APPENDIX D

Transport Assessment

PROPOSED LIFESTYLE VILLAGE

16 AND 38 WILLOWBANK AVENUE, NAPIER

Traffic Impact Assessment

Date: Issue B: 15 January 2020

Client: Durham Property Limited
c/- Development Nous Limited
P O Box 385
Hastings 4156

File: 951ITA.docx

82 Hindmarsh Drive, Taupo 3330
Ph: 021 315 882 • Email: ian@tsol.co.nz

1. INTRODUCTION

This report assesses the traffic effects of a proposed new lifestyle village to be located at 16 and 38 Willowbank Avenue in Napier. The site is located between Willowbank Avenue and Eriksen Road as indicated on Figure 1:

Figure 1: Site Location

The site has frontage to both roads. Although it has a Willowbank Avenue address, it will only be accessible by motor vehicle off Eriksen Road.

Matters that this report addresses include:

- A description of the proposal;
- A description of the surrounding transport network;
- Assessment of the amount of traffic that the development will generate and its effect on the road network;
- Site access;
- On-site parking provisions;
- The layout of the internal roading and parking within the site.

2. PROPOSED DEVELOPMENT

The proposed development is shown on the Landscape Concept Plan scheme plan prepared by Development Nous Limited (Revision J dated 15/01/2020).

The site shares common boundaries with Eriksen Road on its eastern side and Willowbank Avenue on its western side. It is presently undeveloped.

The development will contain 182 lots. Each of the lots will contain one dwelling except Lot 24, which will be used as a parking area. Therefore the development will have capacity for 181 dwellings.

The proposed dwellings within the development will be targeted as housing for residents aged 55 years and above. These residents will be independent, and mobile.

The development will be served by two vehicle crossings and three pedestrian footpaths off Eriksen Road. Additional pedestrian connections will also be available to an adjacent reserve along the southern and western site boundaries to Willowbank Road. A public footpath will also be provided along the length of the adjacent reserve. The development will be gated. There will be no direct vehicle access to Willowbank Avenue.

A network of internal roadways and footpaths will provide access to and between the various parts of the development.

As part of the development, Eriksen Road will be kerbed and channelled along its western side adjacent to the site frontage, and a new public footpath will be provided.

Each dwelling will have a double garage attached. In addition, 21 parking spaces will also be provided for residents and their visitors to park, and for other vehicles such as boats or camper vans. There will also be room for parking on the driveway aprons in front of each garage for visitor or residents' use. Parking for 745 vehicles will be provided in total.

3. DISTRICT PLAN REQUIREMENTS

3.1 Zone

The site is located in the Main Residential zone in the operative Napier City District Plan.

3.2 Te Awa Structure Plan

The site is within the Te Awa Structure Plan area. Design outcomes listed in the Structure Plan that are relevant to transport follow. The design outcomes relevant to this particular development are highlighted in **bold**.

Design Outcome 11:

> ***Off road pedestrian and cycle linkages (indicatively shown on the Te Awa Structure Plan Map) which link open spaces to each other, to the street network and the Serpentine stormwater pond shall be wide, open and safe and connect to one another***.

Design Outcome 12:

Road upgrading shall proceed in conjunction with staging of development within the Te Awa Development area. The road upgrading is shown indicatively on the Te Awa Structure Plan Map. ***The following works are required****:*

Off Site Non Local

- *The following intersections will be upgraded:*
  - *Riverbend / Latham Street intersection shall be upgraded to a single lane roundabout.*
  - *State Highway 2 / Kennedy Road intersection shall be upgraded to incorporate intersection control (improvements to signals).*

