TPC TRAFFIC PLANNING CONSULTANTS LTD

Ref: 21803

9th August 2024

Keren McDonnell
Mt Hobson Group
PO Box 37 964
Parnell
AUCKLAND 1151

By email: keren@mhg.co.nz

Dear Keren

VACO INVESTMENTS (WAIPU PROJECT) LIMITED
RESOURCE CONSENT APPLICATION REFERENCE: SL2300006
47 MILLBROOK ROAD, WAIPU

Please find attached as requested an updated Integrated Transport Assessment (ITA) report for the proposed service centre at 47 Millbrook Road, Waipu.

This updated report encompasses refinements to the site activities and traffic assumptions between 2 March 2023 when the original ITA report was submitted and the present.

ESTIMATION OF HOLIDAY PEAK TRAFFIC VOLUMES ON SH1/MILLBROOK RD/THE BRAIGH

The original ITA took a very conservative approach, selecting the 95th percentile peak hour flow northbound on SH1 Te Hana, selecting the 95th percentile peak hour flow southbound on SH1 at Te Hana, determining the relationship between these holiday peak hour flows to two-way Average Annual Daily Traffic (AADT) at Te Hana, and applying these factors to the AADT of SH1 at Waipu to estimate the holiday peak hour flows on SH1 at Waipu. This method ignored the fact that the northbound holiday peak traffic flow would occur at a different time to the southbound holiday peak traffic flow, thus over-estimating the actual two-way traffic volume on SH1 on the holiday peak period.

The updated ITA has taken a more realistic approach, determining the 95th percentile two-way traffic volume on SH1 Te Hana, determining the relationship between this two-way holiday peak hour flow to two-way AADT at Te Hana, and applying this factor to the AADT of SH1 at Waipu to estimate the holiday peak hour flows on SH1 at Waipu.

In both ITAs, the factors were also applied to counted volumes to estimate the holiday peak turning movements at the SH1/The Braigh intersection. While the original ITA, noting that Millbrook Road is not a holiday destination, did not apply the holiday peak factor to counted volumes to estimate the

holiday peak turning movements at the SH1/Millbrook Road intersection, at the request of NZTA the updated ITA does apply the same holiday traffic factor to counted volumes to estimate the holiday peak turning movements at the SH1/Millbrook Road intersection.

Finally, while the original ITA assumed the 2022 traffic volumes on SH1 Waipu would be the same as the 2019 volumes, and applied a 3% annual growth factor to estimate the growth in traffic over 10 years from 2022 to 2032, the updated ITA has made no such assumption, and applied a 3% annual growth factor over 13 years to estimate the growth in traffic from 2019 to 2032.

SITE ACTIVITIES

The changes in site activities assessed in the original ITA report and the updated ITA report are tabulated below:

Site Feature	Activity in 2023 ITA	Activity in updated ITA
Service Station /Truck Stop	19 bays	20 bays
Building 13, 24	Retail	Rural commercial
Building 14	Café	Rural commercial
Building 16-17	Supermarket 1,000m2	Rural commercial 1,170m2
Building 18	Automotive services	Rural commercial
Building 19-20	Food stores 429m2	Rural commercial 439m2
Building 28	2,507m2	2,228m2
Building 30	Not included	Marine, vehicle sales & service 1,341m2

These changes in site activities have had a small impact on the total stand-alone traffic generation of site activities.

TRAFFIC GENERATION ASSUMPTIONS

While the stand-alone trip generation rates for each activity type have not changed, to address concerns raised by NZTA it has been conservatively assumed in the updated ITA that trips to the farming and agriculture supplies, rural home supplies and marine sales activities will not include any pass-by trips or linked trips.

OTHER UPDATES IN THE UPDATED ITA REPORT

Other updates in the updated ITA report include:

1. Adding an assessment for the annual average daily peak hour traffic volumes.
2. Expanding the reported crash data in Section 2.4 to incorporate all crashes reported within 1km of the site and proposed roundabout, and providing a crash factor table.
3. Updating Section 3.1 to reflect NZTA's final decisions on safety improvements to SH1 intersections at Waipu, and noting recent Government decisions to upgrade SH1 to four lanes and bypass the Brynderwyns.

4. Updating Section 4.4 to reflect the currently proposed number of parking spaces.
5. Updating Section 4.2 and Appendix E to show the updated on-site layout.
6. Updating Section 7 to account for the new Government Policy Statement on Land Transport, and the 2023 review of the Northland Regional Land Transport Plan.
7. Updating Section 8 to reflect the rules in the current Whangarei District Council ePlan.

We trust that this updated Integrated Transport Assessment report will facilitate proceedings at the forthcoming hearing for this planning application.

Yours faithfully,

Anatole Sergejew
Senior Associate
Traffic Planning Consultant Ltd.

Proposed Waipu Bypass Service Centre

47 Millbrook Road, Waipu

INTEGRATED TRANSPORT ASSESSMENT

Ref: 21803-r1v4
9 August 2024

TPC TRAFFIC PLANNING CONSULTANTS LTD

TRAFFIC PLANNING CONSULTANTS LTD

Proposed Waipu Bypass Service Centre

47 Millbrook Road, Waipu

Integrated Transport Assessment

Prepared by: Anatole Sergejew

Ref: 21803-r1v4
9 August 2024

Auckland Office:
P O Box 60-255, Titirangi, Auckland 0642
Level 1, 400 Titirangi Road, Titirangi Village
Tel: (09) 817 2500, Fax: (09) 817 2504
www.trafficplanning.co.nz

Contents

List of Tables

List of Figures

Appendices

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, and rural commercial services and warehousing activities. 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 NZTA;
- Section 6 assesses the effects of the development, and identifies the mitigation measures that are needed on the transport environment;
- Section 7 assesses the proposal in terms of regional and national transport plans and policies; and
- Section 8 assesses the proposal in terms of the relevant transport 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***.

