Proposed Plan Change
Golding Road, Pukekohe

Integrated Transportation Assessment Report

4 November 2021

4 Leek Street, Newmarket
PO Box 128259, Remuera 1541, Auckland
Ph. 09 869 2825
www.commute.kiwi

Project: Golding Road, Pukekohe

Report title: Integrated Transportation Assessment Report

Document reference: J001698 Golding Road ITA update 031121

Date: 4 November 2021

Report Status	Prepared By	Reviewed By	Approved By
Final report	Tom Guernier	Leo Hills	Leo Hills
			

Table of Contents

1 INTRODUCTION

Commute Transportation Consultants (Commute) has been engaged to prepare an Integrated Transport Assessment (ITA) Report for a proposed plan change (PPC) for the land at 154-158 and 162 Golding Road, Pukekohe (referred to as the 'site').

Commute previously prepared a ITA in June 2021. In October 2021 and as a response to the Government's announcement and release of the Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill, the proposal was revised so as to come into alignment with that direction, by changing the proposed Residential - Mixed Housing Suburban zone to a Residential - Mixed Housing Urban zone. That change of zone is not considered likely to significantly change the transport outcomes likely to eventuate on the land; as a master planned greenfield site it was always going to be comprehensively designed from the outset and given its location in Pukekohe, a mix of compact detached, duplex, and terraced houses remain likely. The update includes inserting provisions in the Precinct that address the Medium Density Residential Standards outlined in Schedule 3A of the Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill. We have been advised that the change is to remove the Mixed Housing Suburban Zone in favour of the Mixed Housing Urban Zone, being a change to rules that enable two to three storeys. The land use rules for four or more dwellings remain the same regardless of the Zone.

The site is zoned Future Urban Zone and Special Purpose Zone - Major Recreation Facility under the Auckland Unitary Plan – Operative in Part (Unitary Plan), and has an approximate area of 82.66 Ha. The proposal involves the rezoning of the site to the following:

- 19.77 Ha of Light Industry Zone;
- 62.56 Ha of Residential - Mixed Housing Urban Zone;
- 0.33 Ha of Business - Neighbourhood Centre Zone;

Vehicle access to the site is proposed to be via Golding Road, Station Road and Yates Road. Each of the accesses will connect to the internal road network.

Key transportation considerations of the PPC are:

- Compatibility with neighbouring land uses;
- The accessibility of the site to various modes of transport; and
- The ability of the surrounding road network to safely and efficiently accommodate traffic generated by potential development.

These and other transportation issues will be addressed in this report. By way of summary, the Golding Road PPC is considered to be broadly in accordance with the Auckland Councils structure plan for the area. Given the nature of the transport network in this area (predominantly rural) and anticipated development, a number of strategic transport upgrades are proposed in the area. These are being investigated by Auckland Transport (AT) and Waka Kotahi NZ Transport Agency (NTZA) via the Supporting Growth Alliance (SGA).

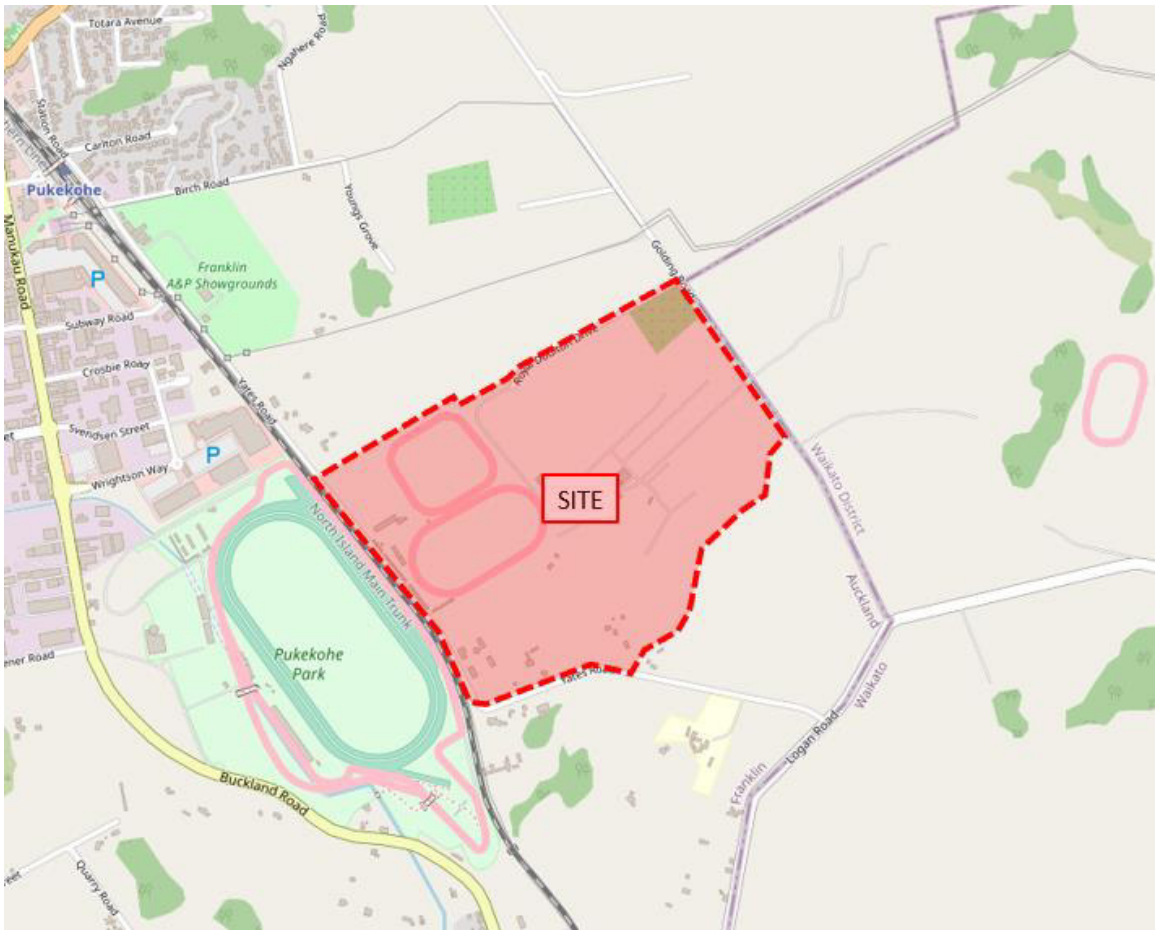
SGA prepared an Integrated Transport Assessment (SGA-ITA) to support Auckland Councils structure plan for the southern area. This document identifies changes required to support development of the Future Urban Zone, including the subject site. In this regard, this report relies on the wider network assessment undertaken as part of the SGA-ITA to assess wider effects on the transport network.

2 EXISTING ENVIRONMENT

2.1 SITE LOCATION

Figure 1 shows the location of the site in relation to the surrounding environment.

Figure 1: Site Location



The site is made up of the following properties, listed in Table 1.

Table 1: Site Property Data

Property Address	Legal Description
152 Golding Road	Lot 6 DP 437089
154 Golding Road	Lot 3 DP 437089
156 Golding Road	Lot 1 DP 437089
158 Golding Road	Lot 2 DP 437089
160 Goulding Road	Lot 4 DP 437089
162 Golding Road	Lot 5 DP 437089

240 Station Road	Lot 1 DP 443991
242 Station Road	Lot 1 DP 97787
27 Yates Road	Lot 1 DP 62593
49 Yates Road	Lot 6 Deeds Reg 70
17 Royal Doulton Drive	Lot 9 DP 102609
25 Royal Doulton Drive	Lot 8 DP 102609
27A Royal Doulton Drive	Lot 1 DP 147918
27 Royal Doulton Drive	Lot 2 DP 147918

The surrounding area is primarily rural in nature, with the Franklin Trotting Club and Pukekohe Park developments located to the west of the site, as well as the North Island Main Trunk (NIMT) railway line.

Figure 2 shows a recent aerial photograph of the site and surrounding environment.

The site is proposed to have a total of nine connections (intersections) to the local road network, with three being on each of Golding Road, Yates Road and Station Road.

Figure 2: Recent Aerial Photograph of Site and Surrounding Environment

2.2 ZONING

The existing Unitary Plan Zoning for the site is shown in Figure 3. The yellow zoning represents 'Future Urban Zone', while the grey zoning represents 'Special Purpose Zone – Major Recreation Facility.

There is estimated to be approximately 54.12 Ha of 'Future Urban Zone' and 35.20 Ha of 'Special Purpose Zone – Major Recreation Facility' within the subject site.

Figure 3: Site Existing Zoning

2.3 ROAD ENVIRONMENT

2.3.1 GOLDING ROAD

Golding Road is not currently classified as an arterial road in the Unitary Plan (future plans do have it classified as an arterial), and runs from East Street / Pukekohe East Road in the north to Logan Road in the south. In the vicinity of the site, Golding Road has an approximate carriageway width of 6.5 metres, accommodating one traffic lane in each direction. There are currently wide berms on either side of the road, with no footpaths. Golding Road has a speed limit of 100 km/h typical of a rural road in the area.

Photograph 1 shows Golding Road from the approximate location of the central intersection with the site.

Photograph 1: Golding Road typical layout

2.3.2 YATES ROAD

Yates Road is not classified as an arterial road in the Unitary Plan, and runs from Station Road to Logan Road along the southern side of the site. In the vicinity of the site, Yates Road has an approximate carriageway width of 6-7 metres, accommodating one traffic lane in each direction. There are no footpaths on the road and it currently has a speed limit of 80 km/h.

Photograph 2 show Yates Road typical layout.

Photograph 2: Yates Road typical layout

2.3.3 STATION ROAD

Station Road is not classified as an arterial road in the Unitary Plan, and runs from East Street in the north to where it turns into Yates Road at its southern end, adjacent to the Franklin Trotting Club. Station Road has an approximate carriageway width of 8.0

metres, accommodating one lane of traffic in each direction, with no kerbside parking available on either side of the road (outside the site). There are no footpaths along either side of the southern section of Station Road however, north of Birch Road is a footpath on both sides of the road and associated kerbside parking.

Station Road has a speed limit of 80 km/h typical of a rural road in the area which changes to 50km/h south of Subway Road.

Photograph 3 and Photograph 4 show photographs of Station Road at its southern and northern ends.

Photograph 3: Station Road southern end

Photograph 4: Station Road northern end

2.4 TRAFFIC VOLUMES

Traffic volume data recorded in February 2019 along Golding Road between Royal Doulton Drive and Logan Road revealed a 7-day average daily traffic (ADT) volume of 1,394 vehicles per day (vpd), with peak hour volumes of 197 vehicles per hour (vph) and 180 vph in the morning and evening commuter peak hours respectively.

No traffic data is available for either Station Road or Yates Road, however it is assumed that these roads carry similar daily traffic volumes to Golding Road, or slightly less.

2.5 ACCESSIBILITY

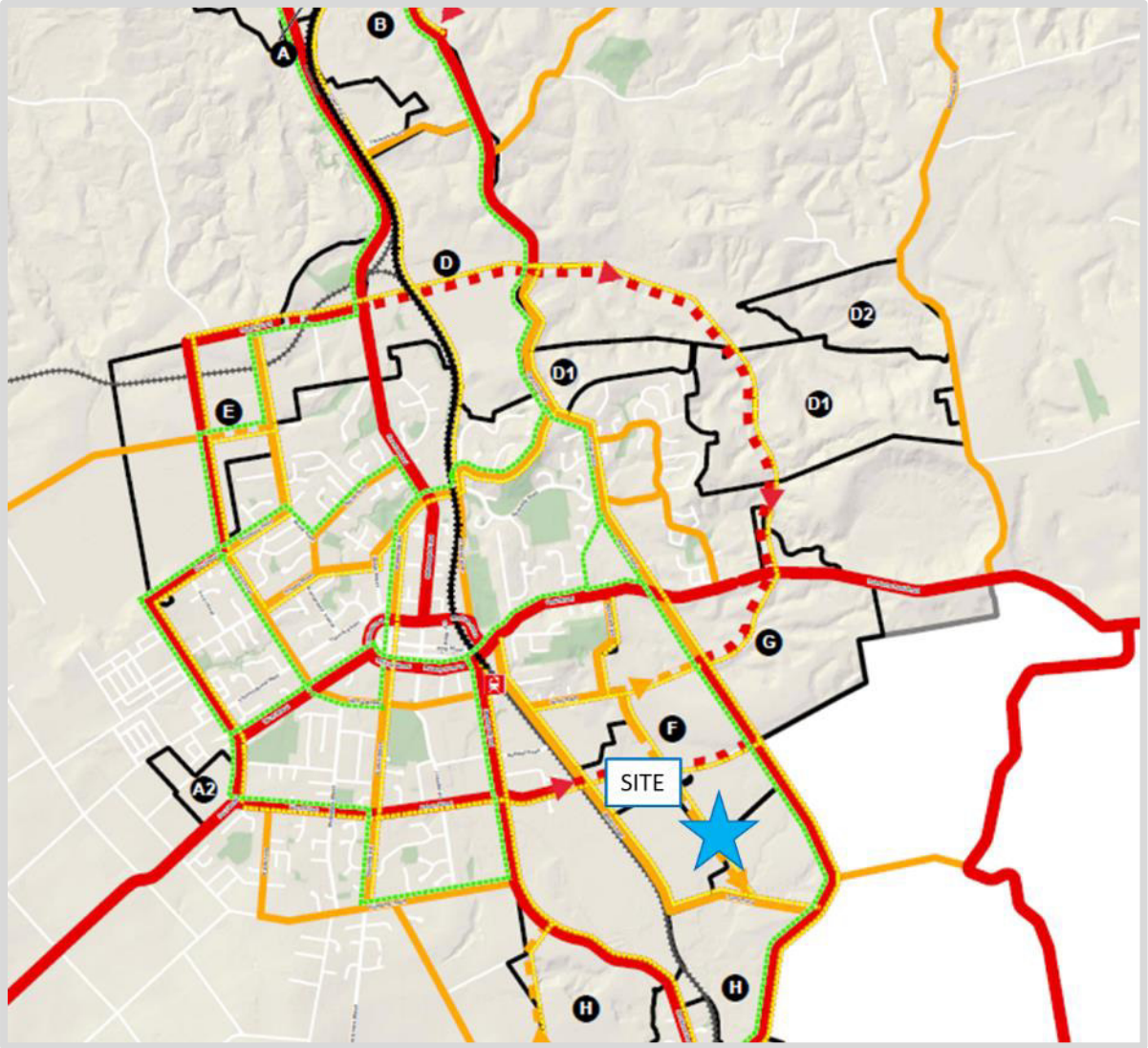
2.5.1 PRIVATE VEHICLES

The site is well located with regards to road connectivity to the wider Auckland Region. The site is located in Pukekohe, approximately 1.5 kilometres south-east of the town centre, and 5.5 kilometres west of the SH1 Mill Road interchange. The SH1 Mill Road interchange connects to the Waikato expressway extending between Waikato to the south and Auckland to the north. The interchange is located approximately 46 kilometres from the Auckland City centre and 26 kilometres from the Manukau metropolitan centre.

