
To:	Luke Place	From:	Mike Smith
	QLDC Planning		Christchurch
File:	File Name	Date:	August 5, 2021

Reference: Coneburn Industrial Zone – Change to Land Use Coverage

Stantec has been requested to undertake a review of transport related impacts of the proposed Coneburn Industrial Zone building coverage variations, including on the surrounding road network, and internal road structure of the Zone. .










BACKGROUND

1. Landowners of the Coneburn Industrial Zone (the Zone) have approached Queenstown Lakes District Council (QLDC) to increase the permitted site coverage for buildings within the Zone.
2. QLDC is currently reviewing its District Plan over a number of stages. Recommendations of the Independent Hearings Panel (IHP) on the latest stages of the plan review (Stage 3 and 3b) have recently been adopted by elected members.
3. Land within the Zone was reviewed during Stage 1 and was initially notified as being located within the Rural Zone. A submission¹ was received requesting that this land be rezoned for Industrial development. In May 2018, the IHP resolved that this submission be accepted in part, and that the subject land be re-zoned 'Coneburn Industrial'. The Zone now comprises Chapter 44 of the Proposed District Plan (PDP) and is not subject to any appeals. It is intended to provide for the establishment and operation of Industrial and Service activities with most other activities being identified as non-complying or prohibited.
4. Development within the Zone is managed by a structure plan contained within Chapter 44. This structure plan identifies two activity areas (Activity Area 1a and Activity Area 2a) which provide for different scales of built form.
5. The effect of the proposed variations is to introduce new permitted building coverage standards of 40% in Activity Area 1a and 65% in Activity Area 2a.
6. With the exception of a small area of land in the immediate vicinity of the southern entrance into the Zone identified on the structure plan within Chapter 44, no other changes are being proposed to the location or scale of development areas or landscaped open spaces. This amendment is sought to accommodate a proposed roundabout on State Highway 6 (SH6) which will provide a new form of access into the Zone.
7. The resulting Zone provisions controlling building coverage have a strong focus on managing the parking and loading of vehicles for Industrial and Service activities, as well as the safety and efficiency of the surrounding road transport network. Therefore, it is critical that the proposed amendments to building coverages are assessed carefully with respect to possible transport related effects both within and outside of the Zone.

8. This assessment has been undertaken by the following experts:

Chris Rossiter Traffic Modelling
 Mike Smith Transport Impacts / Road Safety

9. In assessing this matter, we have considered the following material.

	Attachment A1 - Proposed Variations.pdf Type: Adobe Acrobat Document	Date modified: 28/04/2021 2:39 p.m. Size: 314 KB → 292 KB
	Attachment A2 - Relevant provisions of the Proposed District Plan - 06-04-21.docx Type: Microsoft Word Document	Date modified: 28/04/2021 2:42 p.m. Size: 30.7 KB → 27.3 KB
	Attachment A3 - Submission 361 S32 Analysis & QLDC S42A Report on Submission 361.pdf Type: Adobe Acrobat Document	Date modified: 6/04/2021 4:47 p.m. Size: 3.14 MB → 3.02 MB
	Attachment B1 - Evidence & Assessments of Bartlett Consulting.pdf Type: Adobe Acrobat Document	Date modified: 6/04/2021 3:49 p.m. Size: 7.37 MB → 7.12 MB
	Attachment B2 - Rebuttal Evidence of Mr Denis Mander.pdf Type: Adobe Acrobat Document	Date modified: 6/04/2021 9:30 a.m. Size: 85.6 KB → 81.8 KB
	Attachment C1 - NZTA Written Approval - SH190488.pdf Type: Adobe Acrobat Document	Date modified: 6/04/2021 4:32 p.m. Size: 612 KB → 510 KB
	Attachment C2 - SH190488 4 Leg Roundabout.pdf Type: Adobe Acrobat Document	Date modified: 6/04/2021 4:41 p.m. Size: 3.07 MB → 3.02 MB
	Attachment C3 - MACTODD Legal Submissions for Submission 361.pdf Type: Adobe Acrobat Document	Date modified: 21/03/2018 8:36 a.m. Size: 1.57 MB → 1.48 MB
	Attachment D - Coneburn Roundabout Modelling - Bartlett Consulting - Coneburn Variation - 1-06-21.pdf Type: Adobe Acrobat Document	Date modified: 14/06/2021 12:39 p.m. Size: 110 KB → 99.7 KB

10. A site visit was undertaken by Mike Smith on 16th July. This enabled a direct observation of the traffic (am peak) and the surrounding environment.