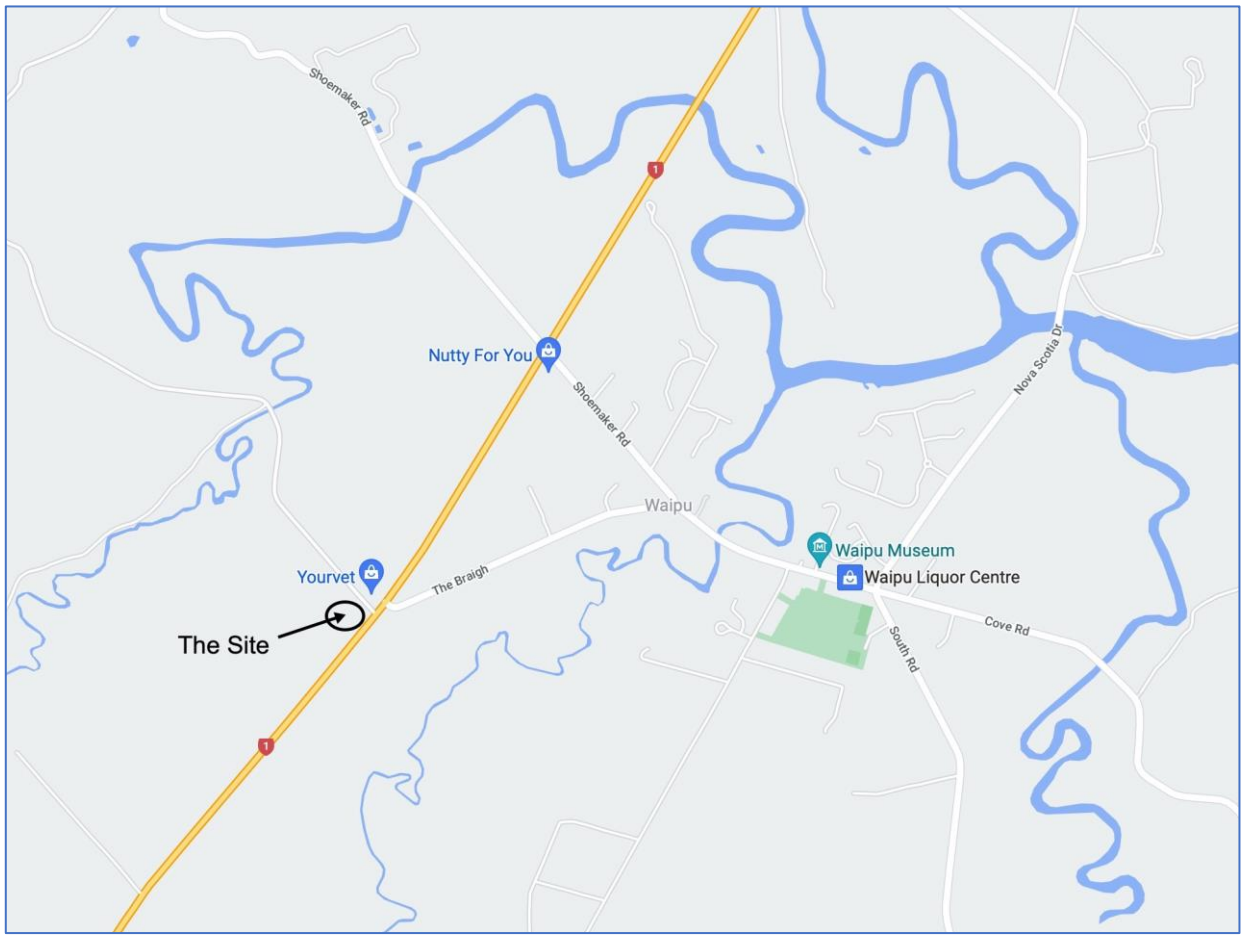

Figure 1: Site location

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.***

Millbrook Road is a two-lane road with no shoulders or footpaths along either side, with a carriageway width 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 5: SH1 looking to the south from Millbrook Road

Figure 6: SH1 looking to the north from Millbrook Road

Figure 7: Millbrook Road looking to the west from SH1

2.3 Existing traffic flows

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 31 vph was recorded.

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 with turning vehicles.

The current hourly and daily pattern of traffic flows on the section of SH1 south of Waipu have been estimated on the basis of data that has been provided by NZTA. These patterns have been used to estimate the 2019 average daily peak hour and 95th percentile (summer holiday peak hour) traffic volumes on SH1 south of Waipu, as detailed in ***Appendix A.***

From this data, it is estimated that the 95th percentile holiday peak hour traffic volume on SH1 south of Millbrook Road in 2019 (pre-Covid) was 1,165 vehicles per hour, and the 2019 average daily peak hour traffic volume was 812 vehicles per hour. The 95th percentile flows represent a peak hour design level that is exceeded in only 5% of the days of the year and was recommended by NZTA for assessment and design purposes, while the average daily peak hour represents a typical peak hour commonly used for assessment and design purposes.

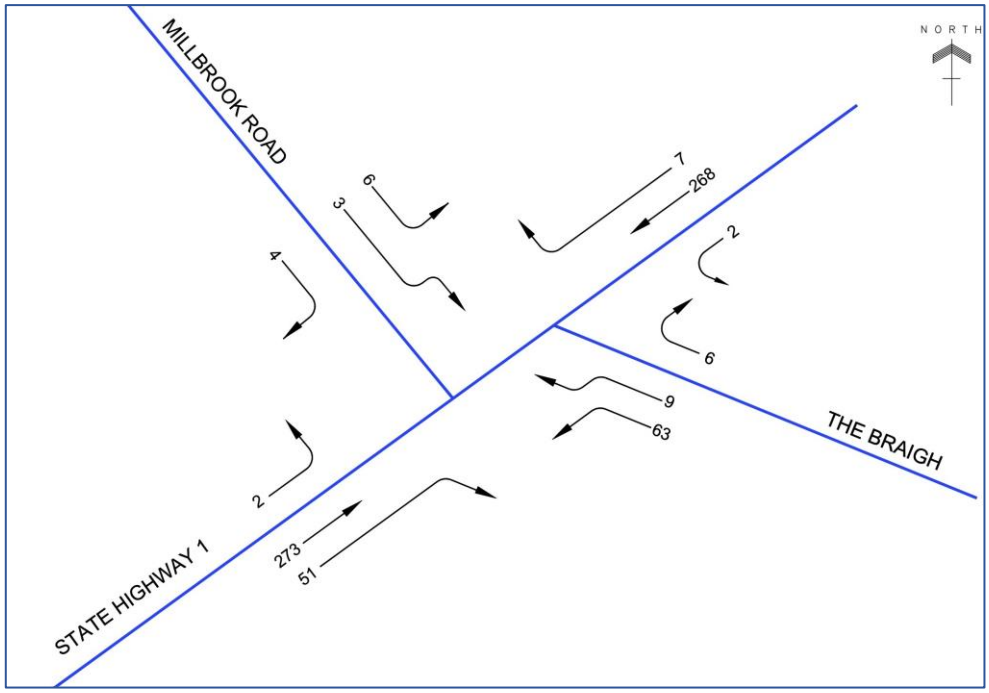

Figure 8: SH1/Millbrook Road/The Braigh intersection:
Traffic flows 12-1pm, Wednesday 9 February 2022

From ***Figure 8*** it is evident that the two-way traffic volume on SH1 south of Millbrook Road counted from 12-1pm on Wednesday 9th February 2022 was 661 vehicles per hour (335 veh/hr southbound and 326 veh/hr northbound).

As mentioned above, as the estimated 2019 daily average peak hour traffic volume on SH1 at Waipu was 812 vehicles per hour, a factor of 1.23 has been used to convert the SH1 traffic volumes counted in February 2022 to the 2019 daily average peak hour volumes. There Is no reason to expect that the relationship between the counted volumes and the annual average volumes are different on Millbrook Road and The Braigh, and thus for the purposes of this assessment the same factor of 1.23 has been applied to the turning movements at the SH1/Millbrook Road/The Braigh Intersection counted from 12-1pm on Wednesday 9th February 2022 to estimate the 2019 daily average peak hour turning movements.

On this basis, the estimated 2019 daily average peak hour turning movements at the SH1/Millbrook Road/The Braigh Intersection are shown in ***Figure 9***.

