# Auranga B2
# Proposed Plan Change, Burberry Road, Drury West

## Integrated Transportation Assessment Report

13 May 2020

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| | | | |

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# 1 INTRODUCTION

## 1.1 GENERAL

Commute Transportation Specialists has prepared an Integrated Transport Assessment (ITA) for a proposed Private Plan Change (PPC) in Drury, Auckland. The proposal intends to rezone approximately 33.65Ha of land (known as Auranga B2), located directly south of the Drury 1 Precinct, from 'Future Urban Zone ("FUZ") to a mixture of Residential and Business zonings.

The zoning proposed within the PPC area is as follows:

- Residential Mixed Housing Urban – 4.61 ha
- Residential Terrace Housing and Apartment Building zone – 13.75 ha
- Business Town centre zone – 15.29 ha.

The proposal intends to provide for zones that enable the establishment of approximately 890 dwellings within Auranga B2. In addition, the southern portion of the PPC area, fronting State Highway 22 (SH22) and the realigned Burberry Road, will be zoned as Business–Town Centre to enable the development of a town centre containing a variety of retail and commercial premises including a supermarket which will likely serve the surrounding residential development.

The PPC intends to implement the Council's draft Structure Plan for Drury Opaheke and the Future Urban land Supply Strategy (FULSS) which establishes that Drury West should be development ready by 2022.

The key transportation considerations for this proposal are:

- The accessibility of the PPC area to the various modes of transport; and
- The ability of the surrounding road network to safely and efficiently support the proposed development.

These and other transportation issues will be addressed in this report.

Given the nature of the transport network in this area (predominantly rural) and anticipated development, a number of 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 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 ITA to assess wider effects on the transport network.

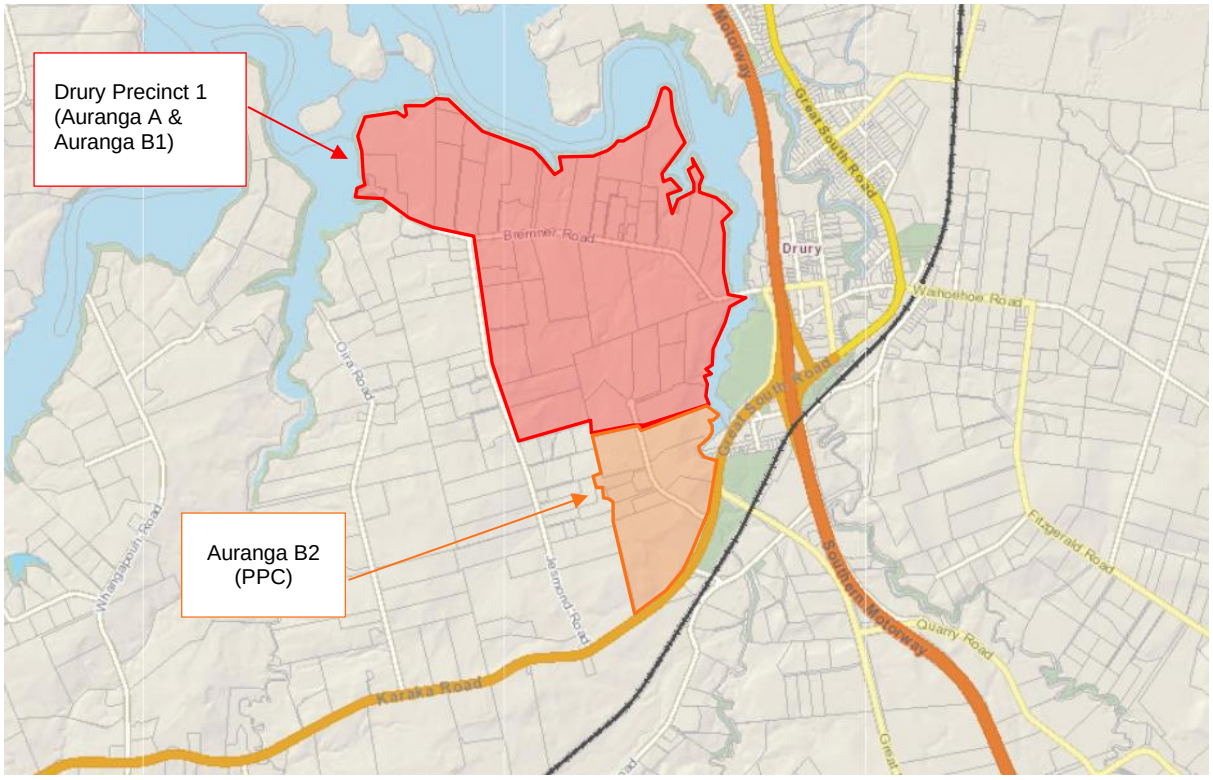
# 2 EXISTING ENVIRONMENT

## 2.1 SITE LOCATION

The site of the PPC is located in Drury, approximately 38 km south of Auckland's city centre.

Figure 2-1 shows the PPC area in relation to the surrounding area including the Drury 1 Precinct boundary.

**Figure 2-1: Site in relation to the surrounding area**




The PPC area is located southwest of the Drury town centre in Drury, Auckland. It is bounded by SH22 to the south, the Drury 1 Precinct to the north, the Ngakoroa Stream to the west and FUZ properties to the west. With reference to the Unitary Plan[1], the PPC area is zoned as Future Urban Zone (FUZ) and currently serves approximately 10 countryside living dwellings with access provided on Burberry Road only.

The PPC area adjoins the Drury 1 Precinct to the north which is currently under construction, or development with numerous applications either consented or with Council for various stages of construction of up to 2,650 dwellings.

The Drury 1 Precinct, north of the PPC area, comprises a mixture of Residential - Mixed Housing Urban, Residential - Mixed Housing Suburban, THAB and Local Centre zones. These are in various stages of development, with Road 3 of the Auranga A development providing a future collector road connection opportunity to Burberry Road through the site at 31 Burberry Road.

Currently, the surrounding area is semi-rural in nature and comprises of large rural-residential lots. The future development planned within the Drury 1 precinct and the PPC area will urbanise this area.

## 2.2 ROAD NETWORK

The majority of the existing properties within the PPC area have frontage onto Burberry Road only (to the west or east), while the two southernmost lots also have road frontage onto SH22 (south) and Burberry Road. However, all lots have vehicular access off Burberry Road.

[1] Auckland Unitary Plan – operative in part (notified 15 November 2016)

It is noted that the Drury 1 Precinct Rules[2] outline a number of specific transport related criteria for development within the adjoining Auranga A (referred to as Precinct Plan 1 of the Drury 1 Precinct) and Auranga B1 (referred to as Precinct Plan 2 of the Drury 1 Precinct), including the required upgrades of the existing local network, roading cross-sections and typologies. These upgrades and connections provide opportunities for network upgrades to support the PPC and linkages between the Drury 1 Precinct and the PPC area. These include roads (with dedicated pedestrian and cycle facilities), along with off-road pedestrian and cycle opportunities as part of the green network. It is noted that these upgrades will be established prior to the development of the PPC area because of the triggers associated with the existing Drury 1 Precinct rules.

### 2.2.1 BURBERRY ROAD

All lots located within the PPC area currently have access via Burberry Road only. Burberry Road is a cul-de-sac, extending in a north - south alignment, with a connection to SH22 (Karaka Road) at the southern end via a give-way controlled intersection. Burberry Road comprises a 6.0 m wide carriageway including a single lane in either direction. Where on-street parking is utilised, the carriageway is restricted to one-way movement only. The carriageway does not provide edge line or centreline markings and no on-street lightening is available along Burberry Road.

The entire length of Burberry Road is sealed with a landscaped cul-de-sac head (island) provided at the end. There are no dedicated pedestrian or cyclist provisions along Burberry Road, which is typical for a rural environment, however grass berms (varying in length) are provided along both sides of the road.

The posted speed limit on Burberry Road is 80 km/hr and reduces to 70 km/hr on the approach to the intersection with SH22.

Burberry Road will be essentially relocated as part of the PPC (as outlined further in later sections of this report).

It is noted that a local road is planned to connect at the northern end of Burberry Road; the Drury 1 Precinct indicates that this connection is subject to the upgrade of the Burberry Road/ SH22 intersection.

In this regard Road 3 of the Auranga A development provides the opportunity for a collector road connection running east west and then along the Ngakoroa Stream to Bremner Road. It includes a 3m shared path and cycle lane. The road formation will not connect with Burberry Road until the intersection safety issues of Burberry Road and SH22 are resolved (in this case through this PPC).

### 2.2.2 STATE HIGHWAY 22 (KARAKA ROAD)

Burberry Road connects to SH22 via a give-way controlled intersection, with priority afforded to traffic on SH22. It is noted that there are currently no dedicated turning facilities on SH22 for vehicles turning to and from Burberry Road (e.g. flush median or turning bays).

[2] 6.35 Drury 1 – Auckland Unitary Plan operative in part

SH22 (also known as “Karaka Road”) is the main route that connects Pukekohe to Drury. The Drury Interchange with the Southern Motorway (SH1) is located on SH22 and provides access to all destinations to the north and south.

SH22 has a typical carriageway width of 7.7m and provides for a single lane of traffic in each direction separated by a painted centreline. In addition, 1.0 - 1.5m wide shoulders are provided on both sides of SH22. North of the intersection with Burberry Road, SH22 provides a double yellow painted centreline (i.e. no overtaking lines); this extends between near the Drury interchange northbound on-ramp and tapers off south of the intersection with Burberry Road.

No dedicated pedestrian footpaths are provided on SH22 near the vicinity of the PPC area. While no formal cycling facilities are provided on SH22, the width of the shoulder (1.0-1.5 m) is considered acceptable (for the existing environment) to cater for any cycle demand.

SH22 has a posted speed limit of 100 km/h west of Burberry Road and 70 km/hr east of Burberry Road (including Drury Interchange).

As part of the NZTA SH22 Safe Roads assessment[3], SH22 has been identified as possibly being upgraded to four lanes (between Drury and Great South Road). Provision of a 2 m wide road shoulder, to provide more space for walking and cycling, is also being considered.

Further, upgrades at the Great South Road, Burberry Road, Jesmond Road and Oira Road intersections with SH22 to provide a roundabout, traffic lights, right turn bays or safer turning areas are also being considered.

Photograph 1 shows the typical layout of SH22 near the vicinity of the PPC area.

**Photograph 1: SH22 (Karaka Road) – typical layout looking north towards the Drury interchange**

[3] SH22/SH1 (Drury) to Paerata

### 2.2.3 BREMNER AND JESMOND ROADS

Bremner Road is located north of the PPC area and will predominantly serve as access for developments located within the Drury 1 Precinct. Bremner Road typically runs in an east-west alignment with a connection to Firth Street to the east (Drury town centre) and is a dead-end (west). The posted speed limit is currently 30km/hr west of the motorway overbridge (due to construction works) reducing to the 50km/hr within Drury.

Bremner Road currently provides some 6-7m wide carriageway including a single traffic lane in each direction; this excludes a section of the road (approximately 480 m in length) which has been upgraded as part of the Drury 1 Precinct Rules (Auranga A) development. Based on the consented and under construction elements of Precinct Plan 1, this will include upgrading the section of Bremner Road, east of the intersection with Jesmond Road, to a collector road classification, providing a single traffic lane (3.5 m wide each) in each direction, with pedestrian and on-street cycle facilities either side. Intermittent kerbside parking is also planned along this corridor. A new signalised intersection is also planned some 150 m west of the Ngakaroa Stream overbridge (constructed but not yet operational) and a separated shared path is to be provided over the Ngakaroa Stream bridge.

Jesmond Road extends in a general south-north direction connecting to Bremner Road to the north and SH22 (south). It provides some 6.-6.7m wide carriageway (seal edge) and provides for one lane in each direction separated by a centreline. Jesmond Road has a posted speed limit of 80 km/hr. Jesmond Road connects to Bremner Road via a give-way intersection with priority along Bremner Road, both these roads are planned (and consented) to be upgraded to a collector road classification as outlined in the Drury 1 Precinct Plan 1 & 2. Similarly, the Jesmond Road/ SH22 intersection is currently stop-controlled (with recent right turn upgrade) and is planned to be upgraded to a signal or roundabout control; this upgrade is '*required prior to the development in Precinct Plan 2'* (i.e. Auranga B1).

Close to the PPC area, both roads currently have unsealed shoulders of varying width and grassed berms.

### 2.2.4 MCPHERSON ROAD

McPherson Road typically extends in an east-west alignment (some 160 m in length) and essentially serves as a connector route between SH22 (west) and Pitt Road/ Burtt Road (east). It provides a single lane in each direction, extending under rail tracks. The intersection with SH22 is currently give-way controlled and movements to and from the intersection are restricted to left in/ left out. McPherson Road provides access to one site only (Golden Home Counties).

No footpaths are provided on McPherson Street.

Photograph 2 shows the existing layout of the McPherson Road/ SH22 intersection.

**Photograph 2: Existing McPherson Road/ SH22 intersection**

## 2.3 DRURY 1 PRECINCT UPGRADES (INTERNAL)

Figure 2-2 and Figure 2-3 shows the upgrades planned within the Drury 1 Precinct Plan 1 (Auranga A) and Drury 1 Precinct Plan 2 (Auranga B1) to Bremner Road, Jesmond Road and the existing surrounding roads near the vicinity of the PPC area.

