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101, 105-107 Totara Road Whenuapai Preliminary Transport Assessment

Prepared for: Neil Construction Limited

Job Number: TNEGL-J003

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Reviewed by: Dave Smith, Technical Director - Transportation Planning

1. Introduction

Neil Construction Limited engaged Ableyto undertake a preliminary assessment of the potential transport implications of establishing residential development at 101, 105-107 Totara Road, Whenuapai, through the Ministry for the Environment fast track consenting process.

This technical note provides an initial assessment of transportation matters including:

- Description of proposal including access, likely traffic generation and distribution onto wider network.
- Overview of future transport infrastructure projects and public transport commitments
- Accessibility assessment for walking, cycling and public transport modes
- Assessment of road safety in the vicinity.
- High-level capacity assessment of wider transport network.

In preparing this assessment we have referred to the following related documents:

- Site and context plan
- Supporting Growth programme online resources
- The Auckland Unitary Plan

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2. Proposed development

The proposal includes establishing a residential development at 101, 105-107 Totara Road in Whenuapai. The site covers approximately 14.6 hectares of currently Future Urban Zone land and is proposed to include 247 dwellings. The proposed new zoning would be Residential – Mixed Housing Urban.

The current AUPOP zoning and the proposed private plan change zoning are shown in **Figure 2.1**.

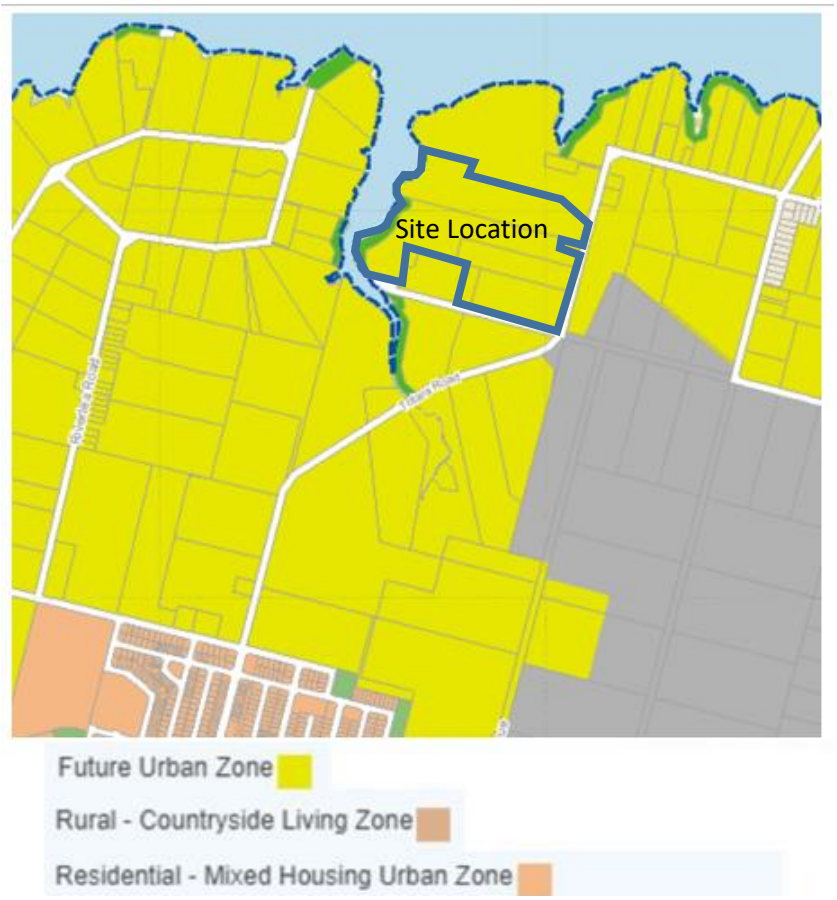

Figure 2.1 Site location and AUPOP zoning

The proposed layout of the site is shown in **Figure 2.2** and includes two connections to Totara Road. The McKean/Totara Road intersection will be changed to only allow left-turning entry only from Totara Road due to its poor sight distances. There are two further vehicle accesses with the main access to the site being the southernmost of the two new accesses to be formed, and will have much improved sight distances compared to McKean Road. This will improve road safety for all road users in the vicinity.

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Figure 2.2 Site layout and access locations

Road cross sections are included in Appendix One and are appropriate for the environment including the provision of a separated footpath and cycleway 1.8m and 2m respectively'; and footpaths on both sides of the roads within the site.

3. Wider Transport Context

Abley have engaged with Supporting Growth Alliance (SGA) and Auckland Transport to discuss the wider transport planning context in Whenuapai as part of prior engagement on behalf of The Neil Group. SGA confirmed that the most recent publicly available documents are available on their website. They are currently in the process of finalising a business case for the delivery of the future roading projects identified in Whenuapai prior to preparing a Notice of Requirement application for designation process which ideally will finish in late 2022-early 2023. This means that the currently timeline is that the infrastructure presented in this section of the report will be able to be rolled out from 2023 onwards depending on funding availability.

3.1 Roading Improvements

Whenuapai is identified as a future urban area and will undergo significant growth in the next 30 years. More homes will be built, and new business areas will be developed which will result in an increase in jobs and people working in the area. The transport network needs to keep up with the demand so future residents and workers can move around efficiently and safely. There is a major focus from the Supporting Growth Alliance and the Whenuapai Structure Plan aims to prioritise and accommodate walking, cycling and public transport in Whenuapai. There is an emphasis in ensuring people have choice in how they travel.

The Supporting Growth Alliance is in the process of obtaining route protection for many local roads in Whenuapai downstream from the proposed development at 101, 105-107 Totara Road. These include plans to upgrade Brigham Creek Road, Mamari Road, Spedding Road, Trigg Road and Hobsonville Road. The local road upgrades which are relevant to the proposed site are shown in **Figure 3.1** and **Figure 3.** and are detailed further below.

