statutory Analysis, 7th July 2025 (B&A);
- Appendix 46.3 – Commute Wastewater Memo;
- Appendix 47.3 – Collector Road Memorandum from Vineway Limited, Barker and Associates;
- Appendix 51.2 – Commute Transportation Specialists dated 1 July 2025;
- Appendix 51.4 – McKenzie AT Response Memo.pdf;
- Appendix 57 – Proposed Conditions.

NoR 6 Commentary

6. Please refer to the addendum prepared by Te Tupu Ngātahi, Supporting Growth Alliance (SGA) Appendix 3 (dated 18 July 2025) regarding the alternative alignment of NoR 6 proposed by the Applicant and the cost comparison. AT maintains the position with the cost assessment as outlined in the substantive response and considers it likely to be more difficult and more expensive to construct the alternative alignment.
7. In relation to NoR 6 design please refer to Beca's review of the Applicant Response (Appendix 1), dated 17 July 2025. The review provides commentary on access to NoR 6 and in addition, the potential wider effects of the development, noting outstanding concerns related to safety and efficiency of the external network, including:

- Upper Ōrewa Road,
- Wainui Road,
- Upper Ōrewa Road / Wainui Road intersection,
- SH1 / Grand Drive interchange.

Grand Drive/SH1 Interchange

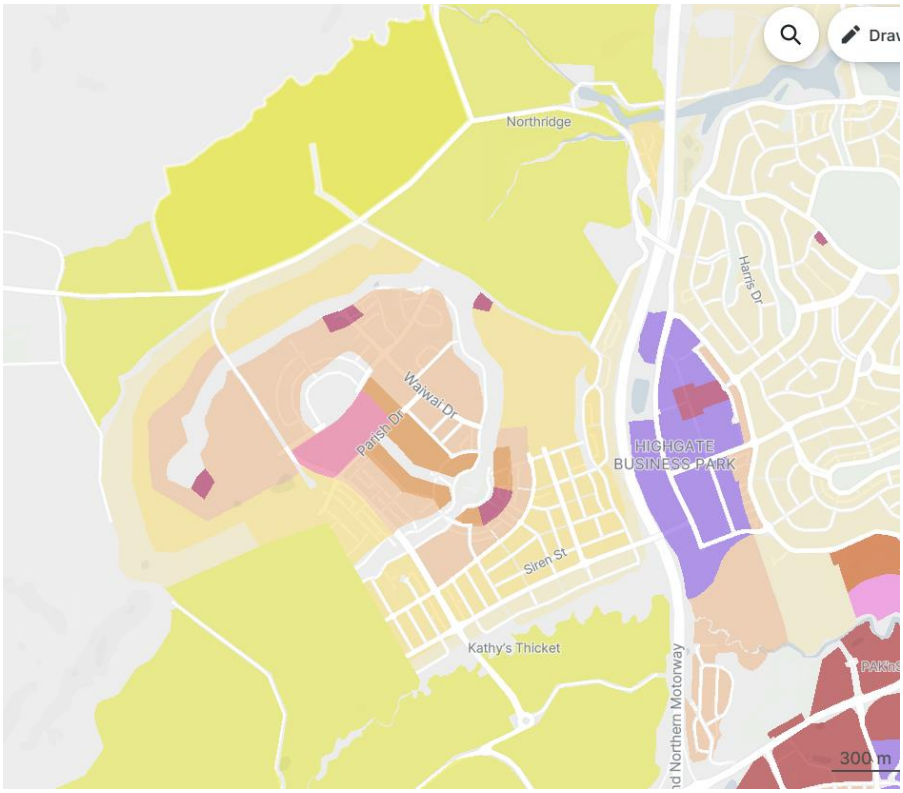
8. In relation to the adverse impact at the SH1 network Section 26-32 of the PTM Consultants Addendum Memo (Appendix 2) (dated 18 July 2025) outlines the remaining concerns at points 26 -32 and this is also supported by the comments in the Beca memo under the heading SH1 Interchange Eastern Roundabout.

Road Design and Road Safety

9. The roading hierarchy remains a concern, with no provision for collector roads. PTM Consultants Addendum Memo (Appendix 2) addresses these concerns at points 12-36. Concerns related to cycle facilities (points 44-50), internal intersections (points 58-61), tracking, road safety and external intersections (points 53-57, 62-64and 70-84) are detailed in the PTM Consultants Addendum Memo.

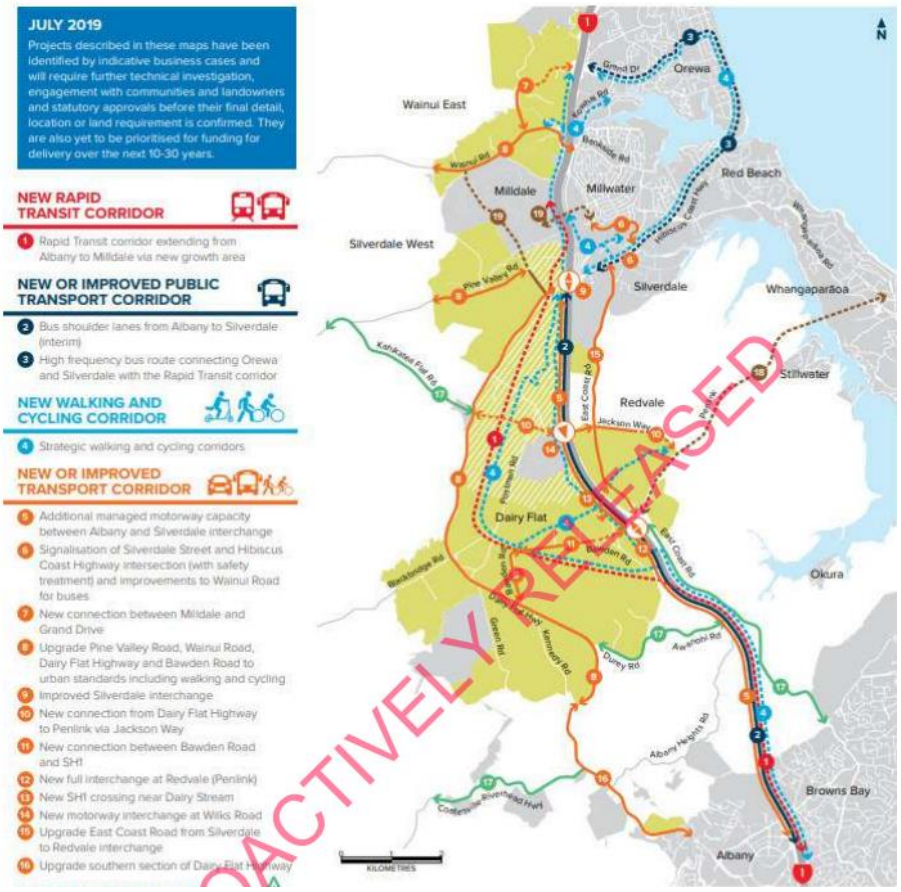
Public Transport Serviceability

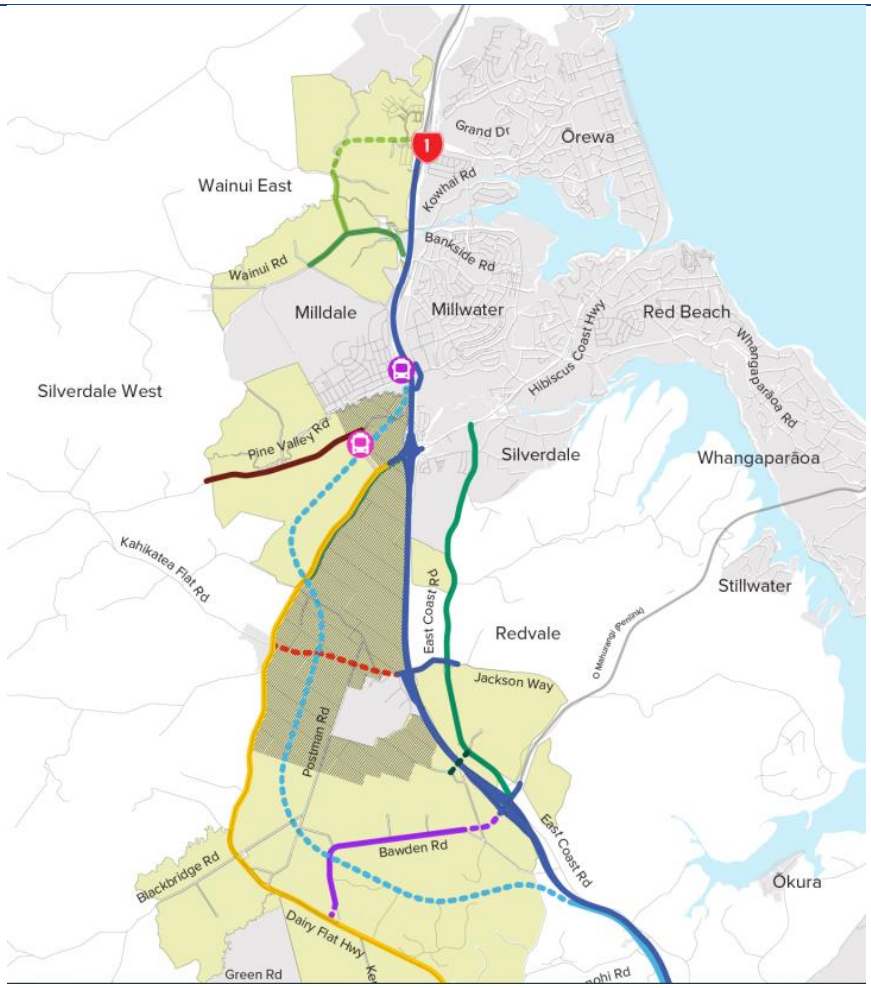
10. The Auckland-Transport-urban-street-and-road-design-guide set out some broad principles and discusses "major street". This definition includes the "collector" road network. The guide does also outline that major streets should have enough space to accommodate a form of public transport. Typically passenger transport uses both the "arterial" and "collector" road networks as both these roads will be designed to enable bus services.
11. The guide suggest that the major street network should form ***about*** an 800m grid. However, topography will dictate the type and spacing of the major street grid. For example, the major street grid on the Milldale development is generally between 500m and 800m apart. Milldale for example includes a range of roads to be suitable for buses (see diagram below).
12. Milldale also includes roads vested with bus stops in place (see diagram further below). This enables the bus routes to evolve and change over time to service not only the Milldale development and its land use but also surrounding land marked Future Urban to the south where there may be other major attractors such as high schools and future RTN stations. The important thing is that the street network has the built in flexibility to enable the bus network to evolve over time to react to and support land use which may evolve over time.



13. The Supporting Growth Alliance recommended the following “Arterial” and “Rapid Transit Network (RTN)” to accommodate the planned growth in the north. RTN is where public transport vehicles have their own dedicated corridor which is fully separated from other modes, like the Northern Busway.

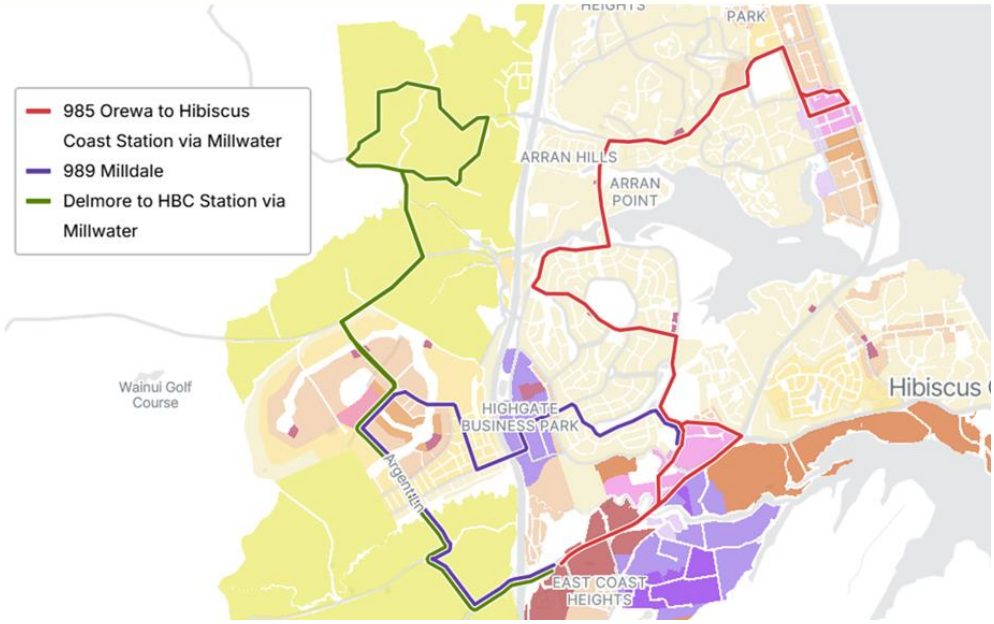
14. Supporting this arterial and RTN corridors there is the collector road network which with the arterial roads form the major street network as outlined in the AT “urban street and road design guide”.
15. The collector road network is extremely important for providing a suitable bus network to support the land use.





16. In the Delmore area there is an arterial through the development. This road is suitable for buses once it is fully built out. So, it created an option for a future bus route in the future. It should be noted that the future development pattern was unknown at the time the designation was put in place via Supporting Growth.
17. When development plans are presented, AT can see opportunities for a bus route(s) that only become apparent with a development pattern. AT identified that with the planned road network and certain roads being upgraded to "collector" road AT could more effectively service the development using these collector roads rather than just the arterial. Not making these road collectors suitable for buses locks in a suboptimal public transport outcomes for the future residents.

Indicative future bus network



18. In respect to the level of service for the bus route in the Delmore area:

    - There is only likely to be one bus route in the area serving the Delmore development.

    - The bus service provided would be a "Connector" level of service, **NOT** a Frequent Transit Network (**FTN**) service. The land use proposed for the area is low density residential. It is not very dense and it is not mixed use.

19. A "connector" level of service is a bus at least every 30 minutes from 7am to 7pm, 7 days a week. Generally, at peak periods the headways maybe less (the 985 through Millwater is a "Connector" and has a 20-minute peak level of service). Also, AT aim to provide 17 hours span of service.
20. It should be noted that currently there are no FTN in the Hibiscus Coast area. Even the NX1 is NOT Frequent at this stage (although there are plans to make it Frequent), at off-peak it drops to 30-minute headways.

<u>Stormwater</u>

21. There has been no demonstration that this development will be safe for pedestrians and road users in terms of stormwater discharges and flow paths. The applicant has not provided any quantification on the comments AT raised previously (points 37-41 in ATs substantive response).
22. In response to Appendix 51.4 – McKenzie AT Response Memo.pdf the following comments are made:
23. Stormwater item 37

    - AT have no further comments on this, as this is covered in our previous comments.

24. Stormwater item 38

- AT have reviewed the submitted OLFP Memo, and the documents the applicant referred to (i.e., Appendices 12, 12-6, and 29), and our original comment stands as no additional information has been provided. OLFP's and secondary flow paths within the road are not demonstrated to be safely conveyed. There is no assessment of the depth-velocity product provided.
  AT note that the applicant states that they have modelled the flowpaths, and they have noted that: *the depth-velocity product at pram crossings don't exceed 0.4m2/s, and that there are some isolated areas where the depth-velocity product is greater than 0.6 m2/s where there is no obvious danger to pedestrians*. However, these assessments are not available in the documents provided. The information the applicant has provided is plan view maps with hatched polygons of the extent of the OLFP's, but the applicant has not quantified the OLFP depth, velocity, or hazard in the road.

25. Stormwater item 39

    - AT have reviewed the documents the applicant has provided, and they have not provided any assessment of the culverts. The response indicates that they have undertaken HY-8 modelling of the culverts, however as no results or model reports have been submitted, there is no evidence demonstrate that the culverts are sized appropriately. While the applicant has provided a summary of the culverts in Appendix B of the Stormwater Infrastructure Report (itself being Appendix 52.6), there is no evidence to support the statements in the table. There is also no demonstration that the culverts can be accessed when maintenance is required.

26. Stormwater item 40

    - AT believe this can be deferred to Healthy Waters as they have access to the applicant's model. However, the applicant's focus on safe conveyance through the development has not been demonstrated in the previous items. The applicant has also not demonstrated the downstream effects of this development on the culvert under the State Highway.

27. Stormwater item 41

    - The query in question is in relation to the culvert under the State Highway. No assessment has been provided to demonstrate that the culvert is sized appropriately - similar to how no assessment of the culverts has been provided in our response to Stormwater point 39. No demonstration that the downstream culvert has capacity for the increase in flows as a result of this development has been provided.

5.0 Specialist Assessment – Addendum – Outstanding Issues / Information Gaps

At the time of writing this Memo, and having reviewed the 7 July updates from the Applicant, I have identified the following outstanding / new issues and information gaps:

<u>Outstanding and New Issues</u>

<u>The key outstanding and new issues are as follows:</u>

- NoR 6 purported regional benefits, alignment, extent and cost implications

- Grand Drive/ SH1 interchange adverse impacts
- Road Design and Road Safety
- Interim upgrades required along the existing rural network on Upper Ōrewa Road and Russell Road
- Public transport serviceability / inability to service development by public transport until 2048+
- Internal road layout concerns including lack of roading hierarchy that includes collector roads
- Stormwater mitigation to demonstrate road user and pedestrian safety, culvert sizing under State Highway 1; and
- Road widening required at Upper Ōrewa Road and Russell Road intersection and three horizontal curves on Russell Road to accommodate wastewater trucks accessing Russell Road.

Outstanding and New Information Gaps

The key outstanding and new information gaps are as follows:

- Trip generation rate, sensitivity modelling and mitigation at Grand Drive/SH1 interchange
- Stormwater management concerns.

Information gap (existing / new)	Nature of deficiency	Decision-making impact	Risk / uncertainty created
1. *Sensitivity testing of modelling at interchange and consideration of required mitigation*	*Potential trip generation rate is too low.*	*Cannot accurately assess the associated effects.*	*Potential for serious delays for existing residents of Ōrewa and queuing onto Grand Drive (AT network).*
2. *Stormwater modelling*	*No demonstration that this development will be safe for pedestrians and road users. As the applicant has not provided any quantification.*	*Cannot determine stormwater hazards.*	*Potential for serious road user and pedestrian safety effects caused by stormwater.*

6.0 Proposed Conditions

AT are agreeable to the following conditions recommended in Appendix 57 by the Applicant:

Construction Traffic Management Plan Conditions 19 and 20

Engineering Plan Approvals Conditions 41 and 42

Public Roads Conditions 90 – 93

Transport Conditions 95-99

Engineering Standards Compliance Conditions 101-104 and 106-110.

We suggest amendments to the following conditions:

Transport		Commentary
100.	~~A Safe Systems Audit shall be completed prior to Engineering Plan Approval for the following intersections: (d) Upper Orewa Road and Russell Road; and (a) Upper Orewa Road and Road 17 (roundabout as per Condition 104 below). The plans must detail the measures that have been adopted as a result of the Safe Systems Audit.~~ Safe System Audit Prior to the approval of any Engineering Plan Approval(s), the consent holder must engage an independent and suitably qualified Safety Engineer to undertake and complete an independent Detailed Design Safe System Audit of the intersections at Upper ŌrewaRoad and Russell Road and the Upper Ōrewa Road and Road 17 proposed roundabout. The Detailed Design Safe System Audit must be completed in accordance with the NZTA guidance ("Safe System Audit Guidelines, August 2022") by an independent and appropriately qualified safety audit team. The completed Report must be provided to Council for certification and must address all transportation aspects of the development including all public roading works/ intersections /Brigham Creek Bridge and road layout changes associated with the development. The consent holder must adopt and address any recommendations made in the certified Safe System Audit which are agreed with the Council (in consultation with Auckland Transport). The consent holder must also undertake remedial measures where the findings of the audit identify any serious or significant traffic-related concerns, that in the opinion of the Council, in consultation with Auckland Transport, constitute an unreasonable disruption to the transport network and/or exacerbate traffic safety risk. Any remedial measures must be agreed by the Council, in consultation with Auckland Transport, and must be incorporated into the finalised design as required in Condition XX Engineering Approval – Transport of these consents. If any agreed mitigation measure(s) require a separate resource consent or third-party approval, it must be the sole responsibility of	Suggest alternative to proposed wording to provide certainty on what is required, when and by whom.

	the consent holder to obtain such consents and/or approvals prior to any construction works and implementation of such measure(s). Construction works except earthworks and enabling works within the road reserve of any of the three packages must not occur prior to all Safe System Audit recommendations for that package having been agreed as to adopted changes and approval(s) (where required) for these changes having been achieved. The consent holder must provide to Auckland Transport for Engineering Plan Approval, the detailed design which implements the recommendations of the Detailed Design Safety System Audit.	
105.	The intersection required under Condition 104 must be constructed prior to the occupation of more than ~~750~~ 670 dwellings.	Please see PTM Consultants substantive and Addendum Memo commentary on the lower threshold.
147.	Prior to occupation of any dwellings within the development ~~Stage 1A~~, the consent holder must design and construct a shared pedestrian and cycle pathway connecting to the Ara Hills development.	Suggest this alternative wording in case staging delivery changes. The pathway should be in place prior to any dwellings being occupied.

