

## Proposed Waipu Bypass Service Centre

41 Millbrook Road, Waipu

## INTEGRATED TRANSPORT ASSESSMENT

Ref: 21803-r1v3  
2 March 2023

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47 Millbrook Road, Waipu

## Integrated Transport Assessment

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Prepared by: John Burgess

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## 1. Introduction

The purpose of this report is to provide an Integrated Transport Assessment (ITA) of a proposal by BP Oil (New Zealand) Limited and Vaco Investments (Waipu Project) Limited to establish a comprehensive service centre on a property at 47 Millbrook Road, Waipu. The property lies on the south western corner of the intersection of State Highway 1 (SH1) and Millbrook Road, and has frontage to both roads.

The proposed development is described in detail in the application, but essentially it involves the establishment of a BP service station and truck stop, two drive-through fast-food restaurants, two other food outlets, a small supermarket, an automotive assistance facility and a rural commercial services facility. Car parking and loading areas are provided in several areas close to each of the activities, and vehicle access is proposed from the SH1 via a proposed new roundabout.

The structure of this ITA is as follows:

- Section 2 describes the site of the proposed development in the context of the existing and future transport environments in the vicinity of the site, including a discussion of the general accessibility of the site to various modes of transport;
- Section 3 describes the proposed development, including the site layout and access arrangements;
- Section 4 discusses the travel characteristics of the proposed development and provides predictions of the expected traffic flows associated with the development, including trip distribution on the surrounding road network;
- Section 5 describes in detail the proposed access arrangements for the site, determined in consultation with Waka Kotahi – NZTA;
- Section 6 assesses the effects of the development, and identifies the mitigation measures that are needed on the transport environment; and
- Section 7 assesses the proposal in terms of the relevant objectives, policies, rules, standards and assessment criteria of the Whangarei District Plan Operative in Part 2022 [District Plan].

## 2. The existing transport environment

### 2.1 Site location

The location of the site in relation to the surrounding road network is shown in **Figure 1**.



**Figure 1: Site location**

The site is located on the western side of SH1, immediately to the south of the intersection with Millbrook Road. The intersection of SH1 with The Braigh is located some 40 metres to the north of Millbrook Road, and this provides a main access into Waipu.

**Figure 2** shows the site in the context of the Whangarei District Plan zoning. The site lies within the Rural Production Zone.

**Figure 3** (and later **Figure 4**) shows in more detail the site in relation to the immediately surrounding activities.



Figure 2: Site in relation to the District Plan zoning



Figure 3: Site in relation to immediately surrounding activities



The site is currently vacant. On the opposite side of Millbrook Road there is a veterinary centre with access more or less midway along the subject site frontage.

## 2.2 The existing roading environment

The current road layout along this section of SH1 and at its intersections with Millbrook Road and The Braigh is shown in [Figure 4](#). It is noted that the road markings have been renewed since the aerial photo, and a Stop control has been introduced for traffic exiting from Millbrook Road (see Figures 5 and 6).



**Figure 4: The immediately surrounding road environment**

This section of SH1 operates as a two-lane road with narrow sealed shoulders along both sides. The road has been widened at the intersections with Millbrook Road and The Braigh to form side-by-side opposing right turn pockets for traffic turning right into each side road

The current traffic environment along this section of SH1 is shown in [Figures 5 and 6](#).



Figure 5: SH1 looking to the south from Millbrook Road



Figure 6: SH1 looking to the north from Millbrook Road

Millbrook Road is a two-lane road with no shoulders or footpaths along either side, with a carriageway way of 8 metres. The current traffic environment along this section of road is shown in [Figure 7](#).

The section of road past the site (on the left in [Figure 7](#)) is straight and level, with good sight lines for a considerable distance to the west. The only existing vehicle access is on the northern side of the road, serving the existing veterinary centre.



**Figure 7:** Millbrook Road looking to the west from SH1

The intersection of Millbrook Road with SH1 is controlled by a Stop sign and markings, as is the approach on The Braigh.

## 2.3 Existing traffic flows

The current traffic flows on this section of SH1 have been estimated on the basis of data that has been provided by Waka Kotahi, and details of these are provided in [Appendix A](#).

From this data, it is estimated that the 95th percentile holiday peak maximum hourly traffic volumes on SH1 at Waipu in 2019 (pre-Covid) were 810 vehicles per hour southbound and 439 vehicles per hour northbound. The 95th percentile flows represent a design level that is exceeded only 5% of the time and are commonly used for assessment and design purposes.

No counts are available on Millbrook Road or The Braigh, but a one-hour survey of the vehicle movements at the two intersections with SH1 was undertaken on Wednesday 9 February 2022 during the 12 noon to 1pm period. The results are summarised below in [Figure 8](#). It is acknowledged that traffic flows increase significantly during peak holiday periods, but the survey does provide an indication of the pattern of movements at the two intersections.

The main turning movements at the intersection are the right turn movement into The Braigh and the left turn movement out of The Braigh, recognising that this forms the main link between the Waipu township and the State Highway to the south. The survey showed an hourly two-way flow on The Braigh of 134 vehicles/hour (vph). All other turning movements are minor, particularly in relation to Millbrook Road, for which an hourly flow of only 25 vph was recorded.

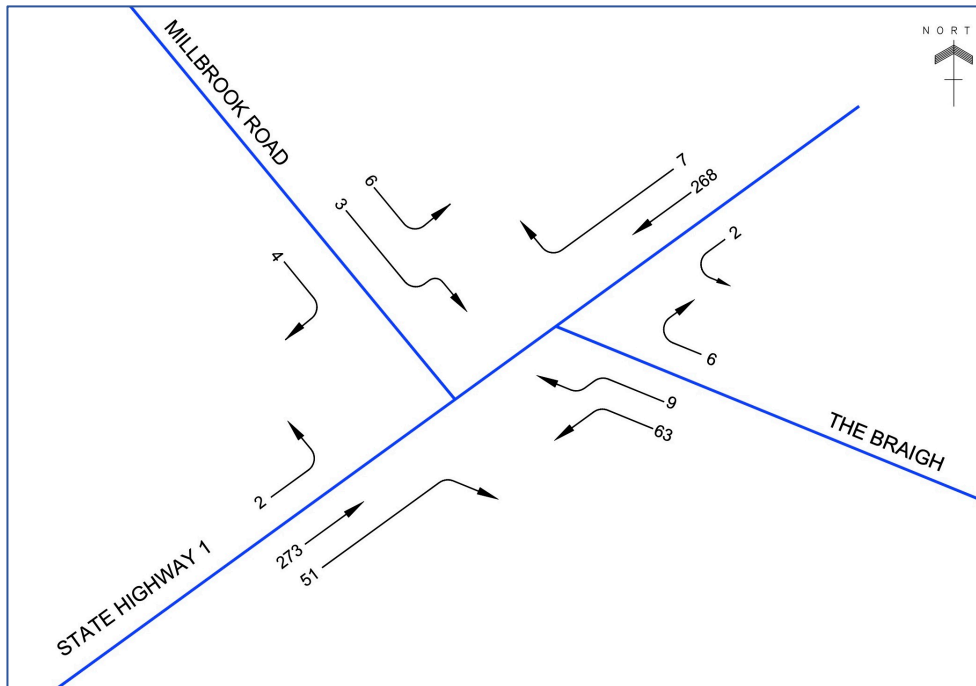


Figure 8: SH1/Millbrook Road/The Braigh intersection:  
Traffic flows 12-1pm, Wednesday 9 February 2022

Observation during the survey indicates that the two intersections are operating efficiently at present, well within capacity, and with no undue conflict or delays occurring between turning vehicles.

## 2.4 Safety records

**Appendix B** presents a summary of the crash records maintained by Waka Kotahi for the period 2016-2020 on the road network in the immediate vicinity of the site.

During that period, there was one reported crash in 2017 at the intersection of SH1 and The Braigh, which was a non-injury nose-to-tail accident involving two westbound vehicles on The Braigh, slowing/stopping for a queue. No other accidents were reported at or close to the subject site. This confirms general observation that the two intersections are generally operating safely and efficiently at present.

## 3. The future transport environment

### 3.1 The future roading environment

Consultation with Waka Kotahi has been undertaken to identify any future changes that are proposed for the SH1 route between Wellsford and Whangarei.

The main changes that are proposed as part of Waka Kotahi's Road to Zero involve the general introduction of a flexible wire median along the centre of the road to physically separate opposing traffic flows. Within the immediate vicinity of the subject site, Waka Kotahi identified a proposal to close the existing intersection with The Braigh, provide for right turn entry movements into Millbrook Road, retain left turn movements to and from Millbrook Road, and eliminate right turn exit movements out of Millbrook Road. To replace the route to and from Waipu that is currently provided by The Braigh, a new roundabout was proposed at the intersection with Shoemaker Road, some 1km to the north of Millbrook Road.

