

Appendix F

Transportation Assessment – Stantec Ltd

REPORT

MOSSY CREEK FARM PARK

PREPARED FOR MISTY MOSSMAN

30/11/2020

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Misty Mossman

Mossy Creek Farm Park

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1. Introduction

Stantec has been commissioned by Misty Mossman (“the applicant”) to examine and describe the transportation requirements and impacts associated with the proposed development of a scenic, eco-friendly farm park at 252 Takarau Gorge Road. The site is zoned ‘Rural’ within the provisions of the Wellington City District Plan (“District Plan”).

This Transportation Assessment Report (“TAR”) forms part of the resource consent application for the development of the site and has been progressed with due regard to policies and standards contained within the District Plan and other relevant industry standards. The TAR sets out and describes the following:

- a review of the existing transport environment;
- a review of the existing site access arrangements;
- a review of the existing safety environment;
- a review of the development proposal;
- a review of the District Plan provisions in relation to the development proposal; and
- an assessment of effects resulting from the proposal, including trip generation, access and parking.

By way of summary it is concluded that based on the current indicative level of design, it will be possible to support the application, in principal, from a traffic and transportation perspective.

2. Existing Transport Network

2.1 Site Location

The proposal site is located within the “Rural” zone as defined by the District Plan. The site is located to the north of Takarau Gorge Road, between Makara Road and Ohariu. **Figure 2-1** shows the extent of the site (highlighted in black), Takarau Gorge Road highlighted in red and the location formed access to 252 Takarau Road highlighted by a yellow star for reference.

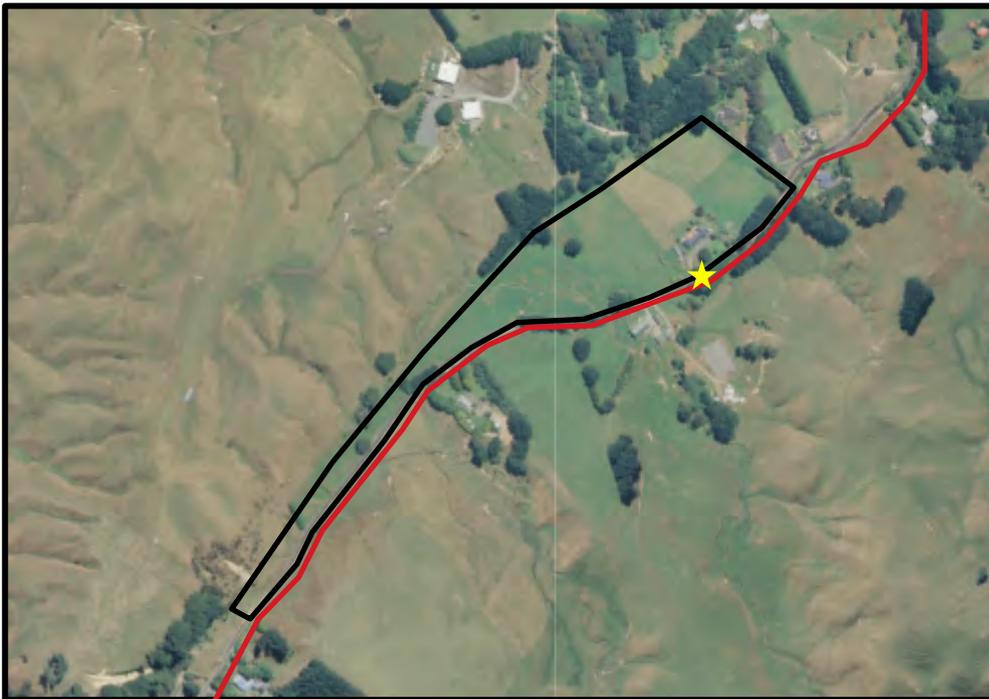


Figure 2-1: Aerial Photograph of site (Source: Emap)

Land use activity near the site is comprised of rural activities and rural lifestyle blocks, with some tourist and recreational land uses located to the north east at Ohariu.

2.2 Local Road Network

Takarau Gorge Road is classified as a 'Collector Road' within the District Plan and is the only road servicing the site. Takarau Road begins, some 5.3km to the south west of the existing site access and continues towards Ohariu some 2.5km to the north east of the site.

