

12 October 2017

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Dear Marc

Northlake Subdivision: Proposed Plan Change

Further to e-mails and discussions with yourself and also with John Edmonds, we have carried out an assessment of the likely transportation effects arising from the proposed plan change within the Northlake subdivision. Our comments are set out below.

Overview

From the information provided, we understand that a plan change is proposed within Northlake, which will have four main elements. Two (relating to commercial signage and community facilities) do not have a transportation-related component. However two elements of the plan change request will affect the traffic generation and other issues:

- It is proposed that 4.2ha of land is changed from B3, C2 and E1 to D1, to enable either additional medium density residential land or a retirement village to be established; and
- It is also proposed to amend a Zone Standard to allow the provision of a single retail activity of up to 1,250sqm GFA, with a total retail floor area within the zone of 2,500sqm GFA compared to an existing provision for 1,000sqm GFA. The purpose of this change is to enable a small supermarket to be established on Lot 1005.

This report addresses the transportation implications of both aspects of the plan change request.

Change of Land from B3, C2 and E1 to D1

Background

The location of the area to be rezoned is towards the northeastern side of Northlake, immediately southwest of Outlet Road and towards the north of Northlake Drive:

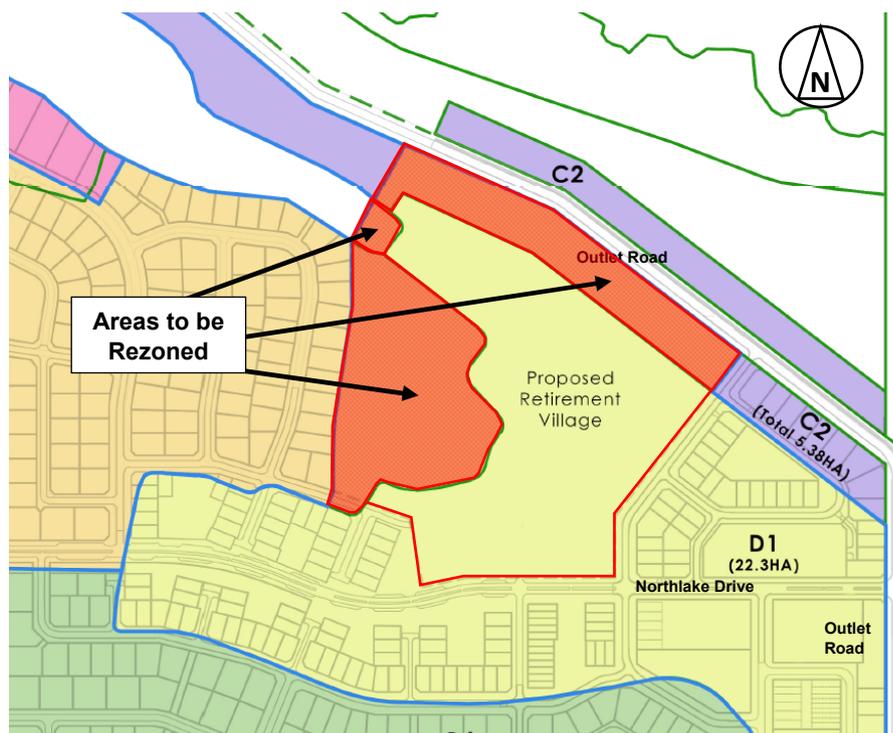


Figure 1: Location of Land Rezoning

With regard to the rezoning:

- 15,588sqm of land adjacent to Outlet Road (the northernmost area shown above) is to be rezoned from C2 to D1;
- 1,323sqm of land (the smallest area shown above) is to be rezoned from E1 to D1; and
- 24,512sqm of land (the larger, irregularly shaped area shown above) is to be rezoned from B3 to D1.

