

**To** s 9(2)(g)(ii)

**Cc** s 9(2)(g)(ii)

**From** s 9(2)(g)(ii)

**Date** 31/01/2025

**Subject** Chief Engineer's Advisory Group (CEAG) direction: SH16 Brigham Creek inclusion of Median Barriers

Attendees: All above except apology below

Apologies: s 9(2)(g)

The following captures the key points discussed at CEAG in the meeting, rationale for the direction provided, and any further actions to take place.

#### Key discussion

1. The Project Team has been directed by Transport Services GLT to seek advice from CEAG as to the appropriate technical solution in terms of whether to install median barrier in this stretch of SH16 – both stages 1 and 2.
2. The key objectives of the project set out in the Business Case are as follows:
  - a. Reduce the probability and severity of predicted DSI crashes by at least 30 – 50% (8-20 DSI) within 10 years.
  - b. Increase the length of existing below 3.5 KiwiRAP star rated corridor to 3.5 star rated or above within 10 years.
  - c. Maintain travel time between Kumeu and Brigham Creek Road over the next 10 years.
3. The project is divided into two stages:
  - a. Stage 1 - Trigg road to Factory Road between Huapai and Waimauku. (Section E in business case). Current posted speed limit is 80 km/h with a recorded AADT of 15,167.

o [REDACTED]

u [REDACTED]
4. It is important to note that the key means of achieving the project objectives on the existing network is by the inclusion of a median wire-rope barrier throughout Stages 1 **Out of Scope**
5. Stage 1
  - a. The works in this stage are currently 60% complete with the anticipated completion in January 2026. Most of the works, such as widening and turnaround facilities, are either completed or well underway. There is little value in changing scope at this time of Stage 1 works.
  - b. Key benefits of wire-rope median barrier include: (i) significant reduction in the predicted DSI in the order of 66%, and (ii) Increase of safety performance of the corridor in the length of ~3km resulting in KiwiRAP star rating greater than 3.5, which address the main objectives of the project.
  - c. Key disbenefits are: (i) removal of right turn in and out of properties located along the route directly affecting 31 properties. and (ii) increased operational and maintenance costs of approximately ~100k annum. The maximum detour due to median barrier would be ~2 km.
  - d. It is critical to highlight that the installation of median barrier is removing the very hazard that is causing the poor safety performance of the road (well below KiwiRAP star rating of 3.5) and is significantly reducing the DSI, claimed to be by 66%. Additionally, not having the median barrier at a speed environment of 80 km/h does not comply with our NZTA technical standards.

- e. CEAG also notes that Stage 1 has been through public consultation and Environment Court, including property purchase for turnarounds, and therefore stepping backwards and not having the median barrier would undermine the work to date in improving the safety performance of our network.
- f. Therefore, for the reasons explained above CEAG has unanimously agreed with the project team's rationale and endorses the recommendation to continue with the median barrier installation.

Out of Scope

#### CEAG directions

CEAG endorses the recommendation from the project team as follows:

- (a) to continue with the installation of median barrier for stage 1 of the project; and

(Out of Scope)

# Value Option Assessment Form

To	Chief Engineers Advisory Group
Primary Author	s 9(2)(a)
Date	14/01/2025
Subject	Median wire rope barrier inclusion on SH16 Brigham Creek to Waimauku Stage 1 Out of
Document Refence and revision	Rev 1
Supporting Documents	

## Recommendation

Stage 1:

It is recommended that we continue with the current design and install the wire rope median barriers as planned.

Stage 1 is contracted and over 60% constructed. All messaging to date is that wire rope median barriers would be installed throughout the corridor. There are no significant cost savings to be gained by not installing the median wire rope barriers. The project has purchased several properties to construct turning facilities of which one owner has taken the project to environment court twice in opposition. If we were to remove the wire rope barrier from the scope of the project this would cause significant reputational damage for Waka Kotahi and stop the project meeting its investment objectives. The benefits of the wire rope barrier removal do not outweigh the disbenefits.

