TRAFFIC PLANNING CONSULTANTS LTD

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TRANSPORT ASSESSMENT – 278 CLEVEDON-KAWAKAWA ROAD, CLEVEDON

As requested, we have prepared a transport assessment for the proposal to subdivide a portion of 278 Clevedon-Kawakawa Road, in Clevedon. The site is zoned as Rural – Rural Coastal Zone, under the Auckland Unitary Plan – Operative in Part (AUP).

1.0 Introduction

The statutory approval process that is being adopted for this project involves a private plan change request to rezone part of the land at 272 and 278 Clevedon-Kawakawa Road and the land at 274 Clevedon-Kawakawa Road from Rural – Rural Coastal to Rural – Countryside Living and to extend the Clevedon Sub Precinct C over this land and a subsequent resource consent application for the subdivision of 278 Clevedon-Kawakawa Road to create 11 countryside living lots, a shared access and amenity lot, a balance farm lot and a balance lot to be amalgamated with 272 Clevedon-Kawakawa Road. The resource consent application is being prepared on the basis that the plan change request will be approved prior to this application being considered. The resource consent application is therefore being made on the basis that the land area at 278 Clevedon Kawakawa Road to be used for countryside living activities is zoned Rural Countryside Living and the Clevedon Sub Precinct C applies to this land.

This statutory approval approach is being taken as the proposed plan change will only enable limited countryside living development opportunities on the property at 278 Clevedon-Kawakawa Road given the extent of the flooding constraints that apply to this land and the nature of the clustered countryside living subdivision and development that is provided for by the Rural – Countryside Living Zone and Clevedon Sub Precinct C provisions under the Auckland Unitary Plan. The proposal for which resource consent is being sought therefore defines the maximum extent of subdivision and development that will be enabled by the proposed plan change on the properties.

This Transport Assessment is therefore based on the subsequent subdivision and development of the land that will be enabled through the approval of the plan change request, which is the proposal as detailed in the resource consent application. This is deemed to be the maximum possible development potential of the land that would reasonably be expected to occur as a result of the approval of the plan change request.

There are no plans for dwelling typologies within the 11 countryside living lots, however it is expected that each dwelling will provide parking for two vehicles. A new vehicle crossing onto Clevedon-Kawakawa Road and an access equipped with passing bays will be constructed to serve the development. Figure 1 displays the subject site location.