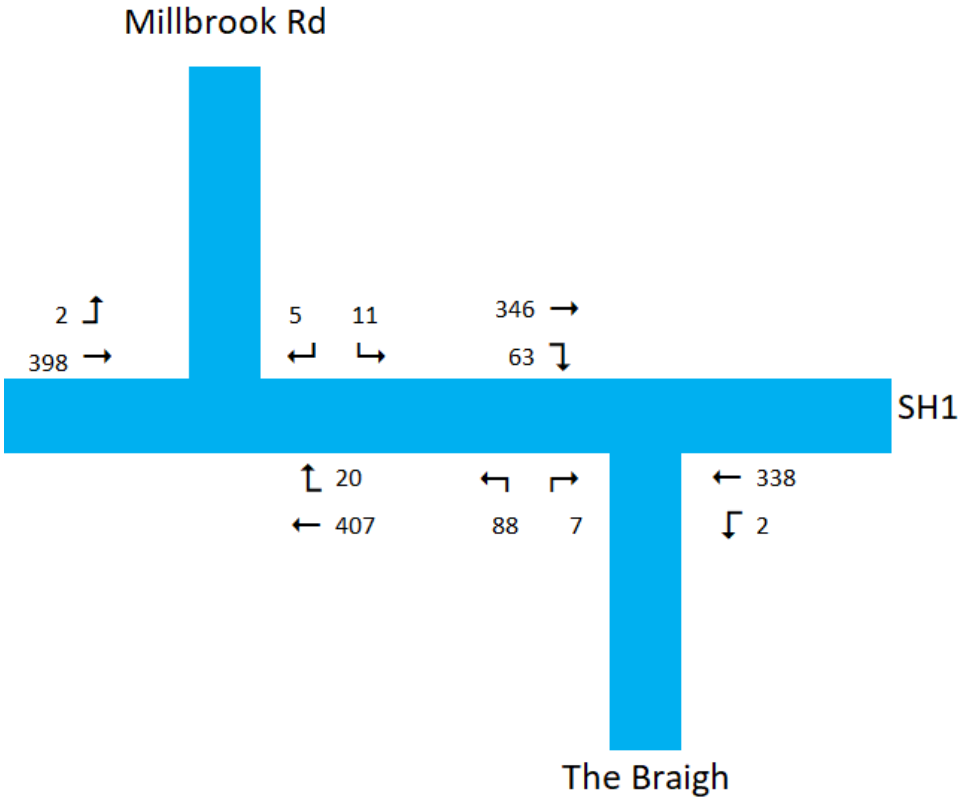

Figure 9: SH1/Millbrook Road/The Braigh intersection: Predicted 2019 average peak hour traffic flows

Similarly, the estimated 2019 95th percentile holiday peak hour traffic volume on SH1 at Waipu was 1,165 vehicles per hour. A factor of 1.76 has been used to convert the 2022 counted SH1 traffic volumes to the 2019 holiday peak hour volumes on SH1.

As Waipu is a holiday destination, it is expected that traffic volumes on The Braigh will inflate to a similar degree as on SH1 in summer peak holiday periods. However, as Millbrook Road primarily serves rural properties, it is not expected that volumes on Millbrook Road would inflate to the same degree in holiday periods. Nevertheless, for the purposes of this assessment, a factor of 1.76 has been used to estimate the 95th percentile holiday peak hour turning movements in 2019 at the SH1/Millbrook Road/The Braigh Intersection from the 2022 counted turning movements.

The estimated 2019 holiday peak hour turning movements at the SH1/Millbrook Road/The Braigh Intersection are shown in ***Figure 10***.

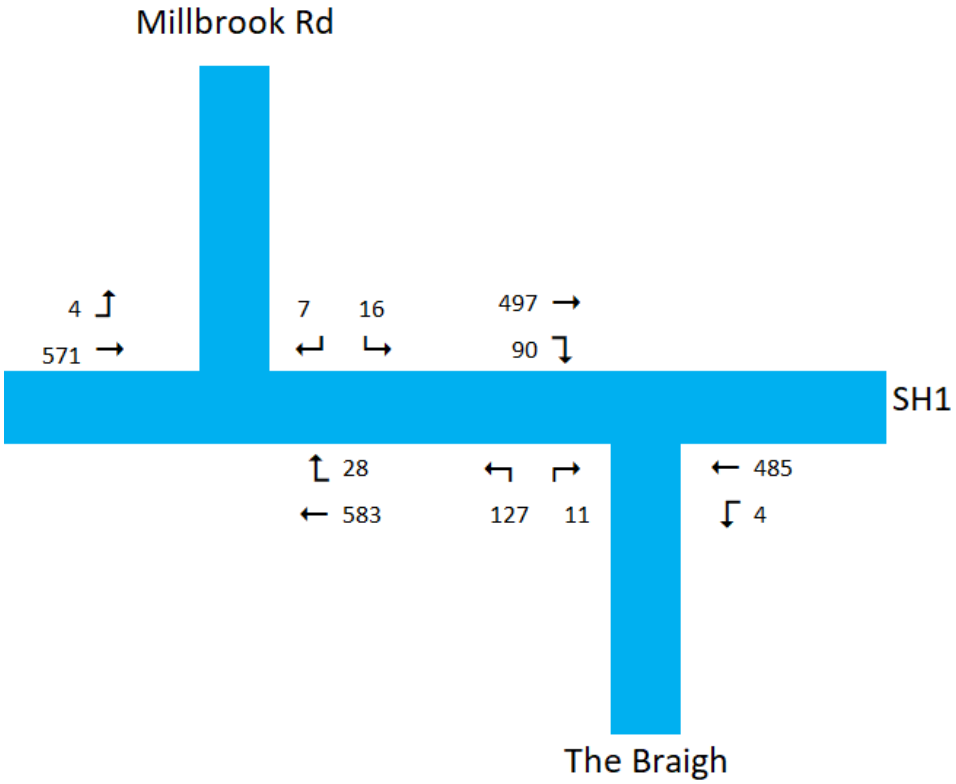

Figure 10: SH1/Millbrook Road/The Braigh intersection: Predicted 2019 holiday peak hour traffic flows

2.4 Safety records

Appendix B presents a summary of the crash records maintained by NZTA for the period 2018-2022 for an area within 1km of SH1/The Braigh intersection but added crashes up to 1.4km south of the Milbrook Road intersection to include crashes within 1km of the proposed roundabout. These crashes are summarised in ***Table 1***.

None of the reported crashes concern pedestrians or cyclists, and none occurred at the SH1 intersections with Milbrook Road or The Braigh. This confirms general observation that the two intersections are generally operating safely and efficiently at present.

The only patterns in the reported crashes are four crashes at the SH1/Shoemaker Road intersection, four crashes involving vehicles losing control and going off the road, and two head-on crashes (including one fatal crash) on SH1 between The Braigh and Shoemaker Road. The head-on crashes would be addressed by the median barrier that NZTA is proposing to install on this section of SH1, and the intersection crashes at the SH1/Shoemaker Road intersection would be addressed by the median barrier through the intersection and restricting intersection movements to left turns only, proposed by NZTA as part of a suite of safety improvements on the central section of SH1 between Whangārei and Wellsford.

There is no pattern in the reported crashes that is relevant to the proposed development. However, we note that, the proposed service centre roundabout would provide a safe location for motorists to undertake U-turns in lieu of some crossing and turning movements should NZTA chose to install a median barrier across any of the SH1 intersections in the vicinity.

Table 1
2018-2022 reported crashes on SH1 within 1km of the proposed Service Centre

Location	Reported Crashes			Key Factors
	Total	Injury	Non-Injury	
Midblock: On SH1 between Millbrook Road and 1.4km south of Milbrook Road	5	1 serious	4	2 – Lost control, went off road 1 – Rear end (1 serious) 1 – Lane Change
Intersection: SH1 / Milbrook Road	0	0	0	
Intersection: SH1 / The Braigh	0	0	0	
Midblock: SH1 between The Braigh and Shoemaker Road	4	1 fatal	3	2 – Head On (1 fatal) 1 – Rear End 1 – Lost control, went off road
Intersection: SH1 / Shoemaker Road	4	2 minor	2	1 – Crossing – No Turns (1 minor) 3 – Crossing – Vehicle Turning (1 minor)
Midblock: The Braigh	2	1 minor	1	1 – Lost control, went off road (1 minor) 1 – Merging from driveway
Total	**15**	1 fatal, 1 serious, 3 minor	10	

3. The future transport environment

3.1 The future roading environment

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

The main changes in the vicinity are the central section of a suite of safety improvements between Whangārei and Wellsford proposed as part of NZTA's "Road to Zero" road safety strategy. The proposed safety improvements include 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, NZTA initially 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 NZTA have indicated that, following public consultation regarding these proposals, the changes described above will no longer be pursued. The current proposal is to retain all movements at the SH1/Millbrook Road/The Braigh intersection, terminate the central median barrier north of the intersection, install a wide centreline on SH1 through the intersection and past the subsect site, and install a roundabout at the SH1 intersection with Novia Scotia Drive and Rosythe Road, some 2.8km to the north of Millbrook Road.

