

Before Queenstown Lakes District Council

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In the matter of            The Resource Management Act 1991

And                            The Queenstown Lakes District proposed District Plan Topic 13  
Queenstown Mapping

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**STATEMENT OF REBUTTAL EVIDENCE OF ANDREW DAVID CARR FOR**

Jacks Point Residents and Owners Association (#1277)

Dated 07 July 2017

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**Solicitors**

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**anderson  
lloyd.**

## QUALIFICATIONS AND EXPERIENCE

- 1 My full name is Andrew (Andy) David Carr.
- 2 I am a Chartered Professional Engineer and an International Professional Engineer (New Zealand section of the register). I hold a Masters degree in Transport Engineering and Operations and also a Masters degree in Business Administration.
- 3 I am a member of the national committee of the Resource Management Law Association and a past Chair of the Canterbury branch of the organisation. I am also a Member of the Institution of Professional Engineers New Zealand, and an Associate Member of the New Zealand Planning Institute.
- 4 I have more than 27 years' experience in traffic engineering, over which time I have been responsible for investigating and evaluating the traffic and transportation impacts of a wide range of land use developments, both in New Zealand and the United Kingdom.
- 5 I am presently a director of Carriageway Consulting Ltd, a specialist traffic engineering and transport planning consultancy which I founded in early 2014. My role primarily involves undertaking and reviewing traffic analyses for both resource consent applications and proposed plan changes for a variety of different development types, for both local authorities and private organisations. I am also a Hearings Commissioner and have acted in that role for Greater Wellington Regional Council, Ashburton District Council, Waimakariri District Council and Christchurch City Council.
- 6 Prior to forming Carriageway Consulting Ltd I was employed by traffic engineering consultancies where I had senior roles in developing the business, undertaking technical work and supervising project teams primarily within the South Island.
- 7 I have carried out a number of commissions which have involved assessing the traffic and transportation effects of major development areas including but not exclusively within the Queenstown Lakes district. My experience includes providing advice for Queenstown Lakes District Plan Changes 4 ('North Three Parks'), 39 ('Arrowtown South'), 41 ('Shotover Country'), and 45 ('Northlake'). Elsewhere I have provided advice for Selwyn District Plan Change 24 ('Darfield') to rezone 113ha for residential and business use, Christchurch City District Plan Change 30 ('Prestons') to rezone 205ha for residential and business use, and a range of transportation advice for the West Kaiapoi 'Silverstream' development for 1,100 residences.

- 8 I have carried out transportation-related commissions for a variety of new developments and plan changes in Queenstown Lakes District for more than 12 years.
- 9 As a result of my experience, I consider that I am fully familiar with the particular traffic-related issues associated with the development and/or rezoning of large-scale sites.
- 10 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note. This evidence has been prepared in accordance with it and I agree to comply with it. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

### **SCOPE OF EVIDENCE**

- 11 I have been asked by Jacks Point Residents and Owners Association to review the submission and evidence lodged by the Jardine Family Trust and Remarkables Station Limited (#715) (“the Submitters”), particularly with regard to traffic and transport effects relating to the Submitters’ proposals.
- 12 In preparing this evidence I have reviewed:
- (a) The Statement of Evidence of Mr Jason Bartlett, on behalf of the Submitters, dated 9 June 2017;
  - (b) The Statement of Evidence of Mr Anthony MacColl, on behalf of the New Zealand Transport Agency, dated 9 June 2017;
  - (c) The Statement of Evidence of Ms Wendy Banks, dated 24 May 2017;
  - (d) The Section 42A Report of Ms Vicki Jones, dated 24 May 2017; and
  - (e) The submission of the Jardine Family Trust and Remarkables Station Limited (#715).

