

TP Consulting

Technical Memorandum

To	Ms Rachel Murdoch	
From	Tony Penny, TP Consulting Limited	Reference 10018
Subject	Hāwea Wānaka – Sticky Forest - Additional Large Lot Residential zoning Transport Assessment	

1 INTRODUCTION

- 1.1 This memorandum addresses further transport matters relating to an appeal by R T Bunker and L M Rouse (*the Appellants*) on the zoning of a 50.67 hectare (ha) block of land in Wānaka known as Hāwea Wānaka - Sticky Forest (*the Site*).
- 1.2 That appeal sought:
 - (a) The proposed rezoning of approximately 11 ha on the eastern side of the Site to Lower Density Suburban Residential (*LDSR*).
 - (b) The proposed rezoning of approximately 6.6 ha on the western side of the Site to Large Lot Residential (*LLR*).
 - (c) The remainder of the Site was proposed to retain its Rural zoning.
- 1.3 The proposed legal road access to the Site was identified as being through the adjacent Northlake road network to the east of the Site.
- 1.4 The Appellants produced an indicative subdivision layout plan for the Site which confirmed that approximately 150 lots could be delivered across the proposed LDSR and LLR zones.
- 1.5 TP Consulting Limited provided transport evidence in support of the Appellants' proposal which indicated that the traffic associated with enabling those 150 residential lots on the Site could be efficiently and safely accommodated by the proposed access. That evidence is attached to this report as **Appendix 1** (*Transport Evidence*).
- 1.6 In its decision on the appeal, the Environment Court invited the Appellants to seek directions from the Court under section 293 of the Resource Management Act 1991 (*RMA*) to extend the LLR zone (further than what was initially contemplated under the appeal) over 7 ha of Rural zone on the western edge of the Site, as outlined in red on Figure 1 below (*Remnant Area*).

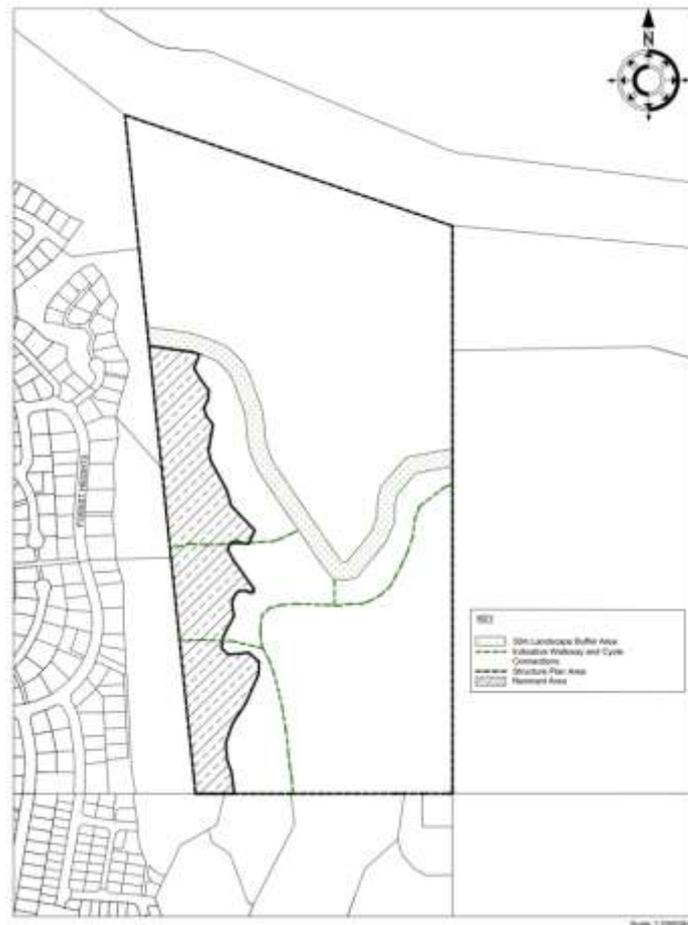


Figure 1: Proposed zoning under the appeal (showing the Remnant Area)

- 1.7 Rezoning the Remnant Area to LLR is expected to enable up to an additional 35 residential lots (zoned LLR). The indicative subdivision plan (included as Figure 4 below) shows a plausible yield of 26 additional units, however recognising the indicative nature of this plan for assessment purposes 35 extra lots have been used.
- 1.8 This technical memorandum assesses whether the traffic effects generated by those additional lots can be accommodated efficiently and safely within the transport network.

2 UPDATES TO THE EXISTING ENVIRONMENT

- 2.1 Since the completion of the Transport Evidence, there have been a number of developments relating to the transport environment surrounding the Site.
- 2.2 The three-leg intersection of Aubrey Road and Anderson Road has been upgraded to a roundabout. This addresses safety and efficiency concerns associated with the increasing traffic volumes through the intersection, largely generated by the on-going development of Northlake. This improvement had been planned for some time and was contemplated by the earlier transportation assessments associated with Northlake and in the Transport Evidence.
- 2.3 A new access for Northlake has been provided through the intersection of Joe Brown Drive and Aubrey Road. This access, shown in Figure 2 below, provides an alternative exit

particularly for the traffic generated by the Hikuwai subdivision (approximately 200 lots), which in previous transport assessments had been assumed to use the Outlet Road / Aubrey Road intersection.



Figure 2: Northlake road network

- 2.4 It is noted that construction of the Allenby Farms subdivision has commenced and so the associated road network will be available when the Site is developed. As outlined in my Transport Evidence (Scenario 2), that will allow traffic generated within the Site to use Northburn Road more than Outlet Road to access Aubrey Road.

3 THE REVISED PROPOSAL

- 3.1 The final plan provisions submitted for approval to the Environment Court do not include a minimum or maximum number of lots that could be realised on the Site under the respective residential zones.
- 3.2 However, to assist with the preparation of evidence as part of the appeal, the Appellants produced an indicative subdivision layout plan with a preliminary road layout, using the minimum lot sizes for the LDSR and LLR zones, which indicated that approximately 150 lots could be delivered across the rezoned area. That plan is included as Figure 3, below.



Figure 3: Indicative Subdivision Plan (excluding the Remnant Area)

- 3.3 Following the Environment Court decision and to assist with the investigation of the Remnant Area rezoning, an updated subdivision layout plan for the Site, with the LLR zoning extended over the Remnant Area, has been prepared using the minimum lot sizes and incorporating a revised preliminary road layout. That plan, included below as Figure 4, indicates that approximately 176 lots could be delivered across the (now extended) rezoned area. Recognising the indicative nature of that plan, I have considered the traffic implications of 185 lots (35 lots in the Remnant Area).



Figure 4: Indicative Subdivision Plan (including the Remnant Area)

- 3.4 The subdivision roading configuration is very similar to the previous iteration of the indicative plan with one exception. The road extending north from the centre of the Site is proposed to loop through the Remnant Area to service both the existing and additional LLR zone on the western side of the Site. This is more convenient than the relatively long cul de sacs that were previously required to service the smaller LLR zone in that vicinity.
- 3.5 The configuration of the road that extends to the eastern boundary of the Site, linking to the Northlake access route, remains the same with a 20m road reserve.
- 3.6 The approved legal access to the Site that is identified in the Northlake structure plan is shown in Figure 5 below (the Site adjoins the western boundary shown).