The primary transportation matter in regard to this rezoning is that D1 enables a density of 15 households per hectare, whereas B3 has a density of 10 residences per hectare and C2 has a density of 4.5 residences per hectare. Area E1 is within a Building Restriction Area where buildings are presently a non-complying activity. Based on the areas of the land, we consider that under the existing zonings, up to 36 residences could be constructed¹.

For completeness, the balance of the area shown above which lies immediately east of the plan change area (noted on the plans as being 'proposed retirement village') is currently zoned as D1 and is in the order of 53,200sqm in size. Under the Outline Development Plan of RM160152, this area provides for 105 residences.

Use for Medium Density Residential

If medium-density housing was to be constructed on the red-shaded areas identified above under a D1 zoning then up to 72 residences could be constructed. This is an increase of 36 residences over and above the existing zoning of this land.

Our earlier work regarding the traffic generation of the Northlake subdivision (through Plan Change 45) identified that each residential property would generate 0.9 vehicle movements (two-way) in

¹ That is, 7 residences in Area C2 plus 24 residences in Area B3, plus an additional 15% for the target density margin



the peak hours. Thus the additional residences permitted under the proposed rezoning would generate an additional 32 vehicle movements in the peak hours, equivalent to an average of one vehicle movement every 1.9 minutes at the busiest times, which in our view will not be perceptible.

Use for a Retirement Village

Under a scenario where the rezoned land and also the existing D1 area marked on the plans are used for a retirement village, the total site area would be around 9.4ha.

Surveys of retirement villages show that they generally have low traffic generation rates. This is for a combination of reasons - some residents are less mobile or are simply no longer able to drive, and all no longer need to travel to work or for the 'school run' and so they travel at different times of day. Car ownership rates are also lower than for standard residential properties which also reduces the potential traffic generation.

The data shows that independent living facilities (villas and apartments) each generate 2 vehicle movements per day (allowing for both residents and guests), with carehome beds generating 1.5 vehicles movements a day (which allows for visitors, staff and service vehicles). Around 20% of traffic movements are generated in the peak hours.

In this case, because a plan change is sought there is no specific design that has been produced. Accordingly, we have reviewed recent applications for similar facilities:

- We have recently been involved with the Arrowtown Retirement Village. The Transportation Assessment which was submitted to the Council and agreed as being appropriate noted that the site is 12.1ha and provides for 295 retirement units (villas, apartments and beds). In the peak hours, these generate a total of 108 vehicle movements (two-way), and this equates to a traffic generation rate of 8.9 vehicle movements (two-way) per hectare.
- We are also aware that the Queenstown Country Club occupies a site area of 50ha and was calculated in the Special Housing Area submission to generate 241 to 271 vehicle movements (two-way) in the peak hours, equivalent to a traffic generation rate of 4.8 to 5.4 vehicle movements (two-way) per hectare.
- The Aspiring Lifestyle Retirement Village in Wanaka occupies a site of 12.2ha. The Transportation Assessment for the resource consent application set out that this generates 188 vehicle movements (two-way) in the peak hours. This equates to a rate of 15.4 vehicle movements (two-way) per hectare.
- The Diana Issac Retirement Village in Christchurch occupies a site of 11.2ha. The Transportation Assessment for the resource consent application set out that this has 379 villas, apartments and beds and generates 164 vehicle movements (two-way) in the peak hours. This equates to a rate of 14.6 vehicle movements (two-way) per hectare.

Overall then, rates of 4.8 to 15.4 vehicle movements (two-way) per hectare have been calculated at other, comparable retirement villages. In our view, the Wanaka and Arrowtown rates are likely to be the more relevant – the Christchurch site is very intensively developed and we presented evidence to the Queenstown Country Club regarding the very low rates promulgated by the applicant.

For this assessment, we have used a rate of 12.1 vehicle movements (two-way) per hectare as this is the mean value of the two sites. This would mean that a facility at Northlake could generate around 114 vehicle movements (two-way) in the peak hours.