**Figure 2-2: Planned road network within the Drury 1 Precinct Plan 1**

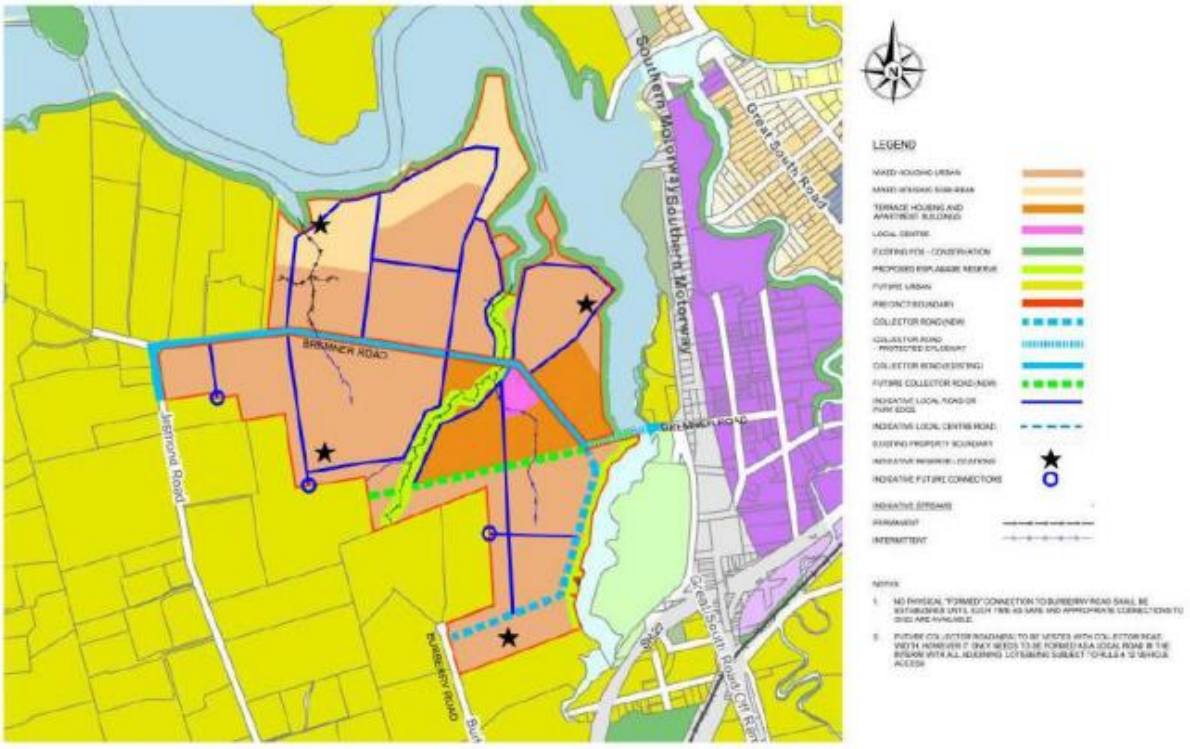
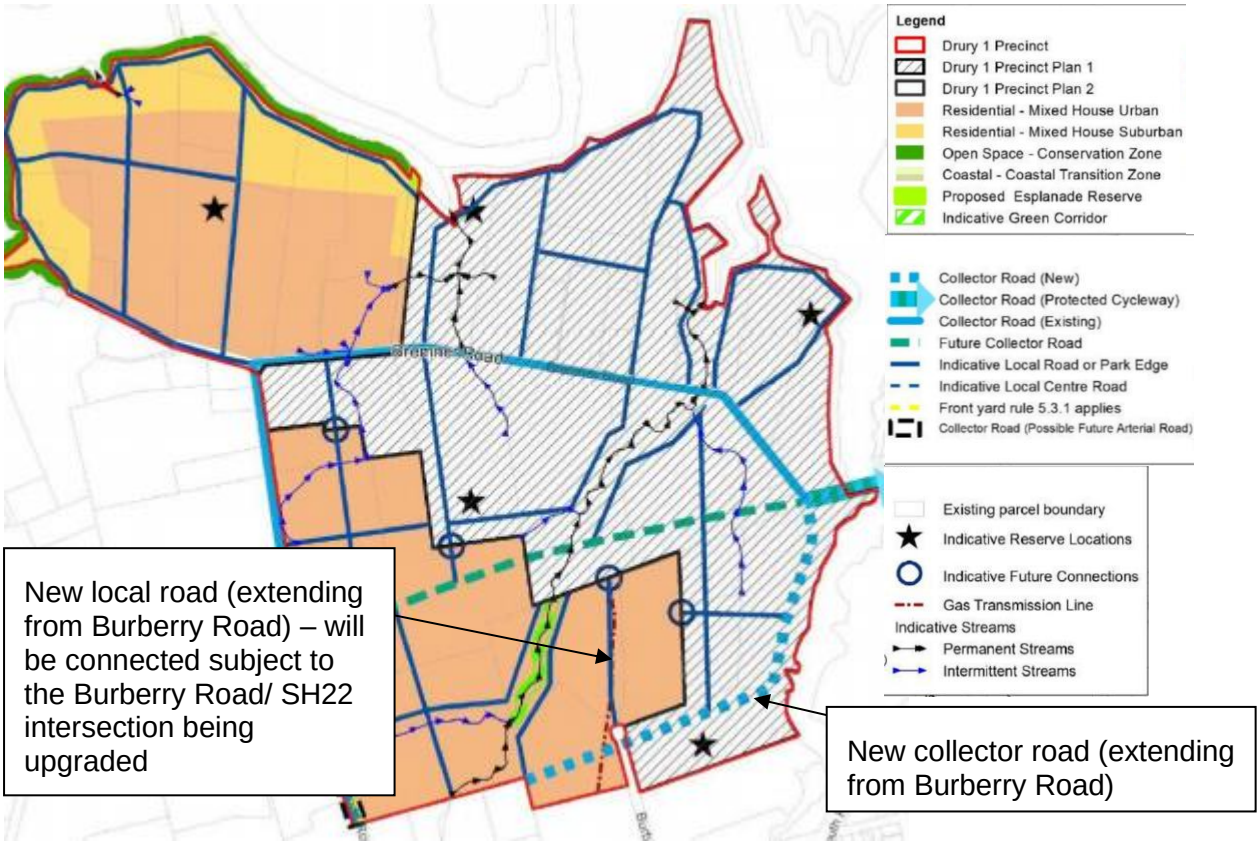



**Figure 2-3: Planned road network within the Drury 1 Precinct Plan 2**




As noted above, a new local road is proposed to extend from the northern end of Burberry Road (as part of Auranga B1). Rule 8.2 (4) of the Drury 1 Precinct Plan indicates that, prior to forming a physical connection to Burberry Road, upgrading work is required to be

undertaken to the intersection of Burberry Road and SH22 to ensure there are safe and appropriate connections.

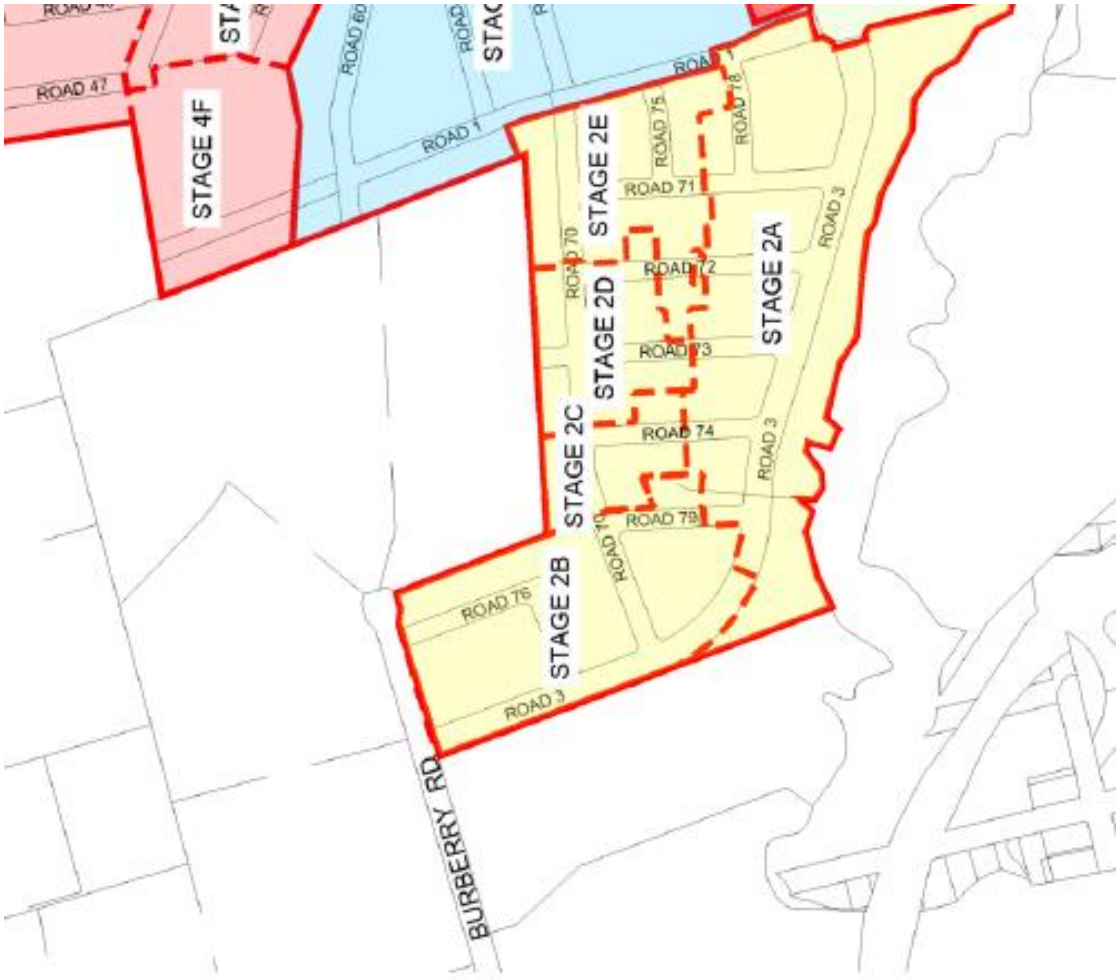
As shown above, Precinct Plan 2 indicates that Bremner Road and Jesmond Road will be upgraded to a collector road classification; this excludes a portion of Bremner Road west of the intersection with Jesmond Road (local road). A number of new local and collector roads are also planned within the precinct, including extending Bremner Road at the eastern end to Burberry Road (blue dashed line) and providing a new local road to extend (north) from the end of Burberry Road as shown in Figure 2-3 above. A number of these upgrades are currently under construction.

Section 8.2 (2) of the Drury 1 Precinct outlines that, prior to the development of up to 50 households the following upgrades are required to Bremner Road:

- Bremner Road approach to the Ngakoroa Stream Bridge to a two-lane urban road (as required by the consented development) including separated cycle lanes (including a shared path on one side of the Ngakoroa Stream Bridge). This upgrade has been completed;
- Footpaths to link the Drury 1 precinct to Drury Township (on Bremner Road east of an including motorway over-bridge). This work has been completed.; and
- Pedestrian upgrade (one side only) of Bremner Road motorway overbridge, including safety improvements to the footpath and handrail structures. Of note this work has been postponed due to the SH1 widening works which will effectively replace the Bremner Road motorway overbridge (and thus it was agree with Auckland Transport that any upgrade to this motorway overbridge would not be a good use of resources).

Following the precinct plan, resource consent and construction has occurred over some of the site. Road 3 within this area has shifted following detailed design and has been approved (and constructed) to the south as per Figure 9-3 below.

**Figure 2-4: Road 3 Burburry Road**




## 2.3.1 DRURY INTERCHANGE/ STATE HIGHWAY 1 (SH1)

The interchange of SH1 / SH22 at Drury is a diamond signal-controlled interchange and located some 650 m north along SH22 from the intersection with Burberry Road. Figure 2-5 shows an aerial view of the interchange.

**Figure 2-5: Aerial view of the SH1/ SH22 Drury interchange**

A number of upgrades have recently been made along SH1 as part of the Southern Corridor motorway improvements, including:

- Additional southbound lane opened between Hill Road to Pahurehure inlet (excluding the Takanini Interchange) - 2017; and
- Takanini on-ramp loop completed including reopening Orams Road – 2018.

Those projects have significantly improved the capacity of SH1 in this location and mean the Drury Interchange will no longer be so susceptible to incidents / delays on the Southern motorway. Further, a new northbound on-ramp (merge) lane was opened on 11th February 2019 which has shown to have a 20-minute reduction time[4] when travelling north on SH 1 between Drury and Takanini.

The following projects have been completed:

- Complete Great South Road upgrades and Pahurehure inlet bridges; and
- Opening a fourth southbound lane from SH20 to Hill Road;
- Completion of the replacement structure over the northern Pahurehure Inlet;
- Opening an additional northbound lane between the Papakura and Takanini Interchanges;
- Opening an additional southbound lane from the Pahurehure Inlet to Papakura Interchange;

The following projects are also planned to be completed in 2020

- Full completion of the Takanini Interchange with additional lanes and the new Takanini northbound off-ramp;

[4] Southern Corridor Improvements Project Update March 2019

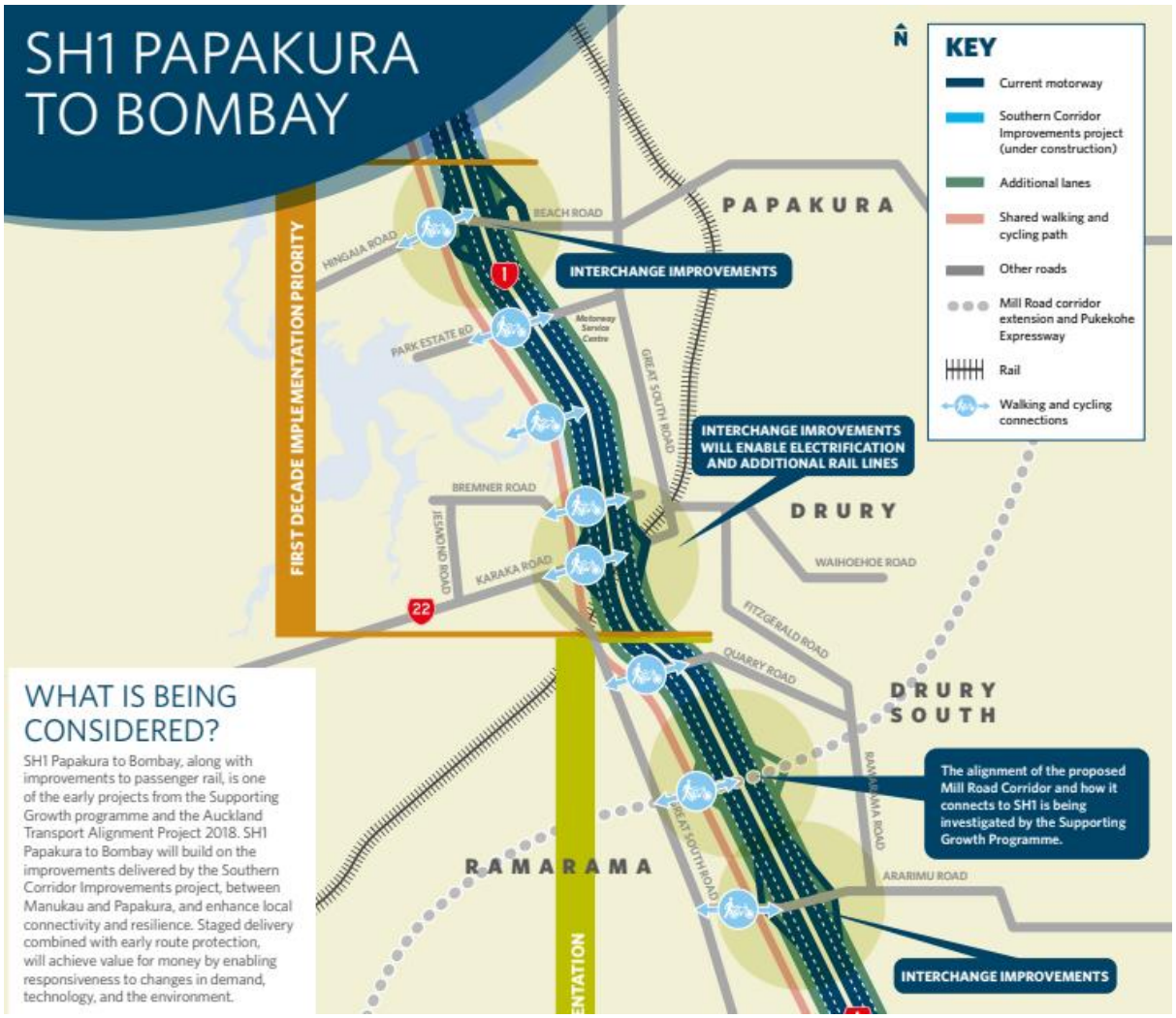
- Completion of the shared walking and cycling path alongside SH1 between Takanini and Papakura, including opening the Pescara Point pedestrian bridge over SH1.

It is also noted that a shared path is planned along the new Takanini northbound off-ramp and will extend to the Papakura Interchange, expected to be completed in the first half of 2020 (currently still under construction).

As part of the SH1 Papakura to Bombay improvements project, additional lanes are also proposed along SH1 for which the first stage has been announced involving works between Papakura and Drury. This project is currently in detailed design stage and will involve providing additional lanes / capacity as well as extension of the shared path along SH1.

Figure 2-6 shows the extent of the upgrades proposed between Papakura and Drury as part of that project.

**Figure 2-6: Proposed upgrades as part of the SH1 Papakura to Bombay project (between Papakura and Ramarama**




## 2.3.2 BREMNER ROAD OVERBRIDGE

The Bremner Road motorway overbridge currently provides one 3.5m traffic lane in each direction and a 1.8m wide footpath on each side of the carriageway.

Prior to the development of 50 cumulative dwellings, within the Drury 1 Precinct, the precinct rules require that this is upgraded to provide for pedestrians (on one side of the bridge only), including safety improvements to the footpath and handrail structures. The precinct rules

also require that footpaths are provided linking the precinct to the Drury Township, via the overbridge. These have already been constructed as part of Drury 1.