### **BACKGROUND**

- 13 I understand that the submission seeks to intensify the extent of residential development within the Homestead Bay portion of the Jacks Point Zone (“JPZ”). As a potential consequence of this, the submission notes<sup>1</sup> that “*a third and fourth access point onto the State Highway may be required*”.
- 14 No details are provided within the submission in respect of the potential traffic-related effects of the intensification either within the JPZ or on the state

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<sup>1</sup> Submission paragraph 3.4

highway. However a Statement of Evidence prepared by Jason Bartlett sets out that:

- (a) The proposed zone change would allow for an increase of approximately 541 residential lots at the Homestead Bay area to a total of 785 lots<sup>2</sup>.
- (b) Access to the site is expected to be via Maori Jack Road under the Operative District Plan, and this arrangement will be retained<sup>3</sup>. However it is also expected that additional access points will be provided on Kingston Road (State Highway 6) in future<sup>4</sup>.
- (c) The existing Woolshed Road intersection onto Kingston Road will be upgraded in future to serve development in the area<sup>5</sup>, and a further access is to be developed between Woolshed Road and Maori Jack Road<sup>6</sup>.

### **EFFECTS ON QUEUES AND DELAYS AT THE ACCESSES**

- 15 Mr Bartlett discusses the potential changes in queues and delays at the Kingston Road / Woolshed Road intersection, noting that the Council's transportation model assumes that this will become the de facto main entrance to the JPZ. Allowing for 897 occupied residences, he sets out that the model indicates minimal queuing at the intersection<sup>7</sup>.
- 16 However he also notes that the model does not take into account the full extent of currently-permitted development of 1,430 occupied residences<sup>8</sup> (which is some 60% more than the model assumes). Since the traffic generation of a site is dependent upon the extent of development, this means that the model will have underestimated the amount of generated vehicles, and hence, the queues and delays will also be underestimated.
- 17 Mr Bartlett does not address the matter of the traffic generation of the Homestead Bay site (whether as part of the existing zoning or the zoning that is sought). However, it is commonly accepted by traffic engineers that a typical residential property generates around 1 vehicle movement in the peak hours. In practice, for a large residential area the rate is usually slightly lower, and so I have adopted the same traffic generation rates that the Council considered to

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<sup>2</sup> Bartlett evidence paragraph 13

<sup>3</sup> Bartlett evidence paragraphs 11 and 13

<sup>4</sup> Bartlett evidence paragraph 13

<sup>5</sup> Bartlett evidence paragraph 11

<sup>6</sup> Bartlett evidence paragraph 11

<sup>7</sup> Bartlett evidence paragraph 15

<sup>8</sup> Bartlett evidence paragraph 15

be appropriate when evaluating the Northlake subdivision in Wanaka (Plan Change 45), of 0.9 vehicle movement per household (two-way). Of these, 80% will exit the site in the morning peak hour (primarily due to travel to employment), with 20% entering, and in the evening peak hour 65% of vehicle movements will be associated with travel into the site and 35% will exit.

- 18 Consequently, the *difference* between the traffic volumes assumed by the model and those which may arise for the permitted development equates to a peak hour flow of an *additional* 480 vehicles. In the morning peak hour, I expect that around 380 of these additional vehicles will exit the site, with around 310 additional vehicles entering the site in the evening peak hour.
- 19 As a next step, I endeavoured to assess the effects of these additional vehicles on the Kingston Road / Woolshed Road intersection. Unfortunately there is no assessment of the forecast queues and delays within Mr Bartlett's evidence, and so I referred to his earlier advice for the Coneburn industrial zone change submission (#361), which he notes included modelling of the Kingston Road / Woolshed Road intersection<sup>9</sup>. However, this also does not include details of queues and delays at the intersection.
- 20 Consequently, I have not been able to identify the changes in queues and delays which may arise as a result of the traffic generated by the permitted development, using the same basis as Mr Bartlett.
- 21 It follows that I have also been unable to assess the effects on queues and delays arising from the additional 541 lots that could occur if the rezoning sought by the Submitters was to be accepted.
- 22 In my view, it is not appropriate to rely on the reported outcomes of the modelling that has been carried out because this is based on the traffic generated by 897 residences using the intersection, whereas the submission would result in a total of 1,971 residences using the intersection.