Off Site Local

- *The following intersections shall be upgraded:*
  - *State Highway 2 / Awatoto Road. - State Highway 2 / Te Awa Avenue / McGrath Street.*
  - *State Highway 2 / Marine Parade.*
- *The following local collector streets shall be upgraded or constructed to Napier City Council standards and design and in general accordance with the Main Street and Local Street typical cross sections (see the Te Awa Structure Plan – Transportation report) to serve as the primary connections through the Te Awa Development area:*
  - *Kenny Road, 10m carriageway with cycle lanes, footpaths, car park / landscaped berm areas, pedestrian footpaths and verge.*
  - ***Eriksen Road, 10m carriageway with cycle lanes, footpaths, car park / landscape berm areas, pedestrian footpaths and verge.*** *Eriksen Road will be designed and upgraded with single lane roundabouts at all major intersections (see below) with 120o deflection designed into the roundabout design to assist in reducing traffic speeds along this length of road.*
  - *Three (no. 3) additional cross link roads (linking Eriksen Road to Willowbank Avenue and Te Awa Avenue), 10m carriageway with cycle lanes, footpaths, car park / landscape berm areas, pedestrian footpaths and verge.*
  - *Three (no. 3) priority intersections shall be provided to Te Awa Avenue.*
  - *One (no. 1) priority intersection shall be provided to Willowbank Avenue.*
- *Single lane roundabouts shall be provided at the following intersections:*
  - *Eriksen Road / Kenny Road.*
  - *Along Eriksen Road at all junctions with cross link roads – three (no. 3) intersections.*
  - *Willowbank Avenue / Kenny Road.*
  - ***Willowbank Avenue / Eriksen Road.***
  - *Street design shall provide for consistent landscaping treatment that contributes to urban amenity and landscape.*

Design Outcome 13:

> *No additional collector streets are necessary within the Te Awa Development area.* ***Internal streets shall generally comply with Napier City Council standards and design for local streets, except where Council may wish to promote with a developer innovative and attractive solutions that enhance residential amenity, safety and sense of place.*** *Therefore Council will look favourably on alternative subdivision concepts that achieve safe, pedestrian and cycle friendly streets and discourage through traffic.*

3.3 Road Classifications

Roads in the immediate site vicinity are classified in the Council's road hierarchy as follows:

- Willowbank Avenue collector
- Eriksen Road local
- Hurunui Drive local

3.4 Parking Space Requirement

The District Plan parking requirement of the proposed development is assessed as follows:

- Dwelling units 181 units @ 2 spaces per unit 362 spaces

With 745 on-site spaces proposed, the development will exceed the requirement by a significant margin.

3.5 Cycle Parking Requirement

Rule 61.14B requires 1 cycle park per 5 carpark spaces. Cycles can be stored in the garages of each dwelling. The requirement is met.

3.6 Vehicle Access Requirements

The District Plan refers to the Napier City Code of Practice for vehicle crossing requirements. Drawing F2.7 in The Code of Practice requires vehicle crossings in residential zones to be no more than 6m wide at the site boundary. Two crossings will be provided. The northern crossing will be 6m wide in accordance with the Code. The southern crossing will have an overall 12.5m width, which does not comply with the Code, but will be specifically designed as a main gateway entry. This access assessed in more detail later in this report.

4. TRANSPORT ENVIRONMENT

4.1 Existing Road Geometrics

North of Hurunui Drive, Eriksen Road is a rural unkerbed road with 6.4m width between seal edges. The road is two-laned. There are no paint markings or parking controls. There are also no footpaths or cycle facilities.

South of Hurunui Drive the road is 8.4m wide between a kerb on the eastern side and the seal edge on the western side. The eastern side was recently kerbed and channelled,

and a footpath provided, as part of residential land development on the eastern side of the road.

Eriksen Road has a straight and level alignment, with clear visibility along it. There is a slight curve in the horizontal alignment near the northern site boundary.

There are two speed thresholds adjacent to the site. These consist of kerbed side islands and paint hatching, which effectively reduce the roadway width through the thresholds to one-lane flow at a time.

Hurunui Drive is a newly constructed residential road that intersects with Eriksen Road directly opposite the site and connects to Te Awa Avenue at its eastern end. The road is 9m wide between kerbs. It has a straight and level alignment. The intersection at Eriksen Road has a "Give Way" control.

Willowbank Avenue is a high speed rural road. It is 10.5m wide between seal edges, including sealed shoulders. It has a straight and level alignment with clear visibility along it.

The northern end of Eriksen Road intersects with Willowbank Avenue some distance north of the site. The intersection is presently barriered off, so Eriksen Road is effectively a cul-de-sac. Design Outcome 12 in the Te Awa Structure Plan indicates that Eriksen Road will be realigned at its northern end to intersect with Willowbank Avenue directly opposite Geddis Avenue, and a roundabout control installed at the intersection at some future time.

4.2 Proposed Eriksen Road Upgrade

The development plans show that a new kerb and channel will be installed along the western side of Eriksen Road adjacent to the site. The roadway width between the proposed kerb and the existing kerb where it is already installed on the eastern side will be 10m, as specified in Design Outcome 12 in the Structure Plan. A footpath will also be provided along the western side adjacent to the site as indicated, for general public use.

