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Dear Jo

1 Hansen Road: Proposed Worker Accommodation: Assessment of Transportation Effects

Further to our e-mails and conversations, we understand that an application is being made to the Ministry for the Environment for a referral approval to allow the process set out within the COVID-19 Recovery (Fast-track Consenting) Act 2020 to be used for the construction and operation of accommodation at 1 Hansen Road, Frankton. This letter sets out the key transportation-related matters associated with the proposed development.

At the outset, we highlight that there are a number of inter-related matters that are relevant to the transportation issues identified and considered. The approach taken in this letter is to firstly identify and discuss the relevant matters separately, before then drawing them together to undertake a high-level assessment of the proposed development.

Background

The information provided is that a total of 565 worker accommodation units is proposed, with a mix of units intended:

- Some units will be constructed as studios or one-bed units, and will include a small kitchen

[REDACTED] constructed as bedrooms with an en-suite bathroom, but will have cooking facilities.

Use of the units will be specifically limited to 'worker accommodation'. The Queenstown Lakes District Plan (**District Plan**) does not define worker accommodation, and therefore we expect that the use of the units for this purpose will need to be controlled through conditions of consent. In undertaking our analysis, we have relied on the following 'rules of thumb':

- No units are permitted to be used for visitor accommodation (the District Plan defines this as durations of stay of less than 90 nights); and
- No units can be used for standard residential accommodation (where the person is entitled to stay permanently).

The differentiation is important for the purposes of any transportation assessment as the nature of activity determines the trip-making characteristics and likelihood of vehicle ownership.

Site access will be achieved in the same manner as per previous developments for this site, with vehicular access only onto Hansen Road and with no direct access proposed directly onto Frankton – Ladies Mile Highway (part of State Highway 6). Walking and cycling access is however provided via the highway (as per previous development proposals and discussed further below).

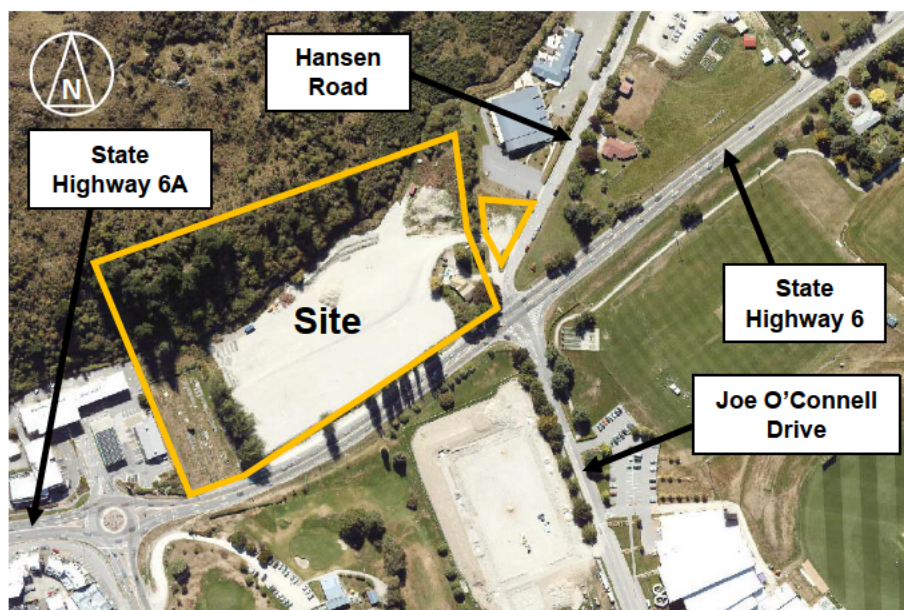


Figure 1: Site Location

We previously carried out a detailed Transportation Assessment for the site, which allowed for the following maximums:

- 4,000sqm retail
- 3,000sqm offices
- 36 residential units
- 167 vehicle storage spaces

This scale of development is specifically identified in the District Plan as the permitted maximum for this site (under Rule 15.5.5). By way of background, this quantum of development was identified by the Council when the proposed District Plan was first notified (albeit that it was then numbered Rule 15.5.4). Waka Kotahi subsequently submitted on this part of the notified District Plan (submission #719) in support of these upper limits.