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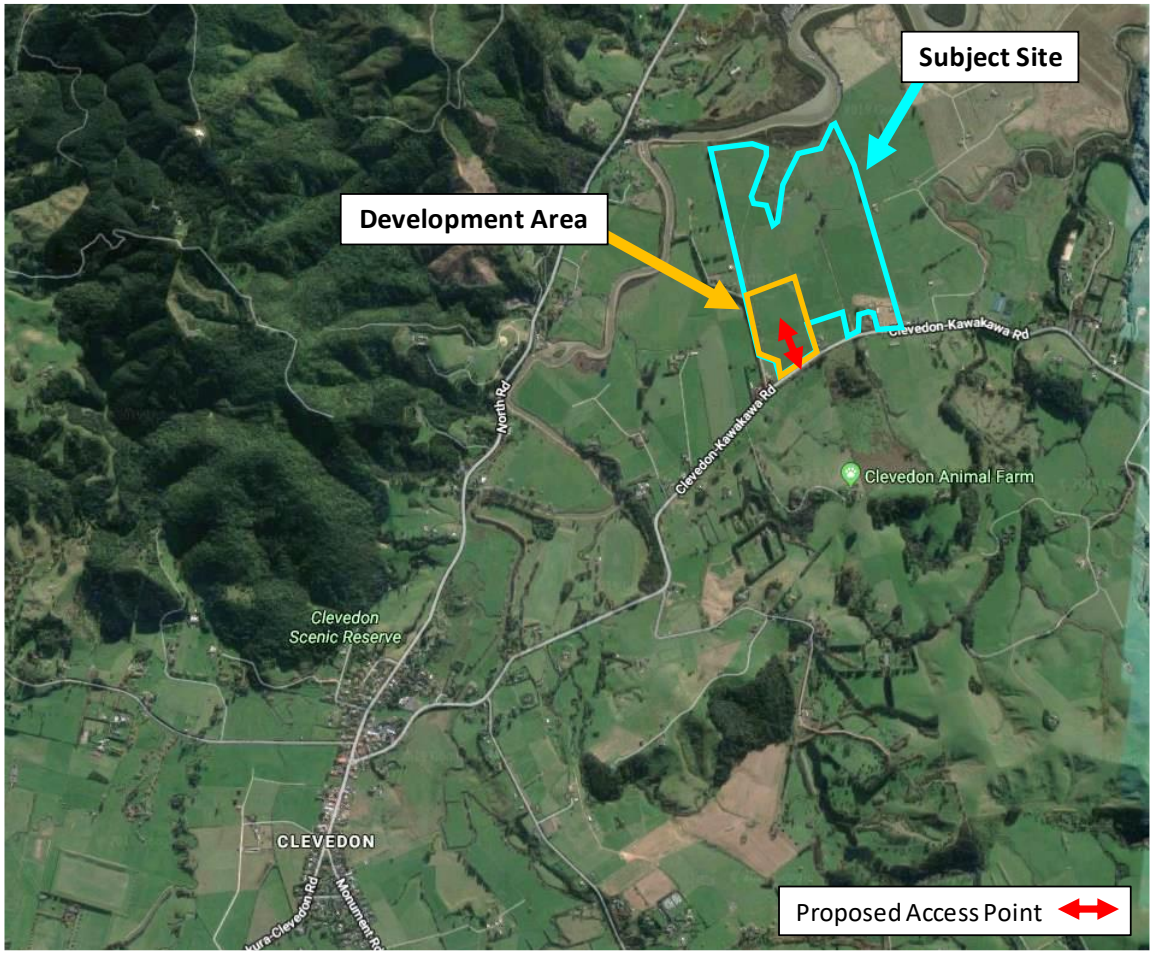

Figure 1: Site Location
Image Source: Google Maps

2.0 Existing Transport Environment

2.1 Road Network

Clevedon-Kawakawa Road is a two-lane arterial road which runs from Clevedon in the west to Kawakawa Bay in the northeast. Clevedon-Kawakawa Road has a sealed carriageway width of 7.0 metres, providing one traffic lane in each direction and 2.0-metre-wide unsealed road shoulders on each side. Near the site Clevedon-Kawakawa Road has a relatively flat topography. To the west of the site Clevedon-Kawakawa Road has a sharp corner, and to the east of the site it has a gentle corner. Clevedon-Kawakawa Road has a posted speed limit of 100 km/h.

There are no footpaths provided along Clevedon-Kawakawa Road nor any nearby public transport routes.

Table 1 summarises the result from a traffic survey carried out on Clevedon-Kawakawa Road between Holdens Road and Atchison's Bridge by Auckland Transport in November 2018. It is noted that more recent counts were available in December 2018, however these were carried out over the Christmas/New Years period and are not considered to represent typical conditions.

Table 1: Clevedon-Kawakawa Road Traffic Counts

Direction	Weekday	Saturday	Sunday	Weekday		
				AM Peak	Midday Peak	PM Peak
Both	3,245	2,883	3,046	271	346	339
Vehicle Type Distribution						
Car	Light Commercial Vehicle	Medium Commercial Vehicle		Heavy Commercial Vehicle – I		Heavy Commercial Vehicle - II
84.2%	3.2%	12.1%		0.2%		0.1%

**It is noted that the vehicle type distribution sums to 99.8% as per the AT data.*

2.2 Crash History

A review of crash data from the past five years (January 2014 to December 2018) within 500 metres of the site has shown that four crashes were reported on Clevedon-Kawakawa Road. The crashes resulted in one minor injury and three non-injuries.