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 wide centreline to be provided along SH1 through the intersection.

The Government Policy Statement for Land Transport issued in June 2024 indicated three Roads of National Significance projects for SH1 between Auckland and Whangārei: the four-laning of SH1 between Whangārei and Wellsford on a new alignment, an alternative to the Brynderwyns, and the four-laning of SH1 between Port Marsden and Whangarei. On 23 July 2024 the Minister of Transport announced that the Government would accelerate work on these projects by treating them as three stages of the same project. It is unclear what is intended for SH1 between Ruakaka and Waipu. The work north of Wellsford is subject to more planning and consents and as such we cannot confirm the details sufficiently to assess how they might affect access to the proposed development. Nevertheless, the proposed roundabout could accommodate four-laning of SH1 In this location.

3.2 Predicted future traffic flows

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 11 then summarises the predicted 2032 holiday peak turning movements at the SH1/Millbrook Road/The Braigh intersection, assuming no Service Centre development as currently proposed, while ***Figure 12*** summarises the predicted 2032 daily average peak hour turning movements.

As described in ***Appendix C***, these turning movement volumes have been determined by applying a 39% annual growth to the estimated 2019 holiday peak and average peak hour turning movement volumes.

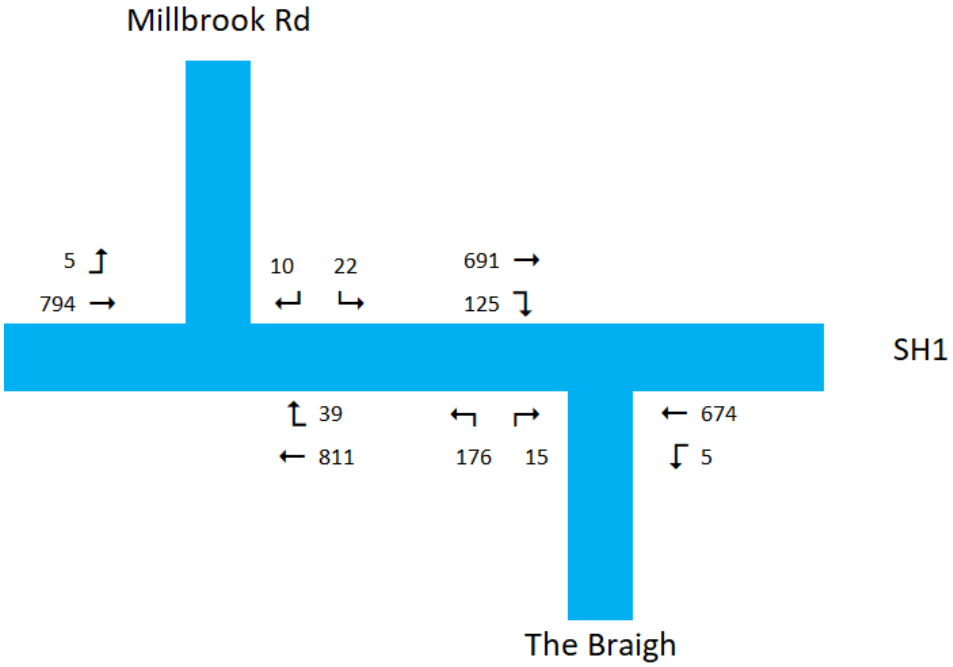

Figure 11: SH1/Millbrook Road/The Braigh intersection:
Forecast 2032 holiday peak hour turning movements (no service centre development)

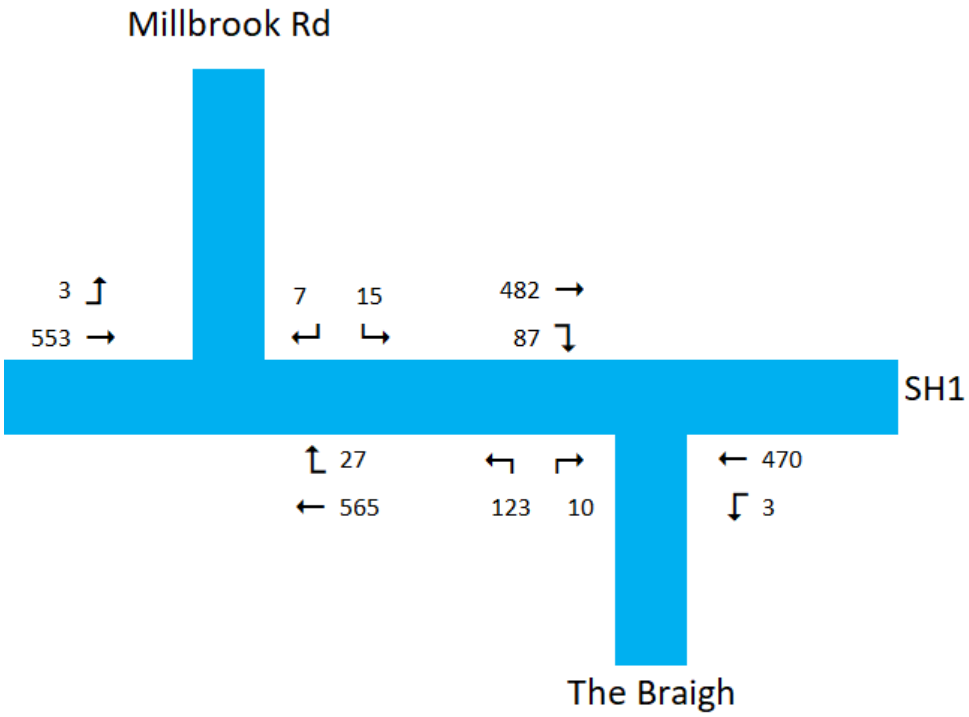

Figure 12: SH1/Millbrook Road/The Braigh intersection:
Forecast 2032 holiday peak hour turning movements (no service centre development)

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

SIDRA-9 modelling has been run for the SH1/Millbrook Road and SH1/The Braigh intersections, based on the predicted 2032 traffic flows shown in ***Figures 9 and 10***, again assuming no Service Centre development. ***Appendix D*** sets out the 2032 model results, which are summarised in ***Tables 2 and 3*** for the holiday peak hour and ***Tables 4 and 5*** for the average peak hour.