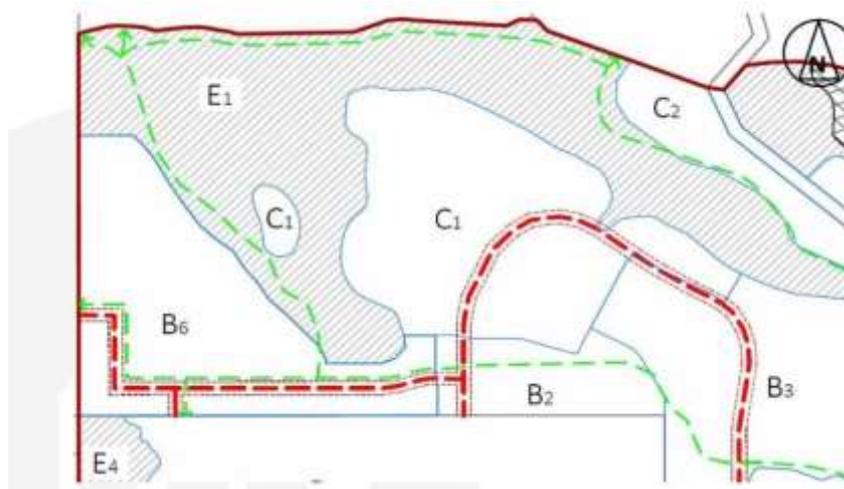


Figure 5: Legal road easement for Sticky Forest access

- 3.7 Figure 6 below shows how the legal access route for Sticky Forest (shown in red) links the Site via existing and future roads within Northlake to the intersection of Riverslea Road and Northlake Drive. The access route then follows Northlake Drive and Outlet Road to Aubrey Road which is classified as a collector road in the QLDC roading hierarchy. All the roads within Northlake that form the Sticky Forest legal access are classified as main roads in the Northlake roading hierarchy.



Figure 6: Northlake road network including Sticky Forest access

4 ASSESSMENT

Site access

- 4.1 My Transport Evidence identified that the roads proposed to provide legal access to the Site (that is, the local Sticky Forest access link road, Stonehenge Road, Riverslea Road, Northlake Drive and Outlet Road) all have adequate capacity to accommodate the traffic generated by 800 dwelling units. This is based on each road (except Outlet Road) at least meeting the residential collector road classification (E13) of QLDC's Land Development and Subdivision Code of Practice.
- 4.2 While Outlet Road does not have the specified carriageway width for a collector road, it is a high standard "main" road which has no on-street parking and very few accesses to adjacent lots. It is assessed as having the capacity to service a catchment of even more than 800 dwellings. Accordingly, each road forming the legal access route for the Site has a capacity that exceeds its catchment where the catchment includes the Site as well as the respective areas of the Northlake development.
- 4.3 A review of each of the individual road catchments has identified that an additional 35 dwellings on the Site would not result in any of the roads forming the access route exceeding their capacity.
- 4.4 Previous analyses determined that the performance of the Outlet Road / Aubrey Road intersection would be the determining factor associated with the traffic efficiency of the Northlake road network. My Transport Evidence noted two mitigating issues in terms of that performance. Firstly the traffic generation rate for such a large catchment area with many holiday homes, as opposed to primary residences, is lower. Secondly with the development of the Allenby Farms site, more traffic is likely to use Northburn Road and avoid the Outlet Road intersection.
- 4.5 Since my Transport Evidence was completed, an additional intersection on Aubrey Road to the east of Outlet Road at Joe Brown Drive has been formed. This provides an alternative exit, particularly for the traffic generated by the Hikuwai subdivision, and will divert traffic from the Outlet Road / Aubrey Road intersection. Therefore, the revised forecast for the

traffic volumes at the Outlet Road / Aubrey Road intersection, with the additional 35 lots in the Remnant Area, would be less than previously predicted and the delays would be lower, resulting in an acceptable level of service.

- 4.6 A search of the New Zealand Transport Agency Crash Analysis System identifies that there has been only one minor injury accident recorded on the Northlake Road network over the last 10 years with no fatal or major injury accidents. During this period only seven non-injury crashes were recorded. This indicates that there are no inherent road safety issues associated with the network as it has been developed over that time and no reason to expect that the future network will experience major road safety issues with the forecast future traffic flows.
- 4.7 These factors help to ensure that the additional 35 lots on the Site could be accommodated by the proposed legal access through Northlake without adversely affecting the efficiency or safety of the road network.

Subdivision

- 4.8 The updated subdivision plan accommodating those additional lots is, as I have stated, indicative only. However, based on my review of that layout:
- (a) The configuration of the link road to Northlake within the indicative layout for the would remain the same. With a 20m road reserve, it will exceed the design standards for a residential local road (E12).
 - (b) All other roads in that indicative subdivision would meet the E12 standard with road reserves that will be 15m wide.
 - (c) With 185 lots in the subdivision, no road would service more than the maximum specified for E12 roads (200 dwellings). This will ensure that an effective and safe transport environment can be provided within the subdivision.
 - (d) Adequate sight distances would be provided to ensure that the intersections, road sections and accesses to adjacent lots will be able to operate safely.
- 4.9 The other safety measure relating specifically to the new loop road would be to ensure that the gradient of the road is designed to be less than the 12.5% required by QLDC's subdivision design code. This is addressed by the infrastructure report.
- 4.10 It is also expected that the lots adjoining that road can be contoured sufficiently to allow for driveway gradients that are less than the operative QLDC District Plan maximum of 1 in 6 (refer section 14.2.4.2(iii)).

5 CONCLUSION

- 5.1 Based on the revised transport assessment above, it is concluded that 35 additional residential dwellings could be constructed within the Remnant Area without causing any unacceptable transport efficiency or safety effects on the proposed road layout for the Site, or on the surrounding transport network. I therefore support the rezoning of the Remnant Area to LLR from a transport perspective.

APPENDIX 1 – TRANSPORT EVIDENCE

**BEFORE THE ENVIRONMENT COURT
AT CHRISTCHURCH**

**I TE KŌTI TAIAO O AOTEAROA
ŌTAUTAHI ROHE**

ENV-2018-CHC-069

IN THE MATTER OF

the Resource Management Act 1991
(*RMA*)

AND

IN THE MATTER OF

an appeal under clause 14 of the
First Schedule of the RMA in relation
to Stage 1 Topic 16 of the Proposed
Queenstown Lakes District Plan

BETWEEN

R T BUNKER AND L M ROUSE

Appellants

AND

**QUEENSTOWN LAKES DISTRICT
COUNCIL**

Respondent

**STATEMENT OF EVIDENCE OF TONY PENNY ON BEHALF OF THE
APPELLANTS**

(Transport)

Dated: 22 September 2022

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LAWYERS
CHRISTCHURCH
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MAY IT PLEASE THE COURT:**1 INTRODUCTION, QUALIFICATIONS AND RELEVANT EXPERIENCE**

- 1.1 My name is Anthony Thomas Penny.
- 1.2 I am a Fellow of the Institute of Professional Engineers of New Zealand Civil Engineers and I hold a Bachelor Degree in Mathematics and a Bachelor Degree in Civil Engineering from the University of Canterbury.
- 1.3 My background of experience includes over 40 years in traffic engineering and transportation planning with the Christchurch City Council, the Department of Transport in the United Kingdom, the MVA Consultancy in Hong Kong, and Traffic Design Group Limited (*TDG*), Stantec and TP Consulting in New Zealand. I have worked for over 30 years practising as a traffic engineering specialist on projects throughout New Zealand. I now work as an independent consultant through my company TP Consulting Limited, advising on the full range of transportation issues covering safety, management and planning matters.
- 1.4 I was initially engaged by the Appellants in 2021 to review and provide advice on the form of legal road access to the area of land in Wānaka known as 'Sticky Forest' (the *Site*), which was proposed as part of the Northbrook Retirement Village resource consent application lodged by Northlake Investments Limited (*NIL*). That application was processed under the COVID-19 Recovery (Fast-track Consenting) Act 2020 (*FT Act*). My findings in respect of that matter were detailed in a report that was provided as part of the Appellants' comments on that application.
- 1.5 I have since been engaged by the Appellants to review and provide evidence in respect of their proposal to zone part of the Site for residential purposes through this appeal.

