Delmore Fast-Track

25/06/2025 – Auckland Council Response

Annexure 31:

NZ Transport Agency

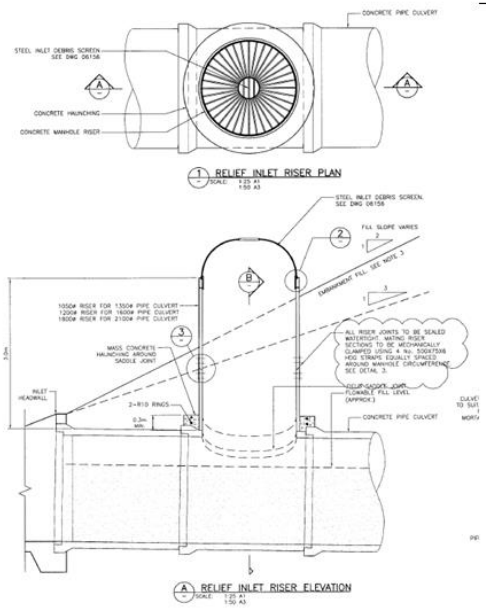
Peter Mitchell

Delmore Fast Track – NZTA / ASM SME input

ASM Stormwater

Assets Affected	Asset Manager & SME Response / Comments
Stormwater	10/06/2025 – Peter Mitchell
T1 - Surface water collection, conveyance, & disposal	No comments regarding NZTA surface drainage (collection, conveyance, and disposal) - No NZTA Stormwater assets impacted.
T2 – Stormwater Culvert Systems (Culverts <3.4m2)	**HIGH RISK** – Due to limitations in the performance and condition of the culvert system passing through the NZTA system I have significant concerns about the additional demand and risk that the measurably (more than minor) increased flows will present to the flood resilience at the highway system. There is a 2100mm diameter 'major' culvert system that passes through the NZTA highway.   This culvert system was designed and built as part of the 'Transit' ALPURT B1 Project in the mid to late 1990's. The culvert inlet has a simple standard headwall, and there is fish passage through the culvert (simple wooden baffle blocks that were designed and installed prior to the release of any NZ guidance documents on fish passage design). A copy of the relevant engineering layout plan can be seen here: 03328.TIF At the time the ALPURT B1 was only designed for maximum probable discharges that would arise from the contributing catchment under allowances of the previous Auckland Regional Council (ARC) Air Land Water Plan (ALWP). The Auckland Unitary Plan (AUP) and this current plan proposal will result in measurably increased rates and volumes of runoff, due to the increased impermeable surface area. This presents a flood resilience risk at the state highway network where flood depths and velocities against the motorway embankment present a measurably increased risk of erosion, scour, and increased risk of failure at the already aged and limited performance major culvert system.

It is anticipated that as a minimum this inlet will need a culvert relief inlet riser as well as erosion and scour protection/resilience measures at the highway embankment at the culvert inlet (to a height above the 1% AEP flood level - including climate change 3.8 percent)



From recent experience (within adjacent catchment to the north) area we found that development controls to manage erosion and sediment discharges were not suitably effective or efficient and that the management of 'slash' was not done well. This caused risk and damage at our assets. See below example where we required the developer to attend with urgency following a relatively routine rainfall storm.

	For the scale of development proposed for the 1200 lot development it is anticipated that there will inevitably be events that will mobilise substantial debris from within the 'deforested' area. This presents risk of blockage at the NZTA major culvert system. A high flow relief riser will help to mitigate flood resilience risk at the highway embankment. For an example of high flow relief see: 06155.pdf
T3 – Stormwater Management/Treatment Devices	No comments regarding NZTA stormwater treatment devices - No NZTA stormwater assets impacted.

Structures	9/06/2025 – David Withers
Bridges & Culverts (>3.4m2)	MAJOR CONCERN IS RAISED about the runoff from the new development entering the watercourse that leads to Orewa Deep River Culvert BSN 3900 which is believed to be inadequate for the water flows expected with the project attenuation being designed to only meet 10% AEP for hydrologic neutrality. A full assessment of the adequacy of the culvert in the flow path to accommodate the 1% rain event flows is required, and upgrade of the asset or redesign of the attenuation for the project to be suitable. The new connection into Grand Drive has been reviewed at length and I still have not seen final approval for structural widening of bridge planned. Do we know when this is going ahead?

ASM Transportation – Journey Management – Vicky Liu

Based on the analysis below, there is a risk that the roundabouts—particularly the eastern one—will operate below acceptable performance levels. I recommend that additional sensitivity tests be undertaken to understand the extent of development (build-out) that can be supported by the existing intersections before a new Grand Drive connection is established. Given there is risk of higher delays to traffic on Grand Drive, this may need further interventions to improve the roundabout / interchange performance.

- **ITA Assumptions:**
  - Trip Generation - The ITA assumed a total traffic generation of 1,074 vehicles per hour (vph) at full build-out for both Ara Hill and Delmore developments, with a directional split of 70% outbound and 30% inbound. This results in approximately 752 vph exiting the site during peak hours.
  - Trip Distribution - The detailed analysis indicated that, in the morning peak, only 338 vph (45%) of outbound trips would turn southbound at the eastern roundabout. A similar share of demand was expected to travel towards Orewa.
  - SIDRA Analysis - With these volumes, SIDRA modelling showed that the existing interchange would struggle to operate efficiently during the morning peak. Long queues are anticipated on the east arm—impacting current Orewa residents using the eastern roundabout. To reduce the impact, the application has suggested a reduction of 30% to the development traffic before the full network build out.
- **Trip Distribution Validation:**
  - The trip generation rate was deemed appropriate for this assessment. However, census journey-to-work data for nearby suburbs suggests that the proportion of southbound trips may have been conservatively estimated:
    - In Orewa North, 65% of trips (journey to work) were southbound in 2018 (for 1,563 households), reducing to 55% in 2023 (for 1,782 households).
    - Given Orewa's established nature, it is unlikely that new demand from Ara Hill and Delmore developments travelling southbound (going to Silverdale and CBD) will be similar to that eastbound movements (going to Orewa).
  - The performance of the eastern roundabout is particularly sensitive to southbound traffic (i.e., right turns from the west arm, which opposes the east arm). Therefore, estimating the split between southbound and eastbound travel demand is important for assessing the development's impact on roundabout operations.

Recommendation is therefore to conduct further sensitivity tests on:

- The southbound trip percentage (especially in early stages of development).
- The impact of varying trip distribution assumptions on roundabout performance.
- Queue lengths and delays under different growth scenarios as more dwellings are occupied.

Sarah Ho – Principal Planner (Northern SGA NZTA consenting owner interface manager)

From an SGA North perspective, we did not designate for additional upgrades at Grand Drive/Orewa Interchange on the assumption that the Orewa West FUZ area would have alternative access via Upper Orewa Road / Wainui (so not entirely dependent on the Grand Drive interchange).

The Delmore development does not provide for the entire connection. AT have designated this connection under NOR6 but as to whether they will/ can progress this is another matter.

There is also an agreement between AT and the Ara Hills development for a land swap and to vest the road between the Grand Drive interchange and NOR6, which starts at Kikorangi Drive. The vesting of the road does not appear to have happened.

From the ITA it suggests that with the proposed development the performance of both roundabouts on the interchange gets worse (both currently operating at LOS A), with the west then operating at LOS C and the east at LOS F at early morning peak times. T

The ITA also asserts that the development will be staged so Stage 2 (749 dwellings out of the 1250) won't be able to be built until that connection is undertaken.

Dilip Datta-NZTA Network Performance

Review of Delmore Development ITA

The traffic counts used by Commute appear to be very old. For Upper Orewa Road, they have used an averaged 5 day traffic volume of 1,189 vehicles (two-way) in June 2017. This is an out-of-date traffic count and from Mobile road.org I am seeing a figure of 1342 estimate AADT (dated 2024). There will be growth of traffic in the period from 2017 to 2025. This should be accounted for.

…the developer prefers to leave out the connection to Russell Road. This will therefore put pressure on Grand Drive intersection. It looks like the trips that come out of the 1250 dwellings in the new development will be accessing Orewa and Sh1 SBD via Grand Drive and need to cross the state highway. At the peak hour that could be 813 trips. It is made clear in the ITA that the road from the new development to Russell Road will need to be built by others.

Ara Hills will add a further 261 trips.

… the intersection is operating well at the moment with a LOS A across the complete list of approaches for the western roundabout. The eastern roundabout is working fairly well too with a LOS A or LOS B.

Western Roundabout of the Grand Drive intersection, assessed.

And their modelling is suggesting that after the development has been built out the LOS, in morning peak, will still be at LOS A or LOS C (on one arm – the western arm of the western roundabout). Average delays equate to LOS C overall, a deterioration from LOS A. (Fig 28)

The evening peak will be noticeably worse for queues and delays. LOS B down from LOS A. And delays of 44 seconds for one arm. 17.2 seconds on average overall. (Fig. 29)

The better arrangement is to have some evening traffic access the development from Upper Orewa Road and they would be leaving the highway at the Wainui Road interchange.

The connection to Upper Orewa road is expected to take place along with Stage 2. Then the traffic movements will improve for Grand Drive.

Eastern roundabout of the interchange, to the east of Grand Drive, assessed

The eastern roundabout is showing that there will be significant queuing of over 100 seconds in the morning. That's a huge change from the performance with no development (3.1 seconds average delay). This will be caused by the extra drivers wanting to travel southbound on SH1.

It would not be easy to give approval to such a development that causes this type of change from LOS A to LOS F. However, I believe that this is to be a fast tracked process and our feedback is not being sought?

The author of the ITA has stated that the eastern leg of the roundabout is not operating within acceptable boundaries.

has thought been given to signalising the eastern roundabout? Or providing extra bus services? Or both?

The bridge over SH1 is not pedestrian friendly. Is there a chance that a footpath could be added to it, and paid for by the developers' contributions – looks like the width to add a footpath on the north side is available. Clearly some connecting footpaths would be needed in addition to a path across the bridge.

…in summary; it would be great to see, in priority order;

1) A two way connection (extension of Grand Dr) to Upper Orewa Road brought forward and to take place during construction of Stage 1 (NOR 6).
2) A treatment of the eastern interchange roundabout that helps to improve traffic flows.
3) More walking facilities that help pedestrians to reach the bus stops on the eastern side of SH1.
4) Having some covered public cycle parking facilities for cycles and scooters would be beneficial for those who want to travel on two wheels to the development.