Table 2
SH1/Millbrook Road intersection – SIDRA-9 results – 2032 holiday peak hour flows

Movement	Flow[1] (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
SH1 (N)					
through	854	0.474	0.1	A	0.0
right	41	0.087	14.8	B	2.3
Millbrook Rd (W)					
left	23	0.656	37.8	E	11.5
right	11	0.656	138.8	F	11.5
SH1 (S)					
left	5	0.468	8.2	A	0.0
through	836	0.468	0.1	A	0.0
Intersection	**1769**	0.656	1.8		11.5

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

Movement	Flow[1] (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
The Braigh (E)					
left	185	0.896	39.6	E	46.0
right	16	0.896	158.3	F	46.0
SH1 (N)					
left	5	0.397	8.2	A	0.0
through	709	0.397	0.1	A	0.0
SH1 (S)					
through	727	0.404	0.1	A	0.0
right	132	0.210	10.0	B	6.3
Intersection	**1775**	0.896	6.4		46.0

Table 4
SH1/Millbrook Road intersection – SIDRA-9 results – 2032 average peak hour flows

Movement	Flow[1] (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
SH1 (N)					
through	595	0.331	0.0	A	0.0
right	28	0.036	11.0	B	1.1
Millbrook Rd (W)					
left	16	0.104	14.7	B	2.3
right	7	0.104	47.9	E	2.3
SH1 (S)					
left	3	0.325	8.2	A	0.0
through	582	0.325	0.0	A	0.0
Intersection	**1232**	0.331	0.8		2.3

[1] Note that by default SIDRA factors up the hourly volumes by 5% to represent the peak flow rates.

Table 5
SH1/The Braigh intersection – SIDRA-9 results – 2032 average peak hour flows

Movement	Flow[1] (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
The Braigh (E)					
left	129	0.266	12.2	B	1.1
right	11	0.266	39.3	E	1.1
SH1 (N)					
left	3	0.277	8.2	A	0.0
through	495	0.277	0.0	A	0.0
SH1 (S)					
through	507	0.282	0.0	A	0.0
right	92	0.100	7.4	A	0.4
Intersection	**1237**	0.282	2.2		1.1

The results indicate that in the 2032 holiday peak hour there will be average delays of over 2 minutes to right turning traffic out of Millbrook Road and The Braigh (Level of Service F).

With the approaches on Millbrook Road and The Braigh being a single lane only, the delays to right turning traffic out from Millbrook Road and The Braigh will also lead to some delay to left turning traffic out of the side roads (Level of Service E).

In the 2032 average peak hour the results indicate average delays of 47.9s and 39.3s respectively to right turning traffic out of Millbrook Road and The Braigh (Level of Service E).

Given that the volume of traffic turning right out of Millbrook Road and The Braigh are forecast to be very small even in the 2032 holiday peak, an alternative that NZTA could consider would be to prohibit the right turn exits from these side roads altogether, and instead provide turn around facilities further down SH1. Vehicles wishing to head towards the north from Waipu do have a convenient alternative routes via Shoemaker Road and Nova Scotia Drive, and so the effects of such a measure are unlikely to be significant on these right turning vehicles. 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, drive-through fast food outlets and small food stores, automotive assistance and valet services,
- Commercial activities to serve the wider rural community, including farming and agricultural supplies, rural/home supplies, hire premises and other rural commercial services,
- Light industrial activities such as vehicle and marine servicing, and warehousing and storage, including boat storage.

There are two options for the site development: Option 1, with on-site wastewater disposal, and Option 2, with off-site wastewater disposal. Option 2 would have room for more development on the site, and thus a higher traffic generation and higher traffic Impact than Option 1. This traffic assessment is based on Option 2, on the basis that the impact of Option 1 would be less. For Option 2 the specific activities as set out in ***Table 6*** are proposed.

It is proposed that the development will have the option to be developed in two stages. Stage 1 will comprise the service station (buildings 1-9), two fast food outlets (buildings 10-11 and 21-22) and two food outlets (buildings 12 and 23) with the GFAs as set out In ***Table 6***. Stage 2 of the development will comprise the remainder of the activities set out in ***Table 6***.

Table 6
Option 2 Activities proposed on the site

Plan No.	Activity	GFA (m^2)	Seats/Bays
1-9	Service station/truck stop, including EV car and truck charging stations	305	20
10-11	QSR + drive-through	260	
12	Food outlet	148	
13	Rural/home supplies, warehousing, marine or vehicles sales & service	408	
14	Rural/home supplies, warehousing, marine or vehicles sales & service	113	38
15	EV charging stations		
16-17	Rural/home supplies, warehousing, marine or vehicles sales & service	1,170	
18	Rural/home supplies, warehousing, marine or vehicles sales & service	296	
19-20	Rural/home supplies, warehousing, marine or vehicles sales & service	439	
21-22	QSR + drive-through	260	
23	Food store	148	
24	Rural/home supplies, warehousing, marine or vehicles sales & service	294	
25-27	Farming/agricultural supplies	500	
28	Rural/home supplies, warehousing, marine or vehicles sales & service	2,228	
29	Rural/home supplies, warehousing, marine or vehicles sales & service	930	
30	Marine/vehicles sales & service	1,341	
	TOTAL	8,840	

4.2 On-site layout

The proposed layout within the site and the proposed access arrangements for Stage 1 and Stage 2 of the development are detailed in the plans accompanying the resource consent application, and are included in Appendix E and shown in ***Figures 13 and 14***.