By way of comparison, under the *existing* zoning of the land which would be used for the retirement village, up to 141 residences could be constructed as of right² and these would generate 127 vehicle movements (two-way) in the peak hours.

The traffic generation of the retirement village is therefore 13 vehicle movements *lower* in the peak hours than the existing zoning allows.

Connectivity by Other Modes

The areas subject to the proposed rezoning are located relatively centrally within Northlake, and are 200m to 450m from community facilities in the village centre. This is a short distance that will take three to six minute to walk (assuming an average pedestrian speed), meaning that walking is a viable mode of transport. Cycling is similarly viable.

Policy 18(a) of the Otago Regional Public Transport Plan (2014) sets out that in built-up urban areas, spacing between bus stops of 300m and 400m are desirable, with a maximum separation of 500m. This suggests that the maximum walking distance to a bus stop should be around 300m to 400m. All of the areas subject to the proposed rezoning are within 400m of Northlake Drive, which has been designed to be suitable for buses.

We therefore consider that the areas are located in a manner that does not require the use of a car to travel to community facilities or public transport, or to reach the wider roading network.

If the area is to be used for a retirement village, then the site is immediately adjacent to Northlake village centre, and is therefore within a viable travel distance even for those with reduced mobility. The site will also have frontage onto Northlake Drive, a potential public transport route, and there is scope within the road for bus stops to be provided immediately adjacent to the retirement village. This means that bus use will be a highly attractive mode of transport for those living in the retirement village.

More generally, any new roads within the area will be constructed to meet Council's Subdivision Code, which ensures a suitable level of provision for walking and cycling. The existing roads in the area all have footpaths, and Northlake Drive itself is the spine of an internal walking and cycling network, which provides a high-quality route throughout the subdivision and to Aubrey Road further south.

Summary

Based on our analysis, if the rezoned land was to be used for medium density residential properties then:

- The area subject to the change of zoning can presently generate 32 vehicle movements (two-way) in the peak hours under the existing zoning.
- Under the proposed rezoning this would increase to 64 vehicle movements (two-way).
- This increase in traffic generation will be imperceptible and is not sufficient to create any material change to the efficiency or safety of any roads or intersections

If the rezoned land, plus the adjacent lot, was to be used for a retirement village then:

- The area that would be occupied by the retirement village can presently generate 127 vehicle movements (two-way) in the peak hours under the existing zoning.

² That is, up to 36 residences on the land subject to the rezoning, plus 105 residences on the balance of the land permitted through RM160152

- Under the potential retirement village this would reduce to 114 vehicle movements (two-way).
- In practice, the reduction in traffic generation will be imperceptible but will have small (beneficial) effects on the efficiency or safety of roads or intersections.

For clarity, although our assessment has focused on the whole area being used for either standard residential dwellings or a retirement village, if a subdivision was to be progressed as a hybrid of the two (that is, part retirement village and part standard residential dwellings), then the outcome of an imperceptible change in traffic flows would remain the same.

The areas to be rezoned and/or the retirement village are located within a viable walking and cycling distance of the community facilities in Northlake village centre, and to any potential bus route which may use Northlake Drive. Northlake Drive itself is the spine of an internal walking and cycling network, which provides a high-quality route throughout the subdivision and connections to the roading network further south.

Provision of a Small Supermarket

Background

The location of the area where a small supermarket could be developed if the plan change was to be approved is immediately north of Northlake Drive and within the village centre, close to the already-consented healthcare centre, early childhood centre and restaurant:



Figure 2: Location of Supermarket Site

We understand that the supermarket will have a size of up to 1,250sqm GFA.

Traffic Generation and Distribution

The traffic generation characteristics of supermarkets are well-understood, and a facility of this size can be expected to have a rate of low traffic generation rate in the morning peak hour (as few people go shopping) and a rate of 15 vehicle movements (two-way) per 100sqm in the evening



peak hour. This equates to 188 vehicle movements (two-way), of which 50% will enter the site and 50% will exit.