In addition, the following conditions are suggested by AT to address other areas of concern, notwithstanding the outstanding issues:

Active Modes Bridge Over SH1

No dwelling shall be occupied until such time as the active modes bridge over SH1 required by the Ara Hills development is constructed and operational.

Grand Drive/ SH1 Interchange

The Grand Drive/ SH1 intersection is to be monitored by a suitably qualified traffic engineer appointed by the consent holder over a two-week period following the occupation of 650 dwelling. The report must detail any congestion and queuing, and assess whether any increase in congestion or queuing is related to the Delmore development. If the report identifies congestion and queuing related to the development, then it must detail mitigation measures.

The monitoring and mitigation report is to be submitted to Auckland Council for certification (in consultation with Auckland Transport and NZTA). Once certified, any mitigation measures identified in the report must be implemented by the consent holder.

Advice Note:

The purpose of this condition is to mitigate any unforeseen congestion that may occur at the interchange because of the development.

Retaining walls

#. Any retaining wall(s) and ancillary and supporting structures shall be wholly located within the private lots unless the retaining wall supports the public road.

Advice Note: Retaining walls within the road reserve are generally not acceptable as they become an Auckland Transport maintenance burden. However, if it is agreed a retaining wall can be located within the road reserve (for example to support a road or bridge structure/AT Asset), then it needs to be designed and constructed to have a minimum design life of 100 years. Retaining walls are subject to building consent.

Private retaining walls require an encroachment license and are the responsibility of the private owner to maintain. Include the encroachment license advice note if it is a retaining wall to support a private development. Retaining walls require building consent. All retaining walls within the road reserve are to be built to Auckland Transport standards and subject to building consent.

#. All retaining walls shall be constructed under engineering supervision. The consent holder shall ensure that all necessary design / approvals for retaining walls are obtained prior to commencement of any significant excavation works;

a) Detailed retaining wall design is to be provided. The proposed retaining wall shall have an asset design life of a minimum of 100 years.

b) A geotechnical investigation is to be provided as a design base for the retaining.

c) A safety fence/guard rail shall be located on the full length of the retaining walls.

Advice Notes

A Building Consent is required for (structures, retaining walls etc.) unless exempted under Schedule 1 of the Building Act 2004.

Retaining walls supporting the road should be designed to the NZTA Bridge Manual and NZBC requirements with 100-year design life. Seismic loads need to be considered.

Bridge Design

#. Culvert and bridge design shall be in accordance the NZTA Bridge Manual. The bridge and culvert designs shall be supported by a site investigation report including any detailed geotechnical report to carry out the bridge or culvert foundation design and as part of the approaches, any retaining wall design. The structures shall adopt the design life of 100 years in accordance with the NZTA Bridge Manual and constructed in concrete. A detailed design report for the bridges and culverts shall be supplied for the Engineering Plan Approval.

The structure design shall be signed off on the PS1 form by the designer and PS2 by a peer reviewer, both prior to construction. The Contractor's producer statement PS3 and the construction monitoring PS4 are also required.

The designer shall demonstrate how vehicular access will be provided to each culvert or bridge for maintenance or repairs, and how access will be provided for inspections including inspection staff access to bridge bearings.

Avoid Damaging Assets

#. Unless specifically provided for by this consent approval, there must be no damage to public roads, footpaths, berms, kerbs, drains, reserves or other public asset as a result of the earthworks and construction activity. In the event that such damage does occur, the Council will be notified within 24 hours of its discovery. The costs of rectifying such damage and restoring the asset to its original condition must be met by the consent holder.

Stormwater Conditions

Conditions should be imposed requiring the Applicant to provide complete Overland Flow Path (OLFP) assessments, demonstrate that proposed culverts are adequately sized and designed, and confirm that all stormwater infrastructure is designed to safely manage flood hazards in accordance with relevant safety and hydraulic standards are required. These should be proffered by the Applicant or otherwise imposed by the Panel in the event that it decides to grant the consents.

Public Transport and active mode facilities

Conditions are required ensuring that: i. collector roads (including Road 1, Road 17, Road 14, and Road 05) are designed to accommodate buses (including appropriate carriageway widths and turning facilities), include separated cycling infrastructure, and provide for bus stops with shelters.

Additional Advice Notes

Resolutions

Permanent traffic and parking controls are subject to a Resolution approval from Auckland Transport. Changes to traffic/parking controls on the road reserve will require Auckland Transport Traffic Control Committee resolutions. The resolutions, prepared by a qualified traffic engineer, will need to be approved so that the changes to the road reserve can be legally implemented and enforced. The resolution process requires external consultation to be undertaken in accordance with Auckland Transport's standard procedures. It is the responsibility of the consent holder to prepare and submit a permanent Traffic and Parking Changes report to Auckland Transport Traffic Control Committee for review and approval. No changes to the traffic and parking controls will be allowed before the resolution is approved by the Auckland Transport Traffic Control Committee. All costs must be borne by the consent holder.

Application details can be found from the following Auckland Transport website link: https://at.govt.nz/about-us/working-with-at/traffic-and-parking-controls

A copy of the Resolution from the Traffic Control Committee must be submitted to the Council prior to the commencement of the activity provided for by this consent approval.

Corridor Access Requests

The consent holder will need to obtain a Corridor Access Request approval from Auckland Transport for the proposed works in or occupation of the road reserve.

It will be the responsibility of the consent holder to determine the presence of any underground services that may be affected by the applicant's work in the road reserve. Should any services exist, the applicant must contact the owners of those and agree on the service owner's future access for maintenance and upgrades. Services information may be obtained from https://www.beforeudig.co.nz/.

All work in the road reserve must be carried out in accordance with the general requirements of the National Code of Practice for Utility Operators' Access to Transport Corridors https://nzuag.org.nz/wp-content/uploads/2018/11/National-Code-amended-version-29-Nov-2018.pdf and Auckland Transport Design Manual https://at.govt.nz/about-us/manuals-guidelines/transport-design-manual/

Prior to carrying out any work in the road corridor, the consent holder must submit to Auckland Transport a Corridor Access Request (CAR) and temporary Traffic management plant (TMP), the latter prepared by an NZ Transport Agency qualified person and work must not commence until such a time as the applicant has approval in the form of a Works Access Permit (WAP). The application may be made at https://at.govt.nz/about-us/working-on-the-road/corridor-access-requests and 15 working days should be allowed for approval.

Works within an Auckland Transport Notice of Requirement (NoR 6)

The consent holder must obtain the relevant RMA approval 178 approval from Auckland Transport for any works within an Auckland Transport Notice of Requirement / Designations prior to the commencement of any works. For further information please visit https://at.govt.nz/about-us/working-on-the-road/road-processes-for-property-owners/consent-for-works-in-an-at-designation-or-notice-of-requirement.

Vehicle Crossing Approval

The consent holder must obtain vehicle crossing approval from Auckland Transport for the proposed vehicle crossing(s). Please visit https://at.govt.nz/about-us/working-on-the-road/vehicle-crossing-application for more information.

7.0 Recommendation

Conclusions

AT continues to question the purported regional benefits of the proposal. There remain significant potential adverse impacts that need to be addressed. The current consent conditions offered by the Applicant do not resolve outstanding issues.

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17 July 2025

Auckland Transport
PO Box 5848 Wellesley Street
Auckland 1141
New Zealand

Attention: Alastair Lovell

Dear Alastair

Delmore Fast Track Application Review of Applicant Response, July 2025

Beca has been engaged by Auckland Transport (AT) to provide a review of transportation matters in regard to the proposed residential development at Russell Road and Upper Ōrewa Road, Ōrewa (the Delmore application). The application is being progressed under the Fast Track Approvals Act (FTAA).

Our initial review is described in the Beca memo dated 23 June 2025. Since that review, the applicant has provided further information including a memo from Commute that responds to transport matters (Commute response) dated 1 July 2025.

The comments provided in this memo arise from our review of the Commute response in regard to matters raised by Beca previously.

1.1 Response Comments

Section 2 of the Commute response responds to our previous comments. We address each of these matters by topic below.

2.1 ITEM 1.1.1 – ALIGNMENT WITH NOR 6 ROUTE

The proposed realignment of the NoR 6 road is responded to in the 'NoR 6 memorandum' by McKenzie and Co.

The Supporting Growth Alliance is reviewing this matter separately and this is addressed in a separate specialist response.

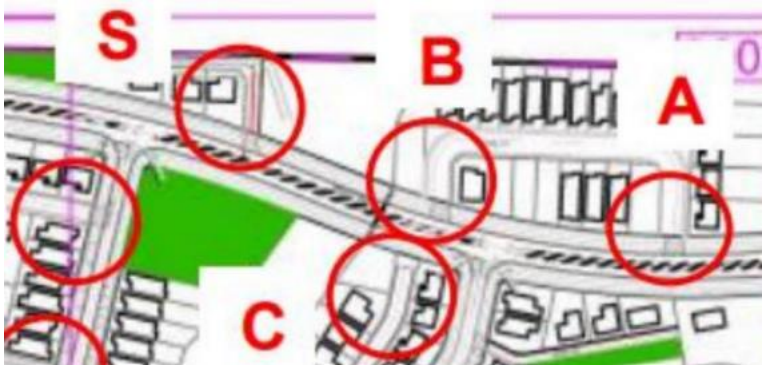
No further comments from a traffic / transport planning perspective.

2.2 ITEM 1.1.2 – ACCESS TO NOR ROAD

The applicant has revised the number of vehicle crossings in this area, removing vehicle crossing C shown on the previous site plan (copied below). Vehicle crossings S, B and A remain.

The reduction in vehicle crossings is an improvement to the previous concept plan. We note vehicle crossing B creates a risk of overlapping right turns for the inbound movement with the side road intersection to the south. This is a safety risk and we expect it can be addressed through the safety audit and design development process.