TRAFFIC GENERATION

- We have reviewed the submitted traffic generation material presented in the reports by Mr Bartlett. In our review, we have considered the traffic generation volumes stated in the submitted initial Transportation Assessment (Bartlett Consulting (BC), October 2015), the Initial Access modelling report, BC; 22 March 2017, and Access Modelling Report, BC; 12 September 2017, and Building Coverage Variations Report; BC; 1 June 2021. In reviewing this material, we have considered the reasoning for the increased traffic volumes associated with the proposed increase to the building coverage areas.
- It is our opinion that in our review of the submitted material, the modelling of the traffic generation based on the higher building coverages produced by the landowner is correct basis and will reflect the proposed development.
- Two models have been undertaken for the connection of the Coneburn Industrial Zone connection to SH 6. An assessment has been undertaken by WSP as part of the SH 6 Coneburn Roundabout, with an additional model being undertaken by Bartlett Consulting for the same intersection. We do note that the modelling undertaken by WSP (Referenced in Bartlett Consulting report dated 1 June 2021) has a traffic generation rate approximately 20% higher than that of Mr Bartlett. For clarity, the output from each model is presented below in Table 1:

Model	WSP	Bartlett Consulting	Variation (%) Bartlett / WSP
2028 Design Year – 50% constructed PM Peak	479 vpd	390 vpd	18.6%
100 % Constructed PM Peak	958 vpd	780 vpd	18.6 %

14. In reviewing the traffic model analysis, we found no direct evidence detailing if the base transport model incorporated the updated land use consents for the general area surrounding the site. We have made our analysis on the basis that the model does include consideration of the traffic generation for the Special Housing Area (SHA) and other adjacent residential developments.
15. Initial discussions with Dave Smith, Abley Transportation (Network Model Consultants) indicate that this assumption is correct.
16. In reviewing the Level of Service (LOS) analysis undertaken for the proposed intersections, it is noted that the State Highway is typically operating at a LOS of A or B. This level of service would be considered to have sufficient capacity for the additional adjacent developments if not included, along with the additional building coverage as requested.
17. Our review of the proposed roundabout presented in the submitted material indicates that from a traffic volume perspective, in general the south bound movement (towards Kingston) on the State Highway will not generally experience any issues as the morning peak from the residential zones would typically be towards Queenstown, and therefore have minimal effect on the southbound movement.
18. The northbound movement towards Queenstown through the proposed roundabout would have dominance over the left turn out residential movement from the development to the west of the State Highway, so again, it is envisaged that there will be little effect on the State Highway.
19. Modelling for the afternoon peak demonstrates a higher level of traffic approaching the proposed roundabout from Queenstown. This traffic will have dominance over the new Coneburn Industrial Zone approach leg. The Coneburn Industrial Zone approach leg will have to yield to the southbound through / turning traffic, with the right turn / exit into the adjacent residential areas having dominance over the northbound State Highway movement.
20. We note that the modelling of the traffic flows for the 100% development demonstrates that the Coneburn Industrial Zone exit leg will have a low Level of Service, being LOS D based upon the Bartlett Consulting analysis, and LOS F based upon the WSP analysis. It is presented by Mr Bartlett that this can be mitigated in future years, reducing the net impact on the Coneburn Industrial Zone approach leg. We discuss this further in the section below.

21. We concur that the traffic generation from the proposed increased building coverage would typically be accommodated within the existing capacity for the State Highway link to Queenstown, and the adjacent areas. We note that there are locations such as the intersection between SH 6 and Peninsular Road that currently have capacity / access issues at peak travel times. It is considered that the through movement on SH 6 will be relatively unaffected, however some additional minor delay to Peninsular Road may occur over time. The Coneburn Development will only be a small component of this delay increase. It is important to note that this delay will be a combination of factors such as the development growth for the residential areas in and around Coneburn, SH6 traffic increase as inter-regional traffic increases, and the development of the Peninsula. With time, it is anticipated that additional intersection controls may be required at this busy intersection, due to the greater overall development of the Queenstown area.
22. Based upon the stated traffic volumes, and the analysis presented, we do not see any significant issues with the analysis undertaken by Mr Bartlett.

