
In the Matter of: The Resource Management Act
1991

and

In the Matter of: the Queenstown Lakes
Proposed District Plan

and

In the matter of: Hearing Stream 12 – Upper
Clutha Mapping

**Statement of Evidence of
Andrew Metherell**

For Submitter 149: M Beresford

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Statement of Evidence of Andrew Metherell, BE(Hons) MIPENZ CPEng IntPE(NZ)

Introduction

1. My name is Andrew Alan Metherell.
2. I am a Chartered Professional Engineer, a Member of the Institute of Professional Engineers of New Zealand, and am included on the International Professional Engineers Register. I am also an Associate Member of the New Zealand Planning Institute. I hold a Bachelor of Engineering (Civil) with Honours degree from the University of Canterbury.
3. For the period of the last nineteen years I have practised as a traffic engineering and transportation planning consultant based in Christchurch, and primarily working on projects throughout the South Island. I currently hold the position of Senior Associate at Traffic Design Group Limited (TDG). In this role I am responsible for providing traffic engineering advice, assessment and design for a wide range of activities.
4. I have had extensive experience in the provision of transportation advice for greenfield residential Plan Change projects. My involvement typically includes transportation inputs from the early master planning phase, through to implementation at the time of subdivision and detailed engineering design. Some relevant examples include:
 - (i) Master planning advice and transportation assessment for Christchurch City Council Plan Changes 12 and 62 (Living G Wigram), a large mixed use residential development of Wigram airfield, with traffic engineering advice for the internal and external road network through the design and consenting stages for the “Wigram Skies” subdivision;
 - (ii) Master planning and access advice, and transportation assessment for Queenstown Lakes District Council Plan Change 25 (Kingston) to establish an 88ha residential and business zoning;
 - (iii) Advice on the feasibility of using Peak View Ridge as a secondary point of access to the Northlake Special Zone in Wanaka.
5. I have read and am familiar with the Code of Conduct for Expert Witnesses in the current (2014) Environment Court Practice Note. I agree to comply with this Code of Conduct in giving evidence to this hearing and have done so in preparing this written brief. The evidence I am giving is within my area of expertise, except where I state I am relying on the

opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed. I understand it is my duty to assist the hearing committee impartially on relevant matters within my area of expertise and that I am not an advocate for the party which has engaged me.

Evidence Summary

6. In this matter, I have been asked by the submitter, Mike Beresford to assess the transportation elements of his submission seeking large lot and low density residential zoning on the southern part of the block of land known as Sticky Forest.
7. The site currently has no point of legal access, such that a non-complying activity status is being sought subject to amongst other things obtaining acceptable access. The site lies between areas that have been zoned for residential development that are currently being developed. The transport network in the area operates with traffic volumes consistent with the residential environment.
8. Access from the site will need to be via either existing or proposed local roads. I have investigated options to access these existing and proposed local roads, and in my opinion access via the Northlake site would be the most efficient. Whilst other options may be possible, further investigation will be required and connections would cross existing or proposed reserve areas. I have recommended various assessment matters associated with future assessment of the internal road network and access provisions, including the ability of the local road network to accommodate additional traffic.
9. In the wider area QLDC has broad plans for improvements to the transport network identified through a business case process. In the long term, performance of the transport network is anticipated to continue to operate with good levels of service. I consider the comparably small addition of around 150 households to the north of Wanaka (where there is to be a total of about 3,000 households) will have negligible impact on the need for and timing of wider area transport network improvements.
10. My assessment against relevant transport objectives and policies shows that the site can be developed in a way that is generally consistent with those objectives and policies.

11. By way of summary, I consider the proposed large lot and low density residential rezoning in only part of the site can be supported from a transportation perspective, subject to future assessment provisions.

Site Location

12. **Figure 1** shows the site location, within the context of existing land boundaries and Operative District Plan zoning.
13. The site is currently a forestry area about 2.5km directly north of the Wanaka Town Centre, in the area known as Sticky Forest. To the west the site is bordered by reserve and then the Peninsula Bay residential subdivision. There is forestry and bare land to the south, with the Kirimoko Park subdivision being developed north of Aubrey Road. The north of the site borders reserve area and Lake Wanaka.
14. To the east is the Northlake development zone, currently being developed as a residential development together with a neighbourhood centre. It is understood the 226ha zone could accommodate up to about 1,600 households and includes a number of proposed access connections to Aubrey Road.
15. The Sticky Forest site currently has no legal access, and the above mentioned development areas have not provided for future vehicle access to the site. Informal walking and cycling access is provided around the site, including from a car park in reserve land accessed via Platinum Ridge in the Peninsula Bay subdivision. There is also walking and biking access via a track from Aubrey Road that passes through private property on the eastern edge of the Kirimoko Park subdivision.
16. In the wider area, there are schools located between the site and Wanaka town centre, including the Holy Family School north of Aubrey Road, Wanaka Primary School, and Mt Aspiring College.

Existing Transportation Environment

Road Hierarchy

17. **Figure 2** shows the site location in the context of the existing road hierarchy included in the Operative District Plan. The Arterial Roads of Anderson Road and Beacon Point Road

provide for north-south travel towards State Highway 84 and the town centre. A network of Collector Roads in the area provides supporting through traffic function. Of particular note is Aubrey Road which provides a key east-west connection linking to Albert Town and which will accommodate the Northlake traffic generation. It is currently only classified as a Local Road east to the Anderson Road intersection.