Code of conduct

- 1.6 I confirm that I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2014. I have complied

with the Code of Conduct in preparing this evidence and will continue to comply with it while giving oral evidence. Except where I state that I am relying on the evidence of another person, this written evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

2 SCOPE OF EVIDENCE

2.1 My evidence addresses the proposed legal access to Sticky Forest, and in particular, the suitability of that access to accommodate the likely transport movements associated with the proposed zoning of part of the Site for residential purposes.

2.2 In preparing this evidence, I have reviewed and relied upon:

- (a) The Winton Property Ltd (*WPL*) Northbrook Retirement Village, Transport Assessment Report by Carriageway Consulting.
- (b) My report *on the proposed Sticky Forest Road Access prepared for the Northbrook Retirement Village resource consent application in June 2021*.
- (c) The NIL proposed plan change, Transport Assessment Report by Carriageway Consulting.
- (d) The structure plan for the Northlake proposed plan change area adjacent to Sticky Forest
- (e) The outline subdivision roading plans for the Northlake and Allenby Farms subdivisions.
- (f) Queenstown Lakes District Council's Proposed District Plan hearings documents.

3 THE SITE

3.1 The Site is a 50.67 hectare (*ha*) block of land in Wānaka which adjoins existing residential neighbourhoods to the west and south. The Outlet Road camping ground sits to the immediate north of the Site, separating it from Lake Wānaka.

- 3.2 The 'Northlake' residential development is located to the east of the Site. The immediate eastern interface with the Site is currently bare, open space. It is the subject of a plan change sought by NIL to rezone that area for residential development.
- 3.3 There is currently no legal vehicle access to/from the Site. The NIL updated development structure plan which forms part of the plan change referred to above includes a road network that will provide access to the Site.

4 THE PROPOSAL

- 4.1 The proposal that is the subject of this appeal is set out in full in the evidence of Mr Chrystal. Of most relevance to this evidence, is that the proposal includes:
- (a) The proposed zoning of approximately 11 ha in the eastern side of the Site as Lower Density Suburban Residential.
 - (b) The proposed zoning of approximately 6.6 ha in the western side of the Site as Large Lot Residential.
- 4.2 The remainder of the Site is proposed to retain its Rural zoning.
- 4.3 The proposed plan provisions sought through the appeal do not currently include a minimum or maximum number of lots that can be realised under the respective residential zones. However, the Appellants have produced an indicative subdivision layout plan using the minimum lot sizes for these zones, and incorporating a draft roading layout. That plan, included in my evidence as Figure 1 (below), indicates that approximately 150 lots could be delivered across the two residential zonings.

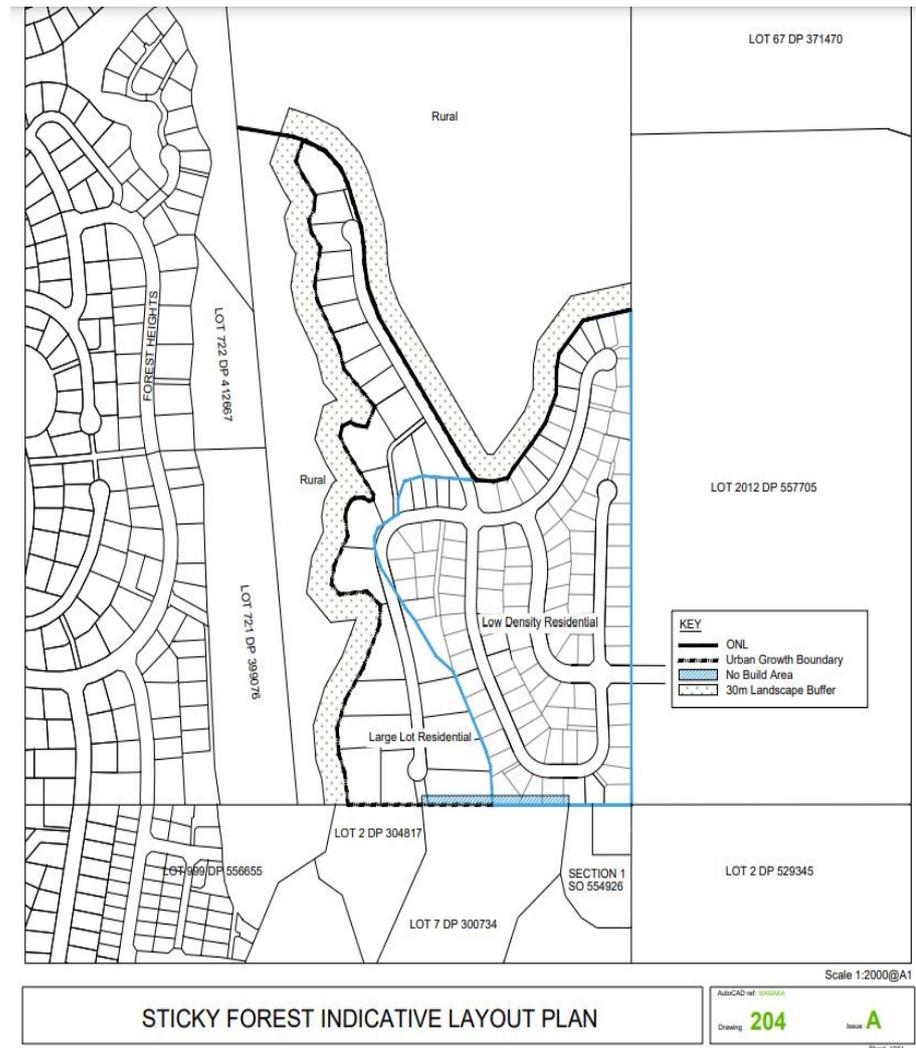


Figure 1: Indicative Subdivision Layout for Sticky Forest

- 4.4 There are no proposed changes to the existing transport rules within the proposed Queenstown Lakes District Plan as part of this appeal. However, the plan provisions proposed by the Appellants for the new residential areas specifically prevent any new use or development of the Site (except in relation to forestry harvesting) until a vehicle access to the zone, which meets at least Standard E12 in Table 3.2 (Road Design Standards) of the Queenstown Lakes District Council Land Development and Subdivision Code of Practice 2018, has been legally secured and physically constructed.

