

Appendix A

# Integrated Transport Assessment



Report

# Drury West Primary School and ECE – Integrated Transport Assessment

Prepared for Ministry of Education (NZ)



Prepared by Beca Limited

26<sup>th</sup> June 2018

## Revision History

Revision N°	Prepared By	Description	Date
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## Document Acceptance

Action	Name	Signed	Date
Prepared by	<b>Kara Hartshorne</b>		26/06/18
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Approved by	<b>Jamie Swan</b>		26/06/18
on behalf of	Beca Limited		

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## Executive Summary

Beca Ltd (Beca) has been commissioned by the Ministry of Education (MoE) to undertake an Integrated Transport Assessment (ITA) for the proposed designation of land for a new Primary School and Early Childhood Education Centre (ECE) in Drury West, Auckland.

An assessment has been undertaken of the likely ultimate roll of 700 primary school aged pupils and 28 staff, as well as an ECE for approximately 50 children and 10 staff. This considers the ability of the future transport network to accommodate transport demand generated by the proposed educational activities.

Significant residential development has already commenced to the north and the east of the site and in the longer term the site will be fully surrounded by residential development as part of the further stages of the Auranga development. The Primary School and ECE will be centrally located to the surrounding residential catchment.

At opening, the school is expected to have a higher car mode share, which will decrease over time as the surrounding area develops and the high quality walking and cycling connections and infrastructure are provided. The future daily vehicle trips the proposed activities are expected to generate at opening is around 420 vehicles (with a roll of 300 pupils) and approximately 640 vehicles with the full roll of 700 primary school pupils, together with the ECE and associated staff.

The site is currently accessible from Burberry Road, however the main access for the site will be from a future local / neighbourhood collector road (Road 70), which is anticipated to be designed to be able to accommodate more than 5,000 vehicles per day. As such, this is considered to be able to satisfactorily accommodate the daily predicted traffic demand of the proposed activities, as well as other traffic.

Overall, it is considered the future transport network can more than satisfactorily accommodate the proposed Primary School and ECE with the recommendations provided below:

- Preparation of a School Design Concept Plan
- Main vehicular access (construction and operational) for the proposed development off Road 70
- Vehicle accesses separated from the main pedestrian and cycle accesses
- Two dedicated cycle/scooter and pedestrian entrances to the school are provided, the main entrances on Road 70 and a secondary entrance on the proposed East-West Collector Road
- Provision of appropriate pedestrian crossings on Road 70 and the East-West Collector Road with the location and design to be agreed with Auckland Transport, but aligned with the main pedestrian access points to the school.
- Drop-off and pick-up arrangements to be a combination of on-street, including Road 70 and surrounding local roads, and on-site.
- Engagement with Auckland Transport to explore the implementation of a 40km/hr Variable Speed Limit on the East-West Collector Road during school start and finish times
- Development of a Safe School Travel Plan to include such measures as Walking School Buses, promotional activities that encourage carpooling, walking and cycling, cyclist and road safety education
- Preparation of a Construction Traffic Management Plan by the contractors.

The identified site is considered to be highly appropriate for the proposed primary school and ECE. The proposed educational facilities will be centrally located within the Auranga development, well-located to future residential development catchment, who will be able make use of the future high quality walking and cycling connections and infrastructure for access.

On the basis of this assessment of the transport effects and with the associated recommendations, it is considered that the NOR to designate land for the proposed School and ECE in this location should be confirmed by Auckland Council.

# Contents

<b>1</b>	<b>Introduction.....</b>	<b>1</b>
<b>2</b>	<b>Transport Environment.....</b>	<b>2</b>
2.1	Introduction.....	2
2.2	Location.....	2
2.3	Surrounding Land Use.....	2
2.4	Road Network.....	4
2.5	Walking and Cycling.....	9
2.6	Public Transport.....	10
2.7	Future Traffic Volumes.....	10
<b>3</b>	<b>Proposed Development.....</b>	<b>12</b>
3.1	Student and Staff Numbers.....	12
3.2	Parking, Loading and End of Trip Facilities.....	12
3.3	Access Strategy.....	13
3.4	Proposed Drop off and Pick up Arrangements.....	14
3.5	Predicted Mode Share and Trip Generation.....	14
3.6	Predicted Trip Distribution.....	16
<b>4</b>	<b>Assessment of Traffic Effects.....</b>	<b>17</b>
4.1	Traffic Effects.....	17
4.2	Vehicle Access Effects.....	17
4.3	Parking Effects.....	18
4.4	Walking and Cycling Effects.....	19
4.5	Public Transport Effects.....	22
4.6	Effects Summary.....	23
4.7	Transport Mitigation.....	23
<b>5</b>	<b>Consistency with Relevant Transport Strategies.....</b>	<b>25</b>
5.1	Auckland Plan 2012.....	25
5.2	Auckland Integrated Transport Programme.....	25
5.3	Regional Public Transport Plan.....	25
5.4	Regional Land Transport Plan.....	25
<b>6</b>	<b>Summary, Conclusions and Recommendations.....</b>	<b>26</b>
6.1	Summary and Conclusions.....	26
6.2	Transportation Effects Summary.....	26
6.3	Transportation Recommendation Summary.....	26
6.4	Conclusion.....	27

# 1 Introduction

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This Integrated Transport Assessment (ITA) has been undertaken by Beca Limited (Beca) on behalf of the Ministry of Education (MoE) with regard to a proposed designation of land for a new Primary School and Early Childhood Education Centre (ECE) in Drury West, Auckland.

As the new school will be serving an emerging residential community, it is anticipated that growth will be staged over a number of years. For the purposes of this assessment, a starting roll of between 200 and 300 students (years 0 to 8) at the beginning of 2021 has been assumed. The roll then growing to approximately 700 students over future years. An assessment has been undertaken of the likely ultimate roll of 700 primary school aged pupils and 28 staff, as well as an ECE for approximately 50 children and 10 staff. This considers the ability of the future transport network to accommodate transport demand generated by the proposed educational activities and identifies if there are any adverse transport effects that require addressing through conditions.

Karaka & Drury Ltd “KDL” is implementing a new residential development within Drury 1 Precinct (Auranga Stage 1). The school site is located within Auranga Stage 1 and Stage 2 development areas. If implemented, these two stages will provide for approximately 3,000 residential dwellings. Auranga Stage 1 has been granted consent and earthworks have commenced. The Auranga Stage 2 private Plan Change 6 was recently heard by Auckland Council, which concluded on 20 April 2018.

The “*Auranga B1, Proposed Plan Change, Bremner Road, Drury – Integrated Transport Assessment Report*” (Commute, May 2017) report is referenced in this ITA, as the site is partially within Auranga B1 area.

While there is no existing road access to the site, it is proposed that the main vehicle access to the site will be from a future local / neighbourhood collector road (Road 70). A secondary access can also be considered from the western boundary of the site.

This ITA is required under the ITA Guidelines (January 2015) for the Auckland Region, as it supports a Notice of Requirement (NoR) and the proposed Primary School and ECE exceed 100 students. The ITA has been prepared in accordance with the ITA Guidelines.

The ITA is structured as follows:

- **Chapter 2** discusses the transport environment
- **Chapter 3** describes the proposed development of the site and predicts the trip generation for the primary school and ECE
- **Chapter 4** provides an assessment of transport effects
- **Chapter 5** outlines how the school and ECE site is consistent with relevant Auckland transport strategies
- **Chapter 6** provides a summary, together with the conclusions and recommendations.

## 2 Transport Environment

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### 2.1 Introduction

Under the Auckland Unitary Plan (Operative in Part) (AUP (OP)), the site is zoned both “Residential - Mixed Housing Urban Zone” and “Future Urban Zone”, as part of the Drury Precinct 1 (Auranga A – Stage 1) and Drury Precinct 2 (Auranga B1 – Stage 2) area. The site is a greenfield site with no existing infrastructure. It is currently ‘land locked’ and relies on the planned future transport network for access to the site from the northern and eastern boundary, as part of the Auranga development.

A private Plan Change 6 (PC 6) for Auranga B1 was recently heard by Auckland Council, which concluded on 20 April 2018. PC 6 is a request by KDL to the Auckland Council to rezone approximately 83 hectares of land at Drury West (comprising the land within Auranga B1) from the Future Urban zone to a mix of Residential – Mixed Housing Urban (70ha) and Residential – Mixed Housing Suburban (13ha) zones to facilitate its use for residential activity. PC6 will result in an extension of the Drury Precinct 1. The Drury Precinct 1 area applies to the original 84 ha of the Precinct and Precinct Plan 2 applies to an 83ha extension.

The timing of the development of Auranga development will be key to securing the desired opening date of the Primary School (expected to be 2021). This assessment assumes that the planned future transport network will be in place at that time. This chapter of the ITA outlines the future transport environment based on the planned network.

### 2.2 Location

The site is located in Drury approximately 38km south of the Auckland CBD, 15km from Manukau City and 7km from Papakura. The site is approximately 2km west of Drury township, as shown in **Figure 2-1** below. To the east of the site is State Highway 1 (SH1) and to the south of the site is State Highway 22 (SH22, Karaka Road), as seen in **Figure 2-1**.

### 2.3 Surrounding Land Use

The existing surrounding land use is predominantly rural and rural residential. This ITA is focussed on the future surrounding land use which will be residential – mixed housing urban and suburban.

To the north and the east of the site is Drury Precinct 1 (Auranga A - Stage 1), which is currently under development for the construction of up to 1,350 residential dwellings. Within Drury Precinct 1, there are a mixture of residential types including, mixed housing urban and suburban, terraced housing and apartment buildings, large lot and local centres. The extent of Drury Precinct 1 is shown on **Figure 2-1**, which shows that a very small proportion of the proposed school site is within Drury Precinct 1 with most of the site within Drury Precinct 2 (Auranga B1 – Stage 2). **Figure 2-2** below shows the proposed school site in relation to Drury Precinct 1 (Stage 1 Auranga A) development only.

The PC6 (Auranga B1 – Stage 2) is to extend Drury Precinct 1 by another 86ha to enable the development of an additional 1,300 residential homes. As seen on **Figure 2-1**, this extension includes most of the proposed school site and areas to the west and to the south of the site.



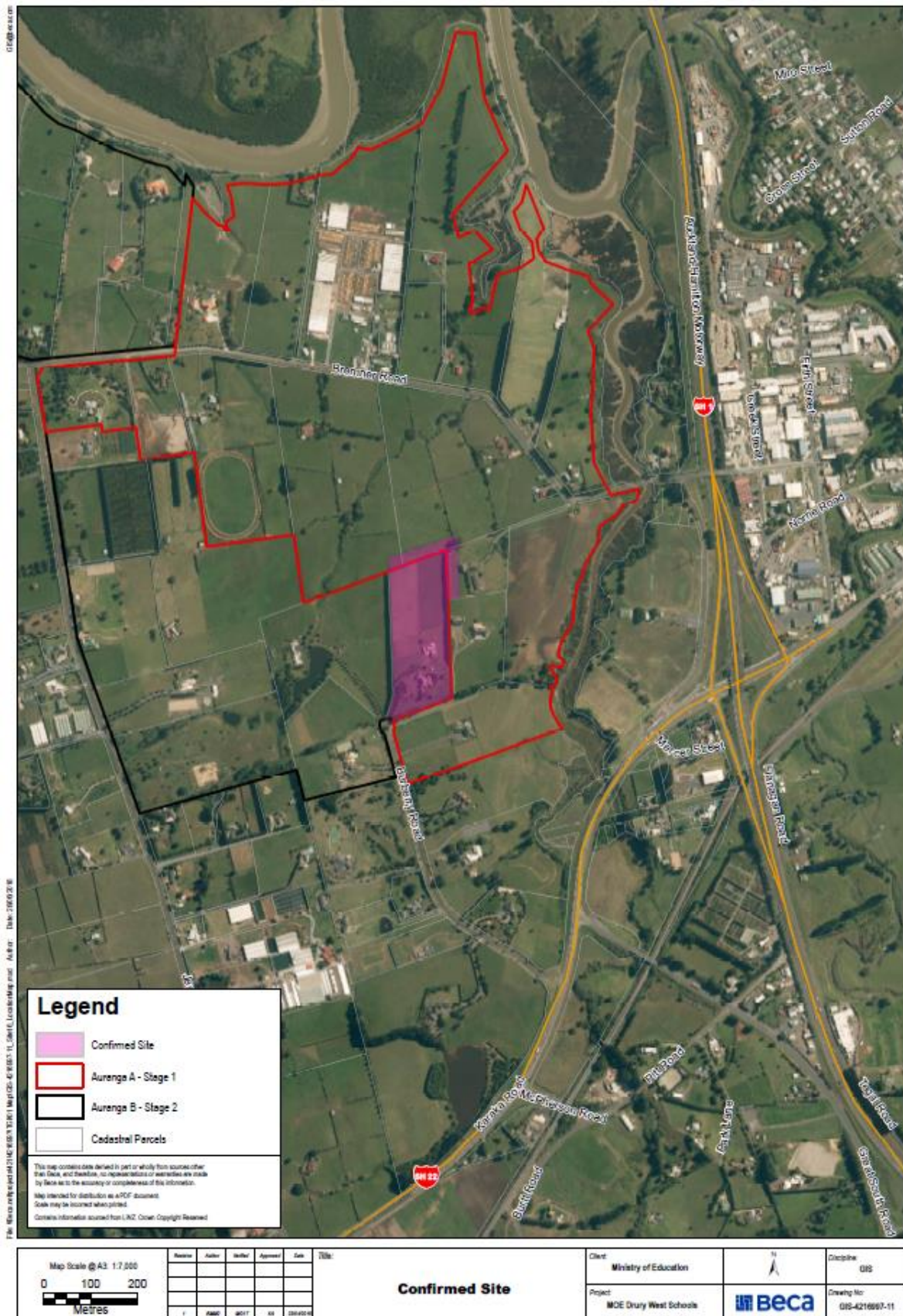


Figure 2-1: Location of Primary School and ECE Site

When Stage 1 and Stage 2 of Auranga has been completed the school will be centrally located within the overall residential catchment.

It is noted that the MOE has identified that another primary school and a secondary school will also be required in the Drury area.

## 2.4 Road Network

### 2.4.1 Existing and Proposed Network

The site is currently accessible from the head of Burberry Road, however the planned future transport network hierarchy shown in Precinct Plan 1 (for Drury 1 Precinct) will provide the main access (construction and operational) to the site, as seen in **Figure 2-3** below.

Precinct Plan 2 (which forms part of the PC6) identifies a proposed roading hierarchy has been prepared for the Drury Precinct as seen in **Figure 2-4**.

The key planned roads include a new local-collector road (Road 70), which will provide the main vehicle access for construction and operational to the school and ECE and an East-West Collector Road, which could provide secondary vehicle access. Road 70 is proposed adjacent to the eastern boundary of the school site, as seen on **Figure 2-2** below. The formation of this road is subject to approval of a resource consent currently being processed for an area described as Stage 2D.

The characteristics of the Road 70 are shown on the cross section in **Figure 2-5** below. This includes a wide road reserve with:

- 6m carriageway width to encourage slow speeds
- 3m shared path on one side of the road and a footpath on the other side
- A wide landscape strip with street trees and parking on both sides.

It is noted that the shared path is on the opposite side of the road from the school and this is discussed more in Chapter 4.

An East-West Collector Road is proposed to the north of the site as shown in **Figure 2-2**, **Figure 2-3** and **Figure 2-4**. The East-West Collector Road in its current location did not provide direct access to the school however an agreement was reached with KDL to purchase the land to the south of the location of the East-West Collector Road which now forms part of the school site and has the potential to provide direct access to the site from the Collector Road.

Part of the recommended changes to the AUP (OP) policies for Drury Precinct Text and maps, as part of PC 6, for Precinct 2 also require subdivision to implement the collector roads and provide for the strategic transport connections by means of the Future Collector Road (new) and Collector Road (Possible Future Arterial) shown on Precinct 2.

An indicative cross section of the proposed future East-West Collector Road (new) (final formation) is included as part of the recommended changes to Drury 1 Precinct, as part of PC6. This cross section, shown in **Figure 2-6**, shows that no driveway access is permitted on either side of this future Collector Road in the final configuration and no parking is provided.

In its final formation, this future collector road would have 3.5m bus lanes on each side of the road as well as an off-road 1.9m footpath and 2.1m cycle lane on both sides. Despite its current collector road identification,



Auckland Transport have confirmed that the future East-West Collector Road will function more as an arterial road.

The proposed cross section of this future collector road means there are no opportunities for those parents, who choose to drive, to drop-off and pick-up on-street and this would not be suitable as the main vehicle access from this road. However, pedestrian and cycle/scooter access from this future collector road would be possible. The access strategy is discussed more in **Section 3.3**.



Figure 2-2 Proposed Primary School ECE Site Location and Drury Precinct 1 (Stage 1 Auranga A) Development



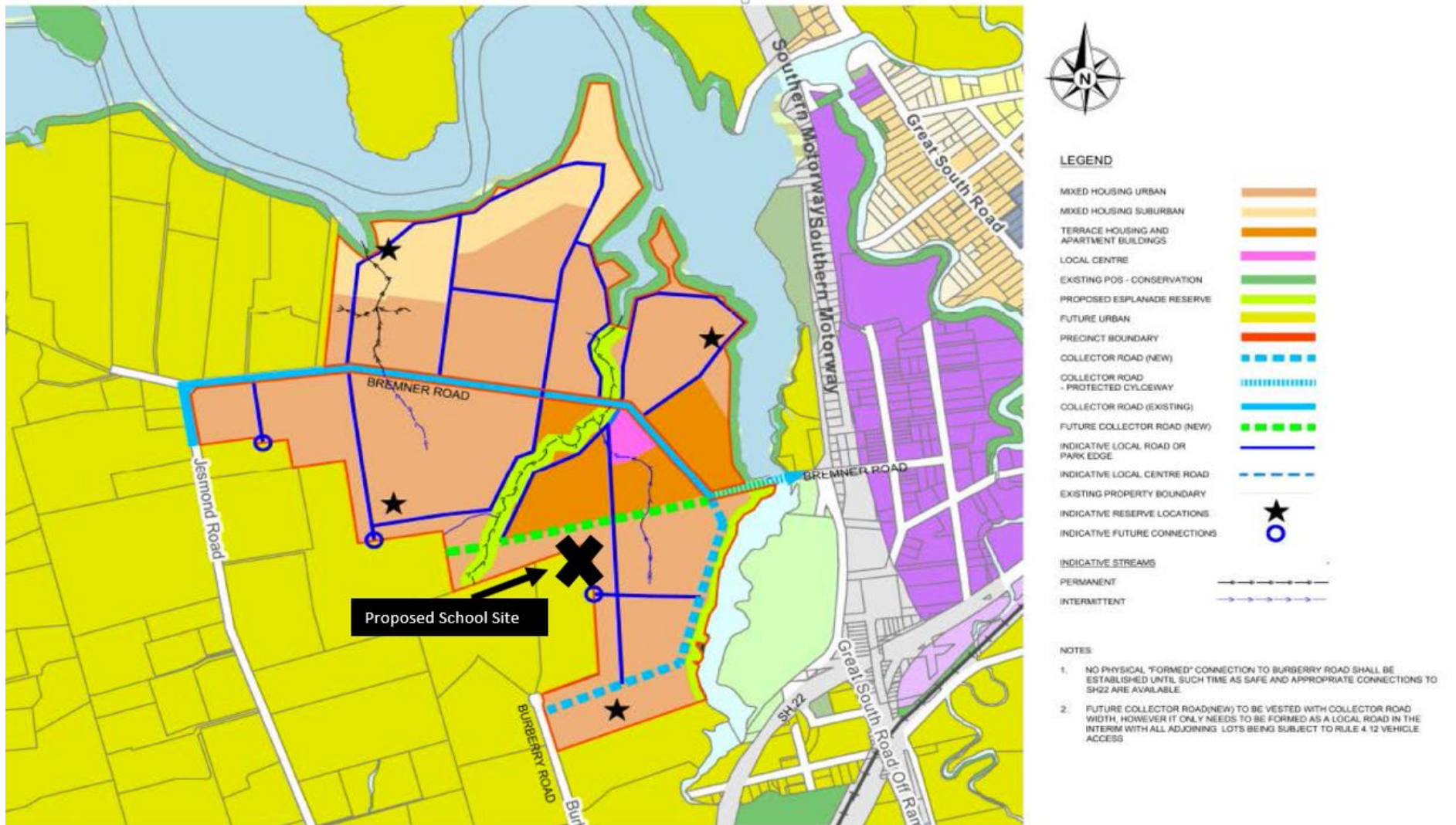


Figure 2-3 Drury Precinct Plan 1 (AUP OP)

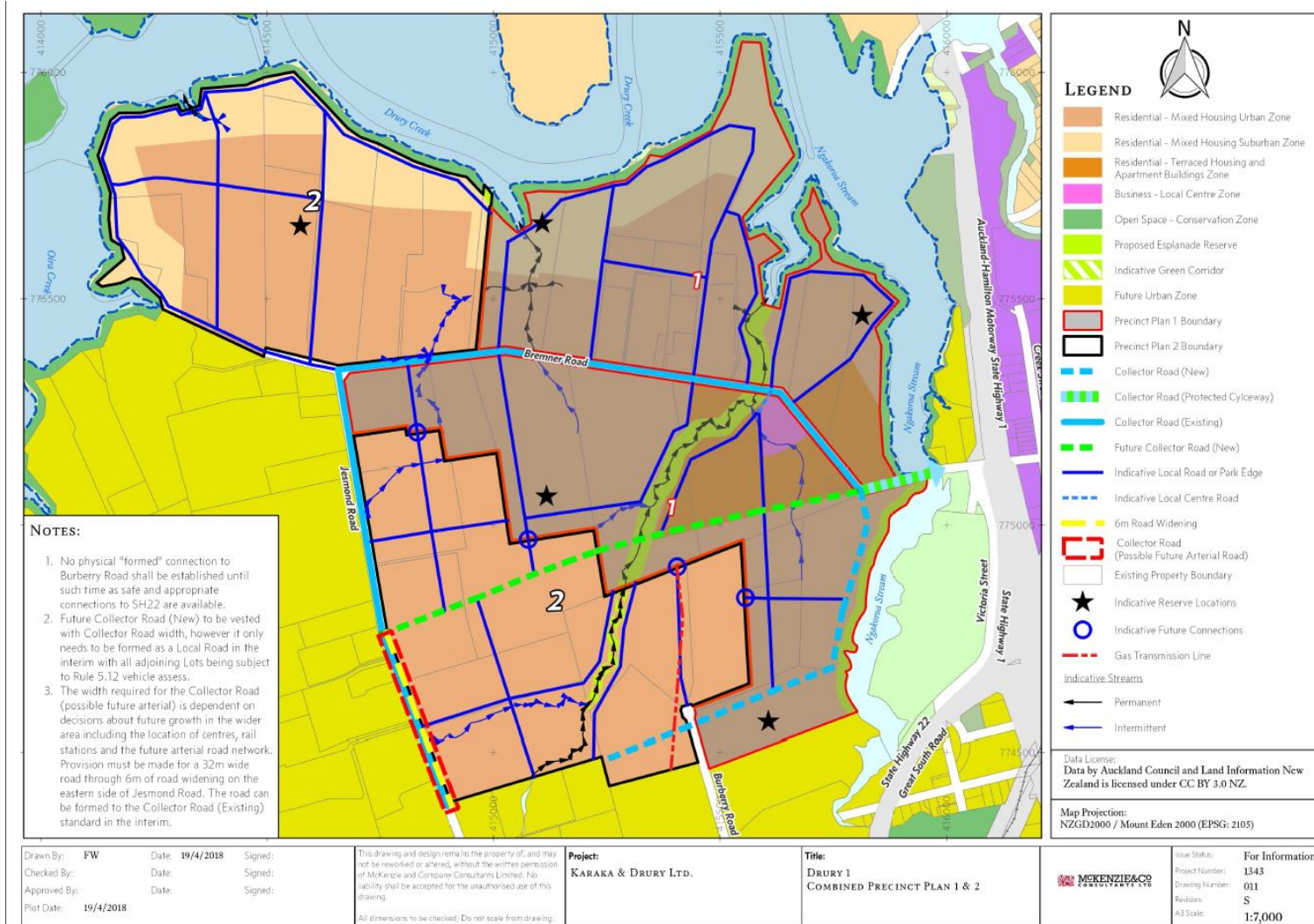


Figure 2-4 Drury Precinct Plan 2 (PPC6)

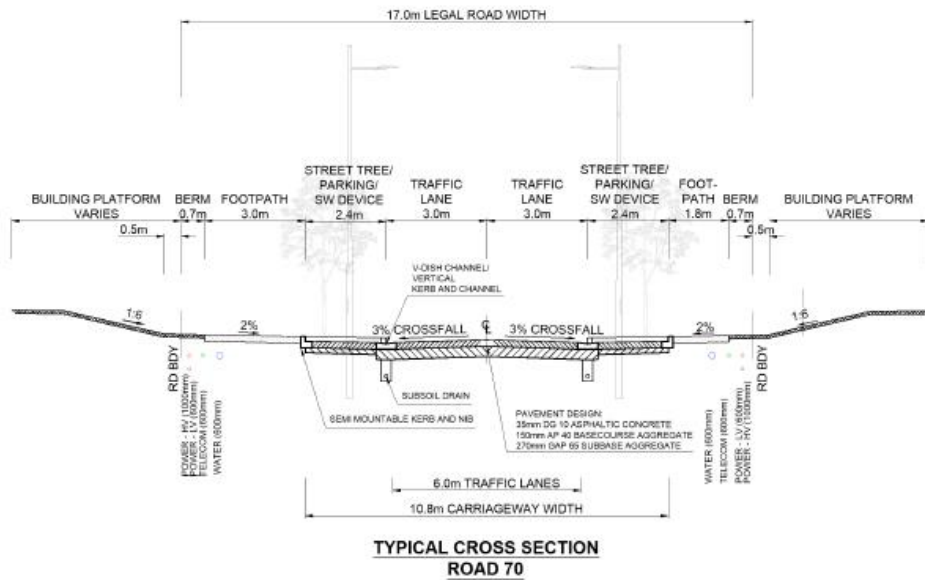
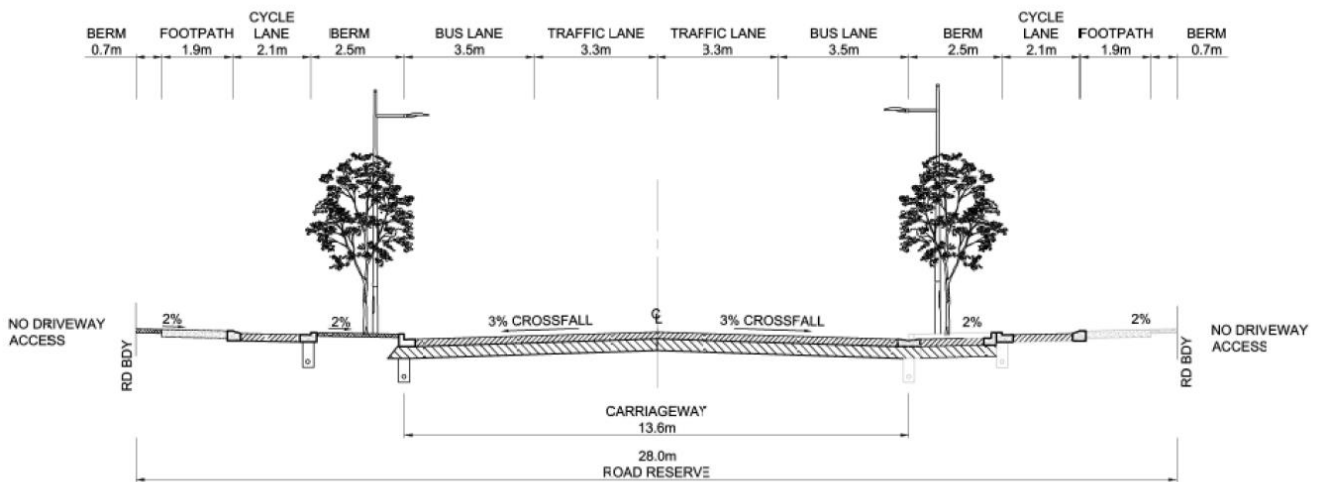


Figure 2-5: Indicative Cross Section of Road 70



*Future Collector Road (New) – Final 28m formation. Reference note 2 of the Precinct Plan*

Figure 2-6 Proposed Future Collector Road (New) Final 28 m formation



## 2.4.2 Staging of the Road Network

The school is reliant on Road 70 to open to provide vehicle access as seen in **Figure 2-7** below. Road 70 forms part of Stages 2B, 2C, 2D and 2E. Discussions with KDL confirm that Stage 2B and Stage 2C are close to being consented and Stage 2D is currently being discussed with Auckland Transport.

The timing of Stage 8, which enables the connection of the site to the proposed East-West Collector Road (Road 1) and the connection of Road 70 and the East-West Collector Road, is not known at this stage but discussions will continue with KDL to understand the timing of this.

The timing of Stage 2E, includes the connection of Road 70 to the proposed East-West Collector Road is also unknown and discussions will continue with KDL.

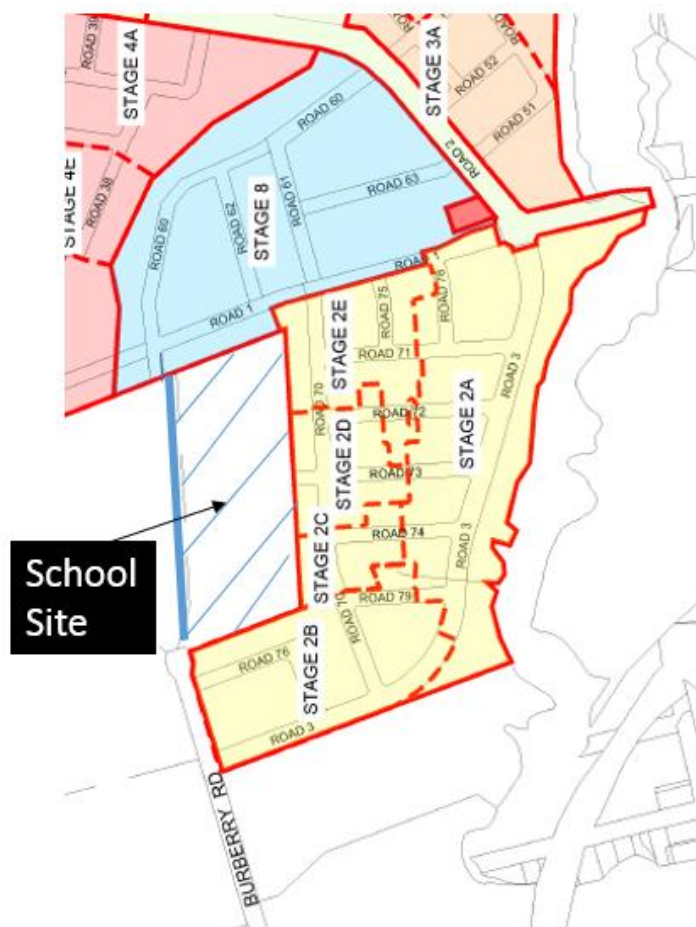


Figure 2-7 School Site in relation to Auranga Stages 2A-2D and Stage 8

## 2.5 Walking and Cycling

The site is a greenfield site and as such there are no existing walking and cycling routes. However, the proposed cross sections of the future roads include a footpath on one side of the road and a shared path on the school side of the road.

A wide landscape strip with rain gardens and street trees dispersed with parking will make it a pleasant environment for pedestrians and cyclists. These design features will enhance walking and cycling opportunities to the school and ECE. It is also recognised that primary school students may choose to scooter to school and the proposed high quality walking and cycling facilities will also encourage this active mode.

The AUP (OP) contains special provisions for the Drury 1 Precinct and the objectives focus on walkable neighbourhoods and a well-connected roading layout that supports a range of travel modes including walking and cycling.

The policies to achieve this include maximising vehicular, cycling and pedestrian connectivity and permeability of the road network wherever possible. The policies also require pedestrian links to allow for safe and efficient movements. Further policies require future subdivisions to be designed to support liveable, walkable and connected neighbourhoods including a road network that is easy and safe to use for pedestrians and cyclists and connected to schools.

These objectives and policies apply to the road network planned throughout the whole Drury 1 Precinct.

## 2.6 Public Transport

No public bus services operate close to the school site and the only service in the vicinity is Route 376, which travels between Papakura rail station and Drury.

The cross-section of the future East-West collector road, which is currently the subject of PC6 (Auranga Stage 2) and recommended changes to Drury 1 Precinct Rules, is recommended to have two bus lanes, so bus services are anticipated along this road. However, the provision of future bus services would be the responsibility of Auckland Transport.

The nearest train station is in Papakura on the Southern Line, which is approximately 7km from the site. Although this is a considerable distance from the school site, parents have the opportunity to drive to the station after dropping children off at the school and ECE and catch the train into the city.

A potential future rail station in Drury West has been identified by Auckland Transport, as part of a preferred transport network for the southern growth areas of Pukekohe, Drury, Paerata and Takanini as seen in **Figure 2-8** below. The recently released Auckland Transport Alignment Project (April 2018) also includes the rail electrification between Pukekohe and Papakura in the next decade. The site is in relatively close proximity to this potential future rail station location for those parents wanting to catch the train after dropping children off at the school and ECE.

## 2.7 Future Traffic Volumes

It is anticipated that the main vehicle access to the school will be from Road 70, which is on the eastern boundary of the school. Examining the cross-section for Road 70 and the AT's "*Roads and Streets Framework*", it is likely that the classification of the road is between a local street and a neighbourhood collector road. The road is likely to be designed to carry traffic volumes of between a local and a neighbourhood collector road, i.e. more than 3,000 vehicles per day.



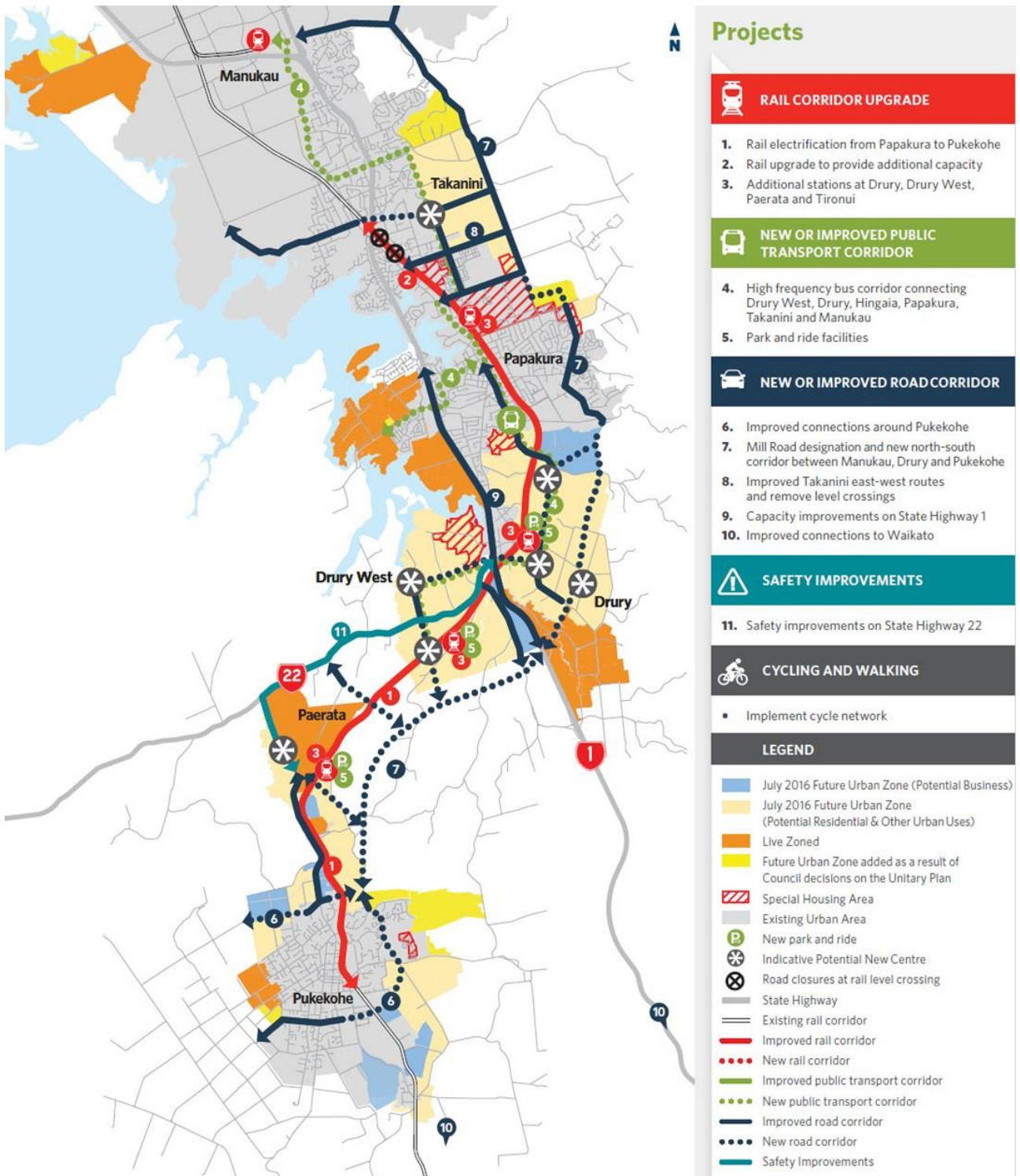


Figure 2-8: Preferred transport network for Pukekohe, Drury, Paerata and Takanini Growth Areas

## 3 Proposed Development

### 3.1 Student and Staff Numbers

It is anticipated that the Drury West Primary School will eventually accommodate approximately 700 students and 28 staff and the ECE will accommodate up to 50 children and 10 staff.

The current programme aims for the School and ECE to open in 2021. However, it is anticipated that development will be staged to meet the demand from existing and future residential communities.

It has been assumed that 50 to 75 % of the 1,350 residential properties in Auranga A (Stage 1) will have been completed by 2021. Applying a ratio of 0.3 primary school students per property, it is anticipated that a starting roll could be between 200 and 300 students at the beginning of 2021. This will grow to approximately 700 students, as the surrounding Auranga (Stage 2) develops in future years.

### 3.2 Parking, Loading and End of Trip Facilities

The site is to be designated, so it is not bound by the requirements of the parking standards in the AUP (OP). However, these are discussed as a useful reference for assessment.

A School Design Concept Plan will be prepared and the general location and design of the staff and visitor car parking will be included in this plan.

#### 3.2.1 Car Parking

The minimum requirements for car parking are set out in Table E27.6.2.4 of the AUP (OP).

This provides for a rate of 0.5 of a parking space per full time equivalent (FTE) employee plus 1 visitor space per classroom for primary educational facilities. For the ECE, the minimum rate is 0.10 parking space per child or other person, other than employees plus 0.5 parking space per FTE employee.

**Table 3-1** sets out the number of car parks that would comply with the minimum AUP (OP) car parking requirements for staff and visitors based on a roll of 700 pupils, with 32 school classrooms, 28 full time staff, 50 ECE children and 10 full time ECE staff. The table also sets out the proposed parking spaces that can be enabled for the school and ECE site.

The level of car parking proposed will be confirmed at the Outline Plan stage, however, it is anticipated that the required car parking spaces under the AUP (OP) can be accommodated on the site given the site is 4.73ha.

Table 3-1: Anticipated Car Parking Requirements

	Staff Parking Required	Visitor Parking Required	Total Parking Spaces Required
Primary School	14	32	46
ECE	5	5	10

### 3.2.2 Cycle / Scooter Parking

The level of cycle/scooter parking for the primary school and ECE will be confirmed at the Outline Plan stage and will be designed to accommodate the mode share anticipated, which is discussed in **Section 3.5**. The level of cycle/scooter parking will be based on mode share rather than minimum standards provided in the AUP (OiP). Given the school site is 4.73ha cycle/scooter parking based on mode share can easily be accommodated on the site.

An appropriate number of cycle/scooter parking spaces to accommodate mode share will be provided on school opening and then future provision will be provided through the Travel Plan process.

### 3.2.3 Staff End of Trip Facilities

It is noted that the AUP (OP) provides for end of trip facilities for staff who choose to walk or cycle to work and include showers and changing areas. The level of staff end of trip facilities will be confirmed at the Outline Plan stage.

### 3.2.4 Loading Spaces

If the GFA of the primary school exceeds 5,000m<sup>2</sup>, one loading space will be required. The site is of sufficient size and shape to allow for this to be provided, if required, and this will also be confirmed at the Outline Plan stage.

## 3.3 Access Strategy

It is recommended that the main vehicular access for the school staff and visitor car park is from Road 70. It is proposed that two access will be formed on Road 70 and there is sufficient frontage to enable this of approximately 300m.

Vehicle access from the East-West Collector Road could be considered, however access is less likely to be appropriate as the East-West Collector Road is considered to have more of an arterial function with no vehicle access to adjoining properties shown on the cross-section. Dual access for the school is favourable and therefore a secondary vehicle access point for the school should be considered from a local road on the western side of the site when these roads are developed as part of Auranga Stage 2. It may be that as the school roll increases that this access is for the ECE or staff and visitor car park.

The location and design of the ECE will be developed in the Outline Plan stage, however, the site can enable vehicle access for the ECE from Road 70.

Pedestrian/cycle entrances to the school from Road 70 and the East-West Collector Road are recommended. It is also recommended that pedestrian/cycle access for the primary school and ECE are separated from vehicle access and the site is capable of providing for this.

A School Design Concept Plan will be prepared, which will include the general location of the vehicle access points on Road 70 for the primary school and the ECE.

During the early stages of the school opening it may be that Road 70 isn't connected to the rest of the local road network to allow access back to the East-West Collector Road and a temporary turning head on Road 70 may be required.

### 3.4 Proposed Drop off and Pick up Arrangements

The proposed Pick Up Drop Off (PUDO) arrangements for the primary school and the ECE will include a dedicated on-site PUDO facility and informal on-street parking. This will reduce the reliance on on-street parking and make spaces available to non-school use. However, it is recognised that on-street parking on local streets will have a role to play for PUDO as parents may choose to park on-street if it is convenient.

The site is sufficiently sized (4.73 ha) to provide an on-site PUDO facility for the primary school and the ECE. The Outline Plan will identify the location of such a facility.

The ability of buses to use the PUDO facility for school events will be considered as part of the traffic impact assessment, recognising that this will be a more infrequent event, which will be submitted at the same time as the Outline Plan.

Intermittent recessed parking is proposed to be provided on both sides of Road 70, as shown on the cross section in **Figure 2-5**. Frequent turnover of these on-street parking spaces is anticipated. A pedestrian crossing will be required to ensure the safe crossing of Road 70 and this is discussed in **Section 4.8**.

The cross-section in **Figure 2-6**, shows that parking is not provided on the East-West Collector Road, so pick-up and drop-offs will not be able to occur on this road

The cross-sections for the other future local roads surrounding the school, particularly to the east of the school, indicate that recessed on-street parking will be provided. This will provide further opportunity for parents/caregivers to park during the drop-off and pick-up period to be used in combination with the on-site PUDO facility. .

### 3.5 Predicted Mode Share and Trip Generation

#### 3.5.1 Introduction

It is recognised that the mode share for the school will change as the residential area around the school and the transport network is developed. The desired future mode share outcomes for the school seek to have high pedestrian and cycle/scooter mode share as the roll progressively reaches 700 students. This is considered to be achievable as more high quality walking and cycling infrastructure will be in place, as the roll nears its maximum. Therefore, a separate mode share has been calculated for a roll of 300 students and 700 students to reflect this.

#### 3.5.2 Roll of 300 Students

**Table 3-2** shows the predicted mode share for a roll of 300 students on opening year of 2021. These mode share assumptions recognise that on opening the school will predominantly serve Auranga A residential area to the north, south and east and 50 to 75% of the houses would be occupied. The northern and eastern areas of Auranga A is being developed first.

It is recognised that there will be a higher car mode share on opening and this is different to the desired future mode share outcomes for the school, which will have high pedestrian and cycle/scooter mode, share when the surrounding area and transport network is developed as part of Auranga B (mainly to the west). This is discussed more in **Section 3.7.3** below.

Table 3-2: Predicted Mode Share – 300 students (Opening Year 2021)

	Walk	Cycle and Scooter	Public Transport (Bus)	Car Passenger	Other	Total
Mode Share %	20%	10%	0	