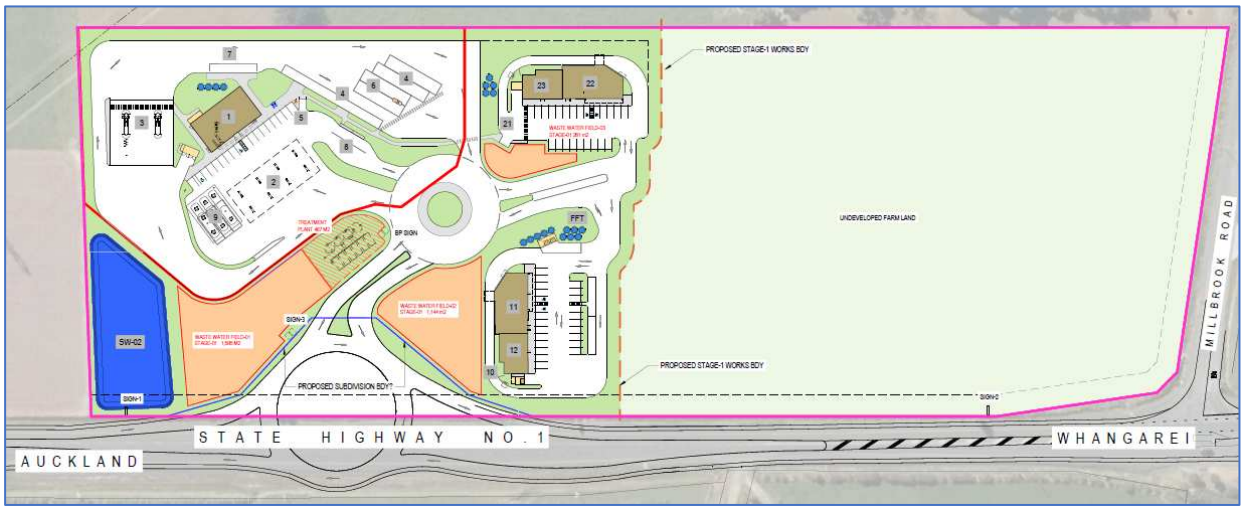

Figure 13: Proposed Stage 1 Service Centre layout

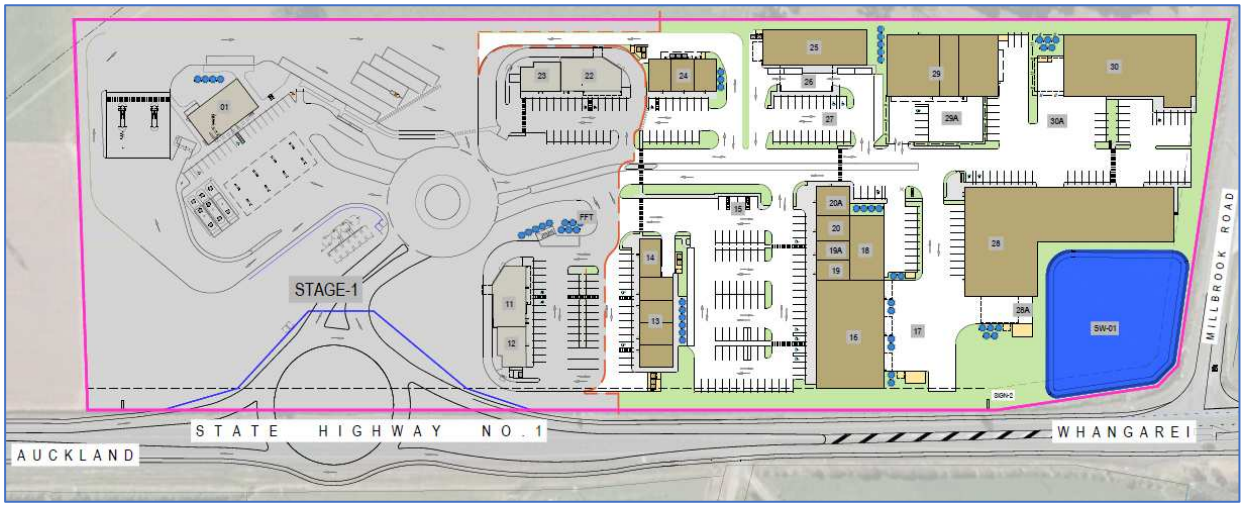

Figure 14: Proposed Stage 2 Service Centre layout

All vehicle access to the Service Centre will be 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 New Zealand Transport Agency

Throughout the process of determining the preferred access arrangements for the proposed Service Centre, consultation was carried out with NZTA 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 with a seagull-type intersection control. Traffic assignment predictions and SIDRA-9 modelling were then undertaken for this arrangement, and the results discussed with NZTA, with the following agreed conclusions:

- For such a seagull access arrangement 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 need to make a left turn onto SH1 followed immediately by a right turn into Millbrook Road. This would result 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 presents 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.

- NZTA'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 NZTA 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 ***Figures 13 and 14***. In an email dated 12 August 2022, NZTA indicated that "we are, in principle, supportive of the roundabout provided the information have agreed to provide does not result in the failure of the roundabout or adjacent intersections.".

The roundabout is to be located some 300 metres to the south of Millbrook Road and would have excellent visibility from both the north and the south. The proposed 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 303 parking spaces (comprising 296 car parking spaces and 15 spaces for trucks, coaches, campers or trailers) 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 8,840 m^2 for all of the activities within

the Service Centre, this would be equivalent to an overall parking provision of 1 space/29m² 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 15***.

Within the site, each activity is provided with its own delivery area. The loading areas for the fast food and small food outlet/rural 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.

Figure 15: Typical tracking paths for a 23m HPMV truck and trailer

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 NZTA 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, NZTA 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 7***.

Table 7
Predicted peak hour trip generation

Plan No.	Activity	GFA (m^2)	NZRR453 85th percentile trip generation rate	predicted peak vehicle movements /hour
1-9	Service station/truck stop, including EV car and truck charging stations	20 bays	20.4	408
10-11	QSR + drive-through	260	52/100m^2	135
12	Food outlet	148	16.7/100m^2	25
13	Rural/home supplies, warehousing, marine/vehicles sales/service	408	5.6/100m^2	23
14	Rural/home supplies, warehousing, marine/vehicles sales/service	113	5.6/100m^2	6
15	EV charging stations			
16-17	Rural/home supplies, warehousing, marine/vehicles sales/service	1,170	5.6/100m^2	66
18	Rural/home supplies, warehousing, marine/vehicles sales/service	296	5.6/100m^2	17
19-20	Rural/home supplies, warehousing, marine/vehicles sales/service	439	5.6/100m^2	25
21-22	QSR + drive-through	260	52/100m^2	135
23	Food store	148	16.7/100m^2	25
24	Rural/home supplies, warehousing, marine/vehicles sales/service	294	5.6/100m^2	16
25-27	Farming/agricultural supplies	500	5.6/100m^2	28
28	Rural/home supplies, warehousing, marine/vehicles sales/service	2,228	5.6/100m^2	125
29	Rural/home supplies, warehousing, marine/vehicles sales/service	930	5.6/100m^2	52
30	Marine/vehicles sales/service	1,341	5.6/100m^2	75
TOTAL				1,160

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 7***.

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 food outlet, or picking up a takeaway order from the fast-food drive-through. This will result in a much lower level of trip generation than simply combining the individual rates in ***Table 7.*** 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 traffic generated by the service station, fast food outlets and food outlet activities on the site.

If these factors are taken into account, a more realistic prediction of total trip generation might be around 796 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% together with a linked-trip rate of 50% has been adopted for the peak hour traffic generated by the service station, fast food outlets and food outlet activities on the site.

5.3 Predicted traffic flows

On the basis of the above trip generation assessment, the predicted 2032 holiday peak hour and average peak hour turning movements in the vicinity of the site, including pass-by and primary trips associated with the Service Centre, are discussed in ***Appendix G*** and summarised in ***Figures 16 and 17***.

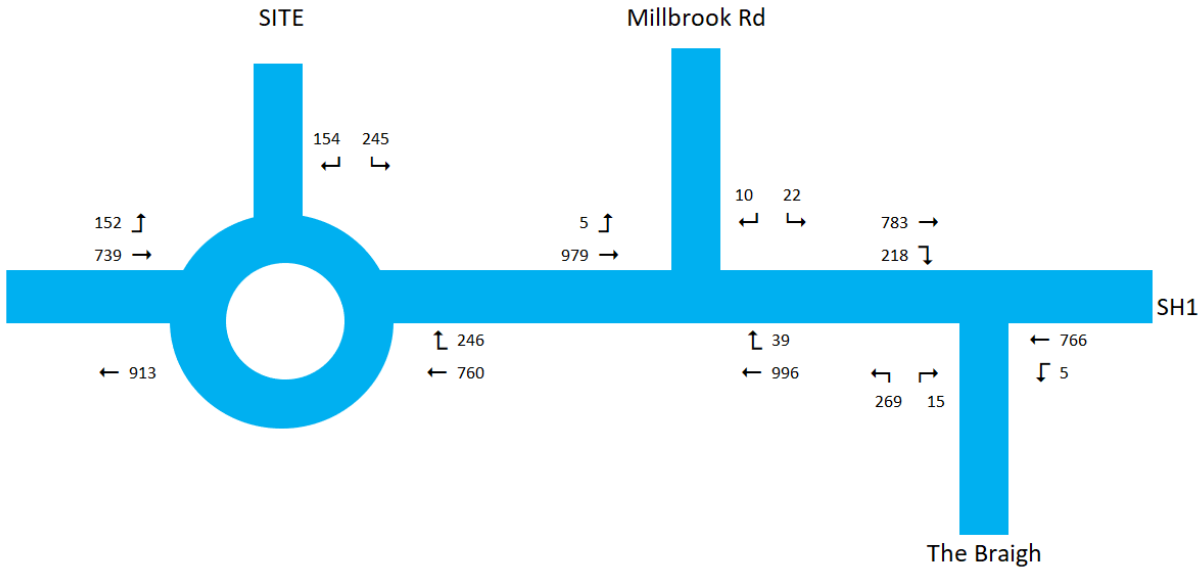

Figure 16: Predicted 2032 holiday peak hour traffic movements, with proposed Service Centre