Out of

Scope

## Background

The Brigham Creek to Waimauku Project runs along the SH16 corridor between the Brigham Creek Roundabout to Waimauku, excluding the Kumeu/Huapai business area. The project is split into two separate stages.

Stage 1: Trigg road to Factory Road. Between Huapai and Waimauku. Section E in figure 1

Out of Scope



Figure 1: Brigham Creek to Waimauku project map.

### Key project Investment objectives:

1. Reduce the probability and severity of predicted DSI crashes by at least 30 – 50% (8-20 DSI) within 10 years.
2. Increase the length of existing below 3.5 KiwiRAP star rated corridor to 3.5 star rated or above within 10 years.
3. Maintain travel time between Kumeu and Brigham Creek Road over the next 10 years.

A key element of achieving the project objectives is the inclusion of a median wire rope barrier throughout stage

1 Out of Scope

The project team is seeking endorsement from CEAG for:

1. The inclusion of wire rope barrier throughout Stage 1 of the project.



The wire rope barrier is to be installed in sections A, C and E so only these sections will be considered in the following discussion.

## Stage 1:

Trigg road to Factory Road between Huapai and Waimauku. (Section E in business case)

Current sign posted speed limit is 80kmh with a recorded AADT of 15,167.

### Current Status

The project is currently in implementation phase with construction being undertaken by Fulton Hogan. Works are approximately 60% complete with a completion date in January 2026.

The majority of Service relocations have been completed and widening of the eastbound carriageway is complete. The widening of Berry and Kumeu 2 bridges are well underway and construction of all turnaround facilities have started. At this late stage there is no scope for altering the carriageway widths.

### Crash Data:

- When 100km/h speed limit (2009 – 2019) was in place – 0 fatal, 1 serious, 1.4 minor and 3.6 non-injury incidents per annum.
- When 80km/h (from 2020) – 0 fatal, 0 serious, 2.5 minor and 1.75 non-injury incidents per annum

### Typical Design:

- 12.5m wide carriageway between edge of seals with a central wire-rope median barrier.
- 1.5m median with central wire rope barrier
- 2 x 3.5m lanes (one for each direction of travel)
- 2.0m outer shoulders. (increase safety for cyclists)
- Minimum edge protection w-section barrier.
- 1m (min.) Verge to be sealed (1st coat seal) to behind the barrier.
- The inclusion of the road safety barrier to safe guard the safe and appropriate speed of the route at 100km/hr. NZTA's view on this **may** have changed given the change in approach to the nation wide speed review program.