Prior to the development of 400 cumulative dwellings, within the Drury 1 Precinct, the precinct rules require that a dedicated cycle facility should be preconstructed across State Highway 1, alongside Bremner Road. As previously noted the NZTA planned SH1 Papakura to Drury widening will required this bridge to be replaced and thus this upgrade has been postponed.

### 2.3.3 VICTORIA STREET

Victoria Street is a public road, although its design is associated with parks infrastructure. It is a two-lane road (with no separation such as a centreline), which links Bremner Road with SH22 and provides access to the park. It is an Over-Dimension route (by-pass of the Drury interchange which has limited height) and typically carries low volumes.

The Precinct Plan for Drury 1 required that the road markings are upgraded at its intersection with SH22 prior to the development of 50 dwellings within precinct. This has been completed.

Victoria Road has a gate at its entrance enabling it to be closed off as required. It is proposed to retain this as the OD route, with the ability for Auckland Transport or Auckland Parks to monitor and utilise the existing gate to control its use should it become problematic as a rat run in the future.

### 2.3.4 GREAT SOUTH ROAD/ NORRIE ROAD

Great South Road is the main arterial road through Drury township, providing an arterial link from the Drury Interchange to shops and schools in Drury. It provides a local access function as well as a strategic connection to SH22 and SH1 and is effectively an extension to SH22.

Great South Road also connects Drury with the Papakura town centre to the north, and it can be used as an alternative route to SH1, particularly in congested conditions. It has a varying width (depending on location) and has a posted speed limit of 50 km/hr through Drury and 70 km/hr near the Drury interchange.

The main intersection within Drury township is the roundabout controlled intersection of Great South Road and Norrie Road.

Drury 1 Precinct requires the following upgrades to be undertaken on Great South Road:

- Prior to the development of 50 cumulative dwellings Pedestrian improvements at Norrie Road / Great South Road intersection[5]; and
- Prior to the development of 100 cumulative dwellings - Upgrades to the Firth Street / Great South Road intersection including curve realignment and markings.

These have all been constructed.

### 2.3.5 NORRIE ROAD / FIRTH STREET

Within the Drury township (including Firth Street and Norrie Road), the speed limit is 50km/hr. Both Norrie Road and Firth Street contain a single traffic lane in each direction

[5] As illustrated at Figure 5-4 of the ITA

with a kerb and channel profile and a footpath is provided generally on one side of the road. No dedicated cycle facilities are provided. On-street kerbside parking is permitted on both these roads.

On Norrie Road, approximately 200m west of Great South Road is a one lane bridge. Photograph 2 shows this bridge formation. Priority is given to vehicles travelling in the eastbound direction.

**Photograph 3: Norrie Street one-lane bridge**


## 2.4 ACCESSIBILITY

### 2.4.1 PRIVATE VEHICLES

The PPC area is well located with regard to vehicle connections to and from the wider Auckland region. Jesmond Road connects directly to SH22, which is a strategic route between Drury and Pukekohe. The SH1 Drury Interchange is located approximately 1km from the PPC area. SH1 is a nationally significant route that connects Hamilton to the south and Auckland to the north.

### 2.4.2 PUBLIC TRANSPORT

Auckland Transport implemented a new bus network in south Auckland in July 2018. No public bus services will operate through or pass by the PPC area. However, Route 376 (local service) will travel between Drury and Papakura Station between 6am-9pm at 30 minutes' frequency during peaks and 60 minutes' frequency off-peak.

As the area develops, Auckland Transport will consider extending this service or providing additional services to connect the PPC area to the wider area.

The nearest train station is at Papakura, approximately 6.5km from the PPC area. The Papakura station serves the Southern line, providing a good connection via train to all stops along this line. Although the train station is some distance from the PPC area, many commuters may choose to use Route 376 from Drury or drive to the Papakura station, park,

and ride the train into the City Centre. The Papakura station provides a parknride facility comprising some 230 car parks (free) and bike racks.

It is noted that as Supporting Growth indicative business case a variety of improvements are proposed in this area, providing high quality access to Public transport services as discussed further in section 4.1 below. This is considered to be a significant improvement in the public transport accessibility of the area.

### 2.4.3 WALKING

The Drury township is located approximately 1.3km - 2.4km from the PPC area, and typically outside of the walking catchment (1.5 km radius).

A primary school and an ECE is proposed by the Ministry of Education (MoE) at 41 Burberry Road. These will be open in 2021. MoE have also acquired two sites on Jesmond Road for a high school campus. Both schools are within walking distance of the subject site.

The proposal includes a town centre within the PPC area itself therefore the remaining residential land is all within the walking catchment for this centre. In addition, a small local centre is proposed (yet to be constructed) as a part of the Drury 1 Precinct and will be located some 1.7 – 2.5km from Auranga B2 via Bremner Road.

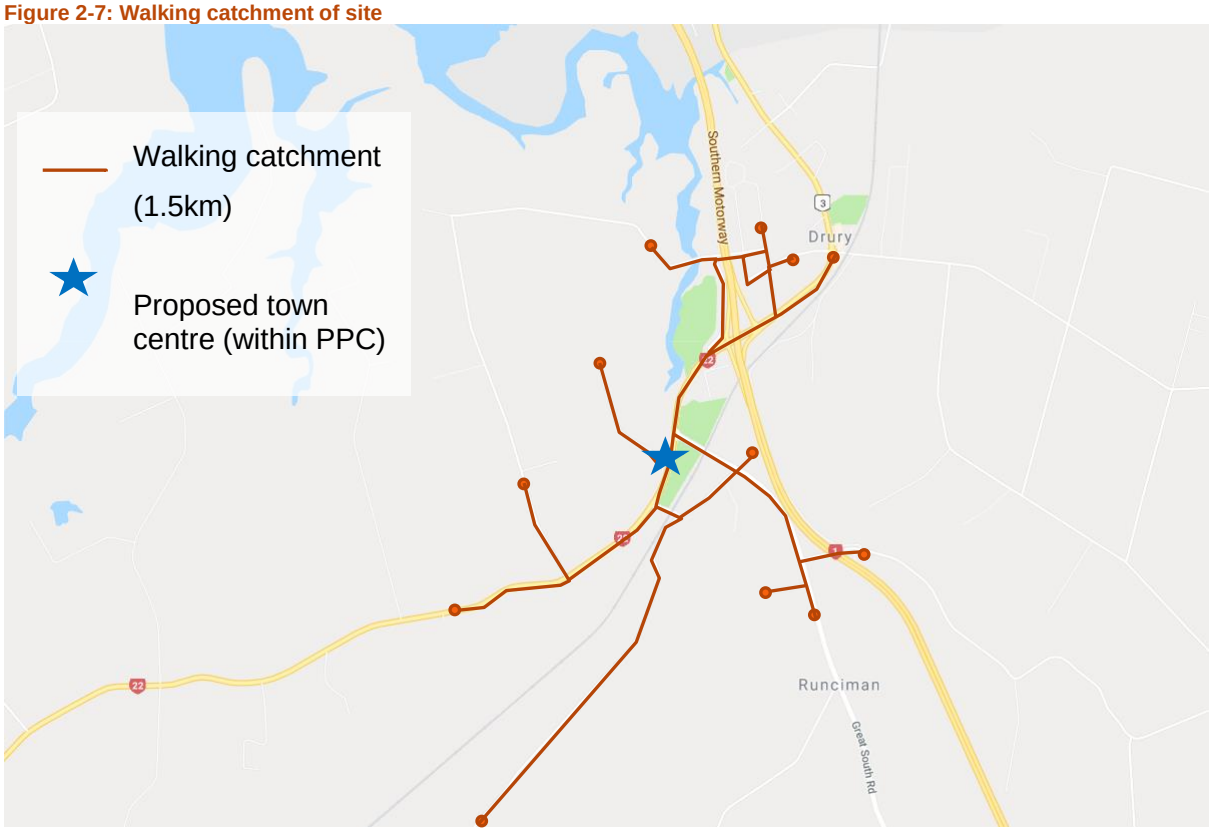
Currently, footpaths are provided on the Bremner Road overbridge and on the southern side of Bremner Road on the eastern side of the overbridge, close to the Drury township. Footpaths are provided, generally on one side of each local road within the Drury township. This route currently represents the shortest distance to reach the Drury township from the PPC area and therefore is preferable as a pedestrian connection.

The Austroads Guide to Traffic Engineering Practice Part 13 – Pedestrians indicates that the practical walking distance for non-recreational walking trips is in the order of 1.5km. Using the practical walking distance of 1.5km and the 15th percentile walking speed of a typical fit, healthy adult of 1.3m/s, gives a journey time of some 20 minutes. This is 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 20-minute walking time from the proposed town centre. It is important to note that a town centre is proposed within the PPC area itself therefore the site will be within walking distance to these facilities.

In addition, as can be seen in Figure 2-7, the Drury township, with a range of amenities, is on the edge of walking distance to Auranga B2. However, with a town centre proposed within the Auranga B2, the PPC area is well within a comfortable walking distance for both the western and south-western aspects of the PPC area is. Of note Figure 2-6 assumes SH22 is upgraded to provided pedestrian facilities.

**Figure 2-7: Walking catchment of site**

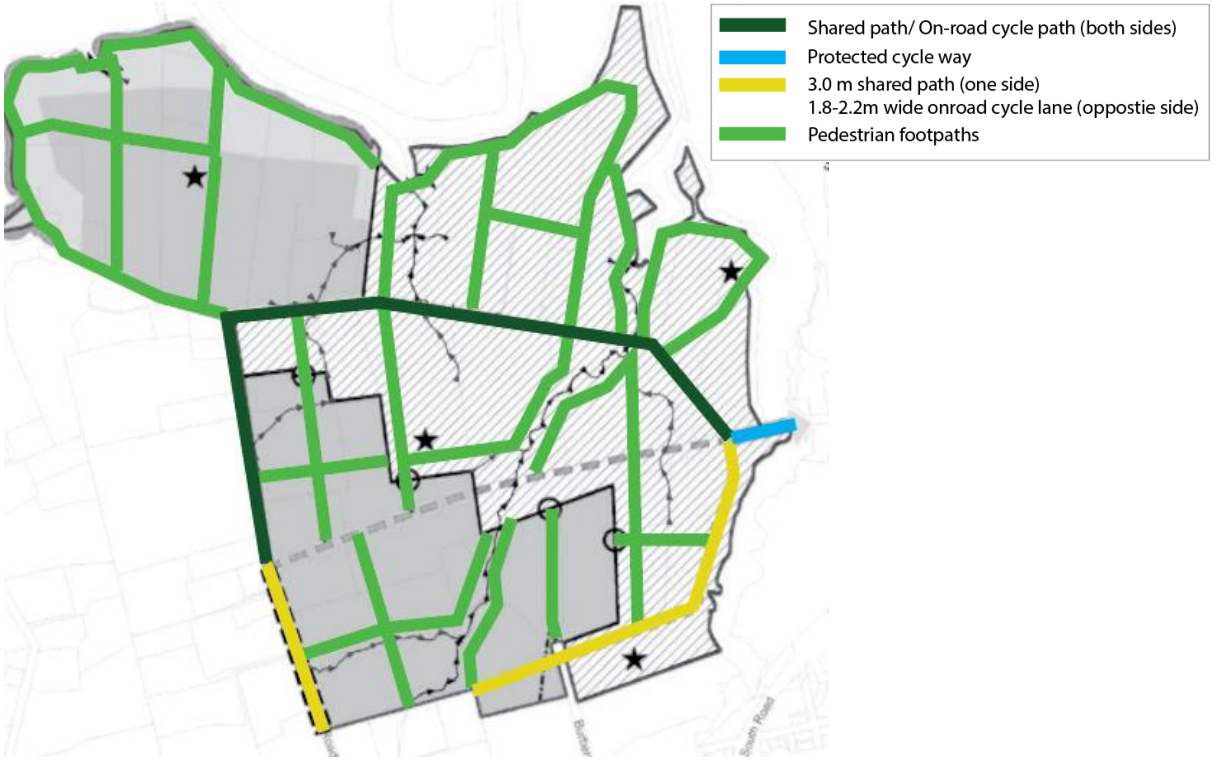



### 2.4.4 CYCLING

There are currently no dedicated cycle facilities on Jesmond Road or SH22 near the PPC area apart from some localised on-road cycle lanes through the SH1 / SH22 Drury Interchange. Stage 1 of the Auranga development has commenced the completion of the cycle upgrades on Bremner Road.

The Drury 1 Precinct plans a significant comprehensive network of cycle facilities on Bremner Road and the two new collector roads (Roads 1 (east-west PT Arterial Road) and 3). Figure 2-8 shows the cycle network being implemented within the adjacent Drury 1 Precinct (Auranga A & B1).

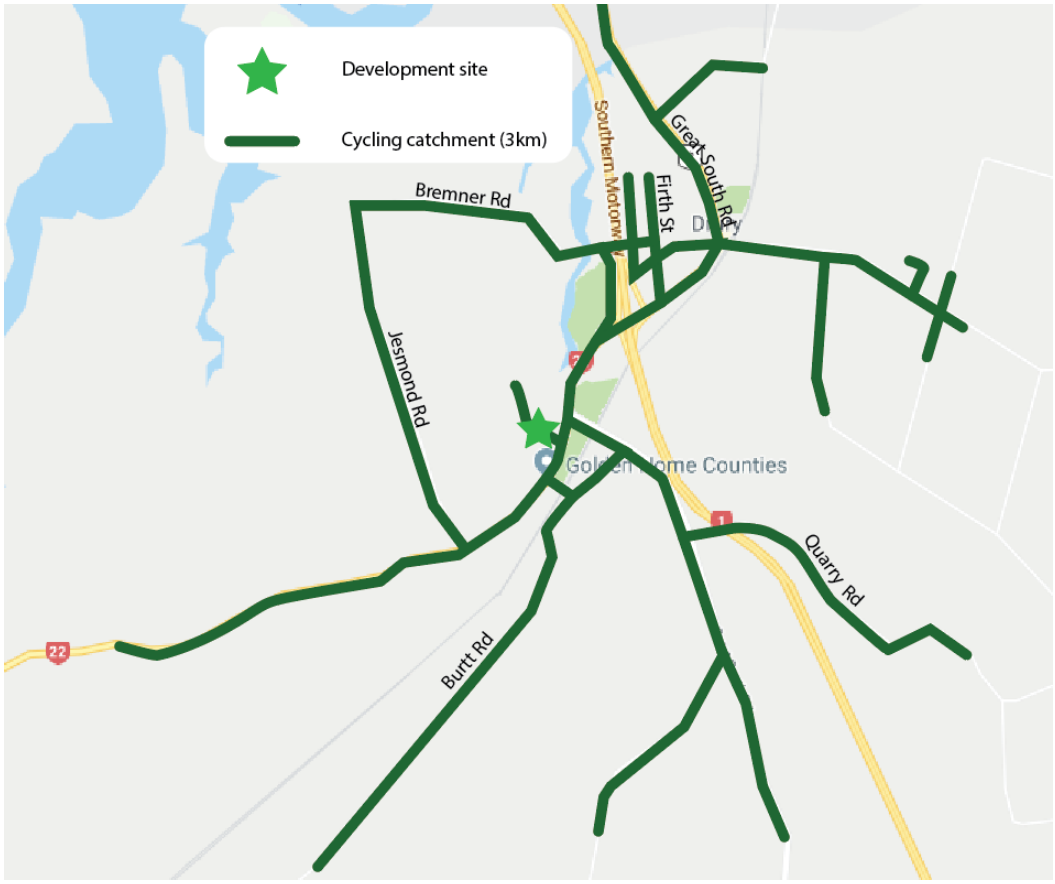
**Figure 2-8: Proposed cycling provisions within the neighbouring Drury 1 precinct**




As part of the NZ Transport Agency Southern Corridor project, (currently near completion), an off-road shared path will be provided within the motorway corridor between Takanini and Papakura. The Auckland Cycle Network shows a "cycle connector" route to Drury. As such, it is likely that this facility will extend to Drury in the future.