Subsequent discussions with Waka Kotahi have indicated that, following public consultation regarding these proposals, it was considered likely that the changes described above would no longer be pursued, and that alternative improvements would need to be considered. At that stage, no further details were available.

Consequently, for the purposes of this assessment, it has been assumed that the current layout of the SH1/Millbrook Road/The Braigh intersection will remain much as it is at present, with all turning movements into and out of the side roads retained. This will still enable the flexible wire median to be provided along the road, either side of the intersection.

### 3.2 Predicted future traffic flows on SH1

**Appendix C** describes the predictions for future growth in traffic flows up to 2032, on which the assessment of the proposed Service Centre is based.

**Figure 9** then summarise the predicted 2032 holiday peak turning movements at the SH1/Millbrook Road/The Braigh intersection, assuming no Service Centre development as currently proposed. As described in **Appendix C**, these flows have been determined by applying a 30% growth to the estimated 2019 flows.

As Waipu is a holiday destination, it is assumed for the purposes of this assessment that traffic volumes on The Braigh will increase to a similar degree as on SH1 in summer peak holiday periods. This is considered to be a conservatively high assumption, and vehicle numbers entering and exiting The Braigh on SH1 could well be much lower. As Millbrook Road primarily serves rural properties, it is not expected that volumes on Millbrook Road would inflate in holiday periods.

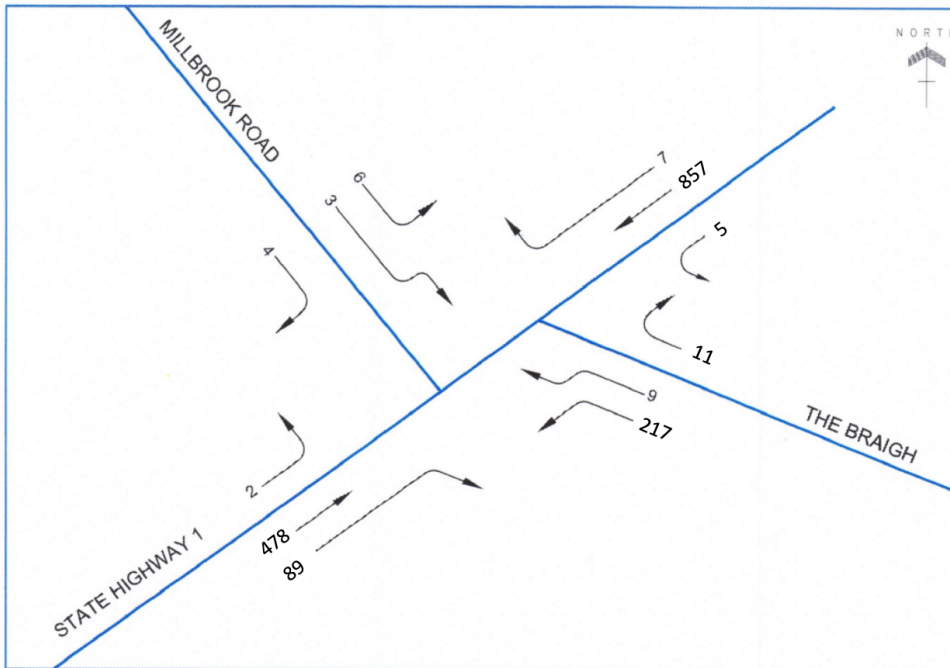


Figure 9: SH1/Millbrook Road/The Braigh intersection:  
 Forecast 2032 holiday peak turning movements (no service centre development)

### 3.3 Operation of the current SH1/Millbrook Road/The Braigh intersections

A SIDRA-9 model has been run for the SH1/Millbrook Road intersection, based on the predicted 2032 traffic flows shown in [Figure 9](#), again assuming no Service Centre development. [Appendix D](#) sets out the 2032 model results, which are summarised in [Tables 1 and 2](#).

Table 1  
 SH1/Millbrook Road intersection – SIDRA-9 results – 2032 holiday peak hour flows

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
<b>SH1 (N)</b>					
through	1075	0.634	0.1	A	0
right	16	0.021	10.9	B	1
<b>Millbrook Rd (W)</b>					
left	9	0.293	31.9	D	6
right	4	0.293	243.4	F	6
<b>SH1 (S)</b>					
left	2	0.333	8.2	A	0
through	567	0.333	0	A	0
<b>Intersection</b>	<b>1673</b>	<b>0.634</b>	<b>1.0</b>		

**Table 2**  
**SH1/The Braigh intersection – SIDRA-9 results – 2032 holiday peak hour flows**

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
<b>The Braigh (E)</b>					
left	227	1.080	136.2	F	164
right	11	1.080	223.2	F	164
<b>SH1 (N)</b>					
left	5	0.509	8.2	A	0
through	864	0.509	0.1	A	0
<b>SH1 (S)</b>					
through	487	0.287	0	A	0
right	89	0.218	13.5	B	6
<b>Intersection</b>					
	<b>1683</b>	1.080	20.6		

The results indicate that in the 2032 holiday peak hour there will be high delays to right turning traffic out of Millbrook Road and The Braigh.

With the approach on The Braigh being a single lane only, the delays to right turning traffic out from The Braigh will also lead to high delays to left turning traffic out of the Braigh, noting that only very few vehicles make the right turn exit out of both roads. It would be possible to widen The Braigh for a short distance on the approach to the SH1 intersection to provide a short length of separate right turn lane, and this would reduce the delays experienced by left turning vehicles. It is noted however that such widening of The Braigh is not proposed as part of the Service Centre proposal, nor is it considered to be necessary.

For comparison purposes only, the SIDRA-9 model has been re-run assuming this widening, and the results are included in [Appendix D](#) and summarised in [Table 3](#).

**Table 3**  
**SH1/The Braigh intersection – SIDRA-9 results – 2032 holiday peak hour flows – 2 lanes on The Braigh**

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
<b>The Braigh (E)</b>					
left	227	0.803	36.6	E	41
right	11	0.277	103.6	F	6
<b>SH1 (N)</b>					
left	5	0.509	8.2	A	0
through	864	0.509	0.1	A	0
<b>SH1 (S)</b>					
through	487	0.287	0	A	0
right	89	0.218	13.5	B	6
<b>Intersection</b>					
	<b>1683</b>	0.803	6.4		

Delays and queuing for both the left and right turn movements out of The Braigh would be reduced substantially as a result of providing a short, separate right turn lane on the approach to the intersection.

Given that the volume of traffic turning right out of The Braigh is currently very small, an alternative that Waka Kotahi could consider in conjunction with their proposed safety improvements along this section of road would be to prohibit the right turn exit altogether. Vehicles wishing to head towards the north from Waipu do have a convenient alternative route via Shoemaker Road, and so the effects of such a measure are unlikely to be significant. Again, this is intended as an observation only, and does not form part of the Service Centre proposal.



## 4. The proposed Service Centre

### 4.1 Proposed activities on the site

The Waipu Gateway Service Centre is intended to provide for activities that are better placed on the fringe of Waipu than in the centre, benefiting from the proximity to SH1 and the wider rural community. The Service Centre is able to provide for a range of activities that are compatible with the travelling public and the wider Waipu community, including the following:

- Commercial activities to serve the travelling public, potentially including a service station and truck stop, motor vehicle sales and servicing, towing services, food and beverage activities including drive-through fast food outlets and cafes, small food stores, including a small supermarket, short term traveller accommodation, automotive assistance and valet services,
- Commercial activities to serve the wider rural community, including farming and agricultural supplies, hire premises and other rural commercial services.
- Light industrial activities such as vehicle and marine servicing, and warehousing and storage, including boat storage

Within this general framework, the following specific activities are proposed as set out in [Table 4](#).

**Table 4**  
**Activities proposed on the site**

Plan No.	Activity	GFA (m <sup>2</sup> )	Seats/Bays
1-9	Service station/truck stop, including EV car and truck charging stations		19
10-11	QSR + drive-through	260	
12	Food outlet	148	
13	Retail tenancies	408	
14	Café	113	38
15	EV charging stations		
16-17	Supermarket	1000	
18	Automotive assistance/services	296	
19-20	Food stores	429	
21-22	QSR + drive-through	260	
23	Food store	148	
24	Retail tenancies	294	
25-27	Farming/agricultural supplies	500	
28	Rural/home supplies, warehousing	2507	
29	Marine/vehicles sales/service	930	

### 4.2 On-site layout

The proposed layout of the site is detailed in the plans accompanying the resource consent application and is included in [Appendix E](#) and shown in [Figure 10](#).