4.3 Passenger Transport Services

There are no bus services on Eriksen Road or Willowbank Avenue.

The nearest available service routes are:

- Route 11 – Napier to Havelock North via Te Awa Avenue. Frequency of service 2 buses each way in the weekday morning commuter peak and 2 buses each way in the evening commuter peak only.
- Route 14 – Napier, Maraenui and Onekawa loop via Geddis Avenue. Frequency of service half hourly in commuter peaks, hourly at other times, 4 buses on a Saturday and no services Sunday.

Bus stops are located on Te Awa Avenue about 600m walk from the site, and on Geddis Avenue just west of its intersection with Willowbank Avenue, about 450m walk from the site.

Available bus services in the site vicinity are sparse.

4.4 Traffic Volumes

Traffic count data shows that Eriksen Road south of Kenny Road carries 400 vehicles per day. Existing traffic flows north of Kenny Road, close to the site, are lower, probably no more than 200 vehicles per day, although this will increase with development in the surrounding area.

Willowbank Avenue presently carries about 4,000 vehicles per day.

There is a considerable amount of unused capacity on both roads.

4.5 Traffic Safety

During the 5-year period 2015 to 2019 the New Zealand Transport Agency recorded 3 accidents on Eriksen Road north of Kenny Road. Both of these accidents involved lost control vehicles. Speed, alcohol and unfamiliarity with the vehicle were contributing factors.

During the same period, 4 accidents were recorded at the cross-intersection of Kenny Road with Eriksen Road. All of these involved collisions at 90-degrees. The proposed roundabout at this intersection referred to in Design Outcome 12 in the Te Awa Structure Plan should address this existing traffic safety issue.

No existing traffic safety issues of direct relevance to the proposed development are evident in the accident statistics.

5. TRAFFIC GENERATION AND DISTRIBUTION

5.1 Trip Generation

The following sources have been used to assess the traffic generation of the proposed development:

- New Zealand Trips and Database Bureau (NZTPDB);
- RTA Guide to Traffic Generating Developments (Roads and Traffic Authority of New South Wales) - October 2002;
- ITE Trip Generation 7th Edition (Institute of Transportation Engineers, USA);
- Surveys of traffic flows and at other residential subdivisions and retirement villages, carried out by Traffic Solutions Limited.

The sources above indicate that retirement villages typically generate traffic flows up to 3 vehicle trips per day per dwelling, and peak hourly flows of approximately 0.3 vehicle trips per hour (tph) per dwelling.

Surveys also show that normal residential subdivisions generate about 9 vehicle trips per day per dwelling, and peak hourly flows of about 0.9 tph per dwelling.

While this particular development will be targeted to seniors, it will not be a retirement village. Therefore I expect the development will generate traffic at a ratio somewhere between that of a normal residential subdivision and a retirement village. It is anticipated that about 30% of residents will still be of working age, and on that basis I consider that the development will generate traffic flows at ratios of about 5 vehicle trips per day per

dwelling, and 0.5 tph per dwelling in a peak hour. These ratios equate to actual flows of about 900 vehicle trips per day and a peak hourly flow of about 90 tph.

5.2 Trip Distribution

While Eriksen Road remains disconnected from Willowbank Avenue at its northern end, traffic flows the development will generate towards the north will need to hook around via Eriksen Road south and Kenny Road, or use Hurunui Drive and Te Awa Avenue. Figure 2 shows how I consider generated traffic will be distributed on the network immediately adjoining the site, under this scenario.