Intersection Design / Form

23. It has been presented that the dominant access will be via a new single lane roundabout formed at a point that connects to the adjacent SHA. The roundabout is a critical component on the interaction and safe movement of traffic both along the State Highway, and to / from the adjacent developments, and is seen as a critical component to the traffic effects that could be experienced from the development.
24. We have reviewed the indicative roundabout layout presented as part of the supporting material and make the following comments.

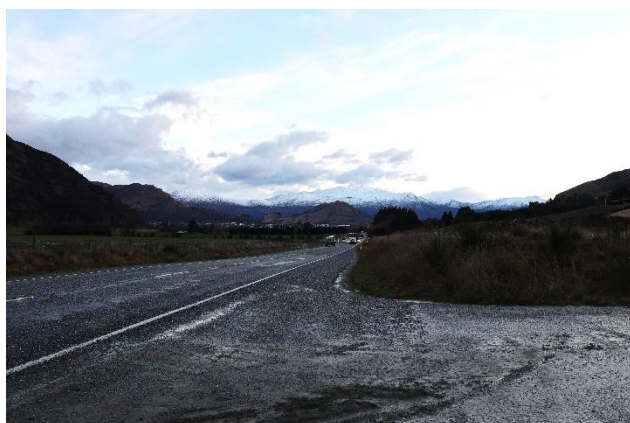


Figure 0-1: View north from proposed roundabout junction location



Figure 0-2: View south from proposed roundabout junction location.



Figure 0-3: View of existing access road from Coneburn Industrial Zone area. Note road incised into topography.



Figure 0-4: General topography of Coneburn Industrial Zone area.

25. The roundabout design presented as part of this assessment is noted to have a single circulating lane, with single approach lanes on all legs. The central island is in the order of 44 metres in diameter.
26. WSP plan 6-XZ509.01 (Sheet 1; Rev A) demonstrates an indicative roundabout design, including the land required for the formation of a single lane roundabout.
27. Based upon this initial design, we are concerned that the design does not conform with best practice as described in the relevant AUSTRROADS Standards for Geometric Design. The main issue identified is the apparent lack of deflection of the approach roads, an element that assists as a speed controlling treatment for drivers entering into the roundabout. The poor deflection of the design could result in drivers entering the roundabout at high speed, resulting in side impact type crashes. We are of the opinion that design modifications should be undertaken to ensure that the design of the roundabout meets all required best practice design standards.
28. The traffic model indicates that a low level of service will result for the Coneburn Industrial Zone exit leg, for the 100 % development scenario. This low level of service reflects long average waiting times to enter SH6 rather than very long queues. There is a risk that drivers waiting at the intersection will experience frustration at the delays and may opt to undertake an exit movement into a small gap in the traffic as a result of frustration.
29. Mr Bartlett presents that the modelling suggests that with full development additional treatments may be required. Refer to Bartlett Consulting report 1 June 2021 "It is possible that future works can, if necessary, be undertaken to improve intersection capacity to better accommodate the full CIZ development."
30. We concur that in principle, additional treatments could be applied, the nature and extent of which has not been explored.
31. Critical to these additional treatments being applied, is the availability of land to allow these as yet undefined treatments to occur. While the land required indicates that it may be sufficient for the current design, this may be insufficient for any future treatments to address the long queue lengths and congestion reduction measures. It is our opinion that these additional treatments should be

designed now, and provisions made for them to be included at a later time. This includes clarity on the required land required to undertake the additional treatments.

32. Typically, these details would be supplied at the Subdivision Consent stage. We agree that this is the appropriate stage for consideration, however, we recommend that this become a condition of consent, or any other mechanism to ensure that it is evaluated prior to land parcels being developed.
33. It is our opinion that the Landowner / Developer should demonstrate the nature and intent of future works to demonstrate that this can occur within the identified road corridor land parcels.

INTERNAL ROAD STRUCTURE

34. At this stage of the proposed development, the Internal road structure is not typically supplied in detail. We have considered the submitted documentation, taking special note of the narrative around the decrease in on-site capacity for parking, the requirement of the NPS-UD¹, and the potential impacts of this reduction on an increased need for on-street parking.
35. QLDC staff have requested that in undertaking this review, we consider the element of internal roads and their form, given the proposed building coverage changes. We recognise that the matters of discretion of the varied rule related largely to internal traffic movements, as presented in the extract from the Council PDP decision (Rule 44.5.5). We concur with these rules being essential to the consideration of the internal road structure.