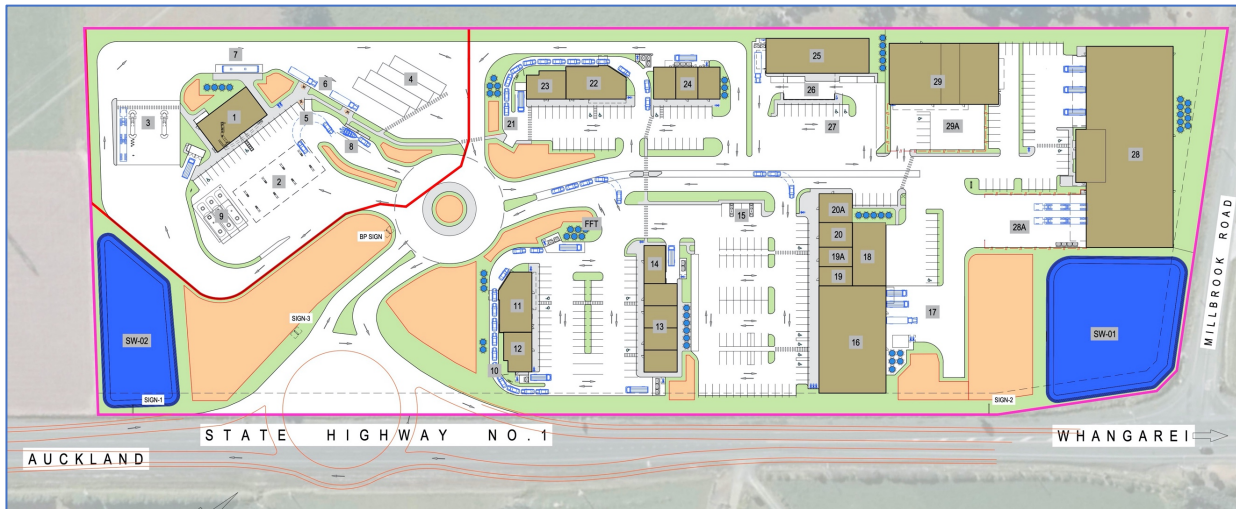


Figure 10: Proposed Service Centre layout

All vehicle access to the Service Centre is through a new roundabout on SH1 (see discussion in Section 4.3 below). No access is to be provided from Millbrook Road.

From there, a second roundabout is proposed within the site to safely separate vehicles that are visiting the service station and truck stop from vehicles that are visiting the remainder of the site. In particular, this provides easy access and egress for larger trucks using the truck stop. The internal roundabout is located sufficiently clear of the main SH1 roundabout to ensure that vehicles do not queue back from this roundabout onto SH1, noting that vehicles entering the site will only need to give way to the occasional vehicle that might be moving from the main area of the site and into the service station.

The site is then divided into smaller areas containing the different activities, all fed from a central driveway through the site. On-site car parking is proposed to serve each of the activities, together with servicing/loading areas as required.

## 4.3 Proposed access arrangements

### 4.3.1 Consultation with Waka Kotahi - New Zealand Transport Agency

Throughout the process of determining the preferred access arrangements for the proposed Service Centre, consultation was carried out with Waka Kotahi through a series of meetings to discuss the proposal, including the results of various traffic models for the site access and the existing intersections of SH1 with Millbrook Road and The Braigh.

### 4.3.2 Options for the SH1/Millbrook Road/The Braigh intersections

The initial proposal was to provide access from both SH1 and Millbrook Road. The access on SH1 was to be confined to a left turn entry slip lane only for northbound traffic, whilst the Millbrook Road access was to provide for all movements. Traffic assignment predictions and SIDRA-9 modelling were then undertaken for this arrangement, and the results discussed with Waka Kotahi, with the following agreed conclusions:

- All southbound traffic on SH1 wishing to visit the Service Centre would need to make a right turn movement into Millbrook Road followed by a left turn into the site. Similarly traffic approaching along The Braigh would make a left turn onto SH1 followed immediately by a right turn into Millbrook Road. This resulted in

a significant volume of traffic turning right into Millbrook Road, compared to minimal traffic volumes at present.

- Given the close proximity of the Millbrook Road and The Braigh intersections, with the right turn pockets for each overlapping one another, this presented a potential conflict area. In addition, the SIDRA-9 model predicted long delays for traffic turning at the intersections, including the right turn exit from Millbrook Road.
- Waka Kotahi's proposals (discussed in Section 3.1) to leave the existing intersections as they are and to provide the flexible barrier along the length of SH1 removed any opportunity for changes to the intersections, such as banning right turns from Millbrook Road and/or to and from The Braigh.

Consideration was also given to the possibility of introducing a roundabout to control movements from The Braigh and Millbrook Road. However, with these two intersections being staggered, with the resulting need to acquire significant areas of private property to achieve a satisfactory roundabout layout, this option was not pursued.

### 4.3.3 Proposed roundabout access

The discussions with Waka Kotahi led to an alternative option of establishing a new roundabout specifically designed to provide access to the proposed Service Centre, to be located well clear of the existing Millbrook Road intersection. This proposal is shown on the plan in [Appendix E](#) and in [Figure 10](#). Agreement was reached with Waka Kotahi for this proposed new roundabout and its location relative to the Millbrook Road/The Braigh intersections.

The roundabout is to be located some 300 metres to the south of Millbrook Road, and has excellent visibility from both the north and the south. The design is based on providing a roundabout that is as large as possible within the constraints of the existing road reserve (to the east) and the applicant's site (to the west), resulting in an island that is about 45 metres in diameter. The layout shown is in concept form only, and will be subject to more detailed design.

## 4.4 Car parking provision

The proposal involves the provision of 267 car parking spaces spread around the site to serve the various activities.

Whilst there are no minimum or maximum car parking requirements in the District Plan, it is considered that this provision will be sufficient to properly serve the various activities on the site. Based on the total GFA of all of the activities within the Service Centre, this would be equivalent to an overall parking provision of 1 space/27m<sup>2</sup> GFA, which is fairly typical of larger comprehensive developments where car parking is shared amongst a number of different activities.

## 4.5 Servicing provision

For vehicles entering the Service Centre, the first facility is the service station, which includes the usual forecourt and shop, a truck refuelling stop, truck parking and EV charging stations.

Typical tracking curves for a large truck and trailer visiting the truck stop are presented in [Appendix F](#) and shown below in [Figure 11](#).



Figure 11: Typical tracking paths for a 23m HPMV truck and trailer

Within the site, each activity is provided with its own delivery area. The loading areas for the fast food and small retail/service tenancies are designed predominantly for large rigid trucks, whilst the larger buildings in the northern part of the site have loading areas that are designed to accommodate larger semi-trailers and B-trains.

## 5. Travel characteristic of the proposed development

### 5.1 Travel modes and locational characteristics

The proposal involves establishing a Service Centre that is clearly focused on providing services to the travelling public on State Highway 1. The vast majority of vehicles that will visit the facilities will be the private vehicle, and commercial vehicles including large, heavy trucks. As for most service centres on motorways and main arterial routes, specific access for cyclists and pedestrians is not anticipated, and the location of this particular site in relation to surrounding development and activities in Waipu suggests that very few cyclists and pedestrians will visit the site. It is noted that there are no specific cyclist or pedestrian facilities along any of the adjoining roads.

Nevertheless, provision for pedestrians and cyclist will be made within the development, including pedestrian linkages between the car parking areas and the various commercial activities.

### 5.2 Trip generation and distribution predictions

Initial predictions of the likely trip generation levels for the proposed service centre have been based on the trip generation assessment methodology accepted by Waka-Kotahi for a recent similar project in Ruakaka. The approach involves applying standard trip generation rates for stand-alone activities within the overall development, and then applying adjustments for pass-by trips and linked internal trips. For the Ruakaka Service Centre project, Waka Kotahi recommended adopting the 85th percentile trip rates set out in NZTA Research Report "Trips and Parking Related to Land Use", and this has again been adopted for the Waipu proposal.

The resulting trip generation predictions are discussed in [Appendix G](#) and summarised in [Table 5](#).

**Table 5**  
**Predicted peak hour trip generation**

Plan No.	Activity	GFA (m <sup>2</sup> )	NZRR453 85 <sup>th</sup> percentile trip generation rate	predicted peak vehicle movements/hour
1-9	Service station/truck stop, including EV car and truck charging stations	19 bays	20.4	388
10-11	QSR + drive-through	260	52/100m <sup>2</sup>	135
12	Food outlet	148	5.6/100m <sup>2</sup>	8
13	Retail tenancies	408	5.6/100m <sup>2</sup>	23
14	Café*	113	0.5/seat	19
15	EV charging stations			
16-17	Supermarket	1000	18.9/100m <sup>2</sup>	189
18	Automotive assistance/services	296	7.7/100m <sup>2</sup>	23
19-20	Food stores	429	5.6/100m <sup>2</sup>	24
21-22	QSR + drive-through	260	52/100m <sup>2</sup>	135
23	Food store	148	5.6/100m <sup>2</sup>	8
24	Retail tenancies	294	5.6/100m <sup>2</sup>	16
25-27	Farming/agricultural supplies	500	5.6/100m <sup>2</sup>	28
28	Rural/home supplies, warehousing	2507	5.6/100m <sup>2</sup>	140
29	Marine/vehicles sales/service	930	5.6/100m <sup>2</sup>	52
<b>TOTAL</b>				<b>1188</b>

\* based on 50% of GFA for dining area and 1.5m<sup>2</sup>/seat (RTA NSW)

For a number of reasons, the above predictions are considered to be conservatively high.