#### **EFFECTS OF ADDITIONAL ACCESSES ONTO KINGSTON ROAD**

- 23 The submission sets out that it is likely that additional accesses will be developed to serve the site, and Mr Bartlett discusses two locations for these<sup>10</sup>. In my view however, these accesses will not resolve the issues arising from any congestion which may arise due to the increased traffic flows associated with the intensification of the Homestead Bay area.

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<sup>9</sup> Bartlett evidence paragraph 15

<sup>10</sup> Bartlett evidence paragraph 18

- 24 One particular aspect of the location of the site is that the bulk of generated traffic is likely to travel to and from the north, since this is the direction of the majority of employment opportunities. Taking the morning peak hour as an example, I expect that at least 85% to 90% of traffic will turn in this direction.
- 25 Mr Bartlett points out that the Kingston Road / Woolshed Road intersection is expected to accommodate the bulk of the traffic associated with development in the area. In the event that there are significant queues and delays at this intersection, it is reasonable in my view that drivers will instead seek to use another of the accesses that are proposed onto the highway, further to the south.
- 26 Notwithstanding this, any drivers that use such an alternative access will continue to pass through the Kingston Road / Woolshed Road intersection – but rather than being on Woolshed Road, these vehicles will instead become through-traffic on the highway. This is because the bulk of drivers will be travelling towards Frankton and Queenstown.
- 27 Those drivers that continue to use Woolshed Road therefore have a reduced opportunity to emerge onto the highway, because the gaps in the traffic that previously existed are used by the vehicles that have diverted. In turn, fewer gaps mean that the queues and delays for those vehicles using Woolshed Road will increase.
- 28 In summary, if there are large queues and delays at the Kingston Road / Woolshed Road intersection:
- (a) Some drivers will use an alternative route further south;
  - (b) All things being equal, this will reduce the queues and delays at the Kingston Road / Woolshed Road intersection because there are fewer vehicles; however
  - (c) The drivers that have diverted become through traffic on the highway at the Kingston Road / Woolshed Road intersection; meaning that
  - (d) There are therefore fewer gaps at the intersection for drivers on Woolshed Road to emerge onto the highway; and
  - (e) This offsets any benefits in reduced queues and delays arising from the reduction in traffic.
- 29 For this reason, I consider that it is important to ensure that the Kingston Road / Woolshed Road intersection continues to operate with a good level of service in the peak hours. If it does not, then in my view it is unlikely that improvements could be achieved through providing alternative access points. However I do not

consider that sufficient information has been provided with regard to the operation of the intersection.

### **EFFECTS OF ADDITIONAL TRAFFIC ON THE INTERNAL JPZ ROADING NETWORK**

- 30 Neither the evidence nor the submission discuss the potential effects of the additional traffic volumes on the safe and efficient functioning of the internal road network of the JPZ. Specifically, if an additional 541 lots are developed such that 785 lots are permitted in Homestead Bay, it is unclear whether any roading improvement schemes are required to accommodate the additional vehicles that will be generated.
- 31 Of particular relevance in this regard is that the Council's Subdivision Code indicates that there is a 'step-change' when a road serves more than 800 residences. Below this threshold, a carriageway of 5.5m width is required with 1.5m footpaths on both sides. Beyond 800 residences, a carriageway of 8.4m width is required with 2.0m footpaths on both sides.
- 32 Since the intensification of Homestead Bay would create around 800 lots, in my view it is likely that there will be consequential need for road and footpath widening, but this has not been addressed. As a result, there is no method proposed by which the Submitters are required to remedy the effects of the additional traffic generation.

### **REVIEW OF STATEMENTS OF EVIDENCE**

- 33 The Statement of Evidence of Mr MacColl for the New Zealand Transport Agency sets out that the Agency wishes to have certainty regarding the effects on the safe and efficient functioning of Kingston Road. He highlights that the process of providing additional accesses onto the highway should be separate to the District Plan Review so that the Agency can ensure that the highway is not adversely affected. He supports the recommendation of the 1D s42A Report that the increased use of existing accesses, or the formation of new accesses, should be a Restricted Discretionary Activity.
- 34 I partially support Mr MacColl's views, but in my view, in the absence of a more accurate assessment of the traffic effects, I do not believe a Restricted Discretionary Activity alone will achieve the aims of NZTA in ensuring a safe and efficient highway network. This is because of the lack of clarity regarding how the need for further accesses will be determined when an application to intensify development at Homestead Bay is made.
- 35 Given that the sequencing of the JPZ is not determined, it is possible that the Homestead Bay area will develop more quickly than the remainder of the zone.

