From: Katherine Hu <KatherineH@barker.co.nz>
Sent: Friday, November 3, 2023 4:29 pm
To: Grant Eccles <GEccles@tonkintaylor.co.nz>
Cc: Fraser McNutt <FraserM@barker.co.nz>; Sandra Holman <Sandra.Holman@ruapehudc.govt.nz>; Jaclyn Phillott <Jaclyn.Phillott@nzta.govt.nz>; Colleen McCorkindale <Colleen.McCorkindale@kaingaora.govt.nz>
Subject: RE: s92 request response - progress

Good afternoon Grant,

Further to my email on 12th October as below, please see the attached letter addressing the s92 item 24-28 regarding the Integrated Transport Assessment (ITA). In particular, as a result of the ongoing consultation with Waka Kotahi, the applicant has agreed to introduce a right-turn pocket into Teitei Drive to minimise disruption to through traffic as part of the consent application. The applicant has also agreed to include the list of consent conditions as outlined in the Waka Kotahi written approval letter, dated 16 October 2023, as part of the resource consent application.

The details of the correspondence with Waka Kotahi, and the most updated ITA and concept design of the proposed right-turn pocket are included as the appendices of the attached letter.

We want to acknowledge that we are still working through the remaining s92 requests and we anticipate responding to them by 24th November.

Ngā mihi | Kind regards,

Katherine Hu
Senior Urban Designer
s 9(2)(a)
KatherineH@barker.co.nz
barker.co.nz

From: Katherine Hu
Sent: Thursday, 12 October 2023 11:04 am
To: Grant Eccles <GEccles@tonkintaylor.co.nz>
Cc: Fraser McNutt <FraserM@barker.co.nz>; Sandra Holman <Sandra.Holman@ruapehudc.govt.nz>
Subject: RE: s92 request response - progress

Good morning Grant,

We would like to give you an update on s92 request response for the resource consent application for 6 Teitei Drive, Ohakune.

Progress has been made to address the requested information, however, the consultant team is still working on several items.

On the basis of the progress to date, we would be able to provide the requested information by Friday 3rd November 2023.

Ngā mihi | Kind regards,

Katherine Hu
Senior Urban Designer
s 9(2)(a)
KatherineH@barker.co.nz

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From: Grant Eccles <GEccles@tonkintaylor.co.nz>
Sent: Friday, 15 September 2023 8:45 am
To: Katherine Hu <KatherineH@barker.co.nz>
Cc: Fraser McNutt <FraserM@barker.co.nz>; Sandra Holman <Sandra.Holman@ruapehudc.govt.nz>
Subject: RE: s92 request response - progress

Thanks Katherine

On the basis of your advice below, please provide the requested information by Friday 06 October 2023.

Regards

Grant Eccles | Technical Director - Planning
BREP, MNZPI
Tonkin + Taylor - *Exceptional thinking together*
Level 5, 711 Victoria Street, Hamilton 3204 | PO Box 9544, Hamilton, New Zealand

Tonkin+Taylor

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From: Katherine Hu <KatherineH@barker.co.nz>
Sent: Friday, September 15, 2023 7:56 AM
To: Grant Eccles <GEccles@tonkintaylor.co.nz>
Cc: Fraser McNutt <FraserM@barker.co.nz>; Sandra Holman <Sandra.Holman@ruapehudc.govt.nz>
Subject: RE: s92 request response - progress

Hi Grant,

Yes, we are working through the s92 response – we are aiming to get a completed set of responses to you during the week of 25/09.

Correct the formal request will accompany the provision of the s92.

Ngā mihi | Kind regards,

Katherine Hu
Senior Urban Designer
s 9(2)(a)
KatherineH@barker.co.nz

B&A Urban & Environmental

barker.co.nz

From: Grant Eccles <GEccles@tonkintaylor.co.nz>
Sent: Thursday, 14 September 2023 12:51 pm
To: Katherine Hu <KatherineH@barker.co.nz>
Cc: Fraser McNutt <FraserM@barker.co.nz>; Sandra Holman <Sandra.Holman@ruapehudc.govt.nz>
Subject: s92 request response - progress

Hi Katherine

I am following up on the s92 request dated 21 August 2023.

By email from Fraser McNutt on 30 August 2023 your office confirmed that work was underway to respond to the s92 matters. Can you please provide an update on progress toward fulfilling the s92 request to allow Council to set a reasonable timeframe within which the information must be provided.

In that same email the applicants intention to request public notification of the applications to both Ruapehu District Council and Horizons Regional Council was recorded. I assume the formal request for public notification will accompany the provision of the s92 further information response package.

Regards

Grant Eccles | Technical Director - Planning
BREP, MNZPI
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Barker & Associates
Hamilton

PO Box 9342, Waikato Mail Centre, Hamilton 3240
298 Victoria Street, Hamilton 3204

B&A
Urban & Environmental

3 November 2023

Ruapehu District Council
Attn: Grant Eccles – Consultant Planner
Via email

Dear Grant

Further Information Response for Application for Subdivision and Land use, Kainga Ora and Ruapehu District Council, 6 Tei Tei Drive (RC 1598)

Thank you for your letter dated 21 August 2023 which set out a further information request arising from your review of the above application. Our response is provided in the table below and is supported by the following attachments:

- Attachment 1: Cross-section prepared by Isthmus Group
- Attachment 2: Email correspondences, dated 26 July 2023 and 4 September 2023, and Memo to Waka Kotahi from Barkers & Associates, dated 12 October 2023
- Attachment 3: Updated Integrated Transport Assessment, dated 24 August 2023
- Attachment 4: Waka Kotahi Written Approval, dated 16 October 2023

Amendments to Application

As a result of the ongoing consultation with Waka Kotahi, the applicant has agreed to introduce a right-turn pocket into Teitei Drive to minimise disruption to through traffic as part of the consent application. In addition, the applicant has also agreed to include the list of consent conditions as outlined in Attachment 4: Waka Kotahi written approval letter, dated 16 October 2023, as part of the resource consent application.

Table 1: Further information response.

	Section 92 Item	Response
Integrated Transport Assessment (ITA)		
24	The cross-sections for the 18m wide Primary Road and the 14m wide Secondary Road indicate allowance for recessed parking within the sidewalk, with swales next to the sidewalk. Please clarify and assess the safety and efficiency of how this arrangement will work for pedestrians where recessed parking occurs (ie will they be required to walk on the carriageway or in the swale to get around parked cars?).	Please see **Attachment 1** updated cross-sections prepared by Isthmus Group. To clarify, there will not be any recessed parking bays in areas where there will be swales.
25.	Allied to the above the Masterplan for the site proposes to realign the existing straight line shared path from Snowmass Drive to Tei Tei Drive to require path users to in part use Road E (Rural Lane) and Road A (Primary Road). Both of	The existing path from Snowmass Drive has a formed width of no more than 2.0 metres and does not have a straight alignment. There are two distinctive deviations in the path that do not provide a legible alignment. This is too

	Section 92 Item	Response
	these proposed carriageway cross-sections require cyclists to share the carriageway with vehicles with no specific provision for cyclists. Please provide additional assessment of the safety and efficiency of this arrangement compared to the existing and any alternative cross-sections to address the issue.	narrow to be considered a shared path and is considered unsafe for pedestrians and cyclists to share. Ideally, shared paths should be a minimum of 3.0m wide. The proposal to redirect pedestrians and cyclists through the development site will provide a higher level of amenity and safety for pedestrians providing them with a more open route separate to cyclists with better passive surveillance and personal safety. Cyclists will also be provided with more space and the ability to cycle on a carriageway that is proposed to have an operating speed of 40/hr. This speed is conducive to cyclists being able to safely share the carriageway with other vehicles. It is also worth noting that cyclists are required to currently use the existing Teitei Drive alignment which does not provide any cycling facilities or speed management. Therefore the proposal will provide a high level of amenity and provision that the existing environment.
26.	Please provide details of the proposed traffic calming measures to be implemented on the various proposed carriageways. It is noted that given the climate in Ohakune with snow and ice occurring during the colder months, traditional measures such as speed humps may in themselves become a hazard and not be appropriate. Allied to this, one of the traffic calming measures set out in the ITA (Section 3.5) is to avoid the establishment of long, straight roads. On the face of it, Roads A and C would appear to be long and straight meaning the implementation of other traffic calming measures takes on additional importance.	Section 3.5 of the ITA clearly sets out the traffic calming strategy that highlighted a number of features that can be utilized to deliver a low-speed environment that does not include speed humps. Other traffic calming features that can be utilized such as kerb build-outs, raised intersections, intersection controls and traffic islands. As set out in Section 3.1 of the ITA, the applicant expects to discuss in more detail with the relevant stakeholders including Ruapehu District Council and as part of any conditions imposed on any consents and engineering approvals. This will allow these measures to be refined appropriately and implemented in an integrated manner with other road features such as footpaths, street trees and vehicle crossings. Detailed design will be provided at the engineering plan stage.
27.	In light of the increased traffic movements that would be generated on Tei Tei Drive from the residential subdivision, please provide details of what design measures are proposed to allow pedestrians and cyclists to safely cross the	Section 3.6 of the ITA discusses the intended strategy for pedestrians and cyclists provisions including connecting with the northern side of Teitei Drive and Carrot Park.

	Section 92 Item	Response
	existing/extended Tei Tei Drive to and from the destinations on the northern side of the street (eg Carrot Park, Ohakune town centre). These measures should also take into account the proposed provision of the local purpose reserve (Lot 205) along the northern frontage of the site, which it appears is to be extended if future stages of subdivision at the site occur, and which is noted in the Concept Masterplan as "Additional Amenity Space for the community - linking in with the playground".	The application is only for Stage 1 of the overall masterplan which does not include extending Teitei Drive towards the west. All pedestrians utilizing the west side of Road A will therefore not need to cross Teitei Drive and a footpath along the western side of Road and the edge of Lot 205 is intended to connect with the existing footpath on the north side of Teitei Drive as the current pedestrian path from Snowmass Drive currently does. All other intersections within the subdivision are intended to be provided with pram crossing in locations that would ensure pedestrians are crossing at the safest location.
28.	Please provide comment from NZ Transport Agency/Waka Kotahi on the adequacy of the existing Tei Tei Drive/SH 49 intersection to safely and efficiently cater for vehicle movements from the proposed residential subdivision.	Please see Attachments 2 and 3 for the correspondence with Waka Kotahi. Attachment 4 is the written approval provided by Waka Kotahi.

We trust that the above addresses your queries for the abovementioned items, however please do not hesitate to contact us should you require any further information.

Yours sincerely | Nāku noa, nā

Barker & Associates Limited

Katherine Hu
Senior Urban Designer
s 9(2)(a)
KatherineH@barker.co.nz

Sections.

18m Primary Road.

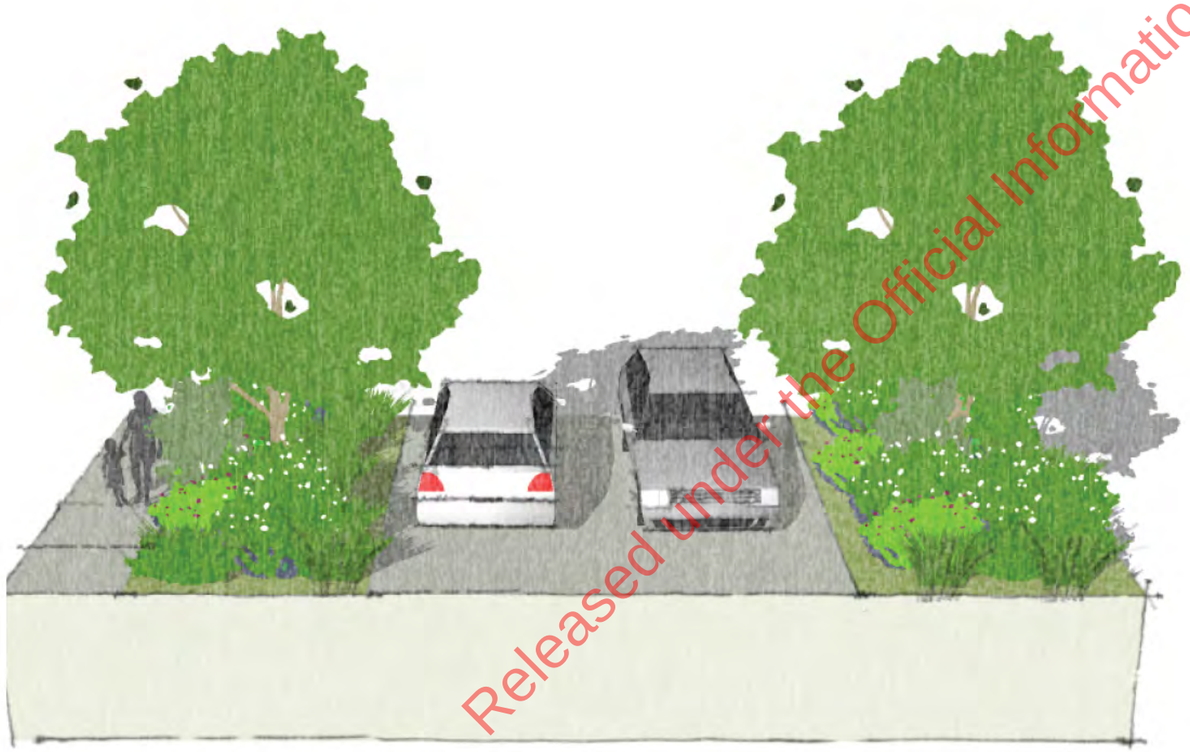
1.5m Sidewalk | 4m Swale | 7m Carriageway | 4m Side Berm or Parking | 1.5m Sidewalk

Sections.