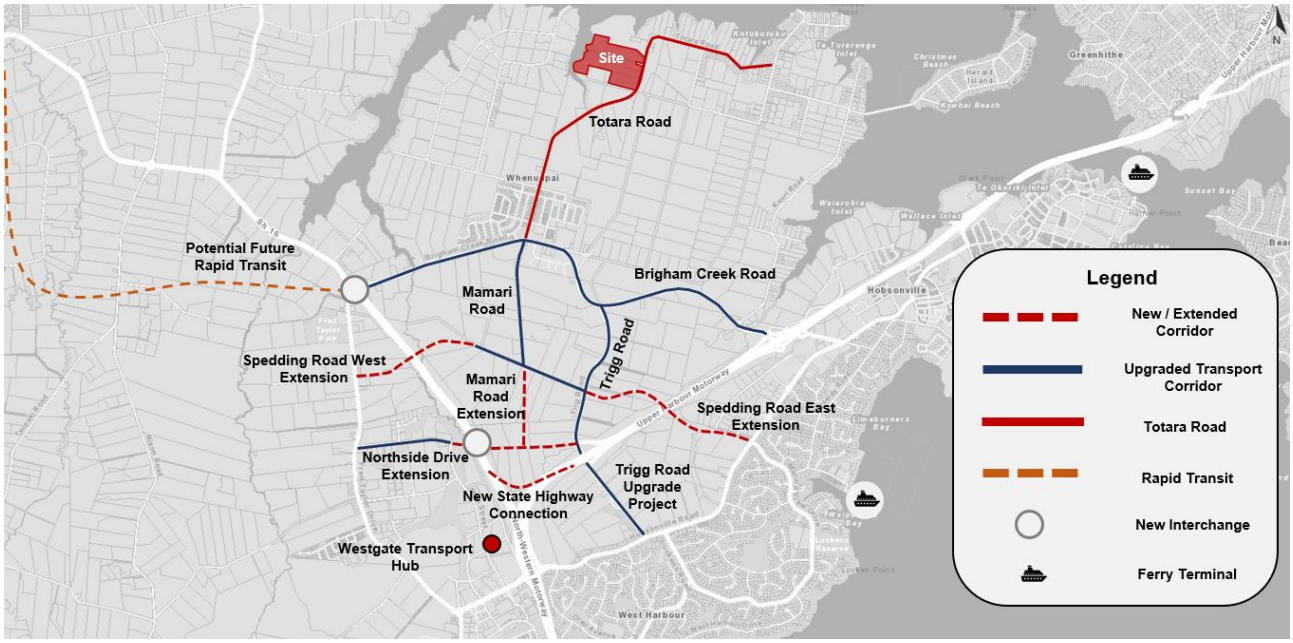


Figure 3.1 Future Road Upgrades in the Local Whenuapai Area

Figure 3.2 Proposed Upgrades to the Whenuapai Area (Source: Support Growth Alliance)

Brigham Creek Road

Brigham Creek Road will be widened to four lanes to accommodate walking, cycling and public transport. Brigham Creek Road is identified as a key east-west connection through Whenuapai, which provides access to State Highway 18 and Hobsonville at its eastern end, and State Highway 16 at its western end. Walking and cycling facilities will be provided on both sides of the road as seen in **Figure 3.3**. Buses are expected to run every seven minutes to and from Whenuapai town centre in peak times.

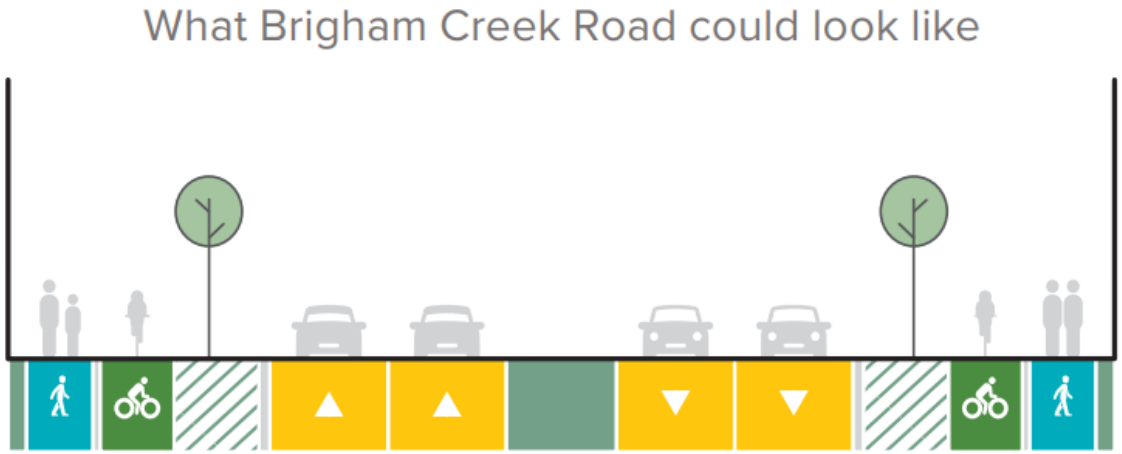


Figure 3.3 Potential Brigham Creek Road Layout (Source: Supporting Growth Alliance)

Additionally, in the long-term, Waka Kotahi is investigating a new direct motorway connection between State Highway 16 in the north and State Highway 18 in the east. However, there is no timeframe on this project and Waka Kotahi are yet to develop a detailed business case. This rapid transit route would reduce some east-west traffic movements along Brigham Creek Road. The interchange of Brigham Creek Road with State Highway 18 would also be upgraded. This new motorway connection, alongside other projects such as a rapid transit network from Westgate to the CBD and rapid transit along State Highway 18, are being investigated by Waka Kotahi.

Mamari Road

Mamari Road, from Brigham Creek Road, is currently a no exit road used to access residential and New Zealand Defence Force housing. Mamari Road is proposed to be extended and connected to Northside Drive and will be widened to four lanes, with dedicated bus lanes and walking and cycling facilities on both sides as seen in **Figure 3.5**. In terms of public transport, buses are proposed to arrive every 3 - 4 minutes in peak times. Mamari Road will become a key access point to Northside Drive and provide a high-quality north-south connection from Whenuapai to Westgate and other locations for buses, vehicles, and pedestrians.

Northside Drive will also be extended to include an overbridge over State Highway 16, connecting Trigg Road to Fred Taylor Drive. This is to be delivered by Waka Kotahi as seen in **Figure 3.4**. Waka Kotahi is also investigating south facing ramps onto State Highway 16 from the new eastern sections of Northside Road. Mamari Road will become a key access point to the Northside Drive southern ramps for the Whenuapai area.

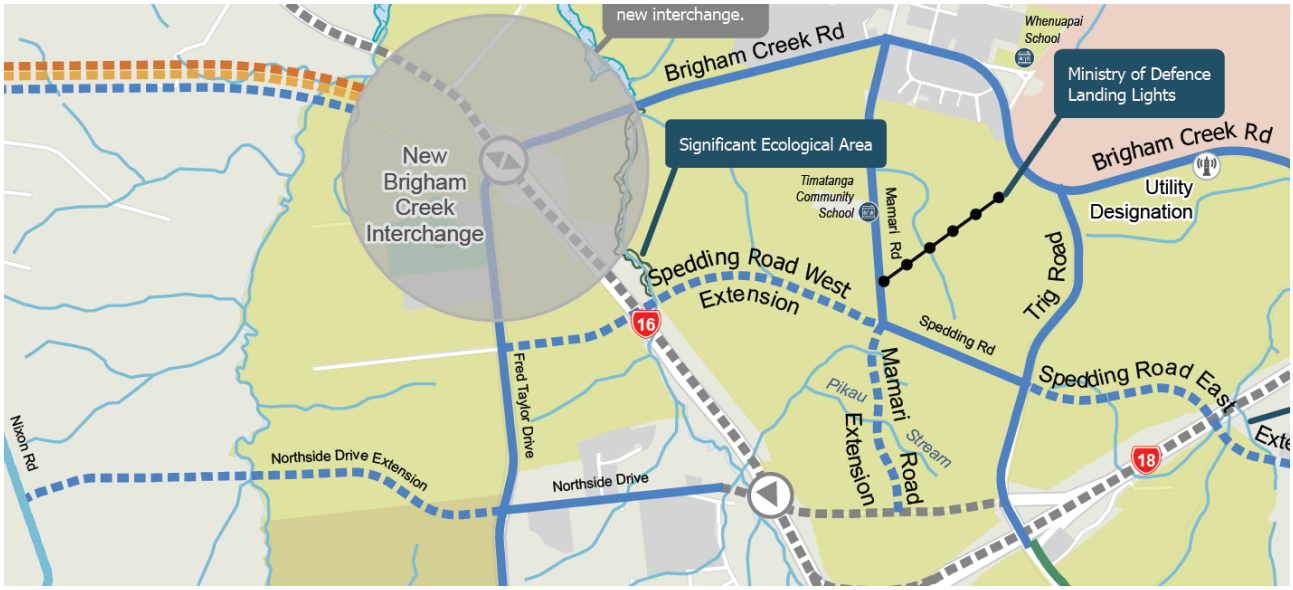


Figure 3.4 Mamari Road and Northside Road Extensions (Source: Supporting Growth Alliance)