Firstly, service stations in general do not generate large volumes of new traffic to the road network, but rather provide a service to traffic that is already passing the site. They provide a convenience to the passing motorist rather than being a specific destination, and this will be particularly relevant to this site. Consequently, the number of customers attracted to a service station (particularly in a rural setting) tends to be influenced more by the amount of traffic that is passing the site, rather than the size of the service station shop or number of refuelling positions.

As a check, a general rule-of-thumb in the Oil Industry is that a service station will attract up to some 3-4% of passing traffic particularly during the peak periods. Based on a predicted peak daily flow of 15,000 vehicles/day on SH1 in 2032, this would equate to some 450-600 vehicles/day visiting the site (900-1200 vehicle movements). Similarly, based on the predicted peak hourly flow in 2032 of 1650 vph, this would equate to some 50-66 vehicles/hour during the peak periods (100-132 vehicle movements). These numbers are considerably lower than the figure in [Table 2](#).

The adopted trip rate for the small supermarket is based on a range of supermarkets that generally have a defined catchment close by. There is an existing Four Square supermarket within the Waipu township which currently serves the Waipu area and whilst the proposed supermarket within the Service Centre might attract some local customers from Waipu, it will primarily serve the travelling public on SH1. Trip rates are therefore likely to be much lower.

The Service Centre will comprise a number of complementary services, and it would be normal to expect many visitors to take advantage of more than one activity on the site during the same visit (ie linked trips). For example, refuelling the vehicle, visiting a café, picking up a takeaway order from the fast-food drive-through or doing a quick small-basket shop at the supermarket are all activities that could be combined in a single visit. This will result in a much lower level of trip generation than simply combining the individual rates in [Table 2](#). A recent study undertaken at the existing Bombay Service Centre on SH1 indicated that the proportion of linked trips was 48% in the AM peak hour, 53% in the PM peak hour and 28% in the midday Saturday peak hour. For the purposes of this assessment, a linked trip rate of 50% has been adopted for the peak hour.

If these factors are taken into account, a more realistic prediction of total trip generation might be around 600 vehicle movements/hour.

As already indicated, a significant proportion of customers will be drawn from traffic that is already passing the site along SH1, and will not be added to the road network. Pass-by rates for service stations, fast food restaurants and convenience markets tend to vary between 35% and 65% of total customers. This particular location is quite remote from the nearest urban development, other than the Waipu township, and consequently it is not anticipated that the Service Centre will be particularly attractive as a primary destination.

For the purposes of this assessment a pass-by rate of 66% has been adopted, together with a linked-trip rate of 50%.

### 5.3 Predicted traffic flows

On the basis of the above trip generation assessment, the predicted 2032 holiday peak hour turning movements in the vicinity of the site, including pass-by and primary trips associated with the Service Centre, are shown in [Figure 12](#).

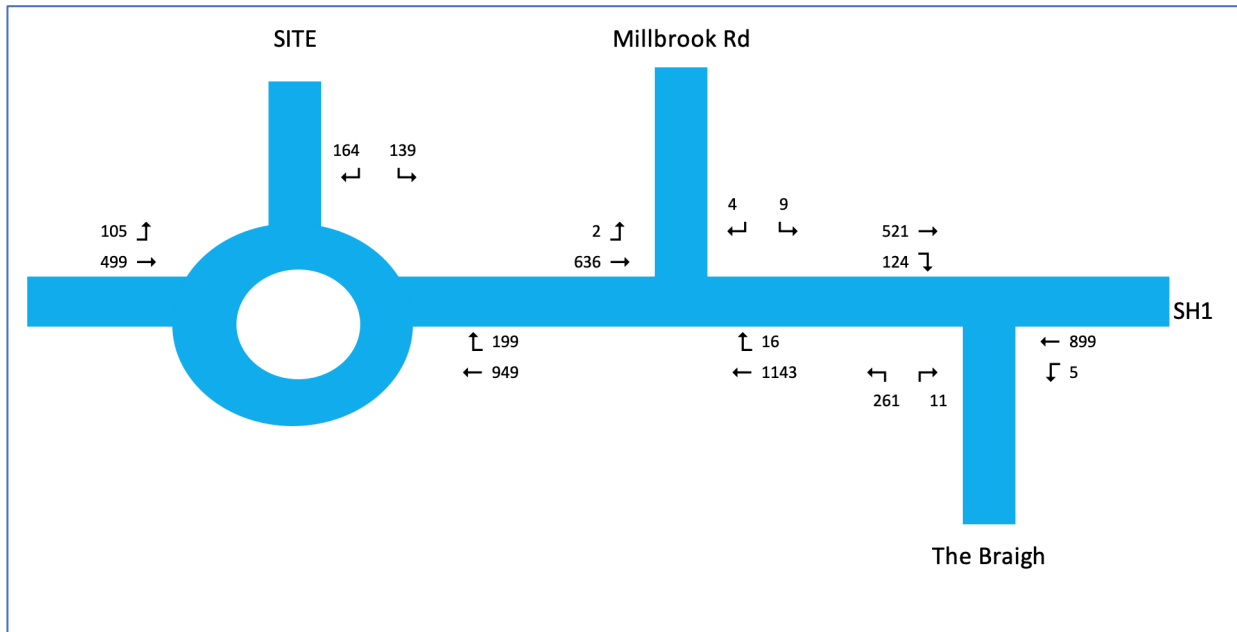


Figure 12: Predicted 2032 holiday peak hour traffic movements, with proposed Service Centre

## 6. Assessment of effects and mitigation measures

### 6.1 Operation of the proposed roundabout

The SIDRA-9 model has been run for the SH1/Millbrook Road intersection, based on the predicted 2032 traffic flows shown in [Figure 12](#), with the proposed service centre development. [Appendix H](#) sets out the 2032 model results, which are summarised in [Table 6](#).

**Table 6**  
*SH1/Service Centre roundabout – SIDRA-9 results – 2032 holiday peak hour flows with Service Centre*

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
<b>SH1 (N)</b>					
through	949	0.902	12.9	B	171
right	199	0.902	20.4	C	171
<b>Service Centre (W)</b>					
left	139	0.354	3.6	A	20
right	164	0.354	8.1	A	20
<b>SH1 (S)</b>					
left	105	0.509	8.1	A	36
through	499	0.509	8.5	A	36
<b>Intersection</b>	<b>2055</b>	<b>0.902</b>	<b>11.3</b>	<b>B</b>	

The results indicate that the roundabout will be able to satisfactorily accommodate the forecast traffic generated by the service centre in the 2032 holiday peak hour, with a maximum delay of 20 seconds per vehicle and LOS C for the southbound right turn off SH1 into the service centre.

### 6.2 Operation of the Millbrook Road/The Braigh intersections

The SIDRA-9 model has been run for the SH1/Millbrook Road intersection, based on the predicted 2032 traffic flows shown in [Figure 12](#), with the proposed service centre development. The 2032 model results are also included in [Appendix H](#) and summarised in [Tables 7 and 8](#).

The right turn out of Millbrook Road and both the left and right turn out of The Braigh will experience significant delay, with LOS F. As noted earlier in Section 3.3, much of this high delay in the 2032 holiday peak period will be occurring for these movements even without the Service Centre traffic.

As discussed earlier, it would be possible to widen The Braigh for a short distance on the approach to the SH1 intersection to provide a short length of separate right turn lane, and this would reduce the delays experienced by left turning vehicles. For comparison purposes the SIDRA-9 model has therefore been re-run assuming this widening, and the results are included in [Appendix H](#) and summarised in [Table 9](#). Again, the option of prohibiting the right turn exit for the small number of vehicles making that movement could also be considered by Waka Kotahi in conjunction with other safety improvements being considered along this section of road.