18m Primary Road with Parking.

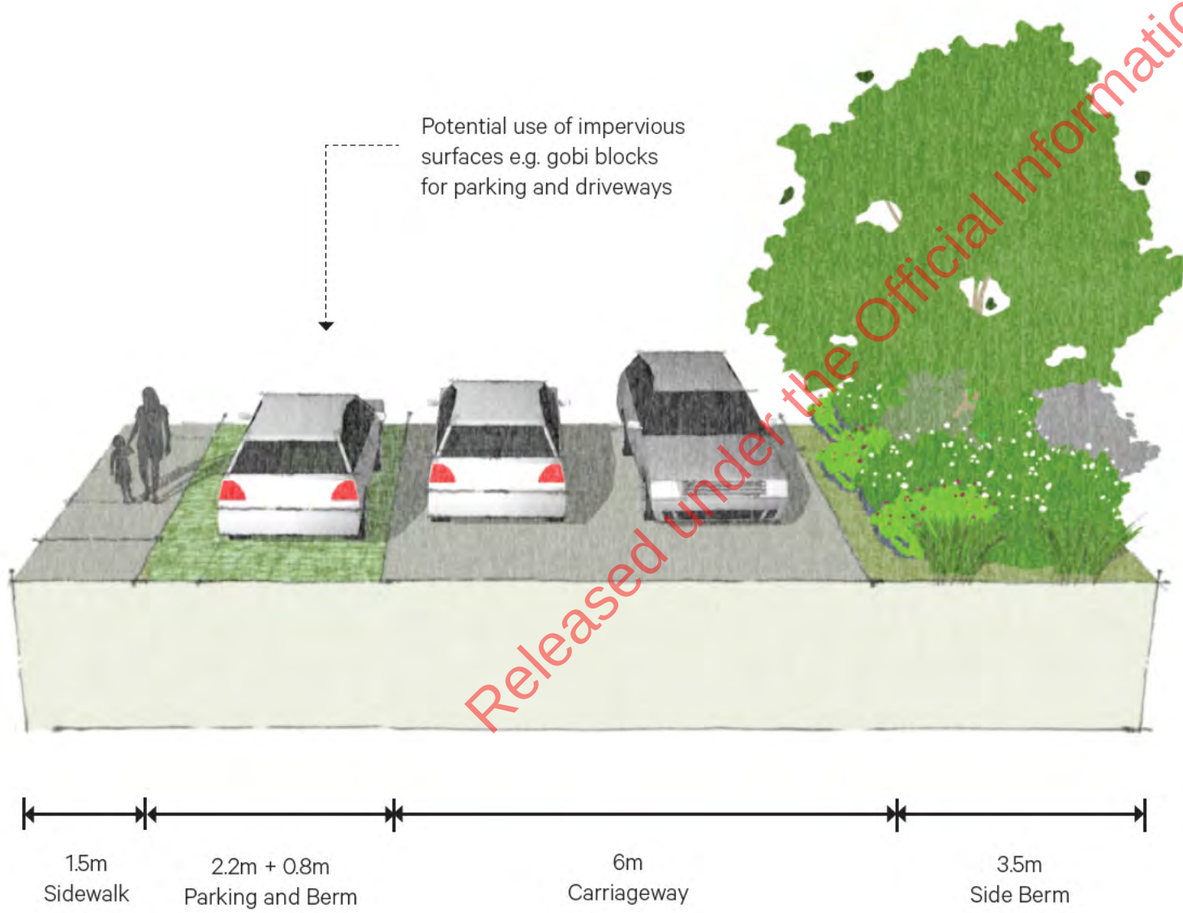
Sections.

14m Secondary Road.



Sections.

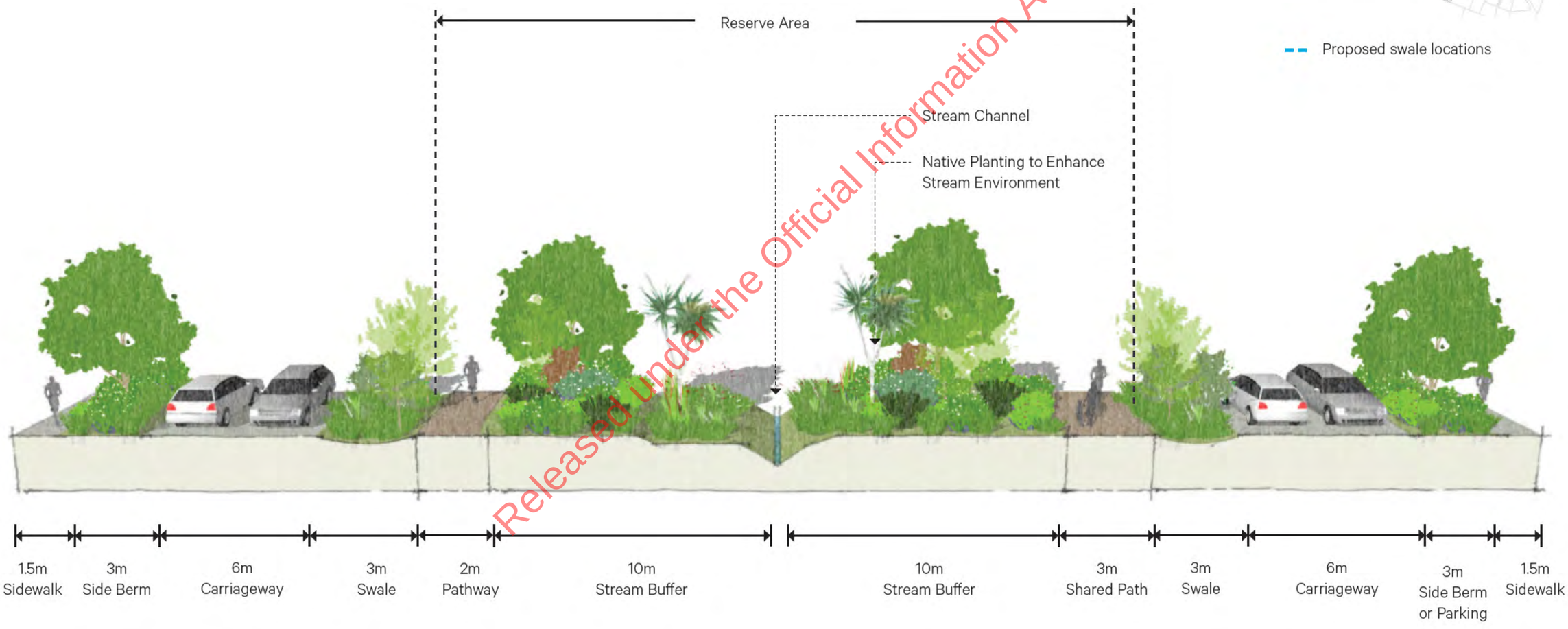
14m Secondary Road with Parking.



Sections.

Stream Interface.

Proposed swale locations



Memorandum

B&A Urban & Environmental

To: Jacklyn Phillott – Waka Kotahi

From: Katherine Hu – Barker & Associates Limited

Date: 12 October 2023

Re: Response to Waka Kotahi Application-2023-0705-6 Teitei Drive, Ohakune

Kia ora Jacklyn,

This memorandum provides a response to the matters raised within the email correspondence on 11th July 2023 and the subsequent email correspondence on 2nd August 2023, in regards to Waka Kotahi Application 2023-0705-6 Teitei Drive, Ohakune.

My involvement in the project to date includes offering planning advice on the proposed development and preparing the resource consent applications under the Ruapehu District Plan, One Plan and the NES – F.

1.0 Background

This Waka Kotahi Application pertains to a resource consent application under the Ruapehu District Plan for a concurrent subdivision and land use development located at 6 Teitei Drive, Ohakune (the **RDC Consent**). This RDC Consent addresses the initial stage of the proposal, being a fee-simple subdivision to create 46 residential lots, one balance lot (Lot 301), five lots to vest as local purpose reserve and one lot to vest as public road. The five local purpose reserves will incorporate local open space, stormwater management areas and existing natural features within the site. This RDC Consent has been lodged with Ruapehu District Council on 10 July 2023 (Ref: 1598) and it is being on hold for requesting further information under the s92 of the RMA.

A resource consent application under the One Plan and NES-F for activities in relation to large-scale land disturbance, discharge to land, diversion of water and works associated with an existing natural inland wetland for urban development has also been lodged with Horizon Regional Council (the **HRC Consent**).

2.0 Responses to Matters Raised

2.1 Intersection Upgrade – Right Turn Pocket into Teitei Drive

The original Application provided to Waka Kotahi does not include any proposed intersection upgrade or works within SH49. Section 5.1 of the original ITA has assessed the traffic generation effects on the existing intersection of Teitei Drive/SH49 and it was concluded that the proposed site access intersection (SH49/Teitei Drive intersection) is forecast to operate well within capacity during the peak hour and as such the impact on the performance of the SH49/Teitei Drive intersection is considered less than minor and no major upgrades to the existing wider network are required.

This conclusion has been further confirmed in Section 5.2 of the ITA that no auxiliary lane is warranted for either a left or right turn into Teitei Drive from SH49, either at present or including the development traffic.

As a result of further communication with Waka Kotahi since the resource consent application was lodged, the applicant is now agreed to introduce a right turn pocket into Teitei Drive to minimise disruption to

through traffic. Nevertheless, to avoid confusion, the opinions and conclusions of the effects of the intersection of Teitei Drive/SH 49 and the existing roading network within the revised ITA remain unchanged.

From a planning perspective, whilst the introduction of a right turn pocket is not required as a mitigation of the adverse effects arising from the proposed development, the introduction of a right turn pocket will also reduce approach speeds for both directions of travel contributing to an improved safe environment.

A concept design of a possible layout of the right turn pocket is included in the revised ITA. It is anticipated that the design will be subject to a detailed design and approval by Waka Kotahi prior to its implementation, which will be included within the set of conditions of consent.

2.2 Alternative Access and Existing Wetland

In the RDC Consent and the ITA, it was noted that the proposed site has one access option provided via Teitei Drive and will be distributed to the wider transport network through the SH49/ Teitei Drive intersection.

A question was raised about the possibility and feasibility of the alternative access from the local road Raetihi Ohakune Road instead of Teitei Drive, as a preference for the access to Waka Kotahi.

Our response to this question is as follows:

1. The subject site only has one access to Teitei Drive and there is no access from Raetihi Ohakune Road, as the site does not comprise any frontage or boundaries adjoining Raetihi Ohakune Road (see Figure 1 below). Therefore, it is impossible to form access from Raetihi Ohakune Road to the subject site, without reaching any legal agreement and/or covenant with other sites which is not part of the subject site for the development. Overall, this is not a practical or feasible option for the development.

Figure 1 Subject Site locality shown in green

2. The proposed development to date addresses the initial stage of the proposal, which limits to the northeast portion of the entire subject site. No detailed design or layout for future stages over the

balance lots has been confirmed. As such it is premature to determine any future access or potential connection onto Raetihi Ohakune Road as part of this application.