Figure 2: Distribution of Generated Traffic – Eriksen Road Disconnected

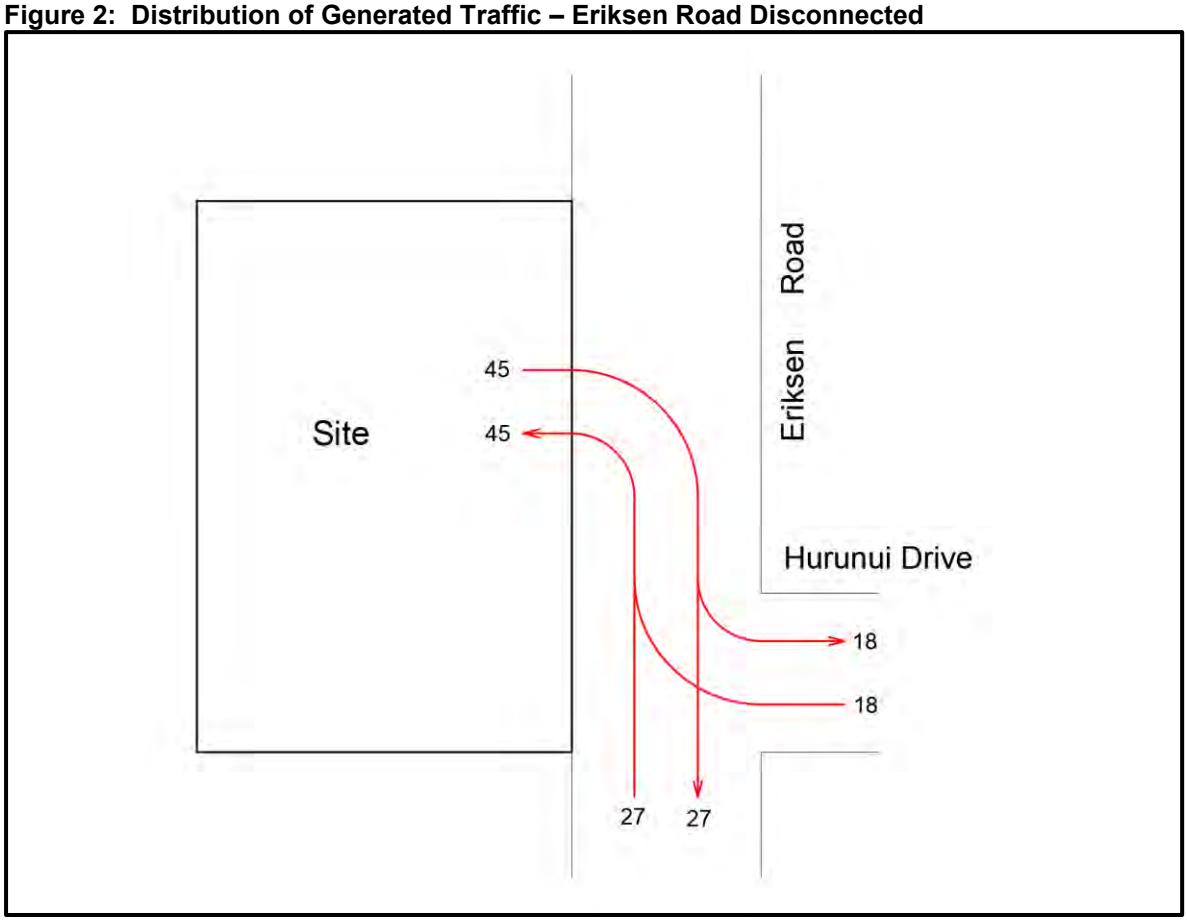
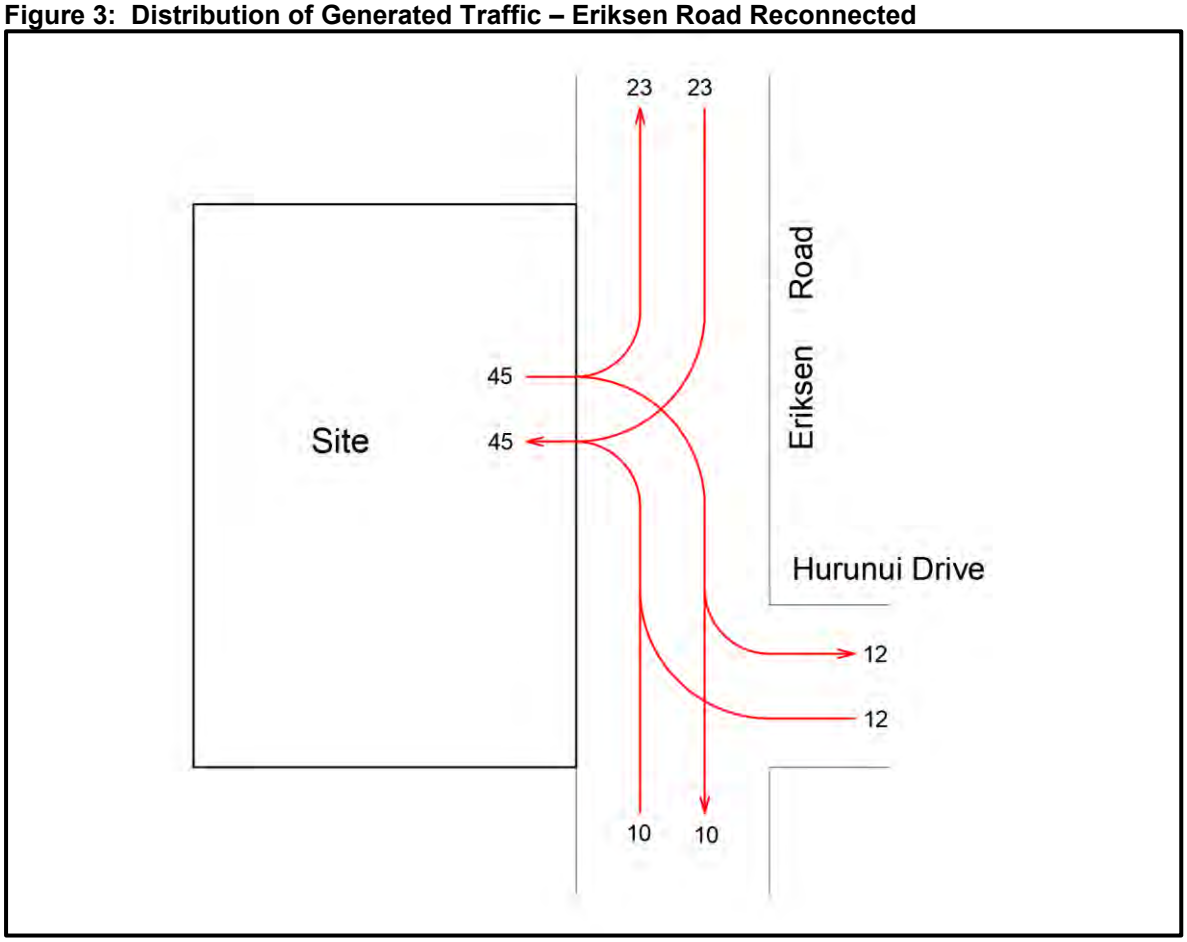