The first crash involved a vehicle being rear-ended as they slowed along Clevedon-Kawakawa Road. The offending driver was travelling at too high a speed for the corner and was unable to safely stop upon seeing the slow-moving vehicle. The crash did not result in any injury.

The second crash involved a vehicle being rear-ended as they slowed to enter a property along Clevedon-Kawakawa Road. The offending driver was looking to overtake and did not notice the turning vehicle slowing down. The crash did not result in any injury.

The third crash involved a truck reversing into a driveway and not noticing an approaching vehicle as they crossed the main travel lane. The approaching vehicle collided with the truck, resulting in minor injury.

The fourth crash involved a vehicle coming into contact with loose gravel on the road, resulting in the driver losing control of the vehicle and ending up in the ditch. The crash did not result in any injury.

Despite two crashes occurring at driveways, there is no commonality with the crashes that suggest an inherent road safety issue in the vicinity of the site.

3.0 The Proposal

3.1 Parking Design

The proposal does not provide individual lot details for the parking design of each respective lot. The AUP has a minimum parking requirement of one space per dwelling within Rural zones. With the smallest lot being Lot 1 at 3,661 m^2. It is expected that each lot will have enough space to provide two parking spaces per lot. The proposal therefore is anticipated to comply with this standard.

Similarly, the parking spaces for the respective lots are anticipated to comply both with dimension and gradient standards but cannot be confirmed at this stage of the consenting process.

3.2 Site Access

Vehicle Access

A new vehicle crossing is proposed approximately 80 metres from the western site boundary and will have a width of 5.5 metres. The access will be 5.5 metres wide for the first 17 metres into the site, where it will then narrow to 3.5 metres wide. Three passing bays (5.5 metres wide and 15 metres long) will be provided along the access and will be separated by no more than 100 metres. Based on the proposed access alignment and likely gradients of the access, good inter-visibility is anticipated between passing bays. Therefore, the access widths comply with the AUP standards for accesses within rural zones.

The vehicle access for the site is proposed to have a gradient following the existing contours of the site, the access will have a maximum gradient no more than 1 in 5 (20%) complying with the access gradient standard for residential use. The vehicle platform for the site will be formed within the first 4 metres within the site and will have a gradient of 1 in 20 (5%). The proposed platform gradient complies the AUP standard.

Pedestrian and Cyclist Access

Pedestrian access to the lots will be shared within the vehicle access. However, as there are no existing footpaths or pedestrian facilities along Clevedon-Kawakawa Road, there is no significant number of pedestrian movements anticipated for the site. The largest number of pedestrian movements are anticipated during rubbish collection days, where residents will bring their bins to the road for public collection. The access will serve predominantly regular users, familiar with the access arrangement and the potential to encounter pedestrians/cyclists. Furthermore, the access will have good sightlines allowing for a driver to see a pedestrian/cyclist well in advance of passing them. To ensure that casual users to the site are aware of potential pedestrian/cyclist activity, a sign denoting pedestrian/cyclist activity will be installed at the entrance to the site. With the access being at least 3.5 metres, there is sufficient width for a vehicle and pedestrian to pass each other safely. Considering the above, the pedestrian/cyclist access arrangements for the site are considered acceptable and can operate safely.

3.3 Sight Distance

In respect of sight distance, the appropriate standard to use is the Land Transport Safety Authority publication “Guidelines for Visibility at Driveways”. There are two components to the sight distance measurement, the first being the sight distance requirement and the second being the lines of clear sight. The sight distance / lines of clear sight required is dependent upon the traffic generation of the proposal, the 85th percentile speed of vehicles on the frontage road, and the classification of the frontage road.

Observed Vehicle Speeds

Vehicle speed data were collected on May 20th, 2019 under overcast weather with dry road conditions. Vehicle speeds were measured utilising a "Bushnell – Velocity" which utilises Doppler Radar technology to determine vehicle speeds within a 1 km/h degree of accuracy. Vehicle speeds were collected discretely so as not to encourage slower vehicle speeds and best represent likely conditions.