A potential cycling catchment area is shown in Figure 2-9 below. A 3km distance has been used as the catchment area for cycling trips. This is in line with the NZ Transport Agency Research Report 426. As noted, a town centre is proposed within the PPC area. In addition, the PPC area is located within cycling distance of the proposed local centre (in the Drury 1 Precinct) and the existing Drury Town Centre.

**Figure 2-9: Proposed cycling provisions within the neighbouring Drury 1 precinct**




## 2.5 TRAFFIC VOLUMES

The following table outlines existing traffic volumes in the area obtained from both NZTA and AT.

**Table 2-1: Existing Traffic Volumes**

| Road | Location | Date | 7-Day ADT (veh/day) | Peak hour volume (veh/hr) | |
|---|---|---|---|---|---|
| | | | | AM | PM |
| Bremner Road | Creek St to Jesmond Bridge (1st abutment) | October 2018 | 904 | 385 | 113 |
| Jesmond Road | Between SH22 to Bremner Road | October 2018 | 665 | 98 | 77 |
| Victoria Street | Approx 180m south of Bremner Road | Feb 2014 | 222 | 24 | 37 |
| Great South Road | Between Norrie Rd RAB and Hingaia Stream Bridge (1st abutment) | October 2019 | 13,933 | 1,236 | 1,632 |
| Norrie Road | Approx. 240m east of Firth Street | Nov 2012 | 1,764 | 211 | 209 |
| Firth Street | Approx. 180 m north of Great South Road | Feb 2014 | 1,849 | 368 | 222 |
| Waihoehoe Road | Between Fitzgerald Road and Appleby Road | Mar 2015 | 1,976 | 187 | 201 |
| SH22 (Karaka Road) | East of Great South Road | 2017 | 26,051 | NA | NA |

| | | | | | |
|---|---|---|---|---|---|
| SH22 (Karaka Road) | East of Oira Road | 2017 | 21,248 | NA | NA |

## 2.6 ROAD SAFETY RECORD

A search of the road safety record using the New Zealand Transport Agency Crash Analysis System (CAS) has been carried out to identify all reported crashes near the site during the five-year period from 2015 to 2019 as well as all available data in 2020. The search focused on all reported crashes occurring on SH22 between the SH1 interchange and Woodlyn Drive to the west. The study area includes all intersections and selected side roads including Oira Road, Bremner Road, McPherson Road, Burberry Road and Great South Road.

The crashes are summarised in Table 3.

**Table 2-2: Crash History Summary**

| Location | Number of Crashes/ severities | Injuries |
|---|---|---|
| Karaka Road (SH22) midblock | 34 crashes<br>2 fatal crashes<br>3 serious injury crashes<br>8 minor injury crashes | 2 fatal crashes involve head on movements.<br>Serious injury crashes involved both head on and rear end type crashes.<br>Minor injury crashes involved predominantly loss of control with some head one and rear end crashes. |
| Jesmond Road | 3 crashes including 1 minor injury crash | Two crashes involved loss of control with alcohol suspected.<br>One crash involved a load/ trailer being detached. |
| Oira Road | No crashes | |
| Great South Road / Karaka intersection | 11 crashes including 2 serious injury crashes | Serious injury crashes involved a head on crash and right turning vehicle colliding with oncoming traffic.<br>Non – injury crashes involve right turning movements, rear ends and lane changing / overtaking. |
| Burberry Road / Karaka intersection | 3 crashes including 1 minor injury crash | Minor injury involved a rear end movement |

| Location | Number of Crashes/ severities | Injuries |
|---|---|---|
| McPherson Road / Karaka intersection | 2 crashes both resulting in minor injury | One minor injury crash involved a rear end movement while the other involved a right turn movement. |
| Jesmond Road / Karaka Road | Three crashes including 2 serious injury crashes and 1 minor injury crash | All three crashes involve turning traffic colliding with through traffic on SH22. |
| Oira Road / Karaka Road | One crash – non injury | Vehicle missed the end of Oira Road. |

Of the three crashes recorded at the Burberry Road/ SH22 intersection, two involved a vehicle southbound on SH22 rear-ending a vehicle waiting to turn right into Burberry Road (fatigue and failure to notice car slowing down were listed as contributing factors). It is noted that this intersection has been identified within the NZTA safe roads assessment (SH22/SH1 Drury to Paerata project)[6] with consideration being given of upgrading the intersection to provide a right turn bay. Further, this intersection is proposed to be upgraded as part of the PPC to a signalised intersection (or roundabout) with dedicated turning lanes thereby reducing turning vehicles obstructing through movement on SH22.

At the other intersections, the common themes were vehicles waiting to turn right from SH22 being hit by vehicle travelling straight on SH22 (turning vehicle failed to give-way). Along SH22, the most common theme is vehicles losing control while overtaking or turning.

In order to accommodate future demand (including Auranga B2), the AT/NZTA proposal intends to widen SH22 to four lanes between Oira Road and some 400 m north of Great South Road is planned and become urban in nature. As such, traffic speeds are likely to reduce and traffic signals will be provided at a number of intersections including Great South Road, Burberry Road and Jesmond Road, in the future. These changes will likely reduce crashes (particularly serious injury crashes) due to overtaking and turning.

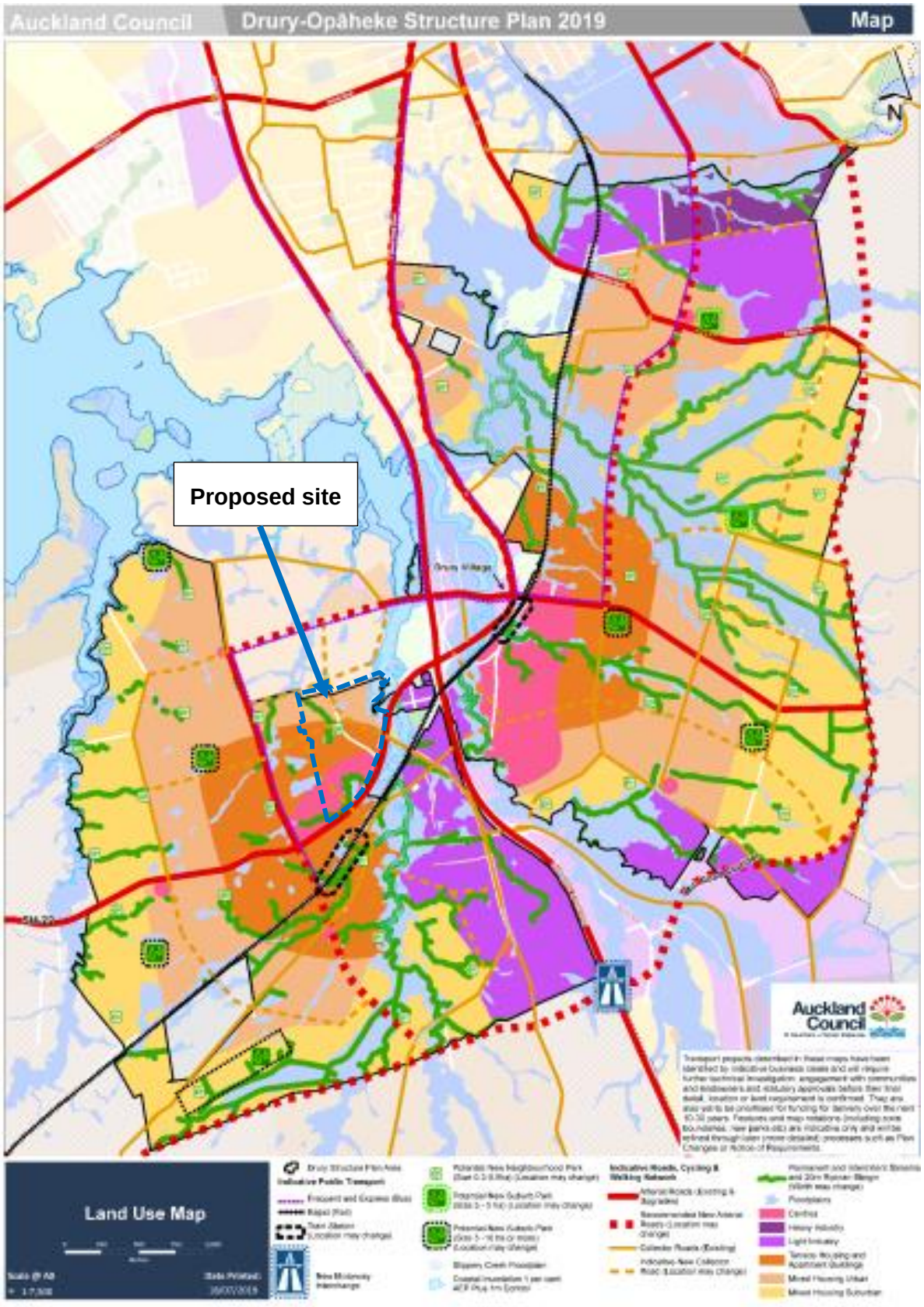
With these upgrades (and others described in this report), it is considered that the proposed development will not exacerbate the existing road safety record (but rather improve it).

# 3 STRUCTURE PLAN AND SUPPORTING GROWTH WORK

The Draft Structure Plan released by Council proposes an indicative land use scenario as shown in Figure 3-1 . The structure plan underwent consultation in October 2018 with a Summary report prepared in April 2019 outlining the Draft Drury Opaheke Structure Plan. This land use scenario supports higher density land use around transport stations and key corridors and supports these transport links further with proposed centres at Drury West on the SH22 corridor and in close proximity to a future Drury West rail station. A further centre is provided in Drury (east of SH1).

[6] https://www.nzta.govt.nz/projects/sh22-sh1-drury-to-paerata/

**Figure 3-1: Structure Plan land use map (May 2019)**




The indicative land uses identify the subject site as predominately residential with a mixture of Terraced Housing and Apartments with some Mixed Housing Urban zoning to the north and town centre zoning in the south west corner of the site.

The proposed plan change zone structure is broadly in accordance with the structure plan but includes more town centre zoning and less MHU zone.

From a transport perspective, Collector roads are shown east-west through the site between the Great South Road intersection and Jesmond Road while Burberry Road is realigned. A further north-south collector is shown adjacent to the town centre meeting SH22 at a new intersection.

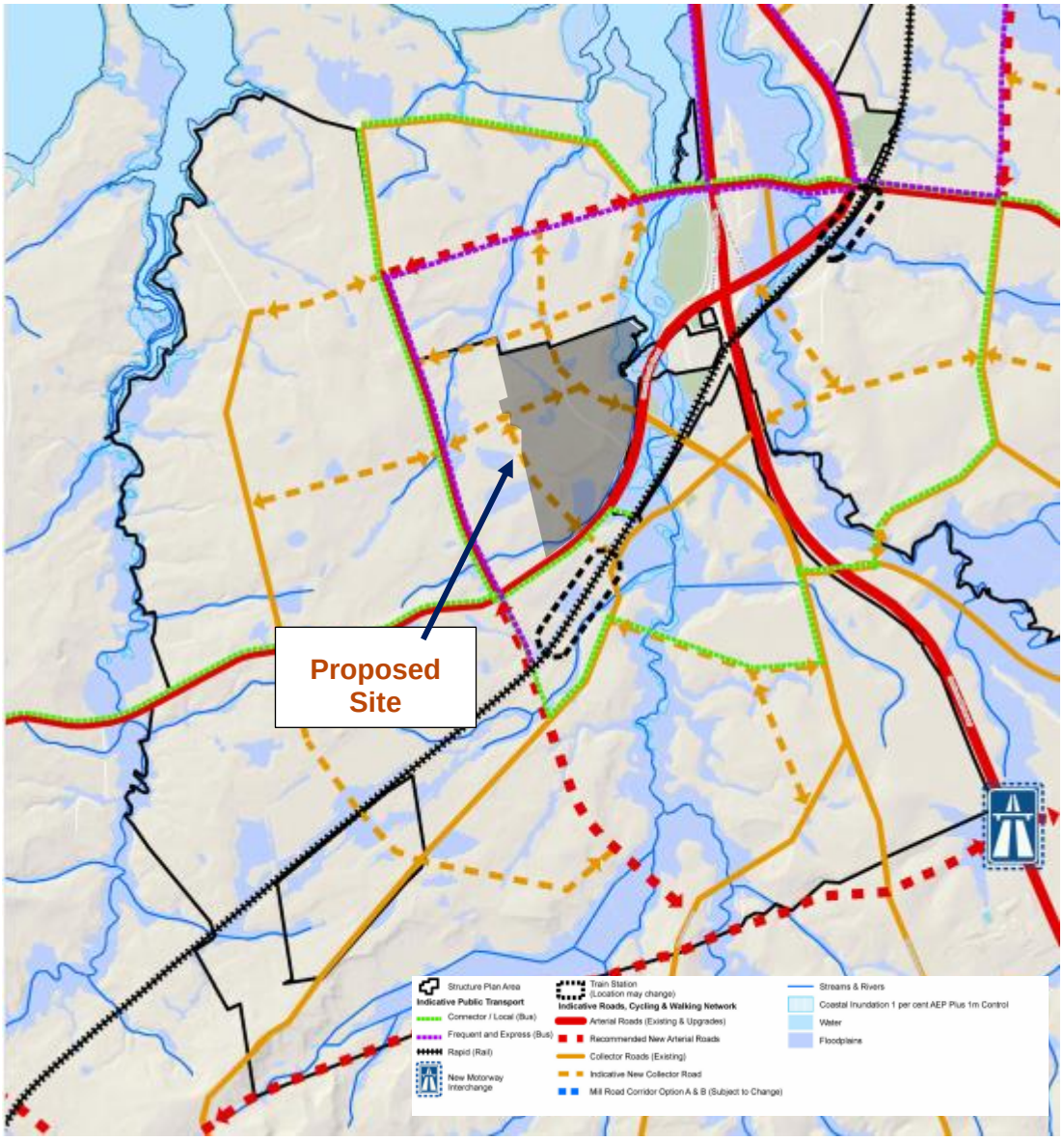
## 3.1 TRANSPORT NETWORK

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 include:

- Rapid Transit (heavy rail) upgrades including four tracking between Wiri and Pukekohe and new rail stations at Drury Central, Drury West and Paerata
- 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 Drury-Opāheke
    - Including widening and safety improvements to SH22 between Drury and Paerata
    - Upgrade of Jesmond Road to an arterial

Figure 3-2 shows the transport network for the Drury-Opāheke area as proposed within the Draft Structure Plan.

**Figure 3-2: Draft Future Transport Network in structure plan**




The ITA identifies an upgrade on SH22 as an urban arterial. A cross section of the expected upgrade in provided in Figure 3-3. A number of new collector roads are identified through the study area. The assumed cross section outlined in Figure 3-4.

**Figure 3-3: SGA ITA assumed Arterial Road cross section**

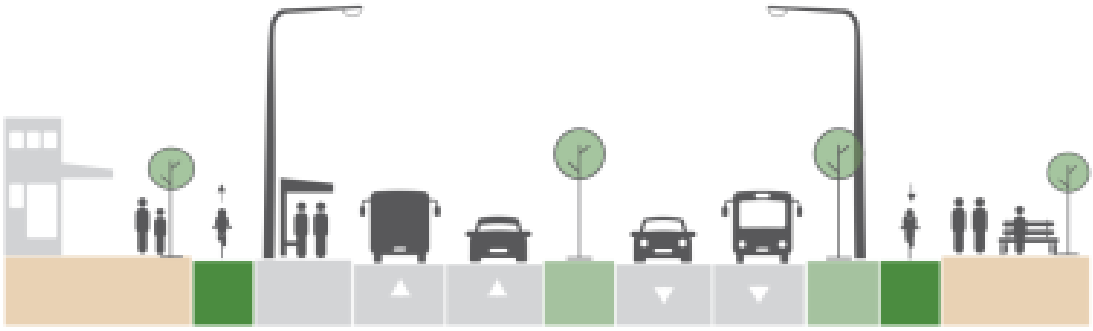


**Figure 3-4: SGA ITA assumed Collector Road cross section**

### 3.1.1 SUPPORTING GROWTH DRURY AND OPAHEKE DETAILED BUSINESS CASE

Auckland Transport and NZTA via the Supporting Growth Alliance, have been progressing detailed business cases for elements identified in the Indicative Business Case for the South area.