Accordingly, any efficiency issues at the Kingston Road / Woolshed Road intersection will not necessarily be apparent at the time of the Homestead Bay application. If the application is granted based on the then-prevailing traffic flows, and then the balance of the JPZ is developed and the intersection is found to be overloaded, there is no method available for NZTA to require the submitters to rectify the situation.

- 36 In my view this could be addressed in two ways. One would be to ensure that the relevant Matter of Discretion specifically notes that any application to intensify development at Homestead Bay must assess the efficiency of the Woolshed Road intersection making allowance for full development of the balance of the JPZ. In my experience of similar rules, this presents some practical difficulties in robustly determining the extent of development at the time and thus what available development capacity remains.
- 37 The second approach would be to make any intensification of Homestead Bay a Discretionary Activity until such time as an additional point of access is provided onto the highway. This removes the need for any assessment of the traffic effects at the time, and ensures effects on both internal JPZ roading and the SH are considered.
- 38 Notwithstanding this, and as I have highlighted above, if there is significant queuing and congestion at the Kingston Road / Woolshed Road intersection, it is unlikely that this could be resolved through the provision of an alternative access, irrespective of its planning status.
- 39 Ms Banks sets out that in her view, there is insufficient information to assess potential impacts at the proposed access intersections onto Kingston Road, and also the additional traffic in the greater road network (including through Frankton). Accordingly, she does not support the proposed intensification sought by the submission.
- 40 I agree with Ms Banks with regard to the absence of information regarding the effects of the additional traffic loadings onto Kingston Road as I have noted above. However in my view it is not appropriate to assess the roading network further afield because as distance from a site increases, generally any adverse traffic effects disperse and reduce. Although this will occur to a lesser extent in this instance due to the linear roading network, Frankton lies more than 4km from the site. In my experience it is highly unusual to assess effects at such a distance, even in heavily congested situations.
- 41 Ms Vicki Jones considers that additional traffic information is required for the proposed zone change. For the reasons set out above, I agree with her views.



42 In large part, I have addressed the matters discussed in Mr Bartlett's evidence. In brief though, he appears able to support the submission subject to conditions. However the modelling upon which he has based his conclusions is not reported, and so cannot be verified. Moreover, it appears that he has not taken into account the full extent of traffic flows that are likely to arise, both as currently permitted and also with the proposed rezoning in place, and consequently I consider that any modelling is likely to have underestimated queues and delays.

43 Mr Bartlett has also not acknowledged that on this section of the highway, the performance of the access intersections is inter-related due to turning traffic at one becoming through-traffic at another. As such simply providing additional capacity or a new intersection at one location has an adverse effect at other intersections located towards the north, and this has not been quantified.

### **SUMMARY AND CONCLUSIONS**

44 Overall, I consider that the information provided is deficient in five important ways:

- (a) The modelling which has been relied upon is not reported in any Statements of Evidence and so its veracity cannot be assessed;
- (b) From the information provided by Mr Bartlett, the modelling has significantly underestimated the extent of traffic generation, with the traffic that could be generated under the permitted and proposed rezoning being twice as great as modelled;
- (c) No allowance has been made for the traffic emerging from one intersection to affect the efficiency of the intersection(s) further towards the north;
- (d) It is unclear when new accesses will be required to be provided, although this could be addressed through strengthening the planning provisions as I have discussed; and
- (e) It is unclear what effects will arise on the internal JPZ road network, as there has been no assessment of this, nor of how any adverse effects will be addressed.

45 Consequently I do not consider that there is sufficient information provided to robustly form a view on the traffic-related effects of the rezoning sought.

**Andy Carr**

**7 July 2017**