18. As a range of developments have developed new roads in recent times and led to changes in traffic volume and function, I would expect that the road hierarchy will be further refined through future District Plan review processes. That could include upgrading recently developed roads within residential subdivisions to Collector status, and upgrading of some existing roads to Collector or Arterial status.

Existing Traffic Patterns

19. I have reviewed existing traffic counts from the QLDC traffic count database. The traffic counts show the dominance in the northern part of Wanaka of SH84, Anderson Road, Aubrey Road and Lakeside Road. Whilst they largely reflect the existing road hierarchy, some roads such as the eastern section of Aubrey Road carry volumes higher than local.

Road	Location	Year	Count	Classification
SH84	At Mt Iron	2015	8,400	State Highway
Anderson Road	North of SH84	2014	8,250	Arterial
	South of Aubrey Road	2014	4,300	Arterial
Lakeside Road	North of Ardmore Street	2014	4,800	Arterial
Beacon Point Road	North of Lakeside Road	2016	3,000	Arterial
	North of Plantation Road	2016	4,700	Arterial
	South of Roto Street	2012	1,400	Collector
Aubrey Road	East of Rata Street	2013	2,250	Collector
	East of Anderson Road	2015	3,200	Local
Totara Terrace	North of Matai Road	2015	800	Collector
Plantation Road	South of Totara Terrace	2016	1,500	Collector
Rata Street	North of Aubrey Road	2013	1,400	Local
Kings Drive	North of Plantation Road	2013	1,200	Local
Hunter Crescent	East of Beacon Point Road	2016	700	Local

Table 1: Existing QLDC Traffic Volumes

Road Safety

20. I have reviewed the existing road crash record in north of Wanaka using the NZTA Crash Analysis System (CAS) which includes all Police reported crashes. The area I have considered was north of and including Aubrey Road to the west of Outlet Road. In the previous five year period from 2012 to 2016 inclusive, there were eight reported injury crashes, and eight non-injury crashes.
21. There are two locations where there were two injury crashes. At the Beacon Point Road / Penrith Park Drive intersection the two injury crashes were associated with loss of control by drivers, with driver fatigue or alcohol also being a factor. At the Beacon Point Road / Aubrey Drive intersection one of the two injury crashes was loss of control as a result of dazzling sun, and the other a failure to give way.
22. Other crashes were generally interspersed around the road network, with a range of crash types and locations. Whilst loss of control and failure to give way are recurrent in the crash pattern on the busier roads in the network, the local road network does not demonstrate any particular crash patterns.

Future Road Network Performance

23. The Northlake Plan Change established the ability to develop up to 1,600 households to the east of the site. The transport assessments undertaken identified the primary concern with the transport networks ability to accommodate that level of development was the performance of the Aubrey Road / Anderson Road intersection. A substantial upgrade was expected to be required after approximately 900 households were developed. The network analysis identified that the road network could otherwise accommodate expected levels of traffic generation.
24. QLDC prepared the Wanaka Programme Business Case¹ for transport in January 2015. The business case seeks measures aimed at addressing the following problems identified through the strategic business case:
- (i) increasing transport demand from residents and visitors are leading to parts of the network increasingly not being fit for purpose;

¹ An NZTA process for identifying responses to transport problems, to make a case for investment

- (ii) conflicting expectations of residents and visitors of the transport network will increasingly lead to negative experiences for users;
 - (iii) key tourist routes are vulnerable to road closures which impacts on visitor numbers to Wanaka.
25. The Wanaka Programme Business Case document recognises that Wanaka does not experience the severity of congestion or crashes that other centres do, although as a visitor destination it has a lower tolerance to those issues. The background analysis shows that by 2041 with Northlake, the only location in the transport network that would experience a low level of service (with unstable flow, operating at capacity) in the PM winter peak would be the Ardmore Street / Brownston Street intersection. This tends to support the earlier assessment undertaken for the Northlake Plan Change.
26. The projects identified in the business case in relation to the north of Wanaka include Anderson Road corridor improvements, intersection improvements at Anderson Road / SH84, and school and commuter bike / walk routes. Implementation of these projects is expected to be in the medium to long term. I also note that the business case anticipates that scheduled urban public transport services would not be provided in Wanaka in the foreseeable future.
27. The QLDC in their long term plan do not currently have any particular improvements scheduled, although budget has been provided to implement transport provisions of the Wanaka Business Case discussed above. I understand from the summary of the Regional Transport Committee meeting on 1 December 2016 that only minor progress had not been made on the project.

Proposed Development

28. The submitter has sought low density residential zoning for the 50.7ha Sticky Forest area. Through more detailed assessment, the area that will now be subject to proposed residential development has been narrowed to 20ha within the southeastern part of the site.
29. The site currently has no legal access², such that a non-complying activity status is being sought until such time as appropriate legal access, amongst other things, can be achieved

² Since being separated (by subdivision carried out by the Crown) from Kirimoko land which afforded access onto Aubrey Road

to service the development. Within my assessment that follows, I have considered the potential access options that might be available to the site. That will enable consideration of whether the existing transport network can be developed in a way to accommodate the additional traffic generated by the development, potential traffic effects of the zoning, and whether development of the site can achieve transport related objectives and policies.