5 PROPOSED LEGAL ACCESS

Background

- 5.1 During the processing of the Northbrook Retirement Village application under the FT Act, NIL proposed conditions on that resource consent which are aimed to provide legal access to the Site

through the Northlake land. Those conditions are set out in full in **Appendix A**, but in short, I understand that they require that:

- (a) a private plan change request is lodged in respect of the undeveloped land owned by the applicant located to the immediate east of the Site;
- (b) that plan change request includes provision for a legal route for road access (including a route for other infrastructure services) connecting the Site to roading and other infrastructure services already installed in the Northlake Special Zone enabling servicing of the development within the Site; and
- (c) accompanying the plan change request is an executed deed to secure and implement that access. The primary mechanism through which that access is to be secured is through granting of an easement in gross in favour of the Council and/or the Crown.

5.2 A plan change in accordance with those conditions was lodged in February 2022, accompanied by a transport assessment which I have reviewed. I understand the plan change was also accompanied by the requisite deed executed by NIL which accords with the applicable conditions of the Northbrook resource consent, confirming that the applicant will grant an easement to enable legal access to the Site. I understand that consistent with the requirements of the Northbrook resource consent, the deed is conditional only upon:

- (a) the Site being zoned to enable any form of development which requires that access; and
- (b) the access being approved through, and as a consequence of, the private plan change request or other form of consent.

Access Form

5.3 The proposed legal access to the Site that is identified in the proposed structure plan for the Northlake Plan Change is shown in Figure 2 below.

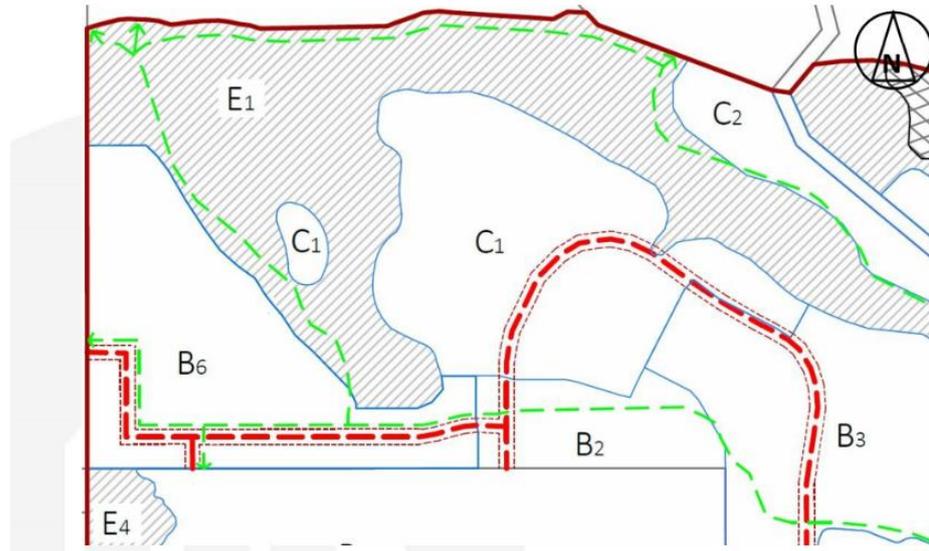


Figure 2: Legal Road Easement for Sticky Forest Access

- 5.4 As can be seen in Figure 3 below, the legal access route (shown in red) would adjoin the Site and follow future roads within Northlake to the existing termination of Riverslea Road which is classified as a main road in the Northlake roading hierarchy. That hierarchy and the other existing roads are also shown in Figure 3.



Figure 3: Northlake Road Network Including Sticky Forest Access

- 5.5 In the future, Riverslea Road will loop around in a semi-circle and end up heading south at the boundary with Allenby Farms land. Just north of the boundary there will be a T-intersection and a road (Stonehenge Road) heading west towards the boundary with the Site. It is anticipated that the initial section of this road will provide access to the approximately 60 future residential development lots associated with the proposed Northlake Plan Change. The road will then turn north and extend parallel with the Site boundary to connect

with an access to a reservoir already installed by Northlake near the northwest corner of its site.

- 5.6 It is proposed that the access easement should follow this route towards the reservoir and branch off the reservoir access road about 100m north of the bend in that road and extend to the west to the Sticky Forest boundary where it will link to the future road network within the Site illustrated indicatively in Figure 1 above.
- 5.7 The easement is required to accommodate a road that meets at least Standard E12 of the Council's Land Development and Subdivision Code of Practice. As such it would need to have a minimum road reserve width of 15m wide and could accommodate up to 200 dwelling units which would be adequate with the Site only expected to accommodate about 150 dwellings.
- 5.8 Despite that I understand that the access road is proposed to take the form of a Northlake Main Road and be 20m wide. This width would allow for any other infrastructure facilities that might be required to share the easement with the proposed access road. The Council's Code of Practice indicates that the 20m wide residential road would accommodate up to 800 dwelling units and as such is more than adequate to service the Site.
- 5.9 In reviewing the proposed transport network I note that despite the intended access route there is some possibility that traffic from the Site would not use that part of the access easement route formed by the semi-circular section of Riverslea Road, but would instead use the more direct route via the proposed extension of Lammermoor Street (see the "through road" shown in purple on Figure 3 above) which will connect to Riverslea Road near its intersection with Stonehenge Road.
- 5.10 As shown in Figure 3, Lammermoor Street is proposed to be a (green) local road which will service some 50 dwelling units. If the traffic generated by the full development of Sticky Forest and the traffic generated by the proposed Northlake plan change dwellings adjacent to the initial section of the access road (Stonehenge Road) were to use Lammermoor Street, as well as the traffic generated from the areas adjacent to Lammermoor Street, the traffic loading could relate to about 250 dwelling units. Accordingly, the local road

standard would not be adequate. It might then be necessary to install traffic calming devices along Lammermoor Street to discourage traffic from short-cutting along that route and instead encourage the use of Riverslea Road.

5.11 Riverslea Road and Northlake Drive both have more than enough capacity as main roads to accommodate the traffic generated by their Northlake catchments as well as the Sticky Forest traffic, because there are less than 800 dwelling units involved.

5.12 Outlet Road, which is shown below in Figure 4 as part of the wider Northlake road network, will serve slightly more than 800 dwellings when the full development of its catchment area has been completed. However, it is a high standard main road which has a 20m wide road reserve with no kerbside parking and very few accesses to adjacent lots. Accordingly it has more than enough capacity. The more significant issue will be the capacity of the Outlet Road intersection with Aubrey Road which is the major road serving the general area. I address this later in my evidence.