**Table 7**

**SH1/Millbrook Road intersection – SIDRA-9 results – 2032 holiday peak hour flows with Service Centre**

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
<b>SH1 (N)</b>					
through	1143	0.674	0.2	A	0
right	16	0.024	11.6	B	1
<b>Millbrook Rd (W)</b>					
left	9	0.522	113.8	F	11
right	4	0.522	489.2	F	11
<b>SH1 (S)</b>					
left	2	0.373	8.2	A	0
through	636	0.373	0	A	0
<b>Intersection</b>	<b>1810</b>	<b>0.674</b>	<b>1.9</b>		

**Table 8**

**SH1/The Braigh intersection – SIDRA-9 results – 2032 holiday peak hour flows with Service Centre**

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
<b>The Braigh (E)</b>					
left	261	1.404	400.5	F	453
right	11	1.404	490.7	F	453
<b>SH1 (N)</b>					
left	5	0.529	8.2	A	0
through	899	0.529	0.1	A	0
<b>SH1 (S)</b>					
through	521	0.307	0	A	0
right	124	0.333	15.9	C	11
<b>Intersection</b>	<b>1821</b>	<b>1.404</b>	<b>61.5</b>		

**Table 9**

**SH1/The Braigh intersection – SIDRA-9 results – 2032 holiday peak hour flows – 2 lanes on The Braigh**

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
<b>The Braigh (E)</b>					
left	261	1.023	96.9	F	126
right	11	0.380	152.8	F	8
<b>SH1 (N)</b>					
left	5	0.529	8.2	A	0
through	899	0.529	0.1	A	0
<b>SH1 (S)</b>					
through	521	0.307	0	A	0
right	124	0.333	15.9	C	11
<b>Intersection</b>	<b>1821</b>	<b>1.023</b>	<b>16.0</b>		

### 6.3 Sensitivity test for pass-by traffic percentage

During the consultation process with Waka Kotahi, the percentage of customers who were assumed to be drawn from pass-by traffic was discussed, and it was agreed that the SIDRA-9 model should be run assuming a lower percentage (50% rather than 66%), as a sensitivity test. The results of these model runs are presented in [Appendix I](#) and summarised in [Tables 10, 11 and 12](#).

**Table 10**  
*SH1/service centre roundabout – SIDRA-9 results – 2032 holiday peak hour flows with Service Centre 50% pass-by traffic*

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
<b>SH1 (N)</b>					
through	980	0.910	12.4	B	179
right	199	0.910	19.9	B	179
<b>Service Centre (W)</b>					
left	154	0.361	3.8	A	20
right	149	0.361	8.3	A	20
<b>SH1 (S)</b>					
left	104	0.523	8.2	A	37
through	516	0.523	8.5	A	37
<b>Intersection</b>	<b>2102</b>	<b>0.910</b>	<b>11.0</b>	<b>B</b>	

**Table 11**  
*SH1/Millbrook Road intersection – SIDRA-9 results – 2032 holiday peak hour flows with Service Centre 50% pass-by traffic*

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
<b>SH1 (N)</b>					
through	1176	0.694	0.2	A	0
right	16	0.025	12.0	B	1
<b>Millbrook Rd (W)</b>					
left	9	0.704	226.1	F	16
right	4	0.704	730.0	F	16
<b>SH1 (S)</b>					
left	2	0.392	8.2	A	0
through	668	0.392	0	A	0
<b>Intersection</b>	<b>1875</b>	<b>0.704</b>	<b>2.9</b>		

The overall effect of assuming a 50% pass-by rate is of course a small increase in overall traffic flows through the intersections, and an increase in delays to vehicles exiting from Millbrook Road and The Braigh.

**Table 12**

**SH1/The Braigh intersection – SIDRA-9 results – 2032 holiday peak hour flows with Service Centre 50% pass-by traffic**

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
<b>The Braigh (E)</b>					
left	277	1.583	558.0	F	595
right	11	1.583	650.1	F	595
<b>SH1 (N)</b>					
left	5	0.538	8.2	A	0
through	915	0.538	0.1	A	0
<b>SH1 (S)</b>					
through	537	0.316	0	A	0
right	140	0.392	17.2	C	13
<b>Intersection</b>	<b>1885</b>	<b>1.583</b>	<b>87.2</b>		

Again, widening of The Braigh for a short distance on the approach to the SH1 intersection to provide a short length of separate right turn lane would reduce the delays experienced by left turning vehicles. The SIDRA-9 model has therefore been run assuming this widening, and the results are included in [Appendix I](#) and summarised in [Table 13](#).

**Table 13**

**SH1/The Braigh intersection – SIDRA-9 results – 2032 holiday peak hour flows with service centre – 2 lanes on The Braigh 50% pass-by traffic**

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
<b>The Braigh (E)</b>					
left	277	1.141	177.5	F	240
right	11	0.442	187.3	F	10
<b>SH1 (N)</b>					
left	5	0.538	8.2	A	0
through	915	0.538	0.1	A	0
<b>SH1 (S)</b>					
through	537	0.316	0	A	0
right	140	0.392	17.2	C	13
<b>Intersection</b>	<b>1885</b>	<b>1.141</b>	<b>28.5</b>		

## 6.4 Effects on the wider road network

**Table 14** below summarises the expected growth in northbound and southbound summer peak hour traffic volumes on SH1 south of Millbrook Road from 2022 to 2032 and how much of that growth is due to the proposed Service Centre development.

**Table 14**  
**Predicted growth in holiday peak hour traffic on SH1 south of Millbrook Road**

	SH1 Northbound	SH1 Southbound
2022	432	810
2032 (no development traffic)	569	1079
2032 with development	604	1113
Peak Hour Volume Change Due to Growth	137	269
Peak Hour Volume Change Due to Development	35	34
Total Peak Hour Volume Change 2022 to 2032	172	303
PERCENT TOTAL PEAK HOUR VOLUME CHANGE 2022 TO 2032 DUE TO DEVELOPMENT	20%	11%

Between 2022 and 2032 it is estimated that, of the total predicted growth in holiday peak hour traffic on SH1 south of Millbrook Road, some 20% of the increase in northbound traffic and 11% of the increase in southbound traffic would be due to the proposed Service Centre development.

In the context of SH1, these numbers are small, and are typical of a Service Centre that is focused on serving the travelling public. Beyond the immediate vicinity of the site, the effects of the additional traffic will be less than minor.

## 6.5 Safety aspects of the proposed roundabout

Whilst the roundabout that has been included on the Applicant’s plans is a concept layout only subject to further detailed design, it is clear that it is an intersection that can provide safe and efficient access and egress for the Service Centre, with minimum effect on the ongoing safe and efficient operation of SH1. It is located sufficiently clear of the existing Millbrook Road and The Braigh intersections to avoid any potential conflict between the various turning movements, and will enable Waka Kotahi to establish its proposed safety improvements (such as the flexible central barrier) without compromise.

The presence of the Service Centre roundabout could also have additional safety benefits in relation to the options available to Waka Kotahi for any changes/upgrades to the existing Millbrook Road and The Braigh intersections. For example, in conjunction with installing a flexible central barrier along SH1, right turns out of The Braigh and right turns into Millbrook Road could be eliminated, with the roundabout providing a safe and convenient U-turn option.

Overall, it is considered that the proposed roundabout will be able to operate safely and efficiently.

## 6.6 On-site operational and safety effects

The service station and truck stop, both of which are clearly vehicle oriented, have been located closest to the SH1 entrance and clear of the various activities on the site. It is not anticipated that there will be any significant volume of pedestrian movements between the service station and the remainder of the site, although a pedestrian connection is provided on the western side of the internal roundabout.

Beyond the internal roundabout, each of the various activities has its own parking area, and pedestrian connections are included both within each parking area and across the main driveway to link the different activities. Ongoing detailed design of each area as it develops will refine the layout as necessary to ensure that a safe and convenient pedestrian environment is created throughout.

## 6.7 Effects on pedestrian and cyclist accessibility, safety and amenity

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As already discussed, it is not anticipated that the Service Centre will attract pedestrians and cyclists given its location immediately adjacent to SH1. Nevertheless, the proposal does provide lockable and covered long term cycle parks and end-of-trip facilities within the proposed buildings, as well as the necessary short term cycle parks as required by the District Plan if and where they are required.

Within the site, appropriate provision for pedestrians will be made, as discussed above.

## 6.8 Effects during construction

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The need to introduce truck and other vehicle movements during the construction phases of any development always has 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 any potential impacts of construction traffic, and this is generally achieved through the requirement for a construction traffic management plan (CTMP) to be prepared and approved prior to work commencing. Where necessary this seeks to control the times of operation (eg avoiding peak periods), routes used, and other matters to minimise potential impact. State Highway 1 is appropriate and able in capacity terms to accommodate the small volumes that will be associated with the construction phases, and the application of a CTMP will ensure that any potential impact on the surrounding area is minimised. The preparation of such a CTMP should be a condition of resource consent.

## 7. Transport planning considerations

[THE GOVERNMENT POLICY STATEMENT – LAND TRANSPORT 2021/22-2030/31](#) identifies a number of Strategic Priorities, including the following:

*Safety - .....deaths and serious injuries should not be an inevitable cost of moving people and freight from place to place. We need to create a transport system in both urban and regional areas that protects people. This priority gives effect to, but is not limited to, the Road to Zero.*

Waka Kotahi is currently working on improving the operation and safety of these sections of SH1 as part of the “Road to Zero”, and access to the proposed Service Centre has been designed to complement these improvements through the provision of a new roundabout that will provide safe access to the various facilities without creating significant effects on SH1 traffic.