3. As assessed in the AEE, we understand the area adjacent to the northwest boundary is currently a largely vegetated wetland and it is part of a 'paper road'. Nevertheless, this paper has not been constructed, thereby it does not provide any other access to the proposed development within the subject site. See Figure 2 below.

Figure 2 Subject Site, Existing Access off Teitei Drive and Indicative 'Paper Road'

Furthermore, as detailed in section 1.3 of EIA (attached as Appendix 3 of this memo), the paper road overlaps with a natural inland wetland (as classified under the NES-F), which should not be disturbed until detailed investigations and assessments are undertaken. The application is only for a small part of the site, any future development of the rest of the site, including any additional access onto the paper road, will be subject to future investigation and site assessment.

2.3 All Other Mattes and Revised ITA

In addition to the abovementioned matters, you have asked for several clarifications in relation to the assumptions made and the subsequent assessment in the original ITA. I understand these matters have been answered and clarified by the project traffic consultant, Todd Langwell, through email correspondences on Wednesday 26 July 2023 and Monday 4 September 2023 (as attached with this memo).

Any subsequent changes as a result of the correspondence with Waka Kotahi have been made in the revised ITA as accompanied by this memo.

3.0 Conclusion

In my view, the proposed layout for the development, including its access to Teitei Drive has been carefully considered and is appropriate to its context. Whilst it is not required mitigation as recommended by the transport engineer, the introduction of a right turn pocket on SH49 into Teitei Drive will minimise any disruption to the through traffic and will positively contribute to a safe environment as it also reduces approach speeds for both directions of travel.

Overall, as detailed in the revised ITA, it is considered any transportation effects arising from the proposed development will not adversely affect the efficiency and effectiveness of the function and use of the existing transport network. In addition, the proposed development will not hinder the development or future upgrade of the paper road.

Katherine Hu

From: Todd Langwell <Todd@trafficplanning.co.nz>
Sent: Wednesday, 26 July 2023 1:13 pm
To: Jaclyn Phillott
Cc: Katherine Hu
Subject: RE: Waka Kotahi Application-2023-0705- 6 Teitei Drive, Ohakune, Manawatu

Hello Jaclyn,
Thank you for your patience and giving me the opportunity to respond to the points raised below.

I have set out a response below in green for each of the points raised. In summary, I consider some of the assumptions made are incorrect and just want to make sure this is noted in correspondence to ensure all parties, including the Council and Waka Kotahi have all the factual information.

Notwithstanding, I can confirm that the applicant is happy to provide a right turn pocket on SH49 at the intersection. I would appreciate that Waka Kotahi can provide in writing that this is the only mitigation it considers necessary. Once this is confirmed and agreed, we are happy to provide an addendum to the AEE to reflect the changes.

1. Waka Kotahi does not agree with the assumed speed being less than 70km/hr due to the intersections proximity to the 50km/hr zone. Our data for the last 12 months shows the 85% speeds are 69km/hr to the west and 72km/hr to the east. Therefore, use of the graph b in figure 2.25 of the Austroads Guide to Traffic Management Part 6 (p53) is considered more appropriate (see below).
   It is not clear from the speed data provided exactly where it is measured, however if we accept these speeds as accurate measurements then on face value, speeds eastbound and in the direction of the right turn into Teitei Drive are lower than 70km/hr. Therefore, if these speeds are accurate then Graph "a", as used in the ITA would be appropriate for the right turn direction (under 70km/hr) and graph "b" would be appropriate for the left turn direction. I therefore consider the assessment within the IT is correct. Further details below will also reinforce this conclusion.

2. The trip generation rates proposed in Section 4.0 are based on 11 daily person-trips. However, this number has been reduced to 7.7 based on the assumption that 30% of trips will be by walking or cycling. Waka Kotahi does not agree with this assumption particularly as half of the year the weather does not encourage the use of active modes. Therefore, Waka Kotahi would prefer the assessment rely on the 10.4 vpd and 1.2 vehicle trips per peak hour as per the Planning Policy Manual Appendix 5B.
   I do not agree that seasonal factors in Ohakune are that extreme and will impact on active mode demands for 6 months of the year. Warmer weather periods are growing and the window when weather may affect active modes are reducing. I am also reminded that should the proposed subdivision be developed with social housing in which car ownership is low and that some of the house typologies are going to only support a parking demand of only one car per dwelling. One of the designed goal for this project is to encourage the use of active modes in order to maximise and benefits from the close proximity to all existing amenities that actively support cycling and walking and infrastructure to support this, reducing climate change emissions and carbon neutral.

3. Waka Kotahi supports the assumption that the Carrot Park Playground will be occupied 80% of the time, equating to 24vpd or roughly 2.4 per peak hour. However, there are also 3 existing homes using Teitei road access which equates to a further 30vpd, or roughly 3 vehicles per hour which have not been included in the

assessment. Therefore, the existing environment has 54vpd or 5.5 vehicle per peak hour. The vehicle numbers from 46 proposed dwellings, is approximately 478 vpd or roughly 47 per peak hour.
On the same assumption as item 2 above, if the weather is considered to have an influence on active mode travel, then it would also be applied to the occupancy of Carrot Park. It is flawed to make assumptions that weather will affect active modes and not the use of the park. Furthermore, the analysis of traffic movements is undertaken for the AM and PM peak periods when occupancy of Carrot Park will be close to zero (as observed during my site visit during the same peak periods). The ITA set a conservative level of assessment for the peak season (which is incidentally in the winter months) when considering Carrot Park, whereas volumes during the peak commute times are much lower.
No assumption has been made to add trips relating to the existing homes in Teitei Drive as they are accounted for in the survey data of the existing intersection operation, to add further flows would result in a "double count".

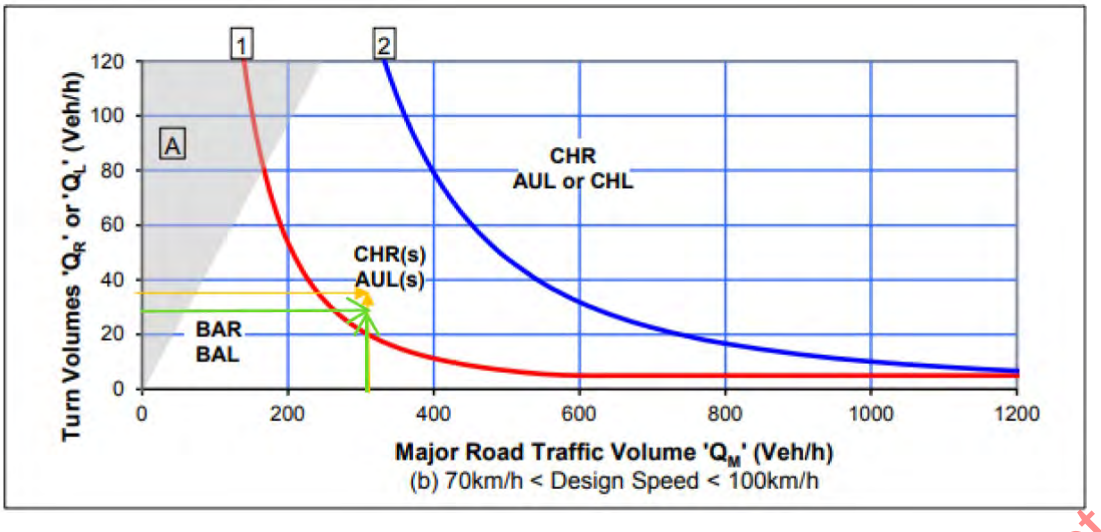
Therefore, the total anticipated vehicles using the Teitei Road intersection is anticipated to be 532vpd or roughly 53 per peak hour trips when including the existing environment. This is significantly higher than that proposed by the applicant and will affect the safe and efficient functioning of the state highway and the intersection.
The SIDRA analysis set out in the ITA accounts for a total of 56 turning movements in the AM peak, which is more than that calculated if the Waka Kotahi assumptions were adopted. The ITA is therefore taking a more conservative assessment in terms of vehicle movements through the intersection.

4. Waka Kotahi has also done the vehicle calculations based on the proposed 7.7 trips per day per household as per section 4 of the ITA. Based on this number, there would still be roughly 401vpd (49 dwellings including the existing 3 dwellings and carpark) or roughly 40 per peak hour.
   As discussed above, it is flawed to account for the existing homes on Teitei Drive as they are included in the existing background traffic.

5. Out of interest I have used the vehicle values provided by the applicant (noting the higher calculations by Waka Kotahi may be contested) and plotted them on the appropriate graph b. The "*39 vehicle trips per peak hour, and 354 vehicle trips per day*" from the applicant results in the proposal requiring a Channelised/Auxiliary Lane consideration (see below). The need for an intersection upgrade is further accentuated if using the values calculated by Waka Kotahi.
   As set out above, graph "b" is not considered appropriate for the right turn assessment as the speeds on this approach are less than 70km/hr.

   Nevertheless, even if you used graph "b" as set out below, the plot of Q_R in the graph below is incorrect. The reference to 39 vehicles trips per hour relates to the overall predicted vehicle movements for the proposed subdivision. This volume is spread across all turning movements at the intersection and not just the right turn into Teitei Drive. Plotting 39 vph for the chart is therefore incorrect.

   Taking into account the SIDRA volumes in the ITA (which are more conservative that the Waka Kotahi predictions), the right turn volume in the PM peak into TeiTei Drive is 30 vph and this is the Q_R value that should be plotted on the chart. By plotting the correct Q_R value in graph "b" will give you are result closer to the red line (as shown in green below). Given the measured speeds are at the lowest end of the range (70-100km/hr) and the demand volumes for the Carrot Park are also conservative it would be overly cautious to require a right turn pocket to mitigate any effects relating to this development.



6. The Safe System Assessment in section 5.4 of the ITA also notes an increase in risk to safety outcomes as part of the proposal, yet no mitigation measures have been considered.
   The increase in risk is very minor and, in my opinion, and does not warrant any mitigation. The increase in volume using the intersection is not considered to trigger any significant mitigation and given that the intersection warrant (when utilising the correct chart and demand volumes) does not indicate that a channelised right turn lane is required.

Todd Langwell DIRECTOR
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T 09) 817 2500 **ext**. 806 s 9(2)(a) **F** 09) 817 2504
E todd@trafficplanning.co.nz **W** www.trafficplanning.co.nz

From: Jaclyn Phillott <Jaclyn.Phillott@nzta.govt.nz>
Sent: Thursday, July 13, 2023 10:23 AM
To: Todd Langwell <Todd@trafficplanning.co.nz>
Subject: RE: Waka Kotahi Application-2023-0705- 6 Teitei Drive, Ohakune, Manawatu

Good morning Todd,

I can confirm that our speed reading data is provided through a licensed agreement with Tomtom whereby we have access to speed data over the entire state highway network. The speed readings are based on a distance of 20m either side of the intersection and based on the average for the last 12 months. The attached is a breakdown of the analysis for your records.

Let me know if you need any other information.

Ngā mihi

Jaclyn Phillott (she/her) BEPP(hons)

Environmental Planner – Waikato/Bay of Plenty
Poutiaki Taiao / Environmental Planning
System Design, Transport Services

Katherine Hu

From: Todd Langwell <Todd@trafficplanning.co.nz>
Sent: Monday, 4 September 2023 11:51 am
To: Jaclyn Phillott
Cc: Katherine Hu
Subject: RE: Waka Kotahi Application-2023-0705- 6 Teitei Drive, Ohakune, Manawatu
Attachments: 220846 - 6 Teitei Drive Ohakune Integrated Transport Assessment - Updated Final.pdf

Hello Jaclyn,
I hope your weekend was enjoyable.

Please find attached the updated ITA that includes details of the intersection upgrade with a right turn bay on SH49. This is at a concept design level and I anticipate that a more detailed design will be prepared as the development proceed and RC is granted.

With regards to the other comments below, I will let Katherine address the matter of the wetland and any related assessment and reporting.

In terms of the Carrot Park overflow, I am unaware of any overflow of parking on weekends. Our observations were undertaken on a weekday. I anticipate that any such activity would not be regular and highly dependent on seasonal factors. The proposed subdivision will increase the available parking supply in close proximity to the existing car park, and together with the available parking on Teitei Drive, is likely to reduce any occurrence of overflow parking on SH49.