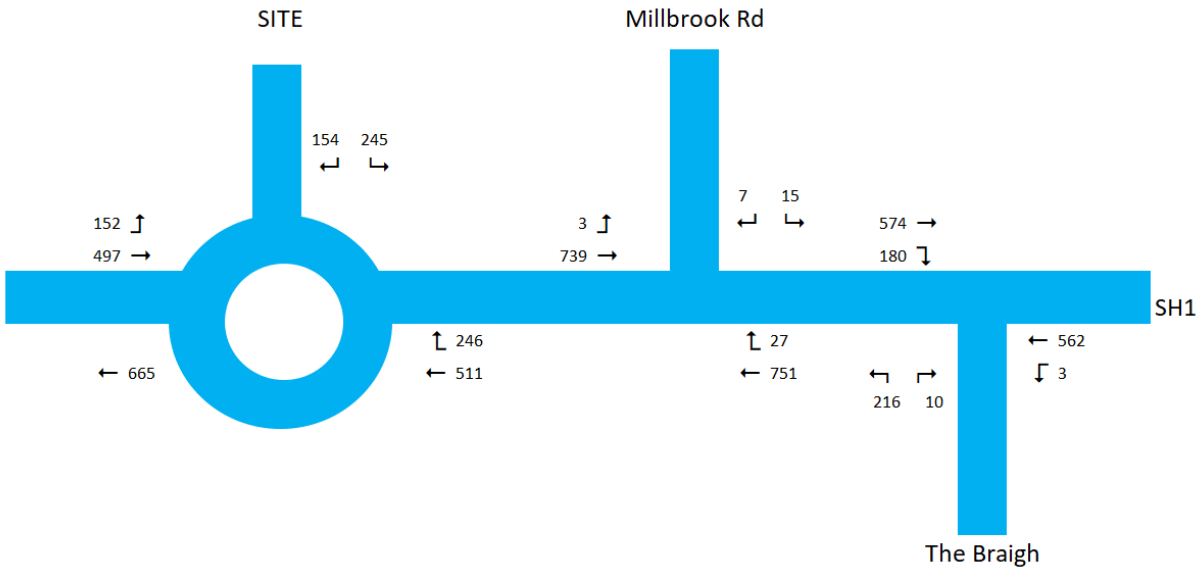

Figure 17: Predicted 2032 average peak hour traffic movements, with proposed Service Centre

6. Assessment of effects and mitigation measures

6.1 Operation of the proposed roundabout

The SIDRA-9 model has been run for the proposed roundabout on SH1, based on the predicted 2032 traffic flows with the proposed service centre development, as shown in ***Figures 16 and 17***. ***Appendix H*** sets out the 2032 model results, which are summarised in ***Table 8*** for the holiday peak hour and ***Table 9*** for the average peak hour.

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 average delay of 18.5 seconds per vehicle and LOS B for the right turn out of the service centre onto SH1.

The roundabout performance will be even better in the 2032 average peak hour, with a maximum average delay of 15.8 seconds per vehicle and LOS B for the right turn off SH1 into the service centre.

Table 8
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)
SH1 (N)					
through	800	0.798	9.5	A	95.2
right	259	0.798	16.9	B	95.2
Service Centre (W)					
left	258	0.699	14.0	B	65.7
right	162	0.699	18.5	B	65.7
SH1 (S)					
left	160	0.783	11.4	B	93.5
through	778	0.783	11.8	B	93.5
Intersection	**2417**	0.798	12.2	B	95.2

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

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
SH1 (N)					
through	538	0.599	8.4	A	46.7
right	259	0.599	15.8	B	46.7
Service Centre (W)					
left	258	0.473	4.3	A	29.3
right	162	0.473	8.8	A	29.3
SH1 (S)					
left	160	0.564	8.7	A	38.0
through	523	0.564	9.0	A	38.0
Intersection	**1900**	0.599	9.1	A	46.7

6.2 Operation of the Millbrook Road/The Braigh intersections

The SIDRA-9 model has been run for the SH1/Millbrook Road/The Braigh intersections, based on the predicted 2032 traffic flows with the proposed service centre development as shown in ***Figures 16 and 17***. The 2032 model results are also included in ***Appendix H*** and summarised in ***Tables 10 and 11*** for the 2032 holiday peak hour and ***Tables 12 and 13*** for the 2032 average peak hour.

Table 10
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)
SH1 (N)					
through	1048	0.583	0.1	A	0.0
right	41	0.149	21.1	C	3.5
Millbrook Rd (W)					
left	23	1.498	566.8	F	79.4
right	11	1.498	868.8	F	79.4
SH1 (S)					
left	5	0.576	8.3	A	0.0
through	1031	0.576	0.1	A	0.0
Intersection	**2159**	1.498	10.8		79.4

Table 11
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)
The Braigh (E)					
left	312	1.849	786.9	F	753.5
right	16	1.849	931.8	F	753.5
SH1 (N)					
left	5	0.451	8.2	A	0.0
through	806	0.451	0.1	A	0.0
SH1 (S)					
through	824	0.458	0.1	A	0.0
right	229	0.451	14.4	B	17.1
Intersection	**2193**	1.849	120.1		753.5

Table 12
SH1/Millbrook Road intersection – SIDRA-9 results – 2032 average peak hour flows with Service Centre

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
SH1 (N)					
through	791	0.439	0.1	A	0.0
right	28	0.052	13.6	B	1.4
Millbrook Rd (W)					
left	16	0.321	22.3	C	5.4
right	7	0.321	110.7	F	5.4
SH1 (S)					
left	3	0.434	8.2	A	0.0
through	778	0.434	0.1	A	0.0
Intersection	**1623**	0.439	1.0		5.4

Table 13
SH1/The Braigh intersection – SIDRA-9 results – 2032 average peak hour flows with Service Centre

Movement	Flow (vph)	Degree of Sat	Ave delay (secs)	Level of Service	95% Queue (m)
The Braigh (E)					
left	227	0.561	16.0	C	22.9
right	11	0.561	77.9	F	22.9
SH1 (N)					
left	3	0.331	8.2	A	0.0
through	592	0.331	0.0	A	0.0
SH1 (S)					
through	604	0.336	0.0	A	0.0
right	189	0.241	8.4	A	8.0
Intersection	**1626**	0.561	3.7		22.9

Compared to the results in ***Tables 2 and 3*** for the 2032 holiday peak with no development traffic, and the results in ***Tables 4 and 5*** for the 2032 average peak with no development traffic, the results indicate that development traffic will lead to substantial increases in delay to traffic turning out from Millbrook Road and The Braigh in the 2023 holiday peak.

However, the results overstate the actual delay that can be expected, because in reality, in congested peak periods, there will be some:

1. let-in behaviour, i.e. motorists on SH1 slowing to let in traffic from the side roads;

2. right turns being made in two stages, i.e. motorists turning onto SH1 will give way to one direction of SH traffic at a time, i.e., turning onto the "double width" right turn bay area on SH1, and then waiting for a gap to merge with SH traffic in the other direction.

3. Traffic re-routing. For example, rather than waiting several minutes to turn right from The Braigh, motorists would instead turn left and use the proposed service centre roundabout to complete a U-turn and proceed north. Similarly, to turn right from Millbrook Road, motorists would instead turn left and make a 3.4-minute detour to the proposed roundabout at Nova Scotia Drive to proceed south. As both these demands are very low, they are unlikely to have any noticeable impact on the performance of either roundabout.