The form of the road, in proximity to the site has been provided below at **Figure 2-2** and **Figure 2-3**.



Figure 2-2: looking south west along Takarau Gorge Road



Figure 2-3: Looking north east along Takarau Gorge Road

Takarau Gorge Road allows for two-way traffic in a generally north east / south west alignment and is subject to 60km/h speed limit. Along the site frontage, Takarau Road achieves a carriageway width of between 4.4-4.8 metres. The road is rural in nature and does not provide kerbing or footpaths. Average daily traffic ("ADT") counts¹ show that Takarau Gorge Road experiences flows of 215 vehicles a day. In the peak hour, 23 vehicles per hour ("vph") were recorded; less than a vehicle every two minutes travelling past the proposed site. Heavy vehicle traffic comprised between 4% and 8% of the overall vehicles on Takarau Gorge Road.

2.3 Site Access

The site is currently accessed from a formed access along the northern kerb line of Takarau Gorge Road as depicted at Figure 2-1.

The formed access currently serves one rural lifestyle dwelling at 252 Takarau Gorge Road and achieves a width of approximately 7.5 metres. A sight distances of approximately 55 metres to the north is available. This is restricted due to the alignment change of the carriageway (shown at **Figure 2-4** below).



Figure 2-4: Available sight distances to the north

It is noted that two new accesses are being proposed along the site frontage to gain access to the residential dwelling and annex building addition and to the farm park car park, the current access is proposed to be closed. These accesses are not currently formed and is covered in more detail in the assessment of effects section below. For reference, the indicative locations and the context of their current form is shown below in **Figure 2-5** by the purple circles.

¹ These counts were completed during 2018. Two counts were recorded, one outside 90 and another outside 78 Takarau Gorge Road

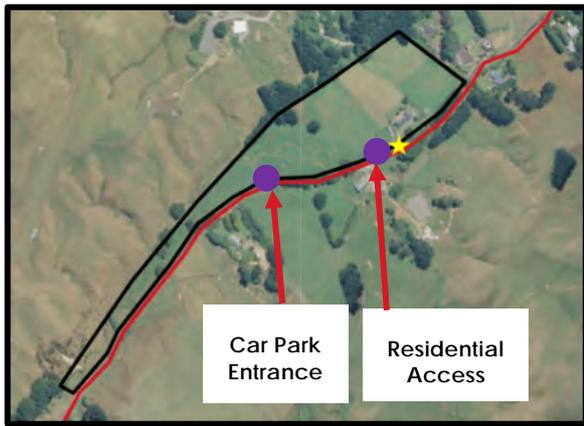


Figure 2-5: Indicative Locations of New Residential Access and Farm Park Car Park Access



Figure 2-6: Existing Form of Farm Park Car Park Access



Figure 2-7: Existing Form of New Residential Access

2.4 Road Safety Record

For the purposes of reviewing road safety in proximity to the site, collision records were obtained from the industry available Crash Analysis System (CAS). The study area included 250 metres either side of the existing formed access at 252 Takarau Gorge Road and 250 metres either side of the proposed car park access to the west. Due to the rural nature of the site, records for the latest complete ten-year period (2009-2018) were reviewed.

The historical crash records show that one crash has been recorded within the last 10 years along the site frontage. This crash was a head on collision which resulted in minor injuries and was caused by a foreign driver crossing the centre line due to loss of concentration.

In the last 20 years (1999 - 2018) of crash data, three crashes were recorded as shown in **Figure 2-8**. Two of these were head on crashes (one described above) and the third was a loss of control crash. The head on crashes occurred either due to a distracted driver or limited visibility due to the narrow and rolling nature of the road. The loss of control crash was attributed to the driver being above the alcohol limit, it is not considered that this crash was the result of the form and function of the existing carriageway.

