

BEFORE THE COMMISSIONERS AT QUEENSTOWN

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Proposed Plan Change 44, Hanley Downs Zone, Queenstown

STATEMENT OF EVIDENCE

Evidence of: TIM KELLY, Director Tim Kelly Transportation Planning Ltd

Subject Area: Transportation Issues

On Behalf Of: RCL

Date: 26 June 2015

INTRODUCTION

- 1 My name is Tim Kelly. I am a director of my own traffic engineering and transportation planning practice.
- 2 I have worked in the traffic engineering and transportation planning field since 1983. I hold a Bachelor of Arts degree in Geography, and a Master of Science degree in Traffic Engineering and Transportation Planning, both from the University of Sheffield in the United Kingdom.
- 3 I am a full Member of the Chartered Institute of Logistics and Transport, and the IPENZ Transportation Group (a Technical Interest Group of IPENZ).
- 4 My career to date has been spent in the consultancy sector of transportation, in both the United Kingdom and New Zealand. During my career, I have provided policy advice regarding traffic and transportation matters, and undertaken assessments for a wide variety of development proposals.

CODE OF CONDUCT STATEMENT

- 5 I have read the Code of Conduct for Expert Witnesses issued as part of the Environment Court Practice Notes. I agree to comply with the Code and am satisfied that the matters which I address in my evidence are within my field of expertise. I am not aware of any

material facts that I have omitted which might alter or detract from the opinions I express in my evidence. I understand that I have an overriding duty to assist the hearing in an impartial manner and that I am not an advocate for the party which has engaged me.

SCOPE & INVOLVEMENT

- 6 RCL has requested a private plan change (PC44) to the Queenstown Lakes District Plan. PC44 seeks to re-zone 520 Ha of land from the 'Jacks Point Resort Zone' (JPRZ) to a new 'Hanley Downs Zone' (HDZ). As part of the Requestor's revised position, Hanley Downs would remain part of the Jacks Point Zone.
- 7 The PPC44 application was lodged in February 2013 and was supported by a Transportation Assessment Report (TAR) dated December 2012 and prepared by consultants Traffic Design Group (TDG).
- 8 I was engaged by RCL in June 2013 to review the transportation issues associated with the pattern of development which would be enabled by PC44, specifically those which had been raised in submissions. In doing so, I have undertaken a detailed visit to the area and I have liaised with officers of both the Council and the New Zealand Transport Agency (NZTA).
- 9 I prepared evidence for the hearing which was to take place in November 2013. I have now updated that evidence to reflect changes to the proposals and updated background information relating to traffic volumes and crash records for the area.
- 10 My evidence is provided in support of PC44 and relates solely to transportation matters. In this evidence, I:
 - identify what I consider to be the key transportation issues;
 - update the existing situation as reported in the TAR prepared by TDG;
 - update the TDG assessment in terms of the likely levels of transportation demand associated with the pattern of development enabled by PC44;
 - provide a description of the proposed arrangements for access to State Highway 6 (SH6);
 - provide an evaluation of the expected effects of PC44 in terms of transportation

matters;

- respond to issues raised in submissions;
- respond to issues raised in the s42a report; and
- present my conclusions.

KEY ISSUES

11 I believe the key transportation issues to be:

- external connectivity to SH6 (location, form, safety, capacity, planning mechanism);
- external effects upon the wider road network; and
- internal provision for roads, walking, cycling, bus routes.

12 These are the issues which I address in my evidence.

EXISTING SITUATION

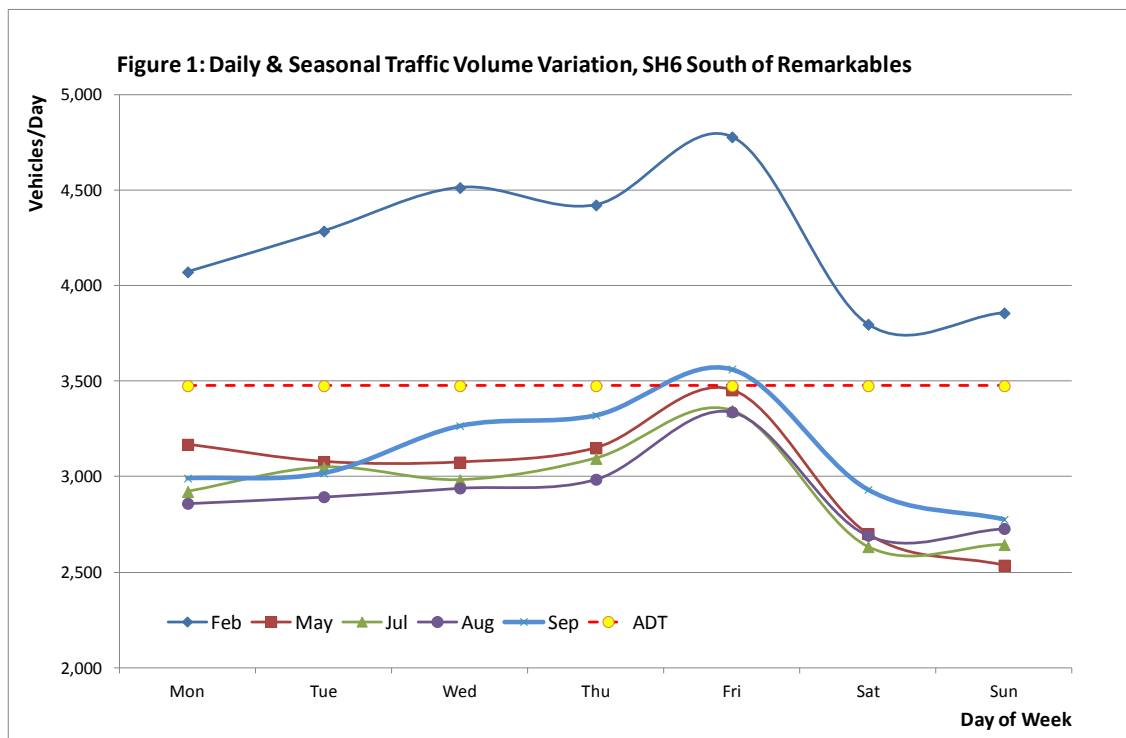
13 The area and road environment to which PC44 relates are well described by the TAR. I have provided a number of photos at **Annexure A** which show the environment in the vicinity of the existing Woolshed Road intersection with SH6.