Traffic Generation and Distribution

30. The site is expected to accommodate approximately 150 households. The previously accepted³ traffic generation rate for development in the area is some 9 vehicle movements per day per household. At that rate, the traffic generation would be approximately 1,350 vehicles per day.
31. The typical rule of thumb is that the peak hour traffic generation in each of the morning and evening peak periods will be about 10% of the daily trip generation. At a trip generation rate of 0.9 vehicle movements per household per hour, this will be approximately 135 vehicles per hour generated onto the wider transport network.
32. I consider these traffic generation forecasts to be conservatively high given the location of the site and QLDC guidance of 8 vehicle movements per day per household. I also note that existing Census data indicates the houses occupied in Wanaka on Census night was only 61% of all dwellings, indicating the application of these typical trip generation rates may only relate to peak season housing occupancy.
33. Traffic distribution patterns were also applied and accepted in the Integrated Transport Assessment for the Northlake Plan Change⁴. Given the proximity and scale of the Sticky Forest site, I consider these can also be applied for assessment in this case. It is forecast that 25% of vehicles will enter the development and 75% exit in the morning peak hour, with 65% entering and 35% exiting in the evening peak hour. For Northlake, transportation modelling identified a future traffic distribution whereby:
- (i) 85% of traffic travels south down Anderson Road;
 - (ii) 5% of traffic travels west along Aubrey Road;
 - (iii) 10% travels east along Aubrey Road.

³ Plan Change 45 Northlake

⁴ ENV-2014-CHC-46 Evidence of Andrew Carr 30 October 2014, Annexure 3 – Abley Transportation Consultants Technical Note 19 July 2013

34. About 55% of all traffic continues west towards the Wanaka town centre at SH84, with 20% travelling east at SH84, as indicated by **Figure 3**.

Future Integration with Adjoining Development

35. At the expected traffic generation of the site, and considering the existing road network and topographical constraints, roads within the subdivision would perform a local road function. As most traffic travels to and from the south, and considering the form of existing local road networks to the west there will be limited demand for traffic passing east-west through the site.
36. Traffic from the Sticky Forest site would also need to use local roads beyond the site to connect to the higher order collector and arterial road network for the major movement towards the south. It is apparent that the existing local road network in the area has been developed in a way that has not previously anticipated connection to development in the Sticky Forest area. Whilst this provides some challenges for achieving access to the site, I consider there are several options available for potential future access subject to achieving appropriate legal connections.

Assessment of Local Access Options

37. Within Appendix A, I have set out a discussion of the feasibility of the potential for access via these different routes from a traffic engineering perspective. I summarise that assessment below.
38. The options I have considered are shown in **Figure 4**, and can be described as follows:
- (i) Northwest - connection across reserve land to the end of Infinity Drive at the northwestern part of Sticky Forest;
 - (ii) West - connection across reserve land to Platinum Ridge, which in turn connects to Forest Heights which services the Peninsula Bay development;
 - (iii) Southwest - connection across private land with access to Kirimoko Crescent which in turn connects with Rata Street; and/or to Clearview Street which connects to Forest Heights;
 - (iv) East - connection to the land to the east which forms part of the Northlake zone, with subsequent access to the wider network via the Northlake transport network;

39. I understand that access to the north alongside the lake will not be practical due to distance from the development area of the site, absence of existing roads and steep gradients. For that reason, I did not investigate that potential option further.
40. The access option to the northwest results in development of an inefficient access road, and does not provide for the shortest travel distances. It is my opinion that this access option should only be considered if no other legal access option can be progressed.
41. Options to the west and south are constrained by existing reserve and building restriction areas, and road networks have been developed in a way that some local minor upgrading would need to be considered. Access roads from the west and south would be inefficient as there will be sections of road with no adjoining development, and do not link directly to the preferred development area on the eastern side of the site. Any such access would preferably be of a secondary nature, catering for only part of the development traffic generation.
42. I consider the option of access to Northlake can best achieve transport objectives through connecting efficiently to planned transport infrastructure. Existing District Plan provisions indicate that the developers at Northlake and Council will need to give some consideration to future access to neighbouring development sites. That would enable consideration of road formation that can accommodate the additional traffic generated by the Sticky Forest development.
43. Whilst there are challenges with achieving legal access, I consider that various access options could be designed to access the site whilst requiring only minor changes to the existing local transport network.

Roading Network Provisions

44. I consider that a site that generates approximately 1,350 vehicles per day should typically be supported by more than one point of road access. A combination of the access options I have discussed would assist in providing a connected transport network between Northlake, Peninsula Bay, Kirimoko and Sticky Forest. However as I have already discussed there are significant practical issues associated with providing even secondary roads to the west.

45. Multiple points of access would promote a connected transport network that assists in achieving shorter travel distances, an increased number of alternative routes for all types of users, and improved access to cycling and walking networks, and potentially in the future access to public transport networks. A second point of road access also provides for secondary routes for emergency access.
46. In this case, the future development access will need to connect to local roads servicing other residential areas in the first instance. Splitting the generated traffic across more than one access would minimise the potential effects on the residential amenity of existing development, particularly if the connecting road is a lower order residential street.
47. As there is currently no legal access, it may be that an outcome is that only a single point of access can be achieved. Where a fully connected road network cannot be achieved, I consider direct walking and cycling connections should be sought through integration with existing pedestrian and cycling infrastructure.
48. With non-complying status prior to access to the site being resolved, among other things, and Structure Plan being produced, I consider the layout of roads within the site can be developed during later planning processes, subject to relevant matters for Council discretion. I consider the Structure Plan and subdivision processes should provide for the assessment of the development of the network including the following:
- (i) Roading pattern and vehicle access arrangements, including integration with existing development and potential future adjoining development, and the provision for secondary emergency access;
 - (ii) Proposed road and street designs;
 - (iii) Measures to maintain safe local road function on the existing road network where connections are made to existing local roads;
 - (iv) Location and suitability of pedestrian and cycling connections and linkages to surrounding pedestrian and cycling networks.
49. With provisions of this form, I consider that a local transport network within the site and connecting to existing networks could be developed in a form consistent with planning objectives and policies.