From a transportation perspective then, it is relevant that the two road controlling the site – the Council through promulgating this in the notified District Plan, and Waka Kotahi by its supporting submission. In view of this, we consider that the traffic that would be generated by this quantum of development can also be considered as being appropriate by the Council and Waka Kotahi.

If consented, the worker accommodation would replace the retail, offices and residential units but for clarity, the vehicle storage spaces would remain. The vehicle storage spaces have been consented under RM211006.

Our assessment of the proposed worker accommodation builds on the analyses previously carried out for the mixed-use development.

Waka Kotahi Highway Improvement Scheme

There are two key intersections presently adjacent to the site, as can be seen on Figure 1. At the southwestern corner is a four-leg roundabout ('the Frankton Roundabout'), with State Highway 6 forming the southern and eastern legs of the roundabout and State Highway 6A forming the western

leg. The northern leg provides access to a service station and to Terrace Junction, a commercial and retail development.

There is a priority ('give-way') intersection at the southeastern corner of the site, where Hansen Road meets the highway from the north, and Joe O'Connell Drive joins the highway from the south. The site is served by the former, with the latter serving the Queenstown Events Centre and Alpine Aqualand. The Events Centre includes a multi-purpose indoor sports hall and outside playing fields, and hosts various clubs and organised team sports. It also has fitness classes and a gym, and a climbing wall. Alpine Aqualand has a large swimming pool and leisure pool.

The Frankton Roundabout is a "*known pinch point for congestion*"¹ and there is presently a scheme being progressed by Waka Kotahi to replace the roundabout with a large signalised intersection. In order to provide sufficient capacity for turning vehicles, the signalised intersection will have auxiliary turning lanes on each approach, and consequently the scheme also includes for widening the current two-lane highway past the site to four lanes².

The improvement scheme also makes specific provision for walking and cycling (and the current roundabout does not). The layout includes shared pedestrian/cycle lanes along the northern and southern sides of the eastern approach (that is, directly adjacent to the site), and shared pedestrian/cycle crossing phases on the northern, western and southern approaches.



Figure 2: Indicative Scheme for State Highway 6/6A Intersection³

Due to the widening of the highway past the site, and to alleviate extensive queuing and delays on Joe O'Connell Drive at peak times, the State Highway 6 / Hansen Road / Joe O'Connell Drive intersection is also to be signalised. This improvement scheme will also include pedestrian crossing phases and incorporate the shared pedestrian/cycle lanes (which will in fact extend even further east along State Highway 6).

¹ <https://www.nzta.govt.nz/media-releases/proposals-for-a-new-transport-environment-in-frankton-queenstown-reach-key-milestone/>

² That is, two lanes in each direction

³ Source: <https://www.nzta.govt.nz/media-releases/proposals-for-a-new-transport-environment-in-frankton-queenstown-reach-key-milestone/>

Notices of Requirement for the replacement for the Frankton Roundabout were lodged in December 2022.

In short then, the current transportation infrastructure adjacent to the site is to be greatly revised in the near future with increased roading capacity and much higher levels of service for walking and cycling. We understand that the expected timing of the roading schemes is such that they will be underway by the time that the worker accommodation could be constructed and operational (if consented). That is, there will not be any period when the existing infrastructure is in place and the worker accommodation is in use. Our analysis is based on this timing.

Availability of Non-Car Travel Modes Around the Site

Introduction

Those that live within the development will need to travel for work purposes, but also for undertaking some household tasks, and for retail and recreation). We have therefore considered the availability of travel modes, other than the private car.

Availability of Public Transport

it is highly relevant that the site lies just 200m (a 3-minute walk) from the Frankton Bus Hub. At present, services are reduced in frequency⁴ but even then, the following services use the Hub:

- Service 1 to Remarkables Park: 15-minute frequency in peak periods, 30-minute frequency in off-peak periods;
- Service 1 to Queenstown town centre and Fernhill: 30-minute frequency in peak and off-peak periods;
- Service 2 to Arrowtown: 60-minute frequency in peak and off-peak periods;
- Service 2 to Queenstown town centre and Arthurs Point: 60-minute frequency in peak and off-peak periods;
- Service 3 to Frankton Flats: 60-minute frequency in peak and off-peak periods;
- Service 3 to Kelvin Heights: 60-minute frequency in peak and off-peak periods;
- [REDACTED]: 60-minute frequency in peak and off-peak periods;
- [REDACTED] int: 60-minute frequency in peak and off-peak periods;
- [REDACTED] Estate: 60-minute frequency in peak and off-peak periods;
- Service 5 to Queenstown town centre: 60-minute frequency in peak and off-peak periods;

That is, all five of the services operated in the Queenstown area pass through Frankton Bus Hub, operating between 6:30am to 12:30am. In our view then, the site is extremely well-positioned to support bus usage.