Traffic Volumes

14 Table 1 of the TAR summarised traffic volumes on SH6 for the period 2007 – 2011, with an annual growth rate of 1.9%. The corresponding observed volume for 2014 is 3,480 vehicles/day (of which 10% were heavy vehicles), which increases the annual average growth rate for the period 2007-2014 to 3.0%¹. Much of this increase is likely to be due to development in the Jacks Point area, as an analysis of traffic count locations on SH6 to the south indicates lower levels of growth.

15 **Figure 1** shows the variation in recent (2014) traffic volumes between days of the week and five months of the year. This indicates that the highest traffic volumes are generally experienced on Fridays. Daily traffic volumes range between 15% below the annual average (July) to 22% above (February).

¹ of 2014 volumes



Crash Records

- 16 I have re-examined the crash history for the area reported in the TIA. Two further incidents have been reported in the period since April 2012. From this, I concur with the conclusions reached in the TIA, that whilst the crash rate for this section of SH6 is higher than expected, this is largely attributable to problems associated with stray animals.
- 17 I do not consider that there are any other systemic safety problems in this area which would preclude the construction of a new intersection.

PLANNED CHANGES TO TRANSPORTATION NETWORK

- 18 A commencement of works on the Kawarau Bridge replacement is imminent following confirmation of the proposed alignment. Completion is expected in 2017.
- 19 There are no other committed proposals which affect this part of SH6.

TRANSPORTATION DEMAND

- 20 PC44 will enable a change in the pattern and intensity of development compared to that which is currently permitted by the operative plan rules.
- 21 In terms of traffic activity, the effect of PC44 relates to the change rather than the total traffic generation associated with the development of this area under PC44. This means that the existing baseline of traffic volumes provided for by the zoning of Jacks Point,

including that applicable to Hanley Downs, needs to be taken into account.

THE PLAN CHANGE PROPOSAL

Land-Use / Development

22 In general terms, the principal land-use changes (relative to the current controls) which would be associated with PC44 are:

- a higher density of residential development;
- a larger overall area available for development; and
- a reduction in the extent of commercial development.

23 The rate of development enabled by PC44 will be market-driven and is expected to be gradual over a period of many years. This means any effects in terms of transportation demands will not occur immediately but will similarly develop in a gradual manner.

Internal Transportation Network

24 The proposed road network, street designs, provision for walking / cycling networks and public transportation will be controlled through a Structure Plan. Corresponding rules have been introduced to help determine the level of variance from the Structure Plan which will be deemed acceptable when making consent applications.

External Connectivity

25 As shown on the Structure Plan, provision has been made for the main road through the development area to connect to SH6 in the vicinity of the existing Woolshed Road intersection. At its southern end, this road would connect to the existing Jacks Point area. Also shown on the Structure Plan are other roading connections that are to be made to the Jacks Point area.

EFFECTS OF THE PROPOSED PLAN CHANGE

Expected Pattern of Development

26 As I have noted above, PC44 will change the composition of development within the Hanley Downs area.

27 I have relied upon advice from the Requestor's planning witness (Mr Wells) regarding the type and scale of development that is most likely to eventuate at Jacks Point and

this is summarised in **Table 1**. Whilst he has endeavoured to identify the most realistic scenario, this nonetheless remains reliant upon a number of assumptions.

Activity Type	Units	Hanley Downs Zone Control			Jacks Point
		Existing	Proposed	Change	
Dwellings	Number	1,296	1,316 / 2,228	+ 20 / +932	1,180
Visitor Accommodation	Number	n/a	n/a	n/a	345
Office	m ² GFA	1,500	100	- 1,400	1,500
Retail	m ² GFA	3,000	400	- 2,600	4,000
Primary School	students	800	800	n/a	n/a
Pre-Schools	students	n/a	70	+ 70	n/a
Secondary School (private)	students	n/a	300	+ 300	n/a
Golf Course	n/a	n/a	n/a	n/a	Provided

TABLE 1: Expected Development Mix: Existing and Proposed Zone Controls, Hanley Downs

28 I note that assumptions relating to the extent of development that would occur in Hanley Downs (under the plan change) and other parts of Jacks Point have been revised from what was used in the TAR.