Wide Area Network Assessment

50. The site trip generation is of a relatively modest scale in terms of the existing and future development potential in the northern part of Wanaka. Whereas this site may achieve around 150 households, the adjoining area in the north part of Wanaka could accommodate close to 3,000 lots upon full development. This is based on my understanding that the Northlake development could accommodate up to 1,600 households, and the residential areas north of Aubrey Road to the west and southwest of Sticky Forest could accommodate about 1,300 households⁵.
51. Wider network effects could vary depending on where access is achieved. For example access to the west would allow traffic to spread across the existing Collector and Arterial routes including Beacon Point Road, Totara Avenue and Anderson Road. If access is only to the east through Northlake, the development would add to some of the expected pressure on Anderson Road at Aubrey Road, and potentially intersections further west if a connection via Peak View Ridge was not formed.
52. As planning for the transport network is ongoing, and development of this site will not occur immediately, I consider the small change in potential network planning responses could be considered through future investigations. Based on the most recent transport network level of service forecasts included in the Wanaka Programme Business Case for transport that I discussed earlier, I would not expect the zoning to trigger particular changes to the timing or scope of works that would otherwise be contemplated.
53. By way of example, I have added the peak hour development traffic generation to the future year traffic forecast assessed in the Northlake Plan Change for the Anderson Road / Aubrey Road intersection. With the long term roundabout anticipated to be implemented at the intersection, the level of service in the peak period can still operate at a good level of service with stable traffic flow.

⁵ Based on estimate of households from existing subdivision of Peninsula Bay (318 lots), Penrith Park (119 lots), Beacon Point Road – Rata Street area (511 lots), and potential development of Kirimoko Park (up to about 340 lots at existing densities).

Planning Documents

Proposed Otago Regional Policy Statement (Decision Version)

54. Policy 4.3.4: The development of the site will not impact on any roads of regional or national importance. The state highway network is well separated from the development, and access to this wider network will be via a system of lower order roads.
55. Policy 4.4.6: 'Energy efficient transport': This seeks to enable energy efficient and sustainable transport. The subject site is bordered by existing or proposed urban development, and can contribute to development of compact and well integrated urban areas, to reduce travel needs within those areas (Policy 4.4.6.a);
56. Depending on a final layout achieved through resolution of the existing legal access issues, it may be possible to improve connectivity (Policy 4.4.6.b) between the existing urban areas adjoining the site. This will particularly be the case for walking and cycling if legal access is created through the site, connecting the significant Peninsula Bay and Northlake developments. There will also be good connections to existing walking and cycling areas in Sticky Forest.
57. Policy 4.5.1 'Managing for urban growth and development': This discusses managing urban growth and development in a strategic and co-ordinated way. As a result of past Crown subdivision, the block of land has been left without legal access which still has to be overcome. My assessment has shown that there are constraints to access on the western and southern sides of the site, particularly with respect to existing landscape and open space buffers, but also potential engineering constraints. To a lesser degree the existing road networks to the west and south have not anticipated allowance for future connections to the site.
58. This policy will be best achieved through connection of road links to the east, and provision of pedestrian and cycle access through the site between Peninsula Bay, Northlake, and Kirimoko. In my opinion the zoning can contribute to the transport related aspects of the Schedule 5 urban design provisions.
59. Policy 4.5.7 'Integrating infrastructure with land use': This discusses locating and designing infrastructure to take account of actual and reasonably foreseeable land use change. The Sticky Forest block joins existing or zoned urban development areas, such that the need to

allow for future roading connections will be limited. The policy also discusses locating growth and development where there is sufficient infrastructure capacity; or where infrastructure services can be upgraded or extended efficiently and effectively.

60. My assessment has identified that effective local connections could be made along each of the west, south, and east boundaries of the site from a transportation perspective, although the connections to the west are not particularly efficient and in some cases may require minor upgrades of existing roads to accommodate additional traffic. I consider this policy would be best achieved with access to the east, through integration with the Northlake zone.

Regional Public Transport Plan, Otago 2014

61. I have reviewed the Regional Public Transport Plan for Otago (2014). The clear focus of the plan is on services in and around Dunedin, and within the Wakatipu Basin. Whilst the plan discusses increased transport demand in Wanaka, it does not identify any current or future intention to develop a public transport network in Wanaka. In that respect, if services are provided, they are likely to be some time away and there is no indication of the level of accessibility to services that could be provided.
62. Development of the Sticky Forest land would naturally increase demand for services in the northern area of Wanaka, although I consider it very unlikely the number of houses proposed would make any discernible change to the case for public transport. Demand for a service is more likely to rest with the existing and planned major developments in Wanaka, including Peninsula Bay and Northlake developments in the vicinity of the site.
63. A route could only be contemplated into the development if a through route between these developments was provided. Even then, greater housing density and less topographical constraints may warrant any route to service only along main roads. If Northlake was fully serviced, such as via Peak View Ridge and the east west road link, it is likely the site will be within an accessible walking distance of a bus route. On balance, I consider a connected network would not necessarily alter future public transport provision in the area, such that it would not need to form a key consideration of the zoning provisions.