In respect of work-related travel, the locations served by buses include centres of employment such as retail, hospitality and visitor accommodation at Remarkables Park and Five Mile, the airport (and ancillary activities such as car rental) and the traditional employment centres of Queenstown town centre, Frankton and Arrowtown. Bus services also pass near to the industrial area of Glenda Drive.

For non-work travel, the locations served by bus services provide a wide range of retail and recreation options, such as the leisure opportunities in the town centre (including but not limited to, bars and clubs, restaurants, 10-pin bowling, movies, etc) as well as for shopping.

⁴ Apposite to this application, we understand that this is due to a lack of drivers, one reason for which is the lack of suitable accommodation for these workers

Moreover, Waka Kotahi and Otago Regional Council have stated their intent to further develop the public transport network over the next decade⁵. Although there are no confirmed schemes, in our experience this typically includes extending routes to serve more destinations and/or increasing service frequencies on core routes. Each of these will further enhance the ability of workers within the site to reach work and non-work destinations by bus.

Walking and Cycling

The typical maximum walking distance for a journey is 1km (about a 10 to 15 minute walking time for a fit and healthy adult), with the typical cycling distance being 3km (which is broadly the same travel time). These distances are shown below (crow-fly distance):

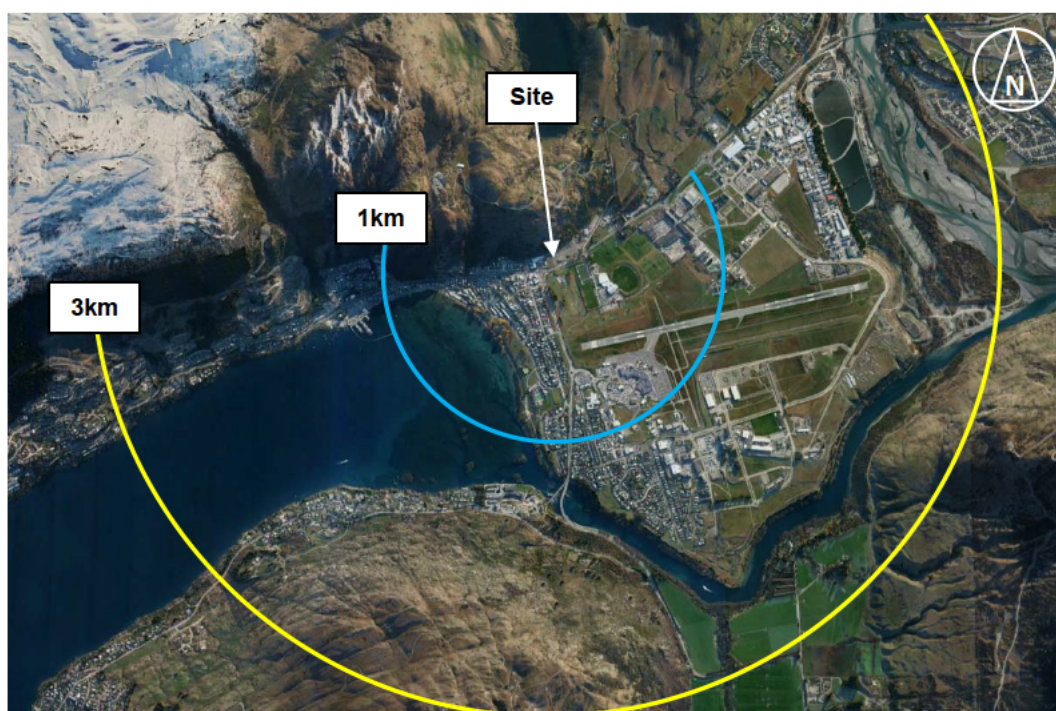


Figure 3: 1km and 3km Isodistances from Site

There are employment opportunities at Glenda Drive and Kelvin Heights, the airport being within a viable walking distance. At present, the highway creates a degree of severance between the site (on the northern side) and the work opportunities available on the southern side. However the roading improvement schemes described previously will remove severance through providing formal crossing facilities. There will therefore be no impediment for walking and cycling trips between the site and destinations to the south.

