

TRAFFIC IMPACT REVIEW

936 Tinaroo Creek Road, Mareeba Request for 'Other Change' (MCU/12/0018)

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1. Introduction

NJM Engineering Consulting was engaged by Mareeba Shire Council to review the Traffic Impact Assessment (TIA) submitted in support of a change application to the existing development approval for 936 Tinaroo Creek Road, Mareeba (Lot 358 on OL451). The change application seeks to legalise the current operations of Conmat concrete batching plant on the site.

The scope of the review was to provide engineering advice specifically in relation to the proposed amendment to Condition 3.5 (Traffic Movements) of the existing approval MCU/12/0017 issued on 17 May 2013. This condition currently limits vehicle movements to and from the site to a maximum of 16 vehicles per day. The applicant has requested that this condition be amended to allow for an increase in vehicle movements, as detailed below.

“Heavy and regular vehicle traffic movements associated with the proposed batching plant are not to exceed a combined total of ~~16~~ 50 vehicle movements per day (~~8~~ 25 trips to and from site).”

The following report outlines the findings of the review of the submitted Traffic Impact Assessment (TIA) prepared by Noble Consulting Engineers dated 22 April 2025 and observations from a site visit conducted on 25 May 2025. Photos from the site visit have been provided in Attachment 1.

2. Development Traffic Generation

The TIA states that the daily traffic generation associated with the concrete plant activities includes

- 50 trips/day (25 in each direction) of Concrete agitator trucks:
- 2 trips/day (1 in each direction) of Cement delivery trucks that are either a 19m semi-trailer or a 25–26m B-double

This equates to 52 heavy vehicle movements per day. However, this figure does not account for additional traffic generated by staff, visitors, contractors, or service vehicles.

It is therefore inconsistent with the proposed condition amendment, which limits the total combined traffic (heavy and “regular” vehicles) to 50 vehicle trips per day.

3. Existing Traffic Conditions

The TIA advises that the concrete plant is already operational at 52 heavy vehicle trips/day, and as such, have stated these trips were captured in the 2024 traffic counts.

The relevant traffic count was undertaken at Chainage 8350, approximately 700 metres north of the site access intersection with Tinaroo Creek Road. The count recorded an average weekday volume of 205 vehicle trips/day, with 44.29% being heavy vehicles- equating to approximately 90 heavy vehicle trips/day. If the plant generates 52 heavy vehicle movements/day, it will represent around 55% of the total heavy vehicle traffic on this section of the road.

The separate count further north at Chainage 5350 recorded only an extra 20 heavy vehicles which reinforces that the concrete plant still would be a significant contributor to the heavy traffic on the road i.e. 47% at this location.

Even if there was some variation on certain days in the daily volumes generated by the plant, it would still be reasonable to assume that a significant proportion of the heavy vehicle traffic on Tinaroo Creek Road is directly attributable to the concrete plant’s operations.

B-Double Traffic (MSC to Confirm)

Traffic counts undertaken by Council at Chainage 8350, just north of the subject site, indicate up to 184 B-double vehicle movements per day. Given the location of the count, it is reasonable to assume that a significant portion of these movements are associated with activities on the development site. It is also assumed that appropriate permits or exemptions are currently in place to allow B-double access along this section of road. However, if changes are proposed to the development conditions relating to increased vehicle movement limits it is unknown whether it impacts any regulations through the NHVR scheme.

4. Impact on Council Infrastructure

The TIA does not assess the impact of development-related traffic on the condition and longevity of the road pavement.

Heavy vehicles are a primary factor contributing to pavement stress and degradation. The volume of heavy vehicle movements generated by the development is likely to accelerate pavement deterioration and increase the frequency of required maintenance. During the site inspection, substantial pavement damage was observed, particularly on bends where heavy vehicles frequently manoeuvre.

Given that the concrete plant has been operating without formal approval, it is reasonable to assume that the current level of pavement deterioration may exceed what was originally anticipated by Council, especially considering the original approval limited heavy and regular traffic movements to just 16 trips/day.

In light of the above, if Council considers reasonable, the development could be conditioned to undertake:

- Pavement testing at locations with a high risk of failure (e.g. tight bends, visibly damaged sections)
- If testing determines that the existing pavement is not of a sufficient standard to accommodate the generated 52 heavy vehicle movements/day, then upgrade works should be undertaken to strengthen these areas accordingly.

In addition, it is recommended that a condition be imposed requiring the sealing of the currently unsealed section of road between the site access and the end of the existing sealed surface near the adjacent property access. Sealing this section would enhance road safety and improve pavement durability under the existing traffic loads generated by the plant operations.

5. Horizontal Alignment and Safety Risks

The TIA identifies several substandard horizontal curves and suggests the need for appropriate signage and speed advisory measures. My site inspection confirmed insufficient sight distance on multiple curves due to poor horizontal alignment and vertical crests as shown in the attached photos. This poses a high safety risk, particularly given that heavy vehicles make up such a high proportion of the traffic. While minor widening exists at some bends, the current carriageway width does not strictly meet Austroads requirements for curve widening given the speed environment and vehicle mix. Should Council consider a reasonable condition, the developer could be requested to undertake a detailed geometric assessment and complete curve widening at high-risk locations in accordance

with Austroads Guide to Road Design Part 3 – Geometric Design. The potential safety risk associated with substandard bends with limited sight distance is that vehicles could lose control due to the need to suddenly swerve to avoid an oncoming truck that may need to encroach onto the opposing lane to undertake the turn.

6. Ada Creek

The Ada Creek crossing represents the most significant safety concern associated with the proposed development. Although a future upgrade is planned, the current configuration, i.e. a single-lane bridge with limited sight distance due to a vertical crest will continue to pose a safety risk for the next 12 to 24 months.

Given the known safety risks, if there could be potential liability implications for Council in approving a change to the conditions to formalise the additional traffic associated with the development using the crossing in its current state, a formal Road Safety Audit could be required as a condition of approval. The audit should be undertaken in accordance with Austroads guideline AGRS06-22 Guide to Road Safety Part 6 by a TMR Registered Road Safety Auditor and certified by an RPEQ.

The audit would be required to assess whether the current configuration of the crossing and its approaches provides an acceptable level of safety, and to identify any short-term, interim improvements necessary to support ongoing use until the planned upgrade is delivered. Any recommended interim safety treatments should be implemented by the developer to mitigate safety risks during this period.

7. Conclusion

The review has identified that the proposed amendment to Condition 3.5, allowing increased daily vehicle movements on Tinaroo Creek Road, raises concerns regarding road safety and pavement impacts. In particular, the higher volume of heavy vehicles exacerbates existing safety risks at substandard horizontal curves and the Ada Creek crossing. It is also likely to have contributed to accelerated pavement deterioration. It is therefore recommended that Council impose development conditions to address these issues, including road upgrades and a formal Road Safety Audit, as outlined in the sections above.



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ATTACHMENT 1

TINAROO CREEK ROAD, MAREEBA - SITE INSPECTION 25TH MAY 2025

Below are a series of photos taken during a site inspection undertaken on 25th May 2025 .

The photos show examples of key locations where sightlines were restricted due to tight bends and crests. As detailed in the report there are a number of locations which could benefit from an assessment of the geometry to ensure pavement width and warning signage is in accordance with relevant standards.

Included are also photos of some examples where there is evident pavement damage, primarily on the bends where heavy vehicles regularly turn. It is acknowledged that these defects are not solely attributed to the traffic generated by the concrete plant, however it is reasonable to assume that the unauthorised level of traffic associated with its operations could have had some level of contribution to the deterioration of the pavement at these locations.