It is known that vehicles travelling to supermarkets is not all newly-generated on the road network. Rather, it is a combination of:

- Primary trips: which are new on the network;
- Pass-by trips: which are those presently being made on Northlake Drive, where a driver can call in to the supermarket without having to change their route; and
- Diverted trips: which are those presently being made on the road network but where a driver has to change their route in order to visit the supermarket.

Surveys have shown that the total traffic at a supermarket comprises around 50% primary trips, 25% pass-by trips and 25% diverted trips at weekends, with this changing to a 33% / 33% / 33% split during the weekday evening peak period³ which is when the greatest cumulative effects of the supermarket will arise. In our view it is reasonable that similar proportions will be seen at supermarkets.

Consequently, we consider that the weekday evening peak traffic generation of the supermarket will be:

- 63 trips (two-way), which are newly generated;
- 63 trips (two-way), which are presently being made on Northlake Drive where a driver calls in to the supermarket; and
- 63 trips (two-way), where a driver is already on the road network but diverts to the supermarket.

To determine the diverted trips, from the plans provided we have reviewed the number of existing residences in Wanaka, plus lots that are zoned but undeveloped, that are closer to the proposed supermarket than to the New World supermarket in the town centre. This shows that there is a total of 3,395 residences for which this will be the closest supermarket:

- Peninsula Bay: 350 residences;
- 30% of Eely Point: 260 residences;
- Kirimoko: 300 residences;
- Aubrey Road: 215 residences;
- Albert Town⁴: 900 residences;
- Hikuwai: 200 residences;
- Allenby Farms: 350 residences;
- Northlake: 800 residences; and
- Urquhart land: 20 residences.

Taking into account that traffic associated with Northlake, Allenby Farms, Hikuwai and Urquhart land can use the internal roading network within the subdivisions, this then means that 60% of the diverted trips could be made from locations external to those subdivisions.

³ See for example

<https://static1.squarespace.com/static/5591f57ee4b07952c1a4d8bd/t/56c18936ab48de9e3b0f252e/1455524152776/Steedman%2C+Harrison+-+Paper+65+-+Pass-by+and+diverted+trip+rates+of+supermarkets+in+Christchurch.pdf>

⁴ There are some shops within Albert Town but these are small and will only typically provide for a small proportion of residents' grocery needs. Since the proposed supermarket will have a larger floor area, and will therefore have a wider range of goods, we consider that Albert Town residents will make use of the facility.



Overall then, this means that at the peak times, the supermarket could result in an additional 38 vehicle movements (two-way) being newly generated on Aubrey Road due to vehicles travelling to and from the supermarket, plus a further 38 vehicle movements (two-way) on Aubrey Road due to drivers that are diverting. Of these, we expect that 50% will be associated with the eastern part of Aubrey Road, since 50% of the total number of residences lie in this direction⁵.

Consequently, the additional traffic movements due to the supermarket that are external to the Northlake / Allenby Farms / Hikuwai subdivisions will be:

- 19 vehicles entering from Aubrey Road (east), plus 19 vehicles exiting onto Aubrey Road (east); and
- 19 vehicles entering from Aubrey Road (west), plus 19 vehicles exiting onto Aubrey Road (west)

Traffic Effects

The supermarket access will accommodate peak traffic flows of 94 vehicles entering and 94 vehicles exiting in the peak hours. On average, this equates to one vehicle movement every 19 seconds (that is, one entry every 38 seconds and one exit every 38 seconds) which is well within the capacity of a typical priority access or intersection.

Northlake Drive itself has ample capacity to accommodate these vehicle movements.

The Aubrey Road / Outlet Road intersection will accommodate traffic flows of 19 vehicles turning right from Aubrey Road (east) onto Outlet Road, plus 19 vehicles turning left from Outlet Road onto Aubrey Road (east). These volumes of traffic equate to an average of one vehicle movement every 1.6 minutes, and are likely to be imperceptible. We also note that this intersection already has an auxiliary right-turn lane providing additional capacity for the east-to-north movement.