We also note that the proposed shared pedestrian/cycle lane on the northern side of the highway provides excellent connectivity to the east, west and south of the site. This is in addition to the existing off-road lanes already in place, such as parallel to State Highway 6 on its southern side, and a network of routes further south. The site provides a direct connection onto this proposed northern pedestrian/cycle lane.

⁵ <https://www.nzta.govt.nz/projects/nz-upgrade-programme-queenstown-package/frequently-asked-questions/>

In respect of travel for non-work purposes, Five Mile provides a large service offering (including a laundrette, pharmacy, doctors surgery and hairdresser), big-box retail stores such as a Countdown supermarket, the Warehouse, Noel Leeming, Briscoes, and Kmart) and leisure opportunities (such as cafes, bars, a yoga studio and gym), all located around 500m from the site. As noted above, Queenstown Events Centre and Alpine Aqualand provide a wide range of sporting/recreation activities, and these lie on the immediate opposite side of the highway to the site. To the west of the Events Centre is the Frankton Golf Centre. Again, the roading improvement schemes mean that the site is well-connected to these non-work destinations.

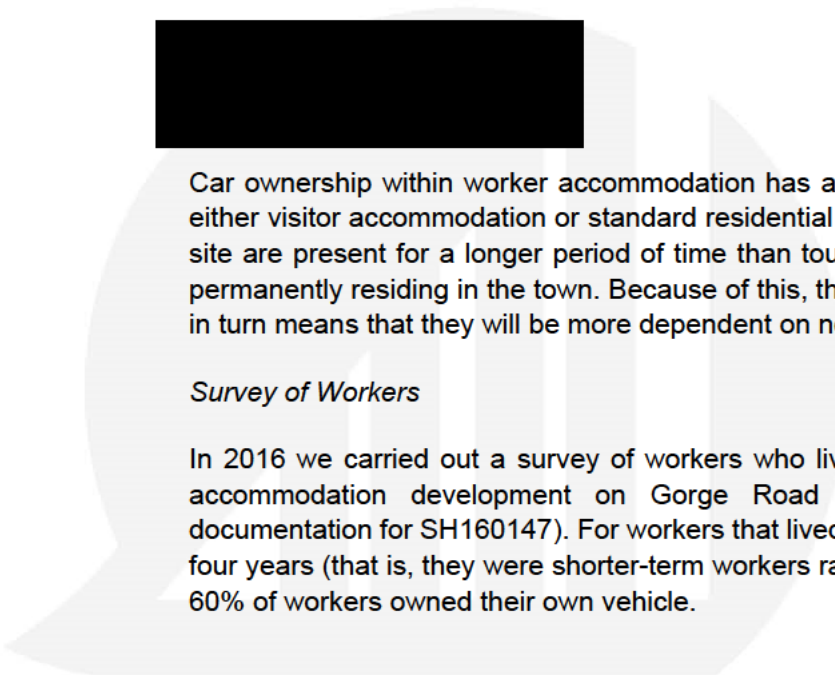
Overall, we consider that the site is extremely well-placed for walking and cycling trips to be made to both employment and non-work locations.

Use of Employer Vehicles

Where there is a large number of worker accommodation units, there is a high potential for a 'block booking' by larger employers, where an employer leases multiple rooms for its staff. One example of this approach is for those that work at the ski areas, with NZ Ski often securing a number of rooms in the same location⁶.

From a transportation perspective, this then means that travel to work can be carried out either through the employer arranging a minibus pick-up/drop-off or through one employee being authorised to drive one of the employers' vehicles and the vehicle being kept overnight at the site by the driver. Hence travel to and from work is made via a high-occupancy vehicle. In passing, because the vehicle storage facility is designed to accommodate campervans, the roading network within the site is suitable also for minibuses.

Because this travel option depends on the employer of workers staying at the site, there can be no reliance on it as a mitigation measure for any transportation-related effects (as it is provided by an independent third party). However in our view it does indicate that the calculations that follow are conservatively robust, because they do not take into account that communal travel of this nature is likely to occur.



Car ownership within worker accommodation has a number of features that mean it differs from either visitor accommodation or standard residential development. In particular, those living at the site are present for a longer period of time than tourists but for a shorter time period than those permanently residing in the town. Because of this, they are less likely to hire or own a car and this in turn means that they will be more dependent on non-car modes of transport.

Survey of Workers

In 2016 we carried out a survey of workers who lived and worked in Queenstown for a worker accommodation development on Gorge Road (reported more fully under the consent documentation for SH160147). For workers that lived in Frankton and had been there for less than four years (that is, they were shorter-term workers rather than residents), this showed that around 60% of workers owned their own vehicle.

⁶ See for example: <https://www.scene.co.nz/queenstown-news/news/hostel-leased-for-hotel-staff/>

The survey did not specifically select respondents by their proximity to alternative transportation modes, and at the time, bus services in the Queenstown area were of variable quality. The Orbus brand launched in the following year, with revised routes and a resultant doubling of patronage⁷. Since then, bus patronage has continued to increase⁸. In view of this, we consider that our 2016 data is likely to now considerably over-estimate the extent of car ownership due to the presence of greatly improved public transport in Queenstown. For this particular site, the very close proximity to the Frankton Bus Hub and consequential high frequency of services means public transport will be even more attractive to residents.

Car ownership is also likely to be influenced by the ability to walk or cycle to the workers' desired locations. We set out above how the site is to be well-connected through shared pedestrian/cycle lanes to a wide range of employment and non-work-related locations, many of which are in fact within a viable walking distance.

Taking these matters into account, we consider that it is reasonable to reduce the observed 60% car ownership in 2016 by at least a further 10% to allow for walking and increased public transport use. Consequently, we consider that in the order of 50% of units could potentially have an associated car (which will be even lower if employer-instigated communal travel options are included).

Applying this to the proposed 565 units suggests that in the absence of other options, there would be demand for 283 car parking spaces.

It is proposed to provide 40 private car parking spaces on the site, which would result in a large proportion of cars not being accommodated. These spaces will be provided in the consented vehicle storage building.

However, in order to strike a balance between supporting non-car travel while recognising that workers may need or wish to use a car at other times⁹, the proposed development has adopted an approach of providing an on-site car-share system (which will form a condition of consent). This operates in a manner where there are a certain minimum number of car-share vehicles available on the site, which can be booked by residents as and when they require the use of a vehicle. Unlike traditional hire car models, modern car-share schemes charge by the minute and so the user does

there is incentive to minimise the amount of time that the car is used.

has been proposed because:

- Residents do not have to purchase and maintain their own vehicle when it is demonstrably used only infrequently¹⁰ and there is a wide range of other travel options available;
- Residents will still have the advantages of using a personal motor vehicle when they need.
- The advent of commercial car-sharing services means that the need for a privately-owned motor vehicle is already reducing. Uber already operates throughout the Whakatipu Basin with Ola currently operating to/from the airport.
- Providing fewer parking spaces means that the land resource within the site is used more efficiently (for instance, providing 243 surface parking spaces would occupy more than a hectare of land which instead can be used for worker accommodation).

⁷ <https://www.orc.govt.nz/news-and-events/news-and-media-releases/2018/november/happy-birthday-orbus-queenstown-queenstown-s-2-bus-service-marks-one-year-since-launch>

⁸ <https://www.orc.govt.nz/news-and-events/news-and-media-releases/2022/april/bus-patronage-up-with-half-price-fares>

⁹ Such as visiting a friend who does not live on a bus route, or in the case of a medical emergency

¹⁰ A typical motor car is only used for 5% of the time

<https://www.reinventingparking.org/2013/02/cars-are-parked-95-of-time-lets-check.html>

- The car share scheme can include a range of vehicles, meaning that a driver can select their vehicle according to the way it will be used (for example, choosing a small car for a retail trip or a 4WD if travelling to a ski area). This therefore reduces emissions because higher emitting vehicles are only used where necessary.