Regional Land Transport Strategy

64. The Regional Land Transport Strategy contains various objectives and policies seeking to provide for safe and efficient travel by a range of travel modes, including walking and cycling.
65. The strategy has programmed \$900,000 for implementation of the Wanaka Programme Business Case from 2015/16 – 2020/21. As I discussed earlier, there has been limited progress made on the project.

District Plan Review - Strategic Direction and Urban Development

66. I have reviewed the District Plans proposed Strategic Direction and Urban Development provisions, as well as the Council recommended provisions.⁶ The relevant provisions from a transportation perspective are included in Attachment 1. Firstly, I have noted that the site sits outside but adjacent to the proposed Wanaka Urban Boundary (Objective 4.2.8). I understand the exclusion is not on the basis of any transport analysis, rather it is because the site has previously been identified as an existing forest area.
67. The objectives and policies continue the theme of provisions in the other documents and strategies I have discussed, including
- (i) efficient and effective provision and operation of infrastructure⁷,
 - (ii) providing for walking and cycling as a mode of transport⁸, and
 - (iii) undertaking development that supports coordinated transport planning⁹.
68. I consider that the site has options to connect to existing or proposed transport infrastructure in an efficient manner. As I discussed earlier, some access options such as to the east of the site via Northlake can be particularly consistent with the objectives and policies. The efficiency of access to the west and south would be less efficient, although costs of localised extension of existing roads to connect to the development would likely be borne by the developer of the site.

⁶ included in Hearing Streams 1 A and 1 B – Introduction, Strategic Direction and Urban Development, Reply evidence by Matthew Paetz 7 April 2016

⁷ Objective 3.2.8.1, Policy 3.2.8.1.1, Policy 4.2.1.2, Policy 4.2.3.1, Policy 4.2.3.4, Policy 4.2.8.2

⁸ Policy 3.2.6.4.2, Policy 4.2.1.4, Policy 4.2.3.1, Policy 4.2.8.2

⁹ Policy 4.2.8.2

69. Development of the site can provide a high level of contribution to provision of a more connected walking and cycling network in the area, as well as offering legal connections into the existing Sticky Forest recreational trails.
70. The site would naturally be developed as an extension of existing or proposed development, and would have a comparatively small impact on the need for or timing of network improvements in the area.

Council Officer Evidence

71. I have reviewed the Council officer planning evidence of Craig Barr (17 March 2017) and transport evidence of Wendy Banks (17 March 2017). Firstly, I note that they have estimated the capacity of the site to be 765 residential lots, whereas the submitter is now only seeking to zone part of the land for residential development that will yield approximately 150 residential lots.
72. Both Mr Barr and Ms Banks discuss the lack of information about access as part of their reason for opposing the requested zoning. Within my evidence I have now described and assessed the access options that could be considered. I consider that access to the east via the yet to be developed Northlake site is the most logical. I accept however that the legal access matter will need to be resolved in order for this to occur.
73. Through appropriate assessment at the ODP and subdivision stages, I consider the site can be developed in a way that integrates with the surrounding transport network, and affords the potential for better connectivity in the north of Wanaka, particularly for walking and cycling.

Conclusion

74. I consider that large lot and low density residential development of the Sticky Forest area can be achieved in a manner that is consistent with the higher order transport planning objectives and policies.
75. The primary issue to be addressed is establishment of a practical legal access solution. Once that is achieved, a more detailed assessment of local network form and impacts can

be undertaken. My review of options has identified that a local road network could be extended into the site, with some options achieving that more efficiently than others.

76. I consider wider network impacts of rezoning the site are or a low level in comparison to wider growth occurring in the north of Wanaka. For this reason I do not envisage particular changes to the timing or scope of works that would otherwise be contemplated.

Andrew Metherell
TDG

4 April 2017

Appendix A – Local Road Access Feasibility

A1. I provide a feasibility level transport assessment of the potential for access via these different routes. As I discuss residential road widths, I firstly provide a summary of the relevant provisions of the NZ Standard NZS4404:2010 Land Development and Subdivision Infrastructure with respect to carriageway widths and traffic volumes anticipated to be carried by roads.

NZS4404:2010 Local Road Standards

- A2. Narrow roads in the range 5.5-5.7m allow parking on one side whilst retaining a through traffic lane, or two through lanes. This formation is typically used on local roads up to 250m long or servicing up to 100 dwellings, with traffic volumes up to about 1,000 vehicles per day. Specific parking locations are not marked.
- A3. A local road carrying up to 2,000 vehicles per day would still have a carriageway width of 5.5-5.7m, but also allows for separate parking where the road services over 100 dwellings. A width in the order of 7.2-7.5m is also often used as it provides flexibility for either two sided parking and one through movement, or one sided parking and two through movements. In the vicinity of the site, with lower levels of on-street parking demand this latter type of carriageway is more commonly used.
- A4. In high parking demand situations, or for busier local roads, a 9m carriageway can be used instead of the 5.5-5.7m wide road with parking bays. This still allows the road to typically operate with two through lanes.
- A5. In the local context, it appears that these principles have typically been adopted, albeit with some minor differences in road widths.