No further comments.



2.3 ITEM 1.1.2 – ROADS ON NOR ROAD

The Commute response assesses the operation of intersections on the NoR 6 road with forecast future traffic volumes and this indicates the level of service for side road intersections will be within appropriate bounds.

No further comments.

2.4 ITEM 1.1.2 – WALKING AND CYCLING ON NOR

The Commute response agrees with the proposed conditions relating to walking and cycling.

No further comments.

2.5 ITEM 1.2 – NOR 10

The Commute response responds to this matter in the following section.

2.6 ITEM 1.3 – POTENTIAL WIDER EFFECTS

Upper Ōrewa Road

The Commute response considers the approximately 6.5m road width (edge lines) to meet the AT Urban and Rural Roadway Design minimum lane width for local or collector roads.

Whilst the lane width is achieved, the AT Urban and Rural Roadway Design minimum width for road shoulders is 1m (1.5m preferred) and this is not achieved on Upper Ōrewa Road.

The AT Urban and Rural Roadway Design also states that “All other roads may form part of a local cycle network and must have appropriate provision for people on bikes, including access to nearby cycle routes”. Upper Ōrewa Road has no shoulders or provision for cycling in any form and no facilities for pedestrians.

The current road form is unsafe for traffic and cycling due to the lack of road shoulders or cycle lanes and trips generated by the development on Upper Ōrewa Road will result in a safety impact if access from the development proceeds ahead of this section of the NoR 6 upgrade.

We consider that an upgrade of Upper Ōrewa Road, i.e. road widening with shoulders, is necessary to safety accommodate traffic and cyclists from the proposed development.

Wainui Road

The Commute response considers that the majority of traffic from the Delmore site will only use the 1km section of Wainui Road from Upper Ōrewa Road to the Wainui interchange. We consider that existing and planned facilities in the Wainui area such as education and retail will attract trips from the Delmore site that will utilise a greater length of Wainui Road. Wainui Road also has no road shoulders or facilities for walking or cycling.

A level of interim upgrade for Wainui Road, i.e. road widening with shoulders, would also be necessary so safely accommodate development traffic and cyclists.

Upper Ōrewa Road and Wainui Road Intersection

The Commute response provides further information to demonstrate that the existing Upper Ōrewa Road / Wainui Road is below standard and requires provision for right turn movements etc. We agree with this assessment. Adding additional traffic to the intersection will exacerbate the safety risk until the necessary upgrade is delivered.

The intersection would either need to be upgraded or a condition applied to restrict development traffic from using this route until such time that the intersection is upgraded. Otherwise, road safety impacts will arise as a direct result of the Delmore Application.

SH1 Interchange Eastern Roundabout

The Commute response states that “we consider with the notion of the connection to Upper Ōrewa Road is required to occur at 60% of total development or 750 dwellings”. In other words, 40% of the development or 500 dwellings, are expected to make access via the Upper Ōrewa Road route once this connection is established.

The Commute response states that Stage 2 accommodates 780 dwellings and that 50% of these residents would travel via Upper Ōrewa Road. This seems to refer to the previously stated 70% threshold and not the revised 60% threshold. If only 50% of the Stage 2 residents travel via Upper Ōrewa Road as assumed, then the interchange roundabout will exceed capacity and impacts will arise on Grand Drive. To achieve the necessary 40% reduction at the interchange roundabout then 64% of the Stage 2 development would need to travel via Upper Ōrewa Road, this seems unlikely as Grand Drive provides a more direct route to the Motorway.

The Commute response states that “drivers in general will find the quickest / most efficient route. If one route (eg Ōrewa interchange) becomes congested, then the other route (Upper Ōrewa) will likely be used more.” This does not reflect the situation that traffic departing the Delmore site to travel south on SH1 in the AM peak will impact traffic movements travelling east-bound on Grand Drive in the morning peak, and not be subject to delay (as Delmore exit movements have priority at the roundabout). So the impact of additional development traffic at the roundabout will not have any influence on driver route choice.

We consider that the resulting impact at the interchange roundabout, whilst the interchange itself is an NZTA road, will be mostly experienced on Grand Drive which is part of the AT network. Therefore, understanding the potential impact at the interchange and including appropriate mitigation is essential to avoid transport system impacts on the AT network.

It is noted that in response to the NZTA comments, the Commute response has tested a scenario with 55% of movements travelling southbound at the interchange. This confirms the 60% threshold that is now applied.

We consider upgrades at the interchange are necessary to mitigate the potential significant impact of development traffic at the eastern roundabout in particular.

1.2 Conclusions

The Commute response addresses matters raised previously regarding design of internal transport infrastructure assuming the proposed Conditions are adopted.

Our concerns with potential impacts on the safety and efficiency of the external network remain and have not been addressed by the Commute response. We consider that mitigation needs to be included for

- Upper Ōrewa Road,
- Wainui Road,
- Upper Ōrewa Road / Wainui Road intersection,
- SH1 / Grand Drive interchange.

In summary the conclusion from our previous memo remains, in that if the development proceeds without appropriate supporting transport infrastructure, then there is likely to be significant adverse effects (and, in terms of section 85 of the FTAA, significant adverse impacts) on transportation safety and efficiency.

Yours sincerely

Craig Richards

Technical Director - Transportation

on behalf of

Beca Limited

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Appendix 2 – PTM Consultants, Delmore Residential Subdivision Fast Track Application Transport Assessment – Addendum Memo (18 July 2025)

Memorandum

To:	Tessa Craig | Team Leader – Development Planning North/West | Auckland Transport Shahriar Tehrani | Senior Development Planner (North/West) | Auckland Transport
From:	Paul Schischka | Consultant Transportation Engineer | PTM Consultants
Date:	18 July 2025
Subject:	Delmore Residential Subdivision Fast Track Application Transport Assessment – Addendum Memo
Revision:	1

1. This memorandum contains additional road safety / traffic engineering specialist review comments on the Delmore fast-track application.

2. In particular this memorandum provides additional comments in answer to the following documents provided by the applicant following production of my original memorandum dated 24 June 2025:

   - Appendix 51.2 - Specialist response letter from Commute Transportation Specialists (Commute) dated 1 July 2025 ('**the 1 July letter**').
   - Appendix 47.3 – Collector road memorandum from Vineway Limited, Barker and Associates, McKenzie and Co, and Commute dated 3 July 2025 ('**the 3 July memo**').
   - Appendix 46.3 - Commute Wastewater Memo

3. This memorandum should be read in conjunction with my original memorandum.

Executive summary

Road Network Hierarchy

4. The proposed development lacks an appropriate road hierarchy, with all roads designed as local roads except for the NoR6 arterial road. Despite the applicant's arguments about mini-neighbourhoods and topographical constraints, the absence of collector roads will create connectivity issues and fail to provide adequate bus route access.

5. The applicant's traffic generation calculations underestimate trip rates by using medium-density residential rates (0.65 trips/dwelling) instead of the more appropriate standalone dwelling rates (0.85 trips/dwelling), resulting in significantly higher actual traffic volumes than projected.

Motorway Interchange Capacity

6. The development will create severe congestion at the Grand Drive/State Highway 1 interchange, with modelling predicting 600-meter queues extending along Grand Drive during morning peak hours. This will primarily impact existing Orewa residents rather than new development residents. Not more than 670 dwellings (not the applicant's suggested 750) must be established before the Upper Orewa Road connection opens to prevent network failure.

Cycling Infrastructure Inadequacy

7. Roads 1, 5, and 17 will carry traffic volumes exceeding 2,000 vehicles per day, requiring protected cycling facilities under Auckland Transport's standards. The applicant's own

assessment indicates that protected cycleways are needed on these roads, contradicting their position that such facilities are unnecessary.

Safety Hazards at Intersections

8. Several intersection safety issues remain unresolved:

- Right-turn sight distance problems at Russell Road/Upper Orewa Road intersection due to vegetation obstruction
- Insufficient sight distances at internal development intersections requiring covenant restrictions on adjacent properties
- The Wainui Road/Upper Orewa Road intersection will experience a 183% increase in right-turning traffic, creating significant rear-end and right-turn crash risks

Wastewater Truck Movements

9. The proposed wastewater removal system requires large 19.5-meter truck-trailer units accessing via Russell Road, creating multiple safety concerns:

- Inadequate tracking space at three horizontal curves on Russell Road
- Sight distance limitations when turning into Russell Road
- Potential blockage of the cul-de-sac turning head during filling operations

Car Dependency and Active Mode Limitations

10. The development's challenging topography, with numerous road gradients exceeding 8%, combined with limited pedestrian and cycling infrastructure, will create a highly car-dependent community. This contradicts sustainable transport objectives and will generate higher trip rates than anticipated.

Recommendations

11. I recommend conditions requiring intersection upgrades at key locations, curve widening on Russell Road, protected cycling facilities on high-volume roads, consent notices restricting vegetation/structures near intersections, and a firm 670-dwelling threshold before opening the Upper Orewa Road connection. Without these measures, the development poses significant safety risks and operational challenges to the existing transport network.

Road Network Hierarchy

12. My original memo noted that the proposed road network lacked the normal road hierarchy. All roads were designed as local roads, expect for the NoR6 road which was designed as an arterial road. There were no collector roads.

13. I also noted that the indicative structure plan for Wainui-Orewa indicated collector roads in both stages, and that I recommended that the roads indicated should be designed as collector roads.

14. The applicant has responded to this in the 3 July letter, stating that they do not agree that collector roads are required and providing reasons. I provide my traffic engineering specialist comments on the applicant's reasons for not providing the collector roads below. Not all reasons given by the applicant are related to traffic engineering. There are some matters, such as a loss of developable area, building platforms, or an increase in retaining wall heights, which are outside of my specialist area, and which I have not commented on.

15. In Sections 3 and 4 of the 3 July letter, the applicant explains that the topography of the site and location of watercourses results in a development pattern consisting of mini-neighbourhoods of no more than 200 to 300 houses.

16. The function of a collector road is to provide a link between arterial roads (which are intended to carry high volumes of traffic for long distances) and local roads (which are primarily intended to provide access to individual properties). The collector road collects traffic from the local roads and distributes it onto the arterial road network.

17. I do not see any dissonance between the mini-neighbourhood concept and the provision of collector roads, rather I see them as complementary. The local roads should consist of the majority of the roads within each mini-neighbourhood, but the collector roads should connect the mini-neighbourhoods to the arterial road network (in this case NoR6).