*Improving Freight Connections:: Efficient, reliable, safe, mode-neutral and resilient freight transport – within cities, between regions and to ports – is vital for a thriving economy. Regional New Zealand’s primary production is a key driver of the national economy. The transport system needs to support the movement of freight by the most appropriate mode, improving interregional corridors and increasing resilience.*

The proposed truck stop and associated amenities for the travelling public will contribute to the above goals, by providing safe, attractive and convenient facilities for traffic on SH1 without the need to divert into other areas in search of such services. This will contribute both to the efficiency of travel along this major corridor and to the safety of travellers through the provision of adequate food and rest opportunities. The nearest fuel stop to the north is at the intersection with SH15 Port Marsden Highway some 65 kms to the north, and there are refuelling and food opportunities at Wellsford some 60 kms to the south.

The Ministry of Transport’s [DECARBONISING TRANSPORT ACTION PLAN – DECEMBER 2022-2025](#) seeks to “help New Zealand make the shift to zero emissions vehicles”, and includes the following key goals:

- *Encourage uptake of low emissions vehicles and make them accessible to more New Zealanders.*
- *Improving EV charging infrastructure to ensure all EV users can access chargers when they need to.*
- *Take additional measures to remove unsafe polluting vehicles from the fleet.*

The provision of a new and modern Service Centre that is able to provide EV charging stations directly on the major north-south transport corridor can be seen to form an important part of this Action Plan and, by directly contributing to the second of the above goals, will encourage realisation of the other two goals.

BP Oil New Zealand Limited has a National Strategy for establishing a network of EV charging stations, taking the overall long term view of EV roll-out that will contribute to lower emissions, as commuters will feel increasingly confident to transition to EV vehicles once easy access to fast charging on long trips is readily available. The Service Centre as proposed in this location will form an integral part of this network.

[THE NORTHLAND REGIONAL LAND TRANSPORT PLAN 2021-2027](#) includes a number of Objectives and Policies that are considered to be relevant to the current proposal, including the following:

*Objective 1: Northland has a resilient transport network that strengthens all parts of the transport system and enables economic and social development in Northland in a timely and sustainable manner.*

*P3: Plan and develop network improvements identified in Waka Kotahi NZ Transport Agency’s “Connecting Northland” programme to realise the safety, economic, access and resilience benefits these improvements will provide for Northland.*

*P6: Advocate for and support initiatives that contribute to ongoing improvement to the vehicle fleet in an effort to reduce greenhouse gas emissions and improve air quality through such initiatives as encouraging the uptake of electric vehicles, offering alternative fuel options and improved fuel efficiency.*

The proposed Service Centre with all of its services for the travelling public, including EV charging stations, will contribute to the realisation of these objectives and policies.

#### 1.4 TEN-YEAR TRANSPORT PRIORITIES

##### Transport priority 1: Reducing transport-related deaths and serious injuries

###### *Problem 1 - Road safety*

###### *Initiatives to target driver behaviour:*

###### *Fatigue management – driver reviver/fatigue stops*

*Driver fatigue-related crashes are an ongoing issue in Northland, even allowing for the under-reporting of these crashes. This is consistent with international research findings that up to 33% of crashes could involve fatigue as a contributing factor. Fatigue-related crashes are more predominant on state highways, but also occur on local roads. Reported fatigue-related crashes peak between October and April on the state highway network. Five driver reviver/fatigue stops and two truck education and health stops (Uretiti and Port Marsden) are scheduled between these months linked to peak holiday travel times northbound at locations on SH1 at Uretiti and Waiomio involving key road safety partners. Radio, print and social media are also used to promote the risks and consequences of driving while fatigued.*

Clearly the proposed Service Centre will provide a facility where all drivers (private and commercial) are able to safely and conveniently pull over to take a rest on what is a relatively long section of SH1 between urban centres, therefore contributing to the above initiative.

##### Transport priority 5: Reducing the environmental effects of the transport network

*Electric vehicle charging network: Northland has been investing in a network of charging stations to facilitate the use of electric vehicles. In 2020 there were 15 fast public charging stations throughout the region. Tesla have also recently installed a supercharger in central Whangārei.*

*We will continue to advocate for electric vehicle infrastructure as one of many initiatives to transition to a low-carbon transport system, while lowering the impact of the network on air quality and reducing noise pollution.*

Again, the provision of conveniently located refuelling alternatives on SH1, including EV charging stations, is consistent with the above goals.

## 8. Whangarei District Plan - Operative in Part 2022 assessment

### 8.1 RPZ.1 Rural Production Zone

Rule *RPZ.2.3 Discretionary Activities* states that the following is a Discretionary Activity in the Rural Production Zone:

17. Any commercial activity that:
  - a. Generates more than 20 traffic movements per site, per day.
  - b. Has car parking between the residential unit and the road.
  - c. In addition to the principal operator, has more than two other persons engaged in providing the activity.
  - d. Occupies more than 15% of the total GFA of all buildings on site.
  - e. Has a total area of signage greater than 0.25m<sup>2</sup> per site.
  - f. Has illuminated or moving signage.
  - g. Is not an ancillary activity to the residential use of the site.
  - h. Does not involve a permanent resident of the site as the principal operator of the commercial activity.
  - i. Includes, before 8am or after 6pm on any day, the operation of machinery, receiving customers or the loading or unloading of vehicles

The proposed development is assessed in terms of the discretionary activity assessment criteria in Section 7.4.

### 8.2 Transport (TRA) - Objectives and Policies

Section *Transport (TRA)* of the Whangarei District Plan (Appeals Version) sets out the following Objectives that are directly relevant to the proposal:

#### **TRA-01 - Transport Network**

*Provide and maintain a safe, efficient, accessible and sustainable transport network while avoiding, remedying or mitigating adverse effects on the environment, adjoining land uses and the surrounding amenity and character.*

#### **TRA-02 - Integrate Transport and Land Use Planning**

*Integrate land use and transport planning to ensure that land use activities, development and subdivision maintain the safety and efficiency of the transport network.*

#### **TRA-04 - Safety and Efficiency**

*Provide suitable and sufficient vehicle crossings, access, parking, loading and manoeuvring areas that minimise adverse effects on the safe, effective and efficient functioning of the transport network.*

The proposal is to establish a service facility for the travelling public that is conveniently located on the main traffic route to and from Whangarei and beyond along SH1, and which provides safe and efficient access in a manner that does not compromise the continuing safe and efficient operation of SH1. As such, it is considered that the proposed development contributes towards meeting the above objectives.

Section *Transport (TRA)* then sets out the following Policies that are directly relevant to the proposal:

#### **TRA-P3 - Transport Network Capacity**

*To manage the scale and design of subdivision and development by:*

1. Ensuring that there is sufficient capacity within the transport network to cater for the proposal.
2. Requiring subdividers and developers to meet the costs of any upgrades and/or extensions to the transport network which are directly attributed to measurable impacts of the subdivision or development.



The proposed development has been located and designed to operate safely and efficiently through the provision of a new roundabout to the south of the existing staggered intersection of SH1 with Millbrook Road and The Braigh, enabling this intersection to continue to operate as it does at present. The roundabout itself will have minimal effect on other SH1 traffic.

The costs of providing the proposed roundabout and associated road widening will be met by the developer.

#### **TRA-P4 - Integrated Transport Assessments**

*To avoid remedy or mitigate adverse effects on the adjacent and wider transport network by requiring Integrated Transport Assessments for large scale developments and subdivisions.*

It is considered that this report meets the above assessment requirements.

#### **TRA-P5 - Active Transport**

*To promote active transport by facilitating cycle and pedestrian connectivity within new subdivisions and developments and, where appropriate, to existing developments, reserves and other public spaces.*

Given the specific nature of the proposed Service Centre designed primarily to serve the travelling public on the main SH1 route to the north, and located away from existing residential and commercial activities in Waipu and beyond, the promotion of cycle and pedestrian connectivity is not considered to be appropriate or relevant in this case.

#### **TRA-P7 - Access and Intersections**

*To ensure that access and intersections are designed and located so that:*

1. *Good visibility is provided.*
2. *Vehicle manoeuvres and public and active transport modes are appropriately accommodated.*
3. *They are sufficiently separated so as not to adversely affect the free flow of traffic.*

The new roundabout has been located and designed to achieve the above requirements where appropriate.

#### **TRA-P8 - Vehicle Crossings and Access**

*To require vehicle crossings and associated access to be designed and located to ensure safe and efficient movement to and from sites for vehicles, pedestrians and cyclists by managing:*

1. *Separation distances between vehicle crossings.*
2. *Separation distances from intersections, railway crossings and pedestrian crossing facilities.*
3. *Vehicle crossing sight distances.*
4. *The number of vehicle crossings per site.*
5. *The design, formation and construction standards of crossings and access.*

The proposed roundabout that will provide all access and egress for the Service Centre will achieve these requirements.

#### **TRA-P9 - Car Parking**

*To specify minimum on-site car parking space requirements while allowing for reduced on-site parking spaces where appropriate based on:*

1. *Surrounding transport infrastructure.*
2. *Proximity to the City Centre, Local Centre or Neighbourhood Centre Zones.*
3. *The provision of additional amenities on-site.*
4. *The ability to mitigate car parking spillover effects.*

Whilst maximum and minimum parking requirements are no longer included in the District Plan, appropriate car parking provision is to be included to meet the normal demands of the various activities on the site, as discussed earlier in Section 4.4.

#### **TRA-P10 - Parking and Loading**

*To require parking and loading areas and access to be designed and located to ensure safe movement on-site and safe ingress and egress of vehicles, pedestrians and cyclists by managing:*

1. *Parking and loading space dimensions and gradient.*
2. *The location and identification of car parking and loading spaces.*
3. *Manoeuvring space within the site.*
4. *The formation and construction standards of parking areas.*
5. *The design and layout of parking areas.*

All parking and loading areas will be designed and constructed to normal standards to meet the above requirements.

#### **TRA-P11 - Bicycle Parking**

*To provide safe and secure bicycle parking spaces and end-of-trip facilities for activities with high numbers of employees, students or residents.*

It is considered that the promotion of walking and cycling to and from the proposed Service Centre would not be appropriate in terms of the continuing operation and safety of SH1, as the Service Centre is intended to specifically serve private vehicles and freight traffic on this major transport corridor. Nevertheless, bicycle parking spaces and end-of-trip facilities could easily be provided on the site if deemed appropriate.

#### **TRA-P12 - Charging Stations**

*To reduce emissions and enhance the sustainability of Whangarei's transport network by providing electric vehicle charging station parking spaces where high numbers of on-site car parking spaces are provided.*

As discussed in Section 7, the site forms part of BP's National Strategy for establishing EV charging stations on key transport routes, and an appropriate number of EV charging stations will be included and expanded within the Service Centre as demand continues to increase.

#### **TRA-P13 - Landscaping**

*To require landscape planting where uncovered on-site car parking is provided to improve visual amenity, navigability and stormwater management.*

The aspect of landscaping is addressed by others, but it is noted that landscaping is proposed throughout the site.

## **8.3 Transport (TRA) - Rules**

Activities are Permitted where they meet the following standards.

### PARKING

#### **TRA-R2 - Required Spaces and Dimensions**

1. *All off-street car parking spaces, loading spaces, bicycle parking spaces, end-of-trip facilities and associated manoeuvring areas are provided and constructed in accordance with TRA Appendix 1.*

*Table TRA.1* in *Appendix 1A* does not require any minimum or maximum car parking provisions, although the proposal does include a total of 267 car parking spaces on the site, plus various other spaces including truck parks and EV charging stations. The proposal therefore complies.

*Table TRA.1* also sets out the minimum requirements for bicycle parking, calculated as shown below in *Table 15*.

**Table 15**  
**Minimum bicycle parking requirements**

Plan No.	Activity	GFA (m <sup>2</sup> )	Bicycle parking requirements			
			Short stay		Long stay	
1-9	Service station	305			1/15 employ	1
10-11	QSR + drive-through	260	1/350m <sup>2</sup>	1	1/15 employ	1
12	Food outlet	148	1/350m <sup>2</sup>	-	1/15 employ	1
13	Retail tenancies	408	1/400m <sup>2</sup>	1	1/15 employ	1
14	Café*	113	1/350m <sup>2</sup>	-	1/15 employ	1
16-17	Supermarket	1000	1/400m <sup>2</sup>	3	1/15 employ	2
18	Automotive assistance/services	296			1/15 employ	1
19-20	Food stores	429	1/350m <sup>2</sup>	1	1/15 employ	1
21-22	QSR + drive-through	260	1/350m <sup>2</sup>	1	1/15 employ	1
23	Food store	148	1/350m <sup>2</sup>	-	1/15 employ	1
24	Retail tenancies	294	1/400m <sup>2</sup>	1	1/15 employ	1
25-27	Farming/agricultural supplies	500			1/15 employ	1
28	Rural/home supplies, warehousing	2507			1/30 employ	1
29	Marine/vehicles sales/service	930			1/30 employ	1
TOTAL				8		15

The table indicates that 8 short-stay and 15 long-stay bicycle parks would be required in order to comply with this Rule.

Clearly the proposal will be able to comply with this requirement, distributing bicycle parks where appropriate around the different activities on the site. However, it is considered that the proposed Service Centre should not be designed to attract cyclists and pedestrians along SH1, and indeed it would be inappropriate to encourage walking and cycling along the road in this location.

The minimum on-site loading space requirements are set out in [Table TRA.3](#) in [Appendix 1C](#). For retail activities between 300m<sup>2</sup> and 5000m<sup>2</sup>, one loading space is required, and for commercial services up to 2000m<sup>2</sup> no loading space is required. As discussed in Section 4.5, each of the food tenancies will have their own loading space, whilst the supermarket has a comprehensive loading area at the rear of the store. Clearly the proposal complies with the loading requirements of [Table TRA.3](#).

[Table TRA 4](#) in [Appendix 1D](#) sets out the minimum end-of-trip facilities requirements where long-stay bicycle parking spaces are provided. As seen in [Table 15](#) above, there is no individual activity that is required to provide more than 1 or 2 long-stay bicycle parks, and so there is no requirement for end-of-trip facilities in any of the tenancies.

[Figure TRA 3](#) in [Appendix 1F](#) shows the minimum car parking space dimensions, and the proposed parking layout within the site will comply with these standards.

**TRA-R3 - Location and Identification**

1. All car parking spaces and loading spaces are:
  - a. Not located on any footpath, access, manoeuvring or outdoor living court area.
  - b. Not located within any strategic road protection area.
  - c. Permanently marked or delineated, except where they are:
    - i. Associated with a residential unit which is not part of a multi unit development.
    - ii. Associated with the loading area for the fuel delivery vehicle or car parking spaces at a pump of a service station.
    - iii. Located in the Rural Production Zone, Natural Open Space Zone or Open Space Zone.

The proposal complies with all of these requirements.

#### **TRA-R4 - Gradient**

1. All car parking spaces, loading spaces and associated manoeuvring areas do not have a gradient steeper than:
  - a. 1 in 16 for surfaces at 90° to the angle of the parking.
  - b. 1 in 20 for surfaces parallel to the angle of the parking.

The proposal complies with all of these requirements.

#### **VEHICLE CROSSINGS AND ACCESS**

##### **TRA-R5 - Design and Location**

1. The vehicle crossing and access are provided and constructed in accordance with TRA Appendix 2.
2. A shared private access serves no more than 8 principle residential units.
3. The vehicle crossing is not fronting a state highway.
4. Any unused vehicle crossings are reinstated to match the existing footpath and kerbing.
5. The vehicle or pedestrian crossing is not over a railway corridor.

Table TRA 6 in Appendix 2A states that a single site access is permitted on an Arterial Road. With a single access being proposed on SH1, the proposal complies.

Appendix 2A also notes the following:

*Vehicle access to all state highways is managed by the New Zealand Transport Agency under the Government Roadway Powers Act 1989 and access requires the approval of the New Zealand Transport Agency*

Full consultation has been undertaken with Waka Kotahi - NZTA, as described earlier in Section 5.1.

Table TRA 7 in Appendix 2B requires a vehicle crossing on an Arterial Road to be set back 180 metres from an intersection with another Arterial or Collector Road, and 90 metres back from a low volume road. Although the proposed access is in the form of a substantial new roundabout, it is to be located some 300 metres from the Millbrook Road intersection, and so the proposal is considered to comply.

Table TRA 8 in Appendix 2C requires a minimum sight distance from the SH1 entrance (100 km/hr speed limit) of 305 metres. Sight distances in excess of 305 metres are available in both directions along SH1 from the proposed roundabout.

*Activity Status when compliance not achieved with TRA-R5.1-4: Restricted Discretionary.*

*Matters of discretion:*

1. Location, size and design of vehicle crossings and access.
2. The safety and efficiency of the transport network for vehicles, pedestrians and cyclists.
3. The extent to which the safety and efficiency of railway and road operations will be adversely affected.

It is considered that the proposal complies with all of the standards in TRA-R5, noting that the above matters have in any case been included in this assessment.

##### **TRA-R6 - Setbacks**

1. The new vehicle crossing is located at least:
  - a. 30m from a railway level crossing.
  - b. 8m from a dedicated pedestrian crossing facility (including pedestrian crossing, mid-block pedestrian signals, refuge islands and traffic signalled intersections).
  - c. 2m from a separate vehicle crossing.