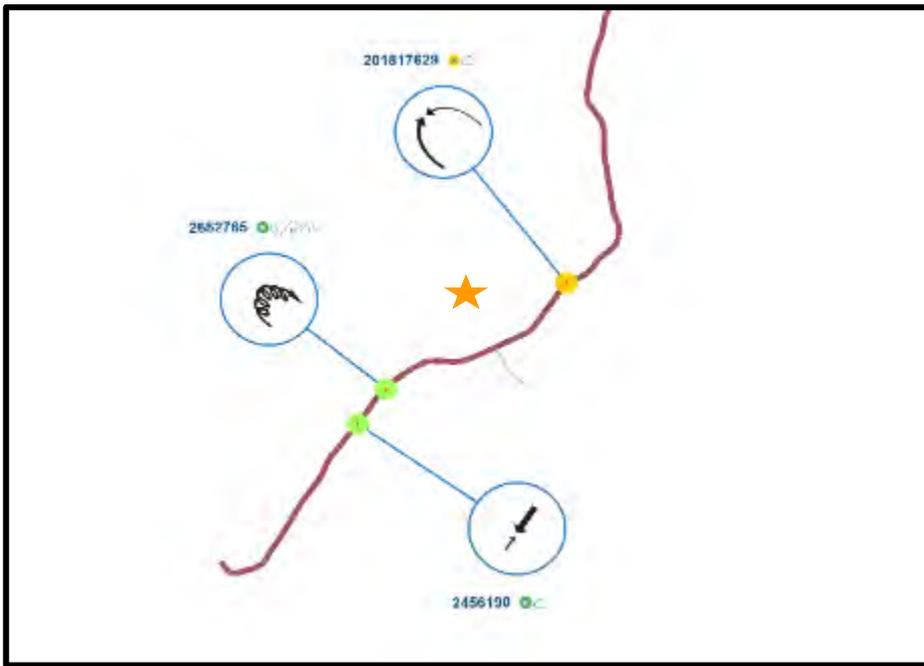


Figure 2-8: Crashes Adjacent to the Site Frontage

Due to limited routes to the site, crash analysis has been completed along Takarau Gorge Road to understand the existing safety environment for vehicles travelling to and from the site. To the west, the study area extended about 13km to 129 Makara Road, and about 6.5km to the east along Ohariu Valley Road where it meets Ironside Road, as these provide key connections to the rest of the road network.

From this data, it was observed that a total of 32 crashes had been recorded along the 20km length in the last 5-year period (6.4 crashes a year). Of the recorded crashes, three crashes resulted in serious injuries, 11 resulted in minor injuries and the remaining 18 crashes resulted in no injuries. Approximately 72% of all crashes were the result of loss of control. Due to the nature of the crashes recorded, no crash clusters were observed along the route, rather these were recorded at isolated points along the route. This is characteristic of a route where there is a high demand for driver concentration, and this is the predominant factor leading to a crash being recorded.

It is also noted that four crashes involved heavy vehicles, all of these crashes resulted in vehicle damage only, with no injuries. Upon further review of the traffic crash report's (TCR's) it was noted that the following factors contributed to these crashes occurring:

- Truck lost control on bend, crashing with oncoming vehicle;
- Truck over took cyclist on a blind corner causing him to cross the centre line in to the path on an oncoming vehicle;
- An oversized vehicle being piloted caught its fly jib on overhanging power lines; and
- A car failed to give way at a driveway, colliding with an oncoming truck.

From the information presented above, there are no existing concerns with regards to the safety environment along the immediate site frontage and the existing and proposed site accesses. The increase in traffic along Takarau Gorge Road is not likely to worsen the safety environment when compared to what is currently experienced further along the route.

3. Development Proposal

3.1 Site Context and Current Use

The site is currently occupied by one rural lifestyle block (252 Takarau Gorge Road) used for grazing. The site is located within the Rural Zone of the District Plan and is serviced by one existing site access.

3.2 Proposed Development

The proposal plans allow for two aspects of development:

- an extension to the existing residential dwelling with a newly formed access located south west of the existing access to 252 Takarau Gorge Road; and
- Provision of an eco-friendly park with new access, with associated recreational activities. These activities are understood to include:
 - domesticated animal interaction;
 - a playground area, games and puzzles, a croquet lawn and a low hedge maze;
 - a café;
 - a bookshop;
 - a picnic area;
 - bush walks;
 - literary related competitions and events; and
 - children's parties.

