Ryman Healthcare Retirement Village
Park Terrace, Christchurch

Transportation Assessment Report

27 March 2020

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Table of Contents

1 INTRODUCTION

Commute Transportation Consultants has been commissioned by Ryman Healthcare Limited ("Ryman") to assess the potential transport effects of a proposed comprehensive care retirement village ("Proposed Village") across two sites located on Park Terrace, Christchurch.

The two sites are located at 78 Park Terrace ("Peterborough site") and 100 Park Terrace and 20 Dorset Street ("Bishopspark site"). Collectively both the Peterborough and Bishopspark sites will be referred to as the "Site".

The Site is within the 'Residential Central City' in the Christchurch District Plan ("District Plan").

This report assesses the transport-related effects of the Proposed Village, including:

- A description of the Site and its surrounding traffic environment;
- A description of the key transportation-related aspects of the Proposed Village;
- The nature and expected volumes of vehicular traffic likely to be generated by the Proposed Village;
- The expected impact of the additional traffic flows on the surrounding road network and adequacy and timing of proposed upgrades to cater for the traffic generated by the Proposed Village;
- The adequacy of the proposed form of access and egress;
- The adequacy of the proposed parking supply in relation to anticipated parking demand;
- The proposed servicing arrangements for the Proposed Village to ensure that service vehicles are able to manoeuvre on-site safely and efficiently;
- Pedestrian connectivity throughout the Site and with the adjacent transport network to ensure that the pedestrian environment is appropriate for the elderly residents; and
- The construction traffic effects of the Proposed Village.

These and other matters are addressed in detail in this report. This report concludes that the establishment of the Proposed Village can be undertaken in a way so that its effect on the function, capacity and safety of the surrounding road network will be minimal.

2 PROPOSED VILLAGE

Ryman proposes to construct and operate a comprehensive care retirement village comprising of the following:

- At the Bishopspark site:
  - 85 Apartments;
  - 54 Assisted Living Suites;
  - 35 Dementia care rooms;
  - 20 Hospital care rooms;
  - 15 Rest Home care rooms;
  - 138 basement parking spaces; and
  - 6 at grade spaces.
- At the Peterborough site:
  - 80 independent apartments;
  - 77 basement parking spaces; and
  - 6 on grade spaces.

The main access (for residents and staff) for the Bishopspark site will be provided off Park Terrace. Loading access will be provided from Dorset Street.

Access to the Peterborough site will be provided via Park Terrace (entrance only) and Salisbury Street (exit only).

3 EXISTING ENVIRONMENT

3.1 TRANSPORT ENVIRONMENT

Figure 1-1 is an aerial photograph showing the Site in relation to the surrounding road network.

Figure 1-1: Site location

Park Terrace and Salisbury Street are classified as 'Central City Local Distributors' in the District Plan, while Dorset Street has no roading classification. The speed limit on Park Terrace, Dorset Street and Salisbury Street in the area is 50 km/hr.

Park Terrace runs in a general north-south alignment connecting to Bealey Avenue to the north and transitioning to Rolleston Avenue to the south. Bealey Avenue is classified as a major arterial road in the District Plan and is located approximately 300-500m north of the Site.

Park Terrace in front of the Bishopspark site has two lanes in either direction separated by a solid yellow line, with no on-street parking permitted on both sides of the road. Park Terrace adjacent to the Peterborough site has two northbound lanes and one southbound lane, with indented parking spaces provided on the southbound lane (along the frontage of the Peterborough site). Pedestrian footpaths are provided on either side of the road near the Site.

Salisbury Street connects to Park Terrace at its western end and allows for one-way movement only (eastbound). A total of two lanes are provided, with on-street parking permitted on both sides of the road. Salisbury Street provides four approach lanes (two through lanes, one left turn and one right turn lane) and a cycle lane at the intersection with Montreal Street and Victoria Street. Pedestrian footpaths are provided on either side of the road.

The Park Terrace / Salisbury Street intersection provides a separate left turn and right turn slip lane into Salisbury Street, with no access provided onto Park Terrace from Salisbury Street. Park Terrace at the intersection with Salisbury Street provides a right turn bay for vehicles turning into Salisbury Street and a solid pedestrian refuge island.

Dorset Street adjoins Park Terrace at its western end and provides one single lane in either direction. Indented on-street parking is permitted on both sides of the road. Pedestrian footpaths provided on either side of Dorset Street.

The intersection between Park Terrace and Dorset Street is a give-way controlled intersection with priority onto Park Terrace.

The Bishopspark site was previously occupied by the Bishops Park Retirement Village, and the remaining buildings on the Bishopspark site are currently being demolished. The Peterborough site is currently unoccupied.

3.2 DISTRICT PLAN

The Site is zoned as 'Residential Central City' in the District Plan. This zoning applies to all properties fronting Park Terrace from Bealey Avenue to Peterborough Street. Properties further to the east are also zoned 'Residential Central City', while properties surrounding Victoria Street are generally zoned 'Commercial Central City Business'. Figure 3-1 shows the current zoning of the Site and the surrounding area.

The Christchurch District Plan describes the Residential Central City Zone in Table 14.2.1.1a as being:

> *"… developed to contribute to Christchurch's liveable city values. Providing for a range of housing types, including attractive, high density living opportunities, the zone utilises the potential for living, working and playing in close proximity to the commercial centre of the city. The character, scale and intensity of non-residential activities is controlled in order to mitigate effects on the character and amenity of the inner city residential areas."*

Policy 14.2.1.1 notes that the central city (the area contained within the Bealey, Fitzgerald, Moorhouse, Deans and Harper Avenues) is intended to provide an average net density of 50 households / ha for intensification development.

The 'use' of a retirement village on the Site is a permitted activity, however the construction of new buildings for the establishment of a retirement village is a restricted discretionary activity under Rule 14.6.1.3. The matters of discretion include (relevant to this assessment) "integration of access and parking areas in a way that is safe for pedestrians and cyclists".

Chapter 7.4 of the District Plan includes transportation-related rules that apply to any activity. For any infringements, restricted discretionary consent is required under Rule 7.4.2.3.]

The retirement village is not considered to be a high trip generating activity under Rule 7.4.3.10, as retirement villages are not listed as a high trip generating activity.

The objectives and policies relevant to this assessment address:

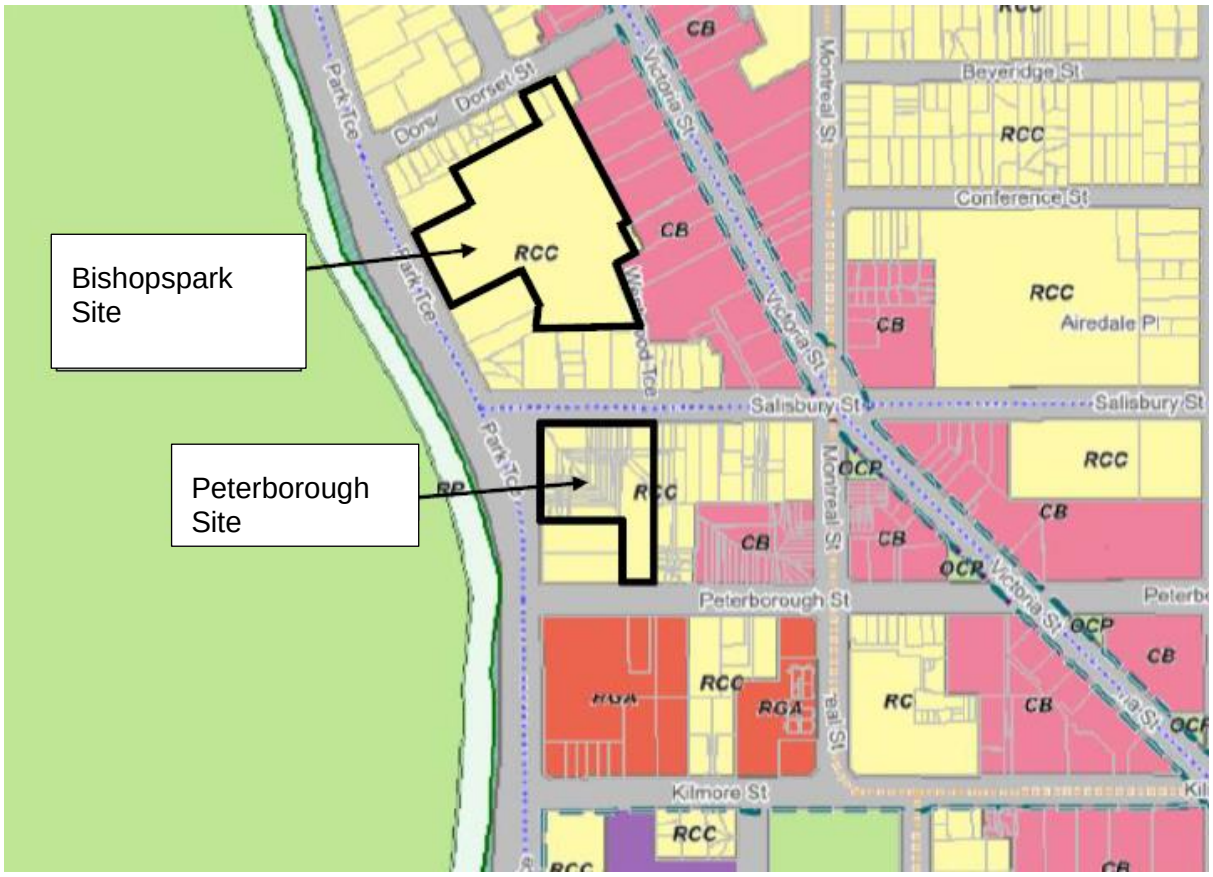
- Higher density residential development in the central city, with an average net density of 50 households per hectare for intensification development (Policy 14.2.1.1((a)(ii))

- High quality residential developments that (i) reflect the character and scale of buildings anticipated in the neighbourhood, (ii) provide a high level of on-site amenity, and (iii) provide safe and efficient movement for pedestrians and vehicles (Policy 14.2.4.1)

- An efficient transport network system (access, manoeuvring, car parking and loading) which supports safe, healthy and liveable communities by maximising integration with land use (Objective 7.2.1 and Policies 7.2.3 and 7.2.1.5)

- Accessibility to car parking spaces and loading spaces that provide for the needs of the activity (Objective 7.2.1 and Policy 7.2.1.4).

Figure 3-1: District Plan zoning



3.3 PUBLIC TRANSPORT

The Site is located within walking distance of public transport services. The nearest routes are:

- Route 17 – Bus service between Sheffield Crescent and Huntsbury via Rossall Street, Park Terrace, Bus Interchange, Moorhouse Avenue, Waltham and St Martins;
- Route B – Bus service between Cashmere and Rangiora via Sydenham shops, Bus Interchange, Bealey Avenue, Northlands, Belfast and Kaiapoi;
- Route 29 – Bus service between the Bus Interchange and Christchurch International Airport via Fendalton; and
- Route 95 – Bus Service between Waikuku Beach and Ara Institute via Pegasus, Woodend, Ohoka Road, Kaiapoi High School and Bus Interchange.

The nearest bus stops providing services to the routes listed above are:

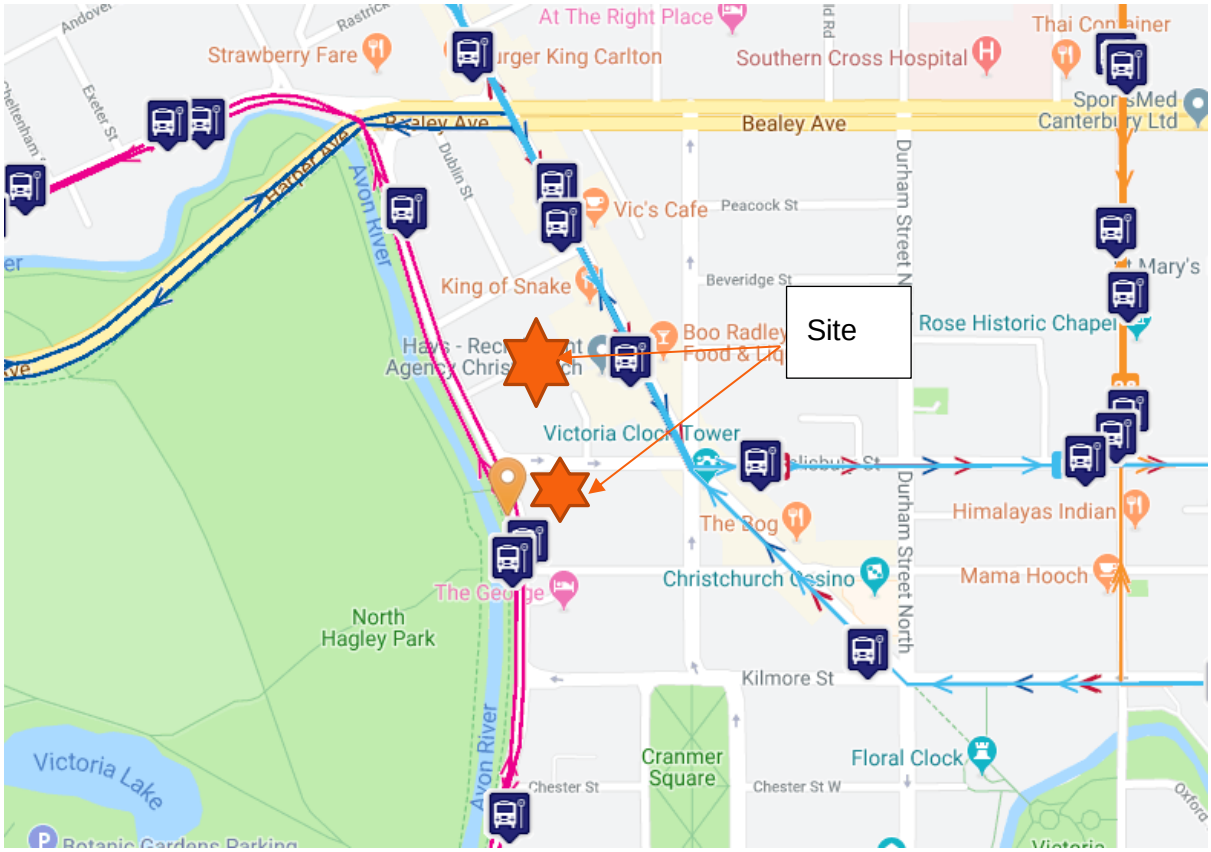
- Bus stops servicing Route 17 are located on Park Terrace, approximately 170m (2 minute walking distance) south of the Bishopspark site and 30m (1 minute walking distance) south of the Park Terrace site; and

Bus stops providing services to Routes B, 29 and 95 are located on Victoria Street and Salisbury Street (respectively), approximately 200m west (3-minute walking distance) from both the Bishopspark and Park Terrace sites.

While the Proposed Village is not expected to be a big generator of public transport demand, the Site is well located in relation to public transport offering good alternatives to private vehicles for staff and visitors and providing highly accessible connections for residents to the surrounding areas.

Figure 3-2 shows the bus routes and stops operating near the Site.

Figure 3-2: Public transport in the vicinity of the site



3.4 EXISTING TRAFFIC VOLUMES

Traffic data from Christchurch City Council indicates that Park Terrace (along the Site frontage) had an estimated annual daily traffic (ADT) of 16,915 vehicles per day ("vpd") and peak hour volume of 1,856 vehicles per hour ("vph") in March 2018[1].

Traffic count data along Salisbury Street and Dorset Street is not available in the Christchurch City Council Traffic Count Database.

[1] Christchurch City Council Traffic Count Data http://ccc.interpret.co.nz/trafficcount/

Recent traffic surveys commissioned by Commute have been undertaken at the intersection of Park Terrace and Salisbury Street during the peak hours of 7am-9am and 3pm to 6pm on the 25th June 2019. These recent counts are outlined in Table 3-1.

Table 3-1: Peak time traffic volumes

	AM				AM Total	PM				PM Total
	Cars	Trucks	Buses	Cyclists		Cars	Trucks	Buses	Cyclists	
Park Terrace (North)	**1221**	**10**	**9**	**57**	**1297**	**550**	**9**	**3**	**18**	**580**
Left into Salisbury St	377	2	2	3	384	227	3	1	4	235
Thru to Park Terrace (South)	844	8	7	54	913	323	6	2	14	345
Park Terrace (South)	**658**	**12**	**6**	**38**	**714**	**1271**	**8**	**3**	**47**	**1329**
Thru to Park Terrace (North)	612	10	6	11	639	1197	8	3	24	1232
Right into Salisbury St	46	2	0	27	75	74	0	0	23	97
Grand Total	**1879**	**22**	**15**	**95**	**2011**	**1821**	**17**	**6**	**65**	**1909**

3.5 ROAD SAFETY

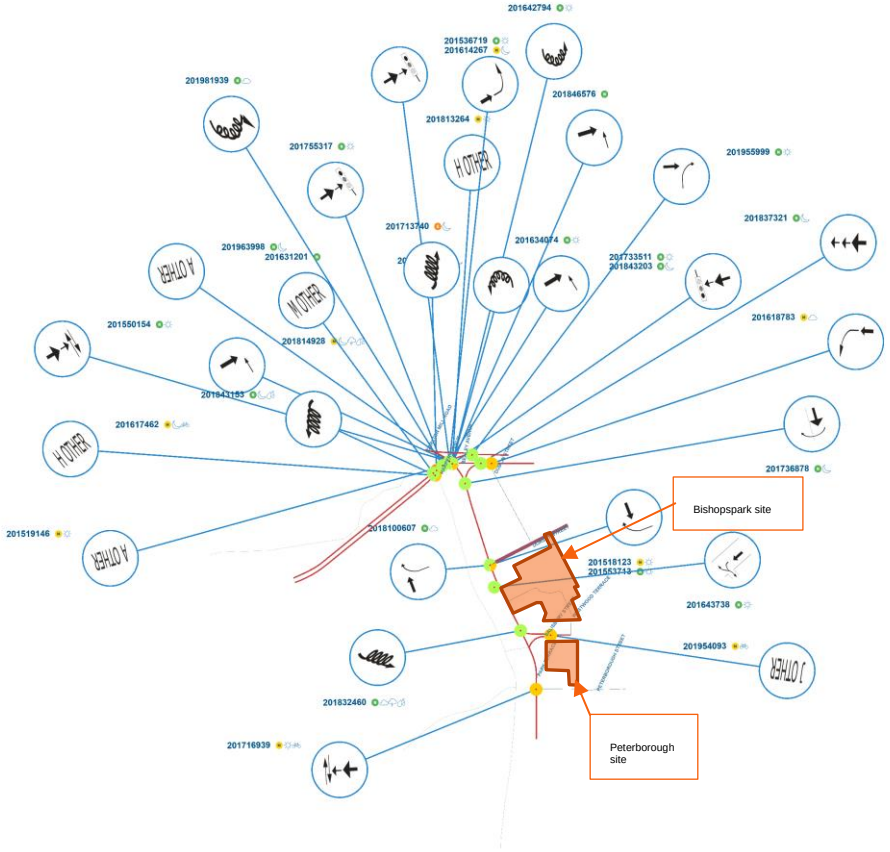
A search of the New Zealand Transport Agency's ("NZTA") Crash Analysis System ("CAS") has been carried out to identify all reported crashes in the vicinity of the Site during the five-year period 2015 - 2019 inclusive of any available 2020 data.. The search area included the length of Dorset Street (including intersection with Dublin Street) and Salisbury Street near the Site and the length of Park Terrace between Bealey Avenue and Kilmore Street, including the intersections of Park Terrace / Bealey Avenue / Harper Avenue, Park Terrace / Dorset Street, Park Terrace / Salisbury Street and Park Terrace / Peterborough Street.

The crash history can be summarised as follows:

- Three crashes occurred at the Dorset Street / Park Terrace intersection, of which one crash resulted in four minor injuries when the driver misjudged the intentions of another party. The remaining non-injury crashes resulted from failing to give-way at a priority traffic control;
- 16 crashes occurred at the Park Terrace / Bealey Avenue / Harper Avenue intersection. Five of these crashes resulted in a minor injury with 2 as a result of failure to stop at a red light, one rear end crash and two crashes relating to mopeds.
- One non-injury crash occurred at the Park Terrace / Salisbury Street intersection caused by loss of control;
- One minor injury crash occurred at the Park Terrace / Peterborough Street intersection when a vehicle hit the rear end of a cyclist slowing to cross traffic;
- Two non-injury crashes occurred on Park Terrace near the Site, both as a result of failing to check / notice another party; and
- One minor injury crash occurred on Salisbury Street near the Site when a cyclist riding in the wrong direction was hit by an oncoming vehicle.

The collision diagram for the surrounding area is providing in Figure 3-3 below.

Figure 3-3: Collision Diagram



There is no history of accidents occurring that relate specifically to movements into and out of the former Bishopspark Retirement Village, which is located in a similar location to the proposed access for the Bishopspark site.

There are no noticeable patterns in the reported crashes in the area and therefore no issues with the form of the intersections in the area have been identified.

From the assessment of the crash history, there is no indication that the Proposed Village will have a negative effect on road safety in the surrounding road network.

4 ACCESS

4.1 PROPOSED ACCESS

At the Bishopspark site, the primary vehicle access will be via Park Terrace with secondary service access via Dorset Street. Pedestrian access will be provided via Park Terrace, Westwood Terrace and Dorset Street.

The Peterborough site will have a separate entrance and exit for vehicles. Vehicles will enter via Park Terrace and will exit via Salisbury Street. Pedestrian access will be provided to Park Terrace, Salisbury Street and Peterborough Street.

4.2 WIDTH OF ACCESS

Table 7.5.7.1 of the District Plan sets out the access width requirements for private ways and vehicle access. The following requirements apply to the Proposed Village:

Main access points (serving more than 15 parking spaces):

- 6.5m minimum legal width
- 5.5m minimum formed width
- 9.0m maximum formed width

Secondary vehicle crossing on Dorset Street (serving the loading area):

- 3.0m minimum legal width
- 2.7m minimum formed width
- 4.5m maximum formed width

The Bishopspark site's primary access onto Park Terrace will be 6.0m in formed width providing for two-way vehicle movements providing for two-way vehicle movements and 7.0m in legal width including the adjacent pedestrian path and therefore complies with standards in the District Plan. The secondary access on Dorset Street will be 3.5m in width and therefore also complies with the standards in the District Plan.

The Peterborough site has separate entry and exit access points, and therefore these are narrower than typically expected for a two-way arrangement. The vehicle entrance point and vehicle exit point are both 4.0m in width. This is narrower than the minimum formed width for an access point serving more than 15 spaces. Given the one-way arrangement, this non-compliance is not expected to result in any adverse effects.

4.3 NUMBER OF VEHICLE CROSSINGS

Table 7.5.11.3 of the District Plan sets out the maximum number of vehicle crossings for a site within the City Centre.

The Bishopspark site has frontage to Park Terrace of 50m and frontage to Dorset Street of 10m. A maximum of 2 vehicle crossing points applies to the Bishopspark site.

The Peterborough site has 60m of frontage on Park Terrace, 70m on Salisbury Street and 20m on Peterborough Street. As such, the maximum number of vehicle crossings for the Peterborough site is 2 vehicle crossings.

The proposed accesses comply with maximum vehicle crossing standards.

4.4 PROXIMITY TO INTERSECTION

Table 7.5.11.5 of the District Plan outlines the minimum distance between a vehicle crossing and an intersection.

For an intersection between two local distributor streets (Park Terrace and Salisbury Street), a 30m separation is required. This applies to the Park Terrace access for the Bishopspark site and the Park Terrace and Salisbury access for the Peterborough access.

For an intersection between two local roads (Dorset Street and Dublin Street), a 10m separation is required. This applies to the service access on the Bishopspark site.

The proposed accesses are all located outside of the required separation from the nearest intersection and therefore comply with the District Plan.

4.5 QUEUING SPACE

Table 7.5.8.1 of the District Plan outlines queuing space requirements for vehicle access points.

For both the Bishopspark site over 18m of queuing space is required to cater for the proposed parking spaces onsite. This is provided with the ability of vehicles to enter the site and access pick up and drop off areas or enter the basement parking area.

For the Peterborough site, over 18m of queuing space is required to cater for the proposed parking spaces onsite. This is provided given the ability of vehicles to enter the site and access pick up and drop off areas before entering the basement parking area.

4.6 SIGHT DISTANCE

The Land Transport Safety Authority “Guidelines for visibility at driveways” (RTS-6 Guide) recommends that for high volume driveways accessing onto a Collector road (Park Terrace) with a 50km/h operating speed, the required sight distance is 90m. A low volume driveway providing access to a local road requires 40m of clear sight distance.

For the Bishopspark site, over 100m of clear sight distance is provided from the proposed access point on Park Terrace in both directions, meeting the RTS-6 guidelines, as shown in Figure 4-1 and 4-2.

The loading access on Dorset Street has over 40m clear sight distance in either direction, meeting the RTS-6 guidelines, as shown in Figure 4-3 and Figure 4-4

For the Peterborough site, the Salisbury Street vehicle egress, clear sight distance of 90m is provided to the Park Terrace / Salisbury Street intersection meeting the RTS-6 guidelines, as shown in Figure 4-5.

All proposed access points are therefore considered to comply with the sight distance requirements set out in the RTS-6 guideline.

Figure 4-1: Bishopspark site - Park Terrace access: Sight distance looking north

Figure 4-2: Bishopspark site - Park Terrace access: Sight distance looking south

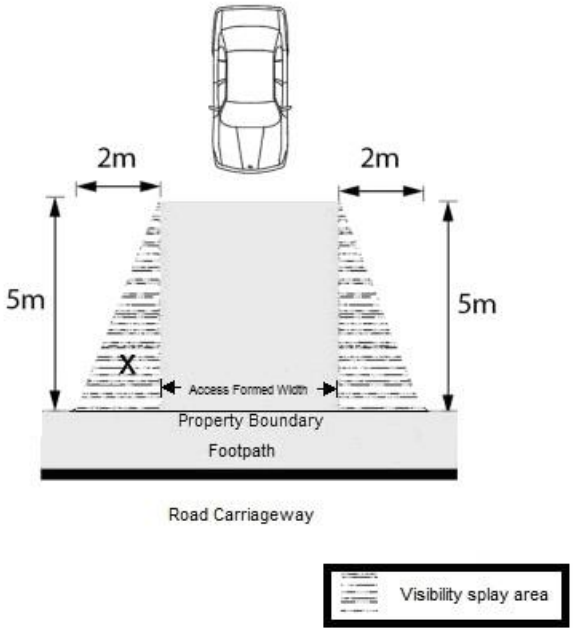
Figure 4-3: Bishopspark site – Dorset Street access: Sight distance looking east

Figure 4-4: Bishopspark site – Dorset Street access: Sight distance looking west

Figure 4-5: Peterborough site – Salisbury Street access: Sight distance looking west (noting one-way exit)

Appendix 7.5.9 of the District Plan outlines a requirement for visibility between an access point and pedestrians and cyclists within the road corridor. A 2m (along the property boundary) by 5m (into the site) triangle is required to be kept free of visual obstructions (landscaping can be provided of less than 0.5m height) as per Figure 4-6.

Figure 4-6: Visibility splay required

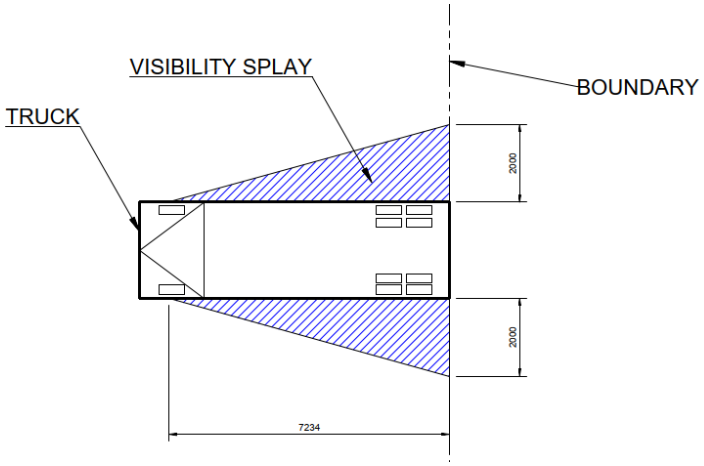


This requirement is met at the primary access point for the Bishopspark site via a chamfer in the wall.

The vehicle exit for the Peterborough site provides adequate visibility to the adjacent footpath and is considered to comply with this requirement.

The proposed Dorset Street access point will cater for loading and rubbish vehicles which will be required to reverse out of the loading area back onto Dorset Street. As such, a greater visibility splay is recommended to ensure reversing trucks can detect pedestrians on the adjacent footpaths. Figure 4-7 shows the recommended visibility splay required for an 8m truck. The proposed access arrangement complies with this recommendation.

Figure 4-7: Visibility splay required for an 8m truck



4.7 INTERNAL ROAD LAYOUT

The Bishopspark site will be served via a single primary access point providing access to both the pickup and drop off facility and basement parking area via a 6m wide accessway as shown in Figure 4-8. The port cochere can cater for vehicles up to a transit van size, as such a vehicle is commonly used to transport residents.

The Peterborough site has a single access point with an internal accessway (4m wide) providing access to a pickup / drop off area before descending to the basement parking level, then ascending back to street level with a vehicle egress on Salisbury Street as shown in Figure 4-9. The internal access road and ramps operate with a one-way circulation.

Vehicle tracking for both the pickup / drop off areas and ramps to basement parking areas has been carried out using an 90th percentile vehicle as shown in **Attachment A**. The tracking assessment shows an AS/NZS2890 90th percentile car tracking through the Site without difficulty.

Overall, it is considered that the internal road network will provide a high level of convenience for residents and staff and will be simple for all drivers to negotiate.

Figure 4-8: Proposed layout for Bishopspark Site

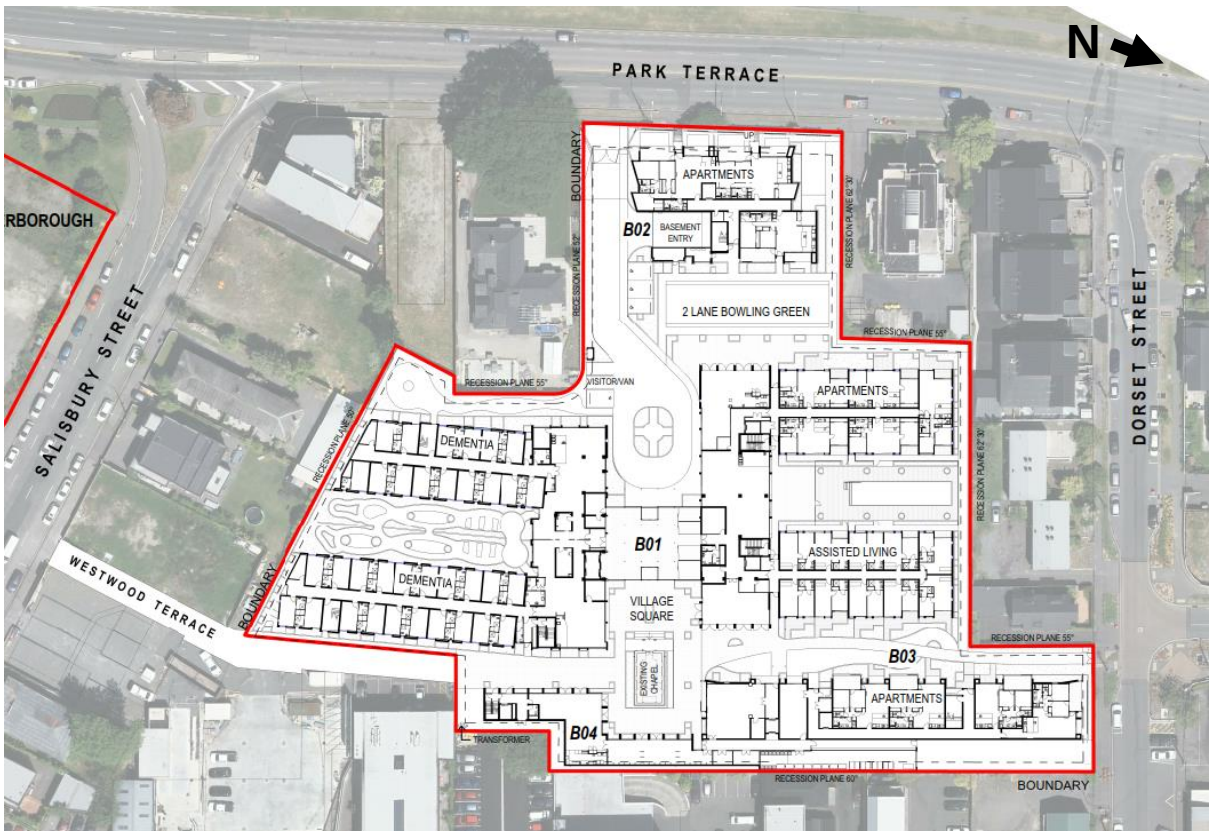
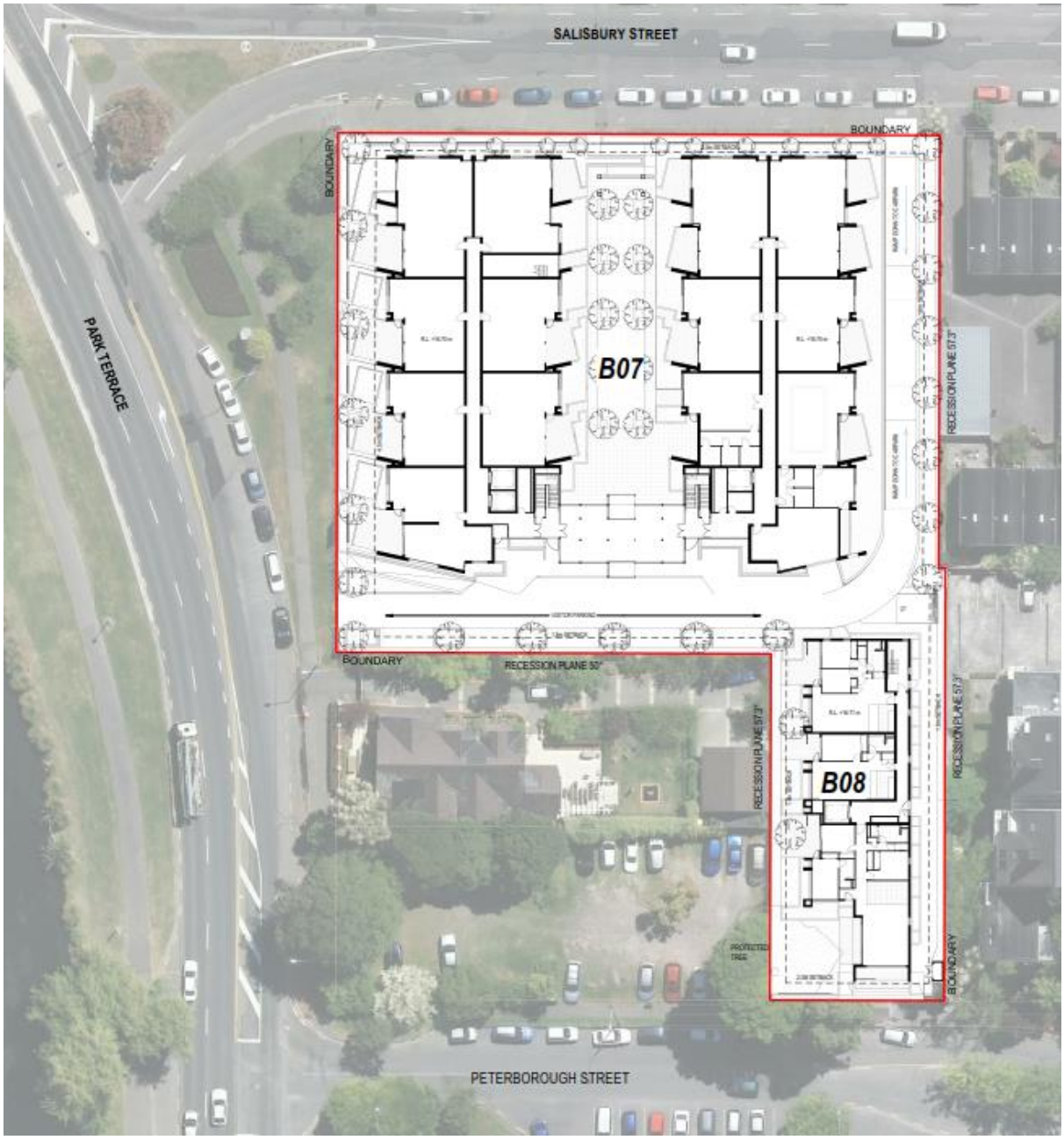


Figure 4-9: Proposed layout for Peterborough Site



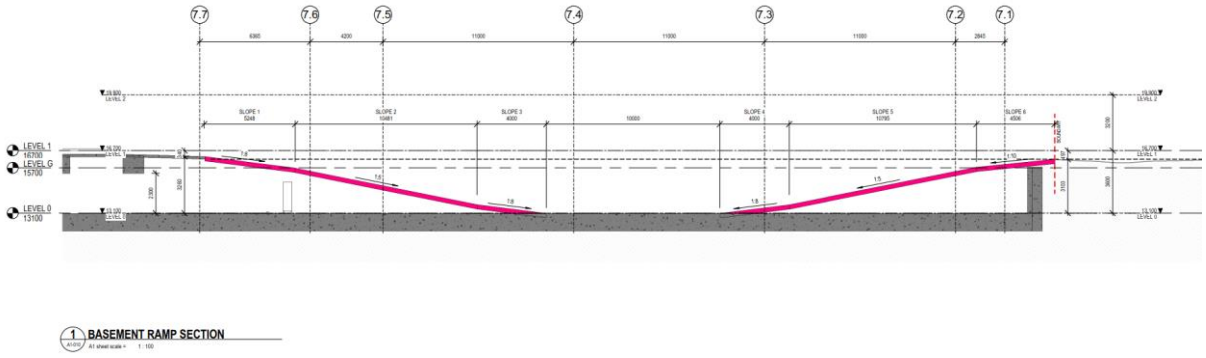
4.8 RAMP GRADE

On the Bishopspark site, the basement parking areas are accessed via ramps from the ground floor. Section 7.5.7 of the District Plan outlines access design and gradient requirements. The Bishopspark site caters for a mixture of both residential, staff and visitor parking. Ramps are less than 20m in length. Therefore, a maximum grade of 1:5, and a transition grade of 1:8 is required by the District Plan.

The proposed ramps provide a maximum grade of 1:5 (20%)[2] with 4m long 1:8 transitions provided at the top and bottom of the ramp, and therefore comply with the requirements of the District Plan.

On the Peterborough site, rubbish trucks will need to use the ramps in order to exit. As such, transitions have been lengthened to prevent vehicle scraping. At the property boundary a 4.5m long 1:10 transition is proposed. At the top of the ramp within the site, a 6m 1:8 transition is provided. Vertical vehicle tracking has been carried out to ensure an 8m rigid vehicle[3] can traverse the ramp without scraping. The proposed ramp grade is shown in Figure 4-10.

Figure 4-10: Peterborough site ramp grades to basement parking area



4.9 PEDESTRIAN ACCESS

Pedestrian footpaths will be provided throughout the Proposed Village, with pedestrian crossings provided at regular intervals to ensure a safe pedestrian environment.

For the Bishopspark site pedestrian access is provided adjacent to the vehicle access on Park Terrace, via a separate pedestrian access on Dorset Street and via Westwood Terrace (a private lane) to the south of the site. Ryman have a right of way over this private way. Within the Bishopspark site, all access points lead to a central pedestrian plaza located around the existing Chapel.

For the Peterborough site a separate pedestrian access is provided alongside the vehicle entrance on Park Terrace. Apartment units fronting Park Terrace have direct access to Park Terrace. A pedestrian access is provided midway along the Salisbury Street frontage and provides a north – south route through the site.

[3] Based on the Roads and traffic guidelines RTS16 8m rigid truck

[3] Based on the Roads and traffic guidelines RTS16 8m rigid truck

Internal pedestrian facilities connect to the external footpath network. Park Terrace, Salisbury Street and Dorset Street all provide footpaths on both sides of the street.

Westwood Terrace is a private lane and provides a 6m wide carriageway catering for both vehicles and pedestrians in a shared arrangement.

The Bishopspark site and the Peterborough site are separated by Salisbury Street. In the vicinity of Westwood Terrace, Salisbury Street has a 14m carriageway with two traffic lanes in the eastbound direction and parking provided on both sides of the road. Given the likelihood of pedestrian demand between the two Sites and the nature of users expected by the Proposed Village, an upgraded crossing facility is considered necessary to ensure the safety of elderly residents. More details on the proposed pedestrian crossing facility are provided in Section 5.

5 CHANGES TO THE EXTERNAL NETWORK

5.1 PEDESTRIAN CROSSING FACILITIY

Five options were considered to provide improved crossing facilities between the Bishopspark site and the Park Terrace site. A signalised pedestrian crossing is recommended as it is considered to provide the greatest performance from a safety perspective and is located on the pedestrian desire line. This option does have some effects on through traffic, but given the volume of traffic on Salisbury Street, these effects relate to slight time delays rather than safety and are expected to be minor in nature.

Figure 5-1 shows the intended pedestrian crossing upgrade.

Figure 5-1: Upgraded pedestrian crossing

5.2 UPGRADES TO PARK TERRACE

The Proposed Village has primary access points for both the Bishopspark and Peterborough sites via Park Terrace.

The proposed access for the Bishopspark site is on Park Terrace. In this location, Park Terrace provides two lanes in each direction with no median. Right turning traffic will block one of the through lanes and turn across two lanes of opposing traffic.

In order to improve safety and operation of the access, road widening to provide a central flush median is proposed in this location. In order to achieve this road widening, some widening of the carriageway is required.

The proposed access point for the Peterborough site is located on Park Terrace around 45m north of the Peterborough Street intersection. In this location, two northbound lanes are provided on Park Terrace and one southbound lane with on street parking and a bus stop to the south of the site.

In order to improve safety and operation of the access, road widening to provide a central flush median is proposed in this location. No carriageway widening is required to achieve this.

Details of the proposed changes to Park Terrace are provided in **Attachment B** and Figure 5-2 below.

Figure 5-2: Upgraded Access provision

6 TRAFFIC EFFECTS

6.1 PROPOSED TRIP GENERATION

Trip rates for the Proposed Village have been determined using the New South Wales (NSW) Roads and Traffic Authority Guide to Traffic Generating Developments ("RTA Guide") and the NZTA Research Report 453: trips and parking related to land use ("NZTA Report 453"), as well as from empirical data surveyed at other Ryman villages in New Zealand.

Existing Ryman Village Trip Generation Data

In order to estimate likely trip generation from the Site, two operational Ryman retirement villages (Howick and Orewa) have been surveyed as outlined in Table 6-1 to provide some comparison. The surveys were undertaken with an automatic tube count over two weeks (14 February to 27 February 2017).

Table 6-1: Survey Results of two operational Ryman Retirement Villages

Place and Date	Howick	Orewa
Details	192 Independent Units 197 Assisted Living Suites / Care Beds 389 total units	231 Independent Units 107 Assisted Living Suites / Care Beds 338 total units
Average Daily Traffic (daily trip counts)	942	916
AM commuter peak (between 8-9am) counts	42	54
Interpeak period (typically early afternoon) counts	82	85
PM commuter peak (between 4:30 -5:30 pm) counts	59	61

One of the key findings in the survey results in Table 6-1 is that drivers within the retirement villages adjust their travel to avoid the peak periods on the surrounding road network. Based on the survey information only 6-7% of the daily trip generation occurs during the peak periods for Ryman retirement villages. Trip generation within this period is mainly a result of staff movements given that residents generally avoid peak traffic periods.

The survey results in Table 6-1 further show that the peak activity from these retirement homes usually occurs on the shoulder of the peak period (i.e. around 3-4pm). Typically, around 9% of daily trips occur during this time-period.

Each of the two surveyed sites have been compared against the NZTA Report 453 and RTA Guide in Table 6-2.

Table 6-2: Comparison of trip rates

	NZTA report 453	Howick survey	Orewa Survey	RTA
Independent apartments / townhouses	2.6 trips per day per unit 0.4 trips per unit in the peak hour	2.4 trips per unit per day 0.11 trips per unit in AM peak hour	2.7 trips per unit per day 0.16 trips per unit in AM peak hour	1-2 trips per dwelling per day 0.1 - 0.2 trips per dwelling in peak hour
Assisted living suites / care beds / care suites	2.4 trips per day per unit 0.3 trips per unit in the peak hour	0.21 trips per unit in the school peak 0.15 trips per unit in the PM peak	0.25 trips per unit in the school peak 0.18 trips per unit in the PM peak	

For the purposes of estimating daily trips from the Site, the NZTA Report 453 rate of 2.6 trips per unit has been adopted (as it aligns with Ryman surveys). When considering peak hour trips, the Orewa and Howick surveys show a lower traffic generation expected than the NZTA Report 453 suggests. It is considered the survey data provides a more useful indication of the likely the peak hour rates in comparison to the Research Report 453 because the surveys are of actual Ryman villages and are more up to date than data used to determine NZTA 453 report rates. A peak hour rate of 0.14 trips per unit in the AM peak, 0.23 trips in the interpeak period and 0.17 trips in PM peak hour has been adopted for the purposes of this assessment (average of Ryman survey).

Table 6-3 and Table 6-4 outline the expected trip generation from each of the Bishopspark and Peterborough sites from the Proposed Village.

Table 6-3: Anticipated trips generated by the Bishopspark site

Accommodation Type	Trips	Total Trips per day	Trips per AM peak hour (8-9am)	Trips in the interpeak hour	Trips per PM peak hour (4:30-5:30pm)

85 - Independent Apartments	2.6 trips per day 0.14 trips in the AM peak hour 0.23 trips in the interpeak hour 0.17 trips in the PM peak hour	221	12	20	14
124 - Assisted Living Suites / Care Beds / Care Suites		322	17	29	21
Total		543	29	49	35

Table 6-4: Anticipated trips generated by the Peterborough site

Accommodation Type	Trips	Total Trips per day	Trips per AM peak hour (8-9am)	Trips in the interpeak hour	Trips per PM peak hour (4:30-5:30pm)
80 - Independent Apartments	2.6 trips per day 0.14 trips in the AM peak hour 0.23 trips in the interpeak hour 0.17 trips in the PM peak hour	208	11	18	14

The Bishopspark site is expected to generate a peak hour trip generation of 29 trips in the AM peak hour, 49 trips in the interpeak hour and 35 trips in the PM peak hour. The total trip generation from this site per day is expected to be 543 trips.

The Peterborough site is expected to generate a peak hour trip generation of 11 trips in the AM peak hour, 18 trips in the interpeak hour and 14 trips in the PM peak hour. The total trip generation from this site per day is expected to be 208 trips.

6.2 ANTICIPATED TRIP GENERATION

The Site is located within the RCC zone. As such no density limits apply to a development of the Site but various rules manage built form.

Table 6-5 below outlines the expected trip generation if the Site was developed as a residential development. Expected trip generation has been based on the RTA rate for “medium density” residential development (5 trips per dwelling or 0.5 trip per dwelling in the peak hour).

An anticipated residential development is expected to generate significantly more traffic movements in the peak periods (over double) and throughout the day (60% increase) than the Proposed Village (for the whole Site, and each of the Bishopspark and Peterborough sites) based on the analysis in Table 5-3.

Table 6-5: Development Scenario Trip Total

Development type	Development Scenario Total	Total Trips
Residential development	Bishopspark site (10000m²) 160 units[4]	80 peak hour trips and 800 daily vehicle trips
	Peterborough site (5000m²) 120 units[5]	60 peak hour trips and 600 daily vehicle trips

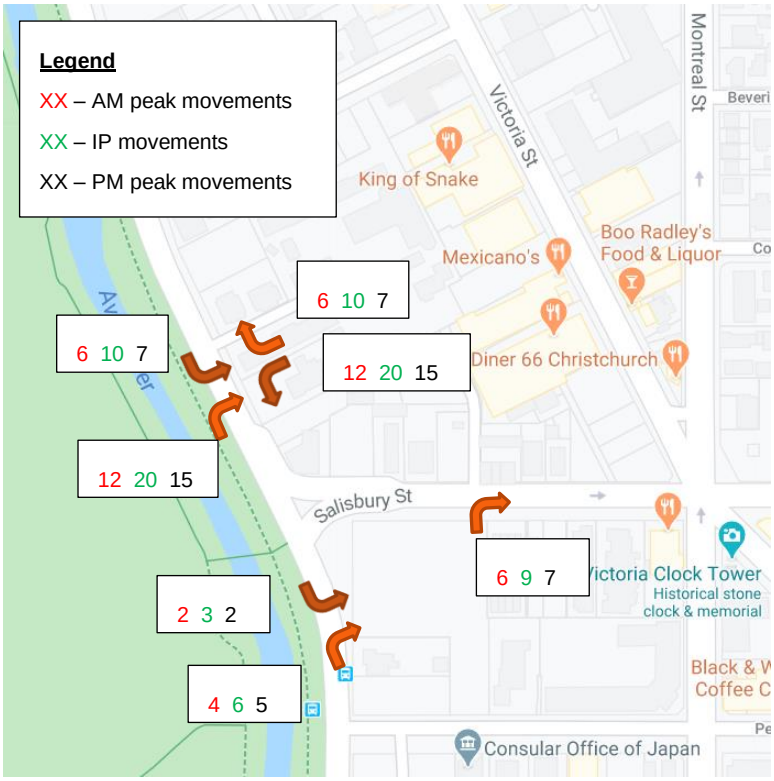
6.3 TRAFFIC DISTRIBUTION

The anticipated traffic distribution for the Site is outlined in Table 6-6 . Movements into and out of the Site are expected to be equal in all peak periods. This is to account for staff movements to, and from, the Site and resident movements which tend travel in different directions to each other. One third of travel is anticipated to come to and from the Site from the north, while two thirds of travel is expected to be to and from the south and east.

[4] Assuming 40% building coverage, 4 storeys, average of 100m2 per unit

[5] Assuming 40% building coverage, 6 storeys, average of 100m2 per unit

Table 6-6: Traffic distribution



6.4 TRAFFIC EFFECTS DISCUSSION

For the Bishopspark site, the majority of anticipated trips will be focused on a single access point on Park Terrace. Right turning traffic into the Bishopspark site is expected to be between 12-20 vehicle movements per hour. As discussed in Section 5.2, it is recommended a central median is provided to allow right turning vehicles space to wait, without impeding the flow of traffic on Park Terrace, until they find an appropriate gap to complete the right turn movement.

At the Peterborough site, it is recommended to provide a central median to accommodate right turning vehicles associated with the site. A central median can easily be accommodated through changes to line marking only. No road widening is require in this location.

With the proposed upgrades to Park Terrace, the Proposed Village is expected to have a minimal effect on the operation of the surrounding road network.

7 PARKING

7.1 DISTRICT PLAN REQUIREMENT

The District Plan outlines rules for the number of parking spaces required for a retirement village and a care facility in Appendix 7.5.1 as shown in Table 7-1 and Table 7-2.

Table 7-1: District Plan parking requirement for Bishopspark Site

Site	Activity	Rate	Number of units	Parking spaces required
Bishopspark	Retirement village (excluding a care home within a retirement village)	1 space/ residential unit	85	85
	Care facilities: (including a care home within a retirement village)	1 space/ 5 clients	124	25
Total			209	110

Table 7-2: District Plan parking requirement for the Peterborough Site

Site	Activity	Rate	Number of units	Parking spaces required
Peterborough	Retirement village (excluding a care home within a retirement village)	1 space/ residential unit	80	80

Appendix 7.5.14.1 provides a series of parking reduction adjustment factors based on attributes of the site. For the Proposed Village, the following reductions are considered to apply:

- A 6% reduction due to proximity to public transport services (100-200m)
- A 3% reduction due to good non-vehicular access to buildings due to comprehensive pedestrian paths around the Site.

With a 9% reduction in parking requirements, the Bishopspark site requires 100 spaces to comply with the District Plan while the Peterborough site requires 73 spaces to comply with the District Plan.

The Proposed Village provides 6 at grade parking spaces and 138 basement parking spaces on the Bishopspark site and 6 at grade parking spaces and 77 basement parking spaces on the Peterborough site. The Proposed Village as a whole provides a total of 227 complying with the District Plan requirement.

7.2 RTA PARKING DEMAND

For comparison purposes, the RTA Guide has been used to estimate actual parking demand. The RTA Guide recommends the parking requirements for housing for the aged and a medical centre as shown in Table 7-3.

Table 7-3: RTA Parking Rate

Activity	Parking Rate
Self-Contained Unit	2 spaces per 3 units (residential) and 1 space per 5 units (visitor)
Hostels / Nursing	1 space per 10 beds and 1 space per 2 employees

It is considered that all independent apartments within the retirement village are classified as 'self-contained units' and all assisted living suites and care beds are classified as 'hostels/nursing' activities.

The RTA Guide requirements as applied to the Proposed Village are summarised in Table 7-4 and Table 7-5.

Table 7-4: RTA Parking Requirement for the Bishopspark Site

Use	Number	RTA Specification	Number of Spaces Required
Apartments	85	2 per 3 Units (Residential) 1 per 5 Units (Visitors)	57 17
Assisted Living Suites / Care Beds	124	1 space per 10 beds	13
Staff	30	1 space per 2 employees	15
Total for Site		102	

Table 7-5: RTA Parking Requirement for the Peterborough Site

Use	Number	RTA Specification	Number of Spaces Required
Apartments	80	2 per 3 Units (Residential) 1 per 5 Units (Visitors)	53 16
Staff	20	1 space per 2 employees	10
Total for Site		79	

As shown above, the RTA Guide recommends providing a minimum of 102 parking spaces on the Bishopspark site and 79 spaces on the Peterborough site to meet the expected parking demand. The proposed provision onsite exceeds the RTA parking demand.

7.3 PARKING PROVISION

At the Bishopspark site, 6 on grade spaces and 138 basement spaces are providing which exceeds the District Plan requirement of 100 spaces.

At the Peterborough site, 6 on grade spaces and 77 basement spaces are providing which exceeds the District Plan requirement of 73 spaces.

A total of 227 parking spaces are proposed to be established on-site which exceeds the District Plan and RTA requirements.

Accordingly, it is considered that the parking requirements of the users of the Site can be met on-site and they will not be required to park on-street and thus there will be no off-site parking effects.

7.4 PARKING DIMENSIONS

The District Plan outlines dimension requirements for parking in Appendix 7.5.1. The Proposed Village will attract a mixture of long-term parking (residents and staff) and medium term parking (visitors).

For a 2.5m wide parking space, 6.4m aisle width is required with a 5.0m stall depth with a total aisle width (two rows of parking and the aisle) of 16.4m.

The car parking spaces within the Proposed Village have been designed to AS/NZS 2890.1:2004 standards (the New Zealand standard for off-street car parking) as is provided at Ryman villages around the country. The AS/NZS 2890 guide recommends different parking dimension for different kinds of users. Given the proposed activity onsite, users fall into two categories:

- User class 2: Medium term parking - Retirement Village residents and staff are considered to fall into this category. They require 2.5m width, 5.4m stall depth and 5.8m manoeuvring space.

- User class 3: Visitor parking – Visitors are considered to fall into this category. They require 2.6m width, 5.4m stall depth and 5.8m manoeuvring space.

All new buildings contain basement car parks. Car parking dimensions and manoeuvrability has been designed in accordance with AS/NZS 2890.1:2004. The majority of car parks are 2.5m wide and 5.4m deep and provide 6.8m manoeuvring space as recommended in AS/NZS 2890. While the dimensions proposed for each car park are different to that required in the District Plan, the overall aisle width of 16.6m exceeds that required in the District Plan (16.4m).

The position of columns within the basements has been checked and all columns are located in positions outside of the space required for the tracking of vehicles. Vehicle tracking for spaces at the end of blind aisles has been checked where spaces have less than the recommended 1m clearance as specified in AS/NZS 2890. This tracking can be seen in Attachment A.

7.5 MOBILITY / ACCESSIBILITY SPACES

NZS 4121 outlines requirements for the provision of mobility parking spaces. On the Bishopspark site, a total of 144 parking spaces are provided requiring 4 mobility spaces. The Peterborough site provides a total of 83 parking spaces requiring 3 mobility spaces.

A total of 7 (3 on the Peterborough site and 4 on grade at Bishopspark site) mobility spaces are proposed, therefore complying with NZS 4121. All the mobility parks will be designed as per NZS 4121.

Mobility spaces require a height clearance of 2.5m above the space with the approach to the space having a clearance of 2.2m[6] headroom. This is provided above all mobility spaces in the basement parking area.

8 LOADING AND SERVICING

The Proposed Village includes a loading area on both the Bishopspark and Peterborough sites.

The District Plan requires 1 loading area to be provided for each site given the Site caters for a care facility with more than 20 clients. The loading area is required to provide for a medium rigid vehicle (8.8m length) and have dimensions of 10.8m x 3.5m.

On the Bishopspark site, a dedicated access point and loading area is provided via Dorset Street. It is noted that a truck will be required to reverse back off the Site onto Dorset Street. Given the low traffic and pedestrian volumes and excellent visibility, this is considered acceptable arrangement.

For the Peterborough site, loading will occur via the main access road. A truck will momentarily block the access road while it loads before exiting the site via the down and up ramps to Salisbury Street.

Both the circulation and the loading areas can accommodate the turning of an 9.2m rigid truck (as specified by the waste management contractor).

Attachment A shows the tracking path of a 8m (RTS18) truck using the proposed loading space and circulation area on the Peterborough and Bishopspark sites. The internal road layout is also able to support emergency vehicles such as ambulances and fire engines.

9 CONSTRUCTION TRAFFIC

The construction methodology for the Proposed Village has not been finalised as it will depend on a range of factors, including any resource consent requirements. As such, it is proposed that provision be made in the resource consent conditions for a Construction Traffic Management Plan to be developed for the works anticipated (as is typically the case for other Ryman retirement villages in New Zealand) and has been accepted by various Councils around New Zealand in relation to recent Ryman proposals (in Johnsonville, Wellington, Hamilton, New Plymouth, Havelock North, Christchurch and in Auckland).

The Construction Traffic Management Plan for the Site will include:

[6] AS/NZS 2890.6 Part 6: Off- Street parking for people with disabilities

(i) Construction dates and hours of operation including any specific non-working hours for traffic congestion/noise etc..

(ii) Truck route diagrams both internal to the Site and external to the local road network.

(iii) Temporary traffic management signage/details for both pedestrians and vehicles to appropriately manage the interaction of these road users with heavy construction traffic.

(iv) Details of Site access/egress over the entire construction period. Noting that all egress points to be positioned so that they achieve appropriate site distance as per the Land Transport Safety Authority "Guidelines for visibility at driveways" RTS6 document.

Based on experience of constructing similar retirement villages and bearing in mind capacity within the existing roading network, with the appropriate Construction Traffic Management Plan in place and the above measures implemented, it is considered that construction activities will be managed to ensure an appropriately low level of traffic effects.

Of note, the construction activities are temporary in nature. With appropriate measures in place, the construction traffic effects of the Proposed Village are able to be appropriately managed and therefore are considered less than minor.

10 RECOMMENDATIONS

In order to manage the potential transport effects of the Proposed Village, it is recommended that the following measures are addressed in resource consent conditions:

- A Construction Traffic Management Plan is prepared and implemented in accordance with Section 9 of this Report.
- A signalised pedestrian crossing is provided across Salisbury Street.
- A central median and associated road widening is provided on Park Terrace for the primary vehicle access for the Bishopspark site
- A central median is provided on Park Terrace for the Peterborough site vehicle entrance.

11 CONCLUSIONS

On the basis of the assessment contained in this report and assuming the recommendations above are implemented, the following conclusions can be made:

- The level of traffic generated by the Proposed Village is significantly less than an anticipated residential development on the Site would generate.

- Assuming the recommendations for changes to Park Terrace are implemented, the traffic generated by the Bishopspark Site is expected to have a minimal effect on the surrounding road network including in particular effects on the capacity of the surrounding road network;

- Assuming the recommendations for changes to Park Terrace are implemented, the traffic generated by the Peterborough Site is expected to have a minimal effect on the surrounding road network including in particular effects on the capacity of the surrounding road network;

- The Proposed Village will not compromise traffic safety in the area; and
- Sufficient parking and loading provisions are provided on-site on both the Bishopspark and Peterborough Sites. No parking overflow is expected;
- Suitable access can be provided to the Site;
- It is appropriate to manage the temporary construction traffic through a Construction Management Plan to suitably avoid or mitigate the temporary adverse effects that may arise from construction activities.

Overall, it is concluded that there is no traffic engineering or transport planning reason that would preclude the construction and operation of the Proposed Village on the either the Bishopspark or Peterborough Sites.

ATTACHMENT A: VEHICLE TRACKING PLANS

ATTACHMENT B: PROPOSED CHANGES TO PARK TERRACE