Vehicle speeds were recorded only if driver behaviour was not impacted by others. Examples of behaviour influences include; vehicles slowing to turn onto a Clevedon-Kawakawa Road access or vehicles with a platoon – where the first vehicle dictates the speed.

Figure 2 provides the breakdown of vehicle speeds. From the data collected, the following is noted:

- The lowest observed speed was 58 km/h;
- The highest observed speed was 121 km/h;
- The average eastbound speed was 86 km/h; and
- The average westbound speed was 82 km/h; and
- The eastbound 85th percentile speed was 95 km/h; and
- The westbound 85th percentile speed was 94 km/h.

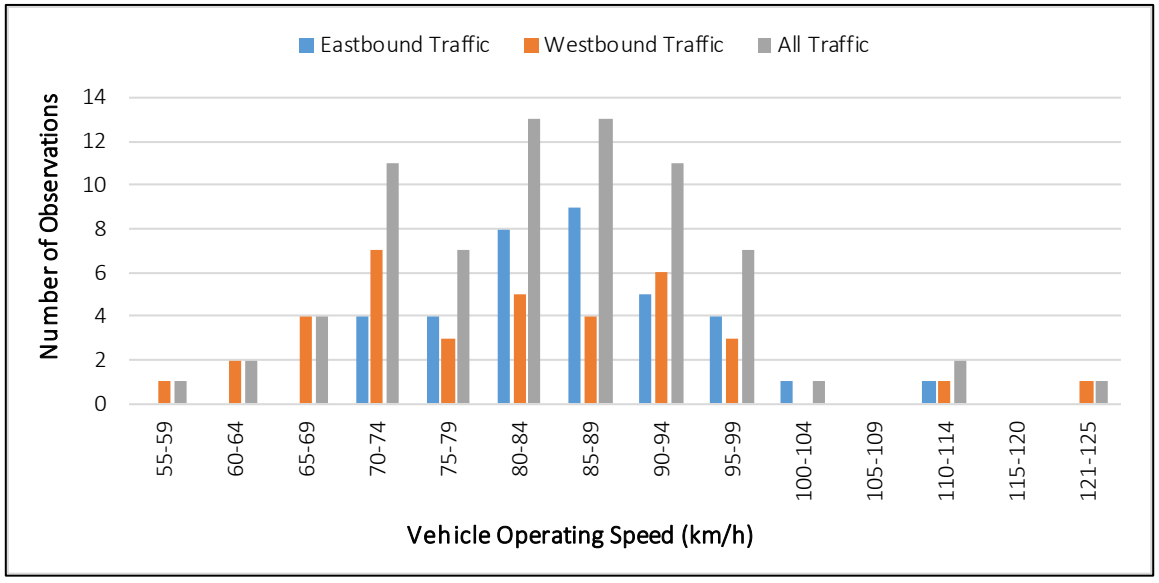

Figure 2: Vehicle Operating Speed Distribution
Source: Traffic Planning Consultants

Sight Distance Requirements and Availability

For this location, the development is forecast to generate 99 vehicle trips per day and 9 trips during peak hours[1], therefore classifying the driveway as low volume. For an arterial road with an 85th percentile operating speed of 95 km/h (eastbound) and 94 km/h (westbound), from RTS 6 a sight distance of 210 metres is required for a 90 km/h 85th percentile operating speed and 250 metres is required for a 100 km/h 85th percentile operating speed.

[1] 'Guide to Traffic Generating Developments', Roads and Maritime Service (RMS), New South Wales, October 2002

Sight distances at the proposed vehicle crossing were confirmed to be 220 metres in both directions. Figure 3 displays the indicative sight distance. As such, the available sight distance does not meet the requirements for an arterial road under RTS 6.

Under the Austroads design standards, a Stopping Sight Distance of 165 metres is required for passenger cars travelling at 95km/h (utilising a 2.5 second reaction time) and 189 metres is required for trucks. As well, Austroads indicates a Minimum Gap Sight Distance of 139 metres (for a 100 km/h operating speed) based on a Critical Acceptance Gap of 5 seconds.