Northwest Route – Infinity Drive Connection

A6. This road access would need to traverse the western edge of Sticky Forest adjacent to the existing open space reserve, and connect to Infinity Drive. This requires over 600m of new road that serves no other purpose aside from access to the subdivision, and potentially

access to long term development of the northern section of Sticky Forest. In this regard the new road would be an inefficient provision of infrastructure.

- A7. From a transport perspective, this access also requires travel to the northern end of Peninsula Bay before back tracking into the proposed residential area. This results in some reduced efficiency of the travel as it does not provide for short distance travel.
- A8. Infinity Drive and Minaret Ridge in the vicinity are both designed as 7m wide roads, under the expectation of moderate levels of residential traffic in the long term. If full development of the Sticky Forest site was to connect onto Infinity Drive, traffic would then travel down Minaret Ridge to Beacon Point Road, or as far as the north-south section of Infinity Drive which has a wider 11m wide carriageway.
- A9. As the use of the road on Minaret Ridge is only over a relatively short length of road, being about 375m, I consider there is a low likelihood that provision of parking bays would be required on Minaret Ridge to maintain through traffic flow.

West Route – Platinum Ridge Connection

- A10. Connection to this road network could be made via Platinum Ridge if a new road was extended through the open space reserve. Platinum Ridge has a carriageway that is 6m wide and about 60m long and currently only services the Sticky Forest car park. It connects to Forest Heights which has a road carriageway 7m wide.
- A11. There is a steep gradient from the Sticky Forest car park up to the site such that a curving road alignment will likely be necessary. The existing parking area for Sticky Forest would need to be reformed with access from the road. I consider it would be an inefficient connection requiring approximately 125-200m of road to reach the site boundary with no adjacent development.
- A12. Nevertheless, I consider the 6m road width on Platinum Ridge could accommodate the additional traffic generated by the subdivision, although parking would likely need to be banned. Otherwise localised parking bays would need to be provided.
- A13. Approximately 150m of Forest Heights would be utilised by a large proportion of the subdivision traffic. As there are only a few existing house sections with sole access to Forest Heights over that length of road, on-street parking demand is low. In that respect,

the increased traffic could be accommodated without necessarily requiring additional indented parking bays.

- A14. Additional traffic would likely split between Rata Street and the western section of Infinity Drive, which has been constructed to a form to accommodate higher levels of traffic. Infinity Drive has separate parking bays reflecting its higher order traffic carrying function enabling it to accommodate the higher volumes. Rata Street at 9m wide already carries higher traffic volumes for such a road, being 1,400vpd in 2013 at which time many sections in Peninsula Bay were still to be developed. Some improvements may need to be considered to Rata Street in the longer term, regardless of this development, including development of footpaths and potentially lane marking with parking bays on one side.

Southwest Route –Kirimoko Connections

- A15. The Kirimoko Block to the southwest could provide potential access via Kirimoko Crescent and Clearview Street, together with future roads proposed in the Kirimoko block. However the District Plan provides a building restriction / landscape protection zone between the site and those roads, which prohibits development (except cycle and pedestrian paths). The roads themselves have been developed to lower order local road standards with curving alignment. They would not be as well placed to accommodate the full traffic generation of the Sticky Forest site.
- A16. Even if a new road could be constructed across the building restriction area, it will again be an inefficient connection, potentially requiring approximately 150m of road length to reach the edge of the site. I consider the form of local road network being developed at Kirimoko means an access through this area could only serve as a lower order secondary access to the site.

East Route – Northlake Connection

- A17. The Northlake Special Zone has a Structure Plan that provides for significant levels of new development to the immediate east of the site. Primary access is achieved via Outlet Road, with secondary access via Mount Linton Avenue, Northburn Road, and Peak View Ridge.
- A18. The Structure Plan includes a small subarea (C1) for low density housing on the boundary of Sticky Forest indicating some form of low level local road access will ultimately be developed up to or very close to the site boundary. The boundary is otherwise largely

against subarea E1 which has a building restriction area, but still allows for vehicle access (Rule 12.34.2.5(vii)) across it.

A19. The rules and Structure Plan otherwise anticipate future Outline Development Plans to set out the development form including the roading network.

A20. The rules require consent applications under Rule 12.34.2.3 to include a proposed Outline Development Plan with Council having discretion over the following matters:

“b - roading pattern and vehicle access arrangements, including integration with existing development”; and

“k -Integration of the Outline Development Plan with other parts of the zone, or with other consents with Outline Development Plans that have been approved”.

A21. With respect to notification of Outline Development Plans, I understand that 12.34.3(i) may require development of the adjacent portion of the Northlake Special Zone to give some consideration to potential future access connectivity to Sticky Forest. In any case, as the land at the western end of the Special Zone has not yet been developed, there is opportunity to develop the network in a form that can achieve suitable local access to the Sticky Forest land. I understand that the south-eastern side of the Sticky Forest block is most feasible for development from a landscape perspective, so that connection via Northlake would make the most efficient provision of roading infrastructure as the length of new roads is minimised.