At peak times, travel times to and from Auckland City are inconsistent with regular commuting times in the order of 1-1.5 hours.

Auckland Council (Council), the NZ Transport Agency (NZTA) and Auckland Transport (AT) are currently assessing future transport networks for planned growth areas such as Pukekohe. The above parties, together with private consultancies, have formed the Supporting Growth Alliance (SGA) to implement the preferred transport networks for these growth areas. Map 5 of the Draft Pukekohe-Paerata Structure Plan outlines the indicative transport network for Pukekohe as shown in Figure 4. The red lines represent arterial roads (solid for existing and dashed for future), the yellow lines represent collector roads, and the green lines represent local roads.

Figure 4: Indicative Transport Network (Structure Plan 2019)



In relation to the PPC, the key transport network improvements identified above are:

- New Collector road through the site (north-south)
- New arterial road connections around Pukekohe, including north-east of the site (shown as Item F & G – red lines) including Golding Road.
- Increased rail capacity to four tracks between Wiri and Pukekohe as well as electrification of the lines; and
- New rail stations at Paerata / Drury in addition to the existing station at Pukekohe to enable rapid/frequent rail services.

As shown above, the indicative transport plan identifies a new arterial road extending from Svendsen Road to the east across the NIMT as the preferred arterial alignment to the east of Pukekohe. This new arterial will serve to reduce traffic volumes on Manukau Road north of Svendsen Road by providing an alternative arterial route to the north and east of Pukekohe.

2.5.2 PUBLIC TRANSPORT

The Pukekohe Railway Station is located to the northwest of the site, approximately 1.2 kilometres walking distance from western side of the site. The station serves the Southern Line of Auckland's rail network.

There are several bus services that operate through Pukekohe, however no services run along any of the site's frontage roads. The 393 service is the closest service to the site, with the nearest bus stop approximately 1.2 kilometres walking distance from the site (Manukau Road).

The current public transport services are shown in Figure 5.

Figure 5: Public Transport Services in Vicinity of Site

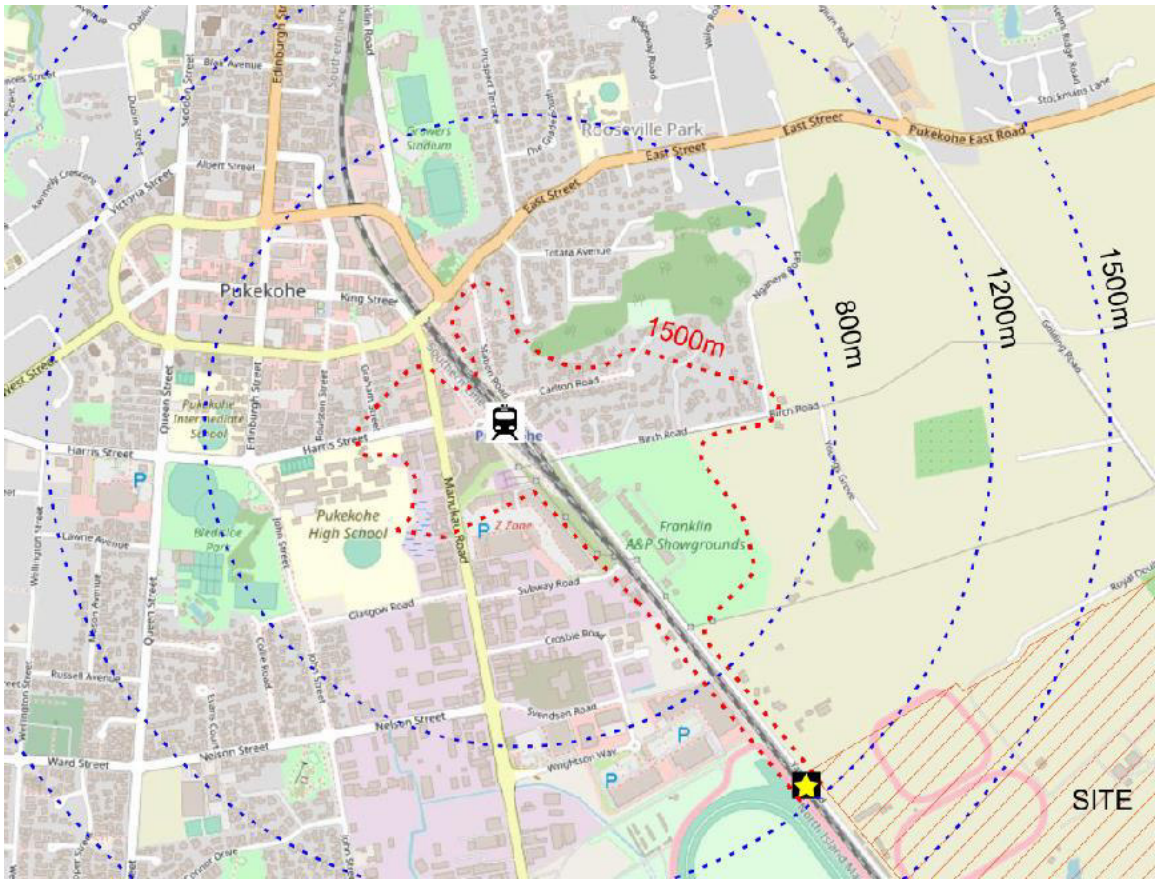
2.5.3 WALKING

Using a practical walking distance of 1.5 kilometres and the 15th percentile walking speed of a typical fit, healthy adult of 1.2 m/s, gives a journey time of approximately 20 minutes. This is generally in line with New Zealand data in the Pedestrian Planning and Design Guide, which states that for walking trips, half are more than 10 minutes and 18% are more than 20 minutes.

The primary catchment area for pedestrians has therefore been based on a 1.5 kilometre walking distance from the site as shown in Figure 6 below and Appendix A. This shows:

- True 1500m walking distance from the closest point of the PPC from the rail station (RED line)
- Series of indicative walking circles from the train station (blue lines)

Figure 6: Walking catchment



As shown above, the key points are as follows:

- Pukekohe centre is just outside of walking distance of the site.
- The closest point of the PPC site is 1.1km from the train station (as measured at the closest Station Road point).
- The furthest point along Station Road is 1.8km from the train station.
- The southern corner at the Golding Road end is 2.7km from the train station.

Currently, there are no footpaths along any of the site frontage roads with the closest footpath located on Station Road north of Birch Road. Given the urbanisation of the area, 1.8 m wide footpaths are recommended to be established along all the road frontages as well as internally within the site. It is also recommended that the footpath be extended from the site to the Station Road footpaths before any dwelling is occupied.

There are currently no footpaths within the Subway Road underpass (and indeed the eastern end of Subway Road). While this does increase the distance to some retail and

employment areas (specifically on Subway Road and Crosbie Road), there are other alternatives and especially the recently upgraded Pukekohe Rail station and overbridge.

It is also noted that a number of other active modes such as electric bikes / electric scooters are significantly changing the accessible distances to retail / employment and rapid transport nodes. The site (even with the constraints) is considered to be accessible from the site with these modes

2.5.4 CYCLING

The Auckland Regional Cycle Network does not classify roads surrounding the site as cycle routes. It is however noted that these roads provide sufficient cycling space with Station Road and Yates road considered to be quieter roads suitable by cyclists. Station Road and Yates Road provide cycle connectivity to the Pukekohe Train Station. Due to the nature of the activities, marked cycle lanes with a painted buffer are not considered to be necessary along the site's frontage roads.

Based on NZTA's Research Report 426, the average cycling trip length is approximately 3 kilometres. Figure 7 and Appendix B shows an indicative cycling catchment for the site (assuming access to Station Road, Yates Road and Golding Road.

Figure 7: Cycling Catchment Area

As shown above, the Pukekohe centre and Pukekohe Train Station are within cycling distance of the site. As a result, the site is considered to offer good cycling connectivity to a wider range of residential, employment, education, recreational and commercial activities. It is however noted that there are little / no existing dedicated cycling facilities in the vicinity of the site.

2.6 ROAD SAFETY

An assessment of the surrounding area's safety record has been carried out using the NZTA's CAS database for crashes occurring within the designated study area. The study area comprises the following:

- Golding Road from 84 Golding Road to Logan Road;
- Logan Road between Golding Road and Yates Road;
- Yates Road along its length; and
- Station Road from its southern terminus to 124 Station Road

The search included the most recent five-year period of available data from 2015 to 2019, including all available data for 2020.

A total of 21 crashes were found and are summarised below.

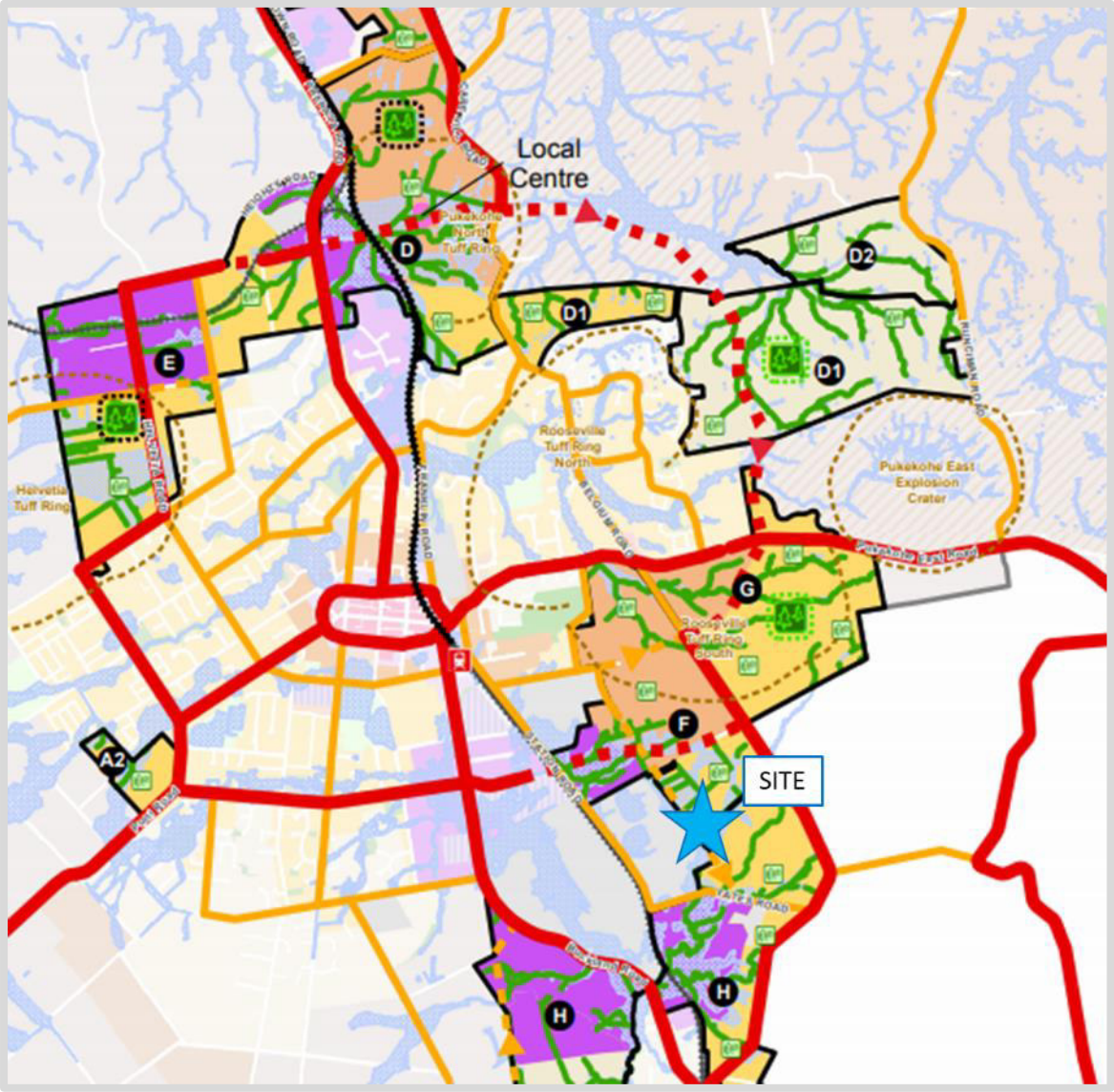
- 6 crashes occurred at the Golding Road / Logan Road intersection, including one severe and two minor injury crashes;
- 2 crashes occurred at the Logan Road / Yates Road intersection, including one minor injury crash;
- 11 crashes along Yates Road, including 6 minor injury crashes,
- 1 minor injury crash along Station Road; and
- 1 severe injury crash along Golding Road.

Further review of the crashes recorded within the search area indicates that there were a high proportion of crashes caused by driver error, with few crashes occurring at intersections involving several vehicles.

2.7 SOUTH AUCKLAND GROWTH AREA STRUCTURE PLAN

The Structure Plan released by Council for the area (Pukekohe-Paerata Structure Plan) proposes an indicative land use scenario as shown in Figure 8. This land use scenario supports higher density land use around transport stations and key corridors and supports these transport links further with a proposed centre at Pukekohe North.