Rgrds

Todd Langwell DIRECTOR
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T 09) 817 2500 ext. 806 M s 9(2)(a) F 09) 817 2504
E todd@trafficplanning.co.nz W www.trafficplanning.co.nz

From: Jaclyn Phillott <Jaclyn.Phillott@nzta.govt.nz>
Sent: Wednesday, August 2, 2023 2:22 PM
To: Katherine Hu <KatherineH@barker.co.nz>; Todd Langwell <Todd@trafficplanning.co.nz>
Subject: RE: Waka Kotahi Application-2023-0705- 6 Teitei Drive, Ohakune, Manawatu

Kia ora Katherine and Todd,

I appreciate you providing clarity on the matters that I had raised regarding the intersection upgrade. Our position remains the same that the proposed subdivision (stage 1) will result in the intersection needing to be upgraded. I note your client is happy to provide a right-hand turn bay upgrade. Can you please amend the traffic impact assessment to reflect these changes and provide an intersection design diagram for our safety and network team to reassess.

Katherine, thank you for our conversation last week. I raised the matter of the proposed subdivision gaining access from the local road- Raetihi Ohakune Road instead of Teitei Drive as it is Waka Kotahi's preference for the access to be from that local road. You have indicated that this could not proceed due to the presence of a wetland – I note in the AEE the wetland is considered to be currently in a degraded state, therefore evidence including confirmation that the land referred to is indeed considered a natural wetland which should not be disturbed should also be provided as part of the updated AEE. Can you please address this and the updated findings from the TIA in the resource consent application and provide me with an updated copy for assessment.

It has also been bought to my attention that the Carrot park carpark has been identified as regularly overflowing at weekends, resulting in vehicles parking on the state highway, has this behaviour been observed/considered and how is it proposed to be managed?

Once I have received the updated TIA, intersection design and resource consent we will be in a better position to indicate whether or not we can support the stage 1 proposal.

Ngā mihi

Jaclyn Phillott (she/her) BEPP(hons)

Environmental Planner – Waikato/Bay of Plenty
Poutiaki Taiao / Environmental Planning
System Design, Transport Services
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From: Katherine Hu <KatherineH@barker.co.nz>
Sent: Monday, 31 July 2023 9:49 AM
To: Jaclyn Phillott <Jaclyn.Phillott@nzta.govt.nz>
Subject: RE: Waka Kotahi Application-2023-0705- 6 Teitei Drive, Ohakune, Manawatu

All good – no worries at all. Anytime this week would be fine 😊

s 9(2)(a)

Ngā mihi | Kind regards,

TRAFFIC PLANNING CONSULTANTS LTD

PROPOSED RESIDENTIAL SUBDIVISION

6 TEITEI DRIVE
OHAKUNE

INTEGRATED TRANSPORT ASSESSMENT

Prepared By:
Udit Bhatti & Todd Langwell

August 2023
Reference: 220846
Rev E – Updated Final

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Project Information:

Client	Kainga Ora Homes and Communities
Job Number	220846
Title	Proposed Residential Subdivision – 6 TeiTei Drive, Ohakune Integrated Transport Assessment
Prepared By	Udit Bhatti & Todd Langwell
Date	August 2023

Document History and Status

Revision	Date Issued	Reviewed By	Approved by	Date approved	Status
A	12/05/2023	T Kear	T Langwell	26/05/2023	Draft
B	26/05/2023	T Langwell	T Langwell	23/05/2023	Draft
C	28/05/2023	T Langwell	T Langwell	28/05/2023	Draft
D	29/06/2023	T Langwell	T Langwell	29/06/2023	Final
E	24/08/2023	T Langwell	T Langwell	24/08/2023	Updated Final

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1.0 INTRODUCTION

This report is an integrated transport assessment prepared in accordance with chapter Transport, Infrastructure and Car Parking (TI) of Ruapehu District Plan (RDP). The report examines and describes the traffic and parking effects of a proposal to establish a residential subdivision located at 6 Teitei Drive, Ohakune. The site is located immediately south of Teitei Drive as illustrated in Figure 1. The site is currently zoned Residential in the Raupehu District Plan Maps (RDPM).

The proposal is described in more detail within the application. It involves the establishment of 46 residential lots as Stage 1 of a larger subdivision. A new local road network will also be provided connecting to wider transport network via Teitei Drive.

This report describes the nature of the local transport environment around the site; sets out the transport characteristics of the proposal; assesses its likely impacts on the surrounding transport environment, including any mitigation measures that are considered necessary to minimise those impacts; and considers the application in terms of the relevant standards and assessment criteria set out in Section T12 and T13 of the RDC including modelling and analysis of key intersection.

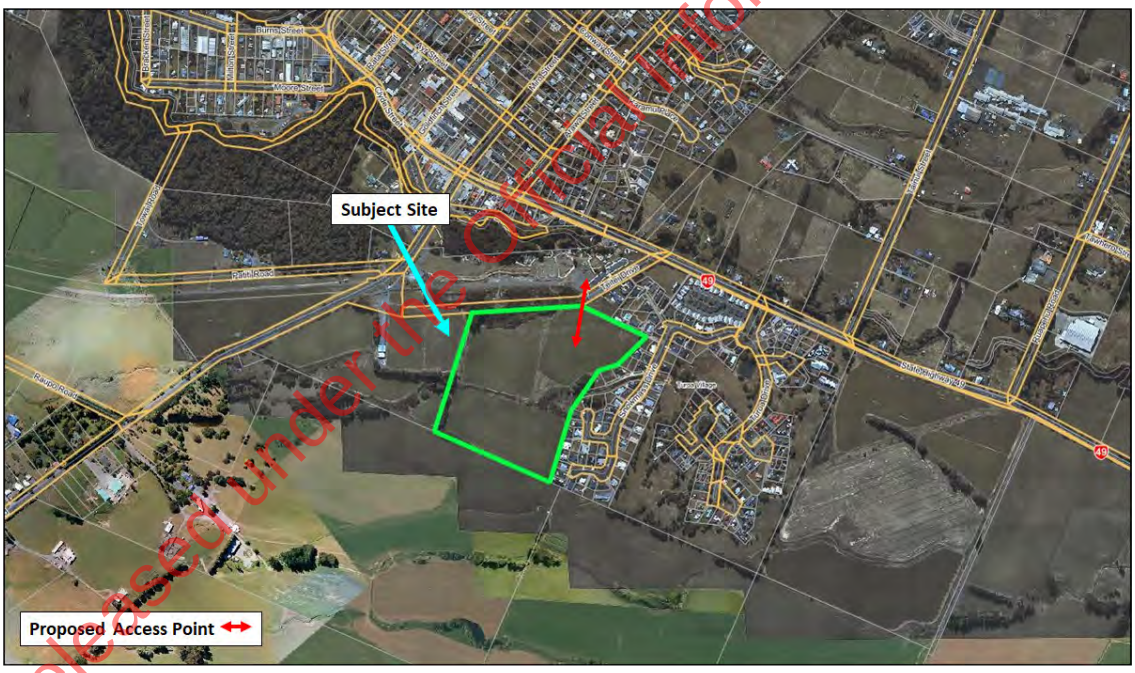


Figure 1: Site Location
Source: https://maps.ruapehudc.govt.nz/intramaps90/?project=Ruapehu

2.0 EXISTING TRANSPORT ENVIRONMENT

2.1 Existing Site Traffic Conditions

The site is currently an unoccupied greenfield site with no vehicle access provided to it.

2.2 The Surrounding Road Network and Activities

The surrounding area is generally rural, recreational, or residential in nature.

The site is bounded by Carrot Park Playground and Teitei Road to the north, by residential properties to the east, farmland to the south and recreational sports fields to the west. Approximately 1.5 km north-east of the site is Raupehu College and approximately 700 metres north-west of the site is the Ohakune town centre where a range of shops and facilities are provided.

2.2.1 State Highway 49 (Rangataua Road)

State Highway 49 (SH49) runs in a general east-west direction past the site and provides a connection between State Highway 1 at Waiouru in the east and State Highway 4 in the west, known as Tohunga Junction.

Near the subject site, SH49 has a carriageway width of some 10.0 metres providing one traffic lane in each direction and a narrow shoulder. There is speed reduction sign provided to the west of the SH49/Teitei Drive intersection indicating an advised speed of 70 km/h for eastbound vehicles and 50 km/h for westbound vehicles. On-street parking is only permitted along the southern side of the carriageway and 'No Stopping Lines at All Times' are marked along the northern side of the carriageway.

Information from NZTA State Highway Traffic Monitoring[1] database suggests that near the subject site (ID: 04900011) SH49 carries a flow of 2,467 vehicles per day and an estimated peak hour flow of some 250 vehicles per hour.

2.2.2 Teitei Drive

Teitei Drive is a local road providing access to abutting properties and to a public carpark associated with The Carrot Park Playground. Teitei Drive has a carriageway width of some 6.5 metres providing one traffic lane in each direction and on-street parking along both sides of the carriageway. Teitei Drive has a speed limit of 50 km/hr with no footpath provided within the road reserve however pedestrian paths are provided within Carrot Park for the length of Teitei Drive.

No survey data is available for Teitei Drive; however, it is estimated that Teitei Drive has a traffic flow of some 200 vehicle movements per day and a peak hour traffic flow of some 20 vehicle movements per hour during peak holiday periods.

[1] Traffic flow estimation – https://maphub.nzta.govt.nz

2.3 Road Safety

Information from the New Zealand Transport Agency's 'Crash Analysis System' for the most recent five-year+ period from January 2018 to present (2023 data subject to reporting delays) along the entire length of Teitei Drive, the SH49/Teitei Drive intersection and 150 metres on SH49 from the intersection shows that three crashes were reported. The crashes are summarised as follows:

- One minor injury crash was reported in December 2022 midblock along SH49 when an intoxicated driver of a vehicle lost control, went off-roadway, and collided with the bridge barrier.
- One minor injury crash occurred in September 2019 midblock along SH49 when a vehicle failed to notice another vehicle in front (stopped to turn into a driveway) and failed to slow/stop in time causing a rear end collision.
- One non-injury crash occurred in June 2019 midblock along SH49 when a vehicle lost control and collided with a vehicle parked on-street.

Although, there is one crash reported related to driveway manoeuvre over five+ years, it does not specify any trend related to the unsafe operations of turning vehicles along this part of SH49. Therefore, there is nothing to suggest an inherent road safety issue near the subject site.

2.4 Pedestrian & Cyclist Facilities

Footpaths are not provided along Teitei Drive, however, a network of footpaths are provided circulating the public parking area (located west of the SH49/Teitei Drive intersection) from SH49 providing access to the playground and other community areas. It is expected that this footpath will link with any future footpath provided on the northern side of TeiTei Drive extension along the site frontage.

A footpath is also provided along the northen side of the SH49 which continues east providing pedestrian access to abutting properties and to the local centre, which is located some 600 metes northwest of the site.

No dedicated cycle lanes or shared lanes are provided near the subject site. However, SH49 has a typical width of 8.5 – 10.0 metres inclusive of 1.0 metre-wide hard shoulder on both sides which is considered sufficient for a cyclist and vehicle to co-exist.

2.5 Public Transport Accessibility

The closest bus stop to the site is located in the Ohakune town centre some 700 metres northwest of the site providing services between Auckland – Ohakune – Palmerston North. Ohakune rail station is located some 3.0 kms northeast of the site providing services from Auckland and Wellington. The Northern Explorer train between Auckland and Wellington departs southbound on Monday, Thursday and Saturday and northbound trains Wellington to Auckland depart northbound on Friday, Sunday, and Wednesday.

3.0 THE PROPOSAL

3.1 Overview

The proposal comprises of the establishing a subdivision for 46 residential lots as part of Stage 1 of a wider subdivision. The proposed site layout is illustrated in Figure 3.

Figure 3: Proposed Site Layout
Source: Isthmus

Access to the site will be provided via Teitei Drive with a new intersection at its western end of the street.

A network of new public local roads and pedestrian accessways are also proposed to provide access to each of the activities from the wider road network. All formed intersections will be designed to meet the requirements of AUSTROADS. Further discussion of the appropriateness and formation of the new roads is included later in this report.

Other elements that form part of the proposal include a series of enhancements that are identified as mitigation of effects or to address drainage, and streetscape requirements. The applicant expects to discuss them in more detail with the relevant stakeholders including Ruapehu District Council and as part of any conditions imposed on any consents and engineering approvals. This will allow these measures to be refined appropriately and implemented in an integrated manner with other enhancements/mitigations in the area. These measures include:

- New footpaths, street trees and street furniture within the road berms; and
- Traffic calming and pedestrian and cycling enhancement measures throughout the site including, intersection controls, signage, and pram ramps.