Access to the car park associated with the activities outlined above is to be provided along the northern kerb line of Takarau Gorge Road. This access is proposed to be located approximately 230 metres south west of the formed access at 252 Takarau Gorge Road.

The proposed layout of the extended residential dwelling and farm park has been provided below as **Figure 3-1**.



Figure 3-1: Proposed Site Layout

4. District Plan Provisions

As previously stated, the proposed site is zoned 'Rural' within the provisions of the District Plan. Chapter 15: Rural Area Rules of the District Plan relates to the requirements for Permitted Activities in respect of transportation provisions. The provisions stated within the Chapter 15 of the District Plan have been summarised below at **Table 1**.

Criterion	Comment
Chapter 15: Rural Area Rules Permitted Activities	
15.1.1.3 Site Access and Parking	
15.1.1.3.1 The minimum distance of any vehicle access to an intersection shall be 20 metres	Complies
15.1.1.3.2 The minimum sight distances from any vehicle crossing shall be: 60km/h = 65 metres	Complies Sight distance from new residential access and farm park car park access = 65 metres. These are covered in further depth below.

Table 1: District Plan Provisions – Chapter 15: Rural Area Rules – Permitted Activities

In terms of transport provisions, this proposal meets the requirements for Permitted Activities. It is considered that with appropriate design, the proposal can be safely accommodated on-site. Further information concerning trip generation, access and car parking has been provided below to demonstrate how this is achieved.

5. Trip Generation

5.1 Residential Trip Generation

5.1.1 Existing

One residential dwelling is currently located on 252 Takarau Road. According to Research Report 453 – Trips and Parking Related to Land Use, indicates that a rural dwelling is likely to create a trip generation of 2 vehicle trips during the peak hour and 10 vehicle trips across a day. This quantum of traffic is not considered to be significant and there is no evidence within the crash data suggesting that the existing level of traffic is resulting in safety concerns. With the introduction of an additional residential annex unit being proposed, the number of vehicle trips could double, and this has been explained below.

5.1.2 Proposed

With the introduction of an annex to the existing dwelling, the trip rates at the access will increase from two to four vehicle trips within the peak hour and from 10 to 20 daily vehicle trips.

This quantum increase is not considered to present a safety or capacity concern. The potential effect of this increase is covered in more detail below under the 'Access' section.

5.2 Farm Park Trip Generation

5.2.1 Existing

No traffic is currently generated by the Farm Park. As a result, all trips generated by the Farm Park will be additional to the network. These trips are outlined below.

5.2.2 Proposed

Due to the unique land-use being proposed, information regarding trip rates for this type of land use activity is not readily available. Understanding this, the client instructed Curia Ltd² to undertake market research to understand the likely number of visitors that may be attracted to the site on a yearly basis.

This research was conducted by completing a poll of 1,000 Wellingtonians in May 2018, to understand current behaviours in terms of attractions visited and how this may in turn relate to the trip generation of the proposed Farm Park. Curia's anticipated yearly number of visitors has been provided below in **Table 2**. Some assumptions have been made to understand the likely average day and peak daily vehicle trips generated by the site; these are included within the footnotes attached to the table.

Market Segment	Anticipated Visitors per Year	Average Daily Vehicle Trips	Peak Daily Vehicle Trips ³
Family Daily Passes ⁴ (Private Vehicles)	13,800	40	80
Family Annual Passes ⁵ (Private Vehicles)	1,496	4	8
Primary Schools ⁶ (Bus)	1,170	1	2
Cruise Ships ⁷ (Bus)	4,950	1	2
Total		46	92

Table 2: Proposed Visitor Numbers

Table 2 shows that on the busiest day of the year, the farm park is likely to generate a total of 92 vehicle trips. This results in an additional 184 vehicle movements (entering and exiting the site) a day on Takarau Gorge Road. During the peak hour of the site, it can be assumed that around 20 vehicle movements⁸ will be generated. This equates to a vehicle arriving or departing the site every 3 minutes during the busiest period of the busiest day. This quantum increase in traffic is not considered to pose a concern and can be appropriately absorbed by the local road network without adversely impacting the existing safety and / or capacity of Takarau Gorge Road.