29 **Table 1** indicates that the effect of the change in zone controls sought under PC44 would be:

- more residential activity, with an additional 20 dwellings under the low yield scenario and an additional 932 dwellings for the high yield scenario
- less office activity (by around 1,400m² GFA);
- less retail activity (by around 2,600m² GFA); and
- more educational activity (the addition of a pre-school and a secondary school).

30 **Table 1** also summarises the expected activity mix for the 'balance' Jacks Point land.

Traffic Generation

31 I have estimated the volume of external traffic activity which may be associated with both the 'existing' and proposed development scenarios, summarised by **Table 2**.

32 Such analyses are reliant upon a number of assumptions. Most significantly, each dwelling has been assumed to generate 8 total vehicle movements per day, as required by the Council’s development standards.²

Period	Direction	Hanley Downs Zone Control		Change	
		Existing	Proposed	Number	%
AM Peak (vehs/hr)	Arrivals	410	440 / 550	30 / 140	+7 / +34
	Departures	990	1,080 / 1,390	90 / 400	+9 / +40
	2-Way	1,400	1,530 / 1,940	130 / 540	+9 / +39
PM Peak (vehs/hr)	Arrivals	920	950 / 1,220	30 / 300	+3 / +33
	Departures	400	380 / 470	-20 / 70	- 5 / +18
	2-Way	1,320	1,330 / 1,690	10 / 370	+1 / +28
Weekday (vehs/day)	Arrivals	7,050	7,350 / 9,400	300 / 2,350	+4 / +33
	Departures	7,050	7,350 / 9,400	300 / 2,350	+4 / + 33
	2-Way	14,100	14,690 / 18,790	590 / 4,690	+4 / +33

TABLE 2: Expected External Traffic Activity, 2027

Note: Figures relate to combined Jacks Point & Hanley Downs areas

33 In my view, a proportion of these will be internal to the combined Jacks Point and Hanley Downs area, because these will be associated with trips to or from the available retail, commercial, educational or recreational activities. In this respect, I have assumed that 65% of the ‘existing’ Hanley Downs residential trips would be external, increasing to 75% under the plan change, reflecting the reduced scale of internal retail and commercial activities (but partly offset by the effect of providing educational facilities).

34 For the residential component of the development, I have also applied an ‘occupation adjustment’ of 75% to reflect that at, as holiday or second homes, at any time a proportion of the dwellings will be unoccupied.³

35 In my view, the combined effect of these assumptions is still likely to result in an over-estimate of external vehicle trips. This is because the remoteness of the area from the Frankton and Queenstown urban areas is likely to result in a daily rate of trip activity which is lower than that for more conventional residential development in suburban areas.

36 As shown by **Table 2**, I consider it reasonable to expect an increase in total and external vehicular activity as a result of the pattern of development enabled by PC44, on the basis of increased residential development and less retail and commercial activity.

² *Development and Subdivision Engineering Standards (Section 3.3.2.1). QLDC, September 2005.*

³ *Figure for 2006 (for Wakatipu area) from Council Community Plan 2009-19.*

37 The figures I have presented in **Tables 1** and **2** make no specific allowance for commercial or technological activities within the Education Innovation Campus (EIC). This is because it is as yet uncertain what activities might occupy this area.

38 In general, such activities would create employment, attracting external arrivals during the morning peak and departures during the evening peak. Also, and to the extent that some employees would live within the Hanley Downs or Jacks Point areas, there would be some suppression of external traffic activity associated with residential dwellings.

39 For these reasons, I do not consider that such development would materially change my conclusions regarding the performance of and effects upon the road network.

External: SH6 / Woolshed Road Intersection

40 A new intersection is proposed to access SH6 a short distance to the south of the existing Woolshed Road intersection. This intersection will provide a more direct route between