3.2 Road Design Principles

Best-practice residential area design aims to produce liveable residential neighbourhoods that contribute to safety, good health, efficiency, and sustainability while having good levels of amenity.

Street patterns that allow good access through and around the area and to local services by walking and cycling are beneficial, and guidelines generally talk about connectivity and permeability as being desirable attributes. Legibility is another desirable attribute and the creation of self-explanatory roads.

It is desirable for residents to be within easy walking distance of public transport services and local service centres to assist in reducing demand for private vehicle travel. Pedestrian walkability catchments are generally based on good access being provided within 800 metres or about 10-minutes' walk.

Any land development will need to provide high quality walking and cycling infrastructure to minimise the need to use private vehicles and for trips within the site. By providing a high standard of pedestrian and cycle facilities, pedestrians and cyclists of all ages can move safely within the area with minimal risk. This will be an important function of any future development. The proposed development will not preclude making the most of opportunities to promote walking and cycling.

3.3 Proposed New Roads

Five new local roads (Road A, Road B, Road C, Road D and Road E) are proposed to be vested to the Ruapehu Council as part of the overall subdivision. Their location is identified in Figure 3. All new or extended roads are considered as local roads.

The new roads proposed will be formed with a typical road reserve width of 12 – 18 metres. Details of the crossing section are provided in the infrastructure report within the application. Indicative cross sections are provided in Figures 4, 5 and 6 below. Each new road generally has a straight alignment with bends included along Road A and Road E. The proposed development has adopted the following road design principles:

- Road A within the site will be two-way, with a typical road reserve width of 18.0 metres and a carriageway width of some 7.0 metres;
- Road B, Road C and Road D within the site will be two-way, with a typical road reserve width of 14.0 metres and a carriageway width of some 6.0 metres;
- Road E within the site will be two-way, with a typical road reserve width of 12.0 metres and a carriageway width of some 6.0 metres;
- All the local roads will include footpaths with a minimum width of 1.5 metres;
- Typical cross-sections for the public roads will include back berms to optimise sight lines between drivers reversing out across the footpath and pedestrians.
- All new local roads in the development are no steeper than 1 in 8 (12.5%) and comply with the AUSTROADS

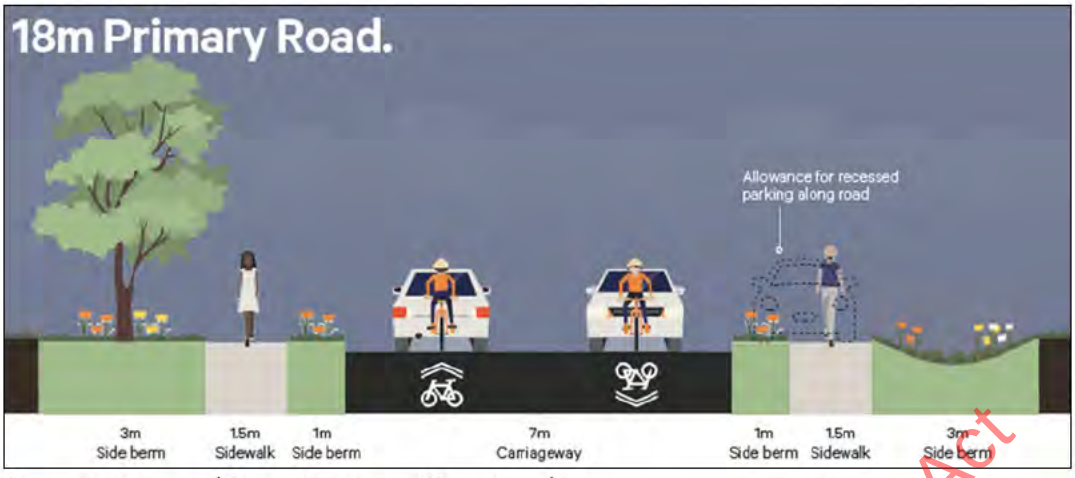


Figure 4: Proposed Cross Section – 18m – Road A
Source: Isthmus

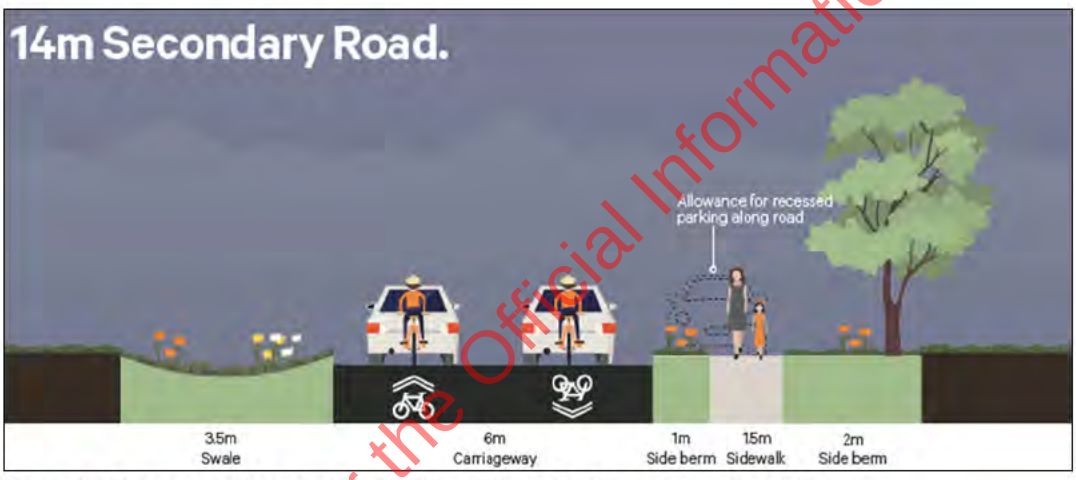


Figure 5: Proposed Cross Section – 14m – Road B, Road C and Road D
Source: Isthmus

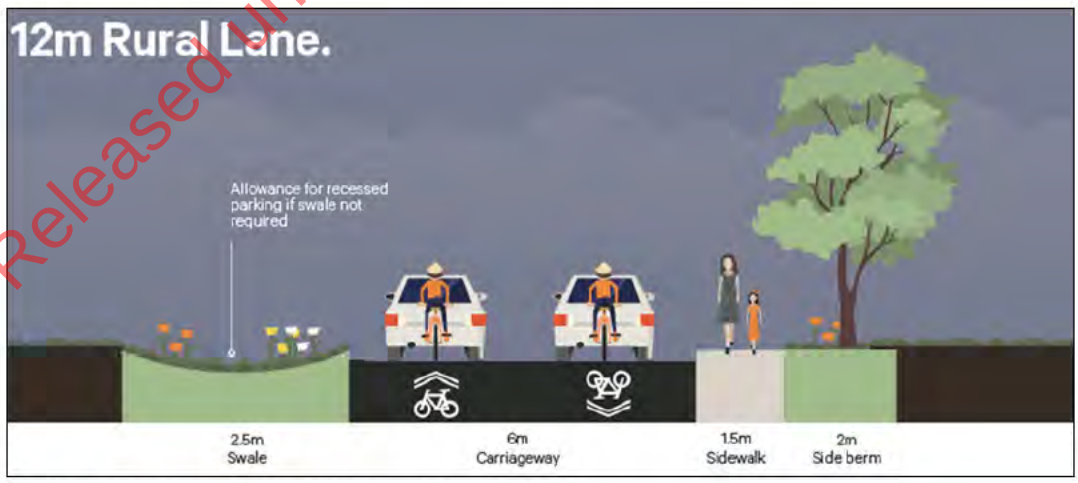


Figure 6: Proposed Cross Section – 12m – Road E
Source: Isthmus

3.4 Vehicle Tracking

During the design stage, design vehicles at each intersection have been taken into consideration. At each new intersection, 10.3-metre refuse trucks can make the turn. In addition, all new intersections can accommodate a delivery van while another van is turning.

3.5 Traffic Calming Strategy

The traffic calming strategies will be in line with good design practice. Those include the consideration of following measures within the subdivision:

- Installing traffic calming devices with suitable intervals targeting operating speed of 40km/hr on local roads;
- Avoiding long straight continuous roads that will invite higher speeds;
- Narrower carriageway width of 6.0 metres for local roads with parking bays, street trees and on-street parking, which is likely to assist in reducing operating speed; and
- Creating intersections with small radii, priority controls and clear definition of behaviour.

By providing a lower speed environment, the proposal aims to provide better safety for road users including drivers, pedestrians and cyclists and reduces noise and traffic volume throughout the subdivision.

3.6 Pedestrian & Cycle Facilities

The proposal is designed to promote walking and cycling. It aims to provide for the daily needs of pedestrian and cyclist movements by:

- Creating footpaths along both sides of the new street alignments of the Primary Road;
- Providing a footpath along one side of the Secondary and Local/Rural Road;
- Connecting new footpaths within the subdivision with the public footpath provided onto Teitei Drive i.e., via the footpath provided within the public car park;
- Providing a low-speed street network within the subdivision that allows cyclists and vehicles to share the same carriageway on an equal basis.

By providing a high standard of pedestrian and cycle facilities, pedestrians and cyclists of all ages can safely move through the area with minimal risk.

4.0 PREDICTED MODE SHARE & VEHICLE TRIP GENERATION

The Roads and Traffic Authority (RTA), New South Wales – 'Guide to Traffic Generating Developments' publication provides an average trip rate of 11 daily person-trips per household.

When assessing trip generation and mode share, the provision of different transport facilities will affect trip generation and mode split. If a frequent and efficient public transport service is provided for example, the proportion of public transport trips is likely to be higher with a corresponding lower proportion of private vehicle trips. Similarly, if there are limited activities within a suitable walking or cycling distance such as schools, recreational activities, or employment opportunities, you may expect a higher proportion of private vehicle trips. Also, if a development provides limited parking, the use of other modes is likely to be higher.

Considering the surrounding land use activities and accessibility for active modes and public transport discussed in above, the following mode shares and trips are anticipated for the proposed development:

Mode	Predicted Share	Average Trips per day per household	Total Predicted Trips
Walking	20%	2.2	101
Bicycle	10%	1.1	51
Public Transport	0%	0	0
Private Car	70%	7.7	354

4.1 Predicted Vehicle Trip Generation

An indication of the potential trip generation for the proposal can be derived from survey data set out in the Roads and Traffic Authority (RTA), New South Wales – 'Guide to Traffic Generating Developments' publication. The trip generation rates of residential households can vary depending on the type of unit and location of the development. It indicates daily vehicle trip generation rates of 7.7 vehicles per day per household and weekday peak hour trip generation rate of 0.85 vehicles per hour per household.

Based on these rates, the proposed development with 46 will generate approximately 39 vehicle trips per peak hour and 354 vehicle trips per day. Further discussion of the trip generation effects will be provided later within this report.

4.2 Vehicle Trip Distribution

The proposed site has one access option provided via Teitei Drive and will be distributed to the wider transport network through the SH49/ Teitei Drive intersection.

As is typical with most residential activities, flow to and from households will be tidal with most vehicle movements in the AM peak leaving the site and then returning in the PM peak. For this assessment, a typical AM peak hour is considered where 80% of residential traffic will leave the site and 20% will enter the site, whereas the opposite will occur in the PM peak period.

The predicted origins and destinations of the vehicle trips generated by the proposal have been based on observations of the surrounding area and directional flows on SH49. It has been assumed that 80% of the trips generated would be westbound to/from the site, and 20% of trips generated would be to/from the east.

The assignment of turning movements at each of the key intersections is shown in modelling results in Attachment 1.

4.3 Predicted Active Mode Distribution

Considering the likely destinations for active modes surrounding the site, there are several external routes pedestrians and cyclists may take. The key destinations will be Ohakune Town Centre, nearby schools, and local recreational areas. These locations in relation the site are illustrated in Figure 7.