Of particular relevance to this site is the project to upgrade SH22, Jesmond Road and the proposed Drury West Train station.

Public consultation was undertaken in December 2019 on projects within the Drury area. For Jesmond Road, the material suggested a preference to widen Jesmond Road to the western side to reduce the number of private properties impacted as shown in Figure 3-5.

For the SH22 project, the consultation material suggests a different sections of the road to the north and south so that reduces impact on wildlife, streams, property and the Ngakoroa Reserve as shown in Figure 3-6.

No consultation has been carried out on the Drury West Train station although the consultation material gives an indication as to the likely position of this.

**Figure 3-5: Jesmond Road upgrade project**

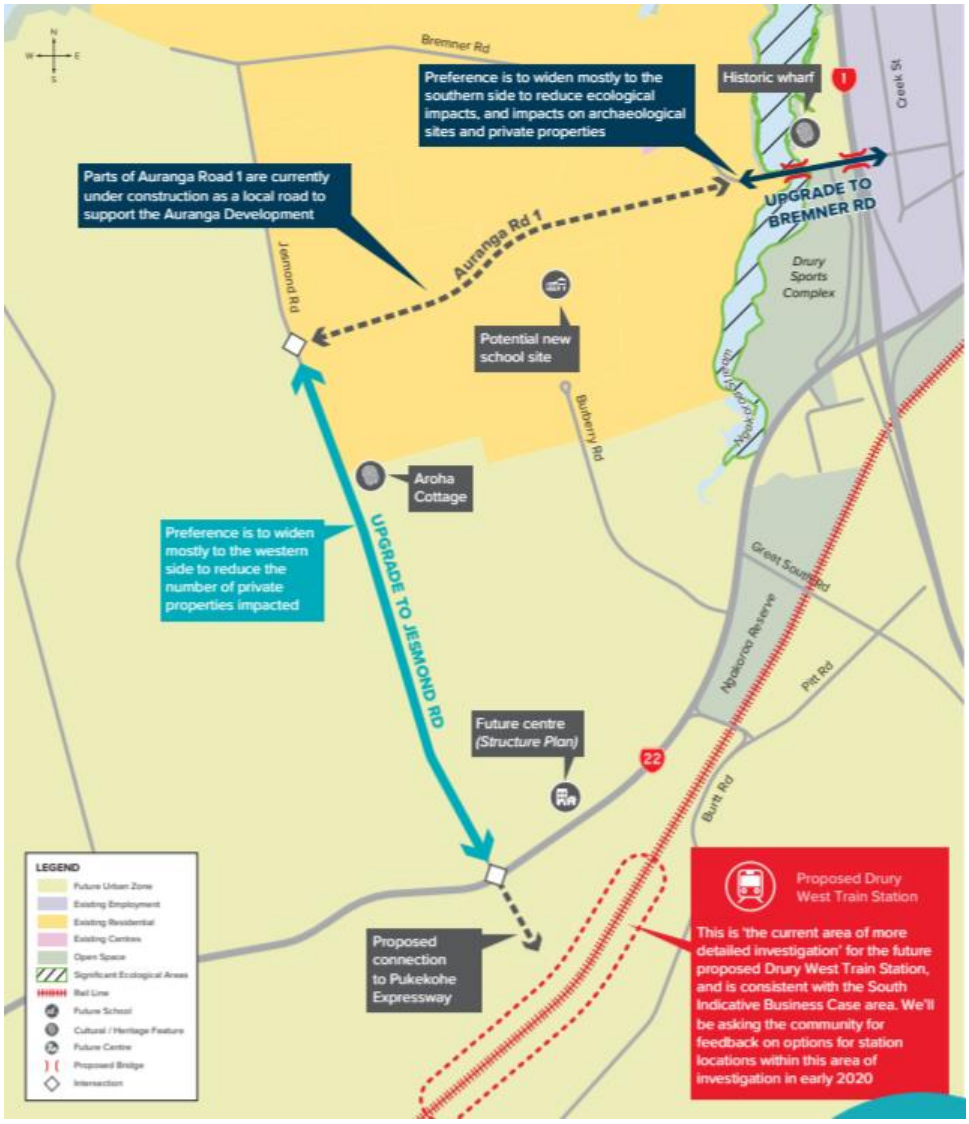
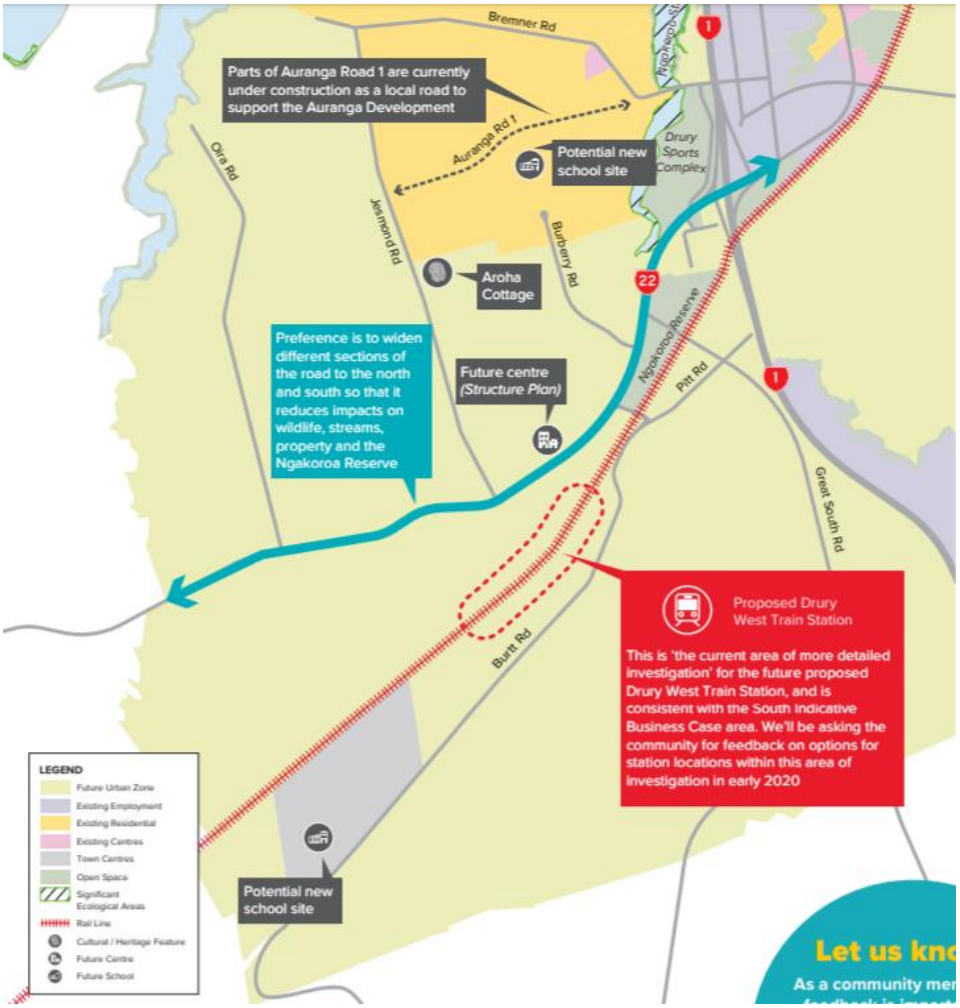


**Figure 3-6: SH22 (Karaka Road) Road upgrade project**




# 4 PROPOSED PRIVATE PLAN CHANGE

The PPC intends to rezone land, located directly south of the Drury 1 Precinct, in Drury, Auckland. The PPC area, comprises some 33.65Ha of land, located directly south of the Drury 1 Precinct, from 'Future Urban Zone ("FUZ") to a mixture of Residential and Business zonings.

The zoning proposed within the PPC area is as follows:

- Residential Mixed Housing Urban – 4.61 ha
- Residential Terrace Housing and Apartment Building zone – 13.75 ha
- Business Town centre zone – 15.29 ha.

The proposal intends to establish a town centre and approximately 890 dwellings (to be constructed in a number of stages to be determined at the time of subdivision) within PPC area. It is anticipated that the dwellings will have be a mixture of two, three and four bedrooms.

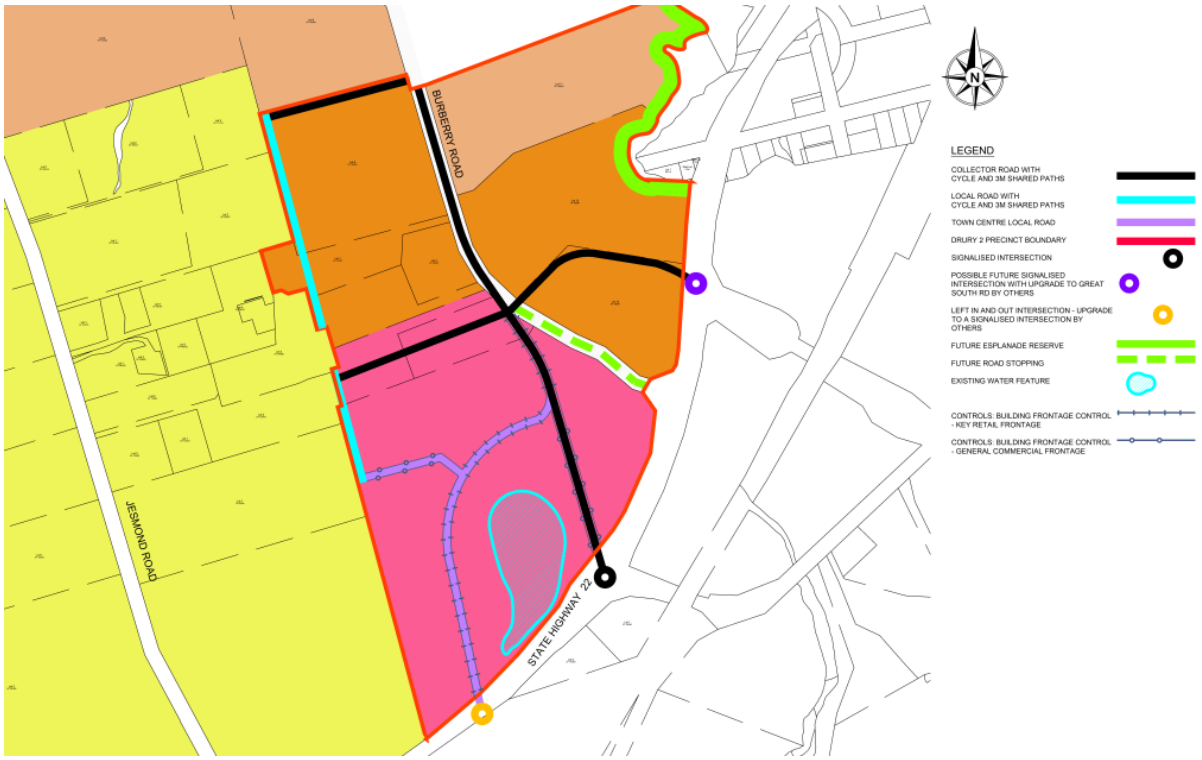
The southern portion of the PPC area, fronting SH22, will be zoned as Business–Town Centre (15.29ha) zones to enable the development of a variety of a town centre comprising retail and commercial premises (approximately 7000 $m^2$ GFA) including a supermarket

(approximately 3500 $m^2$ GFA) which will likely serve the surrounding residential development.

It is important to note that the level of activity outlined above is indicative to reflect the anticipated growth over 20 years in the PPC area.

Figure 4-1 shows the zoning and the hierarchy of roads proposed within Auranga B2.

**Figure 4-1: Proposed layout (indicative)**




As shown in Figure 4-1 above, all collector roads and local roads (excluding the central town centre local road) will include on-road cycle facilities and a 3 m shared path on at least one side of the road. Pedestrian footpaths are also required along all roads within the PPC area.

Practically this PPC is an extension of the Drury 1 Precinct (known as Auranga A and Auranga B1) which is located directly north of the PPC area. While a new Precinct is proposed, it forms a contiguous urban area resulting from PV15, PC 6 and this PPC.

# 5 PROPOSED ROAD NETWORK

The future road network provides for a range of travel modes including cycling & walking, private vehicles and enables for future transport services.

A hierarchy of road types (collector and local) are illustrated within the PPC area on the Precinct Plan (outlined in Figure 4-1 above) and have been designed to complement the existing road hierarchy shown in the Drury 1 Precinct Plan (identified as Precinct Plan 1 and Precinct Plan 2). The street network is generally considered legible and well connected both within the PPC area and to the wider road network.

The key upgrades identified with the PPC are as follows:

- the future closure of Burberry Road including at SH22 (as separate LGA process);
- upgrade of remaining length of Burberry Road to a collector road classification to serve as one of the four connections from the PPC area to the wider road network (SH22);

- realignment of Burberry Road between the current intersection with SH22 through 6 Burberry Road to 235 m north of that intersection. The realignment will involve extending this leg of Burberry Road southward such that it connects to the McPherson Street/ SH22 intersection thereby forming a cross-intersection. This 'new' intersection will be upgraded to a signalise control with dedicated pedestrian phasing and cyclist facilities;
- a new local road between the realigned Burberry Road, through the town centre area and meeting SH22 at a left in/ left out intersection.
- New collector road commencing from the point of realignment on Burberry Road and extending to the western site boundary consistent with a new collector road identified as part of the structure plan.
- New collector road commencing from the point of realignment on Burberry Road, and will extend in a north-east direction, connecting to SH22 at the intersection with Great South Road. This intersection will also be signal-controlled and provide dedicated pedestrian and cyclist facilities on each approach.

### 5.1.1 COLLECTOR ROADS

The proposed collector roads will connect the wider area with local roads, and function in a shared access and movement role. The spatial distribution of these over the PPC area can be seen in Figure 4-1 above.

Final road cross sections will be determined at the resource consent stage and will be in accordance with the required local engineering and Auckland Transport standards.

It is likely that the final cross sections will be similar to that of previous stages which include a 6.0-7.0m carriageway, with 2.2-2.6m raingardens and indented parking bays on both sides along its length. The carriageway width will be dependent on whether it is to be public transport route (7.0m). A 3.0m shared path (which can be used by inexperienced cyclists) is provided on both sides of the road of the collector (existing) and on one side for the collector road (new) because of its design associated with a park edge road and recreation amenity. A 1.8-2.2m on-road cycle lane is also provided on both sides of the road for the collector road (new) and opposite side of shared path on the collector road (new)).

Vehicle crossings for driveways are avoided on Collector Road (existing) and over the shared path on the collector road (new). Where shared access lots/lanes cross footpaths, the footpath surface will be continued across the driveway to highlight legal footpath user right-of-way.

### 5.1.2 LOCAL ROADS

Final road cross sections/from will be determined at the resource consent stage and will be in accordance with the required local engineering and Auckland Transport standards.

It is likely that the final cross sections will be similar to that of previous stages which include 5.6m wide carriageways (2.8m traffic lanes). All cross sections will at least have 1.8m footpaths on both sides.

Where driveways cross footpaths, the footpath surface will be continued across the driveway to highlight legal footpath user right-of-way.

All cross sections provide 2.2-2.6m width for raingardens, parking and tree build outs.