Figure 3 shows how I predict generated traffic will be distributed on the network immediately adjoining the site, if Eriksen Road is reconnected to Willowbank Avenue at its northern end in accordance with the Structure Plan.

Figure 3: Distribution of Generated Traffic – Eriksen Road Reconnected



In Figures 2 and 3 I have assumed that 50% of traffic is entering traffic and 50% is exiting traffic. This will not necessarily be the case, however the flows do provide an indication of the magnitude of additional traffic that will likely use each approach road.

Regardless of whether Eriksen Road is eventually reconnected to Willowbank Avenue or not, Figures 2 and 3 show that the traffic that will be generated on any one part of the transport network will be low, and well within available capacity.

6. SITE ACCESS

6.1 Vehicle Access

The site will be accessed via two new vehicle crossings. The southern crossing will be the grand entry and some effort will be made to make it attractive. The northern access may also likely be well used by future residents, particularly if Eriksen Road is reconnected to Willowbank Avenue at its northern end, albeit it will be less conspicuous.

The northern access will be 6m wide at the site frontage boundary. Such width will cater for simultaneous two-way vehicle flow, and service and emergency vehicles adequately.

The southern access will have an overall 12.5m width. This will consist of separate entry and exit carriageways each 4m wide with a kerbed median separating them. The overall width exceeds the 6m maximum permitted in the Council's Code of Practice, however, the entry and exit carriageways considered separately will be within the requirement. Such a

width is suitable for cars to enter and exit the site simultaneously and is wide enough to accommodate larger vehicles such as emergency vehicles and service vehicles. The separation between the entry and exit lanes will provide a median shelter for any passing pedestrians, thus mitigating any adverse effects of the overall wider crossing.

The northern access will not be located near any road intersections. The southern access will be located 35m north of the intersection at Hurunui Drive. Such a separation is considered to be sufficient to avoid conflicts occurring between vehicles turning at the access and vehicles turning at the intersection. I consider there will be no adverse traffic effects arising from the location of either access.