A22. The transport network approved for Northlake has been forecast to be able to accommodate anticipated traffic generation with some local upgrades required to the Aubrey Road / Anderson Road intersection, and the Outlet Road intersections. The scale of development at Northlake is such that the additional traffic generation associated with the Sticky Forest proposed rezoning is only about a 10% increase from what had already been anticipated (and can be accommodated).

Appendix B - District Plan Review Objectives and Policies

Included in in Hearing Streams 1 A and 1 B – Introduction, Strategic Direction and Urban Development, Reply evidence by Matthew Paetz 7 April 2016

Strategic Direction

Policy 3.2.3.1.2 That larger scale development is comprehensively designed with an integrated and sustainable approach to infrastructure, buildings, street, trail and open space design.

Policy 3.2.6.4.2 Ensure Council-led and private design and development of public spaces and built development maximises the opportunity for recreational and commuting walking and cycling.

Objective 3.2.8.1 - Maintain and promote the efficient and effective operation, maintenance, development and upgrading of the District's existing infrastructure and the provision of new infrastructure to provide for community wellbeing.

Policy 3.2.8.1.1 Ensure that the efficient and effective operation of infrastructure is safeguarded and not compromised by incompatible development.

Urban Development

Policy 4.2.1.2 Urban development is integrated with existing public infrastructure, and is designed and located in a manner consistent with the capacity of existing networks.

Policy 4.2.1.3 Encourage a higher density of residential development in locations that have convenient access to public transport routes, cycleways or are in close proximity to community and education facilities.

Policy 4.2.1.4 Development enhances connections to public recreation facilities, reserves, open space and active transport networks

Policy 4.2.3.1 Provide for a compact urban form that utilises land and infrastructure in an efficient and sustainable manner, ensuring:

- *connectivity and integration;*
- *the sustainable use of public infrastructure;*
- *convenient linkages to the public and active transport network; and*

- *housing development does not compromise opportunities for commercial or community facilities in close proximity to centres.*

Policy 4.2.3.4 Urban development occurs in locations that are adequately serviced by existing public infrastructure, or where infrastructure can be efficiently upgraded.

Policy 4.2.3.6 Development improves connections to recreational and community facilities, and enhances the amenity and vibrancy of urban areas.

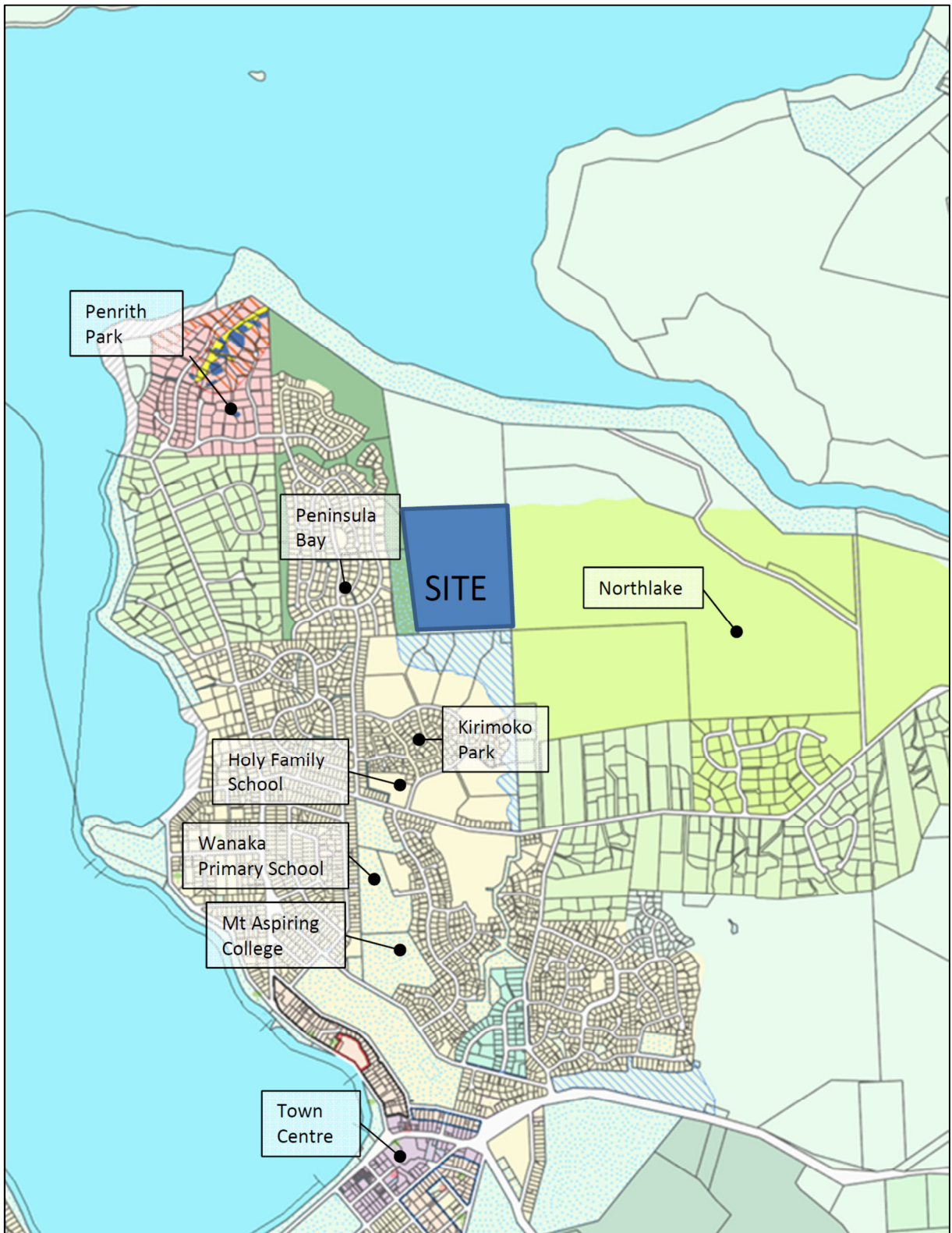
Wanaka

Objective 4.2.8 - Manage the scale and location of urban growth in the Wanaka Urban Growth Boundary.