The combination of relatively narrow carriageways and side friction from on-street parking and residential driveways will create a low speed (30-40km/hr) environment appropriate for a residential area.

The lane widths and footpath dimensions that are proposed generally comply with Auckland Code of Practice (ATCOP) and TDM guidelines. These are considered appropriate.

## 5.2 CYCLING PROVISION

A comprehensive cycling network will serve the PPC area. The proposed cycling provisions include:

- Shared off-road (3m) path on both sides of Burberry road (existing road to be upgraded to a collector road) together with on-road cycle path (1.8-2.2m). Of note, for higher volume roads (e.g. Collector Roads) the cycle lane is to be separated with a raised 0.8m separator;
- Off-road cycleway (3m) throughout the PPC area;
- Low speed environment with traffic calming in the town centre; and
- Low speed road design on all local roads.

Further, as part of the proposed Precinct, no vehicle crossings will be permitted over the shared use paths on Collector Roads (being a discretionary activity).

## 5.3 PUBLIC TRANSPORT PROVISION

As part of the SGA indicative Business Case for the southern area, the electrification of the rail line (from Papakura to Pukekohe) as well as a station at Drury and Karaka (South of Jesmond Road) have been identified.

An allowance for bus routes through the Auranga area has been made within the neighbouring Auranga A and B1 developments (along Bremner Road and the east-west road to become and Arterial). This would be continued as a part of the Auranga B2 proposal and would likely connect to the wider network via Jesmond or Oira Road. Ideally this would provide connections with one or both of the proposed new train stations. The exact nature, timing and route of future bus services through the and PPC area and Drury West will be finalised and decided upon by Auckland Transport. When this occurs, train accessibility and public transport will be significantly improved for Drury West. Where a rail station is proposed, it is important that sufficient bus, pedestrian and cycling infrastructure be provided between the PPC area / Drury 1 Precinct developments and the train station to encourage the use of alternative modes of travel.

Given the current congestion on the motorway, and the scale of development proposed within the area, these provisions are likely to greatly reduce further exacerbation of congestion on the SH1 during the peak hours.

## 5.4 POTENTIAL DRURY TRAIN STATION(S)

The SGA indicative business case proposed to include two new train stations in the Drury area. While the location of the train stations is not yet finalised, an indication has been provided as part of the Drury-Opaheke consultation undertaken in December 2019. The Drury west Train station is likely to be located around Jesmond Road.

Given the proximity of Auranga B2 to this location, it is expected much of the land within the PPC area will be within a walk-up catchment of a future station.

Facilities are provided within the Aurnaga B2 area to encourage residents / employees within those walking catchments to utilise trains when commuting to / from work. Bicycle facilities such as covered bike racks should also be provided to encourage commuters from areas within and outside of the catchments to utilise trains.

# 6 TRIP GENERATION

The following section compares what has been assumed as part of the Structure Plan ITA and Supporting Growth IBC to the anticipated yield for the PPC area and remaining land in the zone.

## 6.1 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.

The PPC for Auranga B2 is within MSM Zone 561 as shown in Figure 6-1. With the level of development proposed in the Drury 1 Precinct (consented[7]) and Auranga B2 (proposed), the likely development yields for the land have been compared against the assumptions used in the MSM model.

**Figure 6-1: Zone 561 boundary**


The regional transport model forecast growth for zone 561 is set out in

[7] post release of the Scenario i11 model

Table 6-1.

**Table 6-1: MSM growth assumptions (I11 scenario used in IBC / ITA)**

| | HOUSEHOLD FORECASTS | | | | POPULATION FORECASTS | | | | EMPLOYMENT FORECASTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Zone | 2016 | 2028 | 2038 | 2048+ | 2016 | 2028 | 2038 | 2048+ | 2016 | 2028 | 2038 | 2048+ |
| 561 | 70 | 1,563 | 2,766 | 3,819 | 195 | 4,192 | 7,091 | 9,445 | 100 | 420 | 652 | 840 |

## 6.2 COMPARISON TO ACTUAL AND FORECAST GROWTH

A large portion of the area related to Zone 561 is already planned/consented. For the planned Drury 1 Precinct developments, the following estimates have been made based on previous reports:

- Auranga A will develop 1,350 dwellings[8] (as per the ITA prepared by Commute, dated 10th May 2016);
- Auranga B1 will develop 1300 dwellings (as per the ITA prepared by Commute, dated 17th April 2017);

Further, the yield of the remaining land (including Auranga B2) has been estimated using typical rates to determine the anticipated household and employment numbers. Table 6-2 outlines these rates which have been applied to Auranga B2 and other land located within Zone 561 but situated outside of the Drury 1 Precinct and Auranga B1 developments.

**Table 6-2: Assumed rates for determining number of employment in various zones**

| Activity | Number of jobs |
|---|---|
| Residential zone (predominantly THAB zone with some mixed housing urban) | 6 jobs per net developable area (NDA)[9] |
| Town centre zone | 80 jobs per ha of NDA |
| Mixed-use zone* | |

*Rates for the town centre zone has been used for the mixed-use zone

With regards to residential density, rates have been provided by the client estimating the housing density within the Auranga B2 development for various zones; this is outlined in

[8] A local centre is also proposed within this site and is likely to cater for the surrounding residential development. However, for the purpose of this assessment it has not been included.

9 The net developable area excludes land required for roads, parks and any other environmental features such as ponds. The NDA for the residential component of a site has conservatively been assumed as 50% of the gross area.

Table 6-3 below.

**Table 6-3: Client rates for determining number of household's various zones**

| Activity | Number of households |
|---|---|
| Residential zone (predominantly THAB zone with some mixed housing urban) | 67 dwellings per ha of NDA |
| Business - Town centre zone | 40 dwellings per ha of NDA |
| Business - Mixed-use zone* | |

*Rates for the town centre zone has been used for the Business - mixed-use zone

Based on the above rates, the number of households and jobs within Zone 561 and has been broken up into for the following sections including:

- Drury 1 Precinct (Auranga A and Auranga B1)
- Auranga B2 and remaining land to the west

### 6.2.1 DRURY 1 PRECINCT

A total of 2650 dwellings are planned within the Drury 1 Precinct (167.67 ha). Based on the rates outlined in Table 6-2 and

Table 6-3, the following jobs and households are predicted within this precinct.

**Table 6-4: Drury 1 Precinct predicted households and jobs**

| Activity | Net developable area | Number of households | Number of jobs |
|---|---|---|---|
| Drury 1 Precinct (Auranga A & B1) | 83.8 ha | 2650 | 502 jobs |

### 6.2.2 AURANGA B2

The proposal intends to rezone the PPC area as follows:

- Residential Mixed Housing Urban – 4.61 ha
- Residential Terrace Housing and Apartment Building zone – 13.75 ha
- Business Town centre zone – 15.29 ha.

Based on the rates outlined in Table 6-2 and

Table 6-3, the following jobs and households are predicted within Auranga B2.

**Table 6-5: Auranga B2 predicted households and jobs**

| Activity | Net developable area* | Number of households | Number of jobs |
|---|---|---|---|
| Residential zone | 9.18 ha | 615 dwellings | 55 jobs |
| Business zones | 7.65 ha | 306 dwellings | 612 jobs |
| | Total | 1,536 | 667 jobs |

### 6.2.3 OTHER LAND (EXCLUDING THE ABOVE)

The remaining land, located directly west of the PPC area, is zoned as FUZ and comprises approximately 30 ha. This area is currently undeveloped and accommodates a mixture of rural countryside living properties, farms and greenhouses. For the purpose of this assessment, it is estimated that this area will be rezoned as a mixture of "Residential" (both THAB and MHU) and therefore will cater for a housing density similar to that of the PPC and town centre (assumed to be a third of the NDA). Table 6-6 outlines the potential number of households and jobs expected within this area.

**Table 6-6: Other land (excluding the above areas) predicted households and jobs**

| Activity | Net developable area* | Number of households | Number of jobs |
|---|---|---|---|
| Residential zone | 10 ha | 670 dwellings | 60 jobs |
| Town Centre | 5 ha | 200 dwellings | 400 jobs |
| **Total** | | 870 dwellings | 460 jobs |

### 6.2.4 SUMMARY

Table 6-7 below summarises the number of households and jobs predicted within zone 561.

**Table 6-7: Summary of number of households and jobs predicted with Zone 561**

| Zone 561 areas | Number of households | Number of jobs |
|---|---|---|
| Drury 1 Precinct | 2650 | 502 jobs |
| Auranga B2 | 921 | 667 jobs |
| Other land | 870 | 460 jobs |
| Total | 4,441 households | 1629 jobs |
| **Existing Scenario i11.5 model (2048+)** | **3,819 households** | **840 jobs** |

As shown above, the level of development planned within the MSM Zone 561 is anticipated to exceed that assumed as part of the ITA and Supporting Growth IBC. With regards to residential development, anticipated levels are around 16% higher than what has been

assumed in regional modelling. With regards to employment, the anticipated jobs are roughly double the assumed jobs in the area.

# 7 EFFECTS ON TRANSPORT DEMAND

The increase in residential density is reflective of a number of factors including:

- The PPC has an increased proportion of higher density zoning (THAB and Town Centre as opposed to MHU)
- There is a desire to provide higher density living in highly assessible locations such as this site as it has good access to a future train station and key transport links such as SH22

While the increase in households is around 16% over the assumed level in the regional model and subsequent assessment, an increase in households is not proportional to an increase in travel demand. Higher density living, particularly in proximity to a town centre and rail station, is likely to attract a higher mode share to walking, cycling and public transport thus leading to lower vehicle trip rates.

From an employment perspective, the function of a town centre is to primarily provide local services and jobs to the surrounding area. The proposed local centre area is larger than the structure plan assumes thus providing an increase in the level of employment provided.

The net effect on transport demand from this change, is to internalise a higher proportion of trips within the Drury area. More people within Drury will have an opportunity to live and work locally reducing the length of trips required to access both economic and social opportunities.

While this analysis shows some discrepancy between what was assumed in the ITA for the structure plan and what is anticipated in the surrounding area, overall the travel demand that was used to determine the level of transport upgrades in the area is not considered unreasonable. The transport upgrades identified by the Structure Plan ITA are considered reasonable and conclusions reached by the ITA are still considered valid.

Land use assumptions within the MSM model used to assess the structure plan were developed prior to release of the structure plan and prior to more detailed analysis of what is feasible in the area. As more certainty is available for land use, assumptions on both yield and timing are typically updated to reflect the best available information.

In this regard, traffic modelling has not been undertaken using the existing Scenario i11 model. This report will therefore need to be updated once the SGA Southern ITA is released indicating the future land-uses within the vicinity of the PPC area. Specifically, this section of the report will be updated following traffic modelling for the proposed development using the updated Scenario i11 model which will incorporate the planned Drury 1 Precinct developments (north of the PPC area).

# 8 PARKING

## 8.1 UNITARY PLAN REQUIREMENTS

The Unitary Plan provides the required parking provision for various zones. For the zoning proposed within the PPC area, the following minimum and maximum rates apply:

**Table 8-1: Unitary Plan parking requirements**

| Residential activity |
|---|

| Activity | Terraced Housing and buildings (Parking rates - area 1) | Mixed Housing Urban (Parking rates - area 2) |
|---|---|---|
| All dwellings in the Terrace Housing & Apartment Buildings zone | No minimum and no maximum | N/A |
| Dwellings – studio | | No minimum and no maximum |
| Dwellings 1 bedroom | | No minimum and no maximum |
| Dwellings – two or more bedrooms | | Minimum of 1 per dwelling and no maximum |
| **Business activity** | | |
| **Activity** | Town centre zone | Town centre zone |
| Offices | No minimum and maximum of 1 per 30 $m^2$ GFA | No minimum and maximum of 1 per 30 $m^2$ GFA |
| Retail (food and beverage) | Minimum of 1 per 30 $m^2$ GFA and no maximum | Minimum of 1 per 30 $m^2$ GFA and no maximum |
| All other retail (including supermarkets) | Minimum of 1 per 30 $m^2$ GFA and no maximum | Minimum of 1 per 30 $m^2$ GFA and no maximum |

No changes to the AUP provisions for parking are proposed by the PPC, and specific details of parking provisions for future activities will be provided alongside consenting packages for development.

### 8.1.1 CYCLE PARKING

The Unitary Plan also requires that cycle parking be provided. Table 8-2 outlines these requirements. This rule will apply to residential developments with more than 20 dwellings. Secure parking facilities may also be required by the Unitary Plan close to amenities such as the proposed town centre.

For dwellings without a garage, at least one secure (long stay) cycle parking space is required. These facilities should be in a secure location, generally not open to the public, where the cycle does not need to be carried up or down stairs.

**Table 8-2: Minimum Unitary Plan cycle parking requirements**

| Activity | | Visitor (short stay) | Secure (long stay) |
|---|---|---|---|
| Residential (for developments of >20 dwellings) | | 1/20 dwellings within a single building | 1 per dwelling without a garage |
| Retail (food and beverage) | Greater than 350m2 GFA | 1 space per 350 $m^2$ GFA | 1 per 300 $m^2$ GFA |
| Retail (all other retail) | Greater than 500 m2 GFA up to 5000 m2 GFA | 1 space per 500 $m^2$ GFA | |
| | Greater than 5000 m2 GFA | 1 space per 750 $m^2$ GFA | |
| Office (Greater than 200m2 up to 10,000m) | | 1 space plus 1 space per 1,000 $m^2$ above 1,000 $m^2$ | |

No changes to the AUP provisions for cycling provisions are proposed by the PPC, and

specific details of provisions for future activities will be provided alongside consenting packages for development.

### 8.1.2 ACCESSIBLE PARKING

The Unitary Plan requires that accessible parking be provided as per the requirements of the Building Code and NZS 4121. The Building Act states that accessible parking is not required for residential dwellings. For all other activities, where car parking is

- For 1-20 car parks – not less than one mobility space;
- For 21 – 50 car parks – not less than two mobility spaces; and
- For every additional 50 car parks or part of a car park – not less than one mobility space.

As such, car park spaces proposed within the Business – mixed use zone and Business – town centre zone should comply with the above requirements at the time of future land use development.

### 8.1.3 LOADING

For 'retail and industrial' use, sites with a GFA greater than 300 $m^2$ GFA up to 5000 $m^2$ require one loading bay. Sites with a GFA greater than 5,000 sqm up to 10,000 m2 GFA require a minimum of two loading spaces.

For 'all other activities', sites with a GFA greater than 300 $m^2$ GFA up to 5000 $m^2$ require one loading bay. Sites with a GFA greater than 5,000 sqm up to 10,000 m2 GFA require a minimum of two loading spaces.

No changes to the AUP provisions for loading are proposed by the PPC, and specific details of loading provisions for future activities will be provided alongside consenting packages for development.

