

**PROPOSED CARE HOME, SERVICED
APARTMENTS AND RETIREMENT VILLAS**

25 ULYATT ROAD, NAPIER

TRAFFIC IMPACT ASSESSMENT

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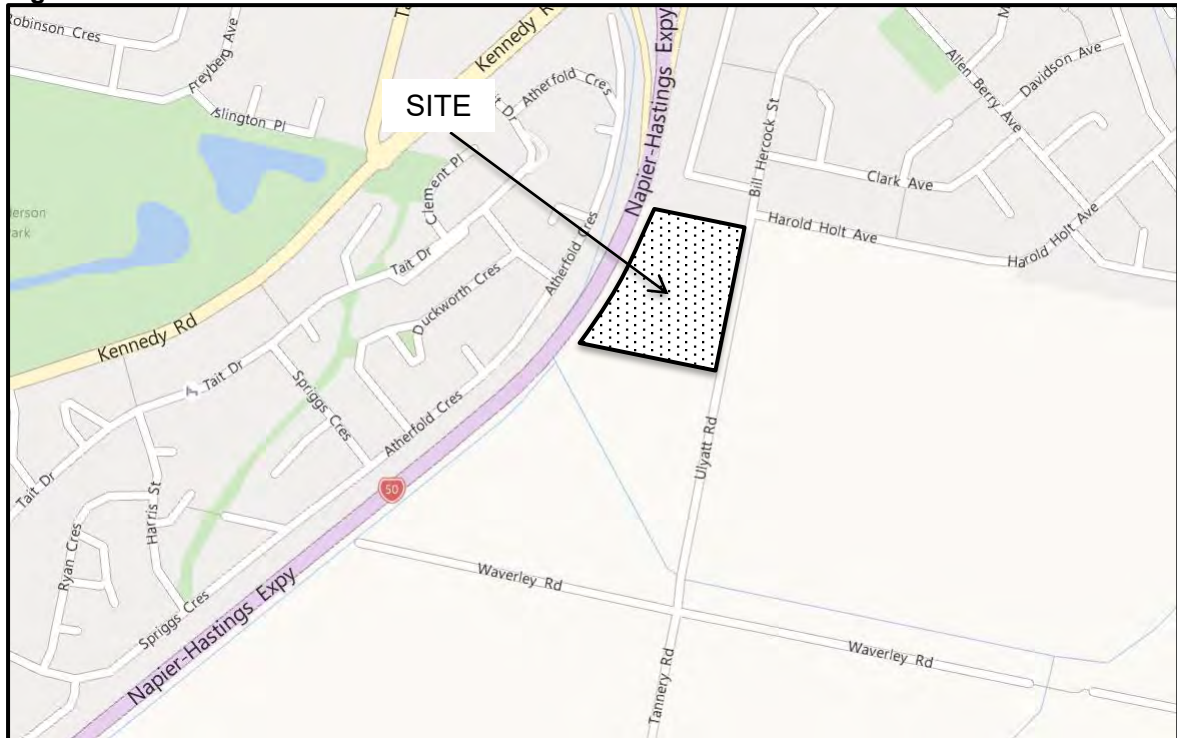
Client: Bupa New Zealand
Level 2, 109 Carlton Gore Road
Newmarket
Auckland 1023

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1. INTRODUCTION

This report assesses the traffic effects of a proposed new retirement village and care home for aged persons to be located at 25 Ulyatt Road in Meeanee, Napier. The site is located as indicated on Figure 1 as follows:

Figure 1: Site Location



The proposed development is shown on the plans prepared by Jerram Tocker and Barron Architects Limited (job 1763 Rev RC1 dated 21 September 2017). A copy of the site plan (Sheet P02), which shows the access and on-site parking arrangements, is shown on Figure 2 as follows:

Figure 2: Site Plan



Matters that the report address include:

- A description of the proposal;
- A description of the surrounding transport network;
- Assessment of the amount of traffic that the development will generated and its effect on the road network;
- Site access;
- On-site parking and loading provisions;
- The layout of the parking, loading and manoeuvring areas on the site.

2. PROPOSED DEVELOPMENT

The site shares common boundaries with Ulyatt Road on its eastern side, and the Napier-Hastings Expressway (State Highway 50) on its western side. The site is presently undeveloped.

The care home will contain 49 care beds, 19 apartments and 99 retirement villas. The care beds will accommodate aged persons who are either unable to support themselves or require some level of assistance for their daily needs. The apartments will cater for aged persons with a higher level of independence, with support services such as meals and cleaning provided as necessary. Lounges, activities areas, a dining area for residents, and support facilities including a kitchen, laundry, bathrooms, offices, storage and reception areas will also be provided.

The villas will be used by aged persons who are reasonably mobile and who are more likely to own a motor vehicle. Each villa will have a garage attached. There will also be room for parking on the concrete aprons in front of each garage. The site will include care home and apartments will have 68 parking spaces spread around the site, which will include 19 spaces in garages for apartment residents. There will also be 99 garages attached to the villas (one garage per villa). The total parking provision for the village and care home combined will be 167 spaces. There will also be a service area attached to the care home.

A maximum of 21 staff will occupy the site at any one time.

The development will be served by two vehicle crossings and two pedestrian footpaths, off Ulyatt Road. A gated pedestrian access will also provide a connection to a cycle/footpath the Council is presently constructing along the Napier-Hastings Expressway boundary, but there will be no direct vehicle access to the expressway.

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

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

3. DISTRICT PLAN REQUIREMENTS

3.1 Zone

The site is located in the Jervoistown zone in the operative Napier City District Plan 2011.

3.2 Road Classifications

Ulyatt Road is classified as a collector road according to Appendix 22(a) in the District Plan.

It is classified as a primary collector in the nationwide "One Network Classification" system.

3.3 Parking Space Requirement

The District Plan parking requirement of the proposed development is assessed in Table 1 as follows:

Table 1: District Plan Parking Requirement

Land Use	District Plan Requirement	Spaces Required
Residential Care:	49 beds @ 0.35 spaces per bed	17
Retirement complex	99 villas @ 1 space per villa	99
Apartments	19 apartments @ 0.5 spaces per apartment	10
Total:		126

With 167 on-site spaces proposed, the development will exceed the requirement by 41 spaces.

NZS 4121:2001 "Design for Access and Mobility – Buildings and Associated Facilities" also requires that 2 disabled spaces be provided where the total parking is in the range 21 to 50 spaces. If the resident garages associated with the villas and apartments are excluded as residential, which is a land-use exempt from the disabled requirement, then 2 disabled spaces are required for the 49 remaining spaces. Two disabled spaces are shown on the site plan, in accordance with the Standard.

3.4 Cycle Parking Requirement

Rule 61.14B requires 1 cycle park per 5 carpark spaces. Therefore with 49 spaces provided, the care home requires 10 cycle parks. No cycle parks are shown on the site plan but there will be ample room to provide these if the need arises. Any cyclists associated with the villas and apartments can store cycles in the garages.

3.5 Loading Space Requirement

Rule 61.15 requires that one loading space be provided. A dedicated service area is proposed, to accommodate the operational requirements of the care home, and hence the requirement is met.

3.6 Vehicle Access Requirements

The District Plan refers to the Napier City Code of Practice for vehicle crossing requirements. Figure M2.8 in The Code of Practice requires urban vehicle crossings at commercial activity to be no more than 6m wide at the site boundary. Two crossings will be provided, each 6m wide, in accordance with the Code.

Sight distance requirements are also specified in the Code. These are dealt with later in this report but available sight distances will exceed the requirements.

4. TRANSPORT ENVIRONMENT

4.1 Existing Road Geometrics

Ulyatt Road is a rural unkerbed road with 8.7m width between seal edges.

The road is two-laned, and the opposing lanes are separated by a dashed white centreline.

There are no footpaths or cycle facilities.

The road has a straight and level alignment, with clear visibility along it.

There is a speed threshold adjacent to the site near the northern end of the site frontage, which includes kerbed side islands containing speed limit signage, and a short flush median. The threshold provides a visual boundary between the urban road environment to its north, which has a 50 km/h speed limit, and the rural road environment to its south, which has a 100 km/h speed limit.

The urban part of Ulyatt Road north of the site has an 11.8m width between kerbs and has footpaths both sides. The kerbs and footpaths terminate close to the intersection with Harold Holt Avenue some 50m north of the site boundary.

4.2 Passenger Transport Services

There are no bus services on Ulyatt Road.

4.3 Traffic Volumes

The Council has provided not provided any traffic count data. However, I estimate that Ulyatt Road carries less than 5,000 vehicles per day, which is well within the capacity of a two-laned road.

4.4 Traffic Safety

During the 5-year period 2011 to 2015 the New Zealand Transport Agency recorded two minor injury accidents and one non-injury accident on Ulyatt Road between Harold Holt Avenue north of the site, and Waverley Road south of the site.

All three accidents involved lost control vehicles. Speed and driver inattention were contributing factors.

However, overall, Ulyatt Road appears to be operating safely.

5. TRAFFIC GENERATION AND DISTRIBUTION

5.1 Trip Generation of Care Home

The following sources have been used to assess the traffic generation of the proposed care home, apartments and villas:

- 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 at the site and at other rest homes and retirement villages carried out by Traffic Solutions Limited.

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

On that basis the overall development will generate traffic flows of approximately 500 vehicle trips per day and a peak hourly flow of about 50 vehicle trips per hour.

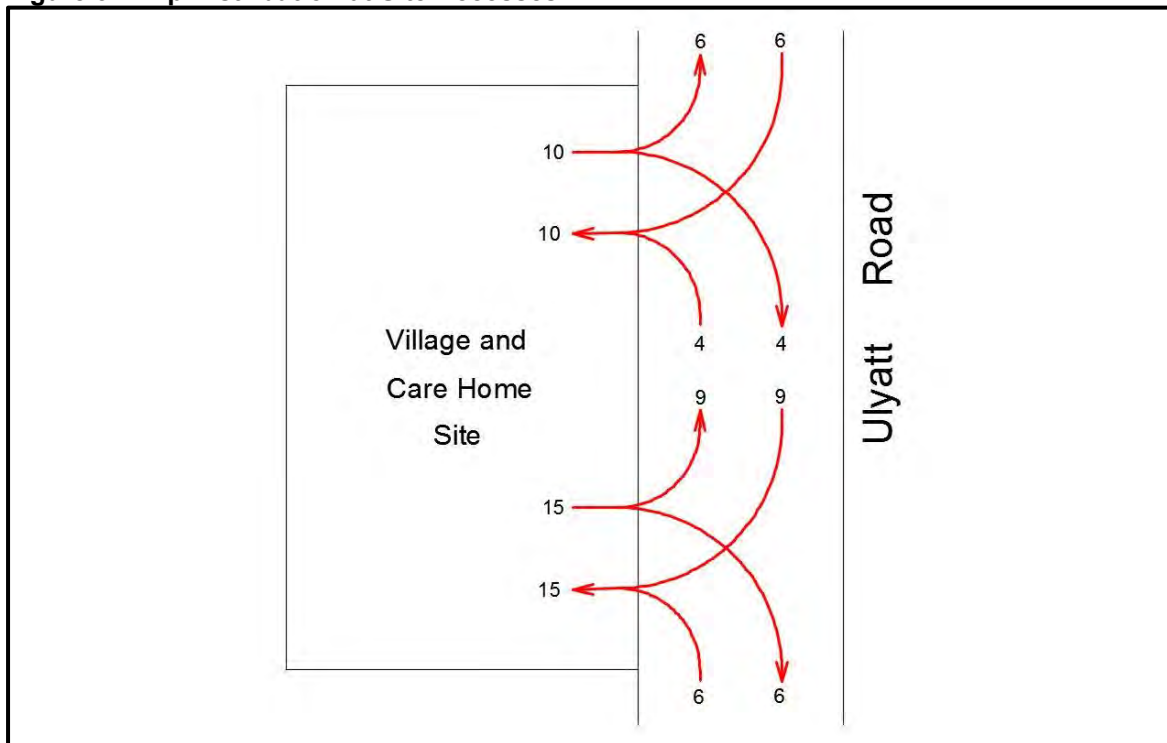
Care homes and retirement villages do not normally generate their peak traffic flows during the weekday commuter peak periods, but during the middle part of the day when the transport network has more spare capacity, and on weekends.

These traffic flows are low, and will be well within the capacity of Ulyatt Road. The low flows generated reinforce the notion that activities associated with aged persons are very low generators of traffic, even though they often occupy large sites.

5.2 Trip Distribution

I predict that vehicles will turn at the two site accesses on Ulyatt Road as indicated on Figure 3, during a peak hour of travel demand.

Figure 3: Trip Distribution at Site Accesses



As indicated on Figure 3, the majority of traffic will arrive and depart to and from the north. Also, the directional split of entering and exiting traffic will be more or less equal. The southern access will be the most used, since it provides the most direct route to the care home facility and apartments.

The maximum individual turn movement at any access will be about 9 tph. Such movements do not meet the warrant for auxiliary left or right turn lanes¹ on Ulyatt Road because they are too low.

I consider that the capacity and traffic safety effects of the development on the transportation network will be negligible.

5.3 Modal Split

Observations of people movement in and out of care homes shows that while most staff drive themselves in private cars, a significant proportion are dropped off and picked up as car passengers. A few walk or use public transport although that will not be the case at

¹ Using methodology in Austroads "Guide to Road Design" Part 4A

this facility since there are no bus services nearby. It is possible that some staff will travel by bicycle. Similarly, the majority, but not all, visitors will drive themselves.

Residents in the apartments will have varying degrees of mobility. Some will drive but some will walk. The care home will provide a mini-bus to transport residents to and from shops and other amenities, and for outings.

It is likely that most village residents will drive, although a significant minority will use other travel modes.

In summary, I predict the following model splits for residents, staff and visitors overall, taking all of the above trip types together:

- | | |
|--------------------------------|-----|
| • Private car | 65% |
| • Passenger in private vehicle | 25% |
| • Walk or cycle | 10% |

6. SITE ACCESS

6.1 Modification to Ulyatt Road

Appendix A to this report shows the proposed upgrade of Ulyatt Road adjacent to the site. The upgrade will create a more urbanised road environment, and will include the following:

- Kerb and channel extended southwards from its existing termination point to the southern end of the site, along the west side of the road.
- A sealed shoulder between the existing northbound traffic lane and the kerb, that can be used by cyclists.
- Pedestrian footpath extended southwards from its existing termination point to the southern end of the site, along the west side of the road.
- A speed threshold near the southern end of the site to identify a change of environment from rural to urban at that location, with “Slow” or similar signs. The threshold would be similar in form to the existing threshold at the northern end of the site but the legal speed limit would not change.

6.2 Vehicle Crossings

The site will be accessed via two new vehicle crossings. The southern crossing will be the main access to the site since it will provide direct access to the care home, apartments and the southern part of the village. The northern crossing will provide access to the northern part of the village. Both accesses will be 6m wide at the site frontage boundary. 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 available sight distances from both vehicle crossings exceeds 300m in both directions, due to the straight road alignment. Diagram M2.11 in the Code of Practice requires that at least 160m of sight distance be available at access points on collector roads operating at 100 km/h. The NZTA publication RTS 6 “Guidelines for Visibility at Driveways” recommends at least 250m of sight distance at high volume accesses on collector roads operating at 100 km/h. High volume accesses are defined as carrying

more than 200 vehicle movements per day. The available sight distances will exceed both requirements, and I consider that visibility is adequate to enable the accesses to operate safely.

6.3 Pedestrian Access

Pedestrian footpaths will be provided into the site adjacent to both vehicle accesses. These will connect to the new public footpath to be provided along Ulyatt Road. The footpaths will provide direct and safe pedestrian links to and from the site.

It is also proposed to install a walkway link to the future cycleway and walkway that the Council is presently constructing around the perimeter of the site. The link will be gated for security purposes but it will provide direct access to a local recreation facility for residents to walk along.

7. PARKING DEMANDS

In the past, Traffic Solutions Limited has carried out parking surveys at several other care homes similar to that which is proposed at Ulyatt Road. The homes and the numbers of beds or suites at the times the surveys were carried out, are listed as follows:

- Beach Haven Hospital, Beach Haven, Auckland (97 beds);
- Glenburn Hospital, New Lynn, Auckland (106 beds/suites);
- Erin Park Hospital, Manurewa, Auckland (105 beds/suites);
- Sunset Blockhouse Bay, Auckland (96 beds);
- Mary Shapley Rest Home and Hospital, Whakatane (66 beds/villas);
- Liston Heights, Taupo (106 beds/apartments).

Results of the parking surveys carried out at each and the parking demand ratios per bed, apartment or villa are shown in Table 2 as follows. Surveys were carried out on weekdays and weekend days.

Table 2: Care Homes – Actual Parking Demands

Time	Beach Haven Hospital (97 beds)		Erin Park Hospital (106 beds/suites)		Glenburn Hospital (105 beds/suites)		Sunset Care Home (96 beds)		Mary Shapley Hospital (66 beds/villas)		Liston Heights (106 beds/apts)	
	Week	W/E	Week	W/E	Week	W/E	Week	W/E	Week	W/E	Week	W/E
8.00							14					
8.30											32	
9.00							18		20	18		25
9.30								13				
10.00			24						20	25	46	
10.30			28	20					14			33
11.00	29	21	26	23	28	22	27		22	21	49	
11.30	32	26	25	21	29	23	25					
12.00	29	27	24	19	25	22			21	26	44	30
12.30	29	28	21	20	23	19	24					
13.00	24	20	25	23	25	19			19	23	40	
13.30	23	18	25	24	26	20						29
14.00	25	17	24	25	30	20			28	18		
14.30	23	16	24	24	27	21					42	
15.00	25	22	24	18	27	21	28		34	26		31
15.30	18	19	19	18	21	17					38	
16.00	13	14	15	18	20	16	20		29	21		
16.30									23		35	
17.00										19		31
17.30			11						20			
18.00							11					21
18.30											25	
22.45											17	

The maximum demand at any of these sites equated to between 0.38 and 0.52 parked vehicles per bed, suite or apartment, when converted to ratios. The very highest demands occurred at the Mary Shapley site, which peaked in the weekday afternoon only due to a change of staff shift coinciding with a peak in visitor numbers. At most other times lower demands in the range 0.30 to 0.40 parked vehicles per bed were recorded, which are typical for the other sites.

Looking at just the care home for the moment, adopting typical ratios of say, 0.4 parked vehicles per care bed, then it can be predicted that the care home will effectively need about 20 spaces for its use. Even if a higher ratio of say, 0.5 vehicles per care bed were to occur, then the demand would be up to 25 vehicles. Although possible, I consider it is less likely that such a high demand will occur.

Other published sources have also been used to help estimate the anticipated parking demand of the proposed care home.

The Institute of Transportation Engineers Parking Generation 2nd Edition, USA (ITE) indicates that parking demands of about 0.5 vehicles per suite or bed could occur. On that basis the maximum parking needs of the proposed care home would be 25 vehicles. As stated above, in my opinion this ratio is on the high side.

The Roads and Traffic Authority of New South Wales, Australia (the "RTA Guide") indicates that nursing and convalescent homes generate parking at ratios of 1 space per 10 beds plus 1 space per 2 employees plus 1 space per ambulance. Applying those ratios, the parking needs of the care home would be 17 vehicles. In my opinion RTA is too low.

Of all of the above sources, I consider that the surveys I have carried out at other similar facilities elsewhere in New Zealand provide the most reliable basis on which to base expected parking demands at the proposed development. On that basis, parking for 25

vehicles would guarantee to meet the parking needs of the care home. With 49 spaces available for its use, I consider that the parking demands of the care home will easily be accommodated on the site.

As a check, an approximate parking demand for the care home, and visitors to the apartments, could be calculated as follows:

• Staff	21 x 65%	14
• Care home visitors	49 x 1/10	5
• Apartment visitors	19 x 1/10	2

		21 vehicles

The total of 21 vehicles is close to the maximum demand of 20 vehicles predicted in my main assessment above. The check supports the conclusion that there would be an ample supply of parking on the site to accommodate the demands of the care home.

The retirement village will provide one garage space per villa for residents, and one garage space per apartment, so parking for all of those residents will be catered for. There will also be visitor parking distributed more or less evenly throughout the site, plus room for additional resident and visitor parking on the driveway aprons in front of each garage. The parking will easily accommodate the demands of the retirement village.

8. SITE LAYOUT

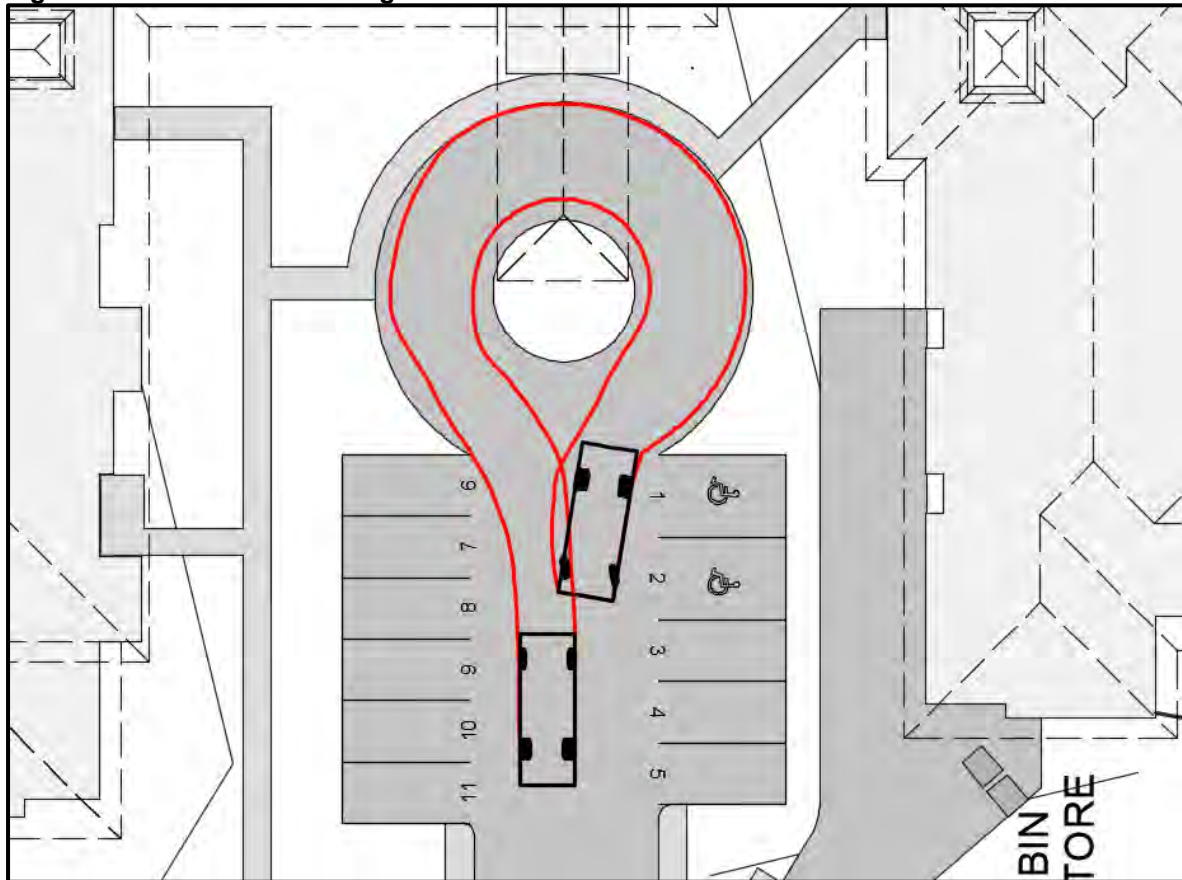
Most of the parking spaces on the site will be oriented at 90-degrees to driveways and manoeuvring aisles. All of the villa resident spaces will be in garages attached to the villas. Some of the spaces associated with the apartments will also be in garages.

All of the parking spaces on the site will be at least 5m long to a wall and 2.6m wide. Manoeuvring aisles will be at least 7.3m wide. The layout will therefore comply with the dimension requirements in Appendix 23 in the District Plan. I consider that all of the carparking spaces will be easily accessible.

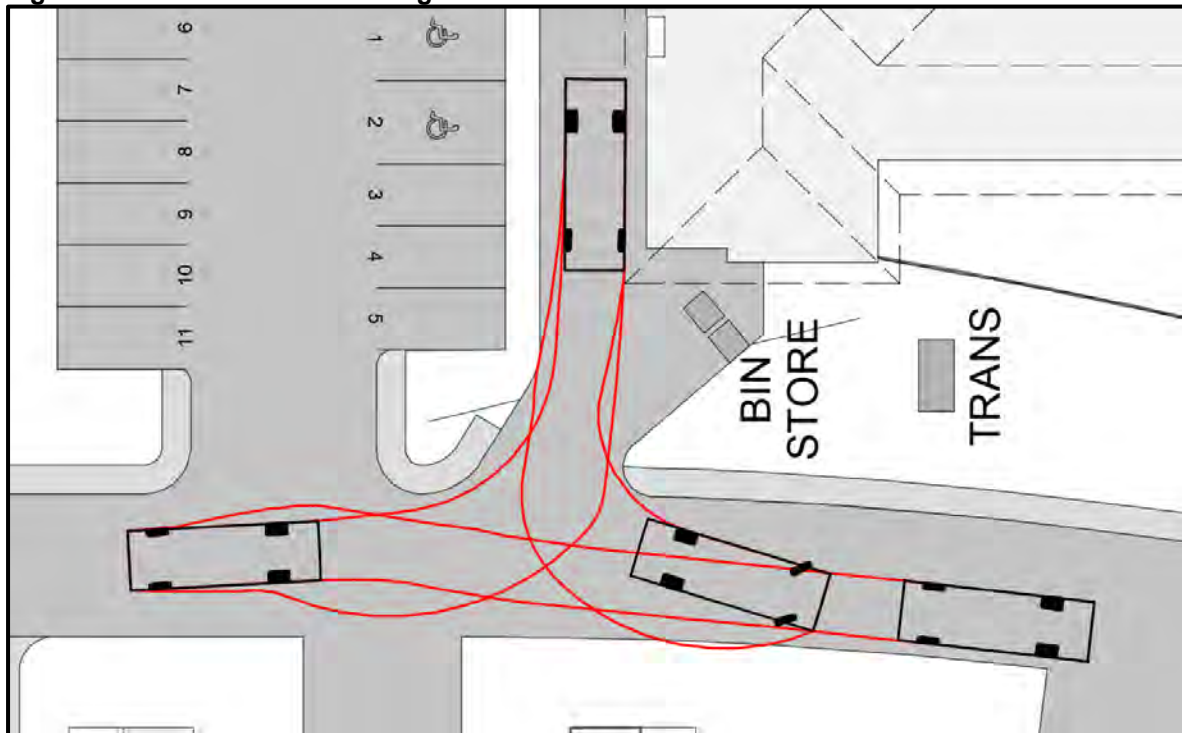
Two disabled spaces will be provided. Both of these will be located as close as practicable to the main building entry to the care home. The disabled parking spaces will be located and marked in accordance with the geometric requirements in NZS 4121:2001, and an accessible route will be provided between the parking spaces and the building entry.

No specific ambulance parking spaces are proposed. However, ambulances will be able to drop off and pick up patients in the porte cochere at the building entry. As indicated in Figure 4, the geometrics of the turning circle accessing the porte cochere will accommodate ambulances. The tracking path shows in that of a 6.4m long small truck, which is representative of an ambulance tracking path.

Figure 4: Ambulance Tracking Path



The service area will be provided adjacent to the kitchen and laundry, which will include a refuse storage enclosure. Figure 5 shows the tracking path of an 8m long medium rigid truck (as defined in RTS 18 "NZ on Road Tracking Curves") accessing the service area. The truck is typical of the size of vehicles that could access the site and includes refuse and goods delivery vehicles.

Figure 5: Medium Truck Tracking Path

As can be seen on Figure 5, the tracking path of the appropriate length trucks will be able to access the service area.

I consider that the site geometrics will accommodate the required manoeuvres of the types of service vehicles that will access the site.

The villas will be accessed from the internal driveway network. The main driveways into the site from the vehicle crossings, and the driveway to the care home, will be 6.0m wide. Such width is suitable for two-way vehicle flow, including larger vehicles such as service trucks. The other driveways will all be 5m wide, which also enables two-directional vehicle flow, but at slower speeds. Small mountable roundabouts at the two cross-intersections just inside the site from the main accesses will help to manage turning traffic at those locations and avoid vehicle conflicts. It is important that these be mountable because larger service vehicles will need to drive over the central islands when passing through those intersections.

Internal footpaths will be provided through the site. These will include a footpath between Ulyatt Road and the care home along the main southern access driveway, and a footpath into the site from the northern access. Internal links will also be provided longitudinally through the middle of the development to provide direct access between the northern and southern parts of the village and the facilities within the care home building. Pedestrians will also be able to walk around the secondary driveways, which I consider will be safe because the driveways will carry low traffic flows, and vehicle speeds will generally be slow.

9. CONSTRUCTION TRAFFIC MANAGEMENT

Resource consent for earthworks including spoil removal off the site and import of hard fill has been sought separately.

Construction of the care home buildings and associated site works will also generate truck trips, for purposes of materials delivery, delivery and removal of plant and machinery, rubbish removal and general employee and subcontractor movements. Overall there will be a number of heavy vehicle movements on and off the site and related to construction over time, and these will have the potential to affect neighbours and other road users in terms of traffic generation, noise and dust.

It is proposed that construction will be carried out in stages.

Construction Traffic Management Plans (CTMP's) typically set out requirements for traffic control, signage, dust control, cleanliness and contact details for complaints, and it is recommended that one be provided in relation to each stage of development. Adverse effects from construction traffic should generally be considered no more than minor because the construction phases are temporary, and because effects can be managed through the use of a CTMP. A CTMP will minimise those effects that could occur.

10. CONCLUSIONS

The amount of traffic that proposed the care home and village will generate onto the road network will be low, too low to have a significant effect on the network capacity or traffic safety. Ulyatt Road will be widened and kerbed and channelled along its western side to an urban standard, and a new speed threshold installed to help reduce speeds of approaching northbound traffic from the rural area, and improve traffic safety.

The proposed vehicle crossings will have adequate sight lines to enable them to operate safely. The accesses will both be remote from any road intersections and other property accesses. Separate footpath accesses will be provided into the site for pedestrians. I consider that the access arrangement proposed will operate safely, and that it is appropriate for the type of development proposed.

The proposal will exceed the District Plan parking requirement. Based on several sources, including surveys I have carried out at several similar aged care complexes elsewhere in New Zealand, 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.

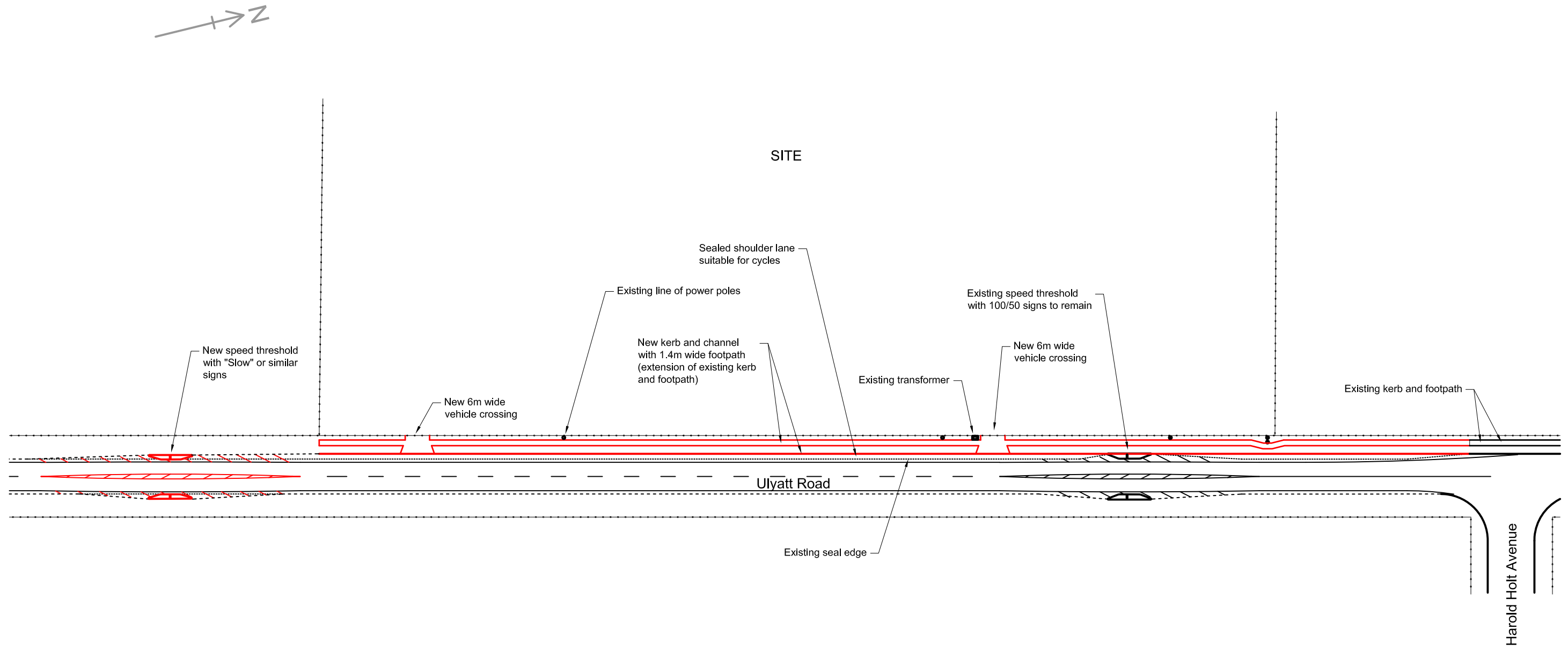
The proposed on-site parking layout will comply in every respect with the dimension requirements specified in the District Plan. I consider that all of the parking spaces will be easily accessible. Disabled parking will also be provided at the care facility in accordance with the relevant requirements.

Consideration will need to be given to mitigate potential noise and dust effects of heavy vehicles on properties adjacent to Ulyatt Road during construction. Any effects from construction should be considered to be reduced due to their temporary nature. However, I recommend that a Construction Traffic Management Plan be prepared for every construction stage in order to help ensure that those effects are minimised.

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



Ian Constable
Traffic Engineer



BUPA CARE HOME AND RETIREMENT VILLAGE 25 ULYATT ROAD, NAPIER Road Modifications and Site Access		
A3 Scale 1:400		Drawing No:
Traffic Solutions Ltd 82 Hindmarsh Drive, Taupo 3330 Ph (07) 376-5031		892/1
Drawn: IPC Date: 20/10/2017		