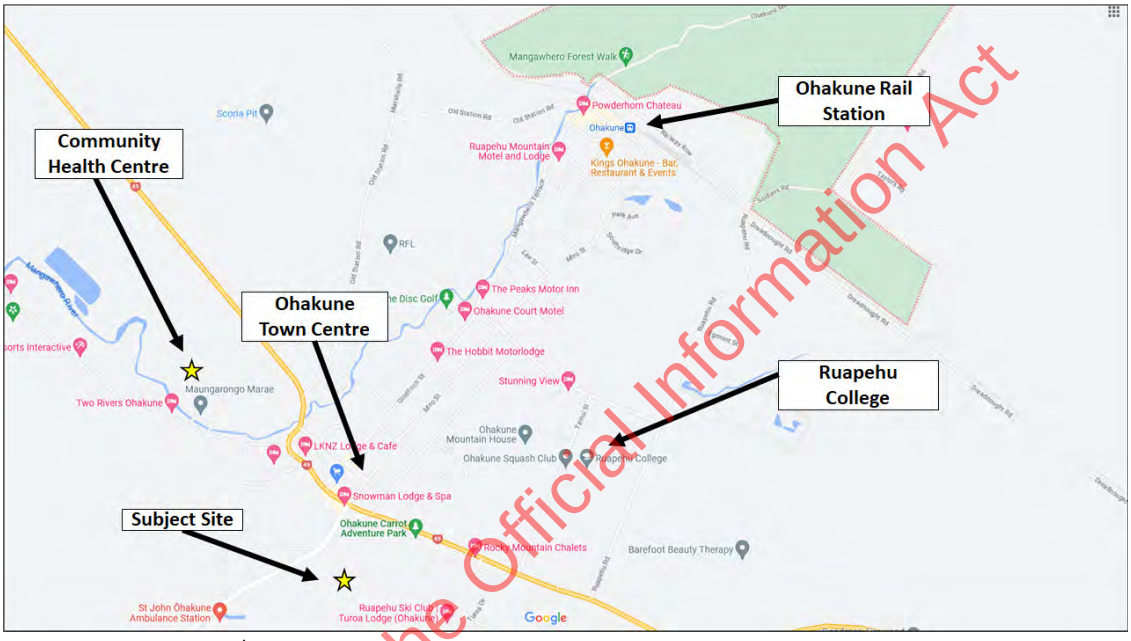


Figure 7: Active Mode Destinations
Source: Google Maps

5.0 ASSESSMENT OF TRANSPORT EFFECTS

From a transport perspective, the potential effects on the surrounding transport environment relate to the following elements:

- The impacts of additional traffic on intersection capacity;
- The impacts on road safety for all users;
- The impacts of establishing new roads, walkways, and transport infrastructure; and
- The impacts of construction traffic and activity.

5.1 Traffic Generation Effect (Intersection Performance)

The ability for roads to accommodate two-way flow and the performance of the intersections are both key considerations when assessing traffic generation effects. To assess the likely effects of the generated traffic from the development of the site, a SIDRA-9 traffic model has been run for the SH 49/Teitei Drive intersection. The SIDRA outputs for the modelled intersection is included in Attachment 1. The following key assumptions have been made in developing the model:

- All the default settings are adopted for the purpose of analysis.
- The AM peak hour has been utilised for this assessment as this is the period that will generate the highest volume of exiting vehicles turning from the side road onto SH49 and likely to show the largest levels of congestion.
- There is no recent traffic count data available for SH49 in the vicinity of the site within the NZTA database and to calculate traffic flows in the area traffic counts for SH1 and SH4 were utilised, along with some on-site survey data on vehicle distribution, to determine existing peak hour traffic flows along SH49.
- It is also assumed that the public parking area at the Carrot Park Playground will be 80% occupied with a traffic flow of 50% vehicles entering and 50% exiting. This is considered to be a conservative position give that the park will typically be busiest in the off-peak times.
- Given the sites proximity to ski fields existing flows have been factored to consider peak holiday months which has been determined by utilising data from SH1 and SH4 and was applied to SH49.

The SIDRA results for the SH49/Teitei Drive intersection for a typical AM peak hour during peak winter season are summarised in Table 1.

The modelling suggests that the proposed site access intersection (SH49/Teitei Drive intersection) is forecast to operate well within capacity during the peak hour with a maximum degree of saturation of 0.098, a level of service of A and a maximum queue of 0.9 metres along Teitei Drive and as such the impact on the performance of the SH49/Teitei Drive intersection is considered less than minor.

Table 1: SIDRA Results – SH 49/ Teitei Drive Intersection – AM Peak Hour (Peak Season)

	AM Peak Hour Proposed Development + Peak Season				
Movement	Flow (vph)	Degree of Sat.	Average delay (secs/veh)	LOS	95% Queue (m)
Site Access/ Teitei Drive (South)					
Left	30	0.037	5.1	LOS A	0.9
Right	13	0.037	5.9	LOS A	0.9
SH 49 (East)					
Left	9	0.098	6.4	LOS A	0.0
Through	163	0.098	2.2	LOS A	0.0
SH 49 (West)					
Through	144	0.090	0.1	LOS A	0.8
Right	14	0.090	6.7	LOS A	0.8
Intersection	**373**	**0.098**	**2.0**	**NA**	**0.9**

5.2 Intersection Warrant – Main Road Auxiliary Lanes

Notwithstanding the modelling indicating that there is significant spare capacity within the intersection, Waka Kotahi has requested an intersection warrant check using AUSTROADS Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management (2020) criteria to see if an auxiliary lane is warranted for the left or right turn into Teitei Drive.

The critical movements for the AUSTROADS warrant check are through movement volumes on the main road and the turning movements from the main road.

The warrant check has considered peak hour vehicle turning movements during the PM peak hour as this is considered to yield the high turning volumes from the main road. As per the SIDRA analysis above, the volumes assume the peak tourist season and an 80% occupancy of the Carrot Park playground car park. This is considered a very conservative position and it is most likely that turning volumes at the intersection will be lower than this most days.

Based on the information mentioned above, peak hourly traffic flow for the critical movements is calculated and illustrated in **Figure 8**.

Figure 9 below shows these peak-hour turning movement traffic volumes plotted onto the warrant graph using the "Design Speed ≤ 70 km/h" version of Figure 2.26 of AUSTROADS Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management (2020). The design speed of less than 70km/hr is utilised given the proximity of the intersection to the change in speed restriction and the approach speeds being less than the posted speed limit of 70km/hr.

The results indicate that no auxiliary lane is warranted for either left or right turn into Teitei Drive from SH49, either at present or including the development traffic. Notwithstanding, the application includes a proposal to introduce a right turn pocket into Teitei Drive to minimise disruption to through traffic. The introduction of a right turn pocket will also reduce approach speeds for both directions of travel contributing to an improve safety environment.

A concept design of a possible layout of the right turn pocket is included in Attachment 3. It is anticipated that the design will be subject to a detailed design and approval by Waka Kotahi NZTA prior to its implementation.

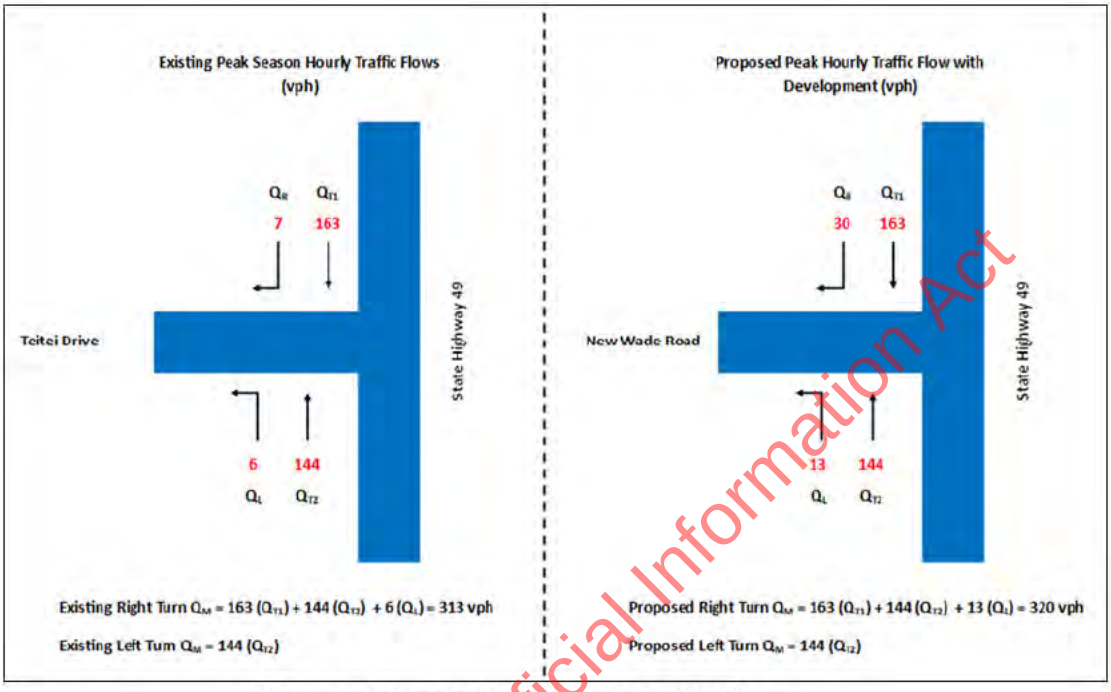


Figure 8: Estimated Peak Hourly Traffic Flows
Source: Traffic Planning Consultants Ltd

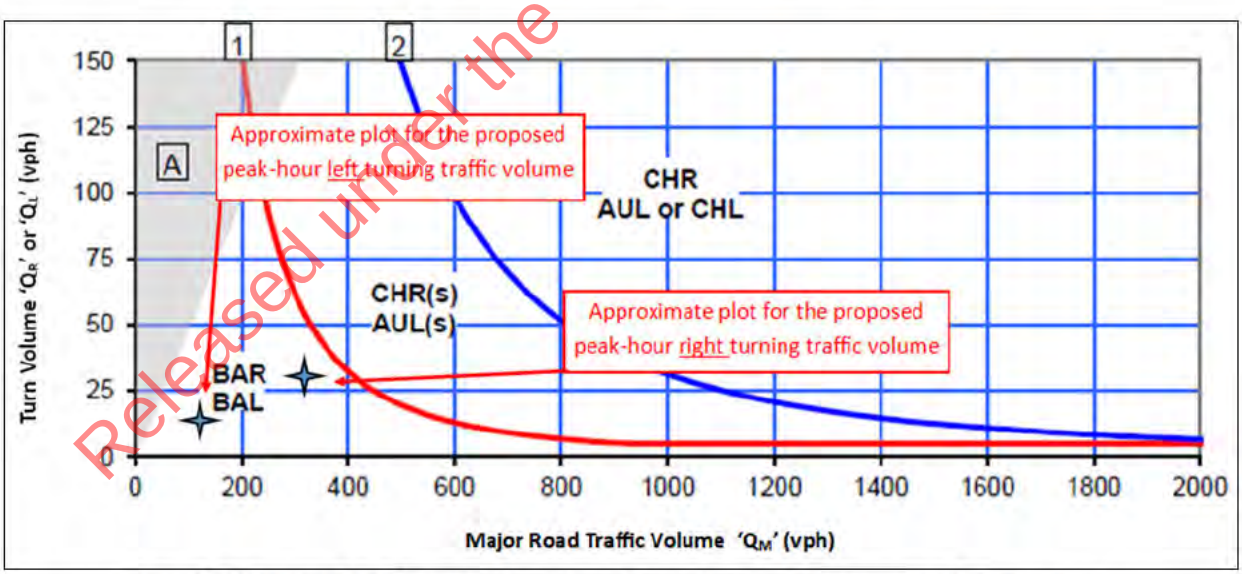


Figure 9: Warrants for Turn Treatment on Major Roads at Unsignalised Intersections
Source: AUSTROADS Guide to Traffic Management Part 6

5.3 Walking and Cycling Effects

The establishment of high-quality local roads and traffic calming measures within the subdivision will ensure that a high standard of pedestrian safety and amenity is provided, and cycling can be accommodated.

Pedestrian trips generated from the site can be accommodated within the existing footpath network. To access the public footpath along SH49, pedestrians will need to cross the carriageway where dedicated pedestrian crossing facilities are not provided. However, this is an existing situation and with good sightlines present along SH49 and with a 'speed change sign' board located to the west of the likely pedestrian crossing desire line, it is expected that the increase in pedestrian trips will not adversely affect the operations along SH 49 or pedestrian safety will be impacted.

5.4 Road Safety Effects

Development of the site should have no detrimental impact on general road safety. The following key points are noted about the proposal:

- The adoption of the road design principles above will promote the safe use of the new roads and intersections; and
- The historical crash statistics of the roads adjacent to the site do not indicate a pattern of crashes that will be exacerbated by the introduction of a small amount of additional vehicle movements relating to the proposal.