It is noted that during a busy day, approximately two vehicle trips (four vehicle movements) will be associated with buses from either school trips or cruise ships⁹. Whilst it is noted that Takarau Gorge Road experiences narrow carriageway widths, during the site visit, heavy vehicles were observed operating along Takarau Gorge Road. There is no evidence within the existing crash history to suggest that heavy vehicles travelling along Takarau Gorge Road pose a safety concern in the vicinity of the site. Due to the low level of bus trips to be associated with the site, this does not cause concern above that which is currently experienced.

² Curia Ltd is a credible market research company based in Wellington.

³ Peak daily vehicle trips assumed to be double that of an average day to provide a worst-case scenario.

⁴ One daily family pass has been assumed to generate one vehicle trip.

⁵ One annual family pass has been assumed to generate one vehicle trip.

⁶ One school bus has been assumed to carry 30 children. More children may fit in a bus; however, this provides a worst-case scenario.

⁷ One cruise ship bus has been assumed to carry 30 people. More people may fit in a bus; however, this provides a worst-case scenario.

⁸ Generally accepted that traffic generated during the peak hour is approximately 1/10 of traffic generated through the day.

⁹ The proposed number of bus trips shown in Table 2 is the expected number of trips at maturity.

6. Access

6.1 Residential Access

An existing accessway is presently serving 252 Takarau Road and it is anticipated that this access will continue to serve the existing dwelling. A new access is proposed to serve the new dwelling and the location of this new access would be about 20m west of the existing residential access. Given the new access is anticipated to accommodate only traffic associated with a single dwelling with an annex, it should be formed with a minimum width of 3m to provide one-way movement as per AS/NZS 2890.1:2004 Parking Facilities, Part 1: Off-street Car Parking for a Class 1A (Category 1). This proposed location would achieve the required sight distance of 65m as shown in **Figure 6-1** and a separation of 20m as per the District Plan. On this basis, the new access is anticipated to operate in a safe and efficient manner.

NZS 4404:2010 Land Development and Subdivision Infrastructure Standard suggests that a driveway such as this is sealed between the surfaced road edge and the property boundary. It also states that the crossing shall be sealed to not less than the standard of the road surface and to the road boundary. Consider sealing the driveway to meet these requirements.



Figure 6-1: Sight Distances from Proposed New Residential Access

6.2 Farm Park Access

A new accessway will be required for vehicles to and from the carpark. This access will be constructed in line with the standards held within AS/NZS 2890.1:2004 Off-street Car Parking. Due to the road classification of Takarau Gorge Road and the number of proposed parking spaces (outlined below), the proposed access will be built in line with a category 1 access driveway within the standards. Therefore, the access will be required to achieve a combined entry / exit driveway width of between 6-11 metres.

The position of the new access on the outside of the bend in the road ensures that a sight distance of 65m is achieved in both directions as shown in **Figure 6-2**.

Similar to the new residential access, NZS 4404:2010 Land Development and Subdivision Infrastructure Standard suggests that a driveway such as this is sealed between the surfaced road edge and the property boundary. It also states that the crossing shall be sealed to not less than the standard of the road surface and to the road boundary. Consider sealing this access to meet these requirements.