18. Section 7 of the 3 July memo states that, based on the applicant's teams experiences at nearby Milldale, Auckland Transport are typically opposed to vehicle crossings onto collector roads in new developments.

19. Auckland Transport does prefer that the number of vehicle crossings on collector roads are minimised. This is because vehicles using vehicle crossings, especially when they are reversing out of a lot, can be a hazard for cyclists, particularly if a separate cycle path or lane is present, and reversing vehicle can delay bus services. However, unlike arterial roads, where the Auckland Unitary Plan has a vehicle access restriction, there is no firm rule or standard prohibiting vehicle crossings onto collector roads, and a collector road with vehicle crossings is better than no collector road at all.

20. Section 8 of the 3 July memo refers to the effects of traffic calming on collector roads and its impact on the character of the development.

21. Auckland Transport seeks to avoid traffic calming on bus routes wherever practical and in the case of this development my original memorandum did recommend that traffic calming not be installed on the collector roads which are intended to be used as bus routes. The absence of traffic calming and other measures like a slightly wider carriageway does mean that vehicle operating speeds can be expected to be higher on collector roads designed as bus routes. With traffic calming I would expect vehicle operating speeds to be around 30 km/h on local roads in residential areas, whereas for a bus route I would typically expect operating speeds to be just below 50 km/h.

22. However, I do not see this as a significant issue for this development. Higher operating speeds on bus routes in normal practice for new residential subdivisions and there are measures such as ensuring good driver sight lines at intersections and vehicle crossings and providing appropriate pedestrian crossing facilities which can mitigate any road safety effects from higher operating speeds.

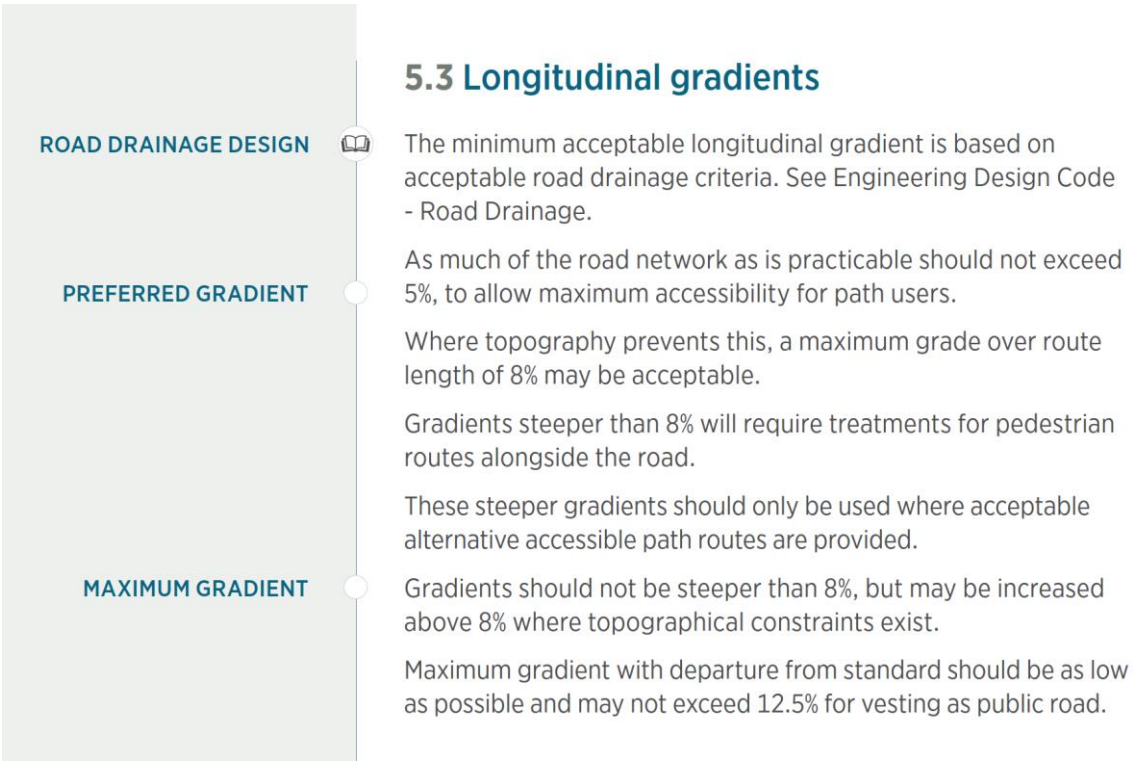
23. A high proportion of crashes occur at intersections and it is for this reason that I recommended that any collector-to-collector or collector-to-arterial intersections in the development be designed roundabouts, as this form of intersection will slow traffic to around 30 km/h near the intersection while still providing for bus movements.

24. Section 9 of the 3 July memorandum refers to a limitation on bus-route gradients of 8% in section 5.3 of Auckland Transport's Transport Design Manual.

25. There is no such limitation. An excerpt from Section 5.3 is shown in Figure 1 below. While it does state that gradients should not be steeper than 8%, it specifically states that gradients may be over this where topographical constraints exist. The maximum gradient is 12.5% for

a public road to be vested (the Local Government Act prohibits roads with gradients over this from being vested).

26. One of the main reasons steep road gradients are to be avoided is because they deter the use of active modes (walking and cycling) and increase private vehicle usage. The collector roads requested by Auckland Transport in the Delmore development are intended to allow bus routes to come as close as practical to as many dwellings as practical and by doing so help provide a viable alternative to private vehicle usage.



5.3 Longitudinal gradients

ROAD DRAINAGE DESIGN

The minimum acceptable longitudinal gradient is based on acceptable road drainage criteria. See Engineering Design Code - Road Drainage.

PREFERRED GRADIENT

As much of the road network as is practicable should not exceed 5%, to allow maximum accessibility for path users.

Where topography prevents this, a maximum grade over route length of 8% may be acceptable.

Gradients steeper than 8% will require treatments for pedestrian routes alongside the road.

These steeper gradients should only be used where acceptable alternative accessible path routes are provided.

MAXIMUM GRADIENT

Gradients should not be steeper than 8%, but may be increased above 8% where topographical constraints exist.

Maximum gradient with departure from standard should be as low as possible and may not exceed 12.5% for vesting as public road.

Figure 1: Excerpt from Section 5.3 covering maximum longitudinal gradients.

27. Steep longitudinal gradients mean that separated cycle facilities are in greater need on the busier roads within the development because cyclists travelling up a steep gradient will have a greater speed differential when compared to the speed of motorised traffic.

28. Section 12 of the 3 July memorandum provides calculations for the expected daily traffic volumes on the potential collector roads. This is based on a trip generation rate for of 0.65 peak hour trips / 6.5 daily trips per dwelling based on the New South Wales Roads and Transport Authority Guide to Traffic Generating Developments ('The RTA guide') rate for medium density residential.

29. I do not consider this rate to be appropriate for the proposal. I have already addressed this matter in my original memo, but I reiterate it here again for ease of reference.

30. The RTA guide defines medium density residential as follows:

> *"A medium density residential flat building is a building containing at least 2 but less than 20 dwellings. This includes villas, town houses, flats, semi-detached houses, terrace or row houses and other medium density developments. This does not include aged or disabled persons' housing."*

31. Most of the dwellings in the proposal are stand alone and are larger (3 or 4 bedrooms) than is typical for medium density. I consider that the RTA guide trip rate of 0.85 peak hour trips / 9 daily trips per dwelling for a dwelling house would have been a more appropriate rate for this development.

32. However, even if the proposed dwellings were in keeping with the RTA description of medium density housing, it is likely that they would generate more trips per dwelling than the RTA rate because the proposed development does not have good access public transport and is not easily accessible by walking and cycling.

33. Figure 2 in the 3 July memo shows the applicant's estimated daily volumes for Roads 1, 5, and 17 of 1,500 vpd, 2,600 vpd, and 2,500 vpd respectively. The RTA guide daily trip generation rate for medium density and stand alone dwellings is 6.5 and 9.0 vpd respectively, which equates to stand along dwellings producing 38.4% more trips. This increase is applied to Roads 1, 5, and 17 then it equates to 2,076 vpd, 3,598 vpd, and 3,460 vpd for Roads 1, 5, and 17 respectively.

34. I anticipate the when the land currently zoned future urban zone on the south side of Russell Road is eventually urbanised Road 1 will be connected through and it will carry additional traffic beyond that generated by dwellings inside the Delmore development, and at that time the traffic volumes using Road 1 are likely to exceed 3,000 vpd.

35. Section 13 of the July 3 memo refers to collector roads and separated cycle lanes as being generally only required on roads with traffic volumes over 3,000 vpd in Auckland Transport's Roads and Streets Framework. As noted in paragraph 50 of my original memo, the applicant appears to be referring to an older version of the Roads and Streets Framework. The current version was published in May 2020. This version emphasises the function of the road as the basis for classification, rather than a particular daily traffic volume.

36. Sections 14 to 18 of the July 2025 memo cover walking distances to bus stops. My understanding is that Auckland Transport's internal public transport specialists have commented on these matters.

SIDRA Modelling for the Grand Drive Motorway Interchange

37. Sections 1.4, 3.2.1, and 3.2.2 of the 1 July letter address effects on the Grand Drive / State Highway 1 Motorway interchange. While NZTA is the road controlling authority for this interchange, capacity issues within the interchange can have an impact on Auckland Transport's network.

38. In particular, the Integrated Transport Assessment (ITA) provided by the applicant included a SIDRA traffic model which predicted a 600 metre long queue extending from the interchange along Grand Drive to the east in the morning peak. This represents significant delay, and it should be noted that this delay will be experienced by residents of the parts of Owera to the east of the motorway, rather than residents of the Delmore subdivision. This matter is covered in detail in Paragraphs 10 to 40 of my original memo.

39. In my original memo I recommended that a condition of consent requiring that the connection between Road 2 and Upper Owera Road be open to the public before more than 670 dwellings were occupied. On Page 7 of the 1 July letter Commute states that *"the second connection is required before approximately 750 houses are constructed (which corresponds to mid-way through Stage 2)."*

40. The difference in the threshold is likely to be due to the different trip generation figures used. Commute have assessed the development as medium density residential with a peak hour trip generation of 0.65 vph per dwelling while I consider that a figure of 0.85 vph per dwelling

would be more appropriate, given the types of dwellings proposed and the lack of good public transport and walking and cycling access.