Vehicles approaching from the west on Aubrey Road have a choice of routes, including Northburn Road, Mt Linton Avenue and Outlet Road. Our measurements show that each route is approximately equidistant, and so in terms of journey distance, no route is more favourable than the others. However it is likely that the route via Outlet Road will be the quicker, due to a higher design speed, fewer intersections to negotiate and a reduced potential for encountering cars manoeuvring to or from private driveways.

If vehicles were to use Northburn Road, Mt Linton Avenue and Outlet Road equally then the increase in traffic would equate to peak hour volumes of 13 vehicle movements (two-way), or one vehicle movement every 5 minutes, on each road. Conversely, the use of only Outlet Road would result in an increase in traffic of 38 vehicle movements (two-way). In either case, the increase will not be perceptible, and the Aubrey Road / Northburn Road, Aubrey Road / Mt Linton Avenue and Aubrey Road / Outlet Road intersections have sufficient capacity to accommodate the increase without any material changes in queues and delays.

It should also be noted that the traffic attracted to the supermarket from external locations (Peninsula Bay, Eely Point, Kirimoko, Albert Town etc) would have otherwise purchased groceries elsewhere and would therefore have created effects on the roading network in other locations in Wanaka. The proposed supermarket therefore has a benefit in reducing transportation effects elsewhere in the town.

⁵ Peninsula Bay (350) plus Eely Point (260) plus Kirimoko (300) to the west, Albert Town (900) to the east

Connectivity by Other Modes

The proposed location of the supermarket is well positioned with regard to the bulk of the Northlake area. It is typically accepted that the maximum viable walking distance to a destination is 1km, with a 3km distance being cyclable. All of the site lies within 3km and most is within 1km.

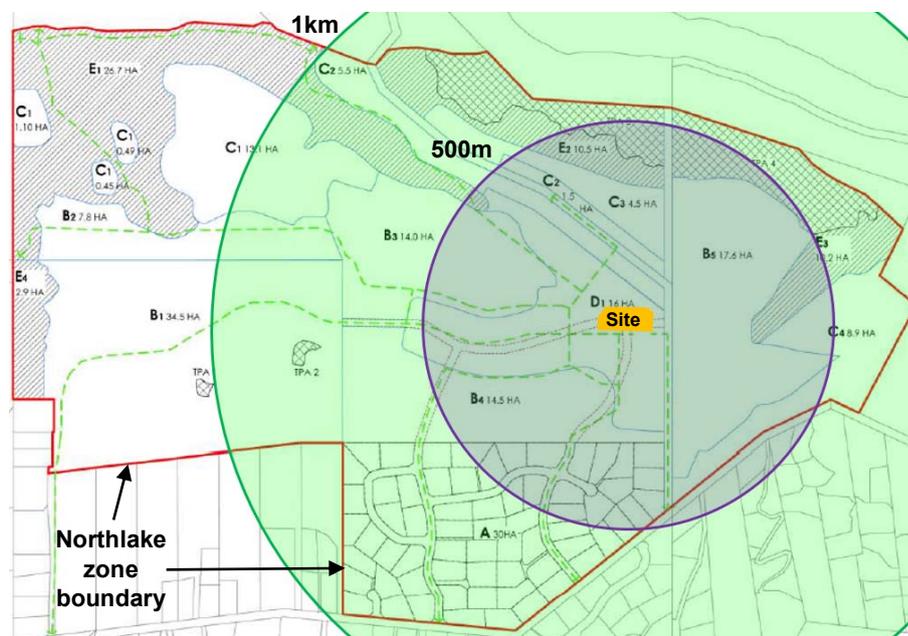


Figure 3: 500m and 1km Isodistances from the Supermarket Site

As such, walking and cycling to the supermarket are reasonable travel options. The site is also contiguous with the other (consented) facilities within the village centre which means that people can travel once and visit several destinations during the same trip, thereby minimising the need to travel.