In accordance with a request from Waka Kotahi, a Safe Systems Assessment (SSAF) for the Teitei Drive / SH49 intersection has also been undertaken to understand if any safety mitigation is necessary as a result of the increase in turning movements related to the proposed development.

The two Safe System Assessment Matrix scores in Table 2 are based on the proposed transport demand conditions expected and the exiting road conditions. A more detailed matrix is provided in Attachment 2.

Table 2: Safe System Assessment Score Summary Table

Option	Score
Existing Base Line Intersection with peak season traffic conditions	56 / 448
Existing Base Line Intersection with peak season traffic conditions plus development traffic added	64 / 448

It is evident from Table 2 that with the proposed development in place, the existing road layout will safely accommodate expected transport activity related to the development.

Due to the very low volumes for road users and the lower category of the road, the proposed changes that the development may bring in terms of impact on the road safety risk at this location appears to be negligible. Therefore, it is expected that there will be little adverse impact for safety outcomes at this location regardless of the type of access provided.

5.5 Construction Related Traffic Impacts

Truck and other vehicle movements during the construction phase of any development always have a potential to impact on the surrounding area and road network, but a certain degree of impact for what is normally a relatively short period of time (at least in the context of the life of the proposed development) is inevitable and should not normally be a reason for restricting development.

What is important however, is that measures must be put in place to minimise the potential impacts of construction traffic, and this is generally achieved through a traffic management plan which is prepared and approved prior to work commencing. Where necessary this seeks to stage construction, control the times of operation (e.g., avoiding peak periods), identifies priority truck routes, and addresses all factors associated with construction traffic to minimise any potential impact. This outcome can be achieved through the standard consent condition requiring the provision of a Construction Traffic Management Plan.

In terms of capacity, the adjacent road network can accommodate the traffic volumes associated with the construction phases, and the implementation of a traffic management plan will ensure that any potential impact on the surrounding area is minimised.

6.0 RUAPEHU DISTRICT COUNCIL TRANSPORT STANDARDS

6.1 Section SU3 – Subdivision Rules

Section SU3 of the Ruapehu District Council – Operative Plan sets out the development standards relating to subdivisions. Table 2 lists the relevant transportation standards that apply to this proposal and comments on compliance. Where there is non-compliance, further assessment has been undertaken against the criteria set out in Section SU3.7 of the RDP.

Table 2: Subdivision Transport Development Controls

Standard	Requirement/Details	Comment
SU3.6.2 (a) Transportation	All activities shall demonstrate compliance with the relevant provisions of the "Transport Infrastructure and Car Parking - Rules" section of the District Plan. Relevant Assessment Criteria: Refer "Transport Infrastructure and Car Parking - Rules" section.	A detailed assessment on the compliance of the proposed development under the relevant criteria of "Transport, Infrastructure and Car Parking – Rules" (Section TI3 of RDP) is provided in Table 2 – complies
SU3.6.2 (b) Transportation	No new lot shall obtain access to State Highway 4 between the intersection of Bell Road with State Highway 4 and State Highway 41, Taumarunui, and to State Highway 4 in National Park Township, and to State Highway 49 in Ohakune.	The site will be accessed via an extension of Teitei Drive – complies

6.2 Section TI2 – Transport Standards

Section TI3 of the Ruapehu District Council – Operative Plan sets out the development controls relating to Transport Infrastructure and Car Parking. Table 3 lists the relevant rules that apply to this development and comments on compliance. Where there is non-compliance, further assessment has been undertaken against the criteria set out in the RDC.

Table 3: Transport Development Controls

Standard	Requirement/Details	Comment
TI3.3.1 Road Intersections (a) Separation	(i) The minimum separation distance as set out in Table 1 of TI3 shall be provided at new intersections. The separation distance shall be measured between the centrelines of the intersecting roads.	The Teitei Drive/Road A intersection and Road A/Road B/ Road E intersection will have a separation of some 45 metres between them (min 125 m required) – does not comply The Road A/Road B/Road E intersection and Road A/Road E (south) intersection will be separated by some 73 metres (min. 125 m required) – does not comply The Road A/Road B/Road E intersection and Road B/Road C intersection will be

Standard	Requirement/Details	Comment
		separated by some 70 metres (min. 125 m required) – does not comply The Road A/Road E (south) intersection and Road A/Road D intersection will be separated by some 108 metres (min. 125 m required) – does not comply The Road A/Road D intersection and Road C/Road D intersection will have a separation of some 65 metres (min. 125 m required) – does not comply The Road B/Road C intersection and Road C/Road D intersection will be separated by more than 130 metres (min. 125 m required) – complies
TI3.3.1 Road Intersections (b) Sight Distance	(i) The minimum sight distance as set out in Table 2 of TI3 shall be available from any new intersection. The sight distance shall be measured in accordance with Diagram TI1 – *Sight Distance Measurement Diagram*. In the event the 85th percentile speed (km/h) has not been determined, the legal road speed limit plus 10% shall be substituted in place of the 85th percentile speed (km/h).	Minimum sight distance will not be available (minimum of 125 m ESD or minimum of 80 m SISD required) – does not comply
TI3.3.1 Road Intersections (c)	Where an intersection is proposed with a State Highway, the approval of the NZTA is required. The NZTA has its own standards and rules, and it is recommended that applicants refer to these. The District Plan standards do not apply where they conflict with the standards of NZTA.	No intersection is proposed with a State Highway – does not apply

7.0 RUAPEHU DISTRICT PLAN ASSESSMENT CRITERIA

Section TI.3.4 of the Ruapehu District Plan sets out the assessment criteria when there is an infringement in development controls for a proposed development. For this proposal, the following items require consent:

- TI3.3.1 (a) – Separation of the Intersections; and
- TI3.3.1 (b) – Sight Distance at the Intersections.

The following lists the relevant assessment criteria for these infringements and comments as applied to this development.

7.1 (a) Intersections and Rail Level Crossings (TI3.4.1)

i. The extent to which failure to provide adequate separation and or sight distances will give rise to traffic hazards through inadequate visibility and safe stopping distances or conflict with the normal flow of traffic and movement of pedestrians and cyclists.

ii. The extent to which any foreseeable future change in traffic patterns could affect the function of the intersection.

iii. The extent to which failure to provide adequate level crossing sightlines will give rise to level crossing safety risks.

Comment (TI3.3.1 (a)) – Separation of the Intersections

The reason for consent under this standard relates to the non-complying separation distance provided between the intersections within the proposed subdivision development as tabulated in Table 3 *TI3.3.1 Road Intersections (a) Separation*. Under the RDP, intersections provided on roads posted with a speed limit of 50 km/h should have a separation of 125 metres from each other and with less than 125 metres separation resource consent is required in this regard. The following points are made in support of this non-compliance:

- As the roads within the subdivision will be provided with traffic calming the targeted operating speeds are not expected to be greater than 40 km/h and intersection separation can be closer than required under the RDP;
- Suitable sightlines and intervisibility to/from these intersection will be available which will aid the users to located each other with plenty of warning time prior to any conflict;
- Furthermore, the intersections will be priority sign controlled and users are expected to give-way to oncoming traffic; and
- Users of these intersections will be the residents residing within the subdivision and will be regular users who will be aware of the constraints and will exercise caution.

Therefore, the less separation provided between the intersections will have less than a minor effect on the road network within the subdivision and the wider transport network.

Comment (TI3.3.1 (b)) – Sight Distances at the Intersections

The reason for consent under this standard relates to the sight distance available from the Road A/Road B/ Road E intersection. The RDP suggests that a minimum 'Entering Sight Distance of 125 metres is required, and a minimum 'Sight Intersection Sight Distance' of 80 metres is required from intersections provided on roads with a posted speed limit of 50 km/h. A sight distance of 45 metres is available to the north of the intersection and hence resource consent is required. The following points are made in support of this non-compliance:

- The roads within the subdivision will be provided with a speed calming strategy and the operating speeds within the subdivision are expected to be no greater than 40 km/h;
- Due to the urban residential development and presence of Teitei Drive/Primary Road intersection to the north of this intersection the speeds are not expected to be any greater than 30 km/hr as the vehicles will be negotiating the 90-degree bend. Therefore, the 45 metres of sight distance available is considered to be safe and acceptable.
- Further, the intersection will be priority sign controlled where users are expected to give-way; and
- Most users will be residents and regular users who will exercise caution while turning through the intersection.

Therefore, the less availability of sight distance from this intersection will have less than a minor impact on the surrounding road network.

8.0 CONCLUSIONS

Based on the analyses described in this report, the following conclusions can be made in respect of the proposal to establish a residential development at 6 Teitei Drive, Ohakune:

- The proposed internal vehicle and pedestrian circulating areas are configured to an appropriate standard and will operate in a manner that minimises any potential impacts on safety.
- The estimated traffic generation of the proposal is likely to be about 354 traffic movements per day with peak hour traffic generation of about 39 traffic movements per hour based on 46 residential lots within the subject site.
- The estimated traffic generated by the proposal can be accommodated on the nearby road network with minimal upgrades to existing infrastructure.
- Review of the subdivision and transport standards has identified two items which require consent under the TI3 standards of the Ruapehu District Plan. These have been addressed in this report concluding that the potential adverse effects arising from these infringements on the operation and safety of the surrounding road network will be less than minor

Overall, it is considered that the traffic engineering effects of the proposal can be accommodated on the road network without compromising its function, capacity, or safety. Therefore, from a traffic engineering perspective it is considered that the proposal will have less than a minor impact.

Prepared by,

Udit Bhatti
Traffic Engineer

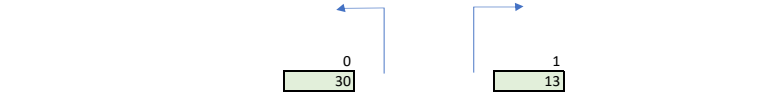
Todd Langwell
Director

ATTACHMENT 1

Trip Generation Predictions

Distribution from Survey	0.47	0.53
	146	164

AFTER DEVELOPMENT



Carpark 6 Split

	0.8		0.2
	30		7

Distribution	80/20		Out	In
	0.8	0.2	0.8	0.2
	24	6	6	1

Trip Distribution

Total Through Trips	2583.4			
Total Peak Time trips	3100.08	(Avg of 5 yr AADT taken from NZTA maphub)		
Hourly Traffic	0.1	310		
			Daily Rate	
No of Dwellings	44		9	396
			Peak Rate	
			0.85	37
Swell Factor			1.2	
No. of Parking spaces for Playground			30	
Assuming 80% Occupied at Peak Time			24	
	0.8			
Assuming 50% IN and out from East and Wes			6	(out of 24 vehicles 12 coming in and 12 going out then Equal split for LT and RT)
	0.25			
Out trips from Public Parking Not Considered				

ATTACHMENT 2

Safety Systems Assessment
(Matrix)

Safe System Assessment Matrix – Teitei Drive / SH49 Intersection Existing Road Conditions Plus Development Traffic

	Run-off-Road	Head-On	Intersection	Other	Pedestrian	Cyclist	Motorcyclist
Exposure Comments:	Combined AADT = 3,150	Combined AADT = 3,150	Combined AADT = 3,150	Combined AADT = 3,150	Unknown – assume 40/day	Unknown – assume 20/day	Unknown – assume 2% of AADT = 63/day
Exposure Score:	2/4	2/4	2/4	2/4	3/4	3/4	2/4
Likelihood:	Factors that increase the likelihood include: - 70km/h speed limit on SH49 - Presence of intersection Factors that decrease the likelihood include: - Straight road - Sealed shoulders on SH49 - Flat gradient - Street lighting	Factors that increase the likelihood include: - 70km/h speed limit on SH49 Factors that decrease the likelihood include: - Centre line - Straight road - Flat gradient - Street lighting	Factors that increase the likelihood include: - Priority control - No auxiliary lanes - 70km/h speed limit on SH49 Factors that decrease the likelihood include: - Good sight lines - Low volume roads - Street lighting	Factors that increase the likelihood include: - High traffic volumes on SH49 - 70km/h speed limit on SH49 Factors that decrease the likelihood include: - Street lighting - Good sight lines - No parking on SH49	Factors that increase the likelihood include: - 70km/h speed limit on SH49 - No crossing facilities on SH49 or TeiTei Drive Factors that decrease the likelihood include: - Good sight lines Street lighting - No parking on SH49 - Low traffic volumes on SH49	Factors that increase the likelihood include: - 70km/h speed limit on SH49 - No off-road cycle facilities – cyclists must ride on road shoulder - No crossing facilities on SH49 or TeiTei Drive Factors that decrease the likelihood include: - Street lighting - No parking on SH49 - Sealed shoulders on SH49 - Low traffic volumes on SH49	Factors that increase the likelihood include: - 70km/h speed limit on SH49 Factors that decrease the likelihood include: - Straight road - Sealed shoulders on SH49 - Flat gradient - Street lighting - Low traffic volumes on SH49
Likelihood Score:	2/4	2/4	2/4	2/4	2/4	2/4	2/4
Severity:	Factors that increase the severity include: - 70km/h speed limit on SH49 - No barriers - Power poles on SH49 - Roadside trees and drains Factors that decrease the severity include: - Frangible lighting columns	Factors that increase the severity include: - 70km/h speed limit on SH49 - Heavy vehicles	Factors that increase the severity include: - 70km/h speed limit on SH49 - Right angle conflicts - Heavy vehicles	Factors that increase the severity include: - 70km/h speed limit on SH49	Factors that increase the severity include: - 70km/h speed limit on SH49	Factors that increase the severity include: - 70km/h speed limit on SH49	Factors that increase the severity include: - 70km/h speed limit on SH49
Severity Score:	2/4	2/4	2/4	2/4	2/4	2/4	2/4
Product	8/64	8/64	8/64	8/64	12/64	12/64	8/64
						TOTAL	**64/448**

Safe System Assessment Matrix – Teitei Drive / SH49 Intersection Existing Road Conditions

	Run-off-Road	Head-On	Intersection	Other	Pedestrian	Cyclist	Motorcyclist
Exposure Comments:	Combined AADT = 2,700	Combined AADT = 2,700	Combined AADT = 2,700	Combined AADT = 2,700	Unknown – assume 10/day	Unknown – assume 10/day	Unknown – assume 2% of AADT = 54/day
Exposure Score:	2/4	2/4	2/4	2/4	2/4	2/4	2/4
Likelihood:	Factors that increase the likelihood include: - 70km/h speed limit on SH49 - Presence of intersection Factors that decrease the likelihood include: - Straight road - Sealed shoulders on SH49 - Flat gradient - Street lighting	Factors that increase the likelihood include: - 70km/h speed limit on SH49 Factors that decrease the likelihood include: - Centre line - Straight road - Flat gradient - Street lighting	Factors that increase the likelihood include: - Priority control - No auxiliary lanes - 70km/h speed limit on SH49 Factors that decrease the likelihood include: - Good sight lines - Low volume roads - Street lighting	Factors that increase the likelihood include: - High traffic volumes on SH49 - 70km/h speed limit on SH49 Factors that decrease the likelihood include: - Street lighting - Good sight lines - No parking on SH49	Factors that increase the likelihood include: - 70km/h speed limit on SH49 - No crossing facilities on SH49 or TeiTei Drive Factors that decrease the likelihood include: - Good sight lines Street lighting - No parking on SH49 - Low traffic volumes on SH49	Factors that increase the likelihood include: - 70km/h speed limit on SH49 - No off-road cycle facilities – cyclists must ride on road shoulder - No crossing facilities on SH49 or TeiTei Drive Factors that decrease the likelihood include: - Street lighting - No parking on SH49 - Sealed shoulders on SH49 - Low traffic volumes on SH49	Factors that increase the likelihood include: - 70km/h speed limit on SH49 Factors that decrease the likelihood include: - Straight road - Sealed shoulders on SH49 - Flat gradient - Street lighting - Low traffic volumes on SH49
Likelihood Score:	2/4	2/4	2/4	2/4	2/4	2/4	2/4
Severity:	Factors that increase the severity include: - 70km/h speed limit on SH49 - No barriers - Power poles on SH49 - Roadside trees and drains Factors that decrease the severity include: - Frangible lighting columns	Factors that increase the severity include: - 70km/h speed limit on SH49 - Heavy vehicles	Factors that increase the severity include: - 70km/h speed limit on SH49 - Right angle conflicts - Heavy vehicles	Factors that increase the severity include: - 70km/h speed limit on SH49	Factors that increase the severity include: - 70km/h speed limit on SH49	Factors that increase the severity include: - 70km/h speed limit on SH49	Factors that increase the severity include: - 70km/h speed limit on SH49
Severity Score:	2/4	2/4	2/4	2/4	2/4	2/4	2/4
Product	8/64	8/64	8/64	8/64	8/64	8/64	8/64
						TOTAL	**56/448**

ATTACHMENT 2

Concept Design – Right Turn Pocket
(SH49 – Teitei Drive)

NORTH

Proposed right turn bay
as per AUSTROADS 4A:Part 7.5.2

R110m
27m
15m
R110m
2m
15m
11.5m
3.5m
3m
3.5m
5.6m
5.5m
15m
R110m
40m
R110m

Teitei Drive

State Highway 49

LEGEND

- EXISTING SITE BOUNDARY
- EXISTING ROAD MARKING
- NEW ROAD MARKING
- EDGE OF SEAL

Rev	Revisions	By	Date
A	Right Turn Bay Design	CE	23.08.2023

TPC TRAFFIC PLANNING CONSULTANTS LTD
Level 1, 400 Titirangi Rd, Titirangi, P.O Box 60-255, Auckland 0604
Phone: 09 817-2500 www.trafficplanning co.nz

Project Title: Proposed Right Turn Bay
6 Teitei Drive, Ohakune

Sheet Title: Urban CHR(S) Treatment on a Two-Lane Road

Designed	CE	Drawn	CE	Project No - (Sheet No)	Scales 1:500 (A3)
Checked	UB	Approved	TL	220846 DDA - (1)	Date 23.08.23

WAKA KOTAHI
NZ TRANSPORT AGENCY

www.nzta.govt.nz

44 Bowen Street
Pipitea, Wellington 6011
Private Bag 6995
Wellington 6141
New Zealand
T 0800 699 000
www.nzta.govt.nz

Waka Kotahi New Zealand Transport Agency Reference: 2023- 0705

16th October 2023

Kainga Ora and Communities
C/- **Katherine Hu**
298 Victoria Street,
HAMILTON, 3240

Sent via: katherineh@barker.co.nz

Dear Katherine,

STAGE ONE RESIDENTIAL SUBDIVISION– 6 TEITEI DRIVE, OHAKUNE, MANAWATU-WHANGANUI – KAINGA ORA AND COMMUNITIES & RUAPEHU DISTRICT COUNCIL

Thank you for your request for written approval from Waka Kotahi New Zealand Transport Agency (Waka Kotahi) under section 95E of the Resource Management Act 1991. Your proposal has been considered as follows:

Proposal

Resource consent is sought for the following activities:

- Subdivision creating 46 residential lots, one balance lot (Lot 301), five lots to vest as local purpose reserve and one lot to vest as public road.

Assessment

In assessing the proposed activity, Waka Kotahi notes the following:

- The proposal is stage one of a larger subdivision project which will result in the balance lot being developed.
- The subject site (Lot 2 DP 54909) is located between farmland to the south and west, existing residential development to the east which the proposal will integrate with in terms of shared paths. To the north of the site is the Ohakune Carrot Adventure Park.
- The site is proposed to gain access from Teitei Drive. Teitei Drive currently connects to State Highway 49 (SH 49) at the entrance to the Ohakune Carrot Adventure Park.
- The intersection is within a 70km/hr speed zone which changes to 50km/hr when heading West (into the township). Waka Kotahi has assessed the speed and determined the 85% speed to be 69km/hr to the west and 72km/hr to the east.
- Waka Kotahi does not agree with the trip generation rates and assumptions used to calculate them in the Integrated Traffic Assessment (ITA). Waka Kotahi does not consider the active mode rates to be as high as what has been assumed, particularly when seasonal variability is taken into consideration. Also the master plan demonstrates two carparks for each lot proposed in stage 1, suggesting two car ownership rates. This does not align with the reduced car ownership rates argued by the applicant. Therefore, Waka Kotahi anticipates vehicle numbers to be approximately 478 vehicles per day, for a 46 lot development, not including the existing environment based on the Planning Policy Manual appendix 5B 2007 (PPM).
- Despite ongoing discussions between Waka Kotahi and Traffic Planning Consultants Ltd (TPC), there has been no agreement reached in terms of the speed environment at the intersection, or the anticipated vehicle numbers resulting from the proposal. However, Waka Kotahi notes that the applicant has

volunteered to upgrade the intersection to include a right-hand turn bay. Waka Kotahi consider the upgrade is sufficient to safely allow for all vehicles to safely use the intersection and in particular for residents of the development to turn-right onto Teitei road, particularly during peak hours.

- The applicant has explored the option of access via Raetihi Ohakune Road to the west as requested by Waka Kothi and have deemed that option unsuitable for stage one due to the paper road being unformed, and the presence of a wetland. However, Waka Kotahi notes that the subdivision Master Plan (p.13) does indicate the extension of Teitei Road along the paper road, and therefore Waka Kotahi would encourage the applicant to explore this option further when further stages of development are proposed.
- Waka Kotahi notes that the applicant is volunteering to provide a Construction Traffic Management Plan (CTMP) as part of this application which Waka Kotahi supports in principle but should be consulted on.
- Therefore, based on the above, Waka Kotahi supports the proposed Stage 1 development subject to the below conditions.

Conditions

In discussion with Waka Kotahi your clients' have agreed to include the following conditions as part of your clients' resource consent application. The legal name of Waka Kotahi is the New Zealand Transport Agency; therefore our full legal name is referred to in the conditions and approval.

1. Prior to the issuing of a certificate pursuant to Section 223 of the Resource Management Act 1991, the Consent Holder shall provide to Council, correspondence from the NZ Transport Agency confirming that the final design for the proposed intersection upgrade including the right turn bay has been certified as suitable and meets NZ Transport Agency standards.

2. Prior to undertaking any works onsite, the consent holder must provide written certification to council from NZ Transport Agency confirming acceptance of the proposed Construction Traffic Management Plan (CTMP).

3. Prior to the issuing of a certificate pursuant to Section 224(c) of the Resource Management Act 1991, the consent holder shall upgrade the intersection between State Highway 49 and Teitei Drive to a right hand turn bay intersection and to the satisfaction of the New Zealand Transport Agency Network Manager.

4. Prior to the issuing of a certificate pursuant to Section 224(c) of the Resource Management Act 1991, the consent holder shall provide to Council, correspondence from the New Zealand Transport Agency confirming that works in the state highway, including the right hand turn bay intersection at Teitei Road/State Highway 49 upgrade has been constructed to the New Zealand Transport Agency standards.

Determination

On the basis of the above assessment of the proposed activity, and the conditions volunteered by the applicant, the New Zealand Transport Agency provides written approval under section 95E of the Resource Management Act 1991.

Advice Notes

1. Before you undertake any physical work on the state highway, including the formation of any vehicle crossing, you are legally required to apply to the New Zealand Transport Agency for a Corridor Access Request and for that request to be approved.

2. Please submit your CAR to the New Zealand Transport Agency CAR Manager via www.submitica.com a minimum of fourteen working days prior to the commencement of any works on the state highway; longer is advised for complex works.

Expiry of this approval

Unless resource consent has been obtained this approval will expire two years from the date of this approval letter. This approval will lapse at that date unless prior agreement has been obtained from Waka Kotahi.

If you have any queries regarding the above or wish to discuss matters further, please feel free to contact Jaclyn Phillott via email at Jaclyn.Phillott@nzta.govt.nz or you can contact the environmental planning team at the following email address – environmentalplanning@nzta.govt.nz.

Yours sincerely

Jaclyn Phillott
Planner
Poutiaki Taiao / Environmental Planning, System Design, on behalf of Waka Kotahi New Zealand Transport Agency.

Enclosed:

- Attachment 1: Stage 1 Scheme Plan Drawing number 220528-SC002- Rev D- Date 31/03/23
- Attachment 2: Master Plan
- Attachment 3: Right Hand Turn Bay Concept design- Urban CHR(S) Treatment on a Two-Lane Road dated 23 August 2023

WAKA KOTAHI
NZ TRANSPORT AGENCY

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Attachment 1: Stage 1 Scheme Plan Drawing number 220528-SC002- Rev D- Date 31/03/23

Waka Kotahi New Zealand Transport Agency Reference: 2023-0705

Attachment 2: Master Plan

Attachment 3: Right Hand Turn Bay Concept design- Urban CHR(S) Treatment on a Two-Lane Road dated 23 August 2023