Therefore, the available sight distance meets the requirements for the Austroads Stopping Sight Distance (for both cars and trucks) and Minimum Gaps Sight Distance.

Furthermore, it is noted that under RTS 6 a collector road requires a sight distance of 160 metres for a 90 km/h 85th percentile operating speed and 190 metres for a 100 km/h 85th percentile operating speed. Therefore, the available sight distance meets the collector road requirements of RTS 6.

Considering the above, the proposed access location has suitable sight distance.

Figure 3: Indicative Sight Distance
Source: Traffic Planning Consultants Ltd

4.0 AUCKLAND UNITARY PLAN STANDARDS

Section E27 of the Auckland Unitary Plan (Operative in Part) sets out the development standards relating to transport. Table 2 lists the relevant standards that apply to this development and comments on compliance. Where there is non-compliance, further assessment has been undertaken against the criteria set out in the AUP.

Table 2: Transport Development Controls

Standard	Requirement/Details	Comment
E27.6.1 Traffic Generation	Set the threshold for when resource consent as a restricted discretionary activity is required. For a residential development, the threshold of 100 dwellings applies.	This development has 11 dwellings proposed – **does not apply**
E27.6.2 (1) Number of Parking Spaces	Defines the minimum and maximum number of parking spaces for new developments. In rural zones, residential dwellings require a minimum of one space per dwelling.	Each lot will have parking for two vehicles – **complies**
E27.6.2 (6) Cycle Parking	Defines the number of cycle parks required for new residential and commercial developments. There are no cycle parking requirements for development with less than 20 dwellings.	This development has 11 dwellings proposed – **does not apply**
E27.6.2 (7) End Trip Facilities	End trip facilities to be provided for any office, education, or hospital facilities.	The proposal is for residential buildings – **does not apply**
E27.6.2 (8) Number of Loading Spaces	Outlines the minimum loading space requirements for new developments. No loading spaces are required for residential activities under 5,000m² GFA.	GFA for the overall development is unknown at this time, however with 11 lots proposed, the overall GFA will be less than 5,000 m^2 – **does not apply**
E27.6.3.1 Size and Location of Parking Spaces	Defines the size, use, and location of parking spaces.	Details of on-site parking are unknown at this time – **does not apply**
E27.6.3.2 Size and Location of Loading Spaces	Defines the size, use, and location of loading spaces	No loading space required – **does not apply**
E27.6.3.3 Access and Manoeuvring for Parking	Defines the requirements for design vehicles, driveways, manoeuvring area, and stacked parking allowances.	The vehicle access has been designed to accommodate 85th percentile vehicle tracking – **complies** Details of on-site parking are unknown at this time – **does not apply**
E27.6.3.4 Reverse Manoeuvring	Defines the conditions in which reversing manoeuvring is acceptable to and from a site.	Parking is configured so that vehicles can enter and exit the site in a forward direction – **complies**
E27.6.3.5 Vertical Clearance	Defines the minimum overhead clearance for vehicles can pass safely under overhead structures.	No overhead structures are proposed. Any garages to be provided at a later date shall have a minimum vertical clearance of 2.1 metres – **complies**