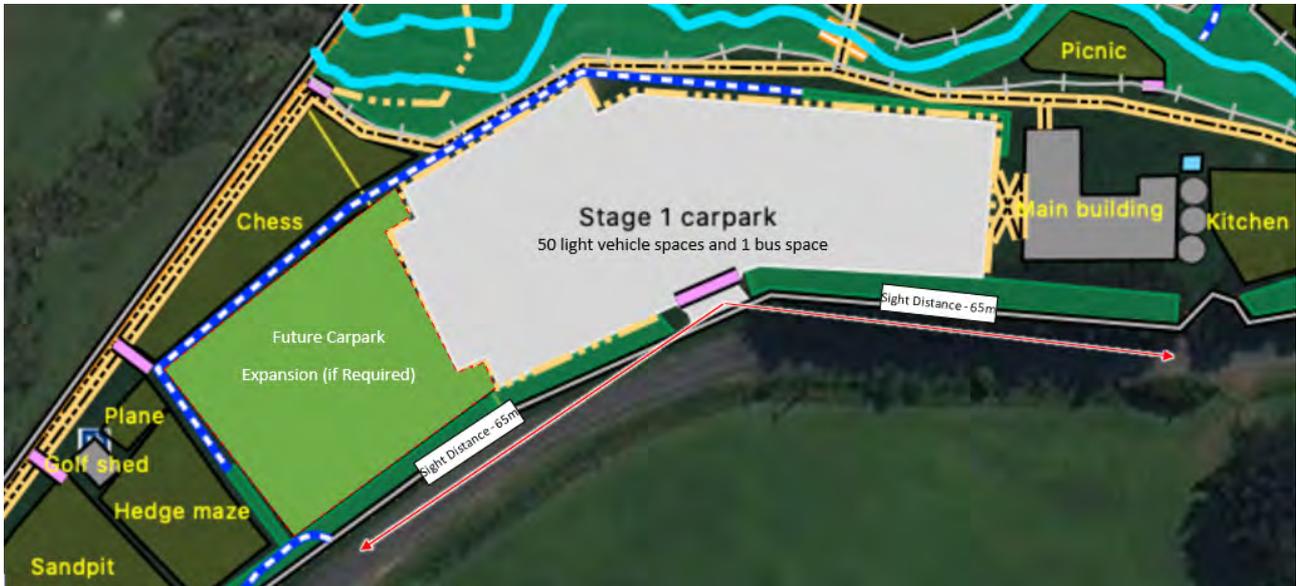


Figure 6-2: Sight Distances from Proposed Carpark Access

7. Car Parking

7.1 Residential Car Parking

Research Report 453 states that for a Residential dwelling (rural) a total of two off-street car parks are required. Due to the available space relating to the proposed residential dwelling, it is considered that there is more than sufficient space to safely accommodate two additional parking spaces within the bounds of the proposed property. The residential dwelling will therefore be compliant in terms of parking provision.

7.2 Farm Park Parking

The anticipated peak number of visitors is expected to generate a total of 92 vehicle trips per day, as described in Section 5.2.2. The duration of such a visit is predicted to be between 2 and 3 hours, resulting in the distribution of the 92 vehicles over an 7-hour day, resulting in a peak parking demand of approximately 35 parking spaces.

The indicative plan for the proposed parking area, shows how 50 parking spaces and a school bus / tour coach can be accommodated, see **Figure 7-1**. Furthermore, the paddock bordering the proposed carpark can be used for overflow or even in future be used and an extension to the carpark if so required.

AS/NZS 2890. 1:2004 Parking Facilities, Part 1: Off-street Car Parking, sets out the dimensional requirements for a carpark. Assuming a simple layout that incorporates the use of 60-degree parking bays, the parking bays will be required to be provided at 2.5 metres wide and 5.0 metres in length. The circulating aisle width will be required at 5.2 metres wide. Using these dimensions 50 spaces can be achieved as shown on Figure 7-1. At the detailed design stage, it will be possible to provide further design detail and it is likely that 50 spaces can be attained; this is more than the peak vehicle generation of the site. This quantum of parking is considered to provide more than sufficient off-street parking capacity to meet peak parking demands of the site.