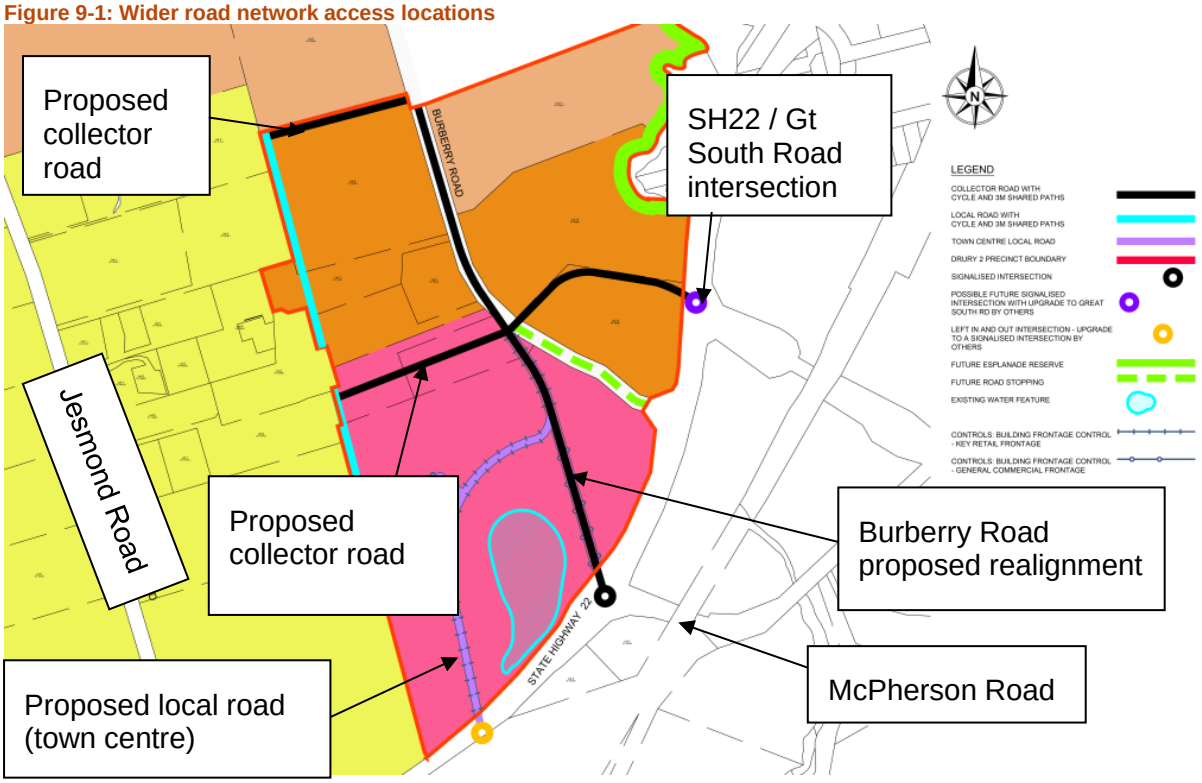
## 9 ACCESS

### 9.1 SITE ACCESS

A total of three connections are proposed to serve as access to the PPC area via two new collector roads and one new local road (western edge of the proposed town centre). Where the collector roads connect to SH22, traffic signals are proposed at those intersections. The local road proposed along the western boundary of the site will connect to SH22 to the south and be restricted to left in left out movements only.

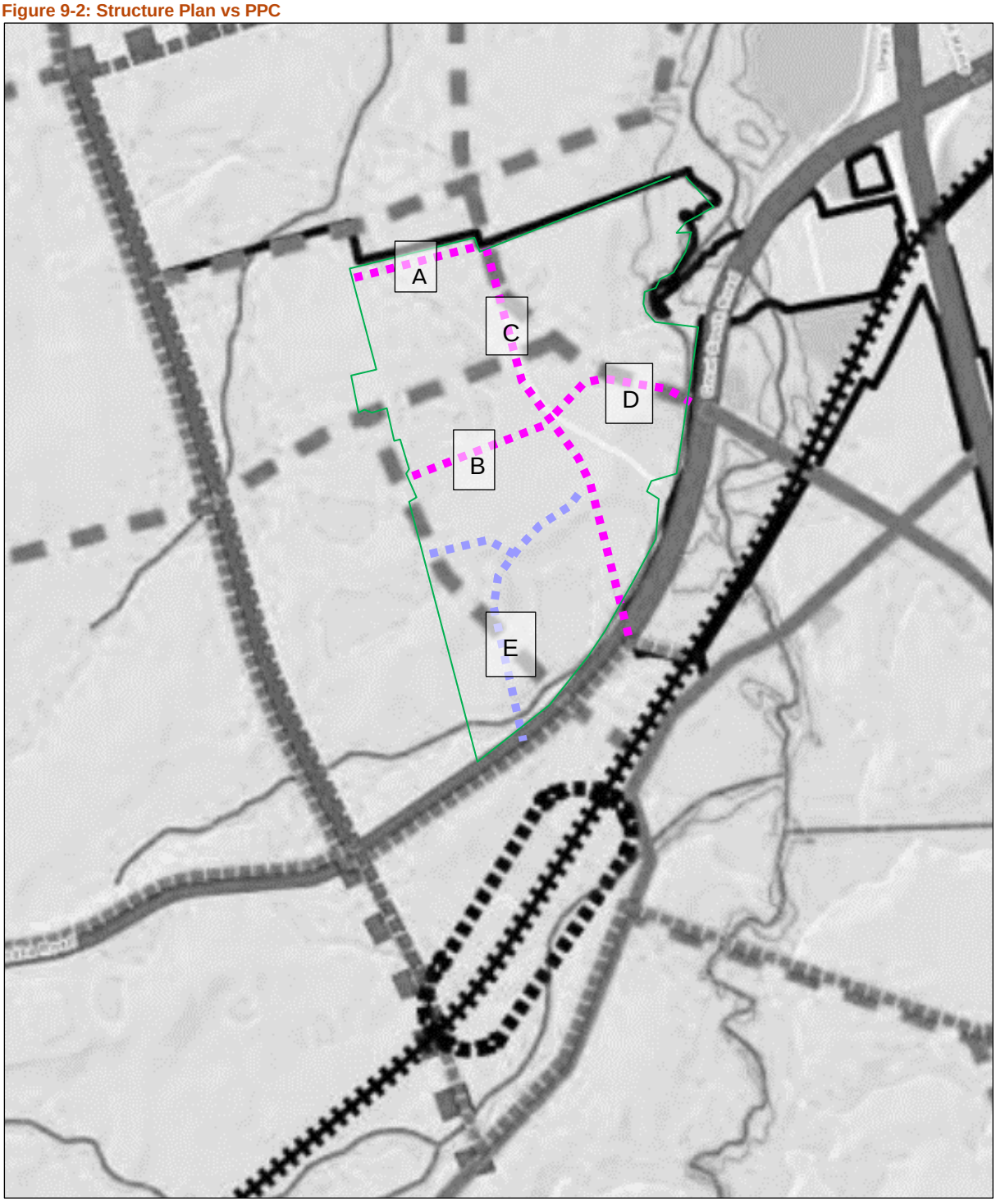
As described above, the master Plan identifies a collector and local road network within the site is proposed and will provide access to the individual dwellings and town centre. Additional roads would be developed at the time of resource consent. Figure 9-1 shows the location of these access points as well as the road network proposed within the site.

**Figure 9-1: Wider road network access locations**




As noted in Figure 9-1 is recommended that an east-west “town Centre” road is upgraded to a Collector road. This would then better ties into the proposed structure plan as shown in Figure 9-2 below (essentially the PPC area super-imposed over the Structure plan Transport network).

**Figure 9-2: Structure Plan vs PPC**



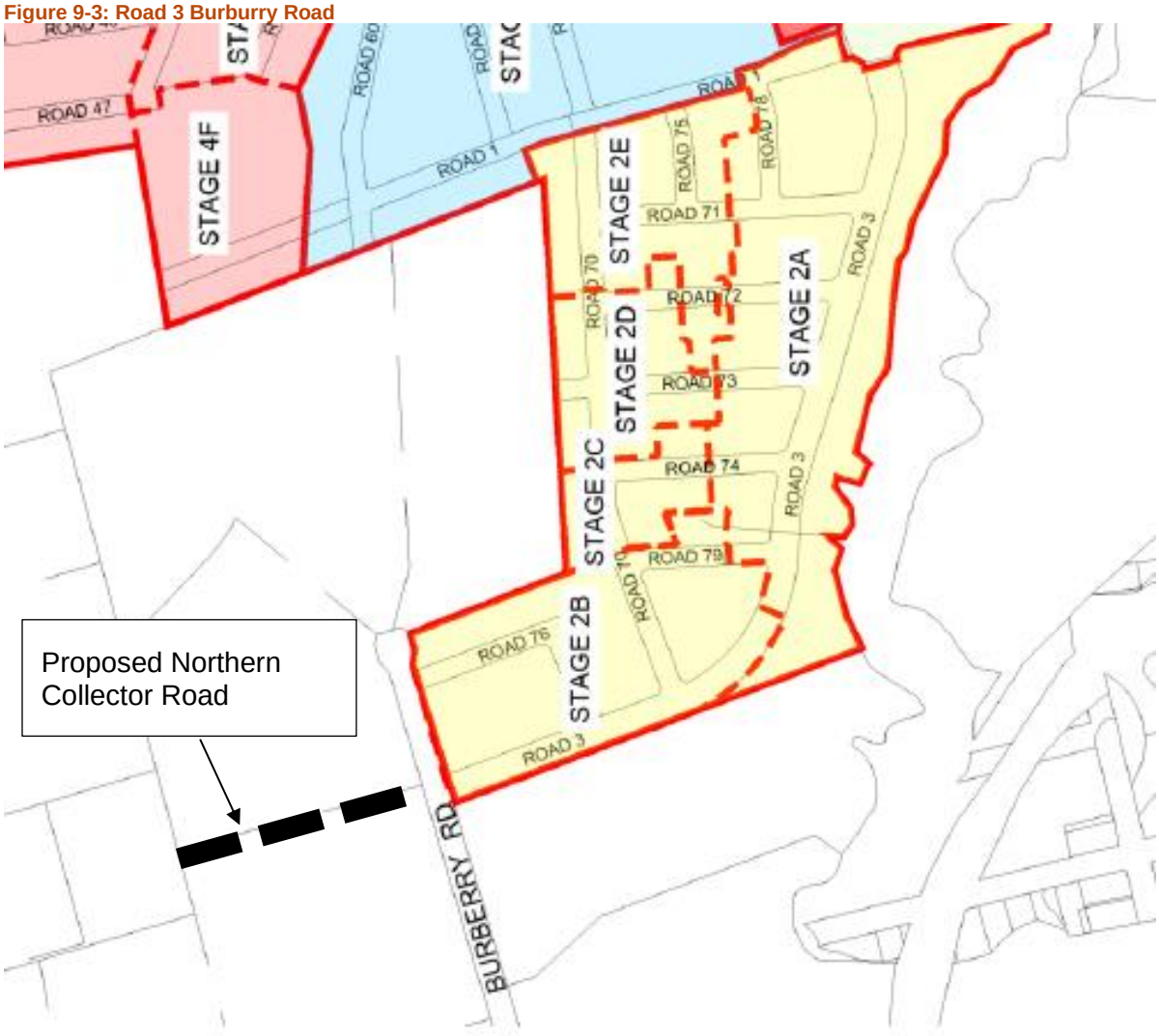

It is noted that there is some difference between the PPC and Structure Plan roading network. Each one of the links are discussed as follows:

A. The east-west collector road in the PPC is essentially moved some 100m south of the location shown in the Structure Plan. While the Structure Plan location matched the Drury 1 precinct, following detailed design this road has been approved (and constructed) to the south as per Figure 9-3 below (Road 3). As such the new location in PPC matches Road 3 already approved;
B. The east-west central Collector Road on the PPC (suggested to be amended) is some 150m south of the location shown on the structure Plan. It is however an

indicative road and can still link at a similar location west of Jesmond Road (through a different alignment).

C. The main north-south Collector Road is in the same location at the northern end (connecting to Auranga A / B1) however it has been re-aligned to meet McPherson road in the south (existing road) to better utilise existing infrastructure.
D. The eastern part of the central east-west Collector Road connects to the same location on SH22 (at Great South Road)
E. The Town Centre Local road connects slightly west of the Structure Plan location 9to give separation to McPherson Road) and then connects to the north-south collector road rather than the east-west collector road in the Structure Plan. This change is due to the overall layout of the town centre proposed.

**Figure 9-3: Road 3 Burburry Road**




## 9.2 PUBLIC TRANSPORT

As part of the Auckland Transport sub-regional area programme (sub-rap) the electrification of the rail line (from Papakura to Pukekohe) as well as a station at Drury and Karaka (South of Jesmond Road) have been identified.

An allowance for bus routes through the Auranga area has been made within the neighbouring Auranga A development (along Bremner Road and the east-west road). This would be continued as a part of the Auranga B1 proposal and would likely connect to the wider network via Jesmond or Oira Road. Ideally this would provide connections with one or

both of the proposed new train stations. The exact nature, timing and route of future bus services through Drury West will be finalised and decided upon by Auckland Transport. When this occurs, train accessibility and public transport will be significantly improved for Drury West.

### 9.3 INDIVIDUAL PROPERTY ACCESSES

All future vehicle crossings within the PPC area are subject to the existing width and gradient requirements of the Unitary Plan.

- Rule E27.6.4.4.1 of the Unitary Plan requires that access gradients must not be steeper than 1 in 5 for ramps serving dwellings. To avoid the underside of the car striking the ground, access with a change in gradient exceeding 1 in 8 must include transition sections to achieve adequate ground clearance. Typically, a transition section requires a minimum length of 2m, which will be provided if required.
- Rule E27.6.4.4.1 also requires that all vehicle access be designed so that where the access adjoins the road there is sufficient space on-site for a platform to enable vehicles to stop safely and check for pedestrians and other vehicles prior to exiting. The platform must have a maximum gradient no steeper than 1 in 20 (5 per cent) and a minimum length of 4m for residential activities.
- Rule E27.6.4.2 describes access provision requirements. For crossings serving adjacent sites, the minimum separation between accesses is 2m.
- Rule E27.6.4.1 indicates that vehicle crossings must not be constructed within 10m of an intersection, measured at the road boundary, unless permitted as a restricted discretionary activity. It is noted that while AS/NZS 2890 has a similar requirement, it specifically excludes residential dwellings from this requirement.

Karaka Road is also subject to a Arterial Road overlay which specifically restricts the ability of new vehicle crossings to access directly onto it.

### 9.4 INTERNAL INTERSECTIONS

The exact formation of individual internal intersections should be considered as part of each detailed development application.

## 10 INTEGRATION WITH FUTURE TRANSPORT NETWORK

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

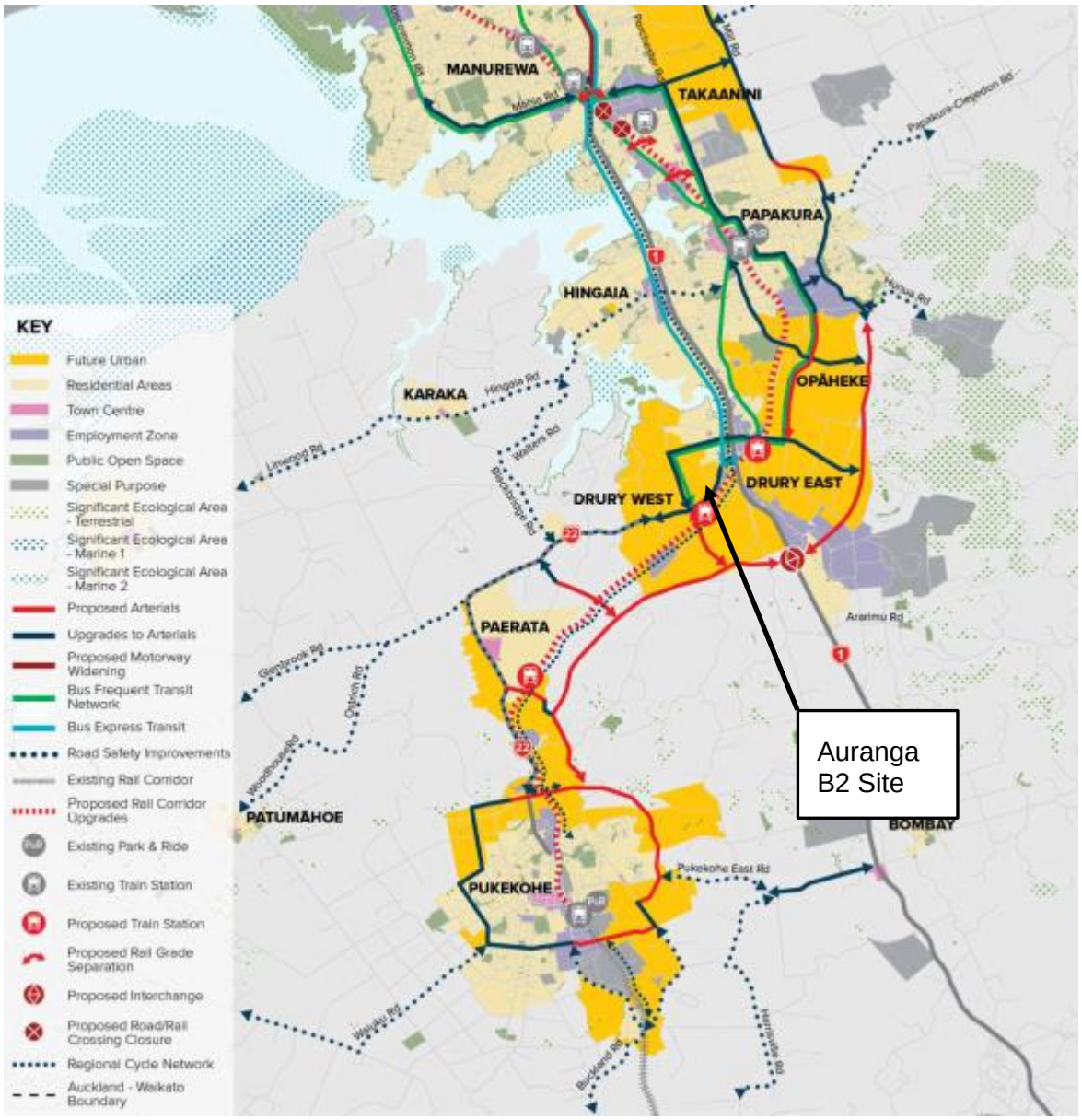
- Supporting Growth South Indicative Business Case for Route Protection, 2019;
- New Zealand upgrade programme, 2020
- Auckland Plan 2012;
- Auckland Regional Land Transport Strategy 2010;
- Auckland Regional Public Transport Plan 2013;
- Sustainable Transport Plan 2006-2016;
- Auckland Unitary Plan 2016; and
- Auckland Design Manual 2014.

### 10.1 SUPPORTING GROWTH INDICATIVE BUSINESS CASE

As a result of urban development resulting from the Auckland Unitary Plan and Special Housing Area processes, there is a corresponding need for transport infrastructure improvements within the Auckland Region to accommodate this planned growth. The Supporting Growth Alliance undertook an Indicative Business Case (IBC) for the transport network to support future urban growth in south Auckland. The IBC recommended transport

infrastructure upgrades for the next 30 years. The key measures near the PPC area are summarised in Figure 10-1.

**Figure 10-1: Supporting Growth recommended network (2019)**




As shown above, nearby transport infrastructure works include:

- Upgrade of SH22 as an urban arterial in the Drury area;
- Safety improvements on the wider SH22;
- A new arterial linking Pukekohe to Drury South.
- Upgrade of Jesmond Road as an urban arterial
- New train station at Drury, Drury West and Paerata with Park and Ride facilities.

Following the SGA Southern IBC, a ITA was prepared in support of the Drury-Opaheke Structure Plan.

## 10.2 NEW ZEALAND UPGRADE PROGRAMME

In January 2020, the New Zealand Government announced a package of funding for infrastructure projects around New Zealand. As part of this announcement three key projects within the Supporting Growth IBC were identified for funding including:

- Upgrading Mill Road to four lanes and connecting Manukau to Drury will ease traffic on SH1 and connect growing parts of Auckland with job-rich centres.
- Electrifying the railway track between Papakura to Pukekohe will speed up trips to the CBD. The addition of two new platforms at Pukekohe station (Drury east and Drury west) will allow additional lines for future growth.
- Two new railway stations in Drury Central and Drury West, along with 'park and ride' facilities, will give real choice to the families that move to this high growth part of Auckland.

For the proposed Auranga C Proposed Plan Change, the announcement changes timing assumptions around when the train station at Drury West will be implemented. The ITA indicated Drury West would be staged post 2028 in line with the FULSS release of the second stage of Drury West development. Following the government funding announcement, it is likely the stations could be completed as soon as 2024/2025.

## 10.3 AUCKLAND PLAN

The Auckland Plan 2050 is the councils long-term spatial plan to ensure Auckland grows in a way that will meet the opportunities and challenges of the future. It was originally released in 2012 and has subsequently updated in 2018. The Auckland Plan 2050 describes Auckland in general terms, outlines the major challenges that we face, and sets the direction for tackling these challenges. It includes the values that will shape how we work together, and it identifies key organisations that will play important roles in creating our shared future. The plan reflects knowledge and experience gained since the first Auckland Plan was released. It also uses the latest available statistical information and research to inform us of the realities of life in Auckland.

More than 1.66 million people live in Auckland already. Over the next 30 years this could increase by another 720,000 people to reach 2.4 million. This could mean another 313,000 dwellings and 263,000 jobs are required over this period.The Auckland Plan also provides guidance with respect to the location and timing of investment in infrastructure, such as transport facilities.

The Auckland Plan sets out six key outcome areas including:

- Belonging and participation
- Maori identity and wellbeing
- Homes and Places
- Transport and access
- Environmental and cultural heritage
- Opportunity and Prosperity

The Auckland Wide Development Strategy Map identifies nearby Papakura as a 'Metropolitan Centre' with future residential development occurring around this hub. The establishment of further housing such as Auranga B2 gives effect to the Housing priorities of the Auckland Plan, specifically:

- Increasing housing supply to meet demand.
- Increasing housing choice to meet diverse preferences and needs.
- Improving the quality of existing and new housing.
- Improving housing affordability and the supply of affordable housing.

## 10.4 AUCKLAND REGIONAL LAND TRANSPORT STRATEGY

The Auckland Regional Land Transport Strategy 2010 ("RLTS") sets the direction for the region's transport system for the next 30 years. The RLTS identifies what is needed to achieve an affordable, integrated, safe, responsive, and sustainable land transport system that can cope with population growth and the changing economic environment.

The main outcomes of the strategy are:

- improved regional and interregional freight efficiency;
- improved transport system safety;
- improved public transport accessibility for all;
- reduced exposure to the negative impacts of transport pollution on human health;
- increased walking and cycling;
- reduced greenhouse gas emissions from the transport network;
- improved public transport links to and between identified higher density growth centres; and
- improved value for money from transport investment.

The provision of intensified residential housing and a town centre, and proposed pedestrian/ cyclist facilities within and near the vicinity of Drury West, will promote walking and cycling, thus removing some vehicles making short trips from the network.

Of further note, it is likely that the PPC area will be in close proximity to a new rail station at Drury West in the near future significantly improving access to public transport and reducing reliance on private car travel.

## 10.5 AUCKLAND REGIONAL PUBLIC TRANSPORT PLAN

The Auckland Regional Public Transport Plan 2013 ("RPTP") seeks to deliver an improved public transport network in Auckland by increasing public transport frequency along key transport corridors and simplifying ticketing to improve user experience.

The vision of the RPTP is to deliver "*An integrated, efficient and effective public transport network that offers a wider range of trips and is the mode of choice for an increasing number of Aucklanders*". To achieve this vision, Auckland's public transport system needs to deliver:

- services that align with future land use patterns;
- services that meet customer needs;
- increased passenger numbers;
- increased public transport mode share; and
- improved value for money.

Great South Road at the Drury township is part of the All-Day Bus Connector Network. This means bus services will be of moderate frequency, (generally half-hourly) with connections to metropolitan and town centres, employment and activity centres.

More intensive housing development within close proximity of these services will assist in encouraging their use and increasing passenger numbers. The proposal is thus supportive of the vision of the RPTP.

## 10.6 AUCKLAND UNITARY PLAN

The following are key traffic and transport objectives included within the Unitary Plan.

### 10.6.1B3 REGIONAL POLICY STATEMENT

The Unitary Plan Regional Policy Statement provides the following transport related objectives:

1) Effective, efficient and safe transport that:
    a) supports the movement of people, goods and services;
    b) integrates with and supports a quality compact urban form;
    c) enables growth;
    d) avoids, remedies or mitigates adverse effects on the quality of the environment and amenity values and the health and safety of people and communities; and
    e) facilitates transport choices, recognises different trip characteristics and enables accessibility and mobility for all sectors of the community.

The PPC area, is able to provide a road network that integrates with the adjacent and surrounding road networks in a way that is able to support the movement of people and in the Drury area. The identified mitigation measures will serve to address any adverse traffic effects as a direct result of the proposal.

### 10.6.2 E27 TRANSPORT

Section E27 of the AUP has the following objectives with regard to the region's transport infrastructure:

1) 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.
2) An integrated public transport, walking and cycling network is provided for.
3) Parking and loading supports urban growth and the quality compact urban form.
4) The provision of safe and efficient parking, loading and access is commensurate with the character, scale and intensity of the zone.
5) Pedestrian safety and amenity along public footpaths is prioritised.
6) Road/rail crossings operate safely with neighbouring land use and development.

The development is considered to align with the overall objectives of E27. Drury is identified in Auckland Council's Future Urban Land Supply Strategy for a significant level of development (approximately 10,000 dwellings) by 2046. This level of intensification will enable a number of the adverse effects of the traffic generated by the development to be mitigated through the promotion of alternative travel modes. As development in the local area intensifies, residents will have less need to travel long distances for work, education and recreation, increasing the demand for active modes. In addition, there is suitable access from the PPC area to the wider road network via the existing network, which provides access to the surrounding area and wider Auckland.

### 10.6.3 APPENDIX 1 STRUCTURE PLANNING

Appendix 1 of the AUP requires that a structure plan identifies, investigates and addresses the transport matters set out below.

1) Integration of land use and development with the local and strategic transport networks.
2) Layout of the transport network and facilities in a manner that is safe, attractive, efficient, and resilient to hazards, well connected to local facilities and integrated with land uses, the surrounding area and the wider transport network.
3) Support for transport and accessibility that is multi-modal and interconnected with an appropriate number and location of access points.
4) Transport effects on land uses and the management of these effects.

The wider network structure plan undertaken by Auckland Council considers the integration of the development with the existing local network and identifies a potential future strategic network, taking into account growth in the Drury area (and further afield to the west). It enables a well-connected network and promotes alternative travel modes where possible.

## 10.7 AUCKLAND DESIGN MANUAL

The Auckland Design Manual has been created to sit alongside the AUP and provide 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. To date, it 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; and
- **Public access –** Streets provide public movement and access throughout a subdivision.

The proposal follows these design guidelines and the PPC and Council Structure Plan promotes connectivity with the existing employment, retail and community areas in the Drury area.

# 11 CONSTRUCTION TRAFFIC

Throughout all other construction periods enabled by the PPC (e.g. fit out, building construction) truck volumes are expected to be typical of a standard construction site and low in comparison with the ultimate traffic generation of the PPC area.

As is typical with a development of this scale, provision would be made in the conditions of resource consents for a Construction Traffic Management Plan to be developed. It is considered that any Construction Traffic Management Plan should include:

- Construction dates and hours of operation including any specific non-working hours for traffic congestion/noise etc to be aligned with normally accepted construction hours in the Auckland Region;
- Truck route diagrams both internal to the site and external to the local 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 site 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 will be managed to ensure an appropriately low level of traffic effects.

Of note, the construction activities are temporary and with appropriate measures in place are able to be managed. Therefore, construction effects can be maintained to a less than minor level.

# 12 CONSULTATION

The following consultation (attended by Commute) has been undertaken with AT/ NZTA on transport matters relating to the Auranga B2 development:

- Meeting with Supporting Growth Alliance on 5 October 2018 regarding the draft Structure Plan options;
- Meeting with Mike Wood (NZTA) and Prasad Tala (NZTA) on 5 March 2019 to update on progress;

# 13 IMPLEMENTATION PLAN

Table 13-113-1 summarises the proposed Implementation Plan. It sets out local and wider area works, including that already identified by the Drury 1 Precinct (Auranga A (PV15) and Auranga B1 (PC6)) that are considered relevant to this PPC. Table 13-2 sets out other transport projects which are required to meet Stage 1 FULSS Growth for Drury West. All costs have been estimated to the same level of accuracy and are considered conservative at this time.

**Table 13-1: Implementation plan**

| Trigger | Upgrade | Comments | Anticipated cost | Funder |
|---|---|---|---|---|
| **Upgrades from previous Auranga phases: A – PV15 – Drury Precinct Plan 1 and Auranga B1 – PC6 – Precinct Plan 1** | | | | |
| First B1 lot<br>Or<br>First B2 lot | Jesmond / SH22 intersection upgraded to either roundabout or signals | Layout dependant on consultation with NZTA | $2 million | Developer |
| **Auranga B2 – PPC** | | | | |
| **Staged** in accordance with B2 | Collector Roads | Collector road connections with signalised intersection of realigned Burberry Road, SH22 and McPherson Road | $unknown | Developer (in stages) |

**Table 13-2: Other Transport Projects to meet Stage 1 FULSS Growth for Drury West**

| infrastructure Project | Comments | Anticipated cost | Funder |
|---|---|---|---|
| **SH22 upgrade to four lane urban road with associated signalised intersections and pedestrian / cycling facilities (likely completed in stages)** | Supporting Growth currently undertaking a detailed business case | $75 million | NZTA |
| **SH1 Papakura to Drury South (six lanes plus shared path)** | Required for the wider Drury / Pukekohe area | $423 million | NZTA (construction starts 2021 complete 2025) |
| **Electrification (Papakura to Pukekohe) and construction of rail station in Drury (Drury west)** | Required for the wider Drury / Pukekohe area | $unknown | NZ upgrade programme. Funding committed in January 2020 |
| **Pedestrian / cycling links to Rail station** | Required for the wider Drury West area | $unknown | NZ upgrade programme. Funding committed in January 2020 |

| | | | |
|---|---|---|---|
| **Bus network upgrade linking Auranga B2 to the Drury train stations** | Required for the wider Drury West area | $Unknown | Auckland Transport |

The recent government funding announcement for infrastructure (NZUP) included several of the above key infrastructure projects including the Drury rail stations and Electrification project and the SH1 improvements between Papakura to Drury South.

The only nearby improvement in the current RLTP is the SH22 / Great South Road intersection upgrade, however it is noted that this project is listed as part of the Drury South Precinct improvements and is noted as “not being funded”.

Of further note, the Auckland Southern Corridor Project (Takanini to Papakura) is currently under construction and is essentially complete. The Papakura to Drury section is expected to follow completion of this project.

## 14 CONCLUSION

The descriptions, analyses and assessments provided in this report have shown that:

- The existing road network is largely rural in nature and requires upgrades to accommodate the proposed plan change
- The proposed plan change is broadly in line with structure plan but represents a small increase residential yield and more substantial increase in employment. However given the nature of proposal, the conclusions reached by the ITA are considered to remain valid.
- The infrastructure upgrades identified by the ITA in the surrounding area are considered critical to ensuring the transport demands of the PPC can be met.
- The extent of development possible through the PPC can be accommodated by the surrounding road network while maintaining acceptable levels of safety and performance, provided the upgrades outlined within this report are implemented (when required); and
- the development enabled by the PPC is consistent with and encourages key regional and district transport policies.

It is recommended that the transport network upgrades described in section 13 of this assessment be provided to enable development resulting from the PPC to be appropriately supported by the road network. These can be addressed through the relevant resource consent applications in accordance with the AUP rules for the respective zones proposed by the PPC.

The full extent of development enabled by the PPC will be appropriately supported by the existing road network and upgrades to existing road network (as detailed above) to maintain appropriate levels of safety and efficiency on the surrounding road network.

Accordingly, it is concluded that there is no traffic engineering or transportation planning reason to preclude acceptance of this PPC.

**Commute Transportation Consultants**