Figure 8: Pukekohe-Paerata Structure Plan Map



The indicative land uses identify the site as predominately residential (Mixed Housing Suburban Zone) as well as the existing Recreation zone for the trotting club. This is generally consistent with the proposed development zoning, with the exclusion of some Light Industrial area along Station Road and Mixed Housing Urban Zones.

A new collector road is identified through the site in the north-west to south-east alignment. An extension of Svensden Road located just to the north of the site to Golding Road is proposed to be designated as an arterial road.

Additionally, a small neighbourhood centre within the site is considered appropriate to support wider network outcomes of walkability and cyclability. The integration of smaller neighbourhood centres within community environments can encourage shorter trips to be made by active modes.

2.8 TRANSPORT NETWORK

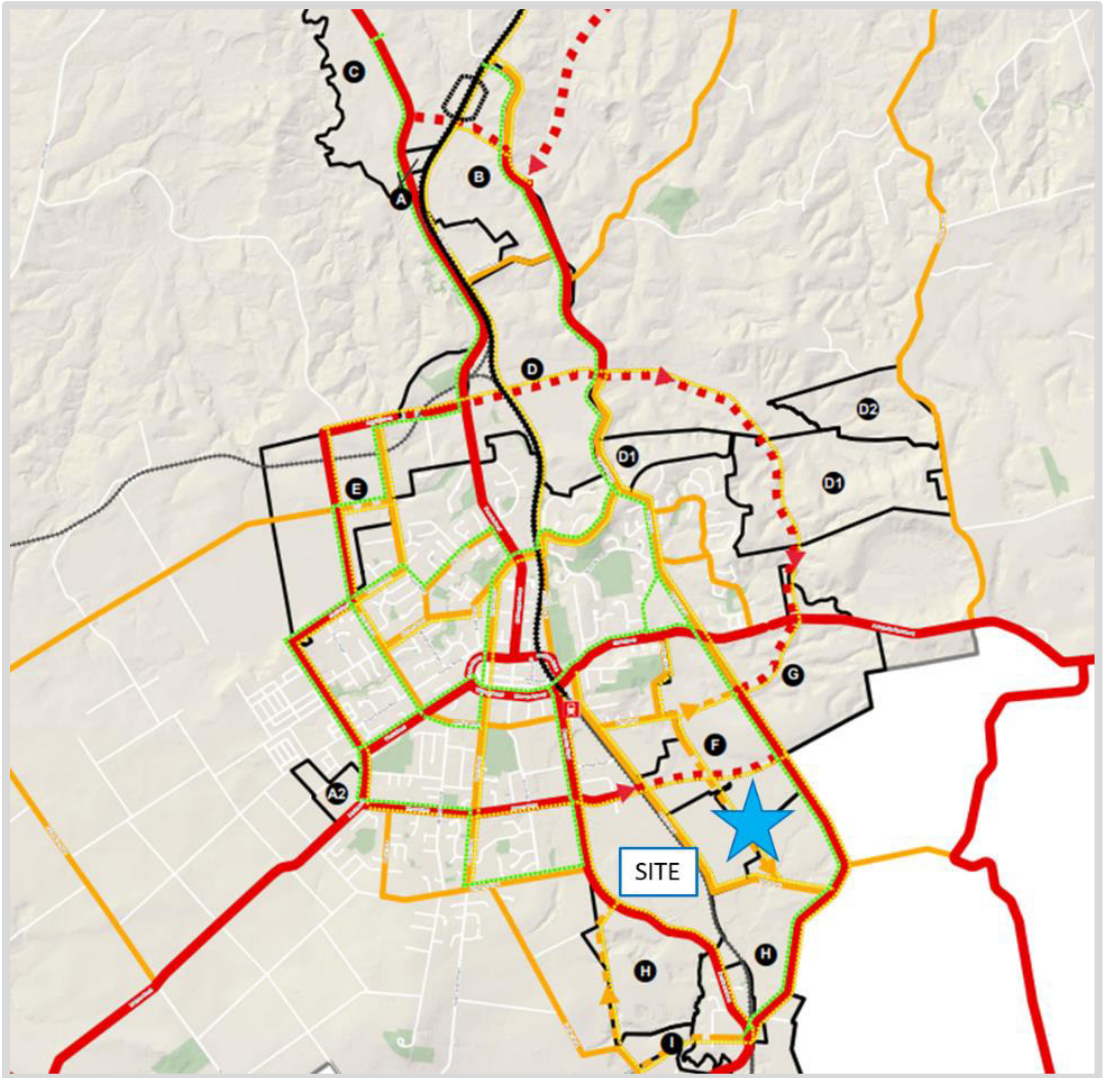
The Integrated Transport Assessment prepared for the Structure Plan (discussed in detail below) is based on the network as identified by Supporting Growth. By way of

summary the key infrastructure that has been identified in proximity or with a significant influence on the site includes:

- Rapid Transit (heavy rail) upgrades including four tracks between Wiri and Pukekohe and new rail stations at Drury Central, Drury West, Paerata and Tironui;
- Frequent Transit Bus network;
- Active mode network including regional cycle connections on NIMT between Drury and Pukekohe and on all arterials (including Karaka Road);
- Pukekohe Expressway to support resilient access to Pukekohe and Paerata and the urbanisation of Karaka Road (SH22);
- Arterial network upgrades in Pukekohe-Paerata:
    - Including widening and safety improvements to SH22 between Drury and Paerata
    - Provision of a loop arterial road around Pukekohe

Figure 9 shows the transport network for the Pukekohe-Paerata area as proposed within the Structure Plan. It is noted that the development proposal is largely consistent with the proposed transport network and identifies the urbanisation of Station Road, being a key link from the site to the Pukekohe Town Centre.

Figure 9: Draft Future Transport Network in Structure Plan



The SGA ITA identifies Station Road and Yates Road as existing collector roads to be upgraded, and an additional collector road planned to go through the site parallel to Station Road. Golding Road is identified as a Strategic and Arterial Route in the ITA.

The SGA ITA identifies typical cross-sections to be used for urban arterial and urban collector roads, and are shown for reference in Figure 10 and Figure 11 respectively.

Figure 10: SGA ITA Urban Arterial Road Indicative Cross Section (32m)

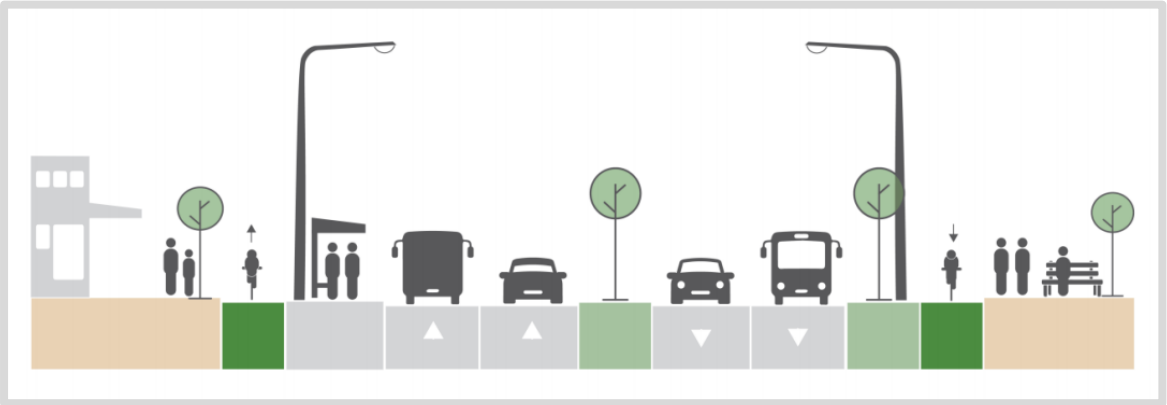
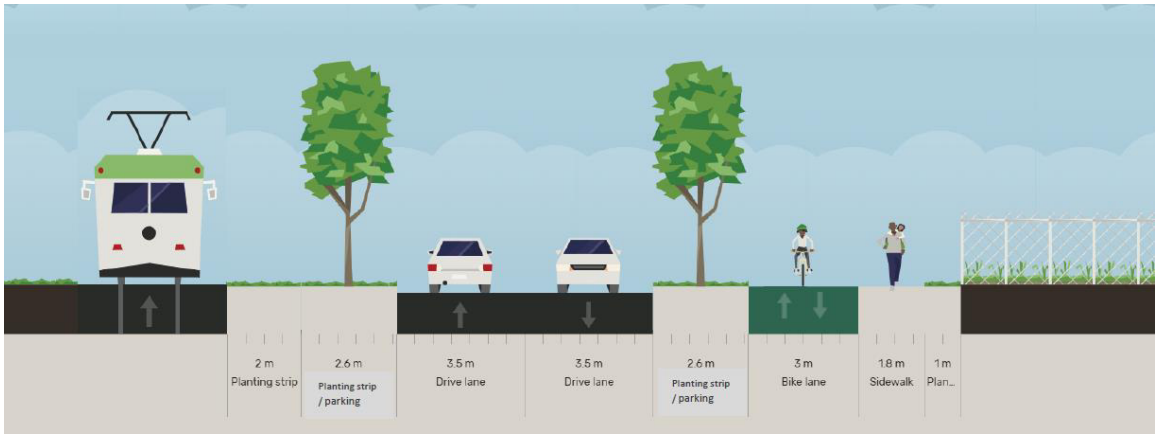


Figure 11: SGA ITA Urban Collector Road Indicative Cross Section (21m)

These cross sections are generally considered appropriate however the section of Station Road / Yates Road adjacent to the rail corridor is considered to be a special case. In general, it is considered that the cycle / pedestrian facilities should be located on the eastern side of the road (ie the subject site) as the rail corridor will provide no cycling requirement. Figure 12 below shows the suggested arrangement which will also fit within the existing 20m road reserve. It is noted that the cross section does allow for a future footpath on the western side if required at a later time. This cross-section also allows for just the eastern side of the road (subject site) to be upgraded with only minor changes to the western side.

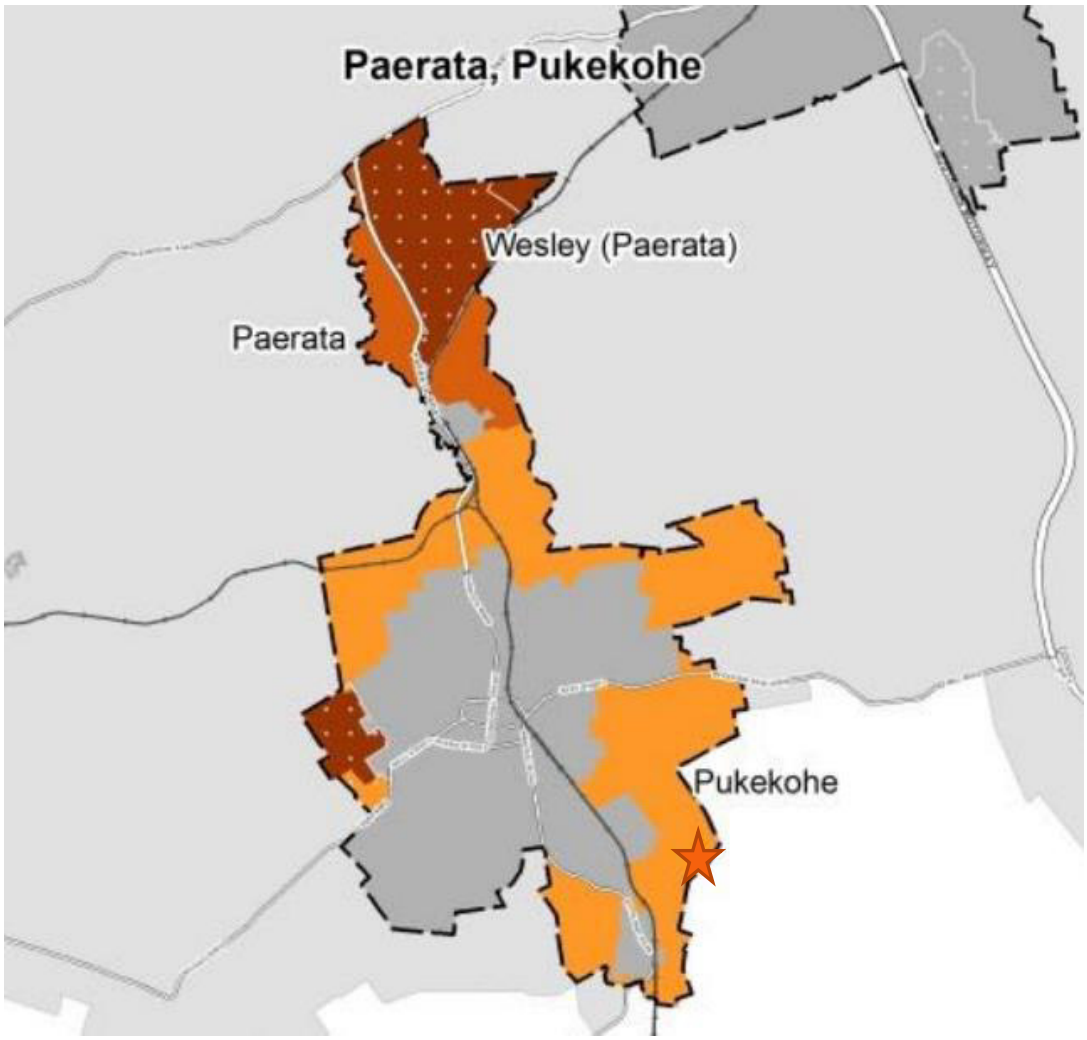
Figure 12: Suggested 20m collector road of Station / Yates Road fronting the rail



2.9 FUTURE URBAN LAND SUPPLY STRATEGY

The Future Urban Land Supply Strategy (FULSS) identifies a programme to sequence the use of Future Urban Zone land for urbanisation over the next 30 years relative to bulk infrastructure development. Figure 13 shows the site in relation to the FULSS showing that the site is intended to be development ready in the second half of decade 1 (2023-2027) which is in line with the expected development timeframes.