Standard	Requirement/Details	Comment
E27.6.3.6 Formations and Gradients	Defines the formation and gradients for all parking spaces and manoeuvring areas.	Details of on-site parking are unknown at this time – **does not apply**
E27.6.3.7 Lighting	Lighting is required where there are 10 or more parking spaces and associated pedestrian routes used in the hours of darkness.	The development proposes approximately 22 parking spaces and no lighting is proposed along the access – **does not comply**
E27.6.4.1 Vehicle Access Restrictions	Defines the acceptable locations of access points in relation to strategic roads and intersections.	The vehicle crossing is onto an arterial road – **Vehicle Access Restriction** The vehicle crossing is more than 10 metres from any intersection – **does not apply**
E27.6.4.2 Width and Number of Vehicle Crossings	Defines the maximum number of vehicle crossings, proximity to others, and permitted widths.	One vehicle crossing is proposed - **complies** The vehicle crossing will be separated from adjacent crossings by more than 50 metres – **complies** The vehicle crossing will have a width of 5.5 metres – **complies**
E27.6.4.3 Width of Vehicle Access and Queuing	Defines the standards for vehicle access widths for on-site parking and pedestrian movements.	The vehicle access has a minimum width of 3.5 metres serving 11 residential lots – **complies** The vehicle access will provide passing bays within 100 metres of each other – **complies**
E27.6.4.4 Gradient of Vehicle Access	Defines the gradients of circulating aisles for vehicle movements.	All gradients within vehicle circulating areas will be no steeper than 1 in 5 (20%), providing access to residential lots – **complies** The vehicle access is designed with a gradient of 1 in 20 (5%) at the boundary – **complies**
E27.6.5 Design and Location of Pedestrian/Cycle Facilities	Defines the requirements for off-road and pedestrian and cycle facilities.	The pedestrian facilities on site are considered to meet the requirements of this standard – **complies**

5.0 AUCKLAND UNITARY PLAN ASSESSMENT CRITERIA

Section E27.8.2 of the AUP sets out the assessment criteria when there is an infringement in development standards for a development. For this proposal, the following standards require consent:

- E27.6.3.7 – Lighting (Criteria 8); and
- E27.6.4.1 –Vehicle Access Restriction (Criteria 11).

8. Any activity or development which infringes the standards for design of parking and loading areas or access under Standard E27.6.3, E27.6.4.2, E27.6.4.3, and E27.6.4.4:

(a) effects on the safe and efficient operation of the adjacent transport network having regard to:

(i) the effect of the modification on visibility and safe sight distances;

(ii) existing and future traffic conditions including speed, volume, type, current accident rate and the need for safe manoeuvring;

(iii) existing pedestrian numbers, and estimated future pedestrian numbers having regard to the level of development provided for in this Plan; or

(iv) existing community or public infrastructure located in the adjoining road, such as bus stops, bus lanes, footpaths and cycleways.

(b) effects on pedestrian amenity or the amenity of the streetscape, having regard to:

(i) the effect of additional crossings or crossings which exceed the maximum width; or

(ii) effects on pedestrian amenity and the continuity of activities and pedestrian movement at street level in the Business – City Centre Zone, Business – Metropolitan Centre Zone, Business – Town Centre Zone and Business – Local Centre Zone.

(c) the practicality and adequacy of parking, loading and access arrangements having regard to:

(i) site limitations, configuration of buildings and activities, user requirements and operational requirements;

(ii) the ability of the access to accommodate the nature and volume of traffic and vehicle types expected to use the access. This may include considering whether a wider vehicle crossing is required to:

- *comply with the tracking curve applicable to the largest vehicle anticipated to use the site regularly;*
- *accommodate the traffic volumes anticipated to use the crossing, especially where it is desirable to separate left and right turn exit lanes;*
  - *the desirability of separating truck movements accessing a site from customer vehicle movements;*
  - *the extent to which reduced manoeuvring and parking space dimensions can be accommodated because the parking will be used by regular users familiar with the layout, rather than by casual users;*

(iv) any use of mechanical parking installation such as car stackers or turntables does not result in queuing beyond the site boundary; or

(v) any stacked parking is allocated and managed in such a way that it does not compromise the operation and use of the parking area.

Comment (E27.6.3.7) – Lighting [Criteria 8]

The reason for consent under this standard relates to access not being equipped with any lighting where serving more than 10 parking spaces. The access itself will not be equipped with any lighting, however within the respective lots, security lighting is anticipated to be provided for each dwelling/parking area in the future. Exact details of the lighting are unknown at this stage of the site's design.

For the shared access itself, no lighting will be provided to remain consistent with the rural nature of the surrounding area and to cut down on light pollution. With very low numbers of pedestrian expected to be along the access during the hours of darkness (due to the lack of any pedestrian facilities along Clevedon-Kawakawa Road, the lack of lighting is not anticipated to be a significant safety concern, as vehicle headlights will be able to suitably illuminate the vehicle access.

Therefore, the effect of this non-compliance is less than minor and is considered acceptable.

11. Construction or use of a vehicle crossing where a Vehicle Access Restriction applies:

(d) this applies where a Vehicle Access Restriction is identified in Standard E27.6.4.1(2) and Standard E27.6.4.1(3), other than a Vehicle Access Restriction Level Crossing or a Vehicle Access Restriction Motorway Interchange:

(v) effects of the location and design of the access on the safe and efficient operation of the adjacent transport network having regard to:

- *visibility and safe sight distances;*
- *existing and future traffic conditions including speed, volume, type, current accident rate, and the need for safe manoeuvring;*
- *proximity to and operation of intersections;*
- *existing pedestrian numbers, and estimated future pedestrian numbers having regard to the level of development provided for in this Plan;*
- *existing community or public infrastructure located in the adjoining road, such as bus stops, bus lanes and cycleways;*

(vi) the effects on the continuity of activities and pedestrian movement at street level in the Business – City Centre Zone, Business Metropolitan Centre Zone, Business – Town Centre Zone and Business – Local Centre Zone; or

(vii) the practicability and adequacy of the access arrangements considering site limitations, arrangement of buildings and activities, user requirements and operational requirements, proximity to and operation of intersections, having regard to:

- *the extent to which the site can reasonably be served by different access arrangements including:*
  - *access from another road;*
  - *shared or amalgamated access with another site or sites;*
  - *via a frontage road, such as a slip lane or service road; or*
- *the extent to which the need for access can reasonably be avoided by entering into a shared parking and/or loading arrangement with another site or sites in the immediate vicinity.*

Comment (E27.6.4.1) – Vehicle Access Restriction [Criteria 11]

The vehicle access for this site is a restricted discretionary activity due to providing access onto an arterial road and therefore requires additional assessment. The following points are made with respect to the assessment criteria:

- The 85th percentile vehicle operating speeds on Clevedon-Kawakawa Road were found to be 95 km/h for eastbound traffic and 94 km/h for westbound traffic;
- Sight distances at the proposed access location comply with the Austroads stopping sight distance and minimum gap sight distance requirements in both directions;
- Vehicle movement along the access is expected to be up to 99 vehicles per day and 9 vehicles during peak periods;
- Vehicle movements to and from the proposed vehicle crossing have suitable sight lines and inter-visibility between drivers along Clevedon-Kawakawa Road such that the traffic from this access will have less than a minor effect on safety;
- Based on the existing traffic volumes (350 vehicle per hour during peak times) vehicle movements to and from the site can be completed with relative ease and minimal delay to other vehicles along Clevedon-Kawakawa Road;
- Due to the site's location there is no opportunity for the site to access another road (which is not classified as an arterial);
- The vehicle crossing and access comply with all AUP design standards;
- The site has been designed so that vehicles can enter and exit the site in a forward direction; and
- The available five-year crash history does not indicate any significant safety issues with vehicles entering and exiting properties in the vicinity of the site along Clevedon-Kawakawa Road within 500 metres of the site.

The proposed access arrangement onto Clevedon-Kawakawa Road is considered acceptable and can be safely accommodated within the current transportation environment, with less than a minor effect.

6.0 CONCLUSION

Based on the assessment described in this report, the following conclusions can be made in respect of the proposal to establish 11 residential lots at 278 Clevedon-Kawakawa Road, Clevedon:

- A review of the transport standards has identified two items which require consent under the Auckland Unitary Plan.
- Vehicle and pedestrian access to the site is designed to a suitable standard such that the proposal will not have an adverse effect on the surrounding road network, or to the safety of pedestrians and vehicles using the site.

Overall, it is considered that the traffic engineering effects of the proposal can be accommodated on the road network without compromising its function, capacity, or safety. Therefore, from a traffic engineering perspective it is considered that the proposal will have less than a minor effect.

Prepared by,

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