41. Regardless of where the threshold is set for providing a connection to Upper Orewa Road it is critical that one is set as a condition as the applicant's own modelling shows that in the fully developed scenario the Grand Drive interchange does not have capacity to accommodate all traffic from the proposed development.

42. On Page 38 of the 1 July letter Commute states that they agree with the condition regarding the maximum occupation of dwellings before the Upper Orewa link is opened. They have recommended a threshold of 750 dwellings. I recommend that the threshold is instead set at 670 dwellings as I expect that the trip generation rate for each dwelling will be more than the 0.65 trips per dwelling figure Commute has used in their assessment.

43. Sections 1.4.4 and 3.2.1 of the 1 July letter addresses trip generation rates. As described above and in paragraphs 4 to 8 of my original memo I consider that the trip generation rates used are too low. The 1 July letter states that NZTA, who are road controlling authority for the interchange, have accepted the rates used by Commute, but no information has been provided on why, nor has any rebuttal of the points raised in paragraphs 4 to 8 of my original memo been raised. Auckland Transport has a stake in the accuracy of the traffic modelling which the trip generation informs because excessive delays at the interchange will extend back into the Auckland Transport network.

Cycling Facilities within the Site

44. Sections 1.6.6 and 3.4 of the 1 July letter addresses the need for separate cycling facilities on the potential collector roads.

45. Auckland Transport's Engineering Design Code Cycling Infrastructure refers to roads where formal cycling facilities are not provided as mixed use or shared streets. It sets an upper limit of 3,000 vpd for these streets, after which it is necessary to provide some type of formal cycling facility with separate space for cyclists.

46. However, this does not mean that roads that carry less than 3,000 vpd never need to have separate cycling facilities. The excerpt below in Figure 2 from the Engineering Design Code Cycling Infrastructure gives the performance standards criteria for the use of mixed use streets. It states that 2,000 vpd is the preferred maximum, but 3,000 vpd may be acceptable.

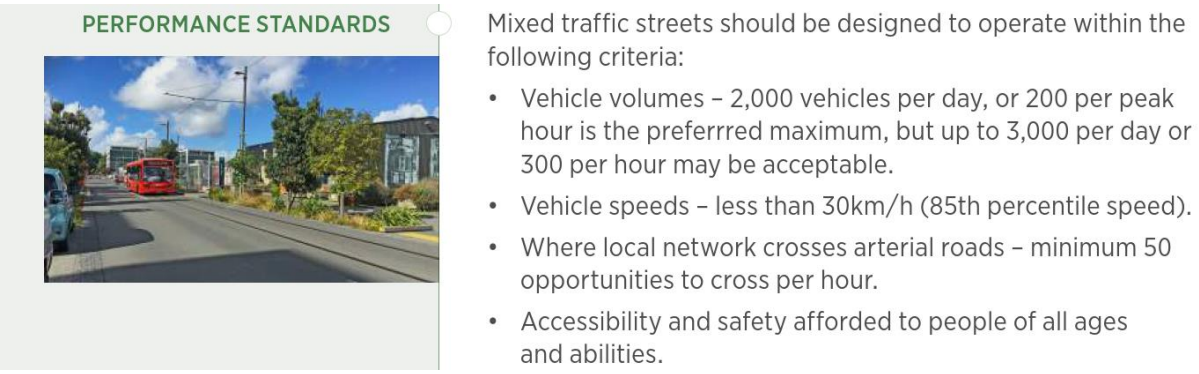


Figure 2: Excerpt from Engineering Design Code Cycling Infrastructure showing performance standards criteria for mixed use streets without formal cycling facilities.

47. The 1 July letter and 3 July letter both show that Roads 5 and 17 will carry more than 2,000 vpd based on the applicant's trip generation rate. Road 1 will carry more than 2,000 vpd if the trip generation rate in line with my expectations.

48. The Engineering Design Code Cycling Infrastructure includes a chart which provides additional information on what type of cycling facilities is appropriate based on the criteria. The 12 June letter from Commute assessed Roads 1, 5, and 17 using this chart. The excerpt shown in Figure 3 is from the 12 June letter from Commute showing their assessment for each of the three roads.

49. The annotations added to the chart by Commute indicate that protected cycleways are needed on Road 1, 5, and 17. This is inconsistent with their other comments at section 1.6.6 and 3.4.

50. It should be noted that while roads with collector status typically also need separate cycling facilities these are not the same thing. A local road may still require separate cycling facilities without being considered a collector road.

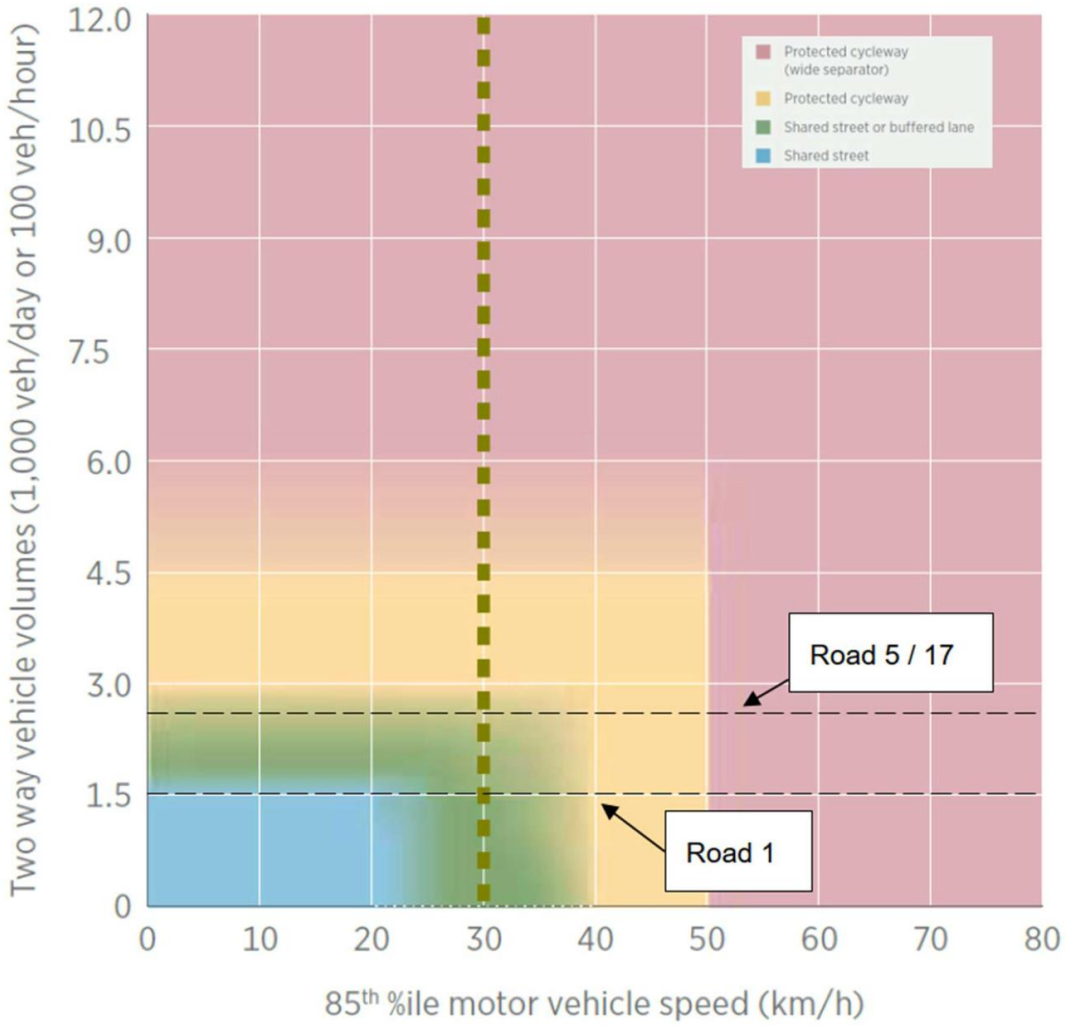


Figure 3: Excerpt from Commute letter dated 12 June showing the Engineering Design Code Cycling Infrastructure. The annotations for Roads 1, 5, and 17 are by Commute.

Active Modes Link Across State Highway 1 near the Grand Drive Interchange

51. Section 1.6.8 of the 1 July letter addresses the active modes link across State Highway 1 at the Grand Drive Interchange. The response states that this link is required by a condition of the neighbouring Ara Hills development, and that delivery of this link is imminent and that it will be online when the first dwelling in Delmore is occupied.

52. To ensure that it is I recommend that a condition of consent is sought for the Delmore development requiring the active modes link to be open to the public before the first dwelling is occupied.

Right Turn into Russell Road

53. I consider that there is a pre-existing road safety issue regarding driver sight lines when turning right into Russell Road from Upper Owera Road caused by vegetation on the inside of a curve. Paragraphs 63 to 69 of my original memo cover this matter in detail.

54. While the issue is pre-existing the proposal will mean more traffic using Upper Owera Road and this will exacerbate the issue.

55. Commute responds to this matter in Section 3.6 of the 1 July letter. They reproduce the intersection sight distance assessment which I consider to be unrealistic and which I have already commented on in Paragraph 68 of my original memo.

56. They also note that the proposal will not generate more turning movements into Russell Road (barring a small number of wastewater tankers). I have already addressed this in Paragraph 66 of my original memo. The proposal will result in additional traffic which the drivers turning into Russell Road must give way to and it therefore increases the crash risk at the intersection.

57. I consider that the 1 July letter from Commute has provided no additional information on this matter which was not already covered in my original memo, and my recommendation that the intersection be upgraded as part of the proposal still stands.

Internal Intersections

58. Sections 70 to 75 of my original memo cover internal road intersections within the site. Section 3.7 of the 1 July letter refers to the Beca response (Section 2.4). No substantive response is provided in Section 3.7.

59. Section 2.4 of the 1 July letter only assesses the NoR6 road intersections, but my original memo specifically referred to some intersections which were not on the NoR6 road.

60. Section 2.4 and only covers capacity matters. Road safety effects were specifically referred to in my original memo and these matters have not been covered.

61. The capacity analysis provided in Section 2.4 is relatively rudimentary. It shows that there is sufficient capacity to absorb side road traffic flows but does not show average delays for vehicles turning in or out of the most important side roads (Roads 1 and 5), which Auckland Transport would like to be designed as future bus routes and contrast it with average delays from roundabout intersections.