Figure 13: FULSS



3 PROPOSED DEVELOPMENT

The proposal intends to rezone the site from a 'Future Urban Zone' to a mix of residential, light industrial and neighbourhood centre zones. The approximate total area of the new zones is detailed below:

- 19.77 Ha of Light Industry Zone;
- 62.56 Ha of Residential - Mixed Housing Urban Zone;
- 0.33 Ha of Business - Neighbourhood Centre Zone;

In addition, a network of roads is proposed, including two collector roads through the site, linking Station Road to Golding Road and a future arterial road along the northern side of the site to the south-east of the site.

A total of 9 intersections are proposed to connect the site to the existing road network, with three each being on Golding Road, Yates Road and Station Road.

Figure 14 shows the layout of the potential development within the PPC area.

Figure 14: Potential Development within Plan Change Area

4 TRIP GENERATION

4.1 GUIDELINES

The SGA ITA discusses in great detail the expected traffic effects of the Pukekohe-Paerata Structure Plan on the wider Structure Plan area. A Macro Strategic Model (MSM) was undertaken, to analyse the study area at a more strategic level, and a mesoscopic project model using SATURN was then created, using the regional demands from the MSM.

The model included a net developable area of 529 Ha within the Pukekohe-Paerata Structure Plan area, approximately 12,500 dwellings and the creation of approximately 5,000 jobs.

4.2 EXISTING

The site is currently occupied by several rural residential developments and the Franklin Trotting Club. The activities are understood to generate a relatively low volume of trips during peak hours and throughout a typical day relative to the site's area. On Saturdays when the Franklin Trotting Club holds meets, this number is understood to increase, with approximately 40 to 50 horses trialling each Saturday.

4.3 MSM MODEL ASSUMPTIONS

As part of the supporting growth work (both the IBC and ITA), transport demands were based on forecasts from the Macro Strategic Model (MSM). The MSM model forecasts travel patterns based on an assumed land use for each zone. These assumptions are continually changing as further information becomes available and network assumptions change. Forecasts are typically produced at 5-year increments between 2016 and 2048. The SGA prepared an additional forecast year entitled 2048+ which was intended to represent full buildout of the growth areas.

The PPC is within MSM Zone 580 as shown in Figure 15. The PPC site accounts for around a half of the land within the MSM zone. The likely development yields for the land have been compared against the assumptions used in the MSM model.

Figure 15: Zone 580 boundary

The regional transport model forecast growth for zone 580 is set out in Table 4-1.

Table 4-1: MSM growth assumptions (I11.5 scenario)

	HOUSEHOLD FORECASTS				POPULATION FORECASTS				EMPLOYMENT FORECASTS			
MSM												
Zone	**2016**	**2028**	**2038**	**2048**	**2016**	**2028**	**2038**	**2048**	**2016**	**2028**	**2038**	**2048**
580	63	747	1047	1120	162	2001	2697	2784	73	263	548	684

The Zone is assumed to cater for 1,120 households, 2,784 people and 684 jobs in 2048. Growth is assumed to occur over the next 30 years. Of note, the 2038 forecast year (closest to full buildout of the site) assumes 1047 households within the zone with 548 jobs.

4.4 COMPARISON TO FORECAST GROWTH

The vast majority of Zone 580 is rural in nature at present, with no plan changes lodged for the development of the land. The Structure Plan identifies a mixture of MHU and MHSU as well as light industrial zoning.

Further, the yield of site and the remaining land has been estimated using typical rates[1] to determine the anticipated household and employment numbers. Table 4-2 outlines these rates which have been applied for employment (Table 4-2) and households (Table 4-3). Within a residential zone, this rate relates to neighbourhood and local centre employment and some working from home assumed within the residential zones.

Table 4-2: Assumed rates for determining number of employments in various zones

Activity	Number of jobs
Residential zone (THAB, MHU, MHSU)	6 jobs per ha net developable area (NDA)[2]
Light industrial zone	37 jobs per ha NDA

With regards to residential density, typical rates have been applied to the proposed area of each zone within the Site. The remaining land has been estimated based on the structure plan zoning. Table 4-3 sets out the residential dwelling density assumed by zone.

Table 4-3: Assumed rates for household density by zone

Activity	Number of households
Residential MHSU	16 dwellings per ha of NDA
Residential MHU	23 dwellings per ha of NDA
Residential zone THAB	67 dwellings per ha of NDA

Based on the above rates, the number of households and jobs within Zone 580 are estimated. As the rates adopted are high level and take into account loss to developable area as a result of small centres (such as the neighbourhood centre) and parks, these areas have been assessed as residential land as opposed to split out and considered separately. Table 4-4 outlines the assumed dwellings and jobs in the PPC with roading / parks / landscaping removed.

[1] Similar to those used during the Unitary Plan process and in development of household and employment assumptions used in the MSM regional transport model.

2 The net developable area excludes land required for roads, parks and any other environmental features such as ponds.

Table 4-4: Predicted households and jobs

Area	Net developable area	Number of households	Number of jobs
Gross Plan Change 82.66Ha total MHU – 62.34 LIZ – 19.97	MHU – 40.0 LIZ – 15.9	920 0	230 588
		920 households	818 jobs

Of note the Structure plan essentially has the entire residential component as Mixed Housing Suburban with the Special Purpose Zone area (Trotting Club) to remain. This translates to approximately 47.46ha of MHSU. This has been converted to Net Development Area (NDA) using a factor of 0.85 so that the rates in Table 4-3 and 4-3 can be applied (16 dwellings per ha of NDA and 6 jobs per NDA).

Appling the 16 dwellings per ha of NDA (Table 4-3) and 6 jobs per NDA (Table 4-2) yields 640 dwellings and 240 jobs (plus the Trotting Club which is likely to be 50-60 jobs or around 300 in total).

As such the plan change provides an increase of 280 households and 520 jobs from that assumed.

It is noted that the SGA-ITA notes (emphasis added):

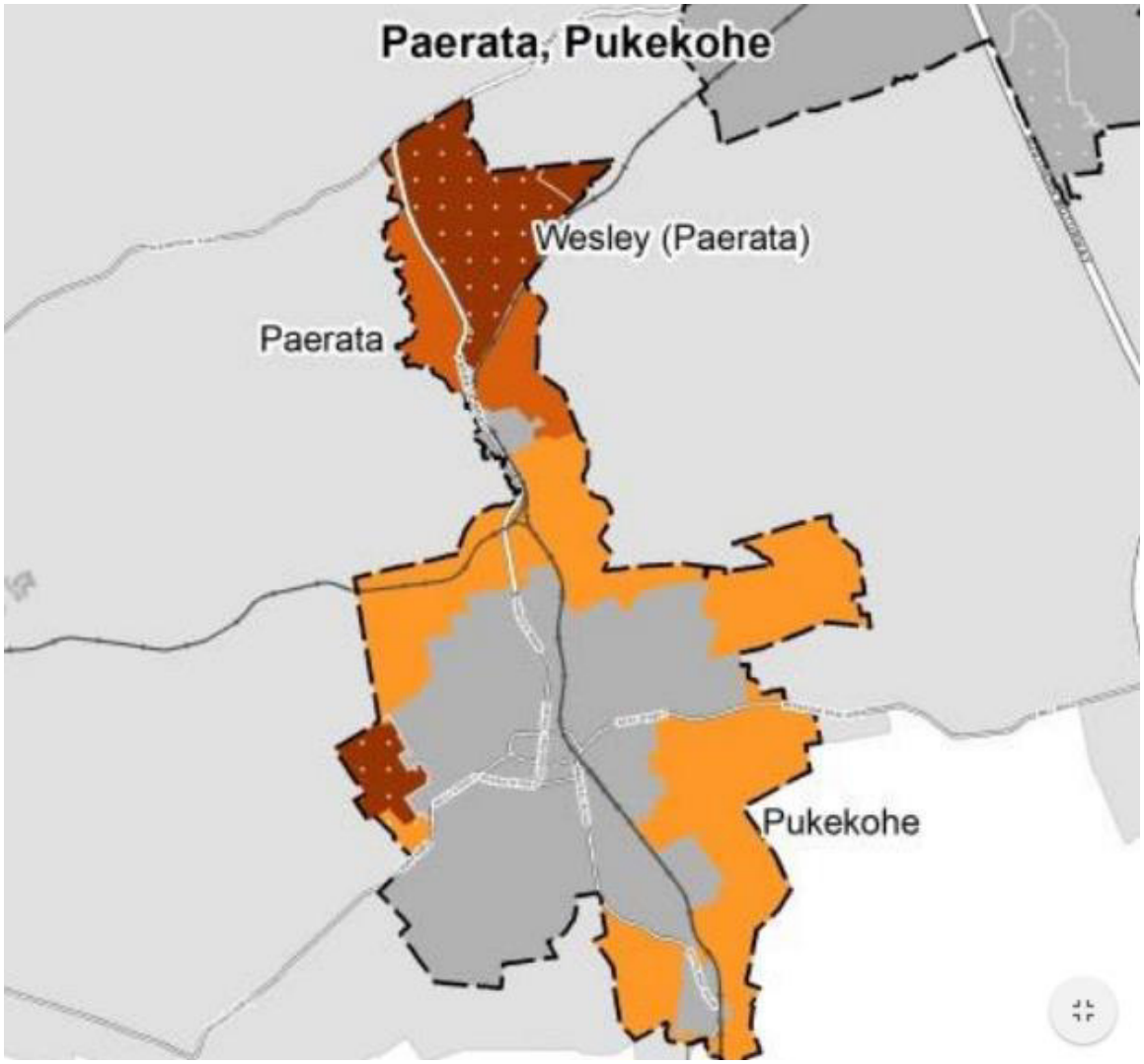
> *"the employment-to-population ratios for the South more broadly (i.e. including areas beyond the Structure Plan areas) show relatively lower local employment opportunities at present than the regional average (see Table 7-2), and the situation is not predicted to improve significantly in the future (0.23 jobs per person improves to 0.25 jobs per person). Accordingly, provision for further local employment should be considered as part of a travel demand management strategy"*

As such the provision for greater number of jobs in the south and especially Pukekohe is expected to create a positive effect by assisting in reducing outbound travel demand on the wider transport network by providing local employment opportunities. This is expected to more than compensate for the increase in the number of residential dwellings in the PPC.

4.4.1 TIMING OF GROWTH

The FULSS identifies the Drury West area as being development ready in the second half of Decade 1 (2023-2027). The term 'development ready' is further defined as land rezoned and bulk infrastructure provided.

Figure 16: Timing assumptions from the Future Urban Land supply strategy 2017



The development timing is broadly in line with the assumed growth in the zone. This does not take into account development of the remaining land surrounding the subject site which could occur on a similar timeline should the market conditions support it.

4.5 MODE SHARE AND TRIP RATES

The Structure Plan ITA provides a forecast for future mode share and trip rates based on transport modelling undertaken. The MSM model predicts mode share based on a number of factors including demographic information, the location of households and jobs and relative costs for the various modes of transport for a trip.

Implied Daily trip rates are reported in Table 7-6 of the ITA. For zone 580, 8.5 trips are expected per household with 87% expected to be via a motorised mode (private vehicle or PT) and 13% via active modes. Public transport mode share is reported for the full structure plan rather than individual zones. In the 2028 forecast year, 14% PT mode share is expected. In the 2048+ year this increases to 20% mode share via PT.

Vehicle trip rates are reported for each individual zone. Zone 580 is reported to have an AM peak trip rate of 0.58, an interpeak trip rate of 0.51 and a PM peak trip rate of 0.58. While these are lower than has been historically recorded from similar development

types (I.e. as published in the RTA guidelines), it is important to recognise the following factors:

- The forecasts are for 2028 and 2048+ representing travel patterns in the future whereas published trip rates are typically based on historic information.
- The area was anticipated to have a good level of access to high quality PT. Post the ITA, the staging of the electrification has been accelerated by the NZUP programme, further improving the areas access to public transport.
- Local jobs are anticipated reducing the need to travel out of the local area
- Within the new growth areas, the provision of local schools will affect travel demand through providing a safe and attractive active mode travel choice for students.
- Future changes in demographics will affect trip rates i.e. reducing household size and reduced proportion of working population.

In order to achieve the above forecasts for mode share, the following is considered important:

- Provision of high-quality public transport to be provided early in the development of the area.
- High quality active mode links are provided to centres and PT nodes
- Design of high-quality urban streets to promote active mode travel
- Building forms and street design which reduce vehicle ownership

Attachment C contains a spreadsheet of the anticipated trip generation using both standard trip rates and modal split analysis for both entering and exiting movements in the peak hours. This assessment includes a number of assumption including the increase in employment in the area from the PPC attracting residents (ie so they do not need to travel outside the site). This includes an assessment of both the Structure Plan and the PPC.

Of note, while the total traffic generation increases by 156-241 vehicles per hour (over that assumed in the Structure Plan), the majority are in the opposite direction to the peak flow. As such the increase in vehicles leaving the site in the AM peak hour and entering the site in the PM peak hour (and potentially Pukekohe) is only 14 vehicles per hour.

4.6 CURRENT DEFICIENCIES

As part of the development of the Plan Change, an urban street network will be provided with appropriate connections to proposed collector and arterial roads surrounding the site. The surrounding transport network has some existing deficiencies which can be described as follows:

- Lack of mode choice – currently the area has poor access to public transport and a lack of safe and attractive walking and cycling access. The Structure plan ITA identifies collector roads to the existing Rail station and the expectation of AT bus services through the area once developed. In order to achieve mode share within the development, provision of travel choice should be provided as the area develops.
- Active mode connections to key destinations – Pedestrian and cycle demand from the site is likely to be focused on key destination in the surrounding area including; the Pukekohe Train Station, the Pukekohe town centre
- The roads surrounding the site are in general of a rural standard.