44.5.5	<p>Building Coverage</p> <p>Activity Area 1a (Large Lot Size) 30%</p> <p>Activity Area 2a 35%</p>	<p>RD</p> <p>Discretion is restricted to:</p> <ol style="list-style-type: none"> a. The extent to which increased building coverage will decrease the availability of on-site parking or loading; b. Whether the needs of the industrial or service activity require parking or loading within a building; c. Whether the needs of the industrial or service activity require that the manufacture or maintenance of vehicles or large items take place within a building; d. The extent to which the safety and efficiency of the surrounding roading network would be adversely affected by the proposal; e. Any cumulative effect on the proposal in conjunction with other activities in the vicinity on the safety and efficiency of the surrounding roading.
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36. **Figure 0-1: Rule 44.5.5, Council PDP decision May 2018.** Reviewing the supplied material, we note that the Clarke Fortune McDonald & Associates Memo (1 June 2021); pg 2, para 5 & 6 identifies that on-street parking and road format will be undertaken in accordance with [QLDC] Code of Practice and New Zealand Standards, which we have taken to mean NZS 4404:2010.
37. While we concur with this approach, we consider that there is a direct relationship between the proposed building coverage of a lot, the requirements for on-site parking, the elements of restricted Discretion as defined in Rule 44.5.5, and the impact that overflow parking may have on the internal road network. Furthermore, the road form will be affected by the type of development that would occur on sites, as larger vehicles would require a greater turn circle space. It is accepted that this element could be adequately addressed at future stages, however it is recommended that this has

¹ It is determined that under the NPS-UD, QLDC can still require parking for vehicles other than cars, in addition they can still require loading and queuing spaces.

- specific controls / requirements for a detailed assessment of the land use, permissible developments and scale, and road corridor widths / road widths.
38. Given the proposed adjacent land use, and road forms that are yet to be detailed, it is recognised that the internal road structure could be impacted by inadvertent consequences of loading / standing occurring in the road corridor.
 39. We concur that this is best addressed at later stages of consent applications, however, we do make the comment that without a specific directive to address the issue, looking at a completed development, there is a risk that inappropriate road widths and forms could be applied.
 40. The internal transport infrastructure for all modes of transport would not typically be indicated at this stage of an application. It is noted however that the development site is in close proximity to the adjacent residential housing areas of Jacks Point, Hanley's Farm and the Coneburn SHA. This may result in staff of the development areas willing to take alternate forms of transport such as e-bikes. E-bikes and other micro-mobility devices will enable them to commute from a wider area and may enable the cycle commute from the greater area. We recommend that the Plan should provide consideration on how modes other than motor vehicle will be accommodated safely within the proposed development area, and its linkages to the adjacent road network.

SUMMARY

41. In summary, we concur with the presented traffic effects assessment demonstrated in the submitted reports. The modelling results indicate that the exit movement from the proposed Coneburn Industrial Zone will result in long delays in the PM peak with 100% development. It has been presented that additional treatments could be applied to reduce the impacts in future years. While we concur with the principle of additional treatments, these are undefined, and have not been demonstrated as being capable to be formed within the current property boundaries as indicated in the WSP plan 6-XZ509.01 (Sheet 1; Rev A).
42. The increase in building coverage, and the associated traffic generation and transport effects generated have not been defined. The submissions reviewed detail that these could be addressed at future stage, and be compliant with the QLDC Code of Practice, and NZS 4404:2010. We concur that these are the correct guides but consider that a holistic evaluation of the internal road network design should be undertaken, considering the potential development for the proposed industrial zone. It is considered that specific controls be incorporated to ensure that a holistic approach is taken and considers the overall effects on traffic movement and user safety.
43. Given the proximity to residential areas such as Jacks Point, Hanley's Farm and the Coneburn SHA, it is considered that the use of micro-mobility devices such as e-bikes will be a practical travel mode and that specific consideration should be made for vulnerable road users through the new Coneburn Industrial Zone. This could take the form of both on-road and off-road / reserve paths.

Stantec NZ



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Attachment: Attachment

Cc. C.C.

APPENDIX A: WSP ROUNDABOUT DESIGN:

