2

VOLUME 2

APPENDIX C

Transportation Assessment Report,
Commute Transportation (2020)

Ryman Healthcare Comprehensive Care Retirement Village

Kohimarama

Transportation Assessment Report

14 February 2020

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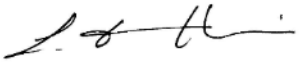
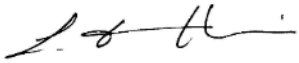
Project: Ryman Healthcare
Retirement Village, Kohimarama

Report title: Transportation Assessment Report

Document reference: J001100 Transport Assessment Kohimarama

Date: 14 February 2020

Report Status	Prepared By	Reviewed By	Approved By
Final report v3	Graham Norman	Leo Hills	Leo Hills
			

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1 INTRODUCTION

Commute Transportation Consultants has been commissioned by Ryman Healthcare Limited (Ryman) to assess the transport effects of a proposed comprehensive care retirement village (referred to as the 'Proposed Village') at 223 Kohimarama Road and 7 John Rymer Place, Kohimarama, Auckland (referred to as the 'Site').

The 3.1 ha Site is proposed to be primarily accessed via John Rymer Place, with a secondary access point on Kohimarama Road at the northern end of the Site frontage. The Site is zoned Residential – Mixed Housing Urban ('MHU') Zone in the Auckland Unitary Plan ('AUP').

This report assesses the transport-related effects of the Proposed Village, comprising 123 independent apartments, 75 assisted living suites and 98 care beds, 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;
- The adequacy of the proposed form of access and egress, and the interaction with the neighbouring school site;
- The adequacy of the proposed on-site parking and servicing to accommodate the expected demand and to ensure that service vehicles are able to manoeuvre on-site safely and efficiently;
- The provision for pedestrian connectivity throughout the Site and connections to the adjacent transport network, and a pedestrian environment that is appropriate for the elderly residents and neighbouring school students;
- The construction traffic effects of the Proposed Village, and recommendations for access arrangements and mitigation of those effects.

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 at the Site, consisting of the following:

- 123 independent apartments;
- 75 assisted living suites;
- 98 care beds;
- 2 at grade parking spaces;
- 190 basement parking spaces.

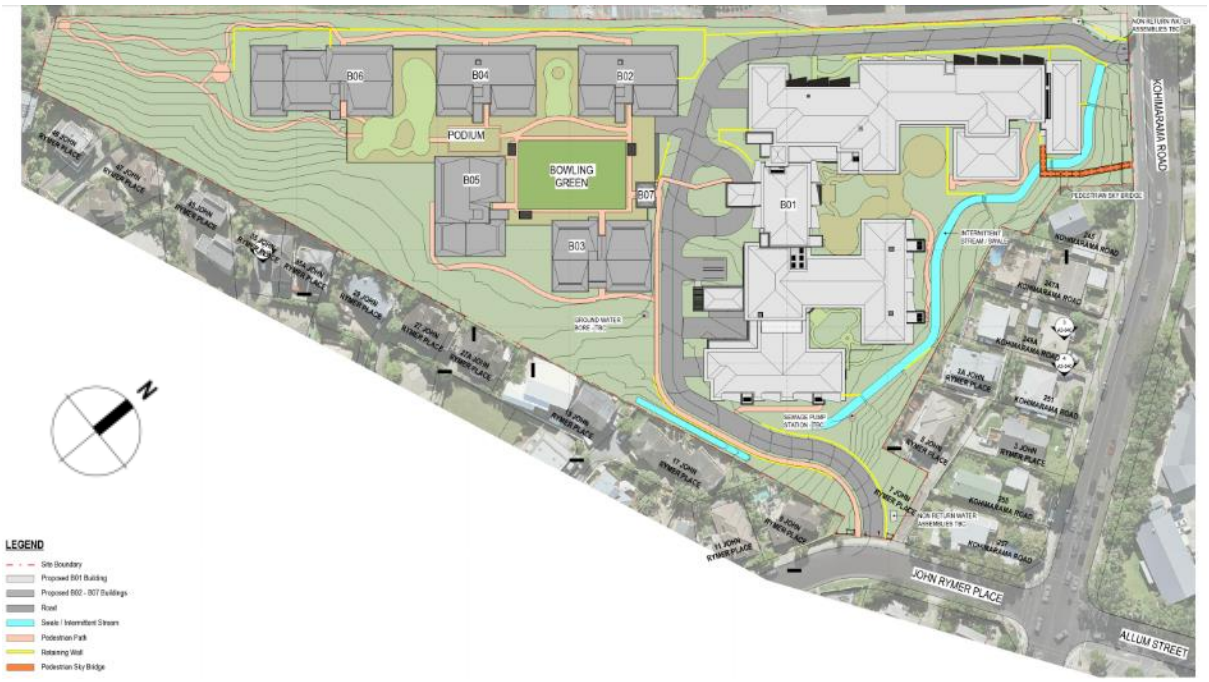
Two access points are proposed to serve the Site. The main access is provided via John Rymer Place. A signalised intersection between John Rymer Place, Allum Street and

Kohimarama Road connects the Site to the wider arterial road network. A secondary access is proposed via Kohimarama Road at the northern end of the site frontage.

An internal road network will provide access to all buildings within the Proposed Village.

Figure 2-1 shows the proposed layout of the Site.

Figure 2-1: Proposed Village Layout



3 EXISTING ENVIRONMENT

3.1 TRANSPORT ENVIRONMENT

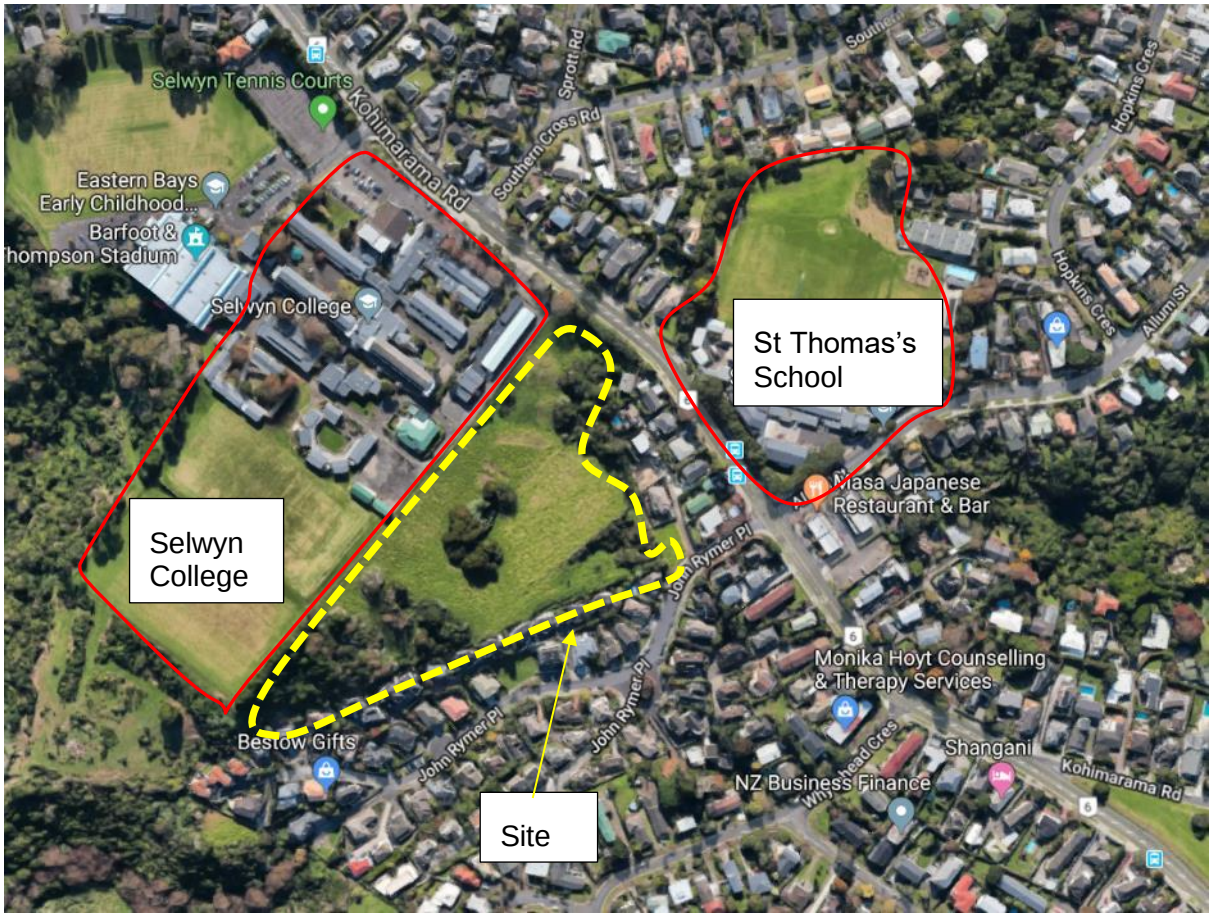
Figure 3-1 is an aerial photograph showing the Site in relation to the surrounding road network.

John Rymer Place connects to Kohimarama Road / Allum Street via a signalised intersection approximately 50m north of the proposed access point. John Rymer Place is a cul-de-sac local road, providing access to around 70 dwellings. The carriageway width varies, however in the vicinity of the Site it provides 9.5m width allowing for two-way traffic movements and on street parking on both sides of the road. On street parking is restricted for the northern 30m approaching the intersection with Kohimarama Road. Footpaths of around 1.8m width are provided on both sides of John Rymer Place. The speed limit on John Rymer Road is 50km/h.

Kohimarama Road is classified as an arterial road in the AUP. The speed limit on Kohimarama Road in the vicinity of the Site is 50km/h. At the proposed access point, Kohimarama Road provides a single lane in each direction with no stopping restrictions on both sides of the road extending both north and south. A flush median of 2.3m width is provided. To the south of the proposed access point, the carriageway widens to accommodate additional lanes at the John Rymer / Allum Street intersection. To the north of the proposed access, a right turn lane is provided into Southern Cross Road.

A footpath is provided on both sides of Kohimarama Road. The footpath is 2-2.5m wide depending on location and adjacent planting.

Figure 3-1: Site location



The Site is situated in close proximity to both Selwyn College and St Thomas's School. The proposed Kohimarama Road access is located 30m south east of an access to Selwyn college. St Thomas's School has an access point on Allum Street 50m north of the Kohimarama Road/Allum Street/John Rymer intersection. Pick up and drop off movements at both schools during school peak periods impact the operation of the transport network.

At Selwyn College, the school peak periods (8:15-9:15am and 2:30-3:30pm) create an increase in the number of pedestrians walking past the Site on Kohimarama Road, in the number of students catching buses from the bus stops located on Kohimarama Road and in the pickup and drop off vehicle movements. Vehicle movements are generally concentrated around the school vehicle crossings and Southern Cross Road opposite the school. On occasion, some vehicles pick up / drop off students on Kohimarama Road, ignoring the no stopping restrictions. During school peak periods, vehicle queuing can occur on Kohimarama Road as a result of turning traffic movements, internal carpark operational issues and the signalised pedestrian crossing on Kohimarama Road (140m north of the Kohimarama access) being used frequently.

St Thomas's School is situated on the opposite side of Kohimarama Road to the Site and gains vehicle access via Allum Street. During school peak periods (8:15-9:15am and 2:30-3:30pm), traffic and pedestrian volumes around the school increase. The majority of pick up and drop off movements occur directly outside the school on Allum Street. Observations suggest limited pick up and drop off movements occur on John Rymer Place during the peak periods.

3.2 PUBLIC TRANSPORT

The Site is located adjacent to Kohimarama Road, which accommodates a number of bus services as shown in Figure 3-2. Service 762, 782 and 783 pass the Site on Kohimarama

Road providing connections to Glen Innes, Orakei, Sylvia Park, Mt Wellington, Ellerslie, Mission Bay, St Heliers, Glendowie, Eastridge and the City Centre. The nearest bus stops are located on Kohimarama Road to the north of the John Rymer Place signalised intersection (approximately 90m for northbound services and approximately 110m for southbound services from the John Rymer access of the Proposed Village). The high frequency of services to the various destinations on offer means that public transport would be a viable transport option to and from the Proposed Village.

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

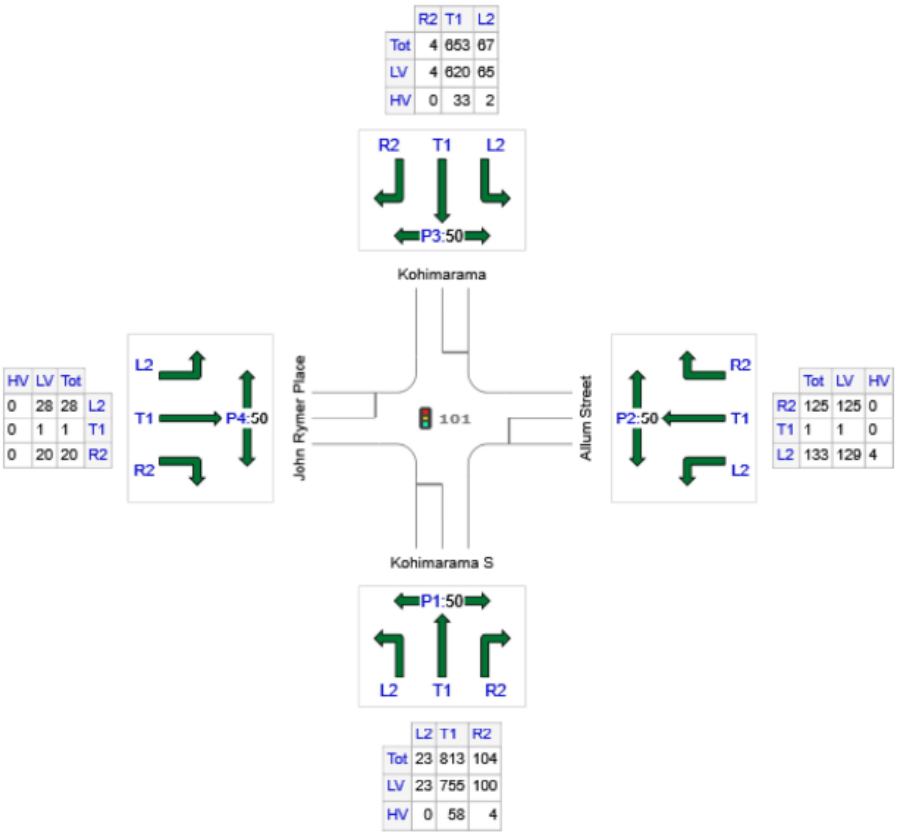
3.3 EXISTING TRAFFIC VOLUMES

Traffic data for the surrounding roads has been extracted from the Auckland Transport traffic count database. The following records are available for the surrounding area:

- Kohimarama Road between St Heliers Bay Road and Whytehead Cresent (south) on 13/08/2018: 25118 vpd.
- Allum Street between Kohimarama Roadand Hopkins Cresent (south) on 13/08/2018: 4213 vpd.

A survey of the intersection between John Rymer Place / Kohimarama Road / Allum Street was carried out on 25 July 2019 between 7-9am and 3-6pm. The traffic flows for the AM peak hour (8-9am) are outlined in Figure 3-3, the traffic flows for the interpeak (3-4pm) are outlined in Figure 3-4 and the traffic flows for the PM peak (4:30-5:30pm) are outlined in Figure 3-5. The PM peak hour caters for the largest vehicle volumes.

Figure 3-3: AM peak hour traffic flows



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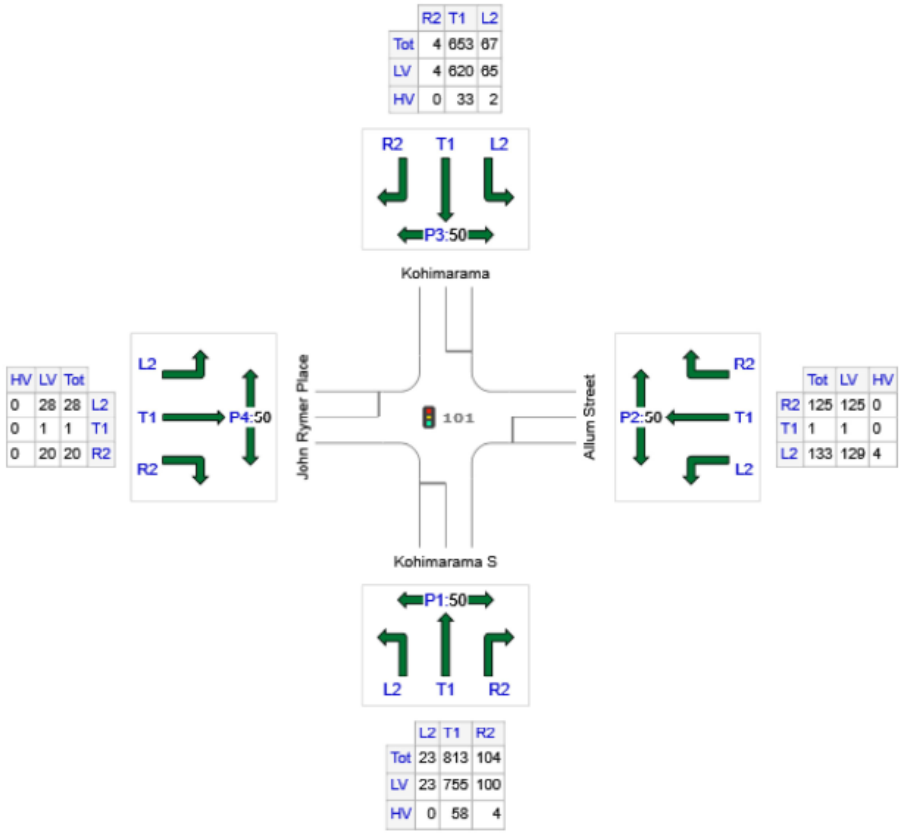


Figure 3-4: PM school peak hour traffic flows

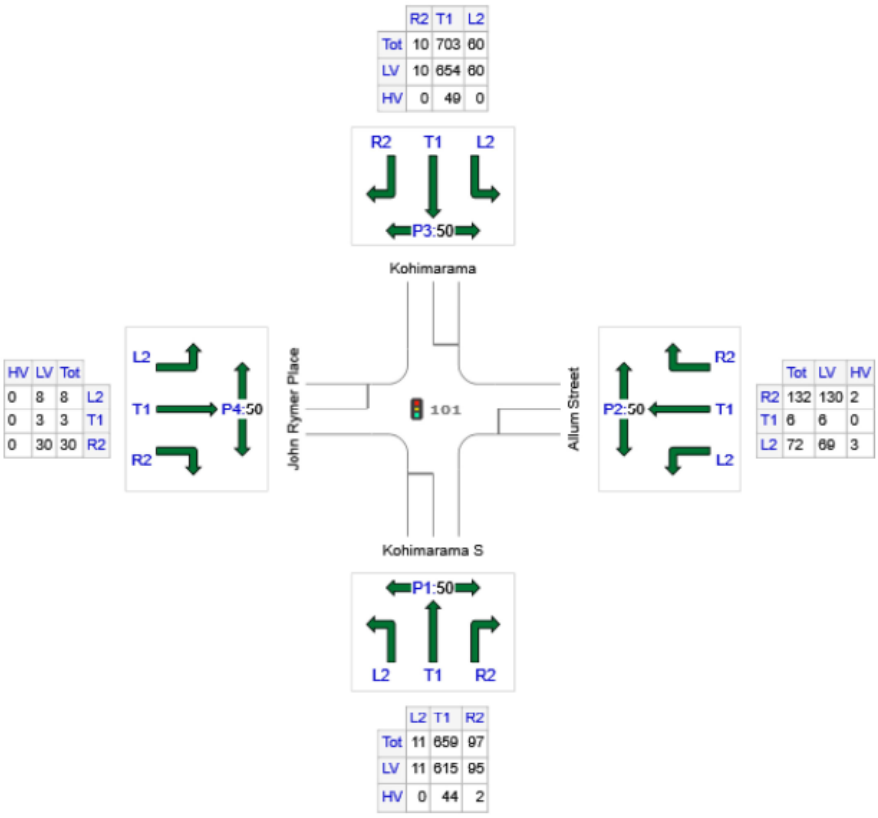
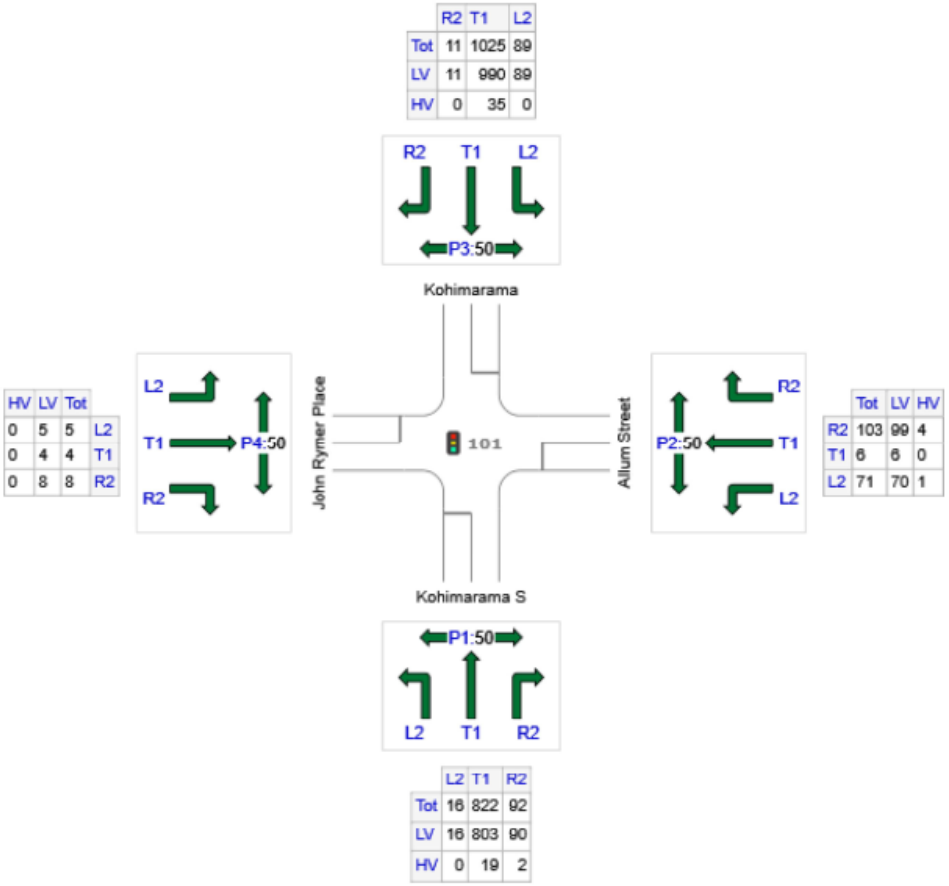


Figure 3-5: PM peak hour traffic flows



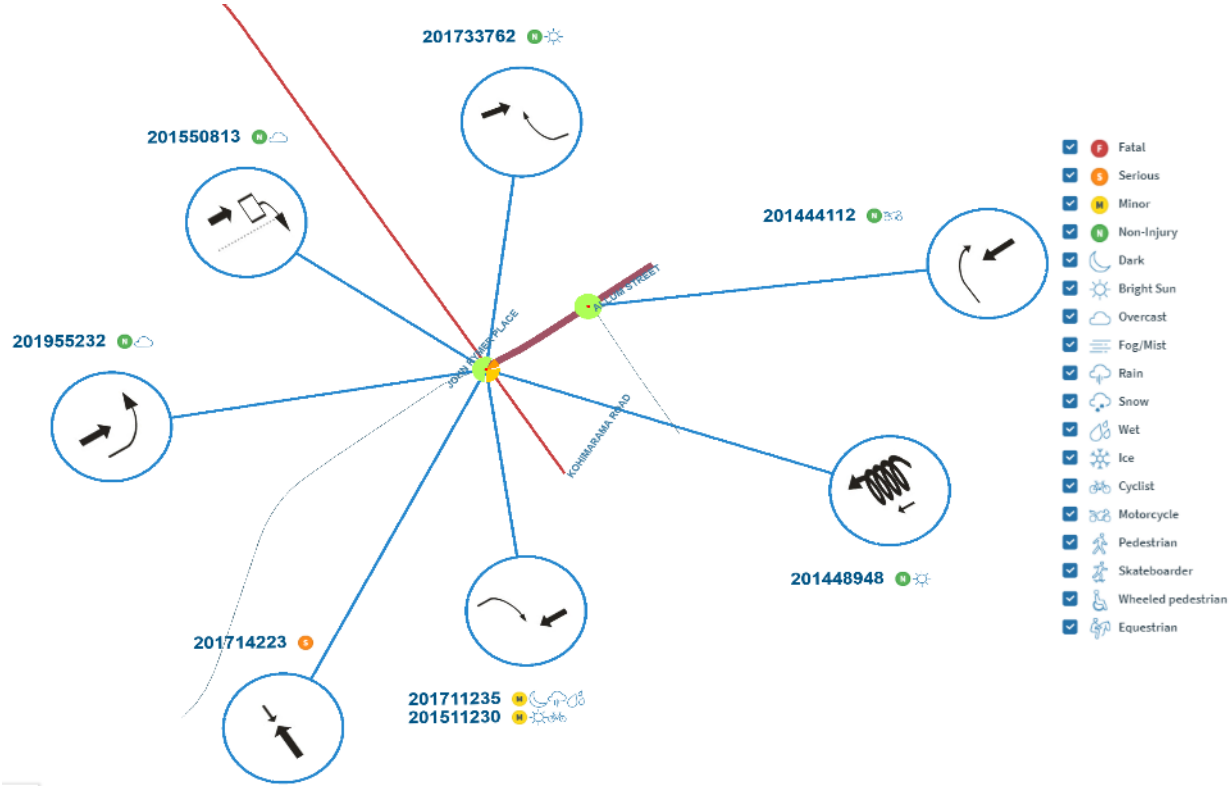
3.4 ROAD SAFETY

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 2014 - 2018 inclusive of any available 2019 data. The search area included the length of Kohimarama Road between Kepa Road and Whytehead Crescent, John Rymer Place (entire length) and Allum Street (between Kohimarama Road and school access). Due to the size of the search area, the assessment has been split into three sections.

3.4.1 KOHIMARAMA ROAD / JOHN RYMER PLACE INTERSECTION

The signalised intersection between Kohimarama Road, Allum Street and John Rymer Place has a record of 8 crashes over the study period. One crash was head-on and resulted in a serious injury with alcohol suspected as a cause. Two further crashes resulted in minor injuries, both as a result of a right turning movement from Kohimarama Road into Allum Street failing to give way to southbound traffic. One of these crashes involved a cyclist. The remaining five non-injury crashes were as a result of right turning movements, lane changing and loss of control. Figure 3-6 provides a collision diagram for the signalised intersection.

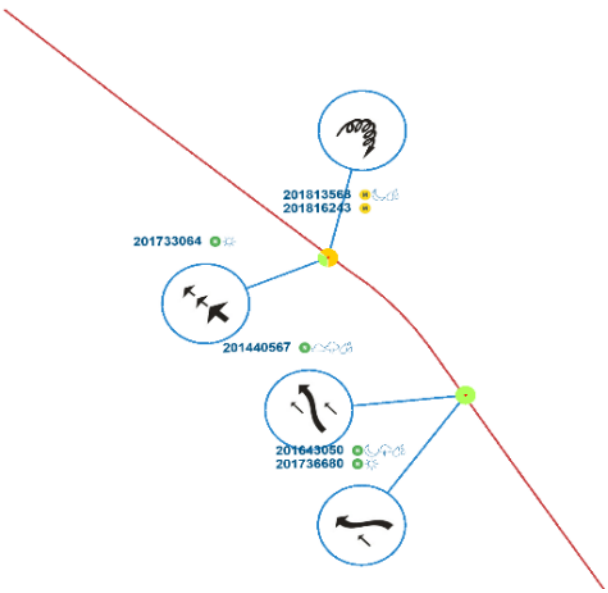
Figure 3-6: Collision diagram for John Rymer / Kohimarama Road / Allum Street intersection



3.4.2 KOHIMARAMA ROAD MIDBLOCK SITE FRONTAGE

On Kohimarama Road, six midblock crashes have occurred on the midblock section to the north of the signalised intersection (Figure 3-7). Two of the crashes have resulted in minor injuries as a result of loss of control while negotiating the slight corner around 245 Kohimarama Road. The remaining non-injury crashes have been involved lane changing or rear end movements. No crashes have been recorded involving vehicles using private access points along this section of Kohimarama Road (a total of 15-20 dwellings have access over this section).

Figure 3-7: Collision diagram for Kohimarama Road midblock for Site frontage



3.4.3 KOHIMARAMA ROAD SELYWN COLLEGE FRONTAGE

At the intersection between Kohimarama Road and Southern Cross Road, the crash history reveals four crashes in total, two of which resulted in minor injury as a result of a rear end crash. The remaining non-injury crashes involved lane changing and a head on crash.

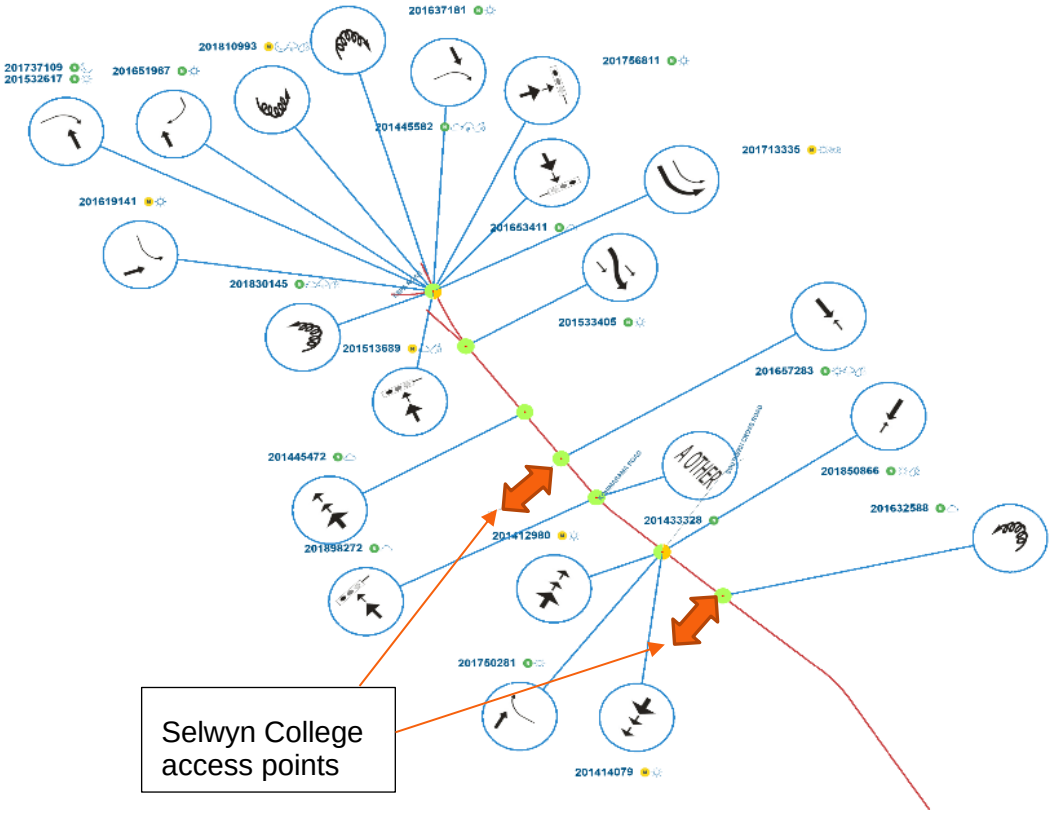
The midblock section of Kohimarama Road along the Selwyn Road frontage has a record of six crashes, none of which resulted in injury. The crashes involved rear end movements, lane changing, and one head on crash. The safety record shows no obvious issue associated with turning movements into and out of the school access points.

The intersection between Kepa Road and Kohimarama Road has a total of 12 crashes recorded. Four of these resulted in a minor injury. These included a rear end crash on Kohimarama Road northbound, a sideswipe crash between two right turning vehicles from Kepa Road, and two crashes between left turning vehicles from Kepa Road and northbound Kohimarama Road traffic. The remaining eight crashes involved loss of control while turning, rear end crashes and failure to stop at the traffic signals.

Overall, 9 of the 22 crashes along this section of Kohimarama Road occurred during school drop off (8:15-9:15am) or pick up (2:30-3:30pm) periods indicating an increased crash risk during these busy school periods compared with the remainder of the day.

A collision diagram for Kohimarama Road is shown in Figure 3-8.

Figure 3-8: Collision diagram for Kohimarama Road around Selwyn College for Site frontage



3.4.4 JOHN RYMER PLACE

No crashes were recorded on John Rymer Place over the search period.

3.4.5 SUMMARY

Based on our assessment of the crash history, the following conclusions can be drawn:

- The crash record at the John Rymer Place / Allum Street / Kohimarama Road intersection indicates no significant safety concerns. The crash record shows some indication of crash pattern as a result of the filtered right turn movements on Kohimarama Road into Allum Street and John Rymer Place, however this pattern is considered typical of this type of signal phasing arrangement.
- No road safety issues have been identified in relation to direct property access on Kohimarama Road.
- No road safety issues have been identified at the Selwyn College access points. However, the Kohimarama Road Selwyn College frontage area has a higher representation of crashes during school pick up and drop off periods.

4 PLANNING CONTEXT

The Site is zoned MHU Zone in the AUP. The AUP identifies the purpose of the MHU Zone as being to provide for a reasonably high intensity zone enabling a greater intensity of development than previously provided for. Over time, the appearance of neighbourhoods within this Zone will change. The Zone is intended to increase the capacity and choice of housing within neighbourhoods as well as promote walkable neighbourhoods, fostering a sense of community and increasing the vitality of centres. The Site abuts the MHU Zone to the north, east and west, and the Residential – Mixed Housing Suburban Zone to the south.

Selwyn College adjoins the north-western boundary of the Site and is subject to Designation 4778, Minister of Education - Educational purposes - secondary school (years 7 - 13). St Thomas's School is located to the north east of the Site adjoining Kohimarama Road and is subject to Designation 4783, Minister of Education - primary school (years 0 - 8).

The Proposed Village is an 'integrated residential development'. The activity status is 'Restricted Discretionary' and the following matters of discretion apply:

(i) building intensity, scale, location, form and appearance;
(ii) traffic;
(iii) design of parking and access; and
(iv) noise, lighting and hours of operation.

This report provides an assessment of the transport related matters (item ii and iii).

The Proposed Village will provide less than 500 units, and therefore will not exceed the threshold for new integrated residential developments set out in table E27.6.1.1 of the AUP. Accordingly, resource consent is not required for trip generation, and an integrated transport assessment addressing the effects of the Proposed Village on the wider transport network is not necessary.

As such, this transport assessment for the Site focuses on design of parking and access and local traffic effects arising from the Proposed Village.

5 ACCESS

5.1 PROPOSED ACCESS

Vehicle access to the Site is proposed via two access points. The primary access will be via John Rymer Place and have a formed width of 6.0m at the property boundary providing for two-way vehicle movements. John Rymer Place connects to Kohimarama Road and Allum Street via a signalised intersection around 50m north of the proposed access point.

The secondary access will be located on Kohimarama Road to the north of the site frontage with a formed width of 6.0m providing for two-way vehicle movements at the property boundary.

The Kohimarama Road access is proposed to have a restriction on right turning movements out of the access point onto Kohimarama Road. This restriction is recommended given the arterial road status of Kohimarama Road and types of users expected from the Proposed Village.

5.2 SAFETY OF THE SECONDARY ACCESS

With the close proximity of Selwyn College to the secondary access point, pedestrian safety has been discussed with the College. A number of access options were considered during the design phase to provide a safe and efficient access arrange for both the Proposed Village and the College. Discussions with the College raised the following concerns:

- Vehicles exiting both school access points battle to find appropriate gaps leading to frustration and queuing on the College site and on Kohimarama Road.
- High volumes of pedestrians' conflict with vehicles at the access points, particularly at the southern access point (some 40m north of Proposed Village access) which is around 12m in width. The College raised concerns over pedestrian safety with the additional crossing point associated with the Proposed Village.

It was not considered by Commute that any amendments to the access design were required for safety reasons, however Ryman wished to address the College's concerns to the extent possible. Various options were considered in consultation with Selwyn College.

Traffic surveys were also undertaken on Thursday 1 August between 8-10am and 2:30-4:30pm to quantify movements in and out of each school access point, queuing and number of pedestrians crossing Kohimarama Road to help inform any proposed changes to access. Surveys were undertaken at the northern College / Stadium access, the southern College access and the signalised pedestrian crossing on Kohimarama Road.

The preferred option, which Selwyn has given positive feedback on, is to have separate access points with management of movements from the Proposed Village including restrictions during school peak hours.

Conflict between Proposed Village traffic and the school is proposed to be managed through restrictions on movements in and out of the Kohimarama Road access point between the hours of 8:15-9:15am and 2:30-3:30pm. For vehicles from the Proposed Village, automatic bollards will restrict movements. For vehicles from Kohimarama Road, a sign is proposed advising the restrictions.

5.3 NUMBER OF ACCESSES

Table E27.6.4.2.1 of the AUP sets out the maximum number of vehicle crossings and separation distance between crossings. The Site has 53m of frontage to Kohimarama Road and 18m of frontage to John Rymer Place. Part of the Site (frontage on Kohimarama Road) is subject to a vehicle access restriction as discussed in Section 5.5.

The maximum number of crossings permitted for the Site is 2 crossings, with a maximum spacing of 6m and minimum spacing to an adjacent vehicle crossing of 2m.

The proposed Site layout includes two vehicle crossings complying with AUP maximum number of crossings. The proposed crossing on Kohimarama Road is located 40m from the nearest crossing, and therefore complies with the AUP separation requirements.

The proposed crossing on John Rymer Place is situated around 4.8m south of an existing vehicle crossing at 5 John Rymer Place. This complies with the AUP separation requirements.

5.4 WIDTH OF ACCESSES

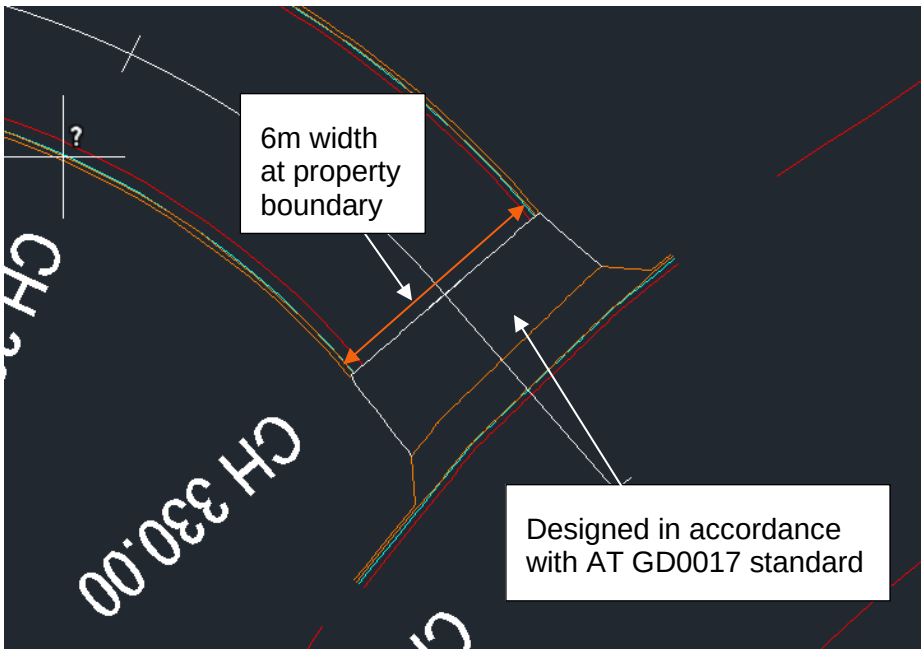
Table E27.6.4.3.2 of the AUP sets out the access width requirements for private ways and vehicle access. The following requirements apply to the Proposed Village:

Access point (serves more than 10 spaces):

- 5.5m minimum width
- 6.0m maximum width

The proposed access (as shown in Figure 5-1) onto John Rymer Place will have a 6.0m formed access width at the property boundary, and therefore complies with the AUP requirement. This access is proposed to resemble an intersection as opposed to a standard vehicle crossing.

Figure 5-1: Proposed access design at John Rymer Place



The proposed access (as shown in Figure 5-2) to Kohimarama Road will have a 6.0m formed access width, and therefore complies with the AUP requirement. Given the proposed access is at a higher level to the existing footpath, some regrading work to the footpath on either side is required to tie in with existing levels at an acceptable grade. Figure 5-3 shows the long section along Kohimarama Road. The extent of works is approximately 10m on either side of the proposed vehicle crossing.

Figure 5-2: Proposed access design at Kohimarama Road

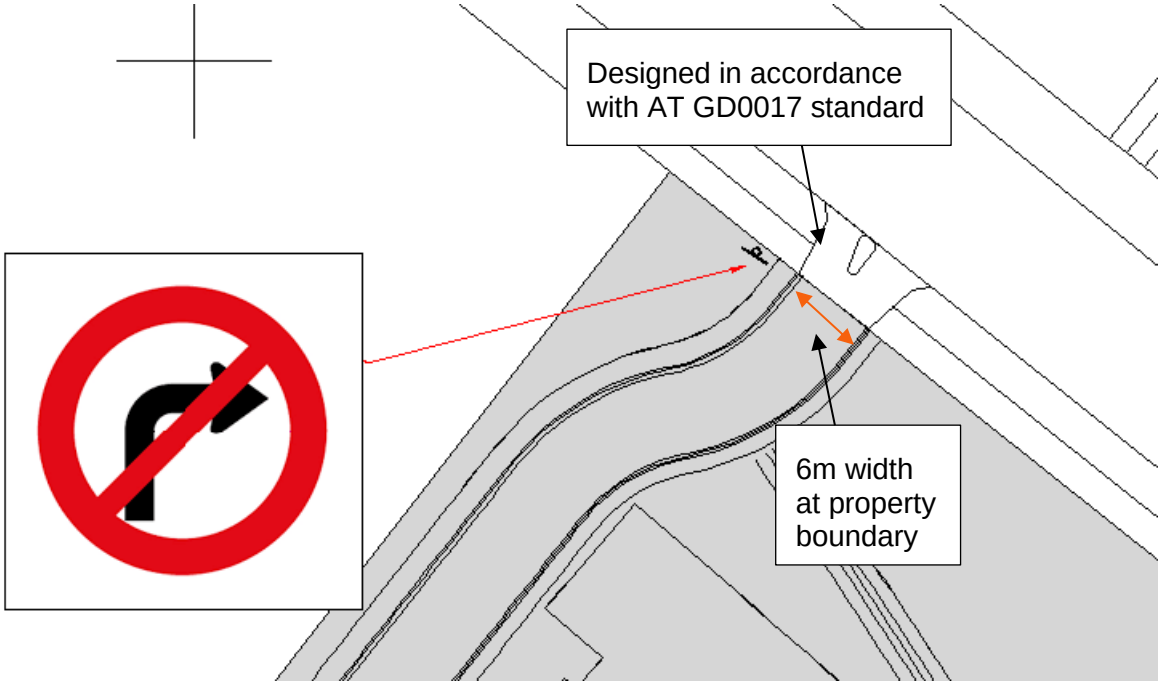
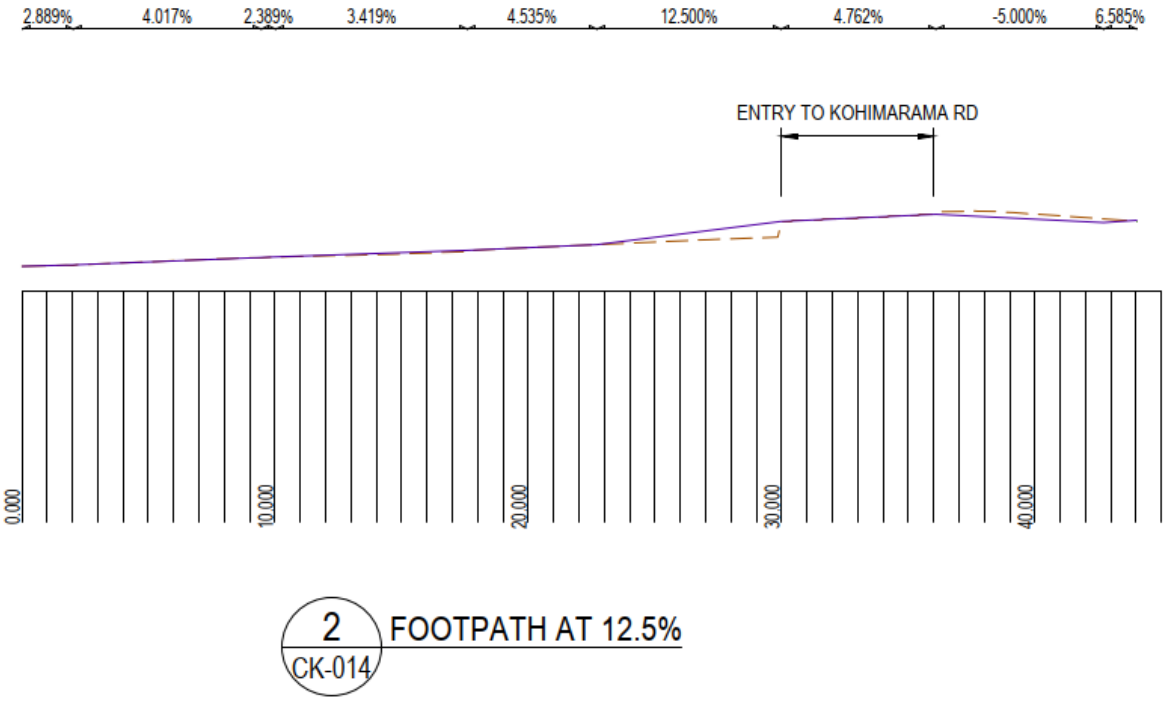


Figure 5-3: Long section along Kohimarama Road showing tie in with existing footpath



5.5 VEHICLE ACCESS RESTRICTIONS

Table E27.6.4.1.1 of the AUP sets out locations where vehicle access restrictions apply. Given Kohimarama Road is an arterial road, a vehicle access restriction applies to the proposed secondary access to Kohimarama Road. Table 5-1 provides an assessment of the proposed access against the criteria set out in AUP for a vehicle crossing where a vehicle access restriction applies.

Table 5-1: Assessment criteria for a vehicle access restriction

Assessment criteria	Comments
(12) construction or use of a vehicle crossing where a Vehicle Access Restriction applies under Standard E27.6.4.1(2) and Standard E27.6.4.1(3): ***(a) adequacy for the site and the proposal;*** ***(b) design and location of access;*** ***(c) effects on pedestrian and streetscape amenity; and*** ***(d) effects on the transport network.***	a) The Proposed Village will benefit from a secondary access point. No access via Kohimarama Road would mean the Proposed Village would rely on a single access and additional pressure would be placed on the signalised intersection of John Rymer Place / Kohimarama Road / Allum Road. b) The access is located away from neighbouring vehicle crossings. The access will be designed to provide for the safe and efficient movement of vehicles. Access design and signage will prohibit right hand turns from the Site, which is expected to improve operation of the access point. This is considered necessary given the arterial nature of Kohimarama Road, high traffic flows, and nature of the users from the Site. c) The proposed design complies with the AUP maximum vehicle crossing width and includes paint markings and visibility splays to ensure safe pedestrian crossing of the access point. d) The proposed access will disperse traffic from the Site reducing reliance on the signalised intersection of Kohimarama Road and John Rymer Place, particularly in relation to accommodating trips to the north of the Site. It will therefore reduce effects on the transport network.

5.6 PROXIMITY TO INTERSECTION

Figure E27.6.4.1.1 of the AUP outlines the minimum distance between a vehicle crossing and an intersection. For all roads, a 10m separation is required. Both proposed access points comply with this requirement.

5.7 SIGHT DISTANCE

The AUP does not include sight distance requirements. The RTS-6 Guidelines for Visibility at Driveways document ('RTS-6 Guide') recommends that for high volume driveways accessing onto a local road, with a 50km/h operating speed, the required sight distance is 40m. For high volume driveways accessing onto an arterial road, with a 50km/h operating speed, the required sight distance is 90m.

5.7.1 KOHIMARAMA ROAD ACCESS

The proposed Kohimarama Road access (near the western site boundary) is expected to have a clear sight distance of 90m to the east and 150m to the west as shown in Figure 5-4 and Figure 5-5. This distance is assuming that the trees within the Site would be trimmed by Ryman. We recommend the subject trees are trimmed to ensure adequate sight distance prior to the accessway instatement. This access therefore meets the RTS-6 Guide sight distance requirement.

Figure 5-4: Looking east on Kohimarama Road from near the western boundary

Figure 5-5: Looking west on Kohimarama Road from near the western boundary

5.7.2 JOHN RYMER PLACE ACCESS

Figure 5-6shows the sight distance to the south of the proposed access. The sight distance is over 70m, which meets the RTS-6 Guide sight distance requirement.

Figure 5-6: Looking south on John Rymer Place from proposed access

It is noted that the RTS-6 Guide requirement does not require that parked vehicles be included in the sight distance measurement. However, it is apparent that while the vehicles shown in Figure 5-6 are not always parked on John Rymer Place, the street is regularly used for parking during school term times before and after school and parked cars would hinder the visibility of drivers turning onto John Rymer Place during these times.

As such, it is recommended that No Stopping at All Times ('NSAAT') markings restricting parking are installed to the south of the proposed access for 10m to improve sight distance for the proposed access. This restriction is shown on Figure 5-7. It is noted that implementation of such changes to road markings is at the sole discretion of Auckland Transport through the traffic resolution process. Ryman can assist in promoting such a change.

Figure 5-7: No stopping at all times markings recommended

Figure 5-8 shows the sight distance to the north of the proposed access. The sight distance is 50m (assuming no parked cars for the measurement), which meets the RTS-6 Guide sight distance requirement.

Figure 5-8: Looking north on John Rymer Place from the proposed access

It is noted that sight distance in this direction is not critical with most, if not all vehicles expected to turn left out of the proposed access given John Rymer Place being a cul-de-sac. Accordingly, it is not considered necessary to install NSAAT markings in this direction.

5.8 DESIGN OF ACCESS POINTS

Given the proposed nearby location of Selwyn College and St Thomas's School, the impact of the access points on pedestrians has been considered in detail.

AS/NZS 2890.1.2004 provides recommendations around visibility between an access point and pedestrians and cyclists within the road corridor. A 2m (along the property boundary) by 2.5m (into the Site) triangle is required to be kept free of visual obstructions, except for landscaping of less than 1m height. This requirement is shown in Figure 5-9. The proposed access on Kohimarama Road will comply with this requirement.

Figure 5-9: Visibility splay required

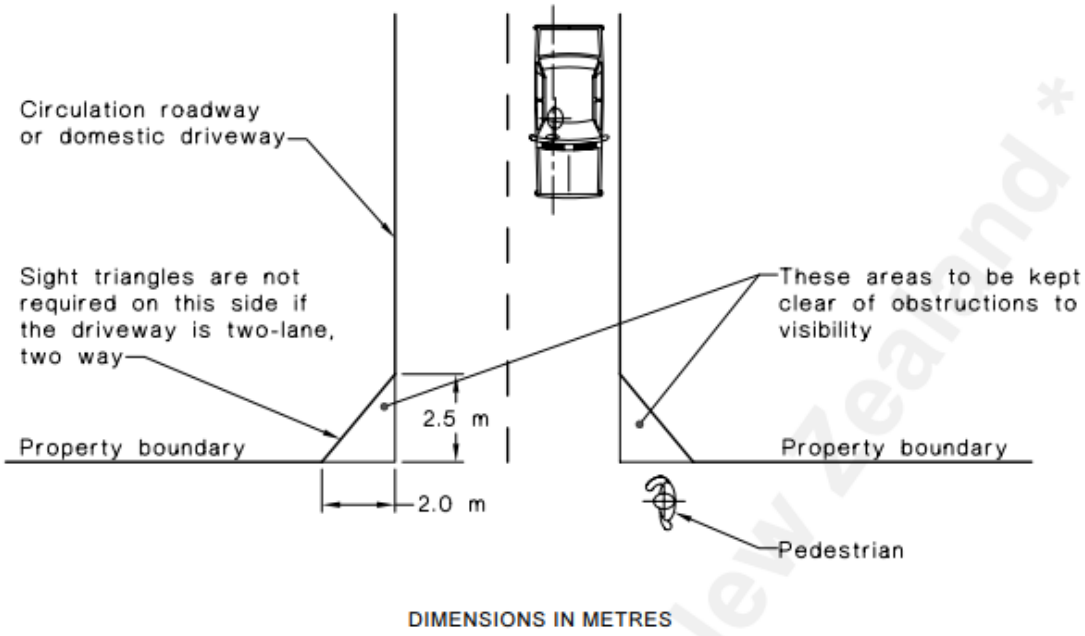


FIGURE 3.3 MINIMUM SIGHT LINES FOR PEDESTRIAN SAFETY

Further, the access points have been designed as follows:

- Both access points designed to be standard Auckland Transport GD019A vehicle crossings giving priority to pedestrians;
- Both access points designed to be as narrow as possible (minimal width for children to cross) while still allowing two-way movement;
- Provision of speed control devices (e.g. speed bumps) on the Kohimarama Road access to limit speeds of vehicles on the crossing; and
- Limiting the use of the Kohimarama Road access point in the school peak (e.g. through bollards / signage indicating that use of the exit is restricted in the school peak hours (8:15-9:15am and between 2:30-3:30pm)

5.9 INTERNAL ROAD LAYOUT

The Proposed Village will be serviced by a new (private) internal road network as shown on Figure 5-10.

Figure 5-10: Internal road network

The main access road (with a formed width of 6.0m) will provide a connection between the primary access on John Rymer Road and the secondary access on Kohimarama Road. This is consistent with NZS4404.210 and other Ryman sites around the country. Access to each of the basement parking areas is provided from the internal access road.

A pickup / drop off area is provided adjacent to the main building (B01) for pick up and drop off. This area provides for vehicles up to a transit van size, as such a vehicle is commonly used to transport residents.

Tracking curves have been prepared for an AUP 8m rigid vehicle (representative of a rubbish truck, furniture truck and fire engine) as shown in Attachment B. The assessment shows that the 8m truck can turn around within the Site and exit the Site in a forward direction.

Access to the basement parking areas is provided in three locations. The B01 building has two basement parking areas with separate access points. The Level 0 parking area gains access to the north of the internal access road towards the eastern end of the Site. The B01 level 2 basement parking area has access to the north of the internal access road towards the western end of the Site. The B02/B04/B06 basement parking area has access to the south of the internal road as shown in Figure 5-10 towards the west of the Site. Vehicle tracking for each ramp has been carried out using an 85th percentile vehicle as shown in Attachment A.

Attachment A shows a AS/NZS2890 90th percentile car tracking through the Site without difficulty.

Overall, it is considered that the internal road network strikes an appropriate balance between managing vehicle speed and providing a practical, legible and convenient layout for residents, visitors and staff to negotiate.

5.10 RAMP GRADE

The basement parking areas are accessed via ramps from the ground level. Table E27.6.4.4.1 of the AUP outlines access design and gradient requirements. A maximum grade of 1:5 is required for residential activities.

The proposed ramps provide a maximum grade of 1:5 (20%)[1] with 2m long 1:8 transitions provided at the top and bottom of the ramp which complies with the requirements of the AUP.

The AUP requires an accessway meeting the road reserve to provide a safety platform so that vehicles can stop safely and check for pedestrians and other vehicles prior to exiting. This is illustrated in Figure E27.6.4.4.4 of the AUP. The platform must have a maximum gradient no steeper than 1 in 20 (5 per cent) and a minimum length of 4m for residential activities and 6m for all other activities. A safety platform is provided at both the Kohimarama Road vehicle crossing and John Rymer Place vehicle crossing so this requirement is met.

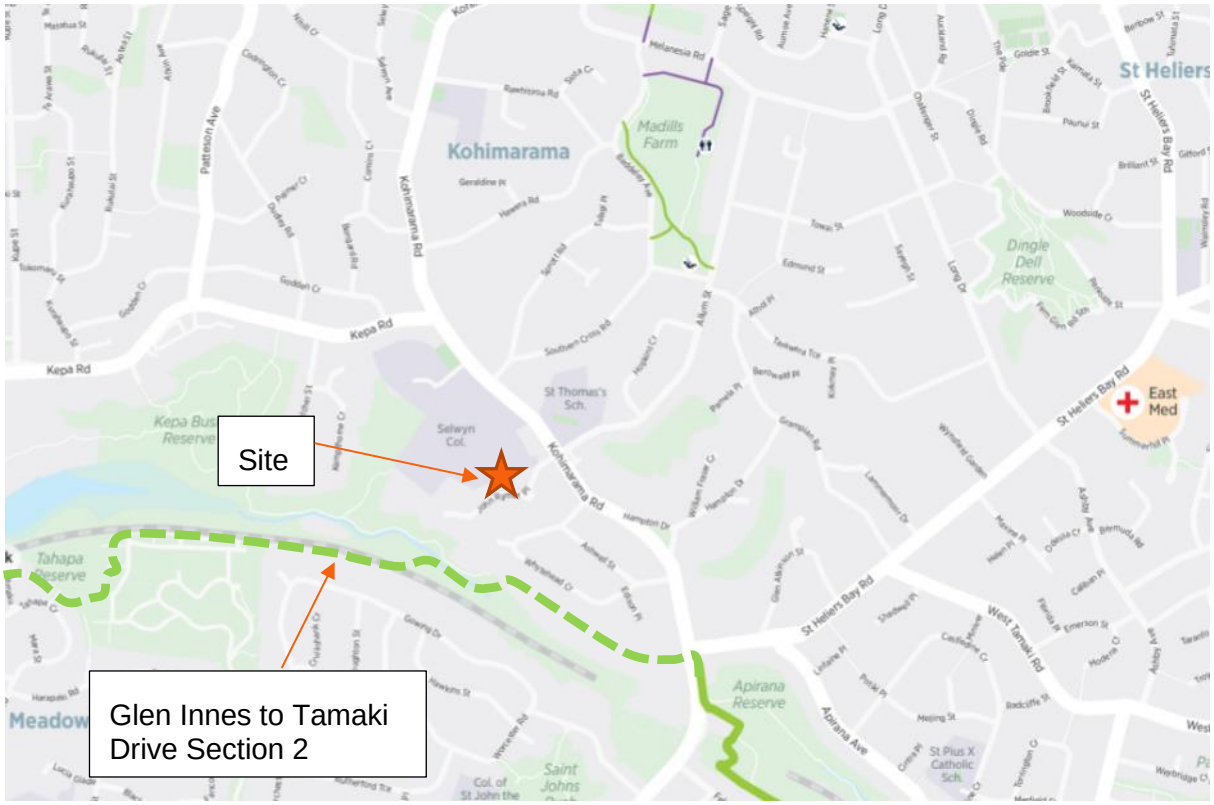
5.11 PEDESTRIAN ACCESS

Pedestrian footpaths are provided throughout the Proposed Village separated from vehicle traffic to ensure a safe pedestrian environment. Figure 5-10 shows the proposed pedestrian access over the Site (orange colour). Connection to the wider pedestrian network is available at John Rymer Place via a separate pedestrian access adjacent to the vehicle crossing and via a Pedestrian Sky Bridge connecting to Kohimarama Road from B01. Both access points connect to the footpath network available on all surrounding streets.

Within the vicinity of the Site, limited dedicated cycle infrastructure is provided as shown in Figure 5-11. While limited bike lanes or infrastructure is provided, cycling occurs on the road network around the Site. Section 2 of the Glen Innes to Tamaki Drive cycleway passes to the south of the Site. Connections from the Site to this facility and the surrounding cycle network is via local road connections.

[1] For curved accesses, the maximum gradient shall be measured on the inside of a curved vehicle access.

Figure 5-11: Cycle infrastructure in surrounding area



The Proposed Village will provide a comprehensive network of internal pedestrian paths and good connectivity to the surrounding footpath network. Overall the Site is considered to be well connected from a walking perspective. Cycling around the Site is provided on road. Appropriate connections to the surrounding road network are provided for cyclists to and from the Site, however from experience of similar facilities, number of cyclists from the Site are expected to be low.

6 LOADING AND SERVICING

The Proposed Village will have one main loading bay, located at the south-western end of the Building B01 with direct access to the internal access road.

The AUP requires one loading bay to be provided for developments between 5000m² to 20,000m² for 'all other activities'. The Proposed Village therefore complies with this requirement. Provision of one loading space has also proved more than sufficient at other retirement villages operated by Ryman, as they are largely residential in nature.

The AUP also requires the loading bay to provide for a medium rigid vehicle (8.0m length) and have dimensions of 8m x 3.5m. This loading area can accommodate the turning of an AUP 8.0m rigid truck and a 9.2m rubbish track (as specified by the waste management contractor), and therefore exceeds the AUP requirement.

Attachment B shows the tracking path of a 9.2m truck using the proposed loading space. The internal road layout is also able to support emergency vehicles such as ambulances and fire engines.

7 TRAFFIC EFFECTS

While the Proposed Village does not trigger the need to assess wider transport effects on the surrounding network (being less than the development thresholds set out in table E27.6.1.1), an assessment of local traffic effects has been undertaken, in particular related

to the intersection between Kohimarama Road and John Rymer Place and the proposed secondary access to Kohimarama Road.

7.1 PROPOSED TRIP GENERATION

Trip rates for the Proposed Village have been researched from the New South Wales (NSW) Roads and Traffic Authority Guide to Traffic Generating Developments (RTA) and the NZTA research reports, as well as from empirical data surveyed at other Ryman villages in New Zealand.

In order to estimate likely trip generation from the Site, two operational Ryman retirement villages have been surveyed as outlined in Table 7-1. The survey was undertaken with an automatic tube count over two weeks (14 February to 27 February 2017).

Table 7-1: 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 trips recorded in February counts)	942	916
AM commuter peak (between 8-9am) in February counts	42	54
Interpeak period (typically early afternoon) in February counts	82	85
PM commuter peak (between 4:30 -5:30 pm) in February counts	59	61

Significantly, the survey results in Table 7-1 clearly demonstrate 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. However, this trip generation is mainly a result of staff movements given that residents generally avoid peak traffic periods.

The survey results in Table 7-1 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 can occur during this time-period. However, given the congestion on the surrounding network as a result of school pickups and the proposed restrictions to the Kohimarama Road access point, residents from the Proposed Village are likely to avoid the school peak in this location.

Each of the two surveyed sites have been compared against the NZTA Research Report 453 and NSW Roads and Transport Authority: Guide to traffic generating developments (RTA) in Table 7-2.

Table 7-2: Comparison of trip rates

	Research 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 Research 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 Research Report 453 suggests. Given the surveyed sites are of operational Ryman facilities within Auckland, the peak hour rates are considered more relevant than the rates outlined in the Research Report 453. 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). As mentioned above, the interpeak period is likely to occur outside of the school peak pick up period.

Table 7-3: Trips generated by Proposed Village

Accommodation Type	Trips	Total Units at Proposed Site	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)
Independent Apartments	2.6 trips per day 0.14 trips in the AM peak hour	123	320	17	28	21
Assisted Living Suites / Care Beds / Care Suites	0.23 trips in the school peak hour 0.17 trips in the PM peak hour	173	450	24	40	29
Total		296	770	41	68	50

As shown in Table 7-3, a total of 759 vehicle trips can be expected to be generated by the Proposed Village per day. A peak hour trip generation of 41 trips is expected in the AM peak hour, 68 trips in the interpeak hour and 50 trips in the PM peak hour from the Proposed Village.

7.2 TRAFFIC DISTRIBUTION

In order to access the effects of the traffic that will be generated by the Proposed Village, the distribution of the additional trips that will be generated by the Village across the surrounding road network has been modelled.

Figure 7-1 shows the travel to work distribution for residents living in the Kohimarama East area based on the 2013 census. The distribution shows a strong bias towards travel to the west of the area towards the city centre. While travel patterns of residents of the Proposed Village may differ from general residential population, nearby services, such as the Eastridge shopping centre and eastern bays recreational facilities, retail and hospitality services, are also located to the north/west of the Site. Accordingly, the traffic distribution from the Proposed Village is anticipated to show the same bias.

Figure 7-1: Census travel to work distribution (Census 2013)

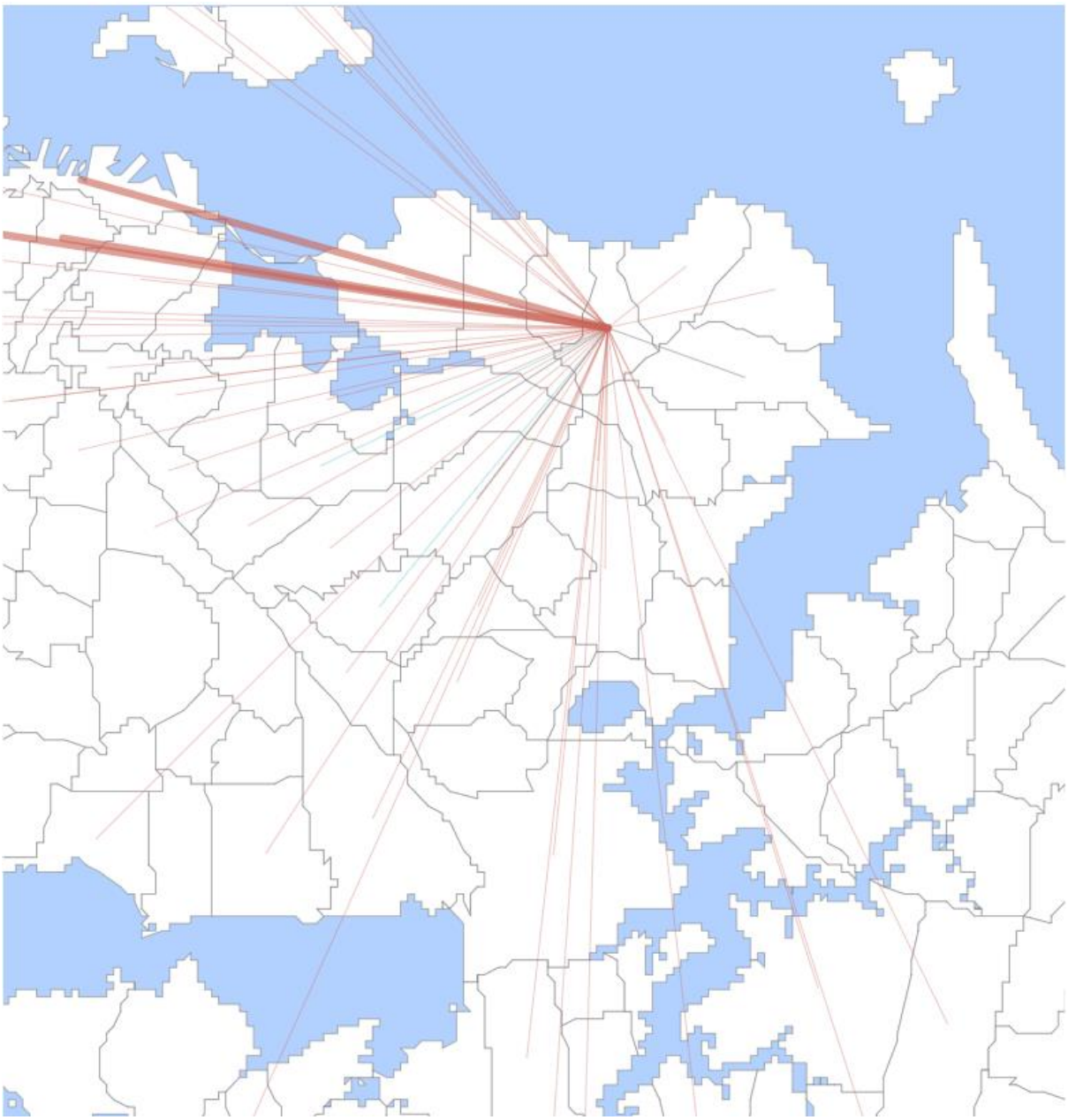


Figure 7-2 shows the modelled traffic distribution for the Proposed Village based on the trends observed in the Census data.

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.

Figure 7-2: Traffic distribution

Note: The modelling assumed that right turn movements out of the Kohimarama Road access will be prohibited.

7.3 TRAFFIC MODELLING

A SIDRA Intersection 6.0 ('SIDRA')) model has been prepared based on traffic flows obtained by the 25 July 2019 survey and signal phasing extracted from the SCATS database. Traffic from the Proposed Village has been added to the model in accordance with the assessed trip generation in Sections 6.1 and 6.3 above.

A summary of the intersection performance with existing traffic flows and with the addition of the Proposed Village traffic is provided in Table 7-4.

Table 7-4: John Rymer Place / Kohimarama Road intersection performance

Model / intersection	Degree of Saturation	Average delay (S)	Level of Service	Worst 85th percentile queue (m)
AM peak hour base model	0.892	33.2	C	171m on Kohimarama Road South
AM peak hour with Proposed Village	0.899	34.5	C	174m on Kohimarama Road South

Interpeak hour base model	0.789	31.2	C	170m on Kohimarama Road South
Interpeak hour with Proposed Village	0.755	32.6	C	193m on Kohimarama Road South
PM peak hour base model	0.822	31.2	C	297m on Kohimarama Road South
PM peak hour with Proposed Village	0.845	31.9	C	322m on Kohimarama Road South

The SIDRA modelling indicates minor changes in intersection performance as a result of the Proposed Village turning volumes added to the intersection. In the AM peak, the average delay at the intersection increases by around 1.5 seconds, leading insignificant changes in vehicle queuing. In the Interpeak period, a similar change is experienced. In the PM peak, the average delay at the intersection increases by 1 second, while the 85th percentile queue grows by around 35m.

Overall the intersection continues to operate within capacity at LOS C. Full SIDRA modelling summaries are included in **Attachment C.**

7.3.1 KOHIMARAMA ROAD ACCESS

A SIDRA model has been created for the proposed Kohimarama Road secondary access point. Through traffic volumes on Kohimarama Road have been extracted from the 25 July 2019 survey undertaken at the John Rymer Place / Kohimarama Road / Allum Street intersection. Traffic from the Proposed Village has been added to the model in accordance with the assessed trip generation in Sections 6.1 and 6.3 above.

The traffic flows for the AM peak hour (8-9am) are outlined in Figure 7-3, the traffic flows for the interpeak period (3-4pm) are outlined in Figure 7-4 and the traffic flows for the PM peak (4:30-5:30pm) traffic flow are outlined in Figure 7-5

Figure 7-3: AM peak hour flow

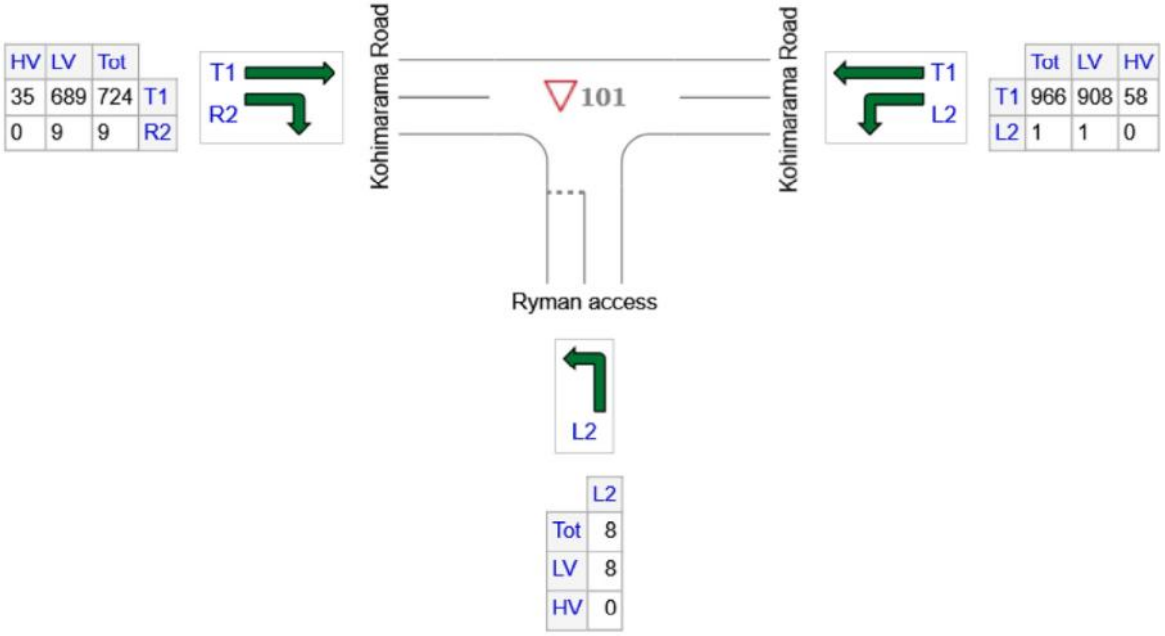


Figure 7-4: Interpeak hour flow

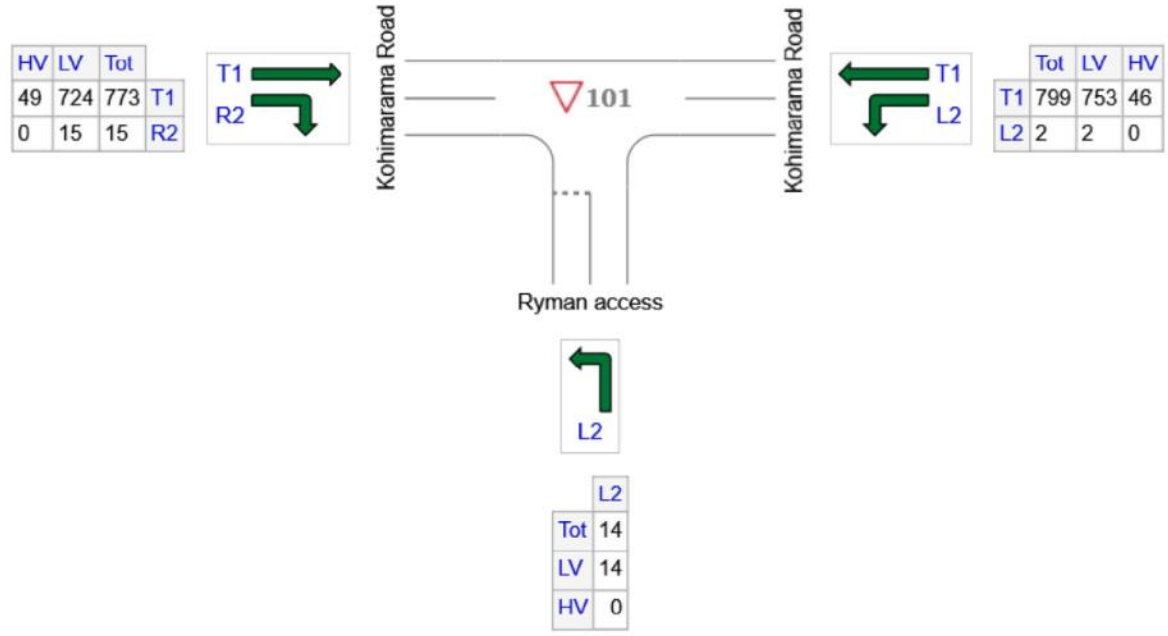
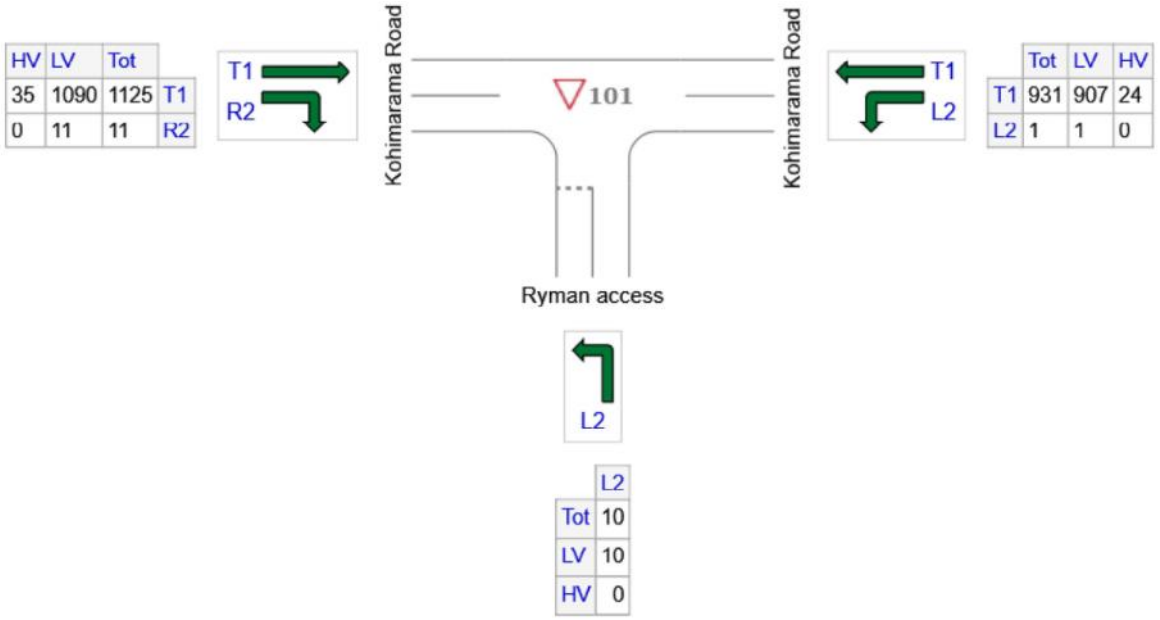


Figure 7-5: PM peak hour flow



A summary of the intersection performance for the proposed access is provided in Table 7-5.

Table 7-5: Kohimarama Road access intersection performance

Model / intersection	Overall DOS	Overall average delay (S)	LOS (Right turn from Kohi Road)	Worst 85th percentile Queue on Kohi Right turn movement (m)
AM peak hour	0.542	0.5	C	4.1m
Interpeak hour	0.460	0.5	B	4.6m
PM peak hour	0.644	0.6	C	6.7m

The Kohimarama Road access intersection operates within capacity and with low levels of delay. The critical movement is the right turn from Kohimarama Road into the Proposed Village. The movement operates at a LOS C in the AM and PM peak hours and LOS B in the Interpeak hour. A maximum (85th percentile) queue of 1 vehicle occurs in all peaks.

At the access intersection, a flush median is provided. A right turning vehicle waiting to enter the Proposed Village will not have an adverse effect on the through traffic on Kohimarama Road.

7.4 CONCLUSIONS

The intersection of John Rymer Place / Kohimarama Road / Allum Street can accommodate traffic from the Proposed Village while remaining within capacity and operating at an acceptable level.

The proposed Kohimarama Road access intersection will operate with minimal delay and a maximum of one vehicle expected to queue on the Kohimarama Road flush median to undertake a right turn movement into the Site.

Overall, the Proposed Village traffic can be accommodated on the surrounding road network with minimal effects on the operation and safety of that network.

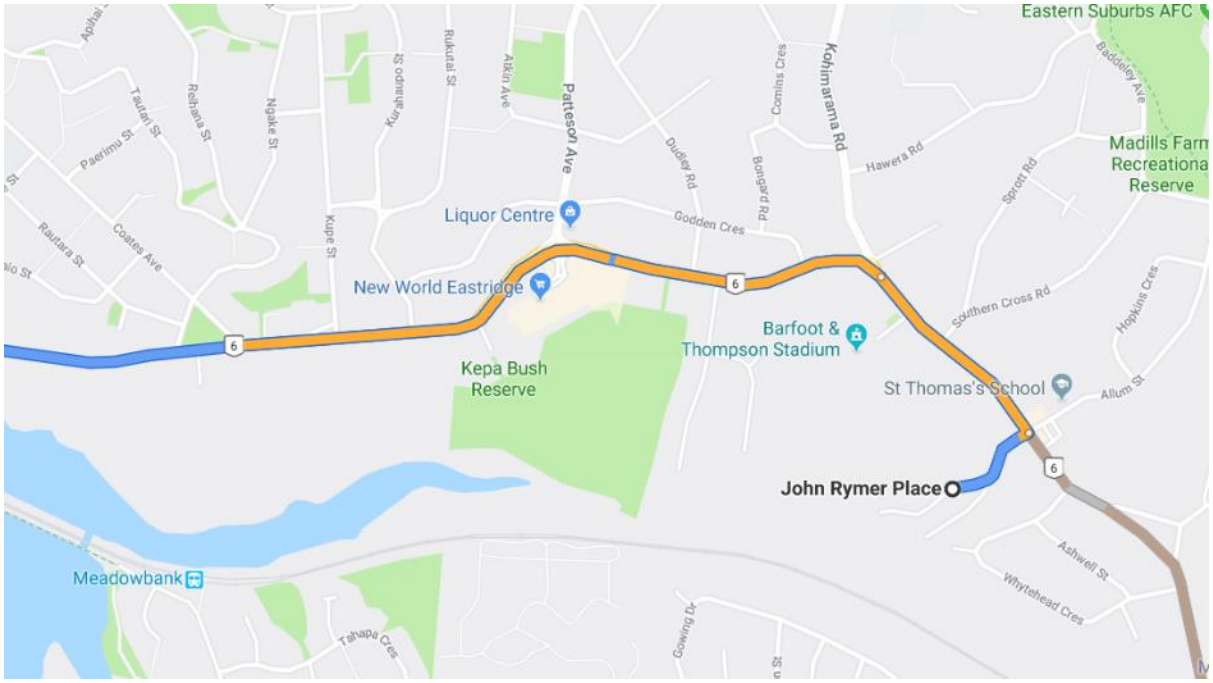
7.5 WIDER NETWORK CONSTRAINTS

At a localised level, the John Rymer / Kohimarama Road intersection and the Kohimarama Road secondary access has adequate capacity to cater for the Proposed Village. However, wider network constraints occur on the surrounding road network during peak hours.

Kohimarama Road and Kepa Road experience moderate levels of congestion in the peak hours. In the morning peak, a slow-moving queue often extends back from around Coates Avenue, past Eastridge and onto Kohimarama Road. This queue can affect the intersection between Kohimarama Road and Kepa Road and the John Rymer / Kohimarama Road / Allum Street intersection during busy times as show in Figure 7-6. While the intersections themselves are within capacity, movement at the intersections is affected by wider network constraints.

As discussed above, the Proposed Village does not trigger the AUP requirement for an integrated transport assessment of wider network effects.

Figure 7-6: Congestion on the wider network



8 PARKING

8.1 UNITARY PLAN REQUIREMENT

Table E27.6.2.4 of the AUP outlines the required number of parking spaces by activity. Table 8-1 outlines the parking requirement for the Proposed Village.

Table 8-1: AUP parking requirement

Activity	Rate	Number	Parking spaces required
Retirement village (excluding a care home within a retirement village)	0.7 per unit	123 apartments	86
	plus 0.2 visitor spaces per unit		25
	plus 0.3 per bed for rest home beds	173 beds	52

	within a retirement village		
Spaces required			163

The Proposed Village will provide 2 at grade parking spaces and 190 basement parking spaces, and therefore complies with the AUP parking requirement.

8.2 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 as shown in Figure 8-1.

Figure 8-1: 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 Proposed Village are classified as 'self-contained units' and all assisted living suites, care suites and care beds are classified as 'hostels/nursing' activities.

The RTA Guide requirements as applied to the Proposed Village are summarised in Table 8-2 below:

Table 8-2: RTA Parking Requirement

Use	Number	RTA Specification	Number of Spaces Required
Apartments	123	2 per 3 Units (Residential) 1 per 5 Units (Visitors)	82 25
Assisted Living Suites / Care Beds	173	1 space per 10 beds	17
Staff	50	1 space per 2 employees	25
Total for Site		149	

As shown above, the RTA Guide recommends providing a minimum of 149 parking spaces to meet the expected parking demand of the Proposed Village. This requirement is exceeded by 43 spaces with the 192 car parking spaces to be provided.

8.3 PARKING EFFECTS

The AUP requires 163 spaces to be provided. The RTA estimates demand at 149 spaces. The Proposed Village will provide 190 basement parking spaces and 2 at grade spaces. 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. Accordingly, there will be no off-site parking effects.

8.4 PARKING DIMENSIONS

The AUP outlines dimension requirements for parking in Table E27.6.3.1.1. The Proposed Village will attract a mixture of long-term parking (residents and staff) and medium-term parking (visitors).

For staff and residents, parking spaces are required to be 2.5m wide, with a 6.7m aisle width and a 5.0m stall depth. A total aisle width (two rows of parking and the aisle) of 16.7m is required.

For visitors to the Site, parking spaces are required to be 2.5m wide, with a 7.7m aisle width and a 5.0m stall depth. A total aisle width (two rows of parking and the aisle) of 17.7m is required.

Three basement carparking areas are provided on the Site. Car parking dimensions and manoeuvrability has been designed in accordance with AS/NZS 2890.1:2004. Each parking space is 2.5m wide and 5.4m deep and therefore requires 5.8m manoeuvring space as recommended in AS/NZS 2890.1:2004, the New Zealand standard for off-street car parking.

A summary of key dimensions for each parking area have been outlined in Table 8-3 below with comparison against the Unitary Plan requirements and AS/NZS 2890.1:2004 standards. It confirms that the relevant parking dimension requirements are met in all cases.

Table 8-3: Vehicle Parking Dimensions

Building	General Dimensions	Unitary Plan Requirements	AS/NZS 2890.1:2004
Building B01 – Level 0 basement parking area	2.5m stall width, 5.4m stall depth and 6.3m manoeuvring space	Exceeds Regular users dimensions of 2.5m by 5.0m with 6.7m manoeuvring.	Exceeds requirements for user class 1A/2: staff and medium/long term parking
Building B01 – Level 2 basement parking area	2.5m stall width, 5.4m stall depth and 6.3m manoeuvring space	Exceeds Regular users dimensions of 2.5m by 5.0m with 6.7m manoeuvring.	Exceeds requirements for user class 1A/2: staff and medium/long term parking
Building B02/B04/B06 basement parking area	2.5m stall width, 5.4m stall depth and 6.3m manoeuvring space	Exceeds Regular users dimensions of 2.5m by 5.0m with 6.7m manoeuvring.	Exceeds requirements for user class 1A/2: staff and medium/long term parking
At grade parking spaces x 2	2.6m stall width, 6.5m stall depth and 12m manoeuvring space	Exceeds Regular users dimensions of 2.5m by 5.0m with 6.7m manoeuvring.	Exceeds requirements for user class 1A/2: staff and medium/long term parking

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.

8.5 MOBILITY / ACCESSIBILITY SPACES

The AUP and NZS 4121 outlines requirements for the provision of mobility parking spaces. Given there is to be a total of 192 parking spaces on-site, the requirement is to provide 5 mobility parking spaces.

A total of 9 (5 spaces in B02/4/6 basement, 2 in each B01 basement area) mobility spaces are proposed, therefore complying with NZS 4121. All of the mobility parks will be designed as per NZS 4121.

Mobility spaces require a height clearance of 2.5m. This clearance is provided above all mobility spaces in the basement parking area.

8.6 BICYCLE PARKING

Table E27.6.2.5 of the AUP sets out the requirements for bicycle parking. A retirement village requires 1 space per 30 units/apartments for short term bicycle storage for visitors and 1 space per 10 FTE employees.

The Proposed Village requires 10 short stay spaces and 5 staff spaces. A total of 15 bicycle parking spaces are required across the Site.

Based on Ryman's experience at other retirement villages around New Zealand, bicycle and motorbike parks are seldom used. The basement area of BO1 has an area dedicated as bike storage and has sufficient space to accommodate the required 15 cycle spaces.

9 CONSTRUCTION TRAFFIC

9.1 GENERAL

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. The following section outlines the broad approach proposed for construction and access to the site. Following resource consent, the details of the Construction Traffic Management Plan will be confirmed and finalised. This approach has been accepted by various councils around New Zealand in relation to recent Ryman proposals (including Ryman villages in Birkenhead, Greenlane, Narrowneck and Hillsborough in Auckland).

The Construction Traffic Management Plan (Attachment D) provides details on the following aspects:

(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.
(v) Fencing around the perimeter, and within the site between operational areas (once established) and construction areas, to protect pedestrians.

9.2 SITE ACCESS

Construction vehicles are expected to access the Site using both the John Rymer Place access and the Kohimarama Road access due to the topography of the Site.

9.3 JOHN RYMER ACCESS

Figure 9-1 shows the proposed location of the access point on John Rymer Place. This is in the general location of the proposed permanent access point serving the development; however, the temporary access will be wider than the permanent access (6m) to accommodate the manoeuvring requirements of the size of truck required for construction.

Figure 9-1: Site Access location on John Rymer Place

Given John Rymer Place is a cul-de-sac Road, trucks and other construction vehicles will turn right into the access and left from the access.

Due to the proximity of the access to the schools and neighbouring property and likelihood of pedestrians in the area, this John Rymer Place access is recommended to be controlled by a (Traffic Controller) TC. The TC spotter will assist in avoiding conflict between construction vehicles, pedestrians and vehicles on John Rymer Place. This will include stopping or slowing pedestrians when a truck is turning into the site and stopping trucks exiting when pedestrians are approaching to enable them to safely cross the access point. Trucks will need to be instructed to wait within the site some 10m back from the boundary should another truck need to enter the site. During concrete pours (when concrete trucks will need to access and egress the site during school peak hours), a second TC will be required to manage trucks and pedestrians.

Tracking at the John Rymer Place / Kohimarama Road / Allum Street intersection has been checked for use by a semi-trailer (articulated truck) as shown in Figure 9-2.

Figure 9-2: Truck Tracking at Kohimarama Road / John Rymer Place intersection

Based on the tracking assessment, the following conclusions can be made:

Entry Movements

- while a truck and trailer unit or semi-trailer unit can physically turn right from Kohimaramara Road into John Rymer Place, this is generally a difficult movement given the filter turn. It is observed that a significant number of vehicles during busy times make the right turn on the amber phase. Given the possibility of the pedestrian "barns dance" crossing running immediately after this filter turn, where school children will step onto the road, and therefore from a pedestrian safety aspect, it is not considered safe for trucks to be making this manoeuvre. Given this, it is proposed that no trucks turn right at this location.
- trucks can travel straight through from Allum Street into John Rymer Place without issue;
- a semi-trailer can turn left into John Rymer Place, however it will require both northbound traffic lanes; and
- a right turn into the site from John Rymer Place can occur without issue.

Exit Movements

- Given the width of John Rymer Place and the ability for vehicles to park on both sides of the road, a truck could potentially block eastbound vehicles while queuing at the intersection. As such, temporary no stopping at all time markings (NSAAT) will be required on John Rymer Place between the access and Kohimarama Road for the duration of construction to minimise delays to other road users. It is noted that temporary parking restrictions require a

temporary traffic resolution to be approved via the Traffic Control Committee. Ryman can prepare the necessary resolution documents, but ultimately, implementation is dependent on Auckland Transport.

- at the signalised intersection, a left turn movement from John Rymer Place into Kohimarama Road cannot be undertaken by semi-trailers without Manual Traffic Controllers who would need to be operating under a specific TMP to stop southbound traffic on Kohimaramara Road. As such, this turn is not recommended for larger trucks;
- At the signalised intersection, trucks can turn right onto Kohimaramara Road or proceed straight into Allum Street.

9.4 KOHIMARAMA ROAD ACCESS

Figure 9-3 shows the proposed location of the access point on Kohimaramara Road.

Figure 9-3: Site Access location on Kohimaramara Road

This is in the general location of the proposed permanent access point serving the development however, the temporary access will be wider than the permanent access (6m) to accommodate the manoeuvring requirements of the size of truck required for construction.

For the permanent design, it is proposed that no vehicles turn right from this access. It is considered that this restriction is also appropriate for the construction access given the movement of heavy vehicles. As such, a RD1L “No Right Turn” sign will be installed at this exit point.

Right turn entry movements will be permitted with trucks being able to use the central flush median to wait clear of following southbound traffic to turn right into the site. As noted

above, right turns at the signalised intersection into John Rymer Place are not recommended given the filter turn.

Due to the proximity of the access to the schools and likelihood of pedestrians in the area, this Kohimaramara access is recommended to be controlled by a Site Traffic Management Supervisor (STMS) or delegated TC. The STMS/TC will assist in avoiding conflict between construction vehicles, pedestrians and vehicles on Kohimaramara Road. This will include stopping or slowing pedestrians when a truck is turning into the site and stopping trucks exiting when pedestrians are approaching to enable them to safely cross the access point. Trucks will need to be instructed to wait within the site some 10m back from the boundary should another truck need to enter the site. During concrete pours (when concrete trucks will need to access and egress the site during school peak hours), a second TC will be required to manage trucks and pedestrians.

9.5 VEHICLES OF WORKERS AND SUBCONTRACTORS

Initial discussions with the construction team indicate that construction parking requirements can be accommodated on-site as the basement areas are expected to be constructed prior to the majority of the construction and fit out stages.

It is understood that there will be a secure lock up facility provided on-site for the contractors to store their tools each night and as such contractors do not need to visit the site before parking.

9.6 TRUCK ROUTES

Truck routes to and from the Site are expected to be focused to and from the south.

There are three potential routes from the Site to the southern motorway (and vice versa) using St Johns Road / Greenlane, using Apirana Avenue, Te Horeta Road and Mt Wellington Highway, or using Lunn Avenue and Ellerslie Panmure Highway, as shown in Figure 9-4. All of those routes are considered appropriate to accommodate construction vehicles and are generally on arterial roads.

There are two potential routes from the Site to the north (and vice versa) using Kepa Road, Ngapipi, Tamaki Drive and Stanley Street, or using St Johns Road and Greenlane as shown in Figure 9-5. Both routes make use of arterial roads and are considered appropriate for construction vehicles.

A general letter drop should be undertaken for residents on all required truck routes and those surrounding the Site (500m radius) notifying residents of the construction activity.

Figure 9-4: Routes to and from the south

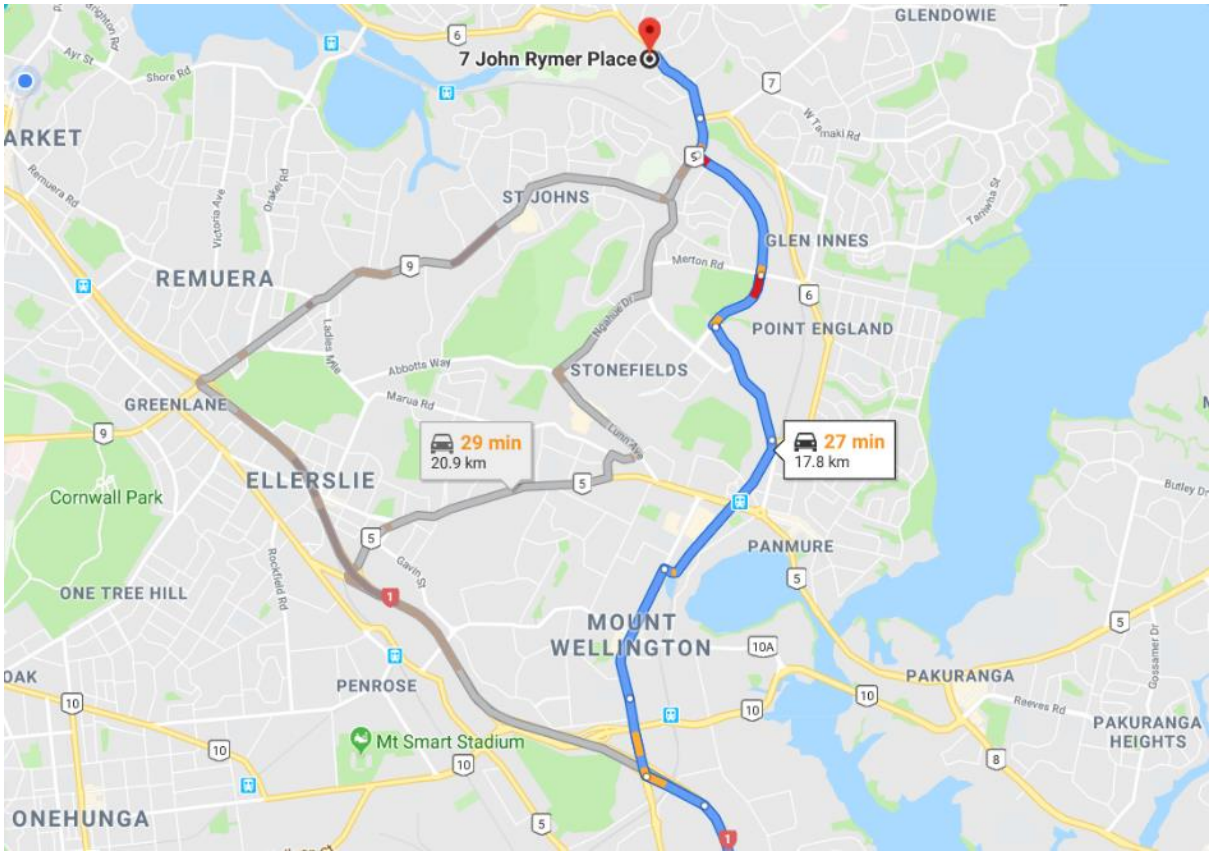
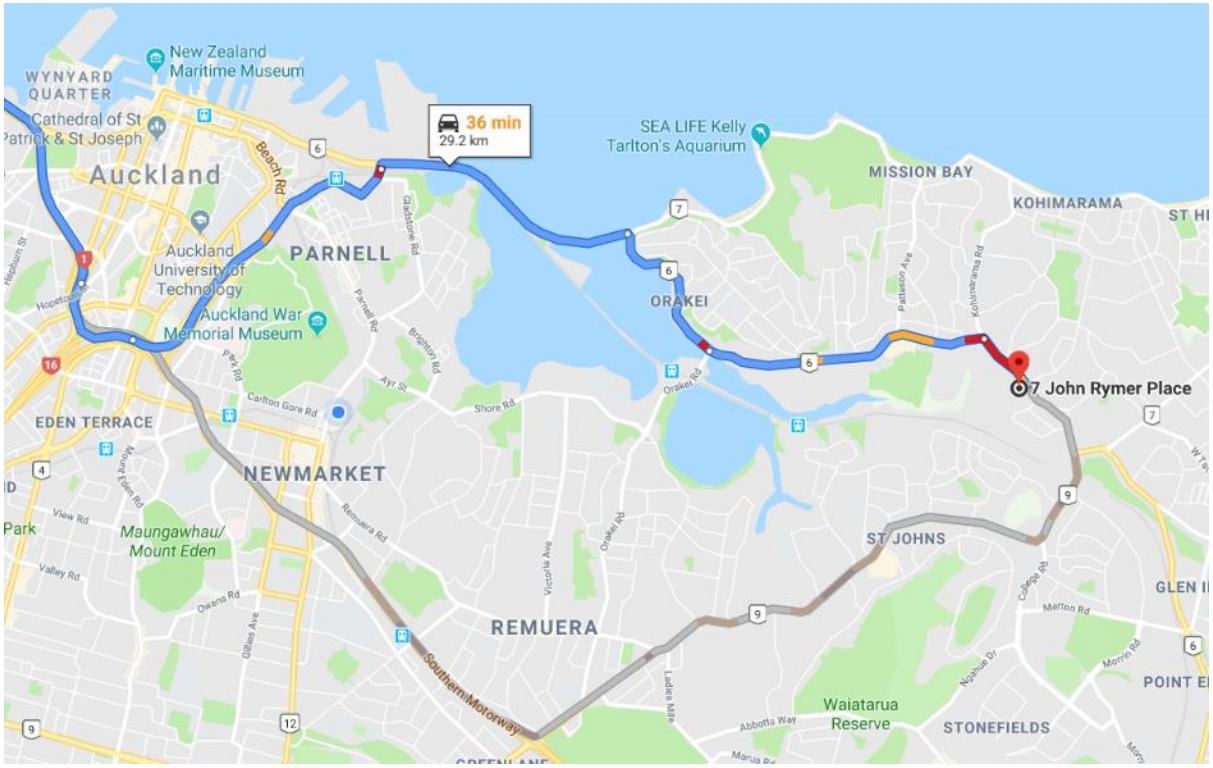


Figure 9-5: Routes to and from the north



9.7 STAGING / VOLUME OF TRUCKS

The construction of the Proposed Village is proposed to be divided into four main stages, although this approach may change as the construction methodology is developed and finalised. It is also likely that Stage 2 will overlap with Stages 3 and 4 as the earthworks will be undertaken over two earthworks seasons (meaning that Stages 3 and 4 will start on a portion of the Site, while the remaining earthworks are still being completed on the remainder of the Site).

Surveys of the truck volumes from the recent construction at the Ryman Narrowneck site (September 2018 – September 2019) have been used to estimate peak hour volumes during various phases of construction. Over the course of a year, peak daily truck movements were recorded at 75 trucks (or 150 movements). Peak hour volumes generally occur around 10am and can reach around 16% of daily volumes equating to a peak of 24 truck movements. Construction traffic for the Narrowneck site is considered roughly comparable to the Kohimarama site.

Table 9-1 below identifies the proposed stages, estimated duration and estimated truck movements per day.

Table 9-1: Proposed construction programme

Stage	Activity	Hours of Operation	Approximate Duration (weeks)	Estimated No. of Truck Movements Per Hour
1	Initial site works	7:00am – 6:00pm	4 weeks	2
2	Earthworks / removal of existing buildings	7:00am – 6:00pm	3 seasons each of 30 weeks	6-8
3	Construction and Fitting out	7:00am – 6:00pm	Staged over 156 weeks	18-34
4	Vehicle Crossings	7:00am – 6:00pm	6 weeks	12-26

Given the presence of a number of schools in the area, heavy vehicle should be minimised during the school drop off and pick up periods between 8:15-9:15am and 2:30pm and 3:30pm on school days. For concrete pours, trucks will need to access the site throughout the pour and additional traffic safety measures will be in place during these times (eg additional Traffic Controllers). In this regard, it is noted that the SIDRA analysis programme in Section 7 of this report uses a factor of 2.5 when modelling a large truck vs a car (ie a large truck is essentially equivalent to 2.5 cars when looking at a performance at an intersection). The previous analysis used 41 movements per hour in AM commuter peak and 50 in PM commuter peak for the retirement village. This therefore means the equivalent of 16 truck movements in the AM peak and 20 truck movements in the PM peak essentially creates the same change in performance on the surrounding road network as the future retirement village would.

Given the presence of a signalised intersection at John Rymer Place / Kohimarama Road / Allum Street, no heavy vehicle restrictions are considered necessary outside the school drop off and pick up periods. The traffic modelling of the intersection in the Transport Assessment Report demonstrates that there is adequate capacity for traffic from the operation of the Proposed Village during peak periods. Construction traffic is expected to be less intensive than the typical operation and will at most result in one additional truck movement every 1-2 phases at the John Rymer / Kohimarama Road / Allum Street intersection.

9.8 CONCLUSIONS

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

The construction activities are temporary and anticipated by the AUP development expectations for the Site. The construction traffic effects can be appropriately managed and are considered less than minor.

10 RECOMMENDATIONS AND MITIGATION

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

- Ryman liaise with Auckland Transport to implement temporary No stopping at all time (NSAAT) line markings to the west of the proposed access at John Rymer Place for 10m.
- *Turning movements out of the site onto Kohimarama Road shall be permanently restricted to left turn only using access design, notification of residents and signage.*
- A Construction Traffic Management Plan is prepared and implemented in accordance with Section 9 / Appendix D of this Report.
- Trees to the south of the secondary Kohimarama Road access are trimmed to ensure adequate sight distance prior to the accessway instatement.
- *Permanent signage at the Kohimarama Road access shall restrict vehicle movements into and out of the Kohimarama access during school pick up and drop off periods (between the hours of 8-9am and 2:30-3:30pm) during the School year.*

11 CONCLUSIONS

On the basis of the assessment contained in this report, and assuming the recommendations in section 10 are adopted, the following conclusions can be made:

- The level of traffic generated by the Proposed Village is similar to a residential development of the Site anticipated by the underlying zoning with 40% less peak hour trips and 10% more daily trips;
- An assessment of the John Rymer/ Kohimarama Road / Allum Street intersection and Kohimarama Road access demonstrates that the anticipated traffic from the Proposed Village can be accommodated on the surrounding road network with minimal traffic effects;
- Sufficient parking and loading spaces will be provided on the Site;
- Suitable access can be provided to the Site;
- The Proposed Village will not compromise traffic safety in the area; and
- 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 Site as intended.

ATTACHMENT A: VEHICLE TRACKING PLANS

ATTACHMENT B: TRUCK TRACKING (LOADING BAY)

ATTACHMENT C: SIDRA MOVEMENT SUMMARIES

ATTACHMENT D: CONSTRUCTION TRAFFIC MANAGEMENT PLAN

Revision notes:		
Rev:	Date:	Notes:

Drawn by:
GMN
J001100 - Ryman Kohi

Client:
RYMAN

Project:
RYMAN KOHI RD

Drawing Title:
Vehicle Tracking
85th percentile AUP vehicle

Date:
10 February 2020

Scale @ A3:
1:1000

Revision:
A

commute
TRANSPORTATION CONSULTANTS

Figure:
1

Revision notes:

Rev:	Date:	Notes:

Drawn by:
GMN
J001100 - Ryman Kohi

Client:
RYMAN

Project:
RYMAN KOHI RD

Drawing Title:
Truck tracking
Medium rigid truck

Date:
10 February 2020

Scale @ A3:
1:500

Revision:
A

commute
TRANSPORTATION CONSULTANTS

Figure:
2

MOVEMENT SUMMARY

Site: 101 [Kohi_John Rymer IP Base]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Kohimarama S												
1	L2	12	0.0	0.767	36.6	LOS D	23.0	170.4	0.95	0.87	0.99	34.5
2	T1	694	6.7	0.767	33.7	LOS C	23.0	170.4	0.95	0.88	1.01	34.0
3	R2	102	2.1	0.767	42.4	LOS D	14.2	103.4	0.96	0.92	1.08	32.2
Approach		807	6.0	0.767	34.8	LOS C	23.0	170.4	0.95	0.89	1.02	33.8
East: Allum Street												
4	L2	76	4.2	0.420	52.4	LOS D	3.6	26.4	0.98	0.76	0.98	29.0
5	T1	6	0.0	0.789	53.1	LOS D	7.7	54.2	1.00	0.91	1.24	28.0
6	R2	139	1.5	0.789	57.7	LOS E	7.7	54.2	1.00	0.91	1.24	27.7
Approach		221	2.4	0.789	55.8	LOS E	7.7	54.2	0.99	0.86	1.15	28.1
North: Kohimarama												
7	L2	63	0.0	0.481	22.7	LOS C	14.2	104.5	0.72	0.65	0.72	39.4
8	T1	740	7.0	0.481	19.7	LOS B	14.2	104.5	0.74	0.71	0.85	39.2
9	R2	11	0.0	0.481	25.9	LOS C	11.6	86.0	0.76	0.76	1.00	38.2
Approach		814	6.3	0.481	20.1	LOS C	14.2	104.5	0.74	0.70	0.84	39.2
West: John Rymer Place												
10	L2	8	0.0	0.358	47.2	LOS D	1.7	12.0	0.99	0.76	1.19	30.3
11	T1	3	0.0	0.358	42.6	LOS D	1.7	12.0	0.99	0.76	1.19	30.5
12	R2	32	0.0	0.358	47.2	LOS D	1.7	12.0	0.99	0.76	1.19	30.2
Approach		43	0.0	0.358	46.8	LOS D	1.7	12.0	0.99	0.76	1.19	30.2
All Vehicles		1885	5.6	0.789	31.2	LOS C	23.0	170.4	0.87	0.80	0.96	35.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

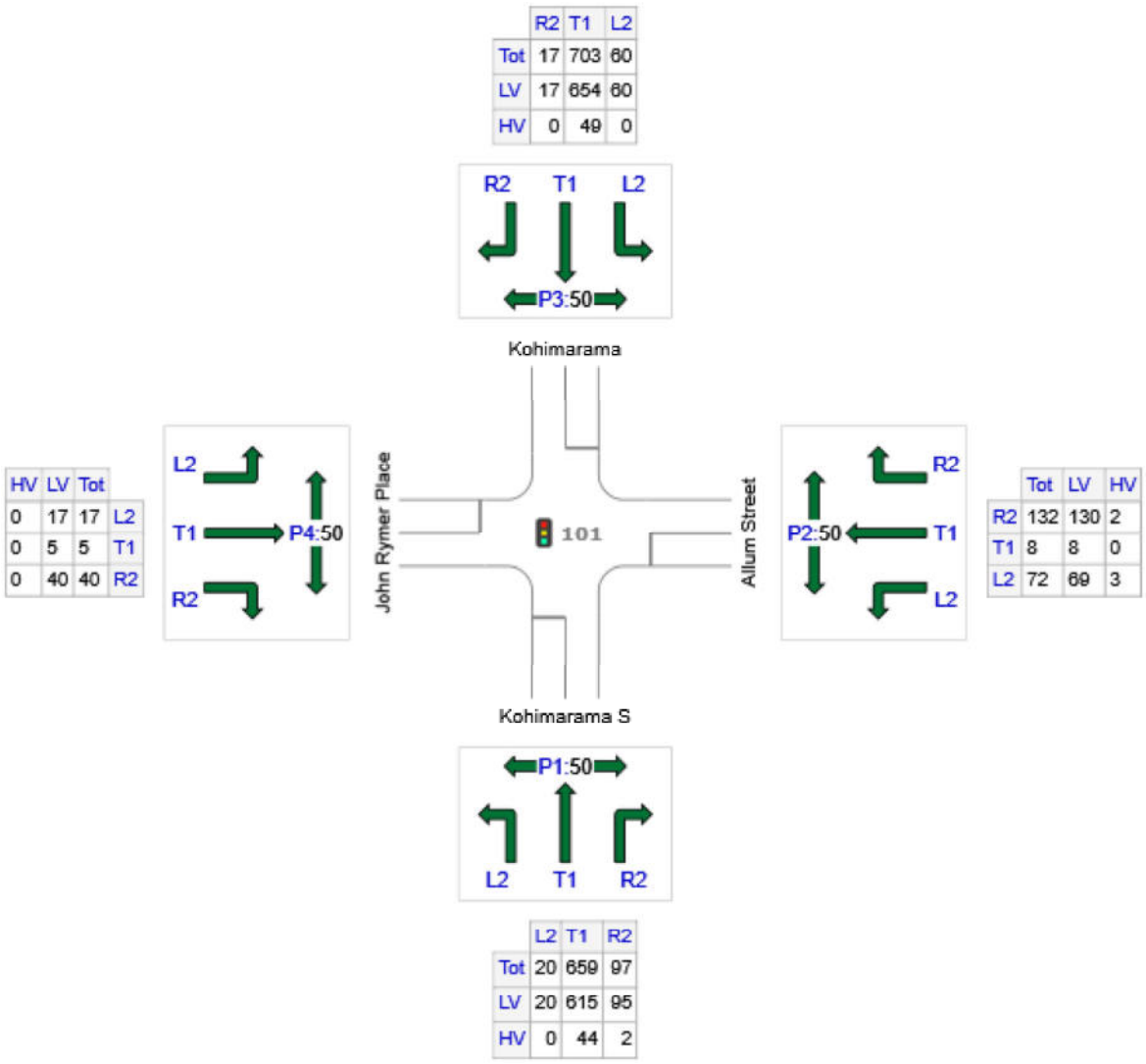
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [Kohi_John Rymer IP dev]

New Site
Site Category: (None)
Signals - Fixed Time Isolated

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Kohimarama S	776	730	46
E: Allum Street	212	207	5
N: Kohimarama	780	731	49
W: John Rymer Place	62	62	0
Total	1830	1730	100

MOVEMENT SUMMARY

Site: 101 [Kohi_John Rymer IP dev]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Kohimarama S												
1	L2	21	0.0	0.755	35.3	LOS D	26.1	193.1	0.92	0.83	0.93	34.9
2	T1	694	6.7	0.755	33.2	LOS C	26.1	193.1	0.93	0.85	0.96	34.2
3	R2	102	2.1	0.755	46.9	LOS D	13.4	97.6	0.96	0.91	1.07	30.9
Approach		817	5.9	0.755	35.0	LOS C	26.1	193.1	0.94	0.86	0.97	33.8
East: Allum Street												
4	L2	76	4.2	0.385	55.6	LOS E	3.9	28.5	0.97	0.76	0.97	28.2
5	T1	8	0.0	0.745	55.5	LOS E	8.3	58.5	1.00	0.87	1.15	27.5
6	R2	139	1.5	0.745	60.1	LOS E	8.3	58.5	1.00	0.87	1.15	27.3
Approach		223	2.4	0.745	58.4	LOS E	8.3	58.5	0.99	0.84	1.09	27.6
North: Kohimarama												
7	L2	63	0.0	0.495	23.4	LOS C	16.4	120.4	0.70	0.65	0.70	39.1
8	T1	740	7.0	0.495	21.5	LOS C	16.4	120.4	0.75	0.71	0.86	38.4
9	R2	18	0.0	0.495	29.2	LOS C	11.4	84.4	0.79	0.80	1.05	36.9
Approach		821	6.3	0.495	21.8	LOS C	16.4	120.4	0.74	0.71	0.85	38.5
West: John Rymer Place												
10	L2	18	0.0	0.573	52.5	LOS D	3.0	20.9	1.00	0.80	1.25	29.0
11	T1	5	0.0	0.573	47.9	LOS D	3.0	20.9	1.00	0.80	1.25	29.2
12	R2	42	0.0	0.573	52.5	LOS D	3.0	20.9	1.00	0.80	1.25	28.9
Approach		65	0.0	0.573	52.1	LOS D	3.0	20.9	1.00	0.80	1.25	29.0
All Vehicles		1926	5.5	0.755	32.6	LOS C	26.1	193.1	0.86	0.79	0.95	34.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

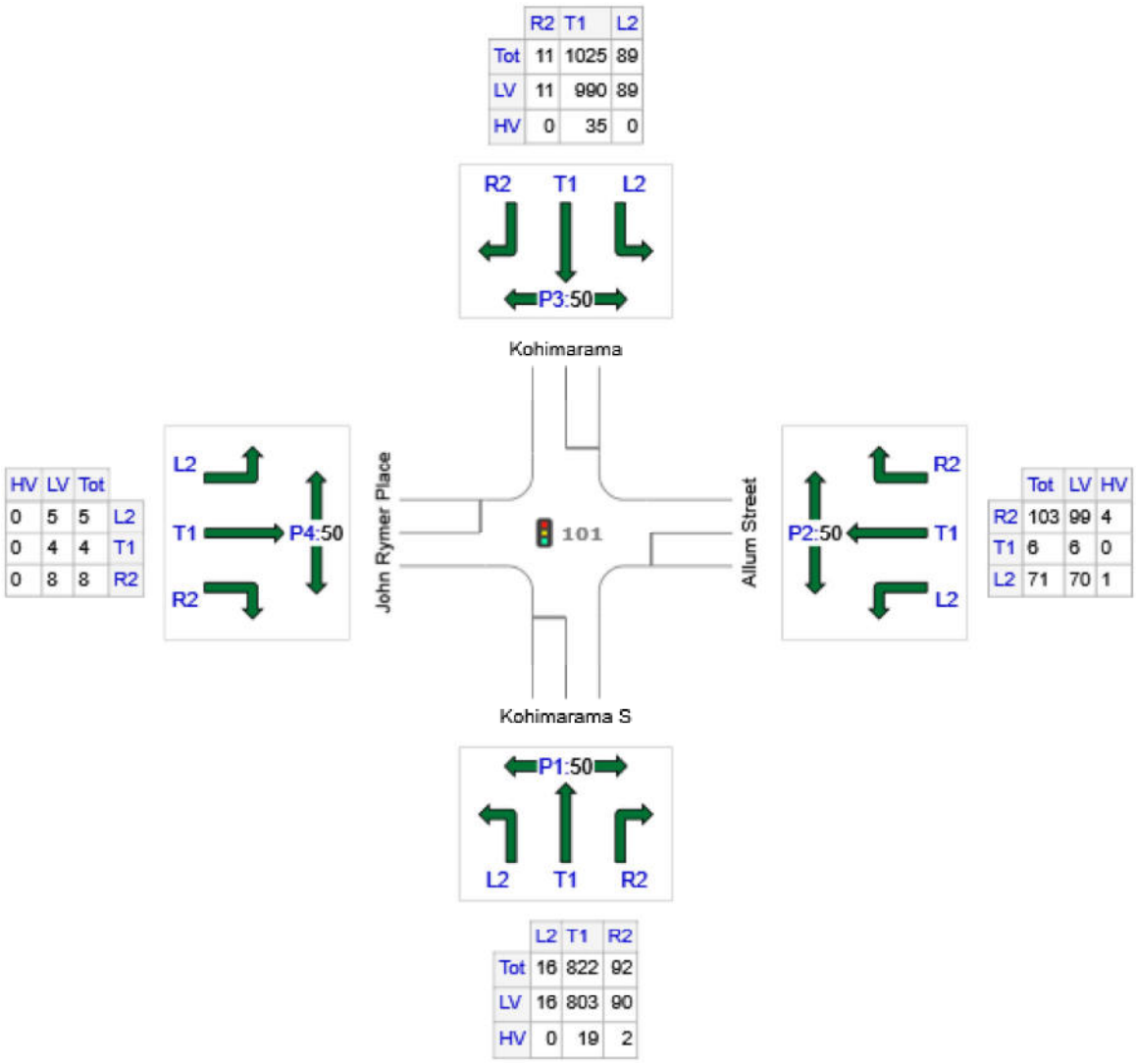
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [Kohi_John Rymer PM Base]

New Site
Site Category: (None)
Signals - Fixed Time Isolated

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Kohimarama S	930	909	21
E: Allum Street	180	175	5
N: Kohimarama	1125	1090	35
W: John Rymer Place	17	17	0
Total	2252	2191	61

Ryman Healthcare Retirement Village

223 Kohimarama Road & 7 John Rymer Place, Kohimarama

Draft Construction Traffic Management Plan (CTMP)

14 February 2020

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Project:	Ryman Healthcare Retirement Village 223 Kohimarama Road & 7 John Rymer Place, Kohimarama
Report title:	Draft Construction Traffic Management Plan (CTMP)
Document reference:	J001100 Ryman Kohimaramara CTMP 29012020
Date:	14 February 2020

Report Status	Prepared By	Reviewed By	Approved By
Draftv3	Sarah Hills STMS L2/3 NP - ID: 17450	Leo Hills STMS L2/3 NP - ID: 17449	Leo Hills STMS L2/3 NP - ID: 17449
			

Table of Contents

1 INTRODUCTION

This draft Construction Traffic Management Plan ("CTMP") has been produced to detail proposed temporary traffic management measures to be employed during the construction of a retirement village to be located at 223 Kohimarama Road & 7 John Rymer Place, Kohimarama in Auckland. The construction process is generally confined on-site, with works in the road corridor occurring for the site access points on Kohimarama Road & John Rymer Place and for the construction of the fence along the site boundary. It will not be necessary to limit vehicles or pedestrian access along any roads during the general operations.

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. The following report outlines the broad approach proposed for construction and access to the site. Following resource consent, the details of the Construction Traffic Management Plan will be confirmed and finalised. This approach has been accepted by various councils around New Zealand in relation to recent Ryman proposals (including Ryman villages in Birkenhead, Greenlane, Narrowneck and Hillsborough in Auckland).

The Construction Traffic Management Plan provides details on the following aspects:

(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.
(v) Fencing around the perimeter, and within the site between operational areas (once established) and construction areas, to protect pedestrians.

The primary traffic effects relate to the traffic generation associated with the removal of excavated material and the transport of materials and staff to and from the site. By way of summary, it is noted that these effects can be managed with minimal effect to the road network.

The CTMP has been based on the best available information regarding the earthworks and construction for the proposed development at this time. However, it cannot be guaranteed that the methodology described herein will be that employed verbatim at the time of construction and will need to be updated once more details are known.

2 EXISTING ENVIRONMENT

2.1 SITE LOCATION

The site is located at 223 Kohimarama Road & 7 John Rymer Place, Kohimarama.

John Rymer Place connects to Kohimarama Road / Allum Street via a signalised intersection approximately 50m north of the proposed access point. John Rymer Place is a cul-de-sac local road, providing access to around 70 dwellings. The carriageway width varies, however in the vicinity of the Site it provides 9.5m width allowing for two-way traffic movements and on street parking on both sides of the road. On street parking is restricted for the northern 30m approaching the intersection with Kohimarama Road. Footpaths of around 1.8m width are provided on both sides of John Rymer Place. The speed limit on John Rymer Road is 50km/h.

Kohimarama Road is classified as an Arterial road in the Unitary Plan. The speed limit on Kohimarama Road in the vicinity of the Site is 50km/h. At the proposed access point, Kohimarama

Road provides a single lane in each direction with no stopping restrictions on both sides of the road extending both north and south. A flush median of 2.3m width is provided. To the south of the proposed access point, the carriageway widens to accommodate additional lanes at the John Rymer / Allum Street intersection. To the north of the proposed access, a right turn lane is provided into Southern Cross Road.

A footpath is provided on both sides of Kohimarama Road. The footpath is 2-2.5m wide depending on location and adjacent planting.

The site is within close proximity to two schools including:

- St Thomas's School (Primary School); and
- Selwyn College.

The location of the site in relation to the surrounding activities and road network is shown in Figure 2-1.

Figure 2-1: Site Location

The proposed Kohimarama Road access is located 30m south east of an access to Selwyn College. St Thomas's School has an access point on Allum Street located 50m north of the Kohimarama Road/ Allum Street/ John Rymer intersection. Pick up and drop off movements at both schools during school peak periods impact the operation of the transport network.

At Selwyn College, the school peak periods (8:00-9:00am and 2:30-3:30pm) create in an increase in the number of pedestrians walking past the site on Kohimarama Road, in the number of students catching buses from the bus stops located on Kohimarama Road and in the pickup and drop off

vehicle movements. Vehicle movements are generally concentrated around the school vehicle crossings and Southern Cross Road opposite the school. It has been observed that on occasion, some vehicles pick up / drop off students on Kohimarama Road, ignoring the no stopping restrictions. During school peak periods, vehicle queuing can occur on Kohimarama Road as a result of turning traffic movements, internal carpark operational issues and the signalised pedestrian crossing on Kohimarama Road (140m north of the Kohimarama access) being used frequently.

St Thomas's School is situated on the opposite side of Kohimarama Road to the site and gains vehicle access via Allum Street. During school peak periods (8:15am-9:00am and 2:30-3:30pm), traffic and pedestrian volumes around the school increase. The majority of pick up and drop off movements occur directly outside the school on Allum Street. Observations suggest limited pick up and drop off movements occur on John Rymer Place during the peak periods.

2.2 EXISTING TRAFFIC VOLUMES

Traffic data for the surrounding roads has been extracted from the Auckland Transport traffic count database. The following records are available for the surrounding area:

- Kohimarama Road between St Heliers Bay Road and Whytehead Cresent (south) on 13/08/2018: 25,118 vehicles per day (vpd);
- Allum Street between Kohimarama Roadand Hopkins Cresent (south) on 13/08/2018: 4,213 vpd.

A survey of the intersection between John Rymer Place / Kohimarama Road / Allum Street was carried out on 25 July 2019 between 7-9am and 3-6pm. The traffic flows for the AM peak hour (8-9am) are outlined in Figure 2-2, the traffic flows for the interpeak (3-4pm) are outlined in Figure 2-3 and the traffic flows for the PM peak (4:30-5:30pm) are outlined in Figure 2-4. The PM peak hour caters for the largest vehicle volumes.

Figure 2-2: AM Peak Hour Traffic volumes

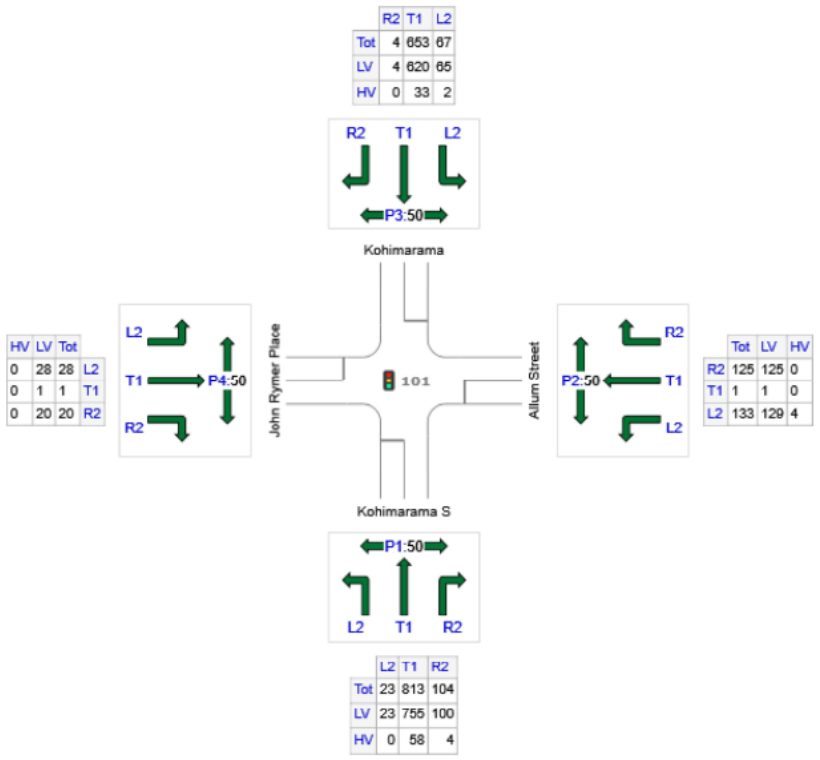


Figure 2-3: Inter Peak Hour Traffic Volumes

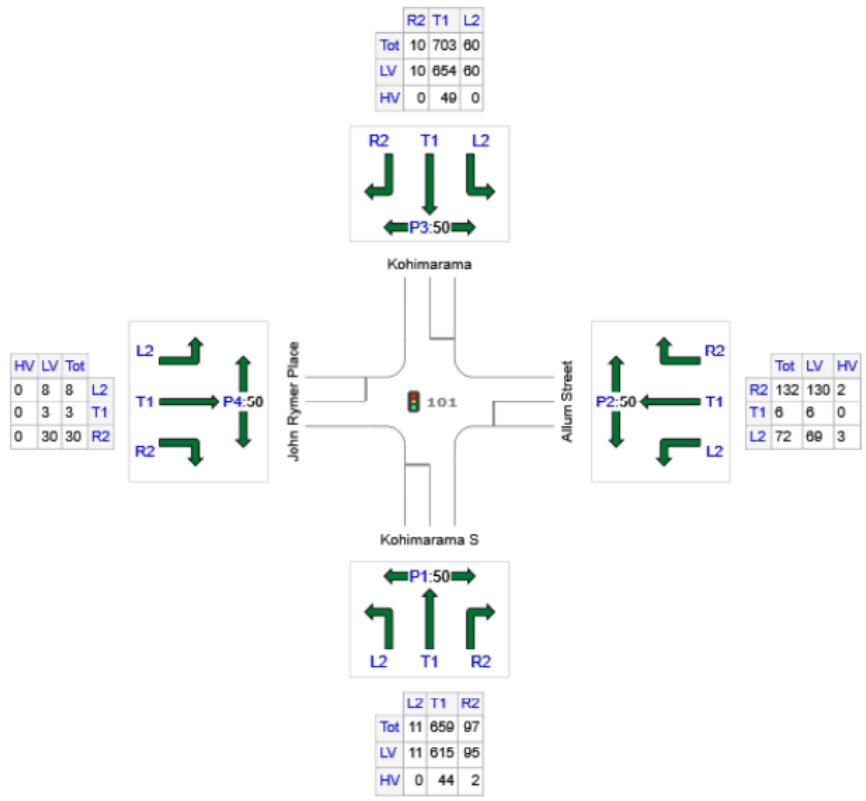
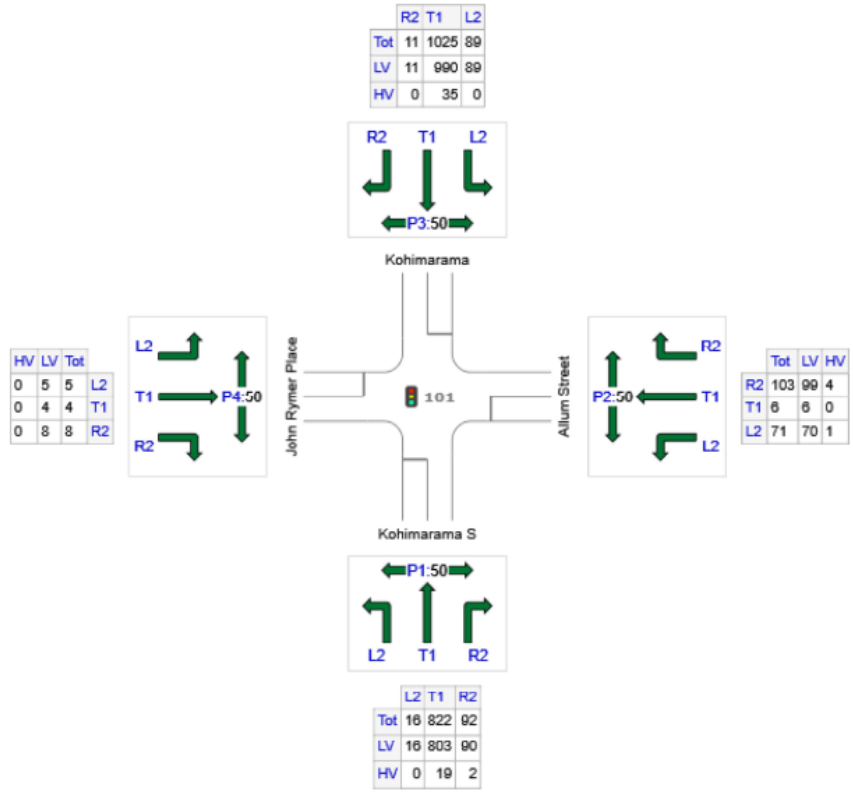


Figure 2-4: Evening Peak Hour Traffic Volumes



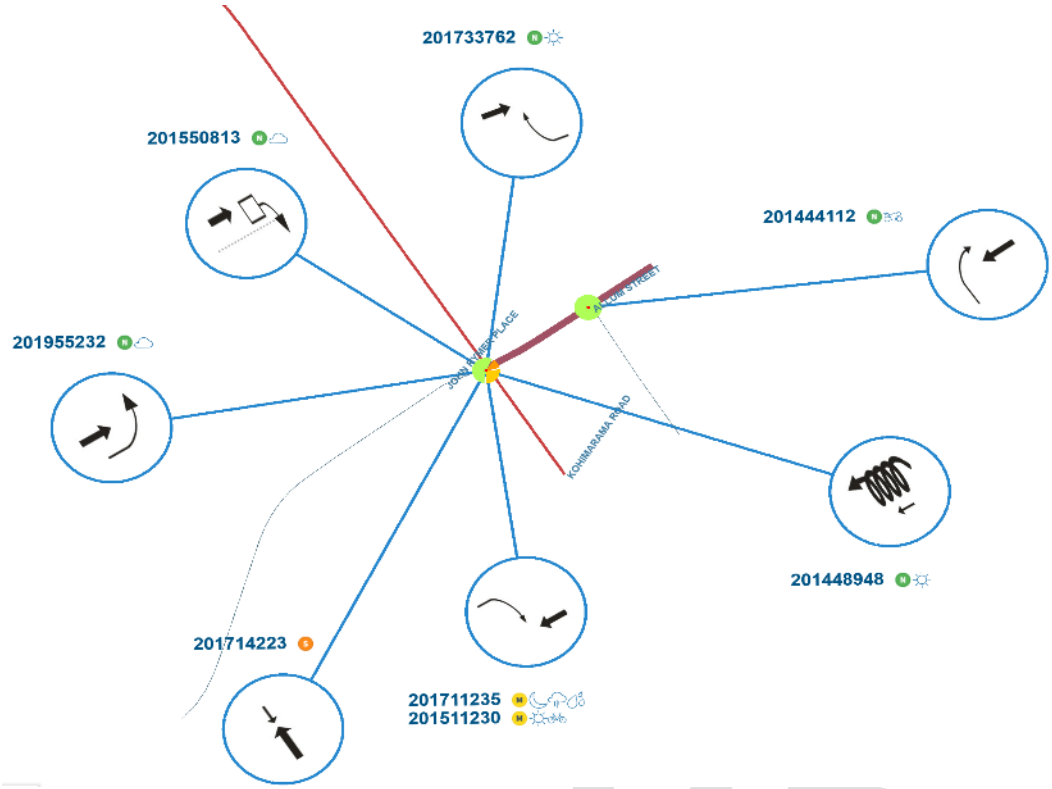
2.3 ROAD SAFETY

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 2014 - 2018 inclusive of any available 2019 data. The search area included the length of Kohimarama Road between Kepa Road and Whytehead Crescent, John Rymer Place (entire length) and Allum Street (between Kohimarama Road and school access). Due to the size of the search area, the assessment has been split into three sections.

2.3.1 KOHIMARAMA ROAD / JOHN RYMER PLACE INTERSECTION

The signalised intersection between Kohimarama Road, Allum Street and John Rymer Place has a record of 8 crashes over the study period. One crash was head-on and resulted in a serious injury with alcohol suspected as a cause. Two further crashes resulted in minor injuries, both as a result of a right turning movement from Kohimarama Road into Allum Street failing to give way to southbound traffic. One of these crashes involved a cyclist. The remaining five non-injury crashes were as a result of right turning movements, lane changing and loss of control. Figure 2-5 provides a collision diagram for the signalised intersection.

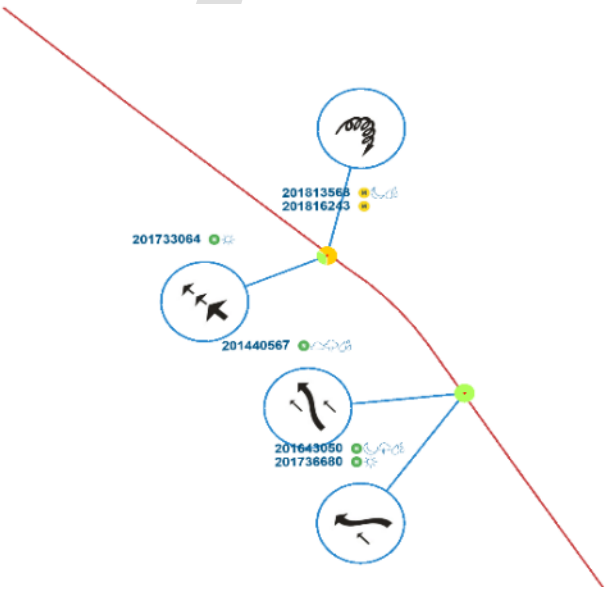
Figure 2-5: Collision diagram for John Rymer / Kohimarama Road / Allum Street intersection



2.3.2 KOHIMARAMA MIDBLOCK

On Kohimarama Road, six midblock crashes have occurred on the midblock section to the north of the signalised intersection (Figure 2-6). Two of the crashes have resulted in minor injuries as a result of loss of control while negotiating the slight corner around 245 Kohimarama Road. The remaining non-injury crashes have been involved lane changing or rear end movements. No crashes have been recorded involving vehicles using private access points along this section of Kohimarama Road (a total of 15-20 dwellings have access over this section).

Figure 2-6: Collision Diagram for Kohimarama Road midblock for Site frontage



2.3.3 KOHIMARAMA ROAD SELWYN COLLEGE FRONTAGE

At the intersection between Kohimarama Road and Southern Cross Road, the crash history reveals four crashes in total, two of which resulted in minor injury as a result of a rear end crash. The remaining non-injury crashes involved lane changing and a head on crash.

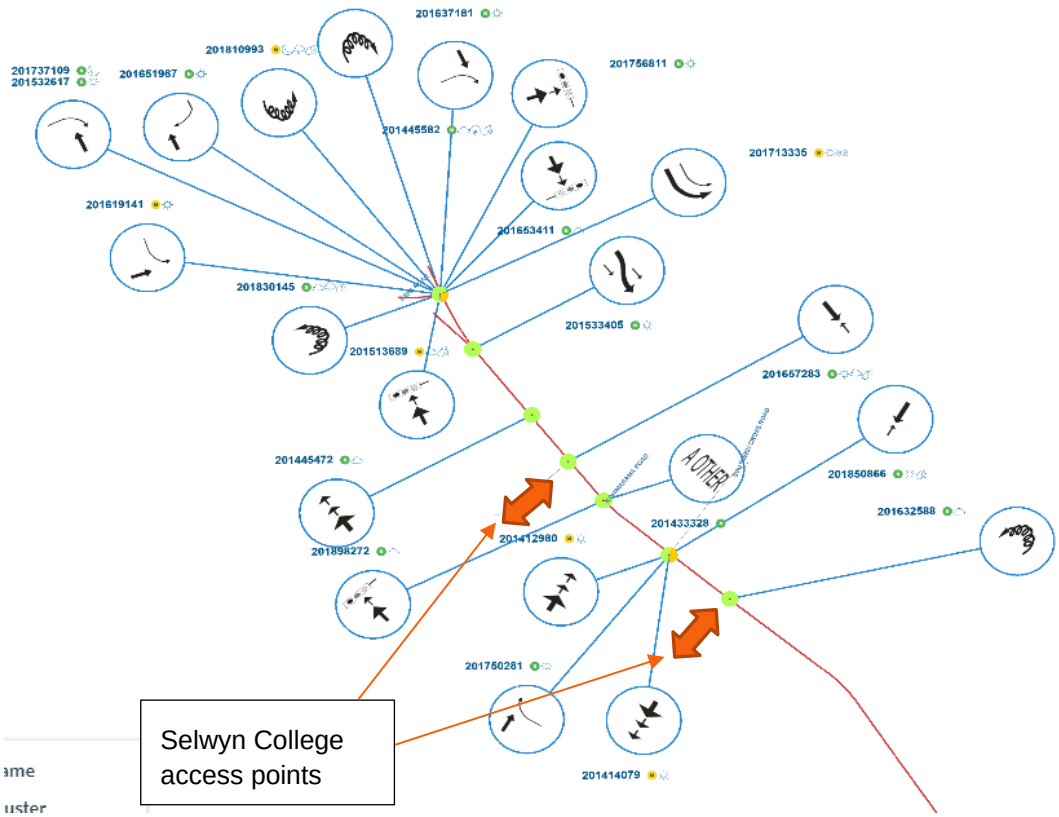
The midblock section of Kohimarama Road along the Selwyn Road frontage has a record of six crashes, none of which resulted in injury. The crashes involved rear end movements, lane changing, and one head on crash. The safety record shows no obvious issue associated with turning movements into and out of the school access points.

The intersection between Kepa Road and Kohimarama Road has a total of 12 crashes recorded. Four of these resulted in a minor injury. These included a rear end crash on Kohimarama Road northbound, a sideswipe crash between two right turning vehicles from Kepa Road, and two crashes between left turning vehicles from Kepa Road and northbound Kohimarama Road traffic. The remaining eight crashes involved loss of control while turning, rear end crashes and failure to stop at the traffic signals.

Overall, 9 of the 22 crashes along this section of Kohimarama Road occurred during school drop off (8-9am) or pick up (2:30-3:30pm) periods indicating an increased crash risk during these busy school periods compared with the remainder of the day.

A collision diagram for Kohimarama Road is shown in Figure 3 8.

Figure 2-7: Collision diagram for Kohimarama Road around Selwyn College for Site frontage



2.3.4 JOHN RYMER PLACE

No crashes were recorded on John Rymer Place over the search period.

2.3.5 SUMMARY

Based on our assessment of the crash history, the following conclusions can be drawn:

- The crash record at the John Rymer Place / Allum Street / Kohimarama Road intersection indicates no significant safety concerns. The crash record shows some indication of crash pattern as a result of the filtered right turn movements on Kohimarama Road into Allum Street and John Rymer Place, however this pattern is considered typical of this type of signal phasing arrangement.
- No road safety issues have been identified in relation to direct property access on Kohimarama Road.
- No road safety issues have been identified at the Selwyn College access points. However, the Kohimarama Road Selwyn College frontage area has a higher representation of crashes during school pick up and drop off periods.

3 THE PROPOSAL

3.1 PROPOSED DEVELOPMENT

Ryman proposes to construct and operate a comprehensive care retirement village at the Site, consisting of the following:

- 123 independent apartments;
- 93 assisted living suites;
- 80 care beds;
- 2 at grade parking spaces;
- 190 basement parking spaces.

Two access points are proposed to serve the Site. The main access is provided via John Rymer Place. A signalised intersection between John Rymer Place, Allum Street and Kohimarama Road connects the Site to the wider arterial road network. A secondary access is proposed via Kohimarama Road at the northern end of the site frontage.

An internal road network will provide access to all buildings within the Proposed Village.

Figure 3-1 shows the proposed layout of the Site.

Figure 3-1: Proposed Village Layout

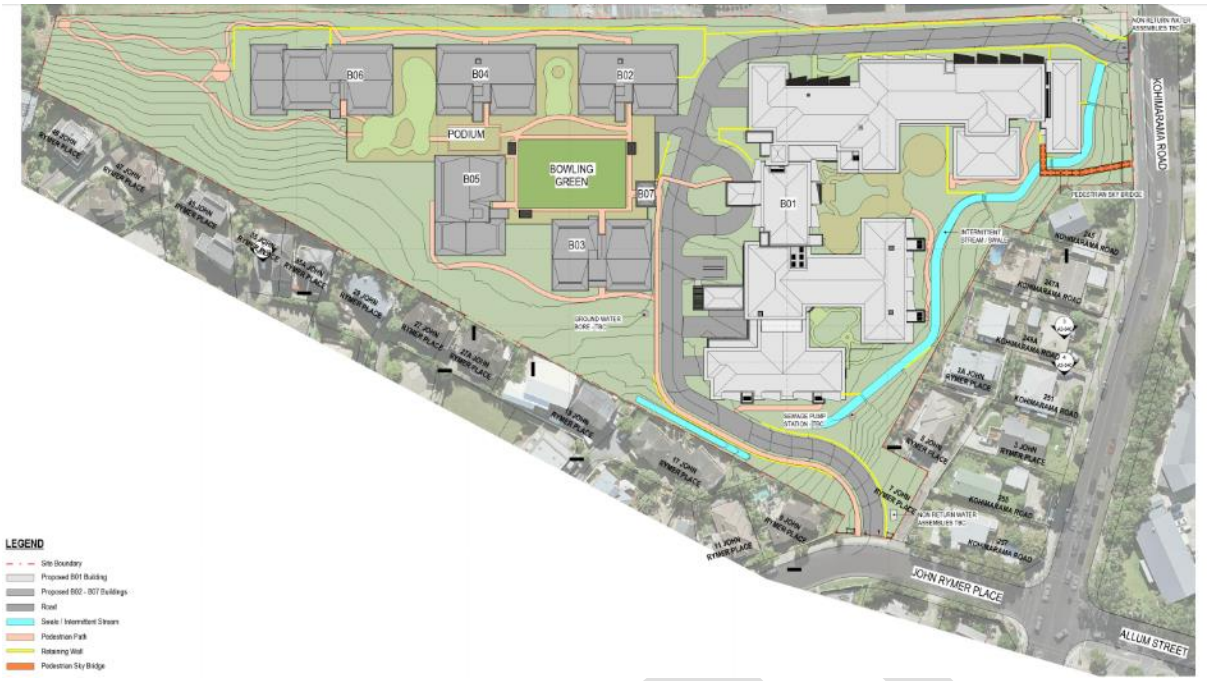


Figure 3-2: Buildings to be demolished

3.2 OCCUPATION OF ROAD AND ROAD RESERVE REQUIREMENTS

It is not intended to occupy any part of the public road reserve for the duration of the construction operations at the site. In the unlikely event that works are required to occur in the road reserve, Auckland Transport would be advised 48 hours prior to such work occurring.

4 CONSTRUCTION OPERATIONS

4.1 GENERAL

The construction of the Proposed Village is proposed to be divided into four main stages, although this approach may change as the construction methodology is developed and finalised. It is also likely that Stage 2 will overlap with Stages 3 and 4 as the earthworks will be undertaken over two earthworks seasons (meaning that Stages 3 and 4 will start on a portion of the site, while the remaining earthworks are still being completed on the remainder of the site).

The hours of operation will likely be restricted by the Construction Conditions of Consent. Ideally, the contractor would like to work from 7:00am to 6:00pm on weekdays and between 8:00am and 2:00pm on Saturdays. Further restrictions to truck movements, times of trucks and truck sizes are recommended as will be discussed further in Section 5 to follow.

4.2 EXPECTED TRUCK VOLUMES

The construction of the Proposed Village is proposed to be divided into four main stages, although this approach may change as the construction methodology is developed and finalised. It is also likely that Stage 2 will overlap with Stages 3 and 4 as the earthworks will be undertaken over two earthworks seasons (meaning that Stages 3 and 4 will start on a portion of the Site, while the remaining earthworks are still being completed on the remainder of the Site).

Surveys of the truck volumes from the recent construction at the Ryman Narrowneck site (September 2018 – September 2019) have been used to estimate peak hour volumes during various phases of construction. Over the course of a year, peak daily truck movements were recorded at 75 trucks (or 150 movements). Peak hour volumes generally occur around 10am and can reach around 16% of daily volumes equating to a peak of 24 truck movements. Construction traffic for the Narrowneck site is considered roughly comparable to the Kohimarama site.

Table 4-1 below identifies the proposed stages, estimated duration and estimated truck movements per day.

Table 4-1: Proposed construction programme

Stage	Activity	Hours of Operation	Approximate Duration (weeks)	Estimated No. of Truck Movements Per Hour
1	Initial site works	7:00am – 6:00pm	4 weeks	2
2	Earthworks / removal of existing buildings	7:00am – 6:00pm	3 seasons each of 30 weeks	6-8
3	Construction and Fitting out	7:00am – 6:00pm	Staged over 156 weeks	18-34
4	Vehicle Crossings	7:00am – 6:00pm	6 weeks	12-26

Given the presence of a number of schools in the area, a restriction on heavy vehicles is recommended during the school drop off and pick up periods. For all general operations, trucks should be minimised between 8:15-9:15am and 2:30pm and 3:30pm on school days. For concrete pours it is recognised that, trucks will need to access the site and additional traffic safety measures will be in place during these times.

Given the presence of a signalised intersection at John Rymer Place / Kohimarama Road / Allum Street, no heavy vehicle restrictions are considered necessary outside the school drop off and pick up periods. The traffic modelling of the intersection in the Transport Assessment Report demonstrates that there is adequate capacity for traffic from the operation of the Proposed Village during peak periods. Construction traffic is expected to be less intensive than the typical operation and will at most result in one additional truck movement every 1-2 phases at the John Rymer / Kohimarama Road / Allum Street intersection.

5 TRAFFIC CONTROLS DURING SITE WORKS

5.1 SITE ACCESS CONTROLS

Due to the topography of the site, construction vehicles are expected to access the site using both the John Rymer Place access and the Kohimarama Road access.

The Advanced Warning T2A sign with supplementary “Trucks Crossing” T217 sign are generally used where a large number of heavy commercial vehicles are required to turn into and out of a site. However, the Code of Practice for Temporary Traffic Management (CoPTTM) specifies that this Trucks Crossing sign (along with the Advanced Warning sign) are not used in urban areas. As such, no Trucks Crossing signs will be provided.

Given these are new vehicle access points to surrounding school children, it is recommended that TZ2 “Site Access” signs are installed at each site access point together will full time TCs between 7am and 6pm school days as detailed in the sections to follow.

5.1.1 JOHN RYMER ACCESS

Figure 5-1 shows the proposed location of the access point on John Rymer Place. This is in the general location of the proposed permanent access point serving the development, however, the temporary access will be wider than the permanent access (6m) to accommodate the manoeuvring requirements of the size of truck required for construction.

Figure 5-1: Site Access location on John Rymer Place

Given John Rymer Place is a cul-de-sac Road, trucks and other construction vehicles will turn right into the access and left from the access.

Due to the proximity of the access to the schools and neighbouring property and likelihood of pedestrians in the area, this John Rymer Place access is recommended to be controlled by a Traffic Controller (TC). The TC spotter will assist in avoiding conflict between construction vehicles, pedestrians and vehicles on John Rymer Place. This will include stopping or slowing pedestrians when a truck is turning into the site and stopping trucks exiting when pedestrians are approaching to enable them to safely cross the access point. Trucks will need to be instructed to wait within the site some 10m back from the boundary should another truck need to enter the site. During concrete pours (when concrete trucks will need to access and egress the site during school peak hours), a second TC will be required to manage trucks and pedestrians.

Tracking at the John Rymer Place / Kohimarama Road / Allum Street intersection has been checked for use by a semi-trailer (articulated truck) as shown in Figure 5-2.

Figure 5-2: Truck Tracking at Kohimarama Road / John Rymer Place intersection

Based on the tracking assessment, the following conclusions can be made:

Entry Movements

- while a truck and trailer unit or semi-trailer unit can physically turn right from Kohimaramara Road into John Rymer Place, this is generally a difficult movement given the filter turn. It is observed that a significant number of vehicles during busy times make the right turn on the amber phase. Given the possibility of the pedestrian "barns dance" crossing running immediately after this filter turn, where school children will step onto the road, and therefore from a pedestrian safety aspect, it is not considered safe for trucks to be making this manoeuvre. Given this, it is proposed that no trucks turn right at this location.
- trucks can travel straight through from Allum Street into John Rymer Place without issue;
- a semi-trailer can turn left into John Rymer Place, however it will require both northbound traffic lanes; and
- a right turn into the site from John Rymer Place can occur without issue.

Exit Movements

- Given the width of John Rymer Place and the ability for vehicles to park on both sides of the road, a truck could potentially block eastbound vehicles while queuing at the intersection. As such, temporary no stopping at all time markings (NSAAT) will be required on John Rymer Place between the access and Kohimarama Road for the duration of construction to minimise delays to other road users. It is noted that temporary parking restrictions require a temporary traffic resolution to be approved via the Traffic Control Committee.

- at the signalised intersection, a left turn movement from John Rymer Place into Kohimarama Road can not be undertaken by semi-trailers without Manual Traffic Controllers who would need to be operating under a specific TMP to stop southbound traffic on Kohimaramara Road. As such, this turn is not recommended for larger trucks;
- At the signalised intersection, trucks can turn right onto Kohimaramara Road or proceed straight into Allum Street..

Figure 5-3 summarises the proposed traffic controls of this access point.

Figure 5-3: Traffic Controls at John Rymer Place access point

5.1.2 9.2.2 KOHIMARAMA ROAD ACCESS

Figure 5-4 shows the proposed location of the access point on Kohimaramara Road.

Figure 5-4: Site Access location on Kohimaramara Road

This is in the general location of the proposed permanent access point serving the development however, the temporary access will be wider than the permanent access (6m) to accommodate the manoeuvring requirements of the size of truck required for construction.

For the permanent design, it is proposed that no vehicles turn right from this access. It is considered that this restriction is also appropriate for the construction access given the movement of heavy vehicles. As such, a RD1L “No Right Turn” sign will be installed at this exit point.

Right turn entry movements will be permitted with trucks being able to use the central flush median to wait clear of following southbound traffic to turn right into the site. As noted above, right turns at the signalised intersection into John Rymer Place are not recommended given the filter turn.

Due to the proximity of the access to the schools and likelihood of pedestrians in the area, this Kohimaramara access is recommended to be controlled by an STMS or delegated TC. The STMS/TC will assist in avoiding conflict between construction vehicles, pedestrians and vehicles on Kohimaramara Road. This will include stopping or slowing pedestrians when a truck is turning into the site and stopping trucks exiting when pedestrians are approaching to enable them to safely cross the access point. Trucks will need to be instructed to wait within the site some 10m back from the boundary should another truck need to enter the site. During concrete pours (when concrete trucks will need to access and egress the site during school peak hours), a second TC will be required to manage trucks and pedestrians.

Figure 5-5 summarises the proposed traffic controls of this access point.

Figure 5-5: Traffic Controls at Kohimaramara access point

5.2 ROADING CORRIDOR WORKS

The works in the roading corridor includes:

- the construction and widening of the site access point/ reinstatement of non-permanent vehicle crossings; and
- the construction of the front fence along the site frontages.

Both vehicle crossing works will require a short-term shoulder or lane closure to complete the works. In terms of CoPTTM, Kohimaramara Road has a road carriageway level of Level 2 (>10,000vpd) and John Rymer Place has a carriageway Level of Low Volume. (<500vpd).

A specific excavation CAR, together with the necessary vehicle crossing permits and TMPs will need to be prepared and approved by AT prior to the works.

Similarly, for the front fence works, should it be necessary to utilise a portion of the road reserve to enable the fence construction, a specific TMP will be prepared and approved prior to commencement of the works.

5.3 HOURS OF OPERATION

The hours of operation will likely be restricted by the Construction Conditions of Consent. Ideally, the contractor would like to work from 7:00am to 6:00pm on weekdays and between 8:00am and 2:00pm on Saturdays.

Given the location of the site surrounded by school activities such as the movement patterns of children and parents, it is recommended that for general operations trucks are minimised between 8:15-9:15am and 2:30-3:30pm. However, it is noted that during concrete pours, trucks must be able to access and egress the site at all times to complete the concrete works. At this time, additional safety measures to ensure the safety of pedestrians and other vehicles will be implemented during these times (additional TC/STMS at each site access point).

5.4 SIZE OF TRUCKS

During the initial site works and earthworks stages, truck and trailer units will be utilised with low loaders transporting plant & temporary office buildings to the site. During the Construction and Fit out stages 3 and 4, typically 8m trucks will be used, however semi-trailer trucks will be needed to deliver pre-cast material and other large construction items to the site.

5.5 WAITING AREAS FOR TRUCKS

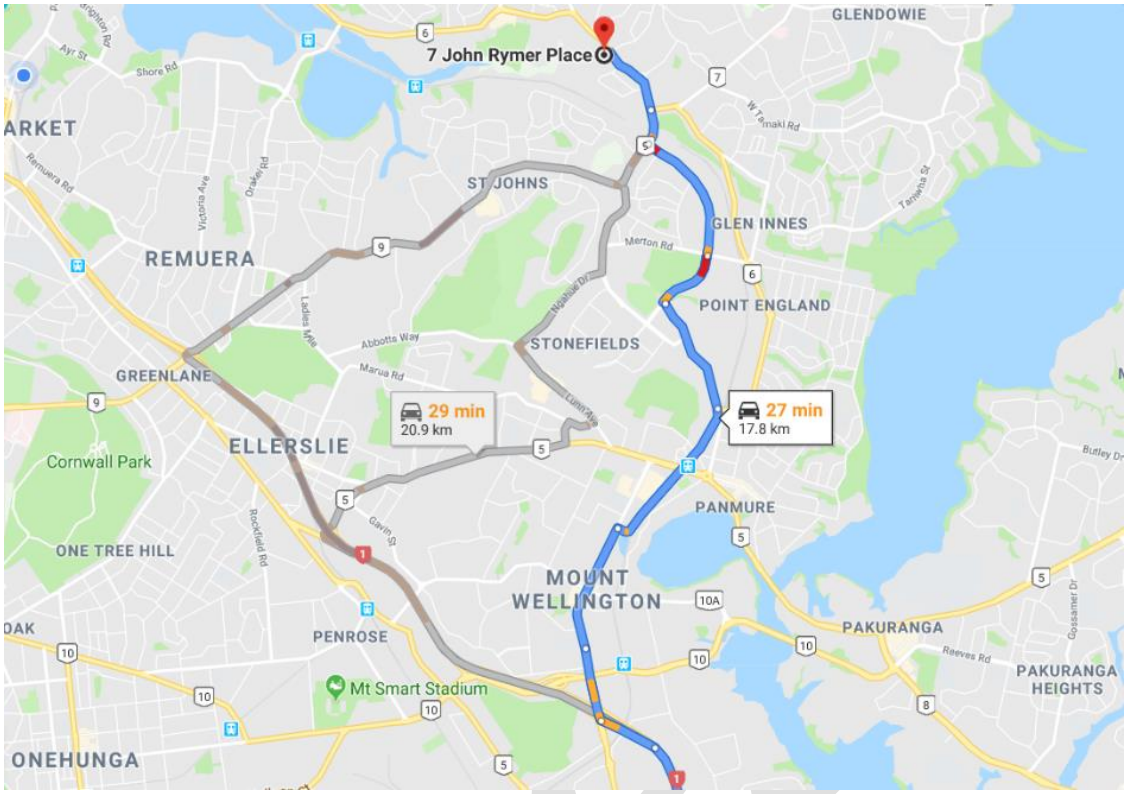
The contractors will need to manage truck movements to and from the site so that trucks do not need to wait on local roads to enter the loading area. For the earthworks phase, 6-8 trucks per hour (12-16 movements) are anticipated and as such an overlap between earthworks vehicles is unlikely. During more intensive fit out periods, overlap is likely. Therefore, the contractor should manage the scheduling of trucks appropriately to ensure adequate onsite waiting area.

5.6 TRUCK ROUTES TO AND FROM THE SITE

Truck routes to and from the site are expected to be focused to and from the south.

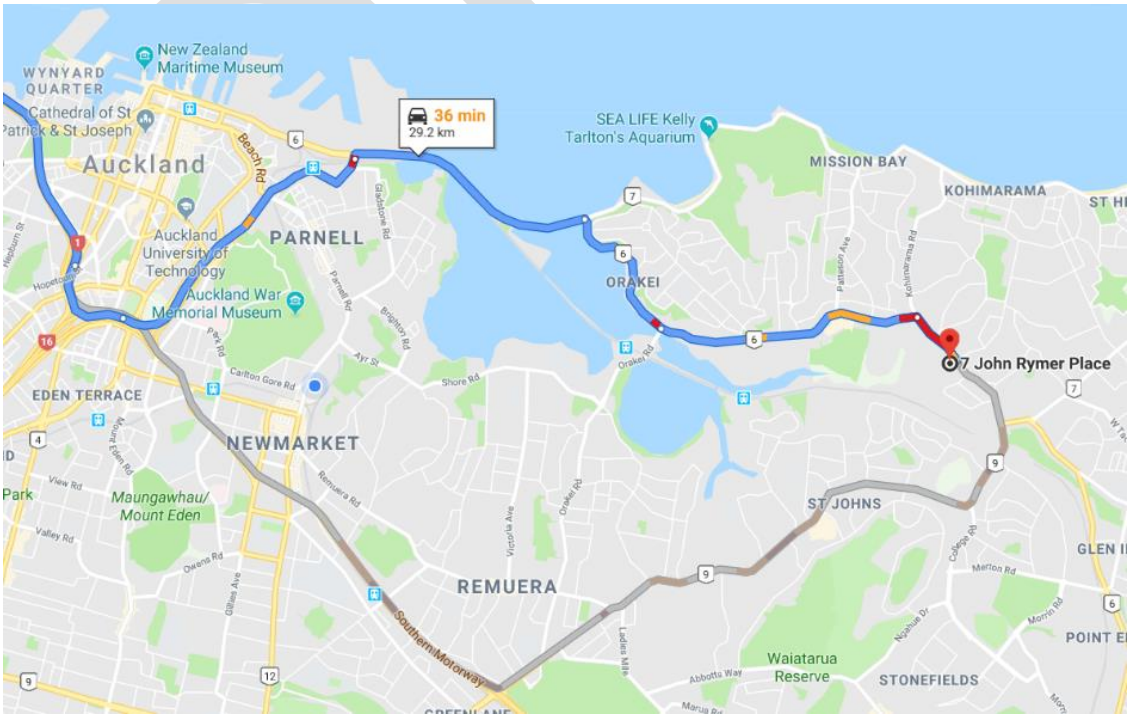
There are three potential routes from the site to the southern motorway (and vice versa) using St Johns Road / Greenlane, using Apirana Avenue, Te Horeta Road and Mt Wellington Highway, or using Lunn Avenue and Ellerslie Panmure Highway, as shown in Figure 5-6. All of those routes are considered appropriate to accommodate construction vehicles and are generally on arterial roads.

Figure 5-6: Routes to and from the South



There are two potential routes from the site to the north (and vice versa) using Kepa Road, Ngapipi, Tamaki Drive and Stanley Street, or using St Johns Road and Greenlane as shown in Figure 5-7. Both routes make use of arterial roads and are considered appropriate for construction vehicles.

Figure 5-7: Routes to and from the North



5.7 ROAD SIGNS

The proposed signs to be used as part of the traffic management of the site access points are detailed in Figure 5-3 and Figure 5-5.

As noted, CoPTTM outlines signs that can be used for construction works and does not permit the T2A “Hazard Warning” sign with the T217 “Trucks Crossing” supplementary plate to be used in urban areas.

“Site Access” sites are recommended at both the Kohimarama access and John Rymer access points in accordance with CoPTTM.

Additional signage includes a “No Right Turn” sign at the Kohimaramara access for exiting vehicles and a specific sign at the John Rymer Place access to advise semi-trailer trucks that they will be unable to turn left at the nearby signals.

5.8 MATERIALS STORAGE

Materials are to be stored on-site. No berms or roads will be used for material storage at any time.

6 GENERAL

6.1 VEHICLES OF WORKERS AND SUBCONTRACTORS

Initial discussions with the construction team indicate that construction parking requirements can be accommodated on-site as the basement areas are expected to be constructed prior to the majority of the construction and fit out stages.

It is understood that there will be a secure lock up facility provided on-site for the contractors to store their tools each night and as such contractors do not need to visit the site before parking.

6.2 PEDESTRIAN SAFETY

All movements by heavy vehicles to the site will be in a forwards direction. A TC or STMS will be placed on both the Kohimarama Road access and John Rymer Place access to aid in pedestrian safety.when any truck is entering or exiting the driveway. During concrete pours, when concrete trucks need to enter and exit the site during school hours, an additional TC or STMS will be provided at each site access so that both approaches from the footpath can be appropriately managed.

It is also suggested that a pedestrian hoarding / fence be located on the footpath surrounding the site providing necessary protection.

With these measures in place, the truck being positioned clear of the footpath and no work within the road reserve, it is not considered necessary to close any footpaths in the area.

6.3 PROJECT MANAGER FOR THE PROJECT

The construction contractor / project manager for this project and their details are TBA.

6.4 COMMUNICATION

It is not anticipated that access to the adjoining properties will be impeded during construction process, nor is it considered that there will be notable disruption to the users of the adjacent road network or pedestrians on the footpath.

However, a letter drop to neighbouring properties is recommended prior to the start of the construction programme advising of the proposed site works schedule. In particular the following people/ groups should be advised of the process:

- St Thomas's School
- Selwyn College
- Residents of John Rymer Place;
- Residents of Kohimarama Road between Kepa Road and St Heliers Bay Road;
- Residents of Allum Street.

6.5 UTILITY SERVICES

Power, telephones and data services within the site are to be isolated prior to the earthworks and construction. Water should be disconnected at the metered supply and drainage is to be capped off by a registered drain-layer. As such, no utility services around the site are expected to be affected by the proposal.

10 CONCLUSIONS

The traffic management measures detailed in this CTMP will ensure that any adverse effects on both the operating traffic environment and the local residents, due to the proposed construction operations, will be minimised. In particular:

- access will be via two proposed access points, with one access on Kohimarama Road and one access on John Rymer Place. Turning restrictions are proposed at both access points to minimise disruption on the surrounding road network;
- Pedestrian and vehicle safety is to be maximised with a TC or STMS at each site entry to aid in pedestrian safety (especially children). For concrete pours, both sides of the access will be managed with two TCs or STMS on-site at each access point;
- Trucks will need to be managed by each TC/ STMS to ensure that an entering truck is not delayed by a truck exiting;
- Pedestrian fencing should be installed around the site for pedestrian safety;
- General truck movements to the site should be minimised in school peaks of 8:15-9:15am and 2:30-3:30pm. Additional TC/STMS should be provided at each site access for pedestrian safety;
- Truck routes as detailed in this report should be followed to ensure arterial roads are used wherever possible; and
- Detailed Traffic Management Plans (TMPs) will need to be submitted to Auckland Transport for approval of any works within the roading corridor including vehicle crossing works and front fence works..

It is therefore concluded that the traffic management measures identified in this report will ensure that the site works necessary for the construction of the proposed comprehensive retirement village to be located at 223 Kohimarama Road & 7 John Rymer Place can occur with minimum disruption to neighbouring residents and school children and the road network.

Commute Transportation Consultants Ltd