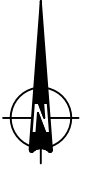
Policy 4.2.8.2 Ensure that development within the Wanaka Urban Growth Boundary:

- *Maximises the efficiency of existing infrastructure networks and avoids expansion of networks before it is needed for urban development*
- *Supports the coordinated planning for transport, public open space, walkways and cycleways and community facilities*

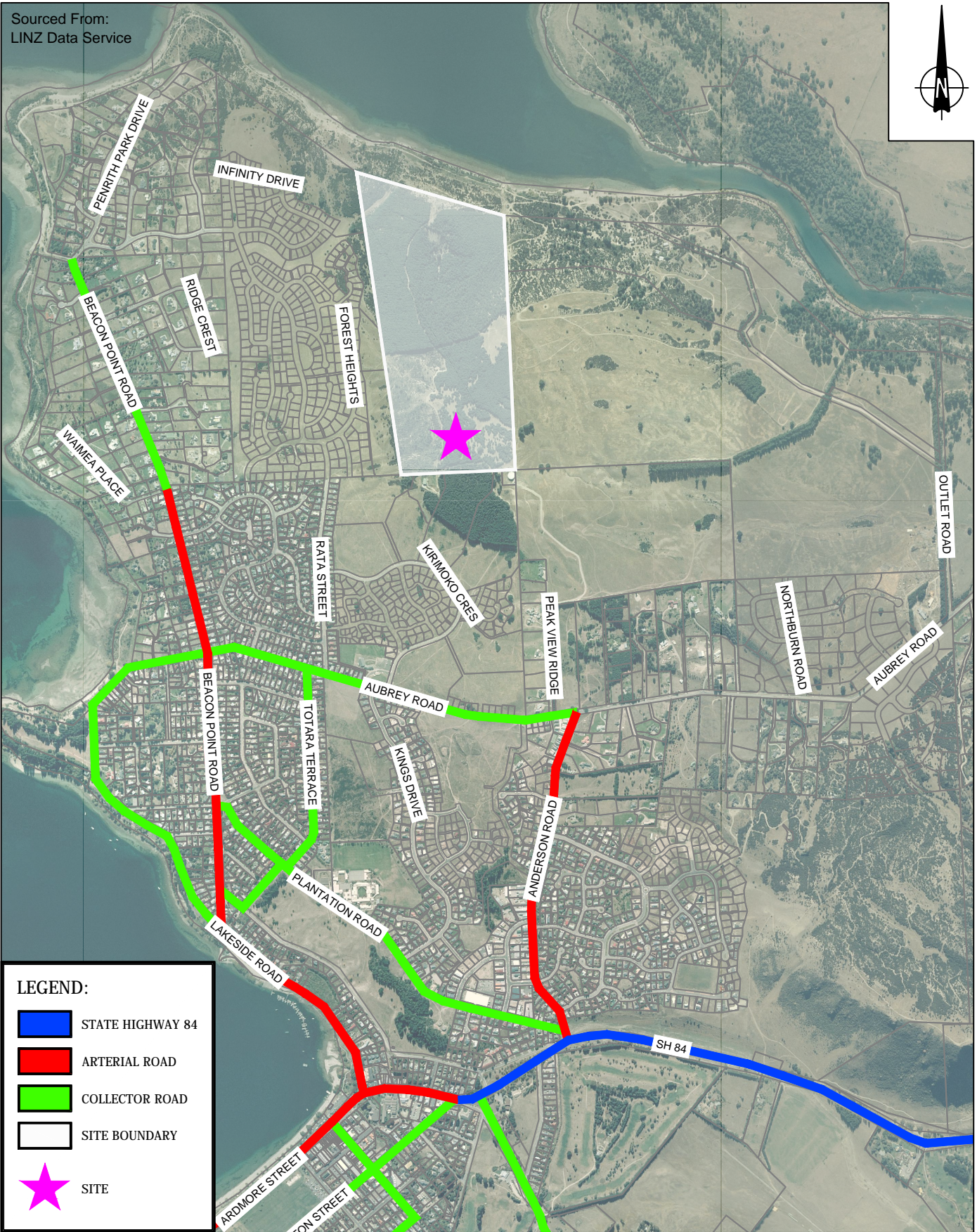
Figure 1 – Site Location








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LEGEND:

-  STATE HIGHWAY 84
-  ARTERIAL ROAD
-  COLLECTOR ROAD
-  SITE BOUNDARY
-  SITE

QLDC DISTRICT PLAN REVIEW - STICKY FOREST
ROAD HIERARCHY



2

SCALE: 1:20,000 @ A4

Figure 3 – Traffic Distribution



Figure 4 – Access Options