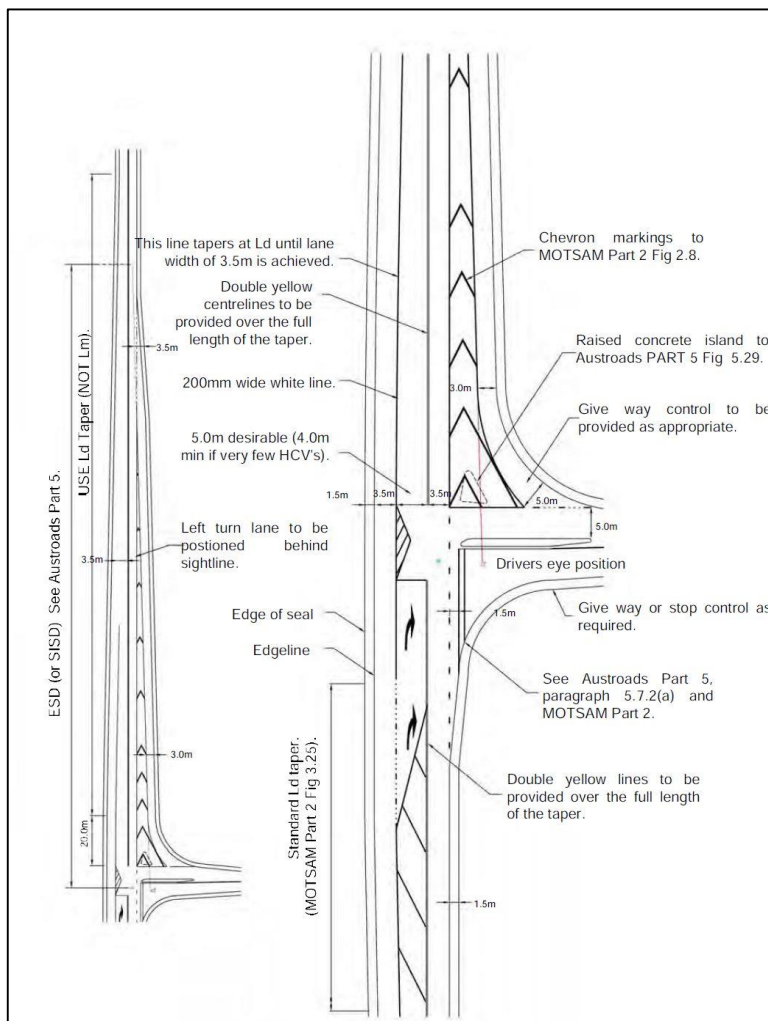


Figure 2
Generic Form of
Woolshed Road / SH6
Intersection
(Source: Manual of
Traffic Signs and
Markings)

development areas and Queenstown/Frankton and avoid the congestion which would

otherwise develop at the Maori Jack Road intersection.

- 41 This intersection, shown in generic form by **Figure 2**, would be similar to that currently provided at the Maori Jack Road intersection, with the left-turn entry movement separated by a flush median marking.
- 42 Differences from the Maori Jack Road intersection are likely to be:
- a shorter left-turn / deceleration lane from the south - because low volumes would wish to make this turn;
 - a longer right-turn lane from the north - perhaps 35-45m⁴; and
 - the provision of a lane to enable the high volume turning left from Woolshed Road towards the north to merge with through movements on SH6.
- 43 I have modelled the performance of this intersection using the software package SIDRA6. This modelling relates to the year 2027, for the weekday AM and PM peak hours. Background traffic volumes using SH6 at these periods have been obtained from the NZTA counts (for February) and factored to 2027.
- 44 With regard to the distribution of the external trips on to SH6, I have assumed that 80% would be to/from the north (Frankton / Queenstown).
- 45 I have further assumed that 25% of the traffic between Jacks Point and SH6 (North) would travel via Woolshed Road, as this would be likely to offer a more convenient route for some movements. Similarly, I have assumed that 80% of the traffic between the Hanley Downs area and SH6 (South) would travel via Maori Jack Road.
- 46 The results of the SIDRA6 modelling of the Woolshed Road intersection are summarised by tables at **Annexures B** and **C** for the 'Permitted' and 'PC44' scenarios respectively. The 'PC44' scenario assumes the maximum extent of residential development (high yield) identified by **Table 1**.
- 47 These results indicate that:
- there would be virtually no impacts upon the through movements on SH6;

⁴ For comparative purposes, the existing right-turn lane provided at the Maori Jack Road intersection to the south is 22m long.

- the 'merge' arrangement I have described would allow the large left-turn movement from Woolshed Road to SH6 (north) in the AM peak period to be accommodated with minimal levels of delay;
- the queue length for the right-turn movement from SH6 (north) into Woolshed Road during the PM peak period would extend beyond the available length of the right-turn bay (77m vs. 45m available).

48 This last point is an important one, as queues extending beyond the length of the right-turn bay would not only cause potential delays to through movements but would also create a safety problem.

49 However, I consider that the traffic volumes used as the basis of these assessments to be very much towards the upper end of what may eventuate, on the basis that:

- I have assumed the highest extent of residential development (based upon the 'high yield' scenario);
- full development has been assumed to occur by 2027 – in practice I understand this to be unlikely;
- the number of trips associated with each residential unit is likely to be lower than I have assumed;
- the existing SH6 counts already include an element of traffic associated with the existing Jacks Point development;
- part of the assumed growth in SH6 volumes is that associated with growth of the type planned for this area and hence an element of 'double-counting' is likely;
- no allowance has been made for any reductions associated with the provision of public transport services, which could well be justified for the combined development in the future; and
- in the longer term, the growth in SH6 volumes may be suppressed if any of the proposals for the provision of a more direct transportation facility between Queenstown and Milford / Te Anau eventuate.

50 For these reasons, I believe it to be unlikely that the 'worst-case' traffic demands will

eventuate, or at least will not occur until a long time into the future.

51 Given this uncertainty, I ran a sensitivity test on the performance of the Woolshed Road intersection which adopted the 'low yield' scenario for residential development (1,316 dwellings, refer **Table 1**), but with all other parameters unchanged. This test relates to the PM peak period only. The results of this test, shown at **Annexure D**, indicate that the critical queue length problem I identified above would not eventuate at these lower levels of traffic demand (with a queue length of 27m, within the available 45m length of the right-turn bay).