There are presently few such car-share schemes operating at scale in New Zealand, but overseas studies suggest that one car-share vehicle replaces between 7 and 13 private vehicles¹¹. In Australia, studies show one car-share vehicle replaces 7 to 10 private vehicles¹². One New Zealand scheme which has been implemented and studied is the Mevo car-share scheme in Wellington, with Wellington City Council noting that one Mevo car-share vehicle replaced 11 private vehicles¹³.

Adopting a figure of one car-share vehicle replacing 7 private cars (that is, a rate at the most conservative end of the range given that there is no similar scheme in Queenstown to draw comparisons with), this means that having 35 vehicles available for car-share would mean that residents vehicle needs would be met in full.

The car-share scheme would not preclude workers from choosing to own and operate a vehicle, but this would solely be their choice in view of the very high range of non-car travel options. The extent to which workers will want to own a vehicle cannot be forecast with certainty, but we note that on-street parking is permitted on Hansen Road adjacent to the site and this can accommodate at least 70 vehicles. On-street parking is an anticipated outcome of the National Policy Statement on Urban Development.

Hansen Road is a Local Road under the District Plan roading hierarchy, and serves only a very small amount of development (a church, a honey shop / bee farm (which includes a café and visitor attractions), and rural residential properties). It is a cul-de-sac and does not provide for any through-traffic, and the MobileRoad website sets out that the typical traffic volume on the road is just some 490 vehicles per day. This equates to less than 1 vehicle per minute at peak times. A review of the Waka Kotahi Crash Analysis System shows that over the past 30 years there have been no crashes recorded on the road. In view of the light traffic flows and excellent road safety record, we do not consider that on-street parking on Hansen Road will result in adverse efficiency or safety effects arising.

[REDACTED] a high degree of resident self-selection at the site. In other words, [REDACTED] good linkages to locations within a walking and cycling distance, [REDACTED] bus service, it will be a location where workers who do not wish to (or cannot afford to) own their own vehicle will specifically seek to stay. In turn this increased demand for non-car travel will support the walking, cycling and public transport links while also decreasing car ownership.

Overall, we consider that the provision of 40 on-site parking spaces for private vehicles, plus the provision of 35 car-share vehicles, will meet likely demand albeit with some degree of on-street parking arising due to workers choosing to own their own vehicle.

¹¹ <https://www.epa.gov/sites/default/files/2017-06/documents/05312017-shaheen.pdf>

¹² <https://www.knowledgehub.transport.govt.nz/assets/TKH-Uploads/TKC-2018/Car-sharing-in-New-Zealand-benefits-and-barriers.pdf>

¹³ <https://wellington.govt.nz/news-and-events/news-and-information/our-wellington/2020/09/car-share-schemes>

Traffic Generation and Road Safety

Permitted Mixed-Use Development

In our previous analysis of the mixed-use development specified under Rule 15.5.5 of the District Plan, we calculated the following traffic generation:

Traffic Generation						
Activity	Morning Peak		Evening Peak		Saturday	
	In	Out	In	Out	In	Out
Retail	70	70	105	105	139	139
Offices	60	3	3	60	0	0
Residential	4	23	18	9	7	7
Vehicle Storage	24	3	3	24	3	3
Total	158	99	129	198	149	149

Table 1: Traffic Generation of Permitted Development Under Rule 15.5.5

For clarity, this analysis allowed for 16% non-car travel. At the time we highlighted that in our view this proportion was lower than would arise in practice due to the good walking, cycling and public transport linkages. However we adopted the value of 16% to be consistent with the stated preference of Waka Kotahi at the time.

As set out previously, the proposal for worker accommodation replaces the retail, offices and residential activities. However the vehicle storage facility remains.

Proposed Development

The trip generation from the site is inevitably linked with car ownership. Assuming that each of the private vehicles and car-share vehicles exited the site in the morning, these would generate 75 vehicle movements. However this does not account for workers who wished to own their own vehicle and who parked on Hansen Road.

The Transport Planning and Design (TPD) Guidelines (TDT 2013/04a) sets out that for high-density residential developments, a rate of 0.15 vehicle movements per bedroom is expected, within a range of 0.07 to 0.22 vehicle movements per bedroom. In this case, each unit has only one bedroom, and consequently a trip generation of 85 vehicle movements could be expected (within a range of 40 to 124 vehicle movements). These would not all be exiting the site however, and we have applied a standard directional split as below.