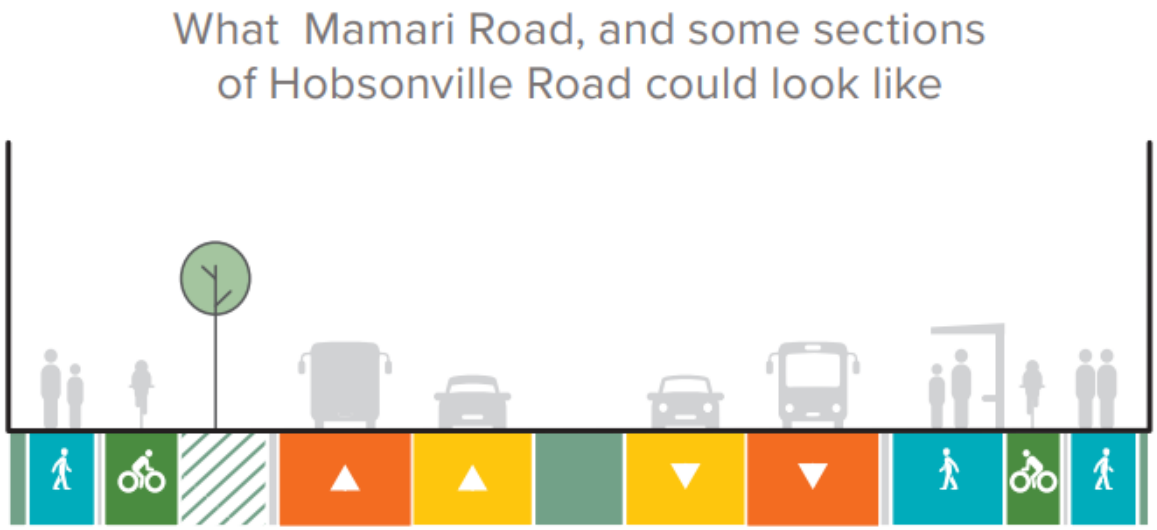


Figure 3.5 Potential Mamari Road Layout (Source: Supporting Growth Programme)

Hobsonville Road

Hobsonville Road is a west-east connection between Westgate and Hobsonville Point, providing a key link to the two ferry terminals in Hobsonville Point and West Harbour. There are sections of the corridor which will be widened to four lanes (Luckens Road to State Highway 16 and Brigham Creek Road to Hobsonville Point Road). This will allow for additional capacity for buses and vehicles. The widening of Hobsonville Road will tie in with the Trigg Road Upgrade Project. Bus services are proposed to arrive every 3–6 minutes in peak times.

Trigg Road

Trigg Road is proposed to be upgraded between Brigham Creek Road and Hobsonville Road to accommodate walking, cycling and public transport. It will stay at two lanes, but with a reduced speed limit of 50 km/h. It will provide an improved north-south connection within Whenuapai. It is planned to have a bus service every 15 minutes. Trigg Road will play an important part in connecting the future Whenuapai area to the state highway network.

There is already a project called the Trigg Road Upgrade Project which will upgrade Trigg Road between State Highway 18 and Hobsonville Road. This is to bring the road up to the standard that would support the current and future Whenuapai residents. This will upgrade the intersection of Trigg Road and Luckens Road with Hobsonville Road. It would also provide upgraded walking, cycling and public transport facilities.

Spedding Road

Spedding Road is proposed to be extended in both directions, connecting to Hobsonville Road in the east, and to Fred Taylor Drive in the west (with a bridge over State Highway 16). These extensions will enable access to the potential future rapid transit network, as well as supporting bus services, walking, and cycling access. The extension of this road will provide an alternative connection through Whenuapai, providing resilience to the network. A cross-section of the road can be seen in **Figure 3.6**.

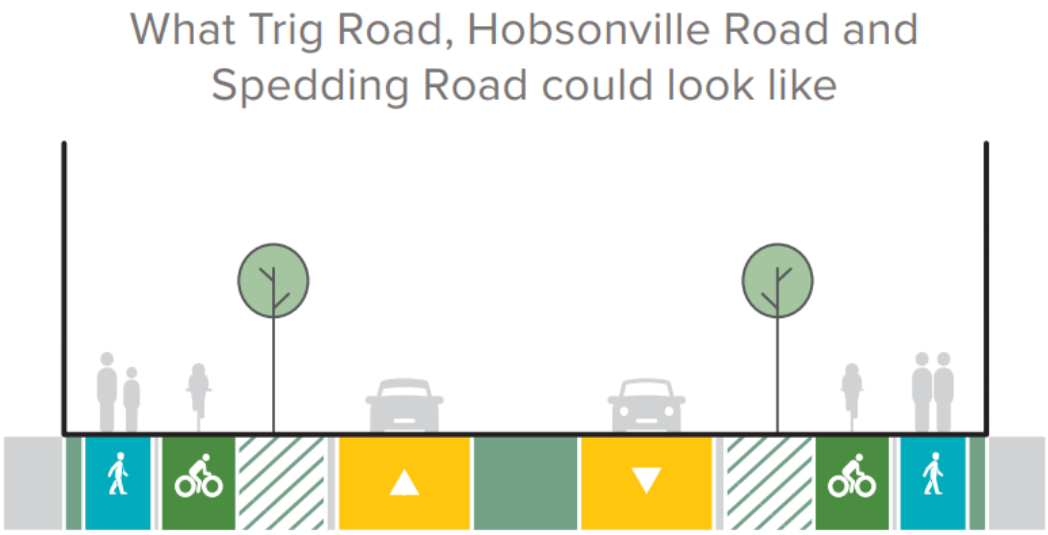


Figure 3.6 Potential Spedding Road Layout (Source: Supporting Growth Programme)

3.2 Public Transport Improvements

Current

The site is currently serviced by one bus route for the area. The nearest bus stop from the centroid of the proposed development site on Totara Road is located approximately 850m east near the Totara Road / Karaka Road intersection with a further stop to the south near Dale Road. This bus stop caters for bus route 114, which travels from Hobsonville ferry terminal, and finishes at Westgate. This service occurs at least once every 60 minutes, 7 days a week and travels along Totara Road, past the proposed site.

Ferries operate from Hobsonville Point and West Harbour ferry terminals to Auckland CBD throughout the day. At Westgate, there are options to catch other buses which head to further destinations around Auckland. Bus route 114 can be seen in **Figure 3.7**. This proposal would be well served by bus route 114 with the addition of a bus stop adjacent to the main access road on Totara Road, and the provision of a pedestrian crossing with median refuge to enable safe access to a future bus stop on the east side of Totara Road.