Both accesses will be gated for security. The gate across the northern access will be located 6m inside the site boundary, which will provide enough room for an entering car to wait entirely within the site for the gate to open without overhanging into the road reserve. The gate at the southern access will be 12m inside the boundary, which will enable two cars or one service vehicle to wait within the site for it to open. I consider that the gate arrangement can be accommodated satisfactorily at the accesses.

Available sight distances from both vehicle crossings are as follows:

- Northern access: 220m northwards, 300m+ southwards
- Southern access: 300m northwards, 300m+ southwards

The NZTA publication RTS 6 “Guidelines for Visibility at Driveways” recommends at least 40m of sight distance at property accesses on local roads operating at 50 km/h. For a higher operating speed of 100 km/h, which will become less likely with increasing urbanisation of the neighbourhood, the recommendation is 160m. The available sight distances will exceed both recommendations, even at the higher operating speed. I consider that visibility is adequate to enable both accesses to operate safely.

6.2 Pedestrian Access

Two pedestrian footpaths will be provided into the site adjacent to the main southern vehicle access, and one footpath will be located into the site adjacent to the northern vehicle access. These will all connect to the new public footpath to be provided along Eriksen Road.

It will also be possible to walk between the site and the reserve along the southern and western site boundaries, through various reserves. These links will provide access to a proposed new public footpath along the full length of the reserve.

In my opinion, the proposed footpath accesses will provide safe and convenient routes on and off the site for pedestrians, separate from motor traffic.

7. SITE LAYOUT

The individual lots will be accessed from the internal driveway network. Road 1 as identified on the landscape concept plan will be 8m wide between kerbs. All other internal roads will be 6m wide between kerbs. These widths will easily accommodate two-way vehicle flow, and emergency and other larger vehicles that may access the site from time to time.

Most of the internal driveways will be cul-de-sacs and will carry very little traffic. Each cul-de-sac will include a 16m diameter turning head, which is easily sufficient to accommodate turning cars.

Three cross-intersections are proposed within the site. Uncontrolled cross-intersections can be notorious for creating conflicts between vehicles manoeuvring through them, and often drivers are uncertain who has priority. To improve traffic management at the cross intersections within this development it is proposed to install roundabout controls. The central islands will be small and mountable so that larger vehicles can drive over them if necessary. In my opinion, these roundabouts will provide effective traffic control, and I support their use.

Each of the dwellings will have a double garage attached for residents' use. Driveway aprons in front of each garage will also accommodate additional parked vehicles such as for visitors. Some limited parking could also be accommodated along the internal roads if desired, without unduly obstructing vehicle movement.

Some parking will also be provided within the site for additional residents' vehicles and their visitors, and other vehicles such as boat trailers or camper vans. These spaces will be provided along the northern driveway entry and is a separate carpark area on Lot 24 immediately adjacent. Parking spaces will be oriented at 90-degrees to the driveway aisles. All of these spaces will be at least 7m long and 3.1m wide, and available manoeuvring widths will be at least 6.9m. The parking areas will be over-sized compared to the dimension requirements specified in Appendix 23 in the District Plan. Vehicle tracking shows that the carpark areas will accommodate vehicles of 6.4m length.

Internal footpaths will be provided through the site, along one side of every internal driveway. Pedestrians will also be able to walk around the site easily and safely, separate from motor traffic.

8. CONCLUSIONS

The amount of traffic that the proposed development will generate onto the road network will be low, too low to have a significant effect on the network capacity or traffic safety.

That part of Eriksen Road immediately adjacent to the site will be widened and kerbed and channelled, and a footpath provided, along its western side to an urban standard. The work will be carried out in to satisfy the relevant design outcomes in the Te Awa Structure Plan.

The proposed vehicle crossings will have adequate sight lines to enable them to operate safely. The accesses will both be remote enough from any road intersections that conflicts with turning vehicles will not occur. Separate footpath accesses will be provided into the site for pedestrians all around the site, which will enable pedestrians to access the site conveniently and safely.

The proposal will exceed the District Plan parking requirement by a significant margin. I consider that there will be an adequate supply of on-site parking to accommodate expected demands. Adverse off-site parking effects are unlikely to occur.

The proposed on-site parking will comply with the dimension requirements specified in the District Plan. I consider that the parking spaces shown on the plans will be accessible by the types of vehicles they are intended for.

Taking into consideration all of the above, I consider that the traffic and parking effects of the proposed development will be less than minor, and that resource consent could be granted from a traffic engineering perspective.

Ian Constable
Traffic Engineer