4.7 ROADING UPGRADES REQUIRED

The ITA identifies the following upgrades which are considered to influence the operation of the surrounding transport network for the PPC:

Direct effect

- Collector Road network within the site should be provided.
- Collector Road link from the site to Pukekohe rail station (and Pukekohe) via Station Road. This especially includes pedestrian and cycling links
- Collector Road upgrade of Yates Road (site frontage to Station Road). This includes pedestrian and cycling links

Other projects

- Golding Road upgrade to Arterial road status (urbanisation)
- Yates Road upgrade (from site to Logan Road)
- Upgrade of the Station Road / East Street intersection (likely roundabout). It has been identified that this existing priority intersection may have capacity issues in the medium to long term due to both the subject site and surrounding growth
- Upgrade of the Golding Road / East Street existing roundabout (to a two lane roundabout) may have capacity issues in the long term when Golding Road becomes an arterial due to wider growth.

5 INTERNAL LAYOUT

5.1 GENERAL

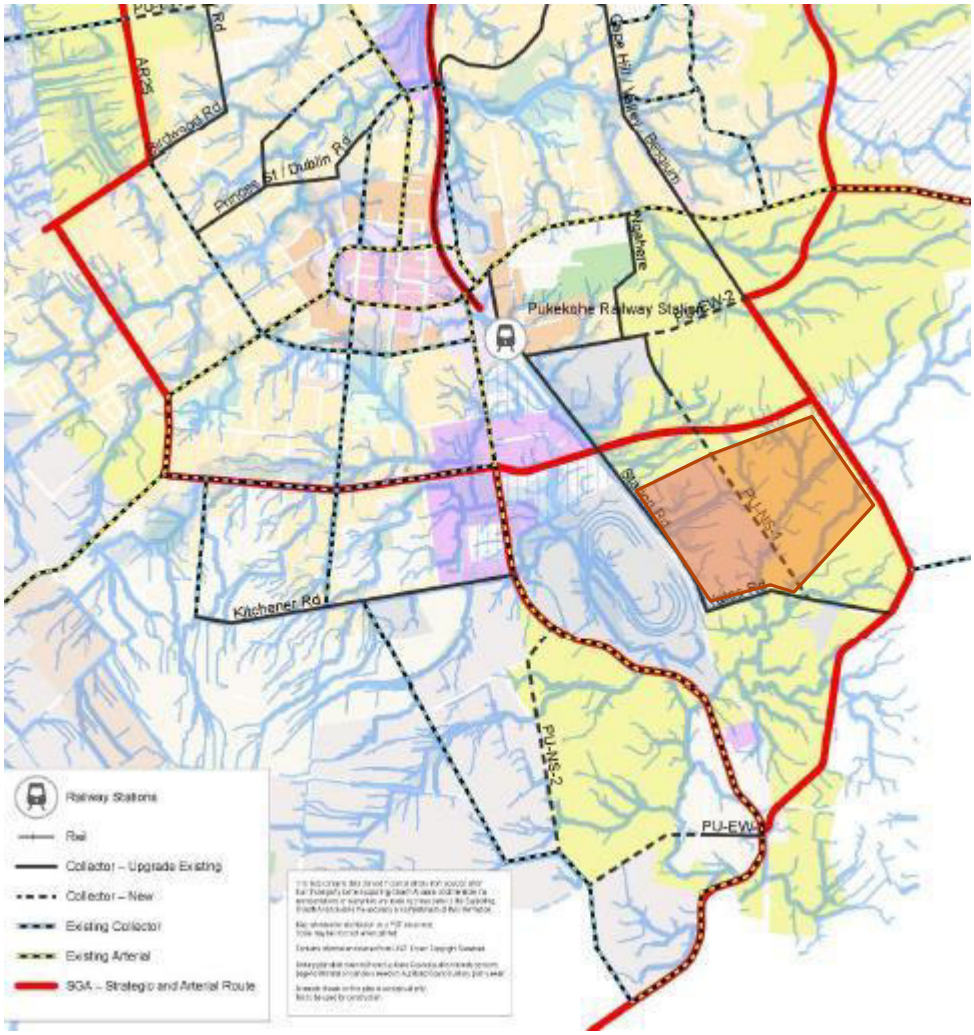
The site is proposed to gain vehicle access via 9 different locations from the local road network, three on each of Station Road, Yates Road and Golding Road.

The northern access on Golding Road will connect to a collector road through the site, which will intersect with Station Road at the southernmost access of the three accesses proposed along Station Road.

While the draft site plans show a second connector road going through the site and terminating at a local road also within the site, it is expected that further design iterations will connect this collector road through to Yates Road at the southern end of the site.

Figure 17 shows the site in relation to the SGA_ITA roads.

Figure 17: SP ITA roads



5.2 COLLECTOR ROADS

A collector road cross section of 21m is proposed as shown in Figure 18.

Figure 18: Collector Road cross section (20m)

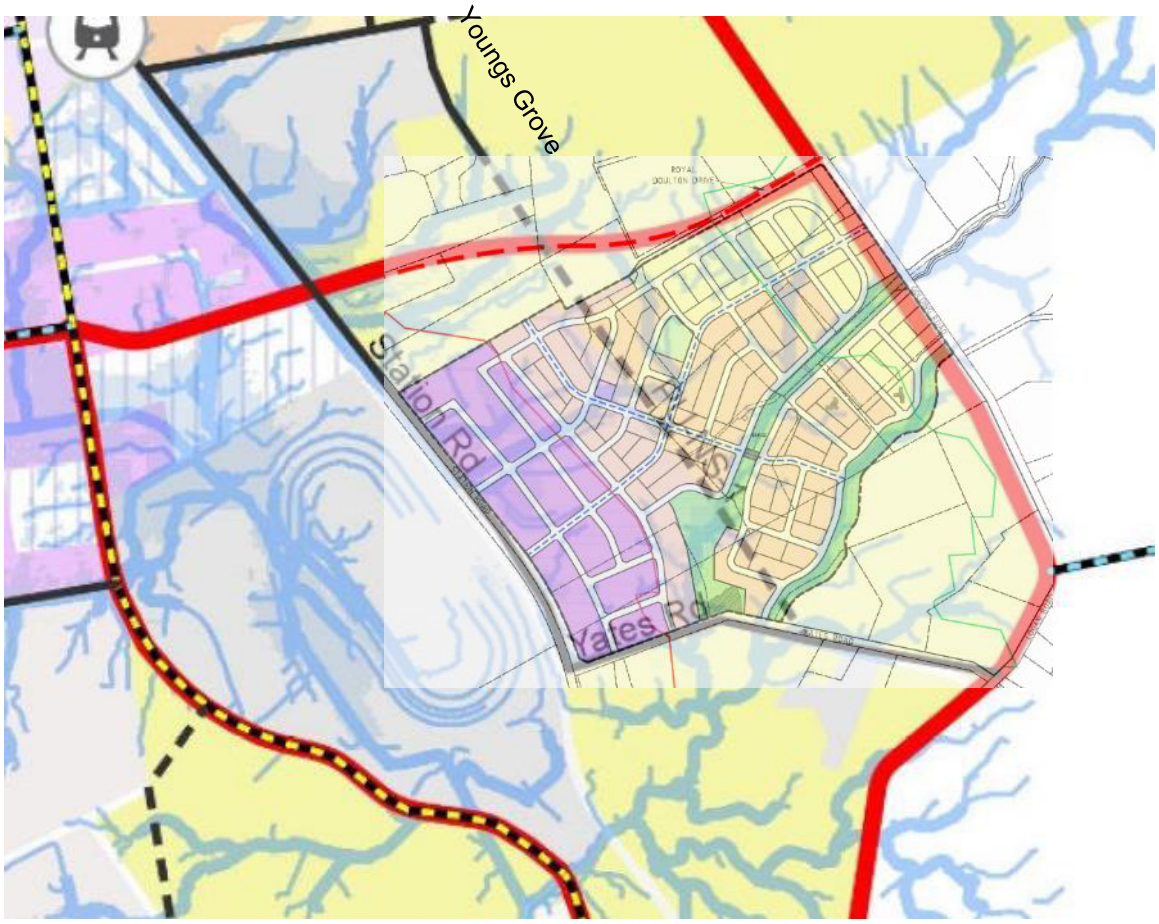
In general, the Collector Road should include:

- Traffic lane in each direction (width dependant on use)
- Separated cycle lanes (one either direction)
- Footpath either side (1.8m minimum)

In regard to the subject site, there is one structure plan Collector road proposed (PU-LNS-1 - Youngs Grove ext). This road is proposed to link to the Urbanisation of Youngs Grove and extension to Yates Road and essentially runs through the middle of the subject site.

Figure 19 shows PU-LNS-1 (Youngs Grove ext) in relation to the site development.

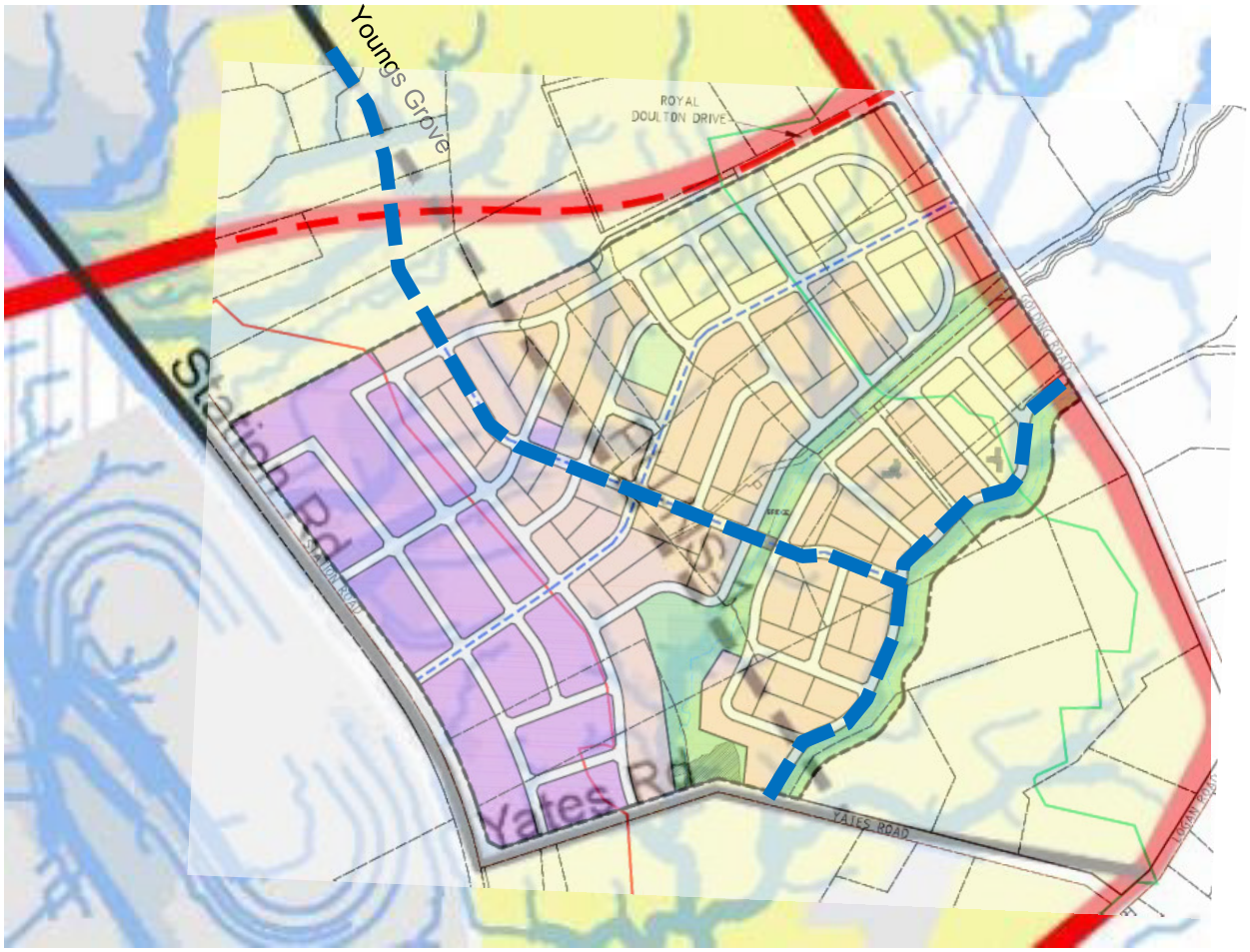
Figure 19: PPC vs SGA-ITA



From Figure 19, the internal collector road does not exactly match the Structure Plan PU-NS-1 road. It is however noted that the Structure Planning of the collector road is indicative and does not take into account network constraints. The proposal does have a north-south collector road however it does not link to Yates Road in the south and does not directly link to Youngs Grove to the north. Accordingly, it is recommended that:

- the easternmost road in the Plan Change also be a collector road (linking to Yates Road) and
- the link to Youngs Grove to the north will need to curve slightly which will also create a more appropriate 90-degree intersection with the future arterial. This is shown in Figure 20 below.

Figure 20: PU-LNS-1 - Youngs Grove ext change

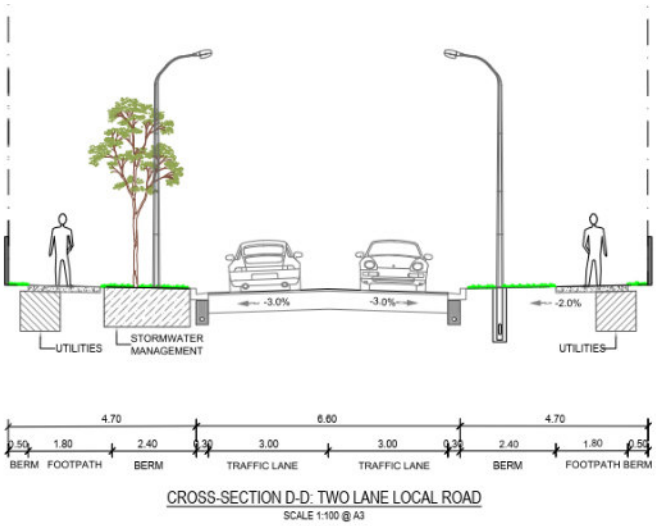


With this change, the intention of the Structure Plan / SHA-ITA road is considered to be satisfied.

