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278 CLEVEDON-KAWAKAWA ROAD, CLEVEDON RESPONSE TO S92 ADDITIONAL INFORMATION REQUEST

This letter has been prepared to respond to Auckland Council's request for additional information with respect to the development at 278 Clevedon-Kawakawa Road, in Clevedon. The following are the requests received from Council and our responses to those requests:

Request:

The Transport Assessment (TA) provides an assessment of the plan change on the existing environment, but does not provide a description of the expected future environment, and does not assess the effect of the proposal on that environment.

Without such an assessment the impact of the proposal on the future environment cannot be properly understood.

Information should be provided on expected traffic growth in the area, preferably from regional/ district transport models, and assessment against that baseline provided for an appropriate future year (eg 2036).

Response:

The proposal is to create 11 countryside living lots. Under the Auckland Unitary Plan (AUP), trip generation effects on the wider road network are to be considered when more than 100 dwellings are proposed within a single proposal.

With 11 lots proposed, a trip generation of approximately 10 vehicle movements during peak hours can be expected and 99 vehicle movements daily. Furthermore, given the location of the site, it is likely that the trip generation will be lower, as residents would be likely to make multiple-destination trips, with many discretionary trips being incorporated as pass-by trips on their daily routine. This is based on the site being located approximately 3.0 km from Clevedon (with limited shopping options) and 15 km from Papakura (with more extensive shopping options).

Data from Auckland Transport shows the existing two-way vehicle movement on Clevedon-Kawakawa Road in November 2018 was 270-350 vehicles during peak hours and 3,250 vehicles per day. Assuming a lane capacity of 900 vehicles per hour (one vehicle every four seconds), the mid-block section of Clevedon-Kawakawa Road has a two-way capacity of 1,800 vehicles per hour. With 350 vehicles during a peak hour, the road is estimated to currently operating at 19.4% of its potential capacity. The proposal would increase this to 20.1% capacity. This increase is considered negligible and within the hourly fluctuation of traffic flows recorded.

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Traffic modelling and assessment for this level of development is not considered necessary to determine the future effects of the proposal, as they will be negligible in nature.

Request:

The TA assesses the access location and form shown on the proposed subdivision drawings, and assesses sight distance on the basis of the LTSA RTS 6 “Guidelines for Visibility at Driveways” document for a location in the proposed driveway.

There are a number of issues with the sight distance assessment:

It is noted that there is no specific request for additional information under this statement rather just comments on the TA’s approach to sight distance assessment. Nevertheless, it is considered that the TA’s sight distance assessment was appropriate for the road conditions and the following provides responses to each comments made by Council’s Traffic Engineer.

- a. *The RTS 6 guideline was published in 1993 and was based on the 1988 NAASA1 Guide to traffic engineering practice. The NAASRA guideline has been superseded by more recent Austroads guidelines having longer minimum sight distances as the result of road safety research, and different measurement parameters.*

The RTS6 publication remains in effect as a valid standard by the New Zealand Transport Agency (NZTA). Until such time that NZTA recalls the document, it remains valid and appropriate for use on New Zealand roads.

- b. *While the general approach of RTS 6 is considered to remain appropriate, the minimum distances should be calculated using current versions of Austroads Guidelines. For driveways on arterial roads, RTS 6 uses distances calculated from the Safe Intersection Sight Distance (SISD) standard.*

Clevedon-Kawakawa Road has a relatively low traffic volume; while it is classified as an arterial road, this is predominantly based on its connection between Clevedon and Kawakawa, rather than its traffic volume (traffic volumes and therefore the traffic environment are more consistent with that of a local/collector road). The RTS6 values for arterial roads account for higher traffic flow volumes along the road and the resultant increase in potential conflict with entering/exiting traffic and mainline traffic. It is noted that, within Auckland, there are other rural based roads with similar or higher traffic volumes with 100 km/h speed limits, which are not classified as arterial roads (Clevedon-Takanini Road, West Road – Clevedon, Alfriston-Ardmore Road).

Furthermore, it is noted within NZS 2890-1:2004, access driveways onto a road with a 100 km/h speed limit require a minimum stopping sight distance of 160 metres (consistent with RTS6 – collector roads).

- c. *The minimum sight distance stated in the TA is the RTS 6 distance for an operating speed of 90km/h, not the measured operating speeds of 94 and 95 km/h. The minimum distances should either be based on the rounded-up speed (ie 100km/h), interpolated, or preferably calculated from the formula.*

The sight distance requirements were stated in the TA for both a 90 km/h and a 100 km/h speeds, for both arterial roads and collector roads under RTS 6 standards.