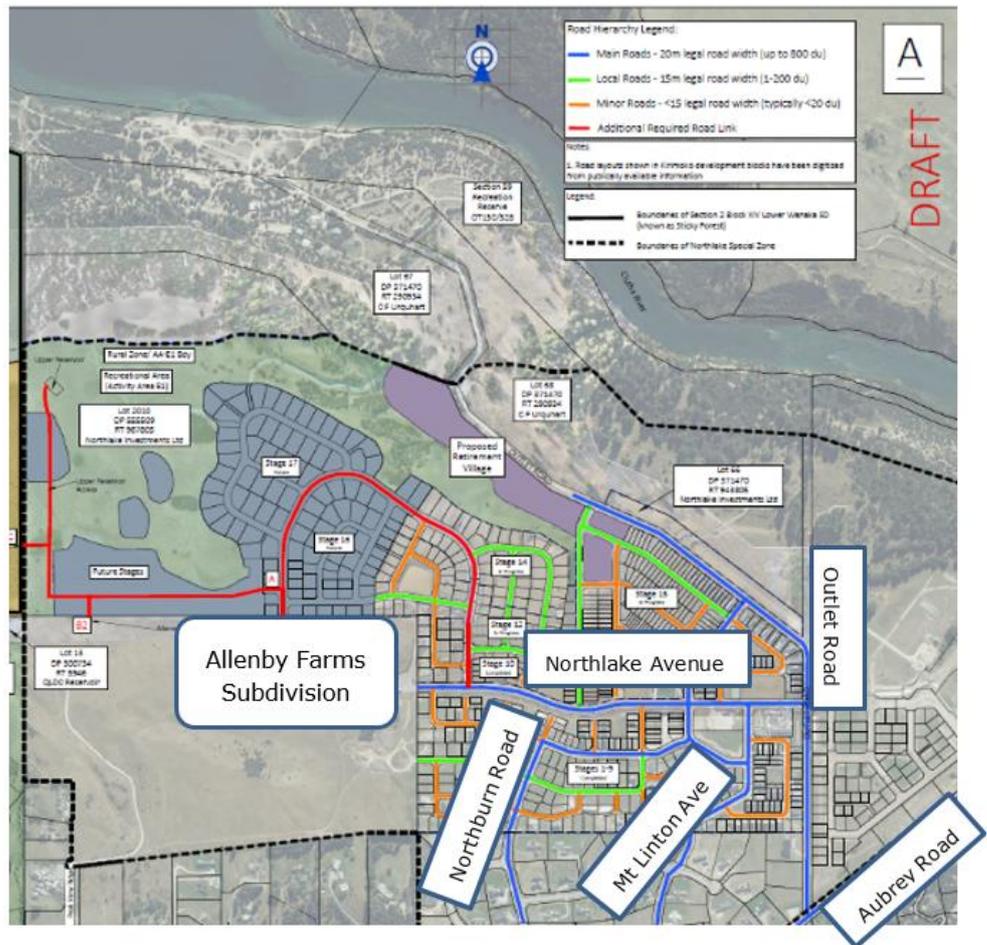


Figure 4: Full Northlake Road Network

Future Additional Access Route

5.13 When the Allenby Farms subdivision is constructed I consider that it would provide an additional/alternative and more convenient access route to the Sticky Forest Site that would further resolve the Lammermoor Street issue identified above. As shown in Figures 2-4, a stub end branch off the main access easement is shown where Riverslea Road extends south to the Allenby Farms boundary. This is intended to connect with the proposed Allenby Farms road network indicated in Figure 5 below.



Figure 5: Allenby Farms Subdivision Road Network

5.14 As illustrated on Figure 6 below such a connection would potentially facilitate another more direct route between the Sticky Forest access road and Aubrey Road via future roads proposed in the Allenby Farms subdivision and Northburn Road within the existing Northlake subdivision. Given that most of the generated traffic will be going to the west along Aubrey Road, in my opinion this alternative route would divert a large proportion of the traffic generated by the development of Sticky Forest (and the Northlake Plan Change area and the Allenby Farms subdivision) to Northburn Road. This would reduce the number of dwelling units being served by Outlet Road and consequently, the traffic volumes through the Outlet Road/Aubrey Road intersection.

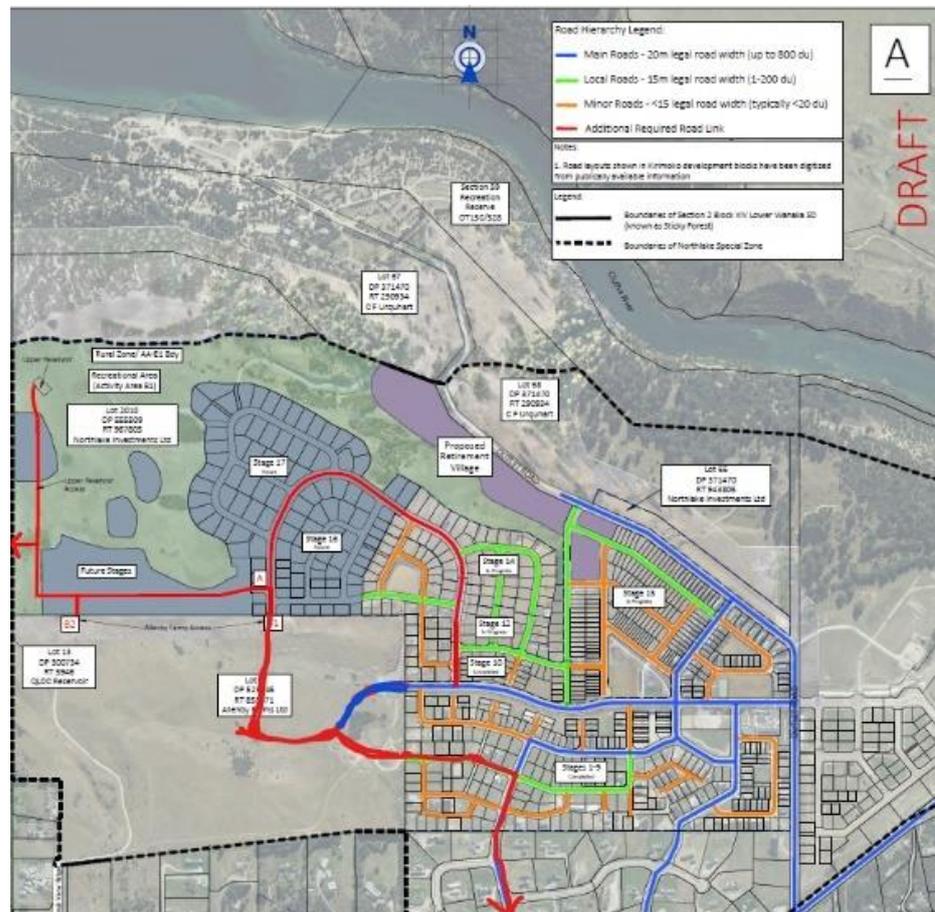


Figure 6: Alternative Sticky Forest Access Route via Allenby Farms and Northburn Road

- 5.15 The roads forming this alternative route through the Allenby Farms subdivision and the road (Mount Nicholas Avenue) within Northlake linking to Northburn Road are likely to be local roads that can serve up to 200 dwelling units. The Sticky Forest Site would accommodate about 150 dwellings, the Northlake plan change site 63 dwellings and Allenby Farms about 350 dwellings. Not all these dwellings would need to be served by this route but it is likely that more than 200 dwellings would be served.
- 5.16 Accordingly, in such a scenario the appropriate roads within the Allenby Farms subdivision may need to be upgraded. Mount Nicholas Avenue has already been formed so it may be necessary to add traffic calming facilities to manage the potential traffic volumes and divert some more along Northlake Avenue to Outlet Road.
- 5.17 Northburn Road is expected to serve the dwellings in its local catchment (about 200) plus whatever number can be served through the Mount Nicholas Avenue connection. Northburn Road is a Northlake main road and as such can serve up to 800 dwellings. The

maximum possible number of dwellings served by Mount Nicholas Avenue will be less than 400 dwellings in my opinion and so there will be no issues with the future operation of Northburn Road. I address the operation of the intersection of Northburn Road and Aubrey Road later in my evidence.