5.3 INDUSTRIAL ZONE / LOCAL ROAD

A typical local road cross section is shown in Figure 21.

Figure 21: Local Road cross-section (16m)



The internal road is proposed to have a cross-section of 16 m which satisfies the minimum road width of 14 m for public roads and is proposed to have maximum gradients less (shallower) than the permitted maximum gradient of 1:8. While the design of the internal road will be finalised as part of later resource consent stages, a workable internal road solution can be provided.

It is considered that given the light industrial zones, special attention will need to be made in the roading network to ensure trucks can appropriately access the site. In this regard the local roads shown below should be widened to 7.0m in carriageway width to accommodate large trucks (with intersections designed appropriately) with the local road width increased accordingly.

Figure 22: Local roads which need to accommodate large trucks

5.4 ACCESS TO INDIVIDUAL SITES

Vehicle access for dwellings would be expected to occur to individual garages, or basement or at-grade parking areas with multiple parking spaces, respectively. Where possible, the number of vehicle access points would be minimised. Vehicle accesses would meet Unitary Plan requirements including:

- Minimum 10 m separation from intersections;
- Minimum 6 m separation between vehicle accesses;
- 6.0 m maximum crossing widths;
- 1:20 gradient, 4 m long platforms on the approach to public roads;
- Not be located on any arterial road and
- Maximum 1:8 gradients where service vehicles are expected.

Overall, the vehicle accesses can be accommodated.

5.5 ACTIVE MODES

5.5.1 LOCAL SITE

Figure 23 provides a plan of the key pedestrian and cycle links through the plan change area. The proposed arrangement provides for a permeable network of walking and cycling facilities and provides connections to key walking and cycling corridors external to the site (essentially the collector roads and some additional linkages).

Figure 23: Active mode facilities within the site

5.5.2 WIDER AREA

Within the wider area, pedestrian and cycle desire lines are likely to focus on several key attractors including:

- The Pukekohe Rail station
- Pukekohe town centre

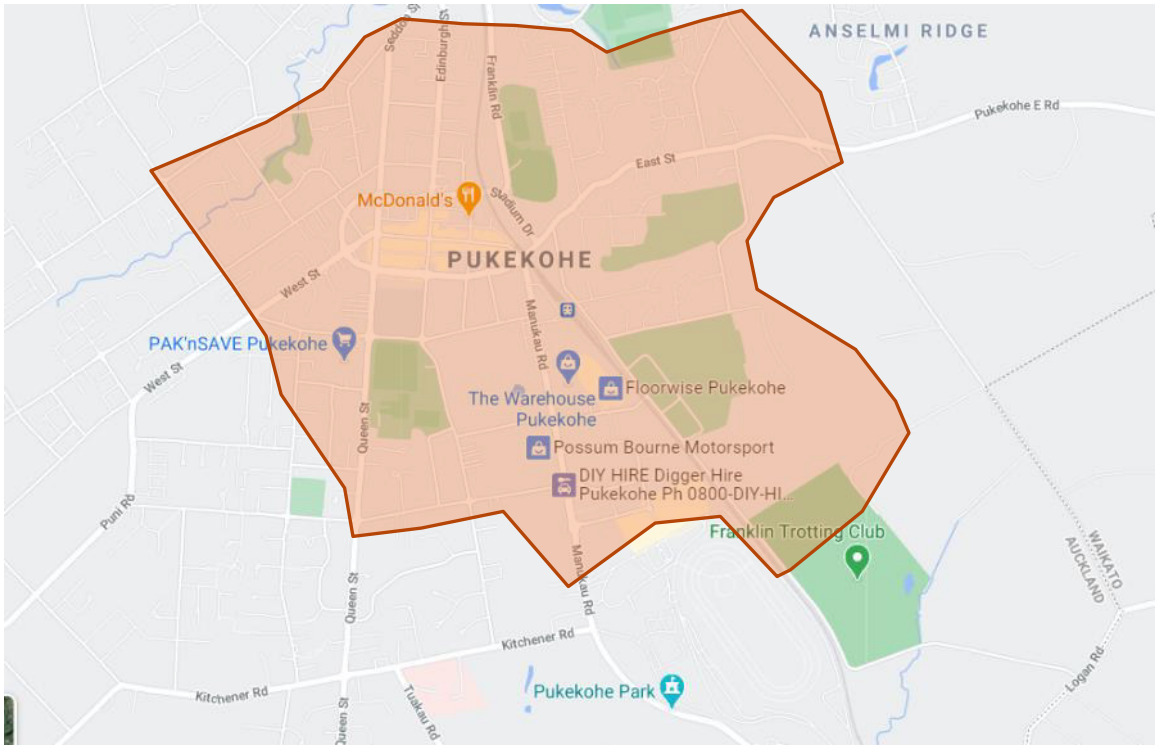
The Auckland Transport TDM Urban Street and Road Design Guide provides guidance as to the likely acceptable travel times to various activities as show in Figure 24.

Figure 24: Acceptable travel times

Assuming a 1.2 metres per second walking speed (a conservative walking speed to account for topography / age / barriers) then the guidance suggests a 20 mins travel time for a rail station or around 1.5km. With the emergence of micro mobility and cycling the 1.5km is considered an accessible area for a wide range of public transport users. Figure 25 shows the area of focus for initial development based on the proximity to the rail station.

The indicative walk up catchment to the Pukekohe rail station is shown in Figure 25.

Figure 25: Approximate Pukekohe rail station walking catchment (1.5km)

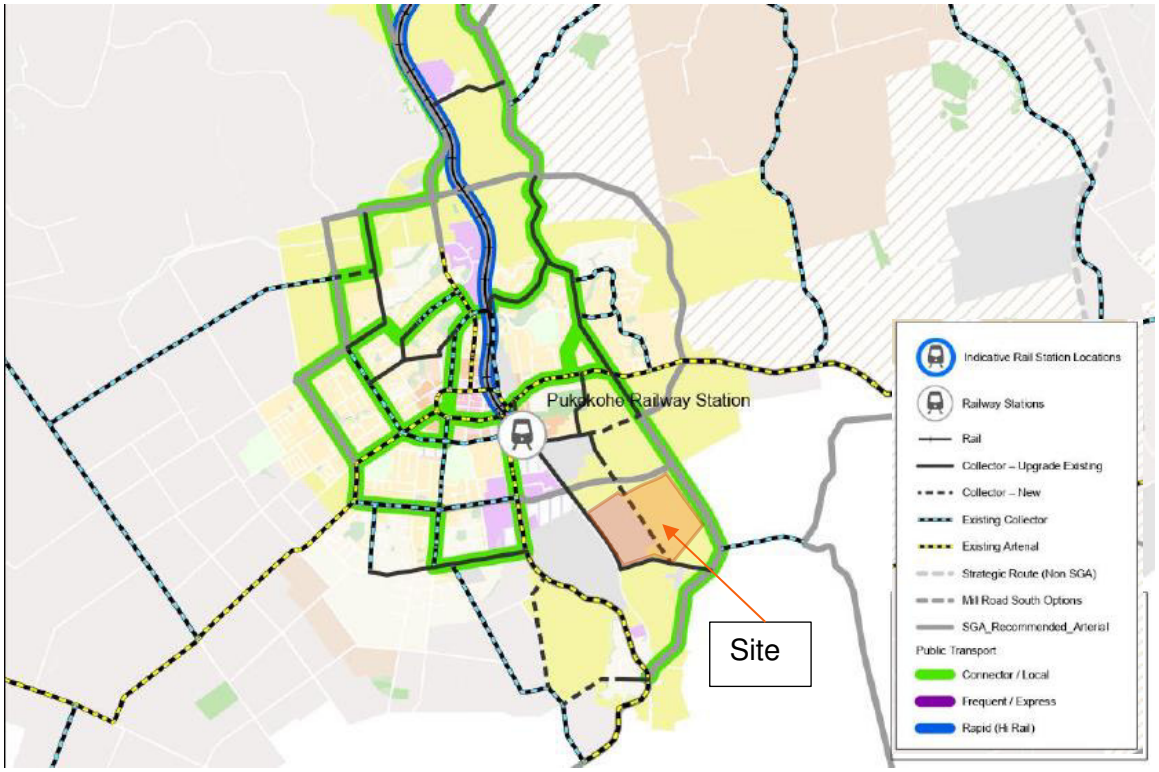


Access to public transport is considered important for the interim stage of development. As such development of the site should initially be concentrated on the norther portion of the site (until public transport to the station is improved).

5.6 PUBLIC TRANSPORT ACCESS

The SGA ITA provides some information as to the potential future bus routes through the Pukekohe wider area as shown in Figure 26. Services are proposed on Golding Road (connector / local).

Figure 26: Future public transport routes in Pukekohe



6 PARKING

6.1 AUCKLAND UNITARY PLAN REQUIREMENTS

The Unitary Plan outlines the relevant rules against which potential development should be assessed. Table 6-1 summarises the Unitary Plan parking requirements for the residential zones as per table E27.6.2.4 of the AUP.

Table 6-1: **Unitary Plan Minimum and Maximum Parking Requirements**

Activity		Unitary Plan Parking Requirement
Light Industrial	All other industrial activities	1 per 50m^2 GFA, or 0.7 per FTE employee (where the number of employees is known), whichever results in requiring a lower amount of onsite parking No maximum
Residential – Mixed Housing Urban Zone	Dwellings - two or more bedrooms	1 per dwelling minimum No maximum

Activity		Unitary Plan Parking Requirement
Neighbourhood Centre	Retail – all other retail (including food and beverage)	1 per 25m^2 GFA No maximum

Within the Neighborhood Centre zone, a range of parking rates apply to various activities. Generally, parking minimums are specified for each activity while no parking maximums apply for the majority of activities. Office developments are the only exception, where a maximum of 1 space per 30m^2 applies.

The Unitary Plan parking provisions and notable absence of parking maximums is considered adequate to govern parking provisions within the site.

6.2 NATIONAL POLICY STATEMENT – URBAN DEVELOPMENT

The New Zealand Government released the *National Policy Statement on Urban Development 2020* (NPS) in July 2020, which came into effect on 20 August 2020.

Section 3.38 (1) of the NPS states the following:

"If the district plan of a tier 1, 2, or 3 territorial authority contains objectives, policies, rules, or assessment criteria that have the effect of requiring a minimum number of car parks to be provided for a particular development, land use, or activity, the territorial authority must change its district plan to remove that effect, other than in respect of accessible car parks."

This states that the Unitary Plan must be amended to remove the minimum car parking requirements for all developments, with the exception of accessible car parking spaces. This is important to take into consideration for future development within the site, however it is noted that the Unitary Plan has yet to be amended as at September 2020.

6.3 ON-STREET PARKING

On-street parking on the internal road network can be determined at future resource consent stages however it is generally considered that a minimum of 1 space per 5 dwellings is an appropriate design standard within the residential zoning areas. Parking in light industrial zones is expected to be provided at the minimum parking rates currently specified in the Unitary Plan however.

The details of on-street parking provisions and individual development parking provisions will be worked through in the resource consent stages.

6.4 CYCLE PARKING

Table 6-2 outlines the Unitary Plan bicycle parking requirements for the various proposed zones within the site.

Table 6-2: **Unitary Plan Bicycle Parking Requirements (As per Table E27.6.2.5 of the Unitary Plan)**

Activity	Short-Stay	Long-Stay
Residential (Developments of 20 or more dwellings)	1 per 20 dwellings	1 per dwelling without a dedicated garage
Retail (All other retail)	Up to 500m^2 GFA – Nil required Greater than 500m^2 up to 5,000m^2 GFA – 1 per 500m^2 GFA Greater than 5,000m^2 GFA – 1 per 750m^2 GFA	Up to 5,000m^2 GFA – 1 per 300m^2 GFA of office Greater than 5,000m^2 GFA – 1 per 300m^2 GFA of office
Industrial activities	1 space plus 1 space per 750m^2 GFA of office space	1 per 300m^2 GFA of office

Residential dwellings are expected to be eventually provided as a mix of low density (stand alone) housing and medium and high-density housing (terraced housing and apartment buildings). Low density residential and terraced housing would likely provide internal garaging therefore there would be no need for dedicated bicycle parking facilities. Apartment buildings however would likely have a shared at-grade or basement parking area (no dedicated garages), and therefore dedicated bicycle parking facilities would be required for the apartment typologies.

The total cycle parking provisions can be determined at subsequent resource consent stages; however the site is considered to be capable of accommodating the required number of cycle parking spaces.

6.5 ACCESSIBLE PARKING

The Unitary Plan requires that accessible parking be provided as per the requirements of the Building Code and NZS 4121[3]. The Building Act states that accessible parking is not required for residential dwellings but will be required for industrial.

[3] NZS4121:2001, Design for Access and Mobility: Buildings and Associated Facilities

There may be small scale ancillary café / retail type activities provided in a neighbourhood centre for example that may require accessible parking. This can be investigated at subsequent resource consent stages once development schemes are further investigated.

7 SERVICING

Individual loading and servicing requirements will be determined at resource consent stage for each development.

The internal road network would be designed to accommodate a 10.3 m rear steering waste truck as advised by Auckland Council's Waste Management team. The site access intersections should feature compound kerbs to enable trucks to enter and exit the development without obstructing opposing light vehicles. Within the site, it is expected that trucks will be able to access each development for the purposes of servicing, deliveries, relocation services and waste collection.

For the light industrial activities, a semi-trailer / B-train will need to be the design vehicle.

8 INTEGRATION WITH FUTURE TRANSPORT NETWORK

8.1 GENERAL

The following section provides a review of established policy and plans in relation to the proposed development. The documents reviewed comprise:

- Auckland Plan 2050;
- Auckland Regional Policy Statement;
- Auckland Regional Land Transport Plan;
- Auckland Transport Alignment Project 2021-2031
- Auckland Regional Public Transport Plan 2013;
- Auckland Unitary Plan Operative in Part Version (referred to as the 'Unitary Plan' in this report);
- Auckland Transport Code of Practice; and
- Auckland Design Manual 2014.