Figure 3.7 Bus Routes (Source: Auckland Transport)

Future Public Transport

There are many future public transport plans as touched upon in the roading improvement sections above. The routes and destinations are not conceptualised at the present, but many roads will be upgraded in the future to cater for buses. These include:

- **Brigham Creek Road**: with a bus expected to run every 7 minutes from Whenuapai town centre in peak times
- **Mamari Road**: will have dedicated bus lanes, with buses every 3 – 4 minutes in peak times
- **Trigg Road**: with a bus every 15 minutes in peak times
- **Spedding Road**: with a bus every 5 minutes in peak times at Spedding Road east, and every 12 minutes in peak times at Spedding Road west
- **Hobsonville Road**: with buses every 3 – 6 minutes in peak times

There are plans to provide rapid transit to the northwest of Brigham Creek Road in the long term. Waka Kotahi is investigating a rapid transit corridor between Brigham Creek Road and Kumeū-Huapai. This will begin from a new interchange where the current Brigham Creek Road and State Highway 16 roundabout is located. The interchange will cater for a range of transport modes including a walking and cycling corridor, and an alternative State Highway. The type of vehicle that will use the rapid transit network in the northwest is yet to be determined by Waka Kotahi.

Raid Transit along SH18 is also understood to be under investigation by Waka Kotahi as is the potential to create a Westgate bus station but these are yet to progress through Detailed Business Case processes.

3.3 Walking and Cycling Improvements

All roads and new developments in the Whenuapai area are to have a homogenous design regarding walking and cycling facilities. Cycle lanes and shared paths are expected on several local roads, creating a comprehensive walking, and cycling network. The development on Totara Road is within moderate walking distance (approximately 20 minutes) of Whenuapai local centre where there are several shops.

There is a potential plan to create a new primary school in a nearby development site to the south on Totara Road, which will be within walking distance for the proposed residential housings. In addition, Whenuapai Primary School is within 30 minutes walking distance from the proposed development.

A pedestrian crossing is proposed on Totara Road directly outside the development site with median refuge to assist pedestrians in accessing potential future bus stops on either side of the corridor.

3.4 Summary

It is evident that significant investment is planned here to accommodate growth with a focus on providing frequent and convenient public transport as part of ensuring there is transport choice for future residents. This means that the development is well located from a transportation perspective and the future transportation needs in wider Whenuapai are well-known and planned for.

Furthermore this development can integrate well with public transport, walking and cycling networks through a frontage upgrade providing for pedestrians and bus stops located adjacent to the main access intersection.

4. Road Safety Assessment

The roads within the development area of 101, 105-107 Totara Road are designed with low-speed in mind and will be consistent with the adjacent residential areas in Whenuapai. It is recommended that these have a posted speed of 30 km/h. Lower speeds results in less harmful injuries if collisions occur. In addition, the planned upgrades of local roads as discussed in the road improvement sections seek to deliver safe infrastructure for all modes of travel and will be subject to safety audits.

According to Austroads Guide to Road Design Part 4A, the required safe intersection sight distance (SISD) at the McKean Road and Totara Road intersection is 181m for an operating speed of 80km/h. The available sight distances are 60m and 155m for the northbound and southbound traffic respectively and therefore do not meet the SISD requirements. A further analysis using the stopping sight distance (SSD) as described in Austroads Guide to Road Design Part 3 provides an SSD requirement of 114m. Whilst the southbound available sight distance meets the SSD requirement, the northbound available sight distance is far below the requirement. As such, the proposal seeks to restrict movement out of McKean Road and only allow left-turning movements into McKean Road to mitigate against the intersections poor visibility while still allowing access.

A similar assessment was conducted at the proposed intersection of Totara Road with the main access to the residential development. The requirement, still being 181m for the SISD is met for southbound traffic, but not met for the northbound traffic having an available sight distance of 151m. However, the SSD requirement of 114m is met for both north and south bound traffic and so is considered adequate for an 80 km/h environment. Realistically, as the area becomes increasingly urbanised through plan changes such as this proposal, the speed environment on Totara Road is likely to be reduced to 50-60 kph which reduces the SISD requirement to 97-123m and this is comfortably exceeded by the proposed new access location.

A search of the Waka Kotahi Crash Analysis System (CAS) database for the period of 2017 to 2022 (inclusive) has been undertaken to assess the safety of the site. The analysis area can be seen in **Figure 4.1** and includes:

- The frontage of 101, 105-107 Totara Road
- The intersection of McKean Road and Totara Road
- The intersection of Dale Road and McCaw Avenue (crashes within 50m)
- The intersection of McCaw Avenue and Nils Andersen Road (crashes within 50m)

- The beginning of Lilley Terrace

The analysis reveals a total of two crashes has been reported over the five-year period between 2017 and 2022 inclusive. The first crash was located at the intersection of Totara Road and Dale Road. This occurred in 2017 prior to the creation of McCaw Avenue. The reported crash was classified as non-injury and was the result of a driver performing a U-turn without properly checking on-coming traffic. The second crash occurred in 2021 and was located on Totara Road, approximately 330m south of the McKean Road/Totara Road intersection. The reported crash was classified as a minor injury and was the result of a cyclist colliding with a vehicle reversing out of its driveway.

There are no underlying safety concerns in the local road network that would be exacerbated by the proposed development.

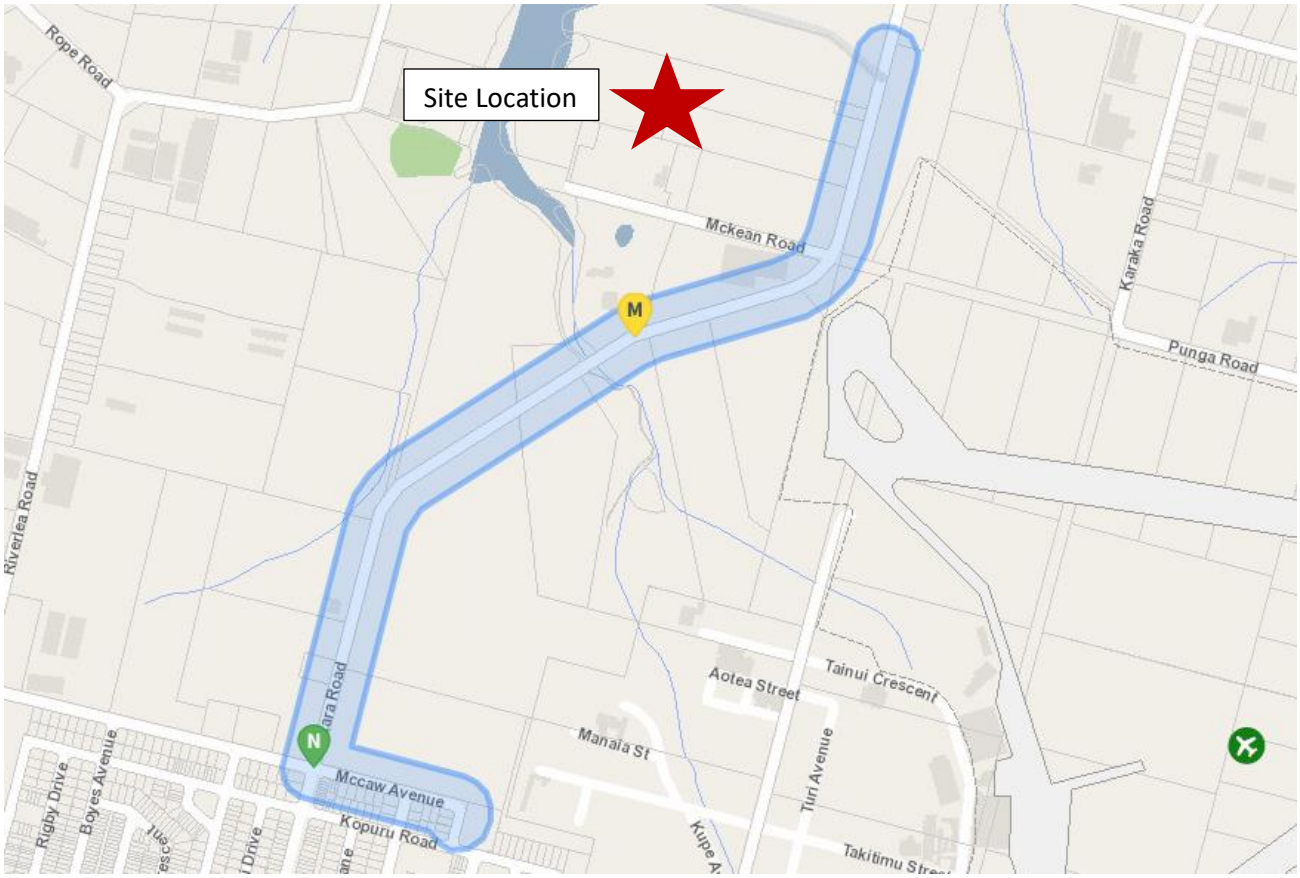


Figure 4.1 Crash Analysis Area

5. Accessibility Assessment

An accessibility assessment has been undertaken to demonstrate the excellent access to local town centre, school and other services by walking, cycling and public transport. The assessment uses Google Maps to calculate how close the nearest school, shopping centre, bus stop, employment centre and ferry service are by each mode of transport.

The travel time for each mode has been calculated based on typical morning peak (8-9am) and evening peak (4:30-5:30pm) travel with results summarised in **Table 5.1**.

Table 5.1 Travel times (minutes) to/from popular travel destinations from Plan Change area

	Nearest School (Whenuapai School)[1]	Whenuapai Shopping Centre	Nearest Bus Stop[2]	West Gate Centre and Future PT hub	Nearest Ferry Terminal (Hobsonville Marina)
Distance	2.5 km	1.8 km	0.85 km	7-7.5 km	7-7.5 km
Private Vehicle – AM peak	5 min	3 min	-	8 – 16 min	10 – 14 min
Private Vehicle – PM peak	5 min	2 min	-	9 – 16 min	10 – 14 min
Public Transport – AM peak	20 min	14 min	-	24 min	45 - 50 min
Public Transport – PM peak	20 min	12 min	-	24 min	45 – 50 min
Cycling – AM peak	8 min	5 min	2 minutes	21 – 23 min	25 min
Cycling – PM peak	8 min	5 min	2 minutes	21 – 23 min	25 min
Walking – AM peak	30 min	22 min	9 minutes	1 hr 18 min	1 hr 36 min
Walking – PM peak	30 min	22 min	9 minutes	1 hr 18 min	1 hr 36 min

Typically, good walking and cycling connections allow for people to access all their needs and destinations within 15 minutes. This is around a 1km radius for walking and a 3km radius for cycling. These align with best practice accessibility guidance from the Auckland Integrated Transport Assessment Guidelines[3]. The local shopping centre and school are within comfortable cycling distance, and within a 30 minute walk.

The accessibility of the proposed development will further improve as the SGA Whenuapai roading upgrades as discussed in the Roading Improvement sections above are established.

6. Network Capacity Assessment

To illustrate the potential number of additional trips that would be generated by the proposal and how these trips may disperse across the network, as is shown in Appendix Two with a high-level of estimate of traffic generation and distribution.

We have referred to 'Whenuapai Plan Change Stage 1 Technical Inputs' prepared by Flow for Plan Change 5 which includes a table of likely traffic generation rates which can be applied assuming that there is a high level of public transport connectivity to the Totara Road development. The resultant traffic generation has been included in Appendix Two and equates to 161 two-way trips in peak hour or a total of less than three vehicles (two way) per minute. Given there is a safe and direct vehicle connection to Totara Road, there is sufficient provision for development traffic to access the wider network.

Northbound traffic from Totara Road would likely use the Brigham Creek Road / SH18 intersection and citybound traffic would use the Brigham Creek Road / SH16 intersection. Not all of the additional 161 vehicle movements will travel beyond the local area as many will visit local employment areas, schools and shopping/recreational opportunities but as

[1] A potential new school on Totara Road will reduce this substantially
[2] Adding bus stops outside the development site will reduce this substantially
[3] https://at.govt.nz/media/1050085/ITA-Guidelines-January-2015.pdf

a general rule-of-thumb nearly half of these would be expected to be local trips with the remainder added to the wider arterial network, resulting in approximately 96 two-way vehicles combined across SH18 and SH16.

Statistics New Zealand's Waka Commuter tool displays the workplace and education locations of residents collected in the 2018 census. The Waka Commuter tool data has been used to understand the current distribution of vehicles within the wider network and the existing travel patterns within Whenuapai. Trips that stay local within Whenuapai make up 40% of all trips with 60% of trips being outside the network. The trip distribution on the wider network has been calculated using the Whenuapai departures using Statistical Area locations based on the likely route used to travel. Directional split has been assumed to be an approximate 70/30 morning peak and 60/40 evening peak. **Figure 6.1** and **Figure 6.2** show the predicted trip distribution of the development based on a peak hour trip generation rate of 161 trips and the departure patterns within Waka Commuter.

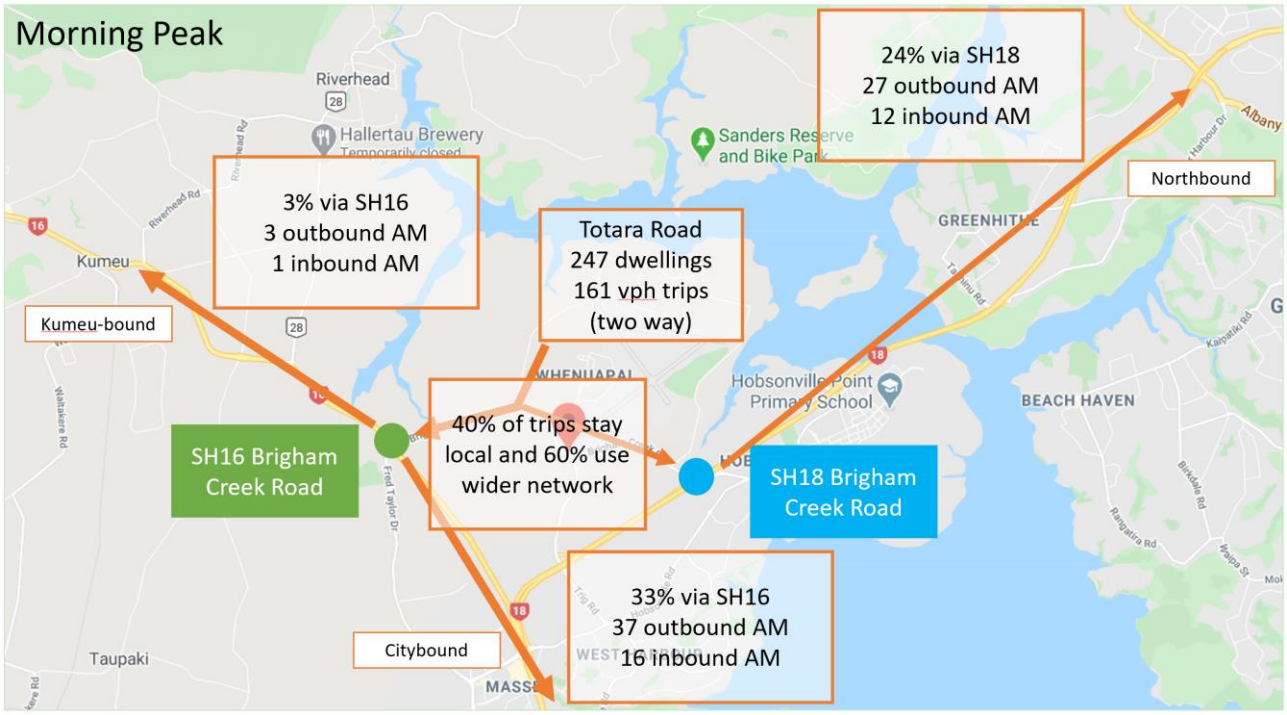


Figure 6.1 Morning peak increase in traffic volumes on wider network

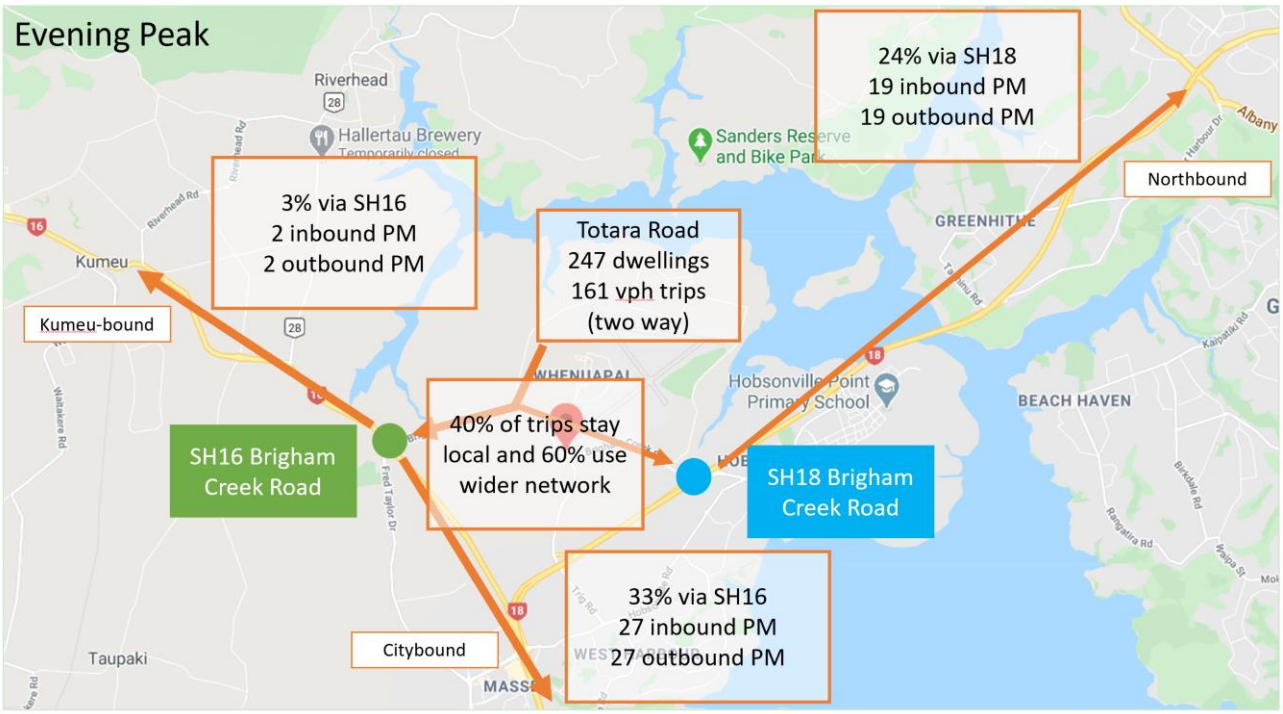


Figure 6.2 Evening peak increase in traffic volumes on wider network

Based on the assessment above, there will be one vehicle every minute using the SH16 / Brigham Creek Road intersection and one vehicle every 1.5 minutes using the SH18 / Brigham Creek Road intersection for both peak periods.

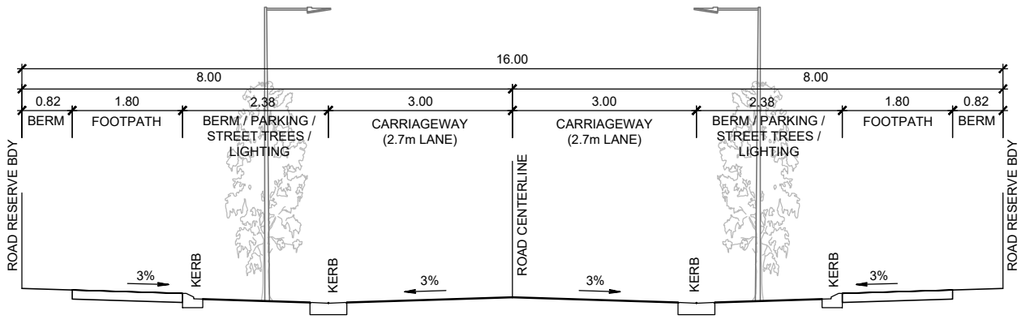
To put this into perspective the typical lane capacity of a motorway lane is 2200 vehicles per lane per hour so this increase in traffic only corresponds to around 2% of the capacity of a single lane and this percentage would reduce as vehicles travel further south past other destinations (such as Te Atatu and Henderson).

7. Conclusions

The transportation assessment of the proposed development of 101, 105, 107 Totara Road has focused on the likely impacts of establishing a residential development. It is concluded that the site is well-positioned for this activity from a transport perspective as:

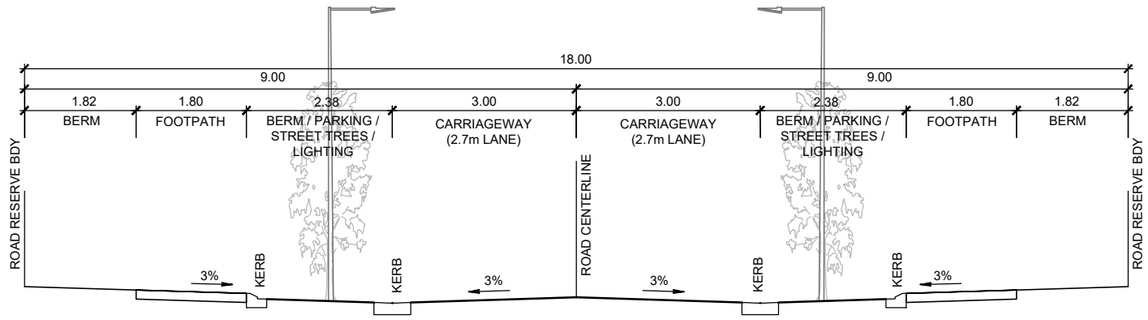
- the proposed development will be well served by public transport, walking and cycling connections in the near future which are currently being planned by Supporting Growth Alliance and Waka Kotahi;
- the ODP will integrate well with the local transport network, with no inherent safety concerns and a safety improvement by reducing connectivity at McKean Road intersection to left in only and creating two accesses on Totara Road with improved visibility;
- there is the potential for new bus stops and a pedestrian crossing to be included in the site frontage to maximise public transport opportunities and further improve pedestrian access to public transport;
- there is excellent accessibility to key activities and services by all modes; and
- the site is well-served by SH16 and SH18 resulting in negligible increases in traffic across the wide network.

Appendix One
Road Cross Sections



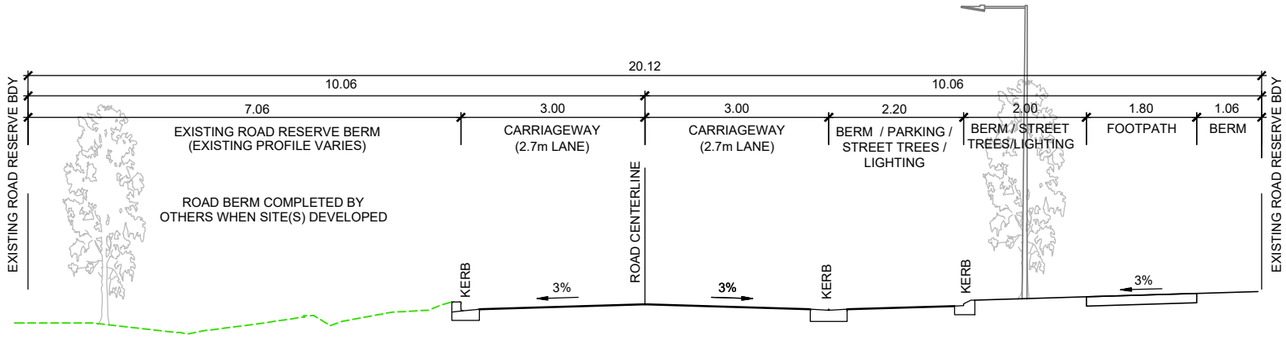
PROPOSED NEW 16m WIDE LOCAL ROAD

(NEW INTERNAL ROADS)



PROPOSED NEW 18m WIDE LOCAL ROAD

(NEW INTERNAL ROADS)

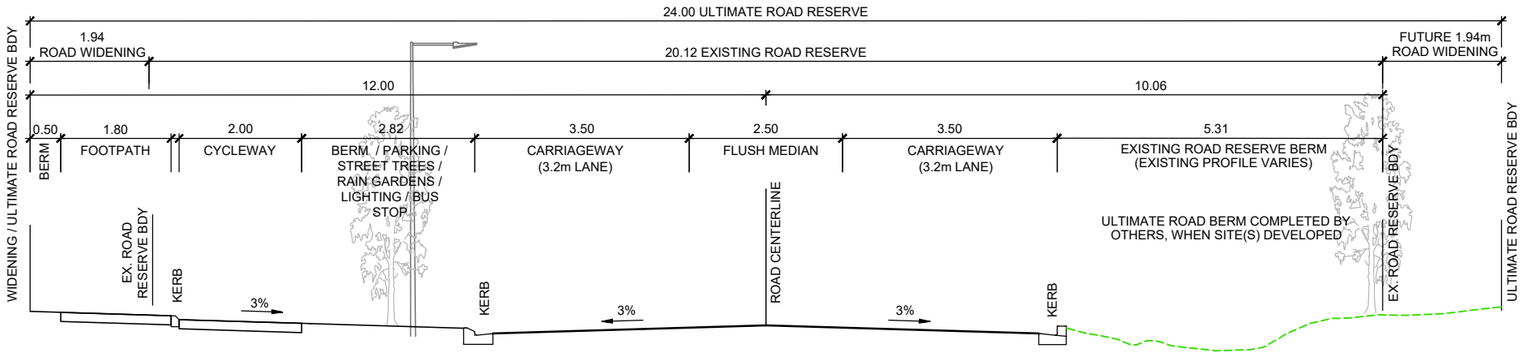


(SOUTHERN SIDE)

EXISTING McKENAN ROAD UPGRADE

(EXISTING 20.12m WIDE ROAD)

(NORTHERN / DEVELOPMENT SIDE)



(WESTERN / DEVELOPMENT SIDE)

EXISTING TOTARA ROAD WIDENING AND UPGRADE

(EXISTING 20.12m WIDE ROAD,
ULTIMATELY WIDENED TO 24m)

(EASTERN SIDE)

NOTES:

SEE ROADING LOCATION PLAN FOR ADDITIONAL ROADING DETAILS.

FOR INFORMATION

Rev	Description	By	Date
A	FOR INFORMATOIN	CK	09/22

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Job Title
105–107 TOTARA ROAD

Drawing Title
ROADING
TYPICAL CROSS SECTIONS

	By	Date	Scale	Job No.	
Surveyed:	–		1:1000@A3	Drawing No.	Rev
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Drawn:	CK	09/22			
Approved:	CK				
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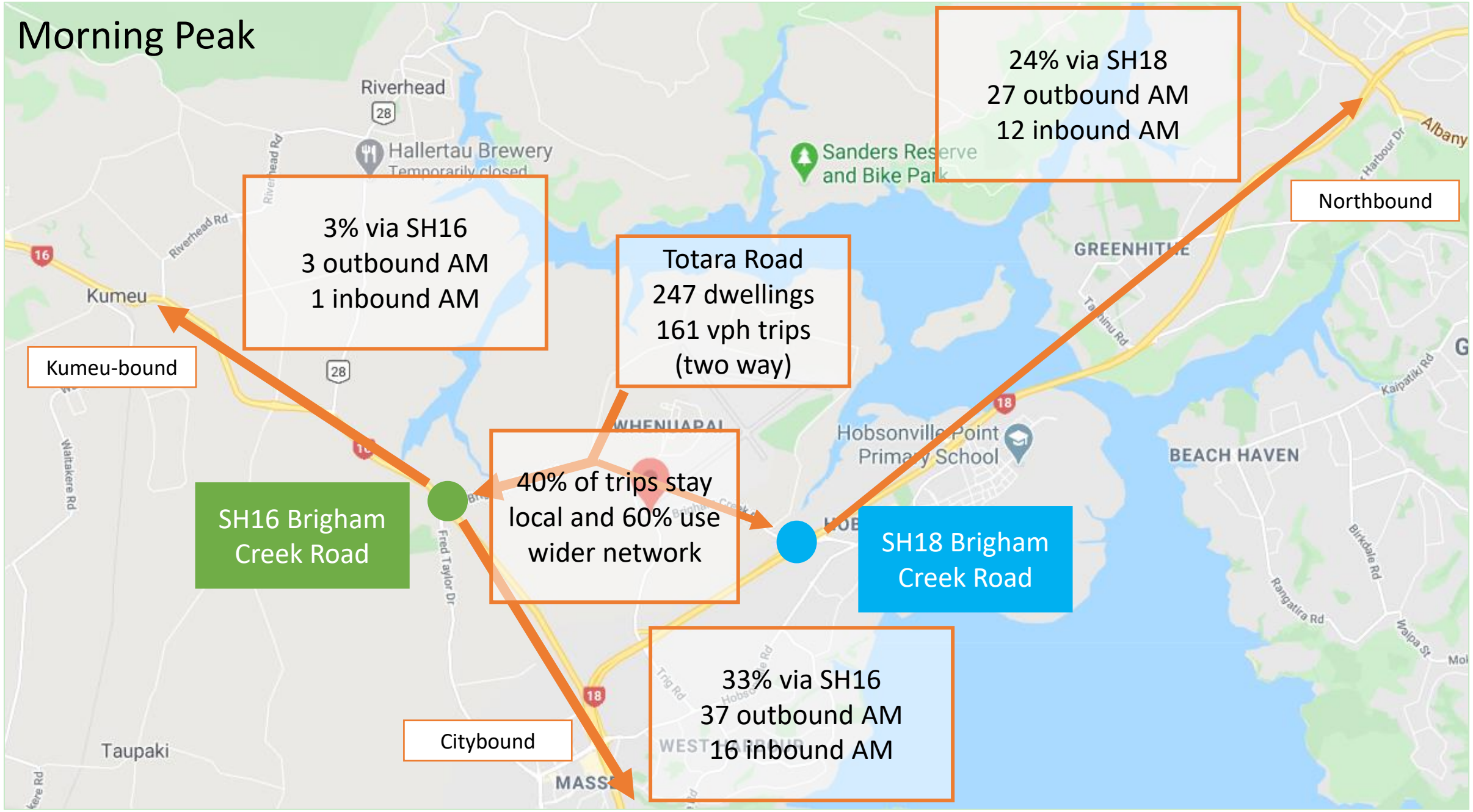
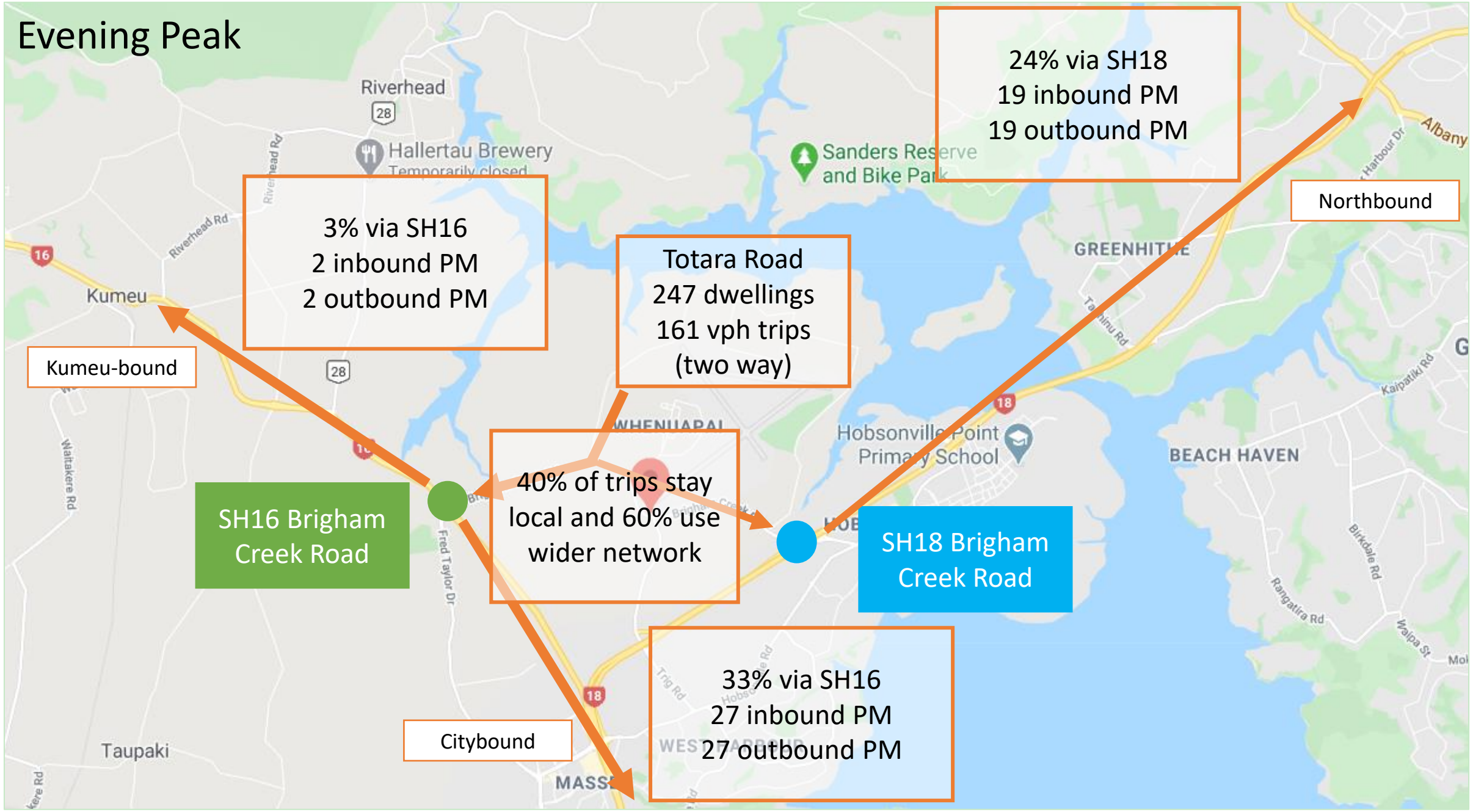
Appendix Two
Traffic Generation and Distribution Estimates


Morning Peak
24% via SH18
27 outbound AM
12 inbound AM
Northbound
3% via SH16
3 outbound AM
1 inbound AM
Totara Road
247 dwellings
161 vph trips
(two way)
Kumeu-bound
40% of trips stay
local and 60% use
wider network
SH16 Brigham
Creek Road
SH18 Brigham
Creek Road
33% via SH16
37 outbound AM
16 inbound AM
Citybound
Riverhead
Hallertau Brewery
Temporarily closed
Sanders Reserve
and Bike Park
Kumeu
Riverhead Rd
Hobsonville Point
Primary School
BEACH HAVEN
GREENHITHE
Albany
Taupaki
Fred Taylor Dr
Waitakere Rd
Kaipatiki Rd
Birkdale Rd
Rangatira Rd
Waipa St


Evening Peak
24% via SH18
19 inbound PM
19 outbound PM
Northbound
3% via SH16
2 inbound PM
2 outbound PM
Totara Road
247 dwellings
161 vph trips
(two way)
Kumeu-bound
40% of trips stay local and 60% use wider network
SH16 Brigham Creek Road
SH18 Brigham Creek Road
33% via SH16
27 inbound PM
27 outbound PM
Citybound
Riverhead
Hallertau Brewery
Temporarily closed
Sanders Reserve and Bike Park
Kumeu
Riverhead Rd
Waitakere Rd
Fred Taylor Dr
Hobsonville Point Primary School
BEACH HAVEN
Taupaki
Albany
Kaipatiki Rd
Birkdale Rd
Rangatira Rd
Waipa St
Trig Rd
16
28
18