6 TRAFFIC GENERATION RATES

- 6.1 Using a conventional traffic generation rate of 8 vehicle movements per day per dwelling unit, a 150 lot subdivision would result in a daily traffic generation of 1200 vehicle movements two-way. However I consider that this generation rate which is used for most residential areas elsewhere, is conservatively high for Wānaka and Sticky Forest for the following reasons.
- 6.2 In Wānaka and similar holiday destinations the census data shows that dwellings in peripheral urban areas were less than 70% occupied on the night of the census in 2018. The census data for the area around Sticky Forest (North Wānaka) indicates that only 65% of these occupants were in full time employment and that some 20% of those employed worked from home while about 15% walked or rode a bicycle to work.
- 6.3 Also when people are using holiday homes they tend not to travel so often during peak commuter periods. Accordingly the actual traffic generation rate for dwellings in Wānaka is lower than rates associated with dwellings in standard urban areas without the same number of holiday homes and with fewer retired people, particularly in peak commuter periods.
- 6.4 A daily traffic generation rate of 8 vehicle movements per dwelling might even be high for occupied dwellings in Sticky Forest because people living in areas relatively remote from service facilities, workplaces, recreation activities, etc. tend to plan their trips more carefully, linking different activities in the course of a single trip to avoid the relatively long extra trips.
- 6.5 Further, the average generation rate per dwelling drops when larger groups of houses are assessed together. This is the case for Sticky Forest because the potential for the trips generated by the Site to have an adverse effect will be greatest at the intersection(s)

providing access to Aubrey Road where the Sticky Forest traffic will be combined with traffic from the large Northlake traffic catchment(s).

- 6.6 Trips considered as being generated by separate individual dwellings in a large catchment area can actually be part of a single linked trip as far as the overall area is concerned. For example when a delivery or service vehicle visits two houses in the area this is counted as two generated vehicle movements (arrival and departure) for each dwelling but for the overall area it is only two vehicle movements (one in and one out). Accordingly the generation rate per dwelling is less.
- 6.7 Another example of linked or shared trips would be a person living in Sticky Forest picking up another person living nearby to travel into the centre of Wānaka. These associated vehicle movements would be considered to be part of the conventional 8 vehicle movements per dwelling per day for each dwelling resulting in 3 movements (one departure movement for the initial dwelling and an arrival and a departure movement for the second dwelling) but in terms of the effect on the wider road network they are involved in only one vehicle movement leaving the Northlake area.
- 6.8 These effects are clearly demonstrated in transportation network models which are based on areas or zones where generation rates are applied to dwellings in the zones. These models are calibrated to replicate existing traffic counts observed on the road network between zones and to achieve a suitable match the residential dwelling generation rates need to be lower than 6 vehicle movements per day depending on the size of the zones.
- 6.9 This reduction in individual dwelling generation rates reflects linked trips such as with delivery vehicles noted above or when a car driver picks up another person at a nearby house as part of a shared trip. Another way of explaining this issue is to consider that even if each dwelling on average generated 8 vehicle movements per day, only 6 of those movements would involve trips beyond the Northlake/Sticky Forest area.
- 6.10 The 150 dwellings in Sticky Forest are part of a wider "catchment zone" when considering the most important traffic effects of the

proposed access easement which is at the intersections on Aubrey Road. It is necessary to also consider all of the traffic generated in Northlake as this is included in the traffic catchment zone for the intersections. The reduced traffic generation rate applied to the dwellings in this wider zone also reflects intra-zonal vehicle movements where for example a person from Sticky Forest makes a single purpose vehicular trip to a commercial facility in Northlake. This is part of the individual traffic generation for that dwelling but it does not involve a trip beyond the catchment zone. Therefore the average generation rate per dwelling applied to the overall catchment analysis is again reduced.

- 6.11 This reduction in the effective traffic generation rate for larger areas is also supported by the following assessments. A traffic count taken on Beacon Point Road south of Roto Place in 2012 indicated a two-way daily traffic volume of some 1,400 vehicles. Based on Google Earth aerial photographs taken in 2012, the number of dwellings in the Beacon Point Road catchment area at that time was about 250. This equates to a traffic generation rate of about 5.5 vehicle movements per day per dwelling for that area.
- 6.12 Similarly Peninsula Road which provides the only access to Kelvin Heights in Queenstown, was assessed in 2010 to have a two-way daily traffic volume of about 3,000 vehicle movements when there were some 560 dwellings in Kelvin Heights. This again relates to a traffic generation rate of some 5.5 movements per day per dwelling which is below conventional traffic generation rates.
- 6.13 The traffic generation assessments discussed above indicate that a lower traffic generation rate of say 6 vehicle movements per dwelling per day should be adopted for assessments of the traffic effects on the wider road network potentially caused by the intended residential development of Sticky Forest.
- 6.14 Even lower rates might occur outside peak holiday seasons which cover only about 3 months of the year as illustrated by the following 2015 traffic data from NZTA which records two-way monthly traffic counts on SH6 in Wānaka. This is presented in the following Figure 7 which shows that January is the busiest month of the year and that only December and February are close to matching that peak level of traffic activity.

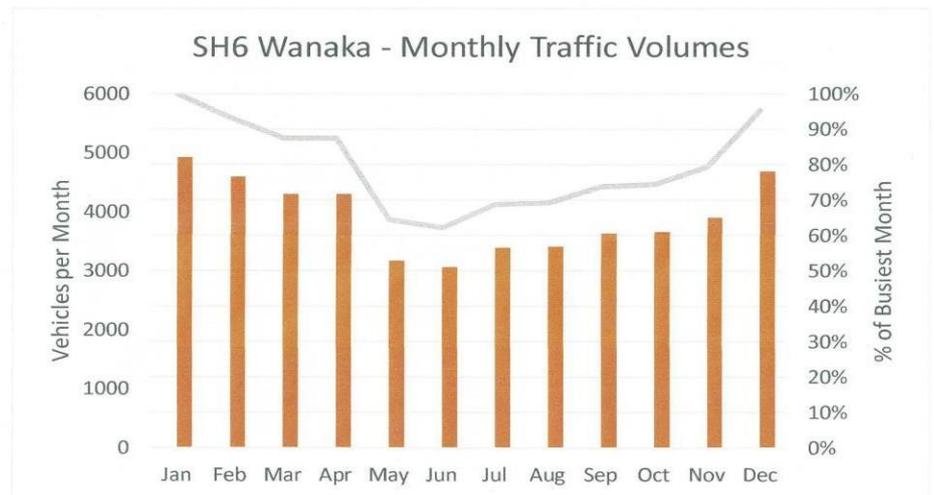


Figure 7: Monthly Traffic Counts Showing Seasonal Variation

7 STICKY FOREST TRAFFIC EFFECTS

7.1 The area around the Site is in a state of transition with consented development in the adjacent Northlake area under development, consented development at the nearby Allenby Farms site not yet started and further development on the Northlake land possible if the plan change (which facilitates site access) is approved. On that basis I have considered the following possible scenarios when assessing the effects of the proposed rezoning of the Site:

Scenario 1 – Without Allenby Farms Subdivision

Principal External Access	Outlet Road	Northburn Road
Completed development	Sticky Forest Northlake North/East Northlake Plan Change	Northlake South

Scenario 2 – With Allenby Farms Subdivision

Principal External Access	Outlet Road	Northburn Road
Completed development	Northlake North/East	Northlake South Sticky Forest Allenby Farms Northlake Plan Change

7.2 If the Site is developed in accordance with the rezoning request before the Allenby Farms site is developed (Scenario 1) then most of the traffic generated by Sticky Forest will use Outlet Road to access the wider road network. If, however, the Allenby Farms subdivision is developed before Sticky Forest (Scenario 2) then most of the traffic

generated by Sticky Forest will use Northburn Road to access the wider network.