8.2 AUCKLAND PLAN 2050

The Auckland Plan 2050 sets the direction for how Auckland will grow and develop over the next 30 years. It responds to the key challenges we face today – high population growth, sharing prosperity among all Aucklanders, and reducing environmental damage. The key transport related outcome is detailed below:

"Aucklanders will be able to get where they want to go more easily, safely and sustainably".

The Auckland Plan 2050 details seven focus areas in order to achieve this outcome:

- Make better use of existing transport networks;
- Target new transport investment to the most significant challenges;
- Maximise the benefits from transport technology;
- Make walking, cycling and public transport preferred choices for many more Aucklanders;
- Better integrate land-use and transport;
- Move to a safe transport network, free from death and serious injury; and

- Develop a sustainable and resilient transport system.

It is considered that the proposed development and associated roading connection to Pukekohe rail station aligns well with these focus areas as it makes best use of several existing corridors, upgrades to these corridors will improve safety and provide for alternative modes. In addition, the proposed site has good access to public transport services with both bus and rail provided.

The addition of jobs created in the area (light industrial) also aligns with the Auckland Plan by locating jobs near dwellings.

8.3 AUCKLAND REGIONAL LAND TRANSPORT PLAN

The Auckland Regional Land Transport Plan ("RLTP") forms part of the National Land Transport Programme and represents the combined intentions of the NZ Transport Agency (the Transport Agency), Auckland Transport (AT), and KiwiRail to respond to growth and other challenges facing Auckland in the next 10 years.

Some of the specific projects noted are East West link, the New Network for South Auckland, and various rail and bus network improvements (ticketing, rail, signalling improvements and bus lanes). The proposed development is considered to be compatible with the surrounding transport environment and offers alternatives to the private vehicle with proximity to planned bus routes and the Pukekohe rail station.

8.4 AUCKLAND TRANSPORT ALIGNMENT PROJECT (ATAP) 2021 – 2031

On 12 March the Minister of Transport, released the ATAP 2021-2031 programme that invests around $31.4 billion into critical transport infrastructure and services around Auckland. It focuses on encouraging the shift from private cars to public transport, walking and cycling and addressing Auckland's longer-term challenges of climate change and housing development.

In terms of the local area, the key projects to be invested in include the Papakura to Pukekohe Electrification and Network Performance - Pukekohe Dual Signals (Manukau / Massey / King / Stadium and East / Stadium) (AT).

8.5 AUCKLAND REGIONAL PUBLIC TRANSPORT PLAN

The Auckland Regional Public Transport Plan 2018 – 2028 ("RPTP") seeks to deliver an improved public transport network in Auckland by increasing public transport frequency along key transport corridors.

The vision of the RPTP is to "*provide Auckland with seamless end-to-end customer journeys that are safe, accessible and reliable*". To achieve this vision, the RPTP features four focus areas:

1. Expanding and enhancing rapid and frequent networks;
2. Improving customer access to public transport;
3. Improving Māori responsiveness; and
4. Harnessing emerging technologies.

The proposed development is therefore considered to be supportive of the vision of the RPTP by locating employment / dwellings near the Pukekohe rail station.

8.6 AUCKLAND UNITARY PLAN

The Auckland Unitary Plan Operative in part has the following objectives with regard to the region's transport infrastructure under Chapter E27 (Transport):

- Land use and all modes of transport are integrated in a manner that enables:
    a. the benefits of an integrated transport network to be realised; and
    b. the adverse effects of traffic generation on the transport network to be managed.
- An integrated public transport network, including public transport, walking, cycling, private vehicles and freight, is provided for.
- Parking and loading support urban growth and the quality compact urban form.
- The provision of safe and efficient parking, loading and access is commensurate with the character, scale and intensity of the zone.
- Pedestrian safety and amenity along public footpaths is prioritised.
- Road/rail crossings operate safely with neighbouring land use and development.

Any residential development making use of existing and proposed transport mode alternatives on the site is therefore considered to align well with the transport objectives of the Unitary Plan. The proposed zoning aligns well with neighbouring zones / rail station.

8.7 AUCKLAND TRANSPORT CODE OF PRACTICE / TDM

Should the proposed development be approved, any road improvements will follow approved standards namely the Auckland Transport Code of Practice (ATCOP), Austroads and NZS4404. It is also noted that AT currently have a new design manual ('TDM'), which can inform any road or intersection designs as part of future resource consent applications.

8.8 AUCKLAND DESIGN MANUAL

The Auckland Design Manual 2014 sits alongside the Unitary Plan and provides practical advice, best practice processes and detailed design guidance to enable informed choices, to help build houses and develop streets and neighbourhoods that not only look good but are built to last, sustainable and give the best return on investment. The 'Subdivision and Neighbourhood Design', 3. Movement networks gives the following transport-based design outcomes:

- **Connections and connectivity** - Subdivisions that provide movement choice and connectivity, while balancing costs, safety, and privacy;
- **Walkable neighbourhoods** – Prioritisation of pedestrian convenience and access to destinations in the design of subdivisions;
- **Legible hierarchies** - A clear and consistent road hierarchy to create accessible, legible and safe subdivisions and helps people understand how to get to, and when they are on, main routes;
- **Managing speed and modes** - Subdivision design ensures the safety of pedestrians and cyclists by managing vehicle travel speed, and provides equally for the four major modes (walking, cycling, passenger transport, vehicles) in a way that will appeal to the users of each;
- **Vehicle emissions and road layout** - Movement networks are designed to minimise the costs and environmental impacts of unnecessary travel;

The proposed development follows these design guidelines and the site promotes connectivity with the existing employment, retail, community and recreational activities in the local and wider area. Traffic calming is proposed to be investigated to promote pedestrian movement and slow traffic within the site.

9 CONSTRUCTION TRAFFIC

The development site is currently unoccupied for the most part. To facilitate construction, access could be established on either Station Road or Golding Road to accommodate truck movements to and from the site. The volume of earth works is unknown at this stage however can be undertaken over an extended period to minimise traffic effects of necessary.

As is typical with a development of this scale, it is recommended that as part of any later resource consent, a Construction Traffic Management Plan (CTMP) should be required as a condition. It is considered that this Construction Traffic Management Plan should include:

- Construction dates and hours of operation including any specific non-working hours for traffic congestion/noise etc, aligned with normally accepted construction hours in the Auckland Region;
- Truck route diagrams between the site and external road network.
- Temporary traffic management signage/details for both pedestrians and vehicles, to manage the interaction of these road users with heavy construction traffic; and
- Details of site access/egress over the entire construction period and any limitations on truck movements. All egress points should be positioned to achieve appropriate sight distances.

Based on experience of constructing similar projects, and bearing in mind capacity within the existing road network, with the appropriate Construction Traffic Management Plan in place and the above measures implemented, it is considered that construction activities can be managed to ensure any generated traffic effects are appropriately mitigated.

10 CONSULTATION

The following consultation has been undertaken with Auckland Transport on transport matters relating to the development:

- Initial meeting with Sir Bill Birch / Rebecca Philips of Tuesday 27 October
- Meeting on 27th November between project team and Council / Auckland Transport.

11 IMPLEMENTATION PLAN

11.1 OVERALL

As stated above in this report, there are a significant number of roading and infrastructure projects programmed for the Pukekohe area in order to facilitate the growth envisaged for this area (including the subject site).

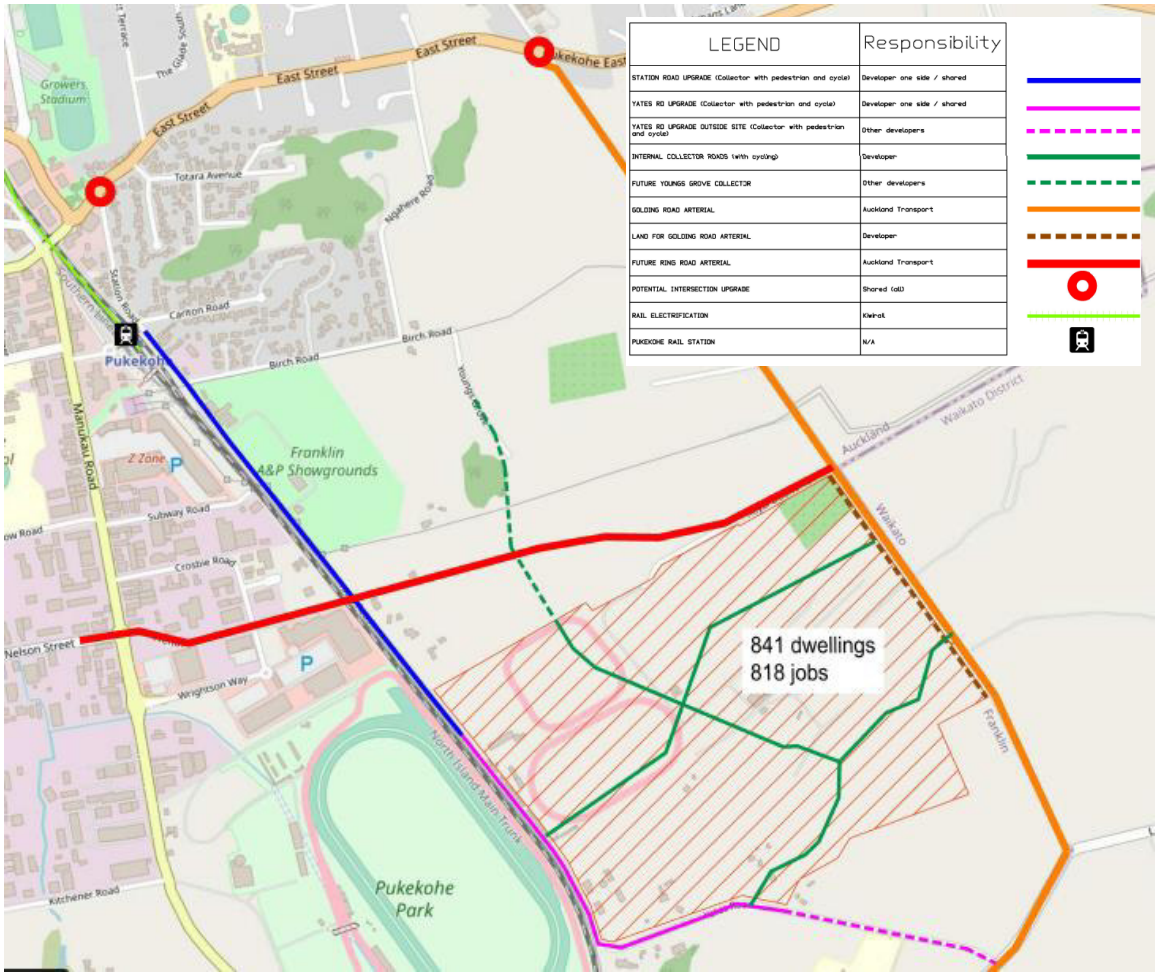
Several projects are directly relevant to this site and these are listed in Table 11-1.

Table 11-1: Implementation Plan

Project	Responsibility	Upgrade	Trigger / timing
Electrification of Papakura to Pukekohe rail line	New Zealand Upgrade Programme		Likely 2023
Internal pedestrian connection to Station Road	Developer	Internal pedestrian component to Station Road	Needed at initial dwelling / industrial unit occupied
Station Road upgraded pedestrian / cycling link	Developer (one side)	Pedestrian and cycling component to existing eastern footpath / Pukekohe Rail station required to site before any development occurs	Needed at initial dwelling / industrial unit occupied
Station Road upgraded as an urban Collector Road	Developer outside site	Full Collector Road	Any development with frontage to Station Road.
Yates Road upgraded as an urban Collector Road	Developer outside site	Full Collector Road	Any development with frontage to Yates Road.
Golding Road upgraded as an urban Arterial Road	Auckland Transport	Will be developed by Auckland Transport. Land needs to be set aside in the development for this arterial road	As area develops. Not specifically due to development.
East -West arterial	Auckland Transport	Will be developed by Auckland Transport.	As area develops. Note specifically linked to development
New Collector Road through the site (PU-NS-1)	Developer	As the site develops the internal collector road identified in the Structure Plan should be provided (noting slightly different location).	Any site with frontage to new collector road
Upgrade of the Station Road / East Street intersection (likely roundabout)	Developers / Auckland Transport	Full (likely single lane) roundabout	Also dependant on other development. Should be assessed at each resource consent phase
Upgrade of the Golding Road / East Street existing roundabout	Developers Auckland Transport	Upgrade to two-lane roundabout	Long term linked to Golding Road arterial upgrade

Figure 27 shows this implementation plan.

Figure 27: Implementation Plan



The current development programme for the site envisages the first stage of the development of approximately 100 sites would not commence before 2023 and completed in 2024 with the whole project completed over 10/12 years (ie likely completed in 2038). It will be necessary for the above roading and infrastructure projects to be progressively implemented as the development of PPC and other parts of the Pukekohe area progress.

It is also recommended that the landowners fronting Station Road work with Auckland Transport in order to upgrade Station Road as part of Stage 1 of the PPC to ensure the residents / workers are linked to the rail station by footpath / cycling facilities.

The Precinct Provisions (Rule I4XX.6.1) lists the required upgrades which identifies specific upgrades needed by developments within the Precinct to manage the transport related effects of the development of land within the Precinct. The Precinct provisions also include Special Information Requirements (Rule I4XX.8.2) which clarify the position on the upgrades at Station Road/East Street etc.

These provisions in tandem with the existing AUP provisions are sufficient to clarify and confirm the required upgrades.

11.2 SPECIFIC ROADS

In terms of Fig 27 and in particular Station Road, it is intended that the developer upgrade the following:

- Upgrade one-side (north-eastern side) of Station Road from the site to Rail station for pedestrian and cyclists (needed at initial industrial / dwelling). This is to fully link the development to the rail station. This does traverse alongside land to be developed (eg Franklin A&P) however there is 4-6m from road edge to boundary and as such a shared path (or similar) to together with kerb / channel can be accommodated.
- As development progresses upgrade the frontage of Station Road as per above.