Traffic Generation						
Activity	Morning Peak		Evening Peak		Saturday	
	In	Out	In	Out	In	Out
Worker Accommodation (avg)	9	77	55	30	43	43
Worker Accommodation (low)	4	36	24	14	20	20
Worker Accommodation (high)	12	112	81	43	62	62
Vehicle Storage	24	3	3	24	3	3
Total (and range)	33 28 to 36	80 39 to 115	58 27 to 84	54 38 to 67	46 23 to 65	46 23 to 65
Total for permitted development	158	99	129	198	149	149
Difference	-125 -130 to -122	-19 -60 to +16	-71 -102 to -45	-144 -160 to -131	-103 -126 to -84	-103 -126 to -84

Table 2: Traffic Generation of Proposed Development

It can be seen that the expected traffic generation of the site is considerably less than for the mixed-use development permitted through Rule 15.5.5 of the District Plan. The only potential exception to this is in the morning peak hour, when under a worst-case scenario of a higher trip generation there are 16 additional exiting vehicles compared to the previous analysis. This equates to an average of 1 additional vehicle movement every 3.8 minutes in the morning peak hour and this will not be noticeable or materially affect roading capacity. It is also doubtful in our view whether the higher trip rate is applicable in view of the excellent non-car connectivity discussed previously.

In passing, we highlight that as well as travel to work, one important reason for travel in the morning peak hour is for the 'school run' for children. However in this case, the units proposed have just one bedroom, which means that they will be unsuitable for families with children. This means that the need to undertake the 'school run' in weekday mornings will not arise.

On this basis, because the generated traffic flows of the proposed worker accommodation are lower than those from the development permitted under Rule 15.5.5 (which was devised by the Council and supported by Waka Kotahi), then it follows that the effects of those worker accommodation and on road safety must also be lower than the permitted

Conclusions and Summary

The proposed Waka Kotahi improvement schemes for the highways adjacent to the site greatly improve walking and cycling connectivity at the site, as well as providing additional capacity for the roading network. As such, we confirm that these schemes should be underway prior to the site being occupied by workers.

With the improvement schemes in place, on the basis of our assessment we consider that the site is uniquely placed to provide worker accommodation of this nature. It is just 200m from a bus hub, within walking distance of major retail, commercial and recreational opportunities, and many major employment locations can be reached on foot, by cycle or on public transport.

Car ownership by workers is lower than for standard residential accommodation, and we consider that the excellent connectivity by non-car modes will reduce ownership further (as in essence, many locations that residents may wish to travel to are easily accessible without a car). However, recognising that from time-to-time people may need to use a vehicle, the site will provide a pool of 35 vehicles that are available for short-term bookings. Studies show that the presence of these

vehicles will further reduce the demand or need for private vehicles by residents. In the event that a resident chooses to own their own vehicle, there are 40 on-site spaces provided plus on-street parking can be accommodated on the adjacent Hansen Road.

The large scale of development means that 'block bookings' by major employers can be expected. There is therefore an increased potential that workers will be able to travel to/from their place of work using an employer's vehicle (such as a minibus) which will further diminish car ownership. The internal roading layout is suitable for use by minibuses due to the vehicle storage facility being designed for campervans. However as employer transport is the provision of transport by a third party, it has not been taken into account within our analysis.

The car-borne trip generation of the site is considerably lower than the permitted mixed-use development identified in Rule 15.5.5 of the District Plan. Those thresholds were identified by the Council and supported by Waka Kotahi, and as such, it is not unreasonable to expect that the associated traffic generation of the permitted development and its effects on road safety and efficiency were deemed appropriate by the Council and Waka Kotahi. Since the proposed development generates less traffic than the permitted development, we consider it is reasonable that the resultant effects on efficiency and safety are also acceptable.

On the basis of our assessment, we consider that there are no transportation-related reasons why the use of this site for a large worker accommodation complex could not be considered further.

Please do not hesitate to contact me if you require anything further or clarification of any issues.

Kind regards
Carriageway Consulting Limited



Andy Carr
Traffic Engineer | Director

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