The site is immediately adjacent to Northlake Drive, which has been designed to be suitable for buses, and which also forms the spine of a walking and cycling network within the subdivision. The existing roads in the area all have footpaths.

We therefore consider that the supermarket would be located such that it is accessible by a range of travel modes rather than being reliant on private car use, and that the need to travel is minimised through customers being able to visit multiple destinations as part of the same trip.

Summary

Based on our analysis, the supermarket will generate up to 188 vehicle movements in the peak hours, but only 38 additional vehicle movements on Aubrey Road (east) and Aubrey Road (west) will occur as a result of the majority of traffic being on the internal Northlake and environs roading network.

The small changes in traffic flows can easily be accommodated on the road network, and the Anderson Road / Aubrey Road intersection continues to work satisfactorily.

The supermarket would be located within a viable walking and cycling distance of much of the residential development within Northlake and is immediately adjacent to any potential bus route which may use Northlake Drive. Northlake Drive itself is the spine of an internal walking and cycling network, which provides a high-quality route throughout the subdivision.



Cumulative Effects of the Plan Change Request

Taking into account both the proposed rezoning and the supermarket, there could be a total increase of 108 vehicle movements (two-way) compared to the existing zoning provisions⁶. Of these, 67 vehicles (two-way) would use Aubrey Road (west) with 41 vehicles (two-way) using Aubrey Road (east)⁷.

The greatest of these increases occurs on Aubrey Road (west), but even then, it is equivalent to around one vehicle movement every minute during the busiest periods. In our view this will not be noticeable, and it is insufficient to create any efficiency or road safety effects.

Other Plan Change Provisions

The types of activity that could occur if the plan change request was to be approved are relatively common, and do not have any unusual transportation-related characteristics. As such, we do not consider that there will be a need to vary any of the operative transportation-related Site Standards as part of this plan change request, and we understand no such variations are proposed. In the unlikely event that any of the operative Site Standards are not met, a resource consent application will be made and the effects of the non-compliance will be assessed at that time.

Conclusions

Overall, we consider that the traffic generated by the proposed plan change is relatively small. There is little difference in the traffic generation between the proposed rezoned land towards the north of Northlake and that which can already occur as of right, regardless of whether this area is used for medium density residences or a retirement village.

The small supermarket is likely to primarily attract customers from the Northlake, Hikuwai and Allenby Farms subdivisions, but there will be some additional traffic which will be generated from existing (external) subdivisions. However this can be accommodated on the road network without adverse outcomes in respect of safety or efficiency.

The cumulative changes in traffic flows are small, and even the greatest change (which occurs on Aubrey Road (west)) equates to only one additional vehicle movement every minute in the peak times. In our view, this will be unnoticeable.

All areas are well-located to support travel options, including walking and cycling, and the proximity of Northlake Drive means that the proposed activities are well-placed to support a public transport service through the site. In particular, a retirement village would be adjacent to the community facilities within the village centre meaning that these are within a viable travel distance even for those with reduced mobility. The supermarket would be similarly adjacent, which means that several facilities can be visited by customers during the same trip, thereby reducing the need to travel.

⁶ An additional 32 vehicles arising from the rezoned areas if used for medium density residential, plus 76 new and diverted trips associated with the supermarket.

⁷ Towards the west: 32 vehicle movements arising from the residential component x 90%, plus 50% of the 76 vehicle movements due to the supermarket. Towards the east: 32 vehicle movements arising from the residential component x 10%, plus 50% of the 76 vehicle movements due to the supermarket.



Given that the activities under the proposed plan change are not unusual, we do not consider that there is any requirement to include additional transportation-related provisions or to seek to depart from the Site Standards of the operative District Plan.

Consequently, we are able to support the plan change request from a transportation perspective.

I trust that this is of assistance, but please do not hesitate to contact me if you require anything further or clarification of any issues.

Kind regards

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