52 From this analysis, I conclude that:

- future traffic volumes are sensitive to a range of parameters, especially the rate and type of development;
- the intersection can be scaled to accommodate any level of development;
- the construction of the intersection to the highest standard at the outset would be likely to result in unnecessary over-provision, certainly in the short-term and possibly permanently if the scale of development and associated traffic activity does not eventuate.

53 The key objectives, agreed with the NZTA, is that the intersection should at all times operate safely and at an acceptable level of service.

54 This means that a planning mechanism is required which ensures that the intersection performance is reviewed and, if necessary, the intersection is upgraded prior to traffic levels reaching a point at which there is a significant degradation of its performance.

55 The need for such a mechanism has been acknowledged and this continues to be the subject of discussions with the NZTA. At the time of writing, these discussions have not been concluded though there appears to be agreement in principle. I will provide an update on this issue at the hearing.

External: SH6 / Maori Jack Road Intersection

56 No changes are proposed to the SH6 / Maori Jack Road intersection. I understand that the current zone controls applicable to Jacks Point specifically preclude the provision of any connection to SH6 additional to Maori Jack Road.

- 57 Without the provision of a connection at Woolshed Road, this intersection would be unable to accommodate the combined traffic demands associated with the 'balance' Jacks Point area and either the 'permitted' development at Hanley Downs or that proposed under PC44. This was demonstrated by the TIA and remains the case.
- 58 Accordingly, the commitment to a new intersection at Woolshed Road as part of PC44 will avoid a requirement to upgrade the Maori Jack Road intersection (which does not appear to have been anticipated and for which there is no clear responsibility).
- 59 The provision of internal linkages between the Hanley Downs and the 'balance' Jacks Point area (as indicated on the Structure Plan) is logical, allowing vehicle movements between these areas to use the most direct route and avoiding additional travel along SH6.
- 60 As I have described, the availability of such a link will mean that some vehicle movements between Hanley Downs and SH6 South are likely to find it more convenient to use Maori Jack Road. At the same time, a larger volume of trips between the 'balance' Jacks Point area and SH6 North is likely to route through Hanley Downs and use Woolshed Road. As a result, the Woolshed Road intersection will be used by a reasonable number of Jacks Point vehicle trips, with a beneficial effect upon conditions at the Maori Jack Road intersection, negating the need for its upgrade.
- 61 The proposed rules⁵ include a requirement that no more than 500 residential dwellings be built within the Hanley Downs area without the availability of the Woolshed Road / SH6 intersection. Assessments I have undertaken indicate that the SH6 / Maori Jack Road intersection would be able to accommodate traffic demands associated with this level of development and assuming the full development of the 'balance' Jacks Point area.

External: Wider Effects Upon SH6

- 62 PC44 will result in some increase in the volumes of traffic using SH6 North and the Kawarau Bridge, although this should be viewed in the context of a gradual but significant increase already enabled by the current zone controls for this area.
- 63 The NZTA has not opposed PC44 on the basis of potential effects at Kawarau Bridge.

⁵ *Proposed Resort Zone Rule 12.2.5.1 iv (b)*

Rather, its view has been that the incremental increase in future traffic volumes resulting from PC44 contributes to the 'case' for advancing the project.

- 64 As I have indicated, the bridge replacement project is now imminent, with completion expected in 2017. This provides certainty that this local bottleneck will be relieved in advance of any significant additional development enabled by PC44.

Internal: Roding Network

- 65 The Structure Plan indicates the location of the 'spine route' through the development area, its connection to SH6 in the north and into Jacks Point in the south, and secondary road access locations. Roding connectivity will be required to be in accordance with the Structure Plan and relevant district plan rules.

- 66 I have reviewed the relevant policies, rules and assessment matters in the latest version of the Requestor's plan change and I am comfortable that a framework exists which will provide for flexibility in the design and provision of roads, walking/cycling and public transportation facilities. Importantly, QLDC would retain a high degree of involvement and control regarding the final design details.

Internal: Promotion of Alternative Modes of Transportation

- 67 The scale of the combined Jacks Point / Hanley Downs area may justify the provision of a public bus service linking to Frankton and Queenstown.

- 68 It is fully intended that the internal roading layout will facilitate bus movements. In this respect, the provision of a new access by means of Woolshed Road will allow a more direct route to many parts of the development with the possibility of a circular route also utilising Maori Jack Road.

- 69 Provision will be made to encourage walking and cycling for shorter distance movements within the combined development area.

- 70 The provision of appropriate facilities for walking and cycling and public transportation will be required by the rules to be applied through the subdivision process.

RESPONSE TO SUBMISSIONS

- 71 I have reviewed the submissions which have been made in relation to the proposal, and address the relevant issues these raise below.

New Zealand Transport Agency

- 72 **Issue:** the NZTA seeks that three existing authorised crossing points to the proposed resort zone (designated CPs 60, 62 and 63) be closed with alternative access via Woolshed Road. Further, it seeks that no access points be provided to SH6 other than at the formed intersections.
- 73 **Response:** I agree that in due course it would be logical for these access points to be closed, subject to this being feasible in practice.
- 74 **Issue:** the NZTA seeks that the new Woolshed Road intersection include a median separated left-turn lane to ensure the safety and functionality of SH6.
- 75 **Response:** the intersection proposed by the Requestor will be provided to this standard (as I have shown by reference to **Figure 2**). I understand that in due course this would be subject to NZTA approval.
- 76 **Issue:** the NZTA seeks that some provision be made for the future upgrade of the SH6/Woolshed Road intersection as the development progresses. The submission suggests the possible requirement for a roundabout. Specifically, the NZTA requires that a mechanism is required by which funds be provided by the Requestor to enable the necessary works to be undertaken.
- 77 **Response:** As I have indicated, discussions around this issue have been progressing and appear capable of resolution subject to the appropriate wording of a control mechanism. I will provide an update on this at the hearing (and I understand that the NZTA will also be represented).

Queenstown Lakes District Council

- 78 **Issue:** the QLDC submission raises a concern regarding the lack of information relating to the proposed spine road through the development area and the timing of a connection to the Jacks Point area. It also seeks that the location of connections to SH6 and Jacks Point be fixed (to within 50m).
- 79 **Response:** Planning witness Mr Wells discusses the matter of the design of the main road and makes the case that a prescriptive approach to the design of this road is not necessary for a plan change. I have reviewed the framework for assessing proposals that would involve a design of this road and am satisfied that it should provide for a

robust assessment with respect to transportation matters.

- 80 With respect to the degree to which the intersection at SH6 can be moved, I have investigated the possibility of an intersection point approximately 120m further south from what was shown in the notified version of PC44. I understand the Requestor is interested in building an intersection at this location as this has been anticipated by tree planting in this area.
- 81 I have assessed this location and I believe that an acceptably safe intersection can be accommodated. Given that this is a Limited Access road, with the NZTA making the final decision on preferred location and design, I am comfortable that there is no need to preclude the possibility of an intersection at a point further south. Therefore, I am comfortable with the location being shown as indicative in the District Plan, or a range of up to 120m from the point shown on the structure plan being provided for within the planning rules.

Remarkables Park Ltd & Shotover Park Ltd

- 82 **Issue:** the RPL submission is concerned that no assessment has been undertaken of the effects of additional traffic upon the Kawarau Bridge.
- 83 **Response:** As I have described, the bridge project is now imminent. I have also noted that PC44 would have a relatively small incremental effect relative to traffic demands associated with activities currently permitted by the district plan.
- 84 In this regard, I believe it is relevant to observe that the NZTA has not raised any concerns in relation to the effects of PC44 upon conditions at the Bridge.

Otago Regional Council

- 85 **Issue:** the ORC submission identifies a number of points for consideration during detailed planning to promote servicing of the area by public transport services and encourage the uptake of walking and cycling.
- 86 **Response:** As I have described, the area will facilitate access by public transport vehicles. The Structure Plan identifies a number of public access routes, which together with the road network will provide for a high degree of walking and cycling permeability within the development area.

Southern District Health Board

87 **Issue:** the SDHB submission supports provision for public transport services and the establish of a walking / cycling corridor along SH6 between the development area and Frankton.

88 **Response:** The development will facilitate public transportation, walking and cycling. While I would support the establishment of an external corridor for walking and cycling to Frankton, such an initiative would require land beyond the control of the Requestor. For this reason, an investigation into such a link would be more appropriately driven by QLDC and the regional council.

Lakeside Estate Home Owners Association Inc

Peter Knox & Julie Horwood

89 These submissions raises similar concerns to those of RPL regarding the Kawarau Bridge, which I have addressed above.

RESPONSE TO S42A REPORT

90 I have read the s42A report of the planning officer, Vicki Jones, dated 23 June 2015.

91 In general, I am in agreement with the recommendations which have been made relating to the planning controls, though in this respect I defer to the advice of Mr Wells as the planning expert.

92 On page 74, the planning officer suggests that the Requestor may need to provide evidence to substantiate the suggested threshold of 500 houses, beyond which the Woolshed Road intersection would be required.

93 As I have described above, I can confirm that I have assessed this operation of this intersection with traffic demands associated with 500 dwellings in Hanley Downs and the full development of the 'balance' Jacks Point land, and that this would operate satisfactorily.

94 The planning officer also raises the issue of traffic demands associated with the activities within the EIC in the context of the threshold above. In my view, given the location of the EIC close to the Woolshed Road intersection, it would be logical to make any development in this area conditional upon the upgraded Woolshed Road intersection being available. The planning expert, Mr Wells, will address this matter further.

CONCLUSIONS

95 Returning to the key issues I have identified, my conclusions are as follows:

- the current zone controls in this area enable significant development without any requirement for any additional access to SH6 to that provided by the Maori Jack Road intersection;
- the Maori Jack Road intersection will be unable to accommodate all of the traffic movements associated with this development, requiring an eventual upgrade for which the responsibility is not defined by existing controls;
- PC44 will change the balance of activity-types enabled within Hanley Downs, with an increase in residential development and a reduction in the amount of commercial development;
- the net effect of this is likely to be an increase in the number of daily development-related external vehicle movements of 4% - 33%;
- PC44 provides for a second external access point for this combined development area, by means of Woolshed Road and a high-standard priority intersection with SH6;
- discussions are still taking place with the NZTA regarding the precise detail of this intersection and a mechanism to ensure that it will be appropriately upgraded if and when required in the future;
- the proposals will secure a high standard of internal connectivity for all modes of transport and will encourage internal movement by walking and cycling;
- there is no longer any justification for constraining development enabled by PC44 as a result of conditions at the existing Kawarau Bridge.

96 For these reasons, I do not consider that there is any justification to decline PC44 on the basis of the transportation matters which I have addressed.

Tim Kelly

June 2015

ANNEXURE A: PHOTOS OF ROAD CONDITIONS IN AREA

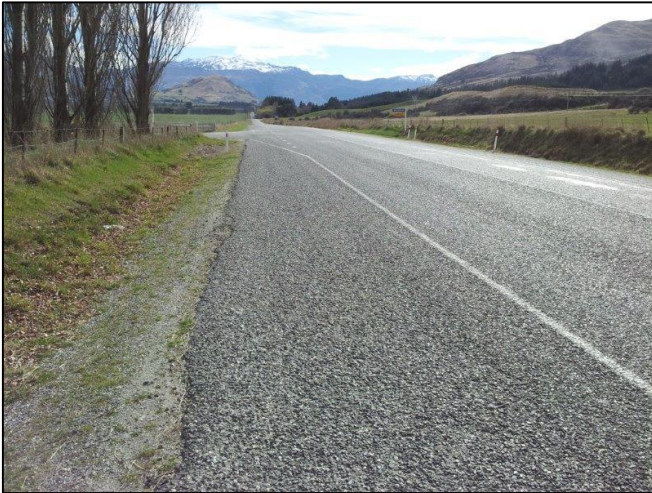


Photo 1

View to north along SH6, existing Woolshed Road intersection on left
(August 2013)

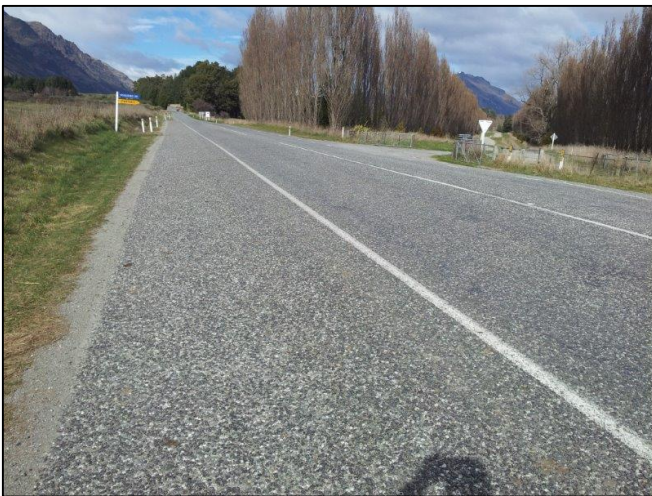


Photo 2

View to south along SH6, existing Woolshed Road intersection on right
(August 2013)

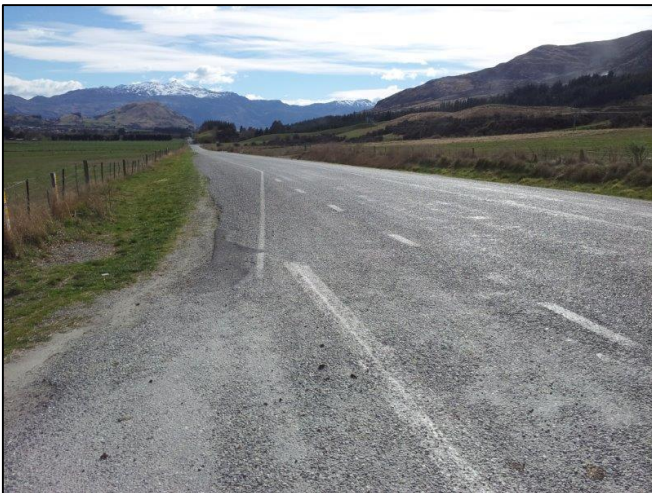


Photo 3

View to north along SH6 from existing Woolshed Road intersection
(August 2013)

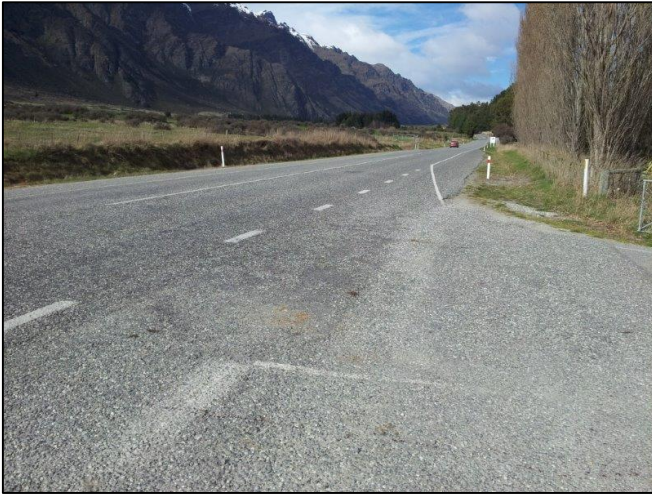


Photo 4

View to south along SH6 from existing Woolshed Road intersection

(August 2013)



Photo 5

View of existing Woolshed Road intersection

(August 2013)

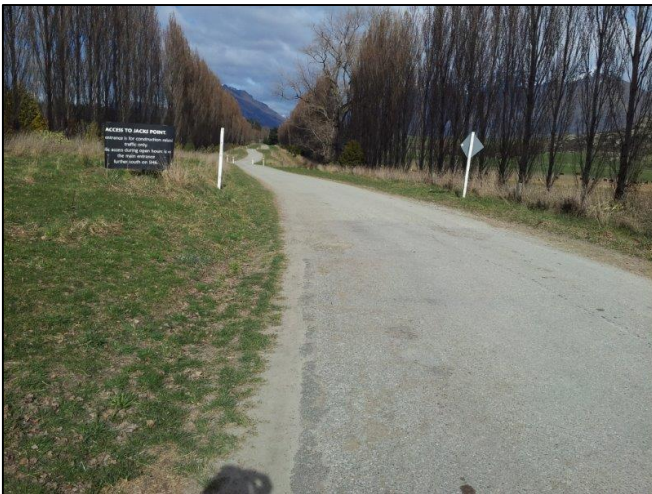


Photo 6

Woolshed Road adjacent to existing SH6 intersection

(August 2013)

ANNEXURE B: WOOLSHED ROAD INTERSECTION PERFORMANCE, 2027 (Permitted)

Period	Approach	Movement	Movement					Approach					Intersection				
			Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS	Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS	Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS
AM Peak, 2027, Permitted	SH6 S	Left	6	12.6	0%	0.0	LOS B	542	0.2	29%	0.0	NA	1,537	6.5	65%	35.0	NA
		Through	536	0.1	29%	0.0	LOS A										
	Woolshed	Left	439	15.1	65%	35.0	LOS C	456	15.1	65%	35.0	LOS C					
		Right	17	16.0	5%	1.2	LOS C										
	SH6 N	Through	363	0.0	20%	0.0	LOS A	539	5.7	24%	7.3	NA					
		Right	176	17.3	24%	7.3	LOS C										

Period	Approach	Movement	Movement					Approach					Intersection				
			Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS	Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS	Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS
PM Peak, 2027, Permitted	SH6 S	Left	16	12.6	1%	0.0	LOS B	372	0.6	19%	0.0	NA	1,482	6.0	44%	21.0	NA
		Through	356	0.0	19%	0.0	LOS A										
	Woolshed	Left	178	9.4	20%	5.7	LOS A	184	9.6	20%	5.7	LOS A					
		Right	6	16.3	2%	0.5	LOS C										
	SH6 N	Through	517	0.1	28%	0.0	LOS A	926	7.5	44%	21.0	NA					
		Right	409	16.9	44%	21.0	LOS C										

ANNEXURE C: WOOLSHED ROAD INTERSECTION PERFORMANCE, 2027 (Plan Change 44, High Yield Residential Growth)

Period	Approach	Movement	Movement					Approach					Intersection				
			Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS	Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS	Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS
AM Peak, 2027, PC44	SH6 S	Left	13	8.0	1%	0.0	LOS A	559	0.2	30%	0.0	NA	2,026	4.1	42%	16.0	NA
		Through	546	0.0	30%	0.0	LOS A										
	Woolshed	Left	754	4.4	42%	0.0	LOS A	786	5.7	42%	5.7	LOS A					
		Right	33	33.4	24%	5.7	LOS D										
	SH6 N	Through	395	0.0	22%	0.0	LOS A	681	5.6	41%	16.0	NA					
		Right	286	13.3	41%	16.0	LOS B										
	PM Peak, 2027, PC44	SH6 S	Left	28	8.0	2%	0.0	LOS A	466	0.5	24%	0.0					
Through			438	0.0	24%	0.0	LOS A										
Woolshed		Left	235	7.8	30%	9.4	LOS A	244	8.5	30%	9.4	LOS A					
		Right	9	25.3	6%	1.3	LOS D										
SH6 N		Through	580	1.1	45%	44.0	LOS A	1,227	10.0	79%	76.9	NA					
		Right	647	17.9	79%	76.9	LOS C										

ANNEXURE D: WOOLSHED ROAD INTERSECTION PERFORMANCE, 2027 (Plan Change 44, Low Yield Residential Growth, PM Peak only)

Period	Approach	Movement	Movement					Approach					Intersection				
			Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS	Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS	Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS
PM Peak, 2027, PC44	SH6 S	Left	17	8.0	1%	0.0	LOS A	451	0.3	24%	0.0	NA	1,619	4.3	52%	27.1	NA
		Through	434	0.0	24%	0.0	LOS A										
	Woolshed	Left	162	7.3	21%	5.6	LOS A	168	7.6	21%	5.6	LOS A					
		Right	6	16.1	2%	0.6	LOS C										
	SH6 N	Through	568	0.0	31%	0.0	LOS A	1,000	5.5	52%	27.1	NA					
		Right	432	12.8	52%	27.1	LOS B										