Thus, the actual delay for traffic turning out onto SH1 from Millbrook Road and The Braigh in the 2032 holiday and average peak hours is likely to be significantly less than what the SIDRA modelling suggests.

It should also be noted that the modelled delays for right turning traffic onto SH1 from Millbrook Road and The Braigh relates to a small number of vehicles: 10 vehicles and 15 vehicles respectively in the holiday peak hour, and 7 vehicles and 10 vehicles respectively in the average peak hour. Taking these factors into account, the effects of development traffic on these intersections is considered to be minor. However, as mentioned in ***Section 3.3***, the option of prohibiting the right turn exits for the small number of vehicles making these movements could be considered by NZTA in conjunction with other improvements being considered along this section of road, particularly should SH1 be four-laned through these intersections.

6.3 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 2019 to 2032 and how much of that growth is due to the proposed Service Centre development.

It is estimated that, of the total predicted holiday peak hour traffic on SH1 south of Millbrook Road, some 10% of northbound traffic and 10% of southbound traffic would be due to the proposed Service Centre development. The proposed service centre traffic south of Millbrook Road will be slightly over 90 vehicles per hour in both directions, i.e. 3 vehicles every 2 minutes in each direction.

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.

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

	SH1 Northbound	SH1 Southbound
2019	575	590
2032 (no development traffic)	799	821
2032 with development	891	914
Peak Hour Volume Change Due to Growth	224	231
Peak Hour Volume Change Due to Development	92	93
Total Peak Hour Volume Change 2019 to 2032	316	324
PERCENT 2032 PEAK HOUR VOLUME DUE TO DEVELOPMENT	10%	10%

6.4 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 NZTA 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 NZTA 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.

6.5 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.

6.6 Effects on pedestrian and cyclist accessibility, safety and amenity

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 space for 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.

6.7 Effects during construction

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 (e.g. 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 2024-34 identifies a number of Strategic Priorities, including the following:

> *Economic Growth and Productivity - The Government's overarching priority for investment through this GPS is to support economic growth and productivity. Efficient investment in our land transport system connects people and freight quickly and safely, supporting economic growth and creating social and economic opportunities including access to land for housing growth.*

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.

> *Safety - Road deaths and serious injuries place a substantial burden on families, society, the economy, and the health sector each year, with significant direct costs incurred by the Accident Compensation Corporation (ACC) and other parties. … Safety interventions should be retrofitted on high crash areas of the network, where they provide value for money and would materially improve road safety.*

NZTA is currently working on improving the safety of the section of SH1 in the vicinity of Waipu as part of their "Road to Zero" road safety strategy. The proposed roundabout at the Service Centre access will complement these safety improvements in this part of SH1, by providing a safer facilities for right turn movements on and off the highway and to slow traffic.

One of three focus areas of the Ministry of Transport's *DECARBONISING TRANSPORT ACTION PLAN – DECEMBER 2022-2025* is to "*increase the supply of clean vehicles, increase demand for them and provide supporting infrastructure*." The action plan has a target to increase zero-emissions vehicles to 30% of the light fleet by 2035. To achieve this target, the Government will:

- *Incentivise the uptake of low emissions vehicles and remove barriers to access for more New Zealanders*
- *Improve the supply of EV-charging infrastructure to ensure all EV users can access chargers when they need to*
- *Introduce measures to restrict ongoing import of internal combustion engine vehicles, especially older, high-emitting vehicles.*

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 actions, will encourage realisation of the other two actions.

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 as reviewed in 2023 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.*
>
> *P4: 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.*
>
> *P7: 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 2: 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 one truck education and health stop are held on a stretch of SH1 in Uretiti. These are scheduled between these months to capture peak holiday travel times and there will often be other stops further north in Waiomio or Kawakawa. The fatigue messaging is reinforced through key road safety partners using radio, print and social media.

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 Council ePlan as at July 17, 2024 – 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 0.25m2 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 8.5.***

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-O2 - 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-O4 - 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 - 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-P10 - 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-P11 - 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-P12 - 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.

TRA-R2 - Required Parking 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.1A in *Appendix 1A* 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^2)	Bicycle parking requirements			
			Short stay		Long stay	
1-9	Service station	305			1/15 employ	1
10-11	QSR + drive-through	260	1/350m^2	1	1/15 employ	1
12	Food outlet	148	1/350m^2	-	1/15 employ	1
13	Rural/home supplies, warehousing, marine or vehicles sales &service	408		-	1/15 employ	1
14	Rural/home supplies, warehousing, marine or vehicles sales &service	113		-	1/15 employ	1
16-17	Rural/home supplies, warehousing, marine or vehicles sales &service	1170		-	1/15 employ	2
18	Rural/home supplies, warehousing, marine or vehicles sales &service	296		-	1/15 employ	1
19-20	Rural/home supplies, warehousing, marine or vehicles sales &service	439		-	1/15 employ	1
21-22	QSR + drive-through	260	1/350m^2	1	1/15 employ	1
23	Food store	148	1/350m^2	-	1/15 employ	1
24	Rural/home supplies, warehousing, marine or vehicles sales &service	294		-	1/15 employ	1
25-27	Farming/agricultural supplies	500		-	1/15 employ	1
28	Rural/home supplies, warehousing, marine or vehicles sales &service	2228		-	1/15 employ	2
29	Rural/home supplies, warehousing, marine or vehicles sales &service	930		-	1/15 employ	1
30	Marine/vehicles sales/service	1341		-	1/15 employ	2
TOTAL				2		18

The table indicates that two short-stay and 18 long-stay bicycle parks would be required 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^2 and 5000m^2, one loading space is required, and for commercial services up to 2000m^2 no loading space is required. As discussed in Section 4.5, each activity is provided with its own delivery area. The loading areas for the fast food and small food outlet/rural service tenancies are designed predominantly for large rigid trucks, whilst the service station and the larger buildings in the northern part of the site have loading areas that are designed to accommodate larger semi-trailers and B-trains. 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 -Parking 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 - Parking 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 degrees 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.

TRA-R5 - Vehicle Crossings and Access 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 Roading Powers Act 1989 and access requires the approval of the New Zealand Transport Agency*

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

Table TRA 7B in *Appendix 2B* requires a vehicle crossing on an Arterial Road with a speed limit over 50km/hr 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 - Vehicle Crossings and Access 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.

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.

TRA-R8 - Crossings, Access and Parking Areas (Sealing and Formation Standards)

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. Future Urban Zone sites with an area less than 2,000m$^{2.}$
c. Settlement 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.

TRA-R13 - Electric Vehicle Charging Station Parking Spaces Number Requirements

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

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 (Integrated Transport Assessments)
TRA-REQ1 - Restricted Discretionary Integrated Transport Assessments
TRA-R16 - Any Activity (Integrated Transport Assessments)
TRA-REQ2 - Restricted Discretionary Integrated Transport Assessments

Activities that exceed the thresholds set out in *Table TRA 15* in *TRA - Appendix 5* need to be assessed as a restricted discretionary activity, including an ITA addressing the matters set out in *TRA-REQ1*. Activities that exceed the thresholds set out in *Table TRA 16* in *TRA - Appendix 5* need to be assessed as a restricted discretionary activity, including an ITA addressing the matters set out in *TRA-REQ2*. It is considered that this ITA provides the required ITA assessment, covering all of the matters of discretion set out in *TRA-R15* and *TRA-R16*.

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 NZTA.

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 NZTA.

    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 NZTA has been undertaken, as described earlier in ***Section 4.3.***

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 NZTA 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.

- 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.