- d. *Vehicles approaching the access location from the west would be braking on a down-grade, which requires longer stopping distances. The TA does not adjust the minimum sight distance to take account of grade in the braking area.*

Based on the contours provided within Auckland Council's GIS, Clevedon-Kawakawa Road has a downhill gradient upwards of 3% for eastbound traffic. Applying this gradient results in a Stopping Sight Distance/Approach Sight Distance (SSD/ASD) of 160 metres and a Safe Intersection Sight Distance of 240 metres, compared to a SSD/ASD of 150 metres and SISD of 230 metres on a flat gradient.

- e. *The TA states that the measured sight distances do not meet the (outdated and rounded down) RTS 6 requirements.*

While the sightlines at the driveway do not meet the arterial, low volume access, 100 km/h sight distance (250 metres), the available sightlines do meet the requirements for collector road, low volume access (160 metres).

As the traffic volumes along Clevedon-Kawakawa Road are more consistent with a collector road, this is considered acceptable, as previously stated within the TA.

- f. *The TA notes that the Austroads SSD and MGSD standards are met, but neither are considered to be appropriate for driveways on an arterial road. RTS 6 only uses the lower SSD standard on lower-order roads.*

Within Austroads, it is stated:

*“Desirably, sight distances at accesses **should** comply with the sight distance requirements for intersections, i.e. that approach sight distance (ASD), safe intersection sight distance (SISD), and minimum gap sight distance (MGSD) are achieved.*

The criteria above often cannot be obtained at accesses on roadways with tighter horizontal and vertical alignments, or vegetation.”

In Austroads, the sight distance calculations make no distinction for road classification, whether it is arterial, collector, or local. Furthermore, it is acknowledged within Austroads that it is not always possible to provide complying sight distance values.

Alternatively, when looking at Stopping Sight Distance (SSD), within Austroads it is stated: “The provision of stopping sight distance is a **mandatory** design condition for all roads and intersections in the Normal Design Domain.”

The proposed vehicle crossing location exceeds the SSD requirement for a 100 km/h road on a 3% downhill gradient (160 metres) by at least 50 metres in all directions.

- g. *Sight distances to vehicles waiting to turn right into the driveway (ie BD and BC in RTS 6) are not stated and are likely to be less than those measured from the driveway.*

A photo taken from the road edge, adjacent to the proposed vehicle crossing and on Clevedon-Kawakawa Road towards the vehicle stop position within the roadway is shown in **Figure 1**. These photos illustrate that approximately 210 metres of site distance is available for the RTS6 BD distance.

As stated in response to item f above. It is acknowledged within Austroads that providing SISD at driveway locations is often not feasible due to existing road geometry. As the driveway will serve less traffic than a typical cross-road intersection, for which the standard is designed, there is reduced likelihood of a vehicle being stopped within the roadway turning into the access. Furthermore, should this eventuate there is suitable sight distance available for alert drivers to slow and stop safely if required, as dictated by Stopping Sight Distance within Austroads (150 metres). From Austroads: *“Stopping Sight Distance (SSD) is the distance to enable a normally alert driver, travelling at the design speed on wet pavement, to perceive, react and brake to a stop before reaching a hazard on the road ahead.”*

As there are curves along this section of Clevedon-Kawakawa Road, it is suitable to expect drivers to be alert, as they need to negotiate the geometry of the road. Therefore, the available sight lines allow for sufficient forward visibility for an oncoming vehicle to identify a vehicle queued within the road, waiting to turn into the site and then come to a stop as needed.

Lastly, it is noted that due to the relatively low traffic volumes on Clevedon-Kawakawa Road, vehicles turning right into the site will be able to do so relatively freely, with minimal delay, thereby further reducing the exposure to oncoming vehicles; as compared to arterial roads with higher traffic volumes, where turning movements may be subject to more delay.

- h. *Speeds were measured using radar equipment which is subject to under-representing vehicle speeds as a result of drivers being alerted by radar-detecting devices.*

Vehicle operating speeds were collected discretely so as not to influence driver behaviour. While it is possible some drivers may have radar-detecting devices within their vehicle, the vast majority do not. With more than 70 speed observations collected, should even 10% of drivers lowered their speeds due to radar detection (from 115 km/h to ~95 km/h), the calculated 85th percentile speed does not change as a result.

Having considered the additional information above, I remain of the opinion that the traffic engineering effects of the proposal can be accommodated on the road network without compromising its function, capacity, or safety and that the proposal will have less than a minor effect.

Prepared by,



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Figure 1: Access Sightlines
Image Source: Traffic Planning Consultants Ltd.

278 Clevedon-Kawakawa Road
Additional Information Request
Ref: 19218