- 7.3 Similarly, traffic generated by the proposed Northlake Plan Change area would use Northburn Road if Allenby Farms was already developed but otherwise would use Outlet Road for external trips.
- 7.4 Traffic generated by "Northlake South" (the residential area south of Northlake Avenue) would use Northburn Road (or Mount Linton Avenue) and traffic generated by "Northlake North/East" (the areas north of Northlake Avenue and east of Outlet Road) would use Outlet Road irrespective of the timing of the Allenby Farms subdivision.
- 7.5 On the basis of these assumptions I note the following effects of the Site rezoning on the transport network

Without Allenby Farms Subdivision

- 7.6 In the absence of any future access routes through Allenby Farms subdivision I expect that the proposed access easement through Northlake will result in all traffic generated by the development of Sticky Forest (that travels beyond the local area) joining the wider road network at the Outlet Road/Aubrey Road intersection. As indicated in the traffic report produced for the Northbrook retirement village FT consent application, the intersection of Outlet Road and Aubrey Road is the "most likely to be affected by any change in traffic flow". It is a T intersection with left and right turning lanes on Aubrey Road and a stop sign controlling the Outlet Road approach.
- 7.7 Based on the more appropriate traffic generation rate of 6 vehicle movements per dwelling per day, it is predicted that no more than 900 vehicle movements per day associated with the development of 150 dwellings at Sticky Forest would use the proposed access easement through Northlake to reach the Outlet Road/Aubrey Road intersection. Based on a 10% peak hour ratio, the above prediction would involve some 90 two-way movements in the morning and evening peak hours which would relate to a peak hour traffic generation rate of 0.6 vehicle movements per dwelling.
- 7.8 The traffic report produced for the FT consent application estimates that traffic volumes at the Outlet Road/Aubrey Road intersection when Northlake is fully developed will involve some 500 two way

vehicle movements using Outlet Road in peak hours. The intersection performance analysis indicates that with this level of traffic the various turning movements would experience average delays of 10.5 seconds per vehicle or less. The right turn out of Outlet Road would have the 10.5 second delay which is rated a level of service (*LOS*) B whereas all other movements would experience *LOS* A.

- 7.9 It is noted that these forecasts are based on a traffic generation rate of 0.9 vehicle movements per hour per dwelling being applied to the Northlake catchment area which I consider to be unrealistically high as explained earlier in my evidence (Section 6). If the lower generation rate of 0.6 vehicle movements per hour is applied for the reasons outlined above, then the Northlake traffic predicted to use Outlet Road would be reduced to about 350 vehicle movements per hour.
- 7.10 If the 90 vehicle movements per hour generated by Sticky Forest and the 40 vehicle movements generated by the Northlake plan change area are added, the traffic movements using Outlet Road would increase to about 480 movements in the peak hours. In other words the future two-way turning movements at the Outlet Road intersection including those associated with Sticky Forest, are likely to be virtually the same as those previously forecast for consented development in Northlake alone.
- 7.11 As with previous analyses, all traffic movements at the Outlet Road/Aubrey Road intersection are expected to operate efficiently at *LOS* B or better when the additional traffic generation associated with the Sticky Forest Site (and the Northlake plan change area) are included.
- 7.12 Other roads and intersections within Northlake will not have the same concentration of traffic and are not expected to be adversely affected by the addition of traffic generated by Sticky Forest (and by the Northlake plan change area) as indicated by the assessment of the number of dwellings served by the respective road types that was covered previously (5.11).

With Allenby Farms Subdivision

- 7.13 A further assessment has been undertaken of the effect of the Sticky Forest generated traffic using the proposed access easement with the Allenby Farms subdivision constructed. This takes account of the traffic generated by the Allenby Farms subdivision and the alternative access route that it enables to the external network via Northburn Road.
- 7.14 I expect that most traffic generated by the proposed Allenby Farms subdivision would use the Northburn Road route for access to the wider network. This is expected to involve the traffic generation of about 340 residential lots or 200 vehicle movements in the morning and evening peak hours (two-way).
- 7.15 As discussed above, there is the potential that some of the Allenby Farms traffic travelling to the east will use Northlake Drive and Outlet Road. However with the majority of the Allenby Farms traffic wishing to travel west along Aubrey Road and with a local road connection from the proposed Allenby Farms subdivision to Northburn Road (see Figure 6 above), most of the traffic generated by Allenby Farms will in my opinion use this separate connection to Aubrey Road.
- 7.16 If the Allenby Farms road network were to have already been constructed when Sticky Forest is developed it is likely that most Sticky Forest traffic will also use the Northburn Road route. Most of the traffic generated by the Northlake proposed plan change is also likely to use the Allenby Farms subdivision roads to access Northburn Road for travel on the wider network. This only involves 63 residential properties.
- 7.17 The intersection of Northburn Road/Aubrey Road will not be critical in terms of the level of service provided or traffic performance with this extra traffic added. I have confirmed this by comparison with the analysis of the higher traffic volumes at the intersection contained in the Transport Assessment for the Northlake proposed plan change.
- 7.18 With the lower traffic generation rate that I consider is appropriate for this assessment, the traffic using the Northburn Road/Aubrey Road intersection will be lower than the movements predicted in the Northlake Plan Change transport assessment even with the addition

of the Sticky Forest traffic generation. Accordingly the intersection will perform even better than the LOS C predicted.

- 7.19 The intersection of Outlet Road and Aubrey Road will also perform well in this scenario because the volumes of the turning movements using the intersection will be less than those used for my Scenario 1 analysis without the Allenby Farms subdivision that does not include the diversion of most Sticky Forest traffic to Northburn Road. Even with some of the Allenby Farms subdivision's generated traffic travelling through Outlet Road, the overall traffic volumes will still be less than for Scenario 1 and therefore the intersection performance will be even better.

8 ROAD SAFETY

- 8.1 Given that the Sticky Forest traffic is not expected to critically affect delays at intersections along the access route through Northlake and assuming that future intersections will be constructed to appropriate design standards, there are not expected to be any significant adverse effects on road safety as a result of the access easement being implemented and the development of Sticky Forest being facilitated.
- 8.2 Therefore, the single access to Sticky Forest proposed through the easement established by the revised condition to the retirement village consent would provide a legal access that would not adversely affect the efficiency or safety of the road network associated with Northlake. I note from my review that this was the only traffic concern expressed about the Sticky Forest submission to the Proposed District Plan during the original council hearings¹. From my review, there were no concerns regarding the road safety or efficiency effects of the relatively small Sticky Forest residential development (150 dwellings) on the wider road network.