The proposal complies with these standards.

### MANOEUVRING SPACE

#### **TRA-R7 - Requirements for On-Site Manoeuvring Space**

1. All car parking, loading spaces and associated manoeuvring areas provide sufficient on-site manoeuvring space
  - a. To ensure that no vehicle is required to reverse either onto or off the site, except for front sites where:
    - i. Access is gained from an Access or Low Volume Road; and
    - ii. Less than 3 car parking spaces are required on-site under TRA Appendix 1.
  - b. That enables vehicles occupying a car parking space or loading space to have ready access to the road at all times, without needing to move any other vehicles occupying other car parking spaces or loading spaces, except for:
    - i. Parking associated with an individual residential unit.
    - ii. Staff parking areas associated with an individual activity; or
    - iii. Parking for vehicles being serviced at a Repair and Maintenance Service or Rural Centre Service Activity.
  - c. To ensure that vehicles using or waiting to use fuel dispensers, ticket vending machines, remote ordering facilities and devices, entrance control mechanisms, or other drive-through facilities do not queue into the adjoining road or obstruct entry to or exit from the site.
  - d. For every car parking space, to accommodate the 90th percentile car tracking curves in Figure TRA 1 so that only one reverse manoeuvre is required to manoeuvre in or out of any car parking space.
  - e. For every loading space, to comply with the tracking curves set out in the NZTA guidelines: RTS 18: NZ on-road tracking curves for heavy vehicles (2007) so that only one reverse manoeuvre is required to manoeuvre in or out of any loading space.

Note:

1. Acceptable means of compliance with access, parking and manoeuvring design can be found in the Whangarei District Council Engineering Standards.

The proposal complies with all of these standards and requirements.

### SEALING AND FORMATION STANDARDS

#### **TRA-R8 - Crossings, Access and Parking Areas**

1. Vehicle crossings accessing a sealed road are sealed to a standard not less than that of the adjoining road surface.
2. On-site access and parking areas (including loading and manoeuvring areas) are formed, drained and sealed with a permanent all-weather surface in the following instances:
  - a. Urban Zone sites.
  - b. Rural (Urban Expansion) Zone sites with an area less than 2,000m<sup>2</sup>.
  - c. Rural Village Zone sites.
  - d. Strategic Rural Industries Zone sites.
  - e. Any accessway serving more than 5 principal residential units.
  - f. Where the gradient exceeds 12.5%.

The proposal complies with all of these standards.

### ELECTRIC VEHICLE CHARGING STATION PARKING SPACES

#### **TRA-R13 - Number Requirements**

1. All parking areas, except those associated with a residential activity, where 50 or more car parking spaces are required by TRA Appendix 1 sets aside space for at least 1 parking space for an electric vehicle charging station per every 50 required car parking spaces.

Compliance Standard:

1. Any electric vehicle parking space associated with the charging stations counts towards the total number of required parking spaces in TRA Appendix 1.

Note:

1. This rule does not require installation of electric vehicle charging infrastructure, rather, it requires the provision of sufficient space to accommodate electric vehicle charging infrastructure.

With 267 car parking spaces being provided overall, 5 electric vehicle charging station spaces are required. The proposal will comply.

#### **TRA-R15 - Any Activity**

Activities that exceed the thresholds set out in *Table TRA 15* in *TRA - Appendix 5* need to be assessed as a restricted discretionary activity. It is considered that this ITA provides that required assessment, covering all of the matters of discretion set out in TRA-R15.

#### **TRA-R18 - Any Major Roading Alteration to an Existing Public Road**

Any major roading alteration to an existing public road needs to be assessed as a restricted discretionary activity. Again, it is considered that this ITA provides that required assessment, covering all of the matters of discretion set out in TRA-R18, and noting that the proposed changes on SH1 have been identified in full consultation with Waka Kotahi.

## **8.4 Signs (SIGN)**

#### **SIGN-R2 - Any Official Sign**

The proposed signage needs to be assessed as a restricted discretionary activity. In this case, the signage that is proposed is in line with normal signage that is provided at activities such as a Service Centre, and is designed to provide the motorist with clear and legible messages that identify key activities and directional information. The proposal does not involve any flashing signs, and the signage that is proposed will not have any detrimental effects in terms of driver distraction or vehicle safety.

## **8.5 HPW-R8 Assessment of Discretionary Activities**

Section HPW-R8 in the District Plan sets out the assessment criteria for Discretionary Activities, including the following:

1. *When assessing resource consent applications for discretionary land use and subdivision activities the assessment shall include (but is not limited to) the following matters (where relevant):*
  - i. *The location, design and suitability of parking spaces, on-site manoeuvring, queuing spaces, loading areas and access.*

The site layout has been designed to provide safe and convenient access to all of the activities proposed for the site, providing adequate car parking and loading areas to meet all expected demand. The detailed layout will comply with all normal traffic engineering standards, including those set out in the District Plan.

- j. *The safe and efficient movement of people and vehicles including traffic manoeuvring, pedestrians and cyclists, and the potential effects on the accessibility and safety of transport networks.*

The proposed Service Centre has been designed specifically to provide the safe and efficient movement of people and vehicles, establishing a new roundabout that will provide convenient and safe access/egress for traffic on SH1.

- k. *The convenience and safety of disabled persons and consideration of alternative provision for disabled persons access to the site.*

Parking and other facilities for disabled persons will be provided within the site where appropriate.

- l. *The design, standard, lengths, distance between, number and construction of and alternative location of vehicle crossings, internal access and private access ways.*

The proposal is based on providing a single, high standard access directly from SH1 in the form of a new roundabout, with this proposal having been determined through consultation with Waka Kotahi.

- m. Effects on the amenity of the locality, increase in exposure to noise, dust and stormwater runoff as a result of parking, access or road design.*

These matters are addressed elsewhere in the application, but the proposed Service Centre is considered to be entirely appropriate in the context of the busy SH1 corridor.

- n. The need for forming or upgrading roads, level crossings and other traffic control measures in the vicinity due to increased traffic from the proposed land use or subdivision.*

Apart from constructing the new roundabout to provide access to the Service Centre, no other mitigation or upgrading of the road network is required.

- o. The need for footpaths/cycleways and kerb and channel on roads, arising from a subdivision or land use.*

This is not relevant for a Service Centre in a rural setting on a State Highway.

- y. The impact on the transport network, taking into account the two-tier transport network hierarchy.*

With a high standard of site access established through the proposed roundabout, the impacts on the transport network will be less than minor.

## 8.6 HPW-R11 Limited Access Roads

The *How the Plan Works* section in the District Plan includes *HPW-R11* which states as follows:

- 1. Approval will be required from either the Council or the New Zealand Transport Agency, for a subdivision or new land uses proposing access to any road, including a state highway declared as a limited access road pursuant to the provisions of the Local Government Act 1974 or the Government Roading Powers Act 1989. An indication in writing, of any restrictions or conditions, from either the Council or the New Zealand Transport Agency, as relevant, should be obtained before an application for subdivision or land use consent is lodged with the Council.*

Given that the site is located on and will gain access from SH1, consultation with Waka Kotahi - NZTA has been undertaken, as described earlier in Section 5.1.

## 9. Conclusions

The proposal by Vaco Investments (Waipu Project) Limited is to establish a Service Centre on a site at 47 Millbrook Road, Waipu. The property is located on the western side of SH1 just to the south of the intersections with Millbrook Road and The Braigh.

The conclusions of this ITA can be summarised as follows:

- The site is suitable for a Service Centre from an overall transportation point of view, being able to directly serve the travelling public on the major transport corridor of SH1.
- The Service Centre will contribute both to the efficiency of travel along this major corridor and to the safety of travellers through the provision of adequate food and rest opportunities. By providing EV charging stations that are convenient and easy to use, the Service Centre will be in line with the Government's objectives of encouraging the increasing use of EV vehicles.
- Extensive consultation was carried out with Waka Kotahi through a series of meetings to discuss the proposal, including the results of various traffic models for the site access and the existing intersections of SH1 with Millbrook Road and The Braigh. The outcome of this consultation was agreement to provide a new roundabout some 300 metres to the south of Millbrook Road, which will provide a high standard of access for the site with minimal effect on the continuing safe and efficient operation of the SH1, and which will fit in well with Waka Kotahi's proposed improvements as part of Road to Zero.
- The on-site layout of circulation and parking will comply with all of the standards in the Whangarei District Plan, and will enable the site to function with minimal impact on the surrounding area and road network.

It is considered that the proposed Service Centre will have less than a minor impact on the existing and future transport environments along this section of SH1, and will have positive benefits in terms of serving the travelling public along this key transport corridor. It is concluded that the proposal is acceptable from an overall transportation point of view.