Vehicle Tracking

62. On page 45 of the 1 July Letter Commute states that they agree with the condition that *"Tracking is to be provided to the Auckland Council Code of Practice for Land Development and Subdivision Chapter 3 Transport without the footpath or berm widths going below the minimums in the Code".*

63. I recommend that this set as a condition of consent.

64. The applicant should be advised that property boundaries may need to be adjusted near the horizontal curves to allow for this and the applicant should check this before the boundaries are finalised to avoid the risk of a s127 application being needed to adjust them following grant of consent.

Car Dependency

65. Item 3.1.1 of the 1 July letter provides additional assessment on the longitudinal gradient of the proposed roads within the development.

66. It is acknowledged that the applicant's site has challenging topography and that they have made efforts to minimise road gradients as part of the design. Nonetheless, there are many sections of road where gradients exceed 8%, and this, along with other factors such as the walking distance to nearby amenities means that the proposal is likely to be highly car dependent.

67. Page 31 of the 1 July letter states that the proximity of services and whether these are sufficiently close is not a traffic question and that this matter has been addressed by Cam Wallace as part of the Urban Design Response Memo.

68. I disagree with this statement. The ability to access local amenities via walking and cycling has an impact on the number of vehicle trips which the dwellings will generate, and this is a transportation engineering matter. The ability to access local amenities is dependant not just on the distance to the amenities but also the design of the route, including things like gradients, the location of pedestrian facilities on busy roads, and footpaths. The design or these things is a transportation engineering matter.

69. My understanding is that Auckland Transport's internal public transport specialists will be responding to matters relating to public transport access, and I have not commented on them here.

Sight Distances at Intersections

70. Paragraphs 80 to 85 of my original memo and Section 3.9 of the 1 July letter address sight distances at intersections inside the development.

71. Section 3.9 Commute recommend that certain portions of lots adjacent to the road will need to be kept to low level planting to provide sufficient sight distances from side road intersections. The areas are shown on Drawings SD1, SD7, and SD8 in the appendix to the 1 July letter.

72. I recommend that conditions requiring a consent notice to be registered on the title for these lots be sought. These conditions should also prohibit structures, including but not limited to fences, being constructed or placed in the areas indicated on the drawings.

73. My original memo also identified that the areas indicated on Drawings SD4 and SD6 also posed similar issues for sight lines at intersections. Commute is of the view that these are not of concern because they consider that traffic calming can be installed on Road 1 to slow vehicles and reduce the required sight distances at the intersections.

74. However, I still consider that Road 1 should be designed as a bus route (without traffic calming) and I therefore still consider that visibility from the site roads will be insufficient to prevent road safety effects. To address this, I recommend that consent notices be placed on the titles for the areas indicated on Drawings SD4 and SD6.

75. Paragraph 84 of my original memo raised issues around sight distances from JOALs within Stage 1. These issues were not addressed in the 1 July letter. I still consider that these issues present a significant adverse effect on road safety.

Intersection of Wainui Road and Upper Owera Road

76. Paragraphs 31 to 39 of my original memorandum address the intersection of Wainui Road and Upper Owera Road. The proposal would increase the volume of traffic turning right into Upper Owera Road at the intersection by 183%. Drivers making this movement must wait in the westbound traffic lane for a gap in the stream of eastbound traffic and this results in a potential road safety effect at this intersection, due to an increased risk of both rear-end and right turn crash types. There are also potential effects on delays to westbound traffic as a result of the proposal due to waiting vehicles blocking the lane.

77. To address the traffic safety and operational effects of proposal on the intersection I recommend that it is upgraded to a roundabout at same time as the connection to Upper Owera Road is provided. The NoR6 designation drawings show a roundabout at this intersection, and it is the safest form of intersection in this location.

78. Section 2.6 (sub-sections c and d) of the 1 July letter from Commute covers the intersection Wainui Road and Upper Owera Road

79. Subsection 2.6(c)i of the 1 July letter notes that the development will only add traffic to the intersection when the link between the development and Upper Owera Road is opened, which is expected to be in 2031. I consider that the upgrade of the intersection by the applicant can be deferred until the link is opened.

80. Subsection 2.6(c)i of the 1 July letter notes that the intersection will be upgraded by Auckland Transport to a roundabout when the NoR6 road is constructed to completeness. I note that NoR6 has no associated funding or confirmed timeline and is primarily intended to provide route protection. However, in the event that the intersection has already been upgraded to a roundabout by Auckland Transport before the link between the proposed development and Upper Owera Road is opened then I agree that the applicant should not be required to upgrade it.

81. Subsection 2.6(c)i and 2.6(d) of the 1 July letter note that the 'requirement' for a right turn bay at the intersection is already triggered by Austroads guidelines, and that this is an existing issue which the applicant should not be required to fix. I agree that the intersection already meets the Austroads warrant for a right turn bay and that this is a pre-existing issue, however the proposal will increase the volume of traffic turning right into Upper Owera Road by 183%, significantly exacerbating the pre-existing issue. The road safety and operational effects associated with this additional traffic are caused by the proposal and the applicant should be required to mitigate them by upgrading the intersection with a roundabout.

82. Subsection 2.6(c)i and 2.6(d) of the 1 July letter contains an analysis of recorded crashes at the intersection contained in the NZTA CAS crash database since 2020. It notes three recorded crashes (one minor injury and two non-injury). Wet weather conditions and loss of control appears to be a pattern in these crashes, and none involved vehicles turning right into Upper Owera Road or rear-end type crashes.

83. Crash history analysis is an imperfect tool for predicting future crashes at intersections. A high proportion of serious injury or fatal crashes occur in locations where there have not been crashes of a similar type previously reported. The applicant is proposing to modify the existing environment by significantly increasing the volume of right turning traffic into Upper Owera Road, and the crash history for the previous environment is less useful in predicting the future crash patterns at the intersection because of the proposed changes.

84. It should be noted that not all crashes are recorded in CAS, only those which are reported by police. Unreported crashes, particularly low severity crashes, are common.

Other Matters

85. Paragraphs 91 to 99 of my original memo and Section 3.12 of the 1 July letter address several miscellaneous issues with specific details of the design. These matters have all been dealt with elsewhere in the letter or are detailed design matters which can be deferred to engineering approval stage.

Appendix 46.3 Commute Wastewater Memo

86. Appendix 46.3 contains a memo from Commute assessing the potential traffic impacts of the removal of wastewater by truck from the development ('the Commute wastewater memo').

87. The memo explains that two types of trucks will be used for the wastewater management.

88. There are smaller chemical tanker or sludge removal vehicles which will visit the wastewater treatment plant inside the development. These vehicles have been assessed using a 10.3m

truck. This is the same size as a Council rubbish truck so I have no concerns regarding vehicle tracking, and the number of trips for this vehicle is not high enough to have an operational effect of the network in terms of capacity.

89. There is also a larger tanker for removal of wastewater. This vehicle is a 19.5m long truck and trailer unit and will load at a remote filling point in the cul-de-sac head at the south end of Road 1. It will access the end of Road 1 via Russell Road with a swing arm gate installed to allow access between the roads. The proposed layout is shown in Appendix 46.6 - McKenzie Plans Wastewater Filling Station. I have concerns about potential traffic effects relating to this vehicle.

90. Table 2 of the Commute wastewater memo shows that there will be between 3.46 and 10.54 tanker movements per day depending on which of the three different scenarios described in the memo applies.

91. Vehicle tracking drawings for the tanker are appended to the Commute wastewater memo.

92. Tracking drawing RR2 shows tanker tracking at the intersection of Russell Road and Upper Owera Road. The tanker turning left out of Russell Road appears to track outside of the gravel shoulder area on the corner of the intersection. The shoulder area should be widened as part of the proposal.

93. Drawing RR3 shows a tanker turning right into Russell Road. It is apparent that to make the turn the tanker driver needs to start turning across the southbound traffic lane on Upper Owera Road before the point at which they will be able to see oncoming traffic on Upper Owera Road past the vegetation on the south-western corner of the intersection. The intersection should be modified so that turning tanker drivers can see approaching traffic on Upper Owera Road before they start to turn across the opposing traffic lane.

94. Drawing RR4 shows tanker tracking on a horizontal curve on Russell Road approximately 220 metres east of the intersection with Upper Owera Road. The drawing shows the tanker passing a car coming in the opposite direction, but the car is shown driving over the grass berm on the inside of the curve.

95. Drawing RR5 shows tanker tracking on a horizontal curve on Russell Road approximately 420 metres east of the intersection with Upper Owera Road. This drawing also shows the tanker passing a car. In this instance the tanker is shown tracking over the grass berm on the inside of the curve when passing.

96. There is another horizontal curve on Russell Road which is located approximately 100 metres east of the intersection with Upper Owera Road. No tracking drawing has been provided for this curve, and it has a lower radius than the other two curves. This curve is shown in Figure 4. It is apparent that from the image that there is not sufficient space for a tanker to pass a vehicle coming in the opposite direction on this curve and that vegetation on the inside of the curve severely limits inter-visibility between drivers travelling in opposite directions. Adding regular tanker movements to this curve would result in a road safety hazard. Vehicle tracking for this curve should be checked.

Figure 4: Excerpt from Google Streetview showing the horizontal curve in Russell Road approximately 100 metres east of the intersection with Upper Owera Road. The camera is facing west and the image is circa April 2023.

97. As mitigation I recommend that the applicant should be required to carry out curve widening on Russell Road at all three curves to allow sufficient space for a tanker to pass a 6.3 metre van coming in the opposite direction.

98. The proposed layout for the filling station in the end cul-de-sac head of Road 1 shown in Appendix 46.6 - McKenzie Plans Wastewater Filling Station appears to indicate that the tanker will park in the cul-de-sac head while filling up. This means that the remaining space in the turning head may not be sufficient to allow other vehicles to turn. The applicant should assess the effects of this, and in particular the effects on Council rubbish collection service vehicles.

Appendix 3 – Te Tupu Ngātahi, Supporting Growth, SGA North - Delmore Fast Track Application - Assessment of Costs Comparison of proposed SGA and Delmore alignment for NoR 6, dated 18 July 2025

Technical Note Addendum

Date Prepared: 18/07/2025

Prepared by: Rob Mason

Revision: 1

SGA North - Delmore Fast Track Application - Assessment of Costs Comparison of proposed SGA and Delmore alignment for NoR 6

1. Background

This technical note forms an addendum to the initial assessment prepared to identify costs that would be required to upgrade the Transport network to support the proposed Delmore Development north of Auckland. The purpose of this Addendum is to document the response to the comparison of costs between the lodged NoR 6 concept alignment and the alternative alignment development for Vineway Ltd[1].

Auckland Transport provided feedback on the initial application, with further Information provided by McKenzie & Co[2] to respond to some of the matters raised by AT. This Addendum also reflects those comments.

2. Alignment Length

The overall project lengths used for the comparison are generally correct, although the stated reduction in length of 300m is incorrect. This is actually only around 30m (i.e. 1.163 reduced to 1,133). The stated cost saving of $3M for this reduced length is therefore overstated, and this would be more like $300k. This has been corrected for the subsequent response.

3. Earthworks

The Vineway alignment has adopted a vertical grade of 8% for the alignment. The NoR6 design adopted a grade of 5% which is for urban arterial roads. The result of providing a steeper grade, is that there are less earthworks/retaining walls as the road would be closer to the existing ground profile.

To enable a direct cost comparison, both the lodged NoR6 alignment and the Vineway alignment would need to adopt the same design philosophy. Application of a steeper 8% grade to the lodged NoR alignment would result in a reduced volume of earthworks, with a subsequent cost reduction.

Therefore, a direct comparison of the two alignments without adopting the same design philosophy is not appropriate. The reduced earthworks that have been achieved by adopting an 8% grade for the Vineway alignment could also be realised for the NoR6 alignment.

[1] "Technical Response – Comparison of NoR6 Original Alignment vs. Proposed Realignment through Delmore Development (Stages 1 & 2). Russell Rd, Orewa", McKenzie & Co, 26th May 2025
[2] Section 2 of the "Technical Response – Auckland Transport ("AT") Memo", McKenzie & Co, 27th June 2025

4. Level of Design for comparison:

The concept design developed by Te Tupu Ngātahi for the lodgement of NoR6 SGA was sufficient to inform the designation, so no effort has gone into optimising the alignment to reflect a value for money solution. There is an opportunity to review the vertical and horizontal alignment of the NoR6 alignment at the time of implementation to optimise the volume of earthworks and the length/ position of the bridge, and also to determine an appropriate pier arrangement.

The response from McKenzie & Co states that both alignments are at the same preliminary design stage. Later on in the same paragraph, McKenzie & Co have referenced the evidence presented by AT in the NoR6 hearing that the Vineway alignment is 'more refined' than the SGA option.

In relation to the reference to the Notice of Requirement Hearing and the comment that the evidence for AT stated that the Vineway proposal was acceptable, I have reviewed the Engineering evidence, and am unable to identify where it is stated that the more refined alignment presented by Vineway is 'acceptable'. Rather, it was acknowledged that "other alternative alignment options are possible within the designation boundary" and "that there are opportunities to work collaboratively with Vineway Limited on the final design of the road within their land holding to achieve an integrated outcome" (Barrientos rebuttal evidence, clause 4.15). It is noted that, at detailed design, final parameters to be adopted for the road would be subject to review and agreement with AT's engineering team (Barrientos rebuttal evidence, clause 4.13).

5. Bridge length and configuration, and abutments

South of the Delmore development where the proposed Vineway alignment connects to Upper Orewa Road, a bridge will need to be provided to cross the streams. The NoR6 alignment has been developed to enable a single stream crossing that is generally perpendicular to the stream (Figure 1 below).

By comparison, the Vineway alignment crosses two streams near a convergence point (Figure 2 below). This is likely to increase environmental risk and reduce opportunities to refine the design further. It will also reduce the construction area available on the eastern side of the structure due as the stream diverts to follow alongside the Vineway structure.

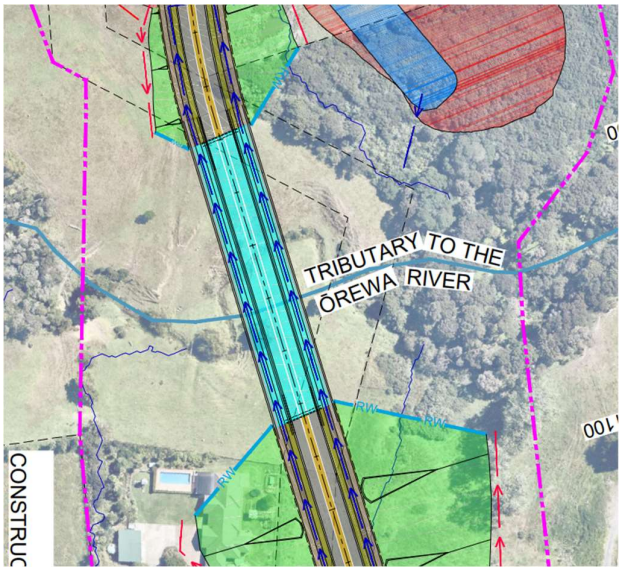


Figure 1: NoR6 alignment – single perpendicular stream crossing across the stream.

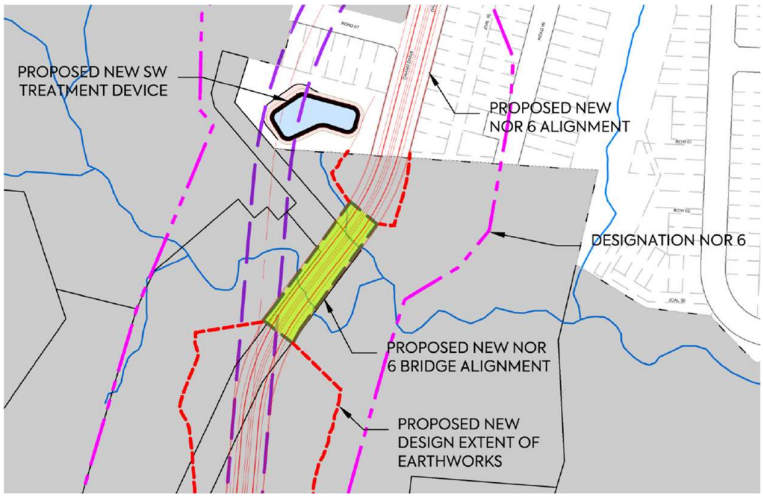


Figure 2: Vineway alignment – double stream crossing.

The vertical alignment will have a large influence on the bridge structure, particularly the length of the bridge, location of the piers and the size and position of the abutments. The Vineway alignment has adopted a steeper grade, which has enabled a reduced bridge length to be provided, as well as smaller abutment heights. As mentioned above, if the same design philosophy had been applied to the NoR6 alignment, then this will have the same effect on the lodged alignment.

The level of design for the SGA alignment was sufficient to identify a designation footprint. No site survey was undertaken to confirm abutment or pier positions as this did not inform the extent of the designation nor the effects assessment in relation to the NoR. The indicative bridge

was simply identified as a location being over the stream, and a square metre bridge rate was used to inform the cost estimate. This was on the basis that a subsequent Investment Case would be developed to consider specific topographical site data, stream position, and bridge abutment design and position.

The concept design that was lodged for the NoR hearing showed the approximate position of the bridge, although the potential pier locations have not been identified (Figure 1 above). By comparison, the alignment prepared by McKenzie & Co (26th May 2025) has identified a span configuration and abutment heights to use as a cost comparison, which is more detailed than the design undertaken for the SGA alignment.

It is anticipated that the spans that will be developed will be such that an efficient bridge structure will be provided. In my experience, this would typically result in spans of approximately 30m for a standard Super-T bridge structure. The Vineway alignment has proposed a 63m span over the stream convergence, which is a very large and long structure requiring specific design (potentially a steel bridge), and likely to result in significant costs. Therefore, the conclusion that the alternative Vineway alignment achieves a 'lighter, more effective structure with reduced embankment works' is not an appropriate conclusion without considering the form, span, and constructability of both options.

They have also stated that the intermittent bridge pier option improves constructability and cost efficiency. The Lodged NoR alignment is likely to have a multiple span arrangement, which would better align with this statement. Also, the proximity of the streams would reduce the available construction area, which is likely to result in increased construction cost and complexity, as well as potential environmental/consenting risks.

While I agree that early stage design is the appropriate time to optimise the alignments (taking into account site constraints, environmental effects, and value for money), the SGA alignment was developed for route protection only, and that optimisation process would occur as part of the future investment case when AT are seeking funding for implementation.

Therefore, my position remains, that as an optimal design has not been prepared for the NoR6 alignment, it is not appropriate to use this as a comparison for selecting a preferred alignment.

6. Vertical Grade of the Alignment

The Vineway design has adopted a vertical grade of 8%, compared to the SGA design which has a 5% grade. The higher grade of 8% adopted for the Vineway alignment is only applicable where topography prevents a 5% grade from being provided.

In adopting an 8% grade, McKenzie & Co have assumed that as the vertical grade of 8% is acceptable in Austroads, it is also within the limits of the Auckland Transport TDM. While this may be the case for arterial roads with a speed limit greater than 50km/h, the TDM states that 'as much of the road network as is practicable should not exceed 5%, to allow maximum accessibility for path users'. The AT TDM states that the while 8% is the maximum grade for new footpaths, this is only to be applied over a short length (by example, the maximum length of a 5% grade is 45m – Table 3 of the Engineering Design Code – Footpaths and the Public Realm, whereas they are proposing an 8% grade over a length of about 180m). Also, grades of over 5% can create drainage problems because the length of drainage flow paths increase with grade (Austroads DTRD Part 3, section 8.5.1) Further, I understand that this is likely to be a Frequent Transit Network (as referenced by Commute in their documentation), and as such the desirable maximum grade for buses is 5% - Austroads states that at grades of 6-9% heavy vehicles will be significantly slower (GTRD Part 3 Table 8.2). Hence the reason why an 8% grade is **not desirable** for this arterial, and a lower grade of 5% was adopted for the SGA design.

If Auckland Transport were to progress the New Connection between Milldale and Grand Drive (NoR6 project), I would anticipate that the vertical grades would be reviewed and optimised as part of the design refinement process. While it is acknowledged that AT may accept a steeper grade at the time of implementation, the SGA design has been developed to adopt a 5% grade for the purpose of setting a designation to enable an appropriate grade to be provided. This further reinforces the point that the lodged SGA design developed for the purpose of route protection cannot be fairly compared to the proposed Vineway alignment as the design philosophy on applicable grades is not consistent. The application of a steeper grade would likely reduce the cost for earthworks, length of bridge and change the pier positions.