9 PEDESTRIAN, CYCLIST AND PUBLIC TRANSPORT PROVISION

- 9.1 National transport policies have been developed that promote the provision of facilities for pedestrians and cyclists and public transport use as a means of reducing the environmental effects of emissions

¹ Rebuttal Transport Evidence Of Wendy Banks On Behalf Of Queenstown Lakes District Council 5 May 2017.

from petrol driven cars on climate change. The PDP has similar provisions.²

- 9.2 Because there are convenient walking and cycling connections available to the Site and the vehicular access via the Northlake subdivision is relatively indirect, the rezoning of Sticky Forest for residential use would help to promote walking and cycling. There is an existing easement from the southern edge of the Site for a “walkway” (which presumably could also accommodate cyclists) through the “building restriction area” as shown on the Kirimoko Structure Plan (see Figure 8 below). This links through to Aubrey Road with more direct connections to the adjacent transportation network via the existing Clearview subdivision and via a “green network” link to Kirimoko Crescent.

Kirimoko Block - Wanaka - Structure Plan



Figure 8: Kirimoko Structure Plan

- 9.3 There is also scope for a very direct walkway/cycleway from the western edge of the Site through the Peninsula Bay Recreation Reserve to Forest Heights which provides connections to the rest of the transportation network.
- 9.4 The Structure Plan includes recreation connections that must be provided for as part of the future subdivision of the Site. Those connections generally align with the main informal bike trails

² Refer, for example, Proposed Plan, Chapter 29 – Transport, objective 29.2.1, policy 29.2.1.1.

currently on the Site, including 'easy street' and the trail leading up to the 'summit'. The existing bike trails in the northern half of the Site are accessed from those connections, and I note that the proposed plan provisions seek to provide for ongoing recreation activities in that area.

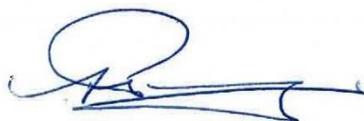
- 9.5 While it is unlikely that a public transport route serving Sticky Forest via the access easement through Northlake could be justified, it is possible in my opinion that the residents could walk via the pedestrian walkways identified above to a future public transport route along the streets to the west or south of the Site. This would also be supportive of climate change policies.
- 9.6 Another factor of the Government's initiative to combat emissions of cars is that it should reduce the motor vehicle generation rate that is used for future residential developments such as Sticky Forest (and the undeveloped areas of Northlake.). That is further support for my use of a lower generation rate in my assessment of the traffic effects of the Sticky Forest rezoning proposal.

10 CONCLUSION

- 10.1 I have concluded that in the scenario without the Allenby Farms subdivision most traffic generated by the northern area of Northlake and traffic generated by Sticky Forest and the Northlake plan change area would travel via Outlet Road to the wider network. However Outlet Road would not have to accommodate Allenby Farms traffic.
- 10.2 There will be less use of Outlet Road and more movements via Northburn Road if the Allenby Farms subdivision is completed before Sticky Forest. As well as most of the Allenby Farms subdivision traffic, most of the Sticky Forest traffic and the Northlake proposed plan change traffic would use Northburn Road to access the wider network.
- 10.3 My analysis indicates that independent of the development timing of the Allenby Subdivision, the traffic associated with the 150 potential dwellings that could be developed on the Sticky Forest site would be able to be efficiently and safely accommodated solely by the proposed access easement without significant adverse effects on the efficiency or safety of the Outlet Road and Northburn Road

intersections with Aubrey Road or on the rest of the Northlake road network.

- 10.4 Even if a higher traffic generation rate than the one I have used were to occur, I would still expect that the single access route to Sticky Forest proposed through the easement to be established by the NIL proposed plan change would provide a legal access that would not adversely affect the efficiency or safety of the road network associated with Northlake.
- 10.5 In my opinion having a single road access to Sticky Forest should not be regarded as unacceptable. It is less desirable than having two alternative accesses and the network resilience that two options provides but it is not uncommon for residential suburbs to have a single access which is often imposed because of geographical constraints.
- 10.6 A potential advantage of the single relatively indirect road access is that the direct pedestrian and cyclist links to Sticky Forest that will be available to the south and west should promote walking and cycling. This is consistent with national policies and PDP policies aimed at reducing emissions from motor vehicles and their impact on the environment.

A handwritten signature in blue ink, appearing to read 'Tony Penny', with a stylized flourish extending to the right.

Tony Penny
22 September 2022

Appendix A
Northbrook Retirement Village- Relevant Consent Conditions

**CONDITIONS VOLUNTEERED BY THE CONSENT HOLDER ON AN AUGIER BASIS
(APPLICABLE TO ALL CONSENTS)**

47. These consents shall not be implemented by the consent holder until and unless:
- a. A request for a private plan change (**PPC Request**) is lodged with the Council in respect of the undeveloped land owned by Northlake Investments Limited located east of, and adjoining, the land referred to as 'Sticky Forest' legally described as Section 2 of 5 Block XIV Lower Wanaka Survey District; and
 - b. The PPC Request includes provision for a legal route for road access (including a route for other infrastructure services) connecting Sticky Forest to roading and other infrastructure services already installed within the Northlake Special Zone (**Sticky Forest Access**) to enable the servicing of development enabled within Sticky Forest; and
 - c. Accompanying the PPC Request is an executed deed to secure and implement the Sticky Forest Access (**Access Deed**).
48. The Access Deed shall:
- a. Be executed by the consent holder and/or any other owner of any part of the land across which the Sticky Forest Access will run (as grantor of the Sticky Forest Access);
 - b. Provide for either or both of the Council and the Crown (in its capacity as the owner of Sticky Forest) to execute the Access Deed as a party which will benefit from the Access Deed;
 - c. Ensure that no aspect, right or obligation arising under the Access Deed shall in any way hinder or inhibit the ability of the consent holder to develop the land subject to this consent in accordance with the Operative District Plan provisions applicable to that land as at the date of the Access Deed, except to the extent necessary to implement the Sticky Forest Access;
 - d. Grant the following easements in favour of the Council (in gross) and/or the Crown (appurtenant to Sticky Forest):
 - i. a right of way;
 - ii. a right to convey water, electricity, gas and telecommunications; and
 - iii. a right to drain water and sewage,

in respect of the part of the land necessary to create the Sticky Forest Access, relying upon the rights and powers implied for those classes of easement as prescribed by the Land Transfer Regulations 2018 and Schedule 5 of the Property Law Act 2007 (Easements), and provide for those easements to be registered;
 - e. Provide for the land required for Sticky Forest Access to be vested in the Council as legal road, at the Council's discretion;
 - f. Not contain any positive obligation on the Council and/or the Crown or the consent holder to carry out any works to form any part of the road or other infrastructure enabled by the Sticky Forest Access, provided that the Council and/or the Crown and the consent holder shall be entitled to carry out any such works at their discretion;

- g. Provide for the inclusion in those easements of any terms or conditions required by the Council and/or the Crown as grantee provided that such terms and conditions do not breach subclause c. above;
 - h. Include provision for the consent of any mortgagee, encumbrancee or other person having an interest in the land whose consent will be required to enable the implementation of the Access Deed;
 - i. Be executed by the persons or entities referred to the preceding subparagraph;
 - j. Be conditional only upon:
 - i. Sticky Forest being zoned to enable any form of development which requires the Sticky Forest Access to enable that development to be implemented;
 - ii. The Sticky Forest Access being approved through, and as a consequence of, the PPC Request.
49. These consents can only be implemented on or after the date the PPC Request and the Access Deed (executed as required under **Conditions 48(a) and 48(i)** above) are lodged with the Council.
50. These consents will lapse if the PPC Request and the Access Deed are not lodged with the Council within six months of the date of this consent.