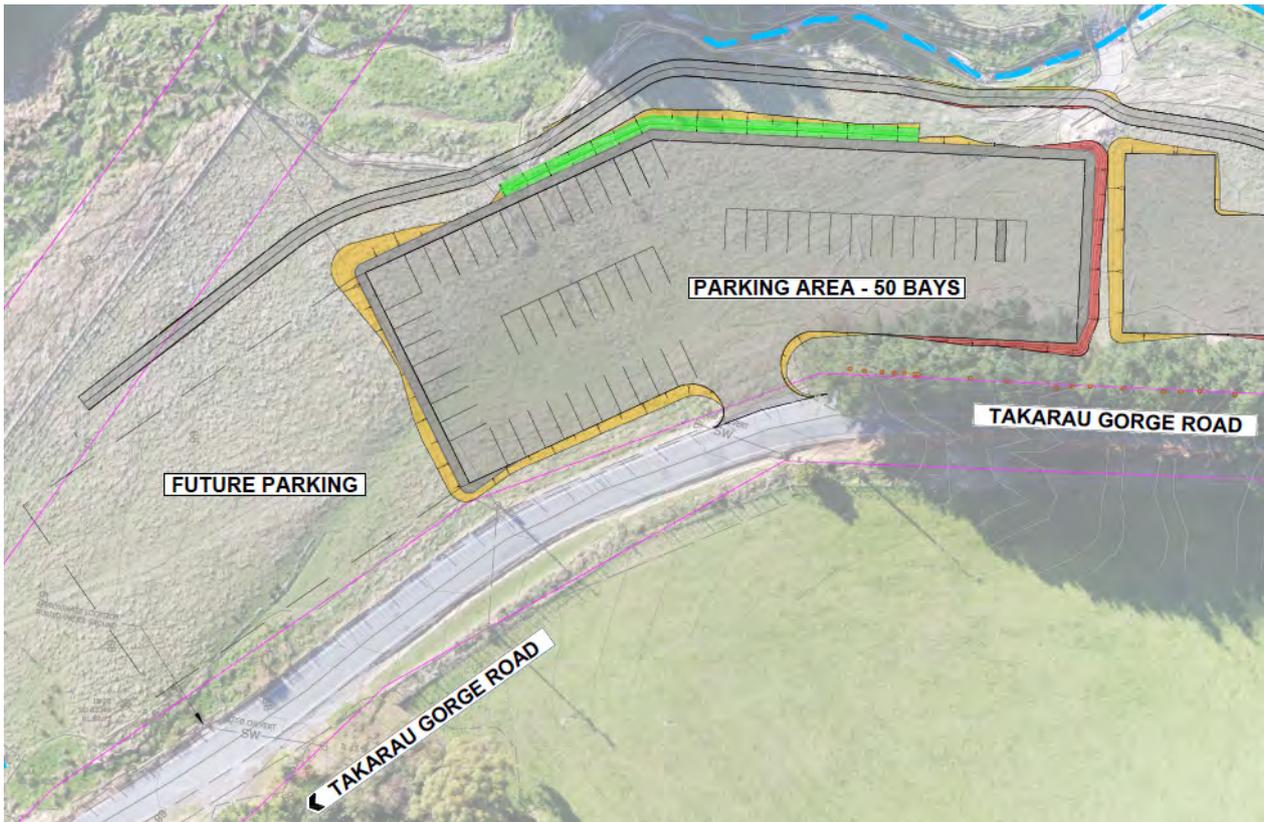


Figure 7-1: Proposed New Parking Layout

To accommodate tour groups and buses, a specific parking space are provided to allow for a tour bus. It is therefore considered that the parking demand can be sufficiently accommodated within the boundary of the proposed site.

8. Conclusion

This assessment has broadly examined the anticipated traffic impacts related to the proposed introduction of an additional residential dwelling as well as a scenic, eco-friendly farm park at 252 Takarau Gorge Road. The preliminary findings have indicated that the dwelling and farm park are not likely to generate a significant vehicle demand, with an extra 10 daily trips relating to the residential dwelling and an extra 92 daily trips relating to the farm park (worst-case scenario).

From the indicative information provided at this stage, it is considered that all accesses can provide the appropriate levels of service required to accommodate the amount of traffic likely to be generated by the site during the peak hour.

There are several measures proposed within this report to ensure provision of a safe access, and these include:

- construct new residential access approximately 20m west of the existing residential access (which is proposed to be closed) with a minimum width of 3m as per AS/NZS 2890.1:2004 Parking Facilities, Part 1: Off-street Car Parking;
- seal the new residential access between the edge of seal and property boundary as per NZS 4404:2010 Land Development and Subdivision Infrastructure Standard;
- construct the new farm park car park and associated access in line with AS/NZS 2890.1:2004 Parking Facilities, Part 1: Off-street Car Parking; and
- seal the new farm park car park access between the edge of seal and property boundary as per NZS 4404:2010 Land Development and Subdivision Infrastructure Standard.

Overall, it is assessed that the proposed development would not cause the function, safety, or capacity of the adjacent road network to be compromised and the proposed development can be supported from a traffic perspective.

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