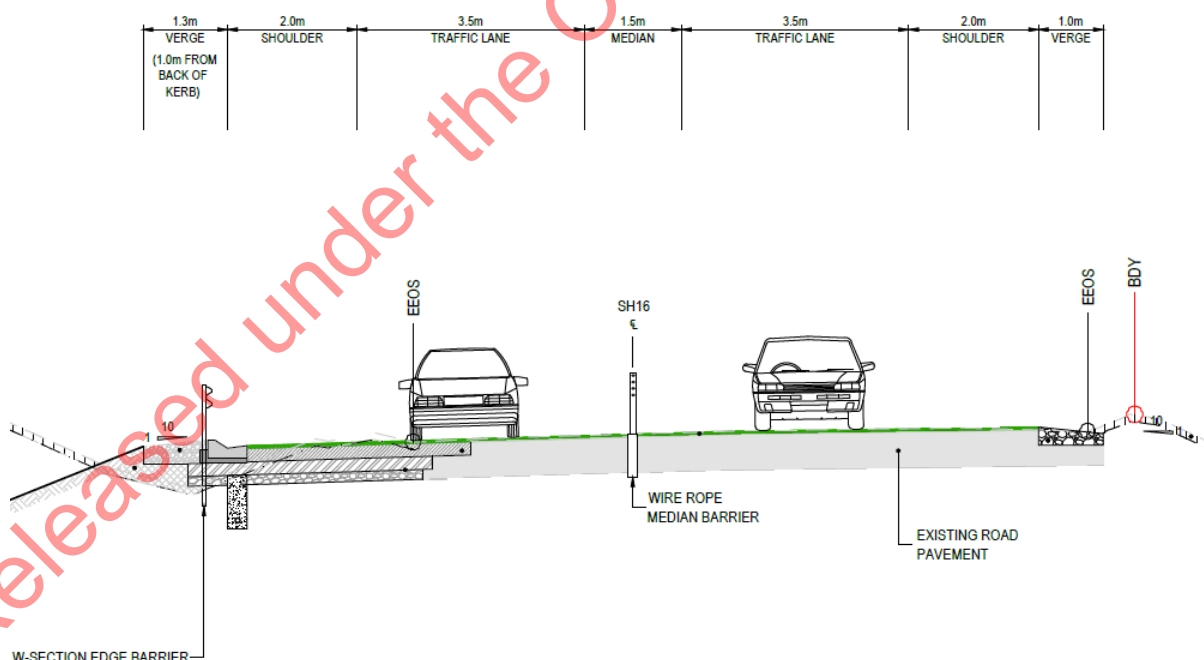


Figure 2: Typical Cross Section Stage 1

### Key Benefits Wire Rope Barrier:

- Reduction in 10 year predicted DSI of 66% (Based on 100kmh incident figures)

- Increase of 2.3km of 3.5 or greater KiwiRAP star rating corridor.

#### Disbenefits of Wire Rope Barrier:

- Removal of right turn in and out of properties located along the route. 31 properties are directly affected by the wire rope barrier. This excludes Matua road. however this road has good access from Huapai.
- Removal of right turn into and out of Matua road.
- Higher operational and maintenance costs. Approx. \$100k annually

### Alternative Options Considered for Stage 1

Due to the current 60% constructed status of stage 1 the main alternative would be to remove the wire rope barrier and replace this with a flush median.

#### Stage 1 Alternative Option – Remove median wire rope barrier and convert to a flush median.

<b>Alternative Option:</b> <i>(insert multiple options if comparing multiple)</i>	Remove 3070m median wire rope barrier throughout the stage 1 corridor.
<b>Description of Option</b>	<p>Removal of the central wire rope median barrier along length of the corridor. Wide flush median maintained. Typical carriageway will be made up of 2m shoulders, 3.5m lanes and 1.5m wide flush median.</p> <p>There could be an option to alter the typical cross section to 2.5m flush median and reduce the shoulder widths to 1.5m. This would need to be investigated.</p>
<b>Key Advantages</b>	<ul style="list-style-type: none"> <li>• Allows residents to conduct right hand turns into and out of their properties.</li> <li>• Minimal reduction in cost approx. \$260k.</li> <li>• Reduction in operation and maintenance costs.</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>• Reduced road user safety improvements (DSI increase) with barrier removal. Some benefit from flush median estimated at a 50% reduction in DSI for this section compared to 66% for current design (based on 100kmh crash statistics)</li> <li>• Reduction of 3.5 or greater KiwiRAP star rated corridor by 1.6km.</li> <li>• Reputational damage. We have purchased property for and constructed four turning facilities that will be no longer required. This includes defending the project in the environmental court twice against the same landowner as part of the NoR and PWA process.</li> <li>• Installation of wire rope is under contract and we will need to remove it from the project scope.</li> </ul>
<b>Cost/Programme/Carbon Implications: (-ve = saving) – provide for all options under consideration</b>	
Construction \$	Program

Savings of potentially up to \$261,000 compared to current design.  Savings are indicative and provided for comparative purposes only.	Removal of wire rope median barrier could potentially reduce the program by 15 days.
Carbon	Road Safety
	Reduction in DSI impact compared to current design

Released under the Official Information Act 1982

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Out of Scope

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Out of Scope

#### Recommendation

Stage 1:

It is recommended that we continue with the current design and install the wire rope median barriers as planned.

Out of  
Scope

By: s 9(2)(d)

#### Outcome

Date:

Signatures: