

**Before the Expert Panel appointed
under the Fast-track Approvals Act 2024**

Under

the Fast-track Approvals Act 2024

And

In the Matter of

an application for approvals by Mt
Iron Junction Limited to develop 250
medium to high density residential
dwellings, a childcare centre, a retail
building, a café, reserve areas and
recreation amenities

**Statement of Evidence of
Andrew David Carr on behalf of
Mt Iron Junction Limited in response to
Minutes 5 and 6
Transport**

Dated: 20 July 2026

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INTRODUCTION

Qualifications and Experience

1. My full name is Andrew (“Andy”) David Carr. My qualifications and experience remain as set out in my Evidence in Chief.

Code of Conduct

2. Although this is not an Environment Court proceeding, I confirm that I have prepared the Code of Conduct for Expert Witnesses, contained in the Environment Court Practice Note (2023) and I agree to comply with it. I can confirm that the issues addressed in this statement are within my area of expertise and that in preparing my evidence I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

Scope

3. In Minute 5, the Expert Panel sought (Paragraph 3(a)) to have a clearer explanation of the potential effects on the SH6/SH84/Riverbank Road roundabout of the proposal, versus the overall effects arising from background traffic growth.
4. In Minute 6, the Panel confirmed the approach to this, of:
 - (a) setting out the expected increase in traffic using the roundabout without the Mt Iron Junction Housing Scheme, and the expected effects on queues and delays at the roundabout;
 - (b) adding in the increase in traffic that will be generated by the Mt Iron Junction Housing Scheme and showing the change in queues and delays at the roundabout;
 - (c) taking the increase in traffic that would be generated by the Mt Iron Junction Housing Scheme in (b), but instead of allocating it to the Site, add it to scenario (a) as if it were to occur on other zoned land with housing capacity (this will help identify any specific operational roundabout issues or effects spatially caused by how and from where a quantum of vehicles equivalent to what the proposal would result in specifically enters/exits the roundabout); and.
 - (d) providing commentary on the above
5. This Statement of Evidence responds to this request.

Response

6. In order to respond to this request, I have prepared an assessment of the relevant matters which is attached as **Annexure A** to Statement of Evidence. I note that in some parts this summarised information that was included in the Transportation Assessment, but it is repeated for ease of reference
7. No specific response is provided under Part (d) as commentary is included within Parts (a) to (c).



Andrew David Carr

20 July 2026

Response to Minute 5

1.1. **Matter 3A: The expected increase in traffic using the roundabout without the Mt Iron Junction Housing Scheme, and the expected effects on queues and delays at the roundabout**

1.1.1. In order to undertake this assessment, three elements need to be understood:

- the existing traffic flows;
- any consented development in the immediate area that is not yet constructed but would affect traffic flows in future; and
- the expected growth in traffic that could occur to the design year of ten years' time.

1.1.2. To understand the existing traffic flows at the roundabout, a traffic survey was carried out at the SH6 / SH84 / Riverbank Road roundabout (**the roundabout**) in the morning and evening peak hours on Wednesday 30 and Thursday 31 July 2025 via a video recording method.

1.1.3. Two days were selected to ensure that the general patterns seen were typical, but it also enabled an assessment to be made of which of the two days better fitted the expected volumes of traffic that were usually seen. The traffic flows which best fitted the typical patterns were seen on 31 July 2025 and are shown below.

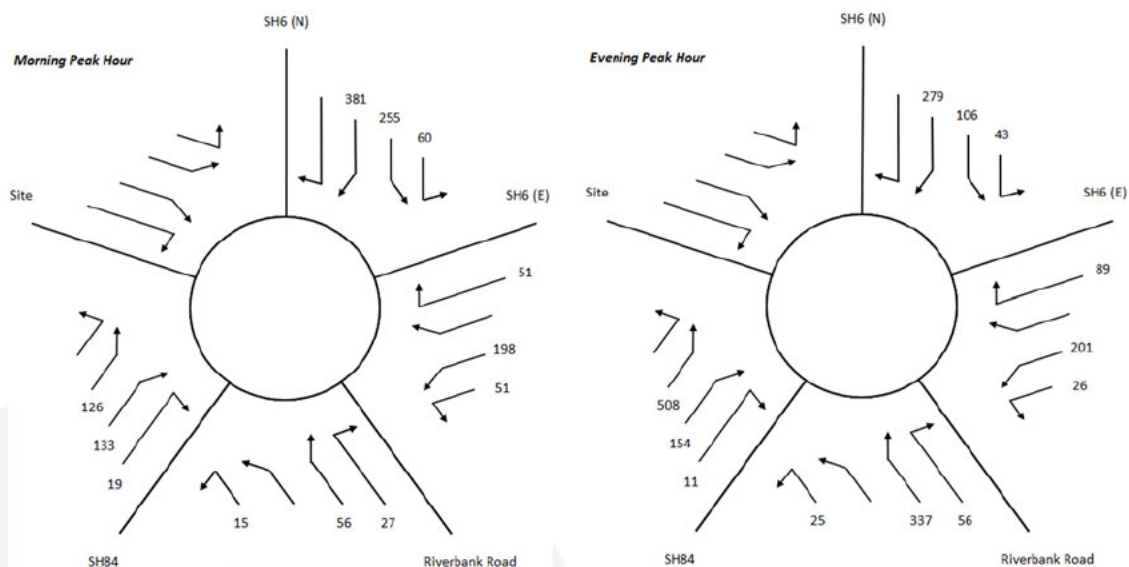


Figure 1: Observed Peak Hour Traffic Volumes, State Highway 6 / State Highway 84 / Riverbank Road Roundabout, 31 July 2025

1.1.4. The roundabout was then modelled using the computer software program Sidra Intersection using the traffic flows above, and the results are summarised below.

Approach	Morning Peak Hour			Evening Peak Hour		
	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service
Riverbank Road	11.5	0.8	B	11.0	3.7	B
State Highway 6 (East)	11.7	3.0	B	10.0	2.2	B
State Highway 6 (North)	10.8	4.5	B	11.5	2.6	B
State Highway 84 (West)	6.8	1.4	A	12.3	8.9	B
All	10.2	4.5	B	11.4	8.9	B

Table 1: Current (2025) Peak Hour Levels of Service at the State Highway 6 / State Highway 84 / Riverbank Road Roundabout

- 1.1.5. The modelling showed that the roundabout is presently operating with low queues and delays. However, in the evening peak hour, the queue of vehicles departing Wānaka reaches 9 vehicles. The modelling shows that this approach is currently operating at 70% saturation. A figure of 100% saturation means that an approach has no capacity remaining and more traffic is therefore arriving on the approach than can exit onto the roundabout. In essence, the modelling showed that the SH84 approach has only 30% capacity remaining.
- 1.1.6. There is a consented development already in place at the site which could progress as of right. This comprises:
- A service station with associated signage, retail store, car wash and laundromat;
 - Worker accommodation buildings, with nine units providing a total of 54 bedrooms; and
 - 13 residential terraced housing units, with a mix of 2 and 3 bedrooms.
- 1.1.7. The traffic generation of this development also needs to therefore be added into the prevailing environment.
- 1.1.8. Assessing traffic growth is by its nature more difficult because it requires a prediction of future conditions. There are two general ways that this can be done. Firstly, rates of historic traffic growth can be applied, on the assumption that historic rates reflect future rates. In this particular case, a previous proposal for the site meant that traffic volumes from 2017 were known. As the growth rate from 2017 to 2025 could be calculated, this then meant that same observed growth rates could be projected into the future to determine the expected traffic flows in the 2035 Design Year. These are shown below, making allowance for the consented development noted above.

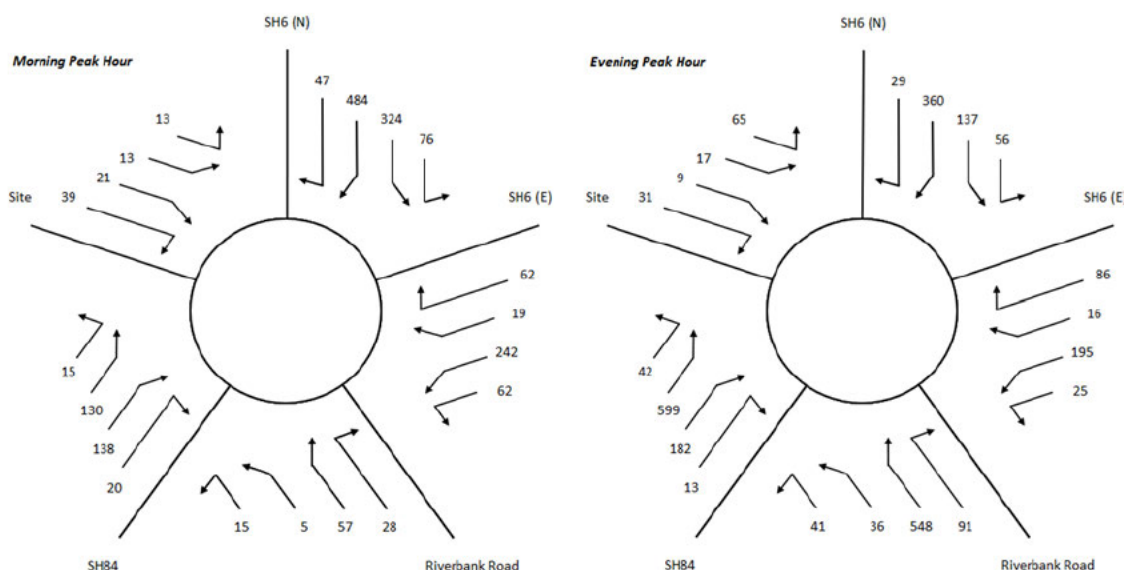


Figure 2: Design Year of 2035 (Traffic Growth from Surveys) Traffic Volumes, with Service Station

1.1.9. The roundabout was then modelled again using the above traffic flows.

Approach	Morning Peak Hour			Evening Peak Hour		
	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service
Riverbank Road	14.8	1.3	B	43.4	27.6	D
State Highway 6 (East)	38.3	12.8	D	11.6	2.9	B
State Highway 6 (North)	14.1	10.6	B	12.5	4.1	B
Site	6.5	0.5	A	35.1	4.2	D
State Highway 84 (West)	7.5	1.6	A	357.1	169.3	F
All	17.8	12.8	B	133.8	169.3	F

Table 2: Peak Hour Levels of Service at the State Highway 6 / State Highway 84 / Riverbank Road Roundabout Plus Service Station, 'Design Year' of 2035 (Growth from Surveys)

1.1.10. This shows a substantial queue of traffic on SH84 in the evening peak hour with large delays.

1.1.11. Past traffic growth on any road is not necessarily a good indication of future growth, since there may have been factors present in the past which no longer apply in future. However many Council have strategic transportation models to attempt to forecast future traffic volumes on their roading network, based on expected uptake of land. Queenstown Lakes District Council has such a model, and this was made available for this assessment.

1.1.12. This approach is generally considered to be more accurate than projecting historic growth because it enables a more nuanced approach to how traffic volumes might change in response to changes in land use. However it still has a margin of error because the land uses in the model are only updated every four or five years and therefore may be out-of-date.

1.1.13. In order to apply the modelled growth, the modelled traffic flows in 2025 and 2035 were extracted from the model. This difference in volumes represents the growth that the model expects will occur on the road network. The additional traffic flows (ie the growth to 2035) were



then added onto the 2025 observed traffic flows, and the roundabout was remodelled using the computer software program Sidra Intersection. The results are summarised below.

Approach	Morning Peak Hour			Evening Peak Hour		
	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service
Riverbank Road	13.9	1.3	B	19.0	9.0	B
State Highway 6 (East)	21.4	7.8	C	11.3	3.2	B
State Highway 6 (North)	12.8	7.4	B	12.5	3.7	B
Site	6.6	0.5	A	36.5	4.2	D
State Highway 84 (West)	7.6	1.7	A	141.8	89.6	F
All	13.5	7.8	B	61.7	89.6	E

Table 3: Peak Hour Levels of Service at the State Highway 6 / State Highway 84 / Riverbank Road Roundabout Plus Service Station, 'Design Year' of 2035 (Growth from Model)

- 1.1.14. Modelling the roundabout using the expected levels of growth from the Council's transportation model shows even larger queues and delays are expected on SH84 in the evening peak hour.
- 1.1.15. In each case, the modelling shows that the roundabout does not have sufficient capacity to accommodate the expected traffic flows in 2035. Further testing was set out in the Transportation Assessment which indicated that roundabout capacity is exhausted by 2030.
- 1.1.16. The critical approach is SH84 in the evening peak hour. Whenever any intersection approach is approaching capacity, very small changes in the traffic flows have disproportionately large outcomes in changing queues and delays. Observations have shown that from time to time, this approach already experience long queues in the evening peak hour, which supports the conclusion that it is approaching it's maximum capacity.

1.2. **Matter 3B: The increase in traffic that will be generated by the Mt Iron Junction Housing Scheme and the change in queues and delays**

1.2.1. The traffic that is expected to be generated by the scheme has been derived based on standard trip generation rates, is shown below. Where negative numbers are shown, this reflects a reduction in the number of trips being made on a particular movement due to a proportion instead diverting into the site.

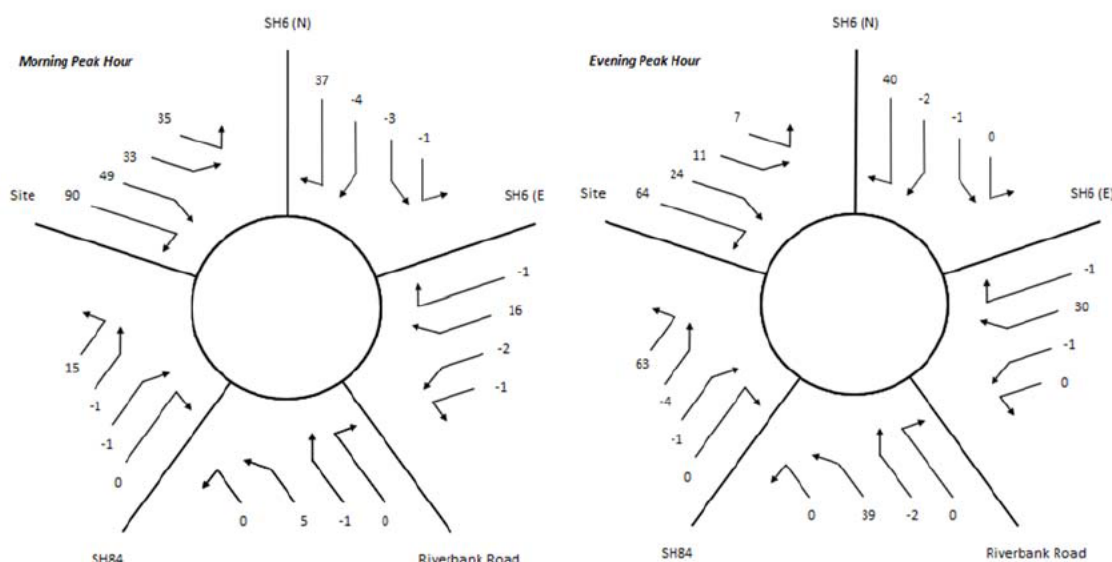


Figure 3: Traffic Generation of Proposed Development

1.2.2. These volumes have then been added into the volumes expected in the 2035 Design Year. As noted above there are two different scenarios for the 'base' 2035 traffic flows, one based on projecting the historic growth rates and the other based on the growth forecast from the transportation model. This therefore gives rise to two possible future scenarios with the Mt Iron Junction scheme in place.

1.2.3. The queues and delays at the roundabout based on projecting the historic rates to 2035, and then adding the proposed development, are shown below:

Approach	Morning Peak Hour			Evening Peak Hour		
	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service
Riverbank Road	16.5	1.7	B	170.5	85.0	F
State Highway 6 (East)	225.2	56.5	F	14.7	4.4	B
State Highway 6 (North)	28.5	25.7	C	14.0	5.3	B
Site	6.9	2.1	A	37.8	7.4	D
State Highway 84 (West)	7.7	1.7	A	434.4	198.4	F
All	59.3	60.8	E	189.6	198.4	F

Table 4: Peak Hour Levels of Service at the State Highway 6 / State Highway 84 / Riverbank Road Intersection Plus Service Station, 'Design Year' of 2035 (Growth from Surveys), Plus Proposed Development

- 1.2.4. For ease of comparison, the changes in queues and delays based on projecting the historic rates to 2035 and then adding the proposed development, are shown below:

Approach	Morning Peak Hour			Evening Peak Hour		
	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service
Riverbank Road	+1.7	+0.4	-	+127.1	+57.4	D to F
State Highway 6 (East)	+186.9	+43.7	C to F	+3.1	+1.5	-
State Highway 6 (North)	+14.4	+15.1	B to C	+1.5	+1.2	-
Site	+0.4	+1.6	-	+2.7	+3.2	-
State Highway 84 (West)	+0.2	+0.1	-	+77.3	+29.1	-
All	+41.5	+48.0	B to E	+55.8	+29.1	-

Table 5: Differences in Peak Hour Levels of Service at the State Highway 6 / State Highway 84 / Riverbank Road Intersection Plus Service Station, 'Design Year' of 2035 (Growth from Surveys), with and without Proposed Development

- 1.2.5. As set out previously, the roundabout has insufficient capacity to accommodate the traffic flows by 2030 without any development in the evening, and consequently it is unsurprising that queues and delays increase significantly when development traffic is added to the expected 2035 volumes.
- 1.2.6. The queues and delays at the roundabout based on the expected growth to 2035 from the Council's transportation model, and then adding the proposed development, are shown below:

Approach	Morning Peak Hour			Evening Peak Hour		
	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service
Riverbank Road	16.2	1.8	B	38.9	18.7	D
State Highway 6 (East)	69.7	21.4	E	14.6	4.9	B
State Highway 6 (North)	19.9	14.3	B	13.5	4.4	B
Site	7.2	2.1	A	38.1	7.4	D
State Highway 84 (West)	7.9	1.9	A	343.9	176.7	F
All	25.7	24.9	C	135.8	176.7	F

Table 6: Peak Hour Levels of Service at the State Highway 6 / State Highway 84 / Riverbank Road Intersection Plus Service Station, 'Design Year' of 2035 (Growth from Model), Plus Proposed Development

- 1.2.7. For ease of comparison, the changes in queues and delays based on the expected growth to 2035 from the Council's transportation model, and then adding the proposed development, are shown below:



Approach	Morning Peak Hour			Evening Peak Hour		
	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service
Riverbank Road	+2.3	+0.5	-	+19.9	+9.7	B to D
State Highway 6 (East)	+48.3	+13.6	C to E	+3.3	+1.7	-
State Highway 6 (North)	+7.1	+6.9	-	+1.0	+0.7	-
Site	+0.6	+1.6	-	+1.6	+3.2	-
State Highway 84 (West)	+0.3	+0.2	-	+202.1	+87.1	-
All	+12.2	+17.1	B to C	+74.1	+87.1	E to F

Table 7: Differences in Peak Hour Levels of Service at the State Highway 6 / State Highway 84 / Riverbank Road Intersection Plus Service Station, 'Design Year' of 2035 (Growth from Model), Plus Proposed Development

- 1.2.8. Although the roundabout performs slightly better overall when compared to the assessment based on projecting historic growth, the greatest delay on any approach is still nearly six minutes.

1.3. Matter 3C: Taking the increase in traffic that would be generated by the Mt Iron Junction Housing Scheme, but instead of allocating it to the Site, add it to scenario (a) as if it were to occur on other zoned land with housing capacity

- 1.3.1. As noted above, the analysis are based on two ways of applying traffic growth to a Design Year of 2035, either by projecting historic growth rates or using the traffic growth expected from the Council's transportation model. To simplify the assessment requested, only one scenario has been taken forwards, which is that of applying the historic rates (that is, the volumes shown on Figure 2).
- 1.3.2. There is a range of other land in the area which is zoned for additional housing capacity but the scenario discussed in the Transportation Assessment was growth in Albert Town, where housing intensification is expected under the District Plan. Consequently, the traffic volumes shown on Figure 3 have been reallocated as though they were instead being generated by new development in Albert Town.
- 1.3.3. The resultant traffic flows have been modelled using the computer software program Sidra Intersection and the result are summarised below.

Approach	Morning Peak Hour			Evening Peak Hour		
	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service
Riverbank Road	15.5	1.8	B	153.7	82.2	F
State Highway 6 (East)	345.1	78.2	F	13.3	3.7	B
State Highway 6 (North)	21.1	25.1	C	12.5	5.0	B
Site	6.8	0.6	A	34.3	4.1	C
State Highway 84 (West)	7.5	1.8	A	462.3	211.1	F
All	80.8	78.2	F	197.9	211.1	F

Table 8: Peak Hour Levels of Service at the State Highway 6 / State Highway 84 / Riverbank Road Roundabout Plus Service Station, 'Design Year' of 2035 (Growth from Surveys) With MIJ Added into Albert Town

- 1.3.4. It can be seen that with the same amount of traffic generated by the proposal added onto State Highway 6 (north) instead, broadly the same outcomes are observed of the roundabout experiencing very high levels of queues and delays.
- 1.3.5. The table below shows the changes arising from the location of this quantum of development. A negative number indicates that the effects of the development being located at the site are better than if the development was to be at Albert Town. A positive number indicates that the effects of the development being located at Albert Town are better than if the development was to be at the site.



Approach	Morning Peak Hour			Evening Peak Hour		
	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service
Riverbank Road	1	-0.1	-	16.8	2.8	-
State Highway 6 (East)	-119.9	-21.7	-	1.4	0.7	-
State Highway 6 (North)	7.4	0.6	-	1.5	0.3	-
Site	0.1	1.5	-	3.5	3.3	-
State Highway 84 (West)	0.2	-0.1	-	-27.9	-12.7	-
All	-21.5	-17.4	-	-8.3	-12.7	-

Table 9: Comparison of Peak Hour Levels of Service at the State Highway 6 / State Highway 84 / Riverbank Road Roundabout Plus Service Station, 'Design Year' of 2035 (Growth from Surveys) With/Without MIJ Added into Albert Town

- 1.3.6. While there are inevitably differences on each turning movement, the key metrics is that under either scenario (that is, with the development located at the site or in Albert Town), the roundabout is operating at considerably more than its maximum capacity, but also that the difference for the overall performance of the roundabout is relatively small. That said, the modelling does indicate that the better outcome is achieved by having the development at the Mt Iron Junction site, but given that queues and delays are significant in either case, it is not considered that this is a material difference in practice.

Carriageway Consulting Limited
July 2026