Of note, it is considered that a similar pedestrian / cycling facility on the south-western side of Station Road is not warranted given it abuts a rail track (and thus has no land use).

Both Golding and Yates are to remain "rural" on the opposite side of the road, and as such full reconstruction to an urban standard is unnecessary.

The provision of one side rural and one side urban is not uncommon and has been approved in other parts of Auckland in similar situations (for example Clarks Beach Precinct has a specific road cross section retaining rural (even adjacent to land which is still Future Urban zone).

It is however recognised that to upgrade one side to urban the entire full width of the carriageway may need to be upgraded / reconstructed, however the provision of a kerb and channel on the other side is not considered to be required.

11.3 WIDER EFFECTS

It is recognised that a range of high-level transport infrastructure improvements will be needed within the Auckland Region (including Drury and Pukekohe), to accommodate predicted population growth and support the level of development enabled by the AUP.

These network improvements are considered to be wider cumulative effects, which are considered are likely to be required for intersections / roads in wider Pukekohe and Drury area (and potentially wider afield) relating to a number of Plan Changes in south Auckland. This is common for Plan Changes (containing residential components in particular) to produce wider transport effects given they create dwellings and associate traffic that will likely traverse throughout Auckland.

I is considered most efficient for Council to consider and identify those works given they have oversight into all proposals and manage the network as a whole.

What is key is that the approach to address traffic effects in the wider area / Auckland region is equitable and no one development is unfairly hindered or required to contribute all the costs of upgrades. In this regard there are options to include standard development contributions or specific Pukekohe wide approaches (targeted rates) to address traffic in an equitable manner.

However, it is noted that the most critical piece of wider infrastructure is already funded by NZUP which is the electrification of the Papakura to Pukekohe rail line. This provides a regular, reliable service linking the site with the rest of Auckland.

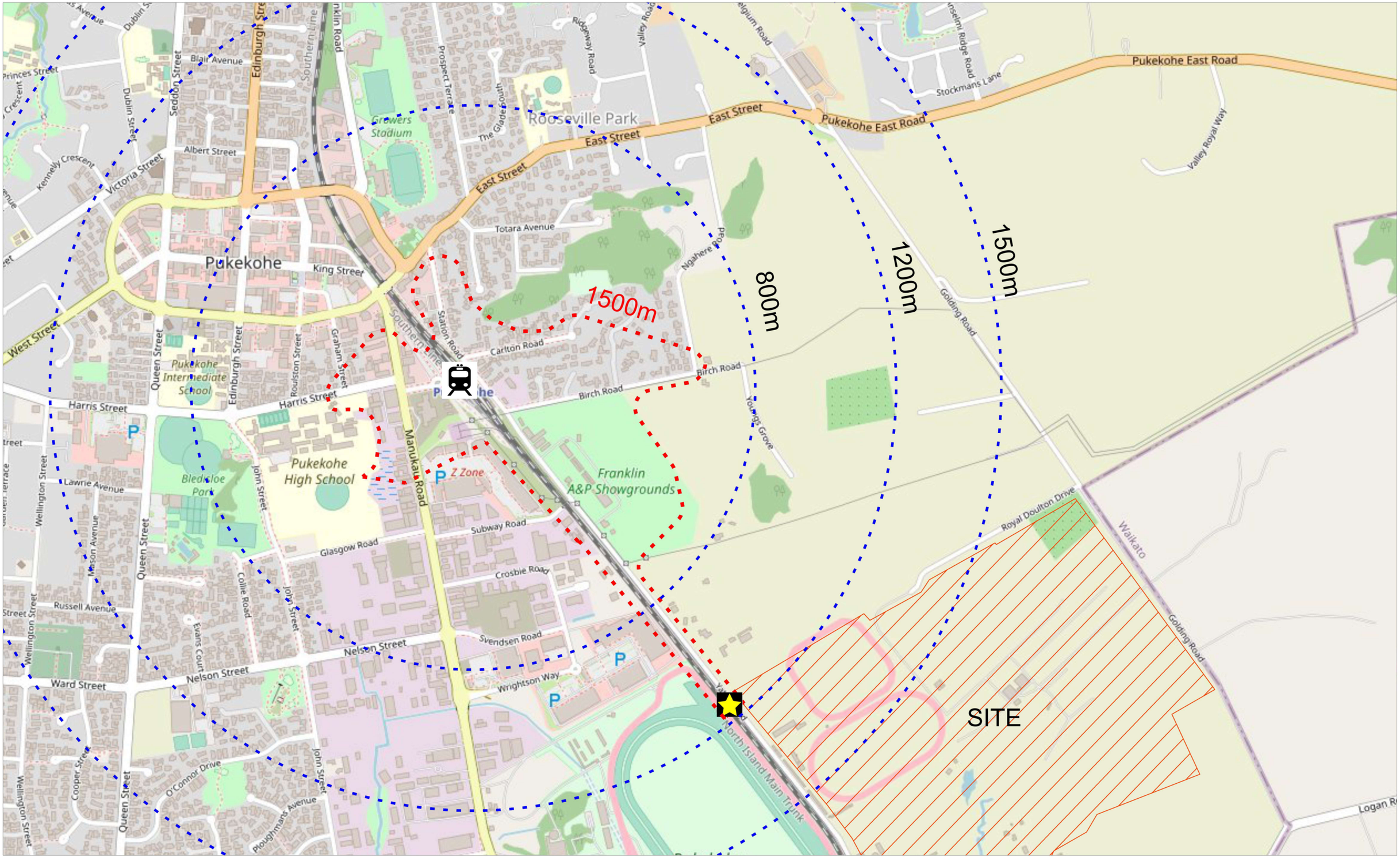
12 CONCLUSIONS

Based on the assessments undertaken in this report, it is concluded:

- The proposal is broadly consistent with the Structure Plan and ITA for the area.
- The proposed land use for the Plan change represents a slight change to what was envisaged in the Structure Plan. In particular the Light Industrial area on Station Road represents an addition in the area from the Structure Plan which left the existing "Special Purpose" zone. From a transport perspective, the changes are considered appropriate and in fact positive as they will locate additional jobs in the Pukekohe area close to public transport routes.
- The site, with the mitigation / improvements measures identified, has good accessibility to various transport modes: walking, cycling, bus and private vehicle.
- The effects of the proposed increase in vehicles are expected to be minimal assuming the recommended upgrades occur with the proposed roads, public transport and intersections capable of accommodating this additional traffic.
- Sufficient parking can be provided on-site; and
- The proposed development is consistent with, and encourages, key regional and district transport policies.

It is anticipated that any future residential development would provide the transport network upgrades described in Section 11 of this assessment. The traffic effects of the development potential that could be achieved under the zoning, with the implementation of the measures identified in Section 11, are considered acceptable and there is no reason, from a transport perspective, to preclude approval of the proposed Plan Change.

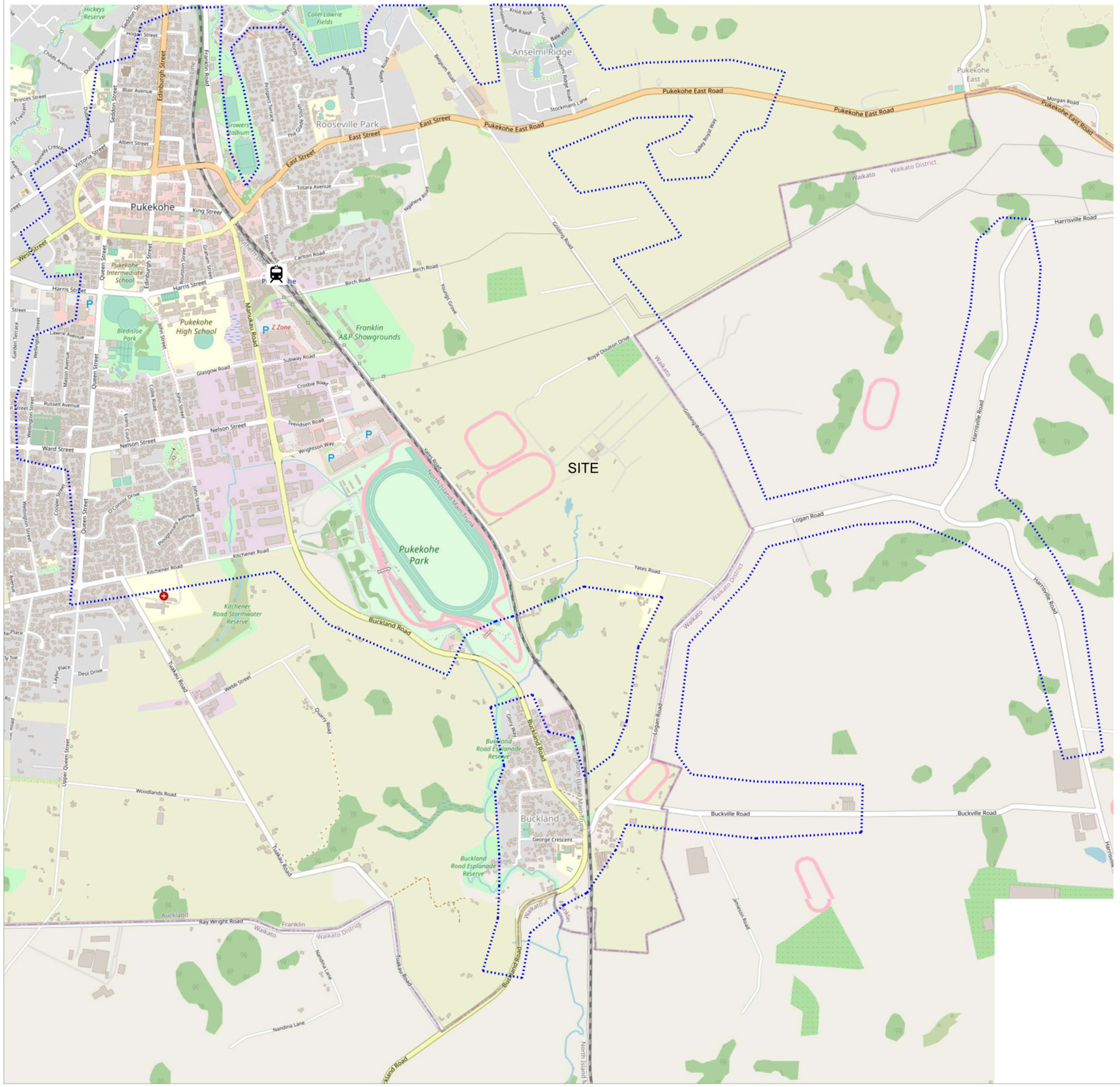
APPENDIX A: PEDESTRIAN MAP



Revision notes:		
Rev:	Date:	Notes:

Drawn by: LDH J001698	Project: GOLDING PPC Pedestrian catchment	Date: 3 November 2021	commute TRANSPORTATION CONSULTANTS	Figure: A
Client: GOLDING PPC	Drawing Title:	Scale @ A3: 1:10000 @ A3		
		Revision: A - For consideration		

APPENDIX B: CYCLING MAP



Revision notes:		
Rev:	Date:	Notes:

Drawn by:
LDH
J001698

Client:
GOLDING PPC

Project:
GOLDING PPC
Cycling catchment

Drawing Title:

Date:
4 November 2021

Scale @ A3:
1:10000 @ A3

Revision:
A - For consideration

commute TRANSPORTATION CONSULTANTS

Figure:
B

APPENDIX C: MODE SHARE / TRAFFIC GENERATION ANALYSIS

Structure Plan (residential)

						AM		PM		Gross trips	Car trips external				
Activity	GFA / Number of dwellings	AM Adopted trip rate	PM Adopted trip rate	Internal capture (to jobs)	Multipurpose trip reduction	Trips inbound	Trips outbound	Trips inbound	Trips outbound	Weekday AM peak hour trips	Weekday AM peak hour trips	AM trips in	AM trips out	PM trips in	PM trips out
Residential - MHSU	640	0.65	0.65	10%	0%	20%	80%	80%	20%	416	374	75	300	300	75
Residential - MHU	0	0.5	0.5	10%	0%	20%	80%	80%	20%	0	0	0	0	0	0
Total										**416**	**374**	**75**	**300**	**300**	**75**
Jobs	Number														
Household jobs**	240	0	0	0%	0%	80%	20%	20%	80%	0	0	0	0	0	0
Racecourse*	60	0.4	0.4	0%	0%	80%	20%	20%	80%	24	24	19	5	5	19
Total										**24**	**24**	**19**	**5**	**5**	**19**
Total										**440**	**398**	**94**	**304**	**304**	**94**

*racecouse assumed to be office staff RTA rate of 2 / 100sqm and 1 employee per 20sqm
**Household jobs assumes to be working from home / buslness from home

PPC (residential)

						AM		PM		Gross trips	Car trips external				
Activity	GFA / Number of dwellings	AM Adopted trip rate	PM Adopted trip rate	Internal capture (to jobs)*	Multipurpose trip reduction	Trips inbound	Trips outbound	Trips inbound	Trips outbound	Weekday AM peak hour trips	Weekday AM peak hour trips	AM trips in	AM trips out	PM trips in	PM trips out
Residential - MHU	920	0.5	0.5	25%	0%	20%	80%	80%	20%	460	345	69	276	276	69
Total										**460**	**345**	**69**	**276**	**276**	**69**
Jobs	Number														
Household jobs	240	0	0	0%	0%	80%	20%	20%	80%	0	0	0	0	0	0
Industrial**	588	0.375	0.375	0%	5%	80%	20%	20%	80%	221	209	168	42	42	168
Total										**221**	**209**	**168**	**42**	**42**	**168**
Total										**681**	**554**	**237**	**318**	**318**	**237**
Increase										**241**	**156**	**143**	**14**	**14**	**143**

*Internal capture increases due to industrial zone / employment zone next ot each other (ie residents living and working in same area)
** Indistrial assumes to be 1 employee per 50sqm (RTA rate for industrial) and commuter trip rate of 0.75 per 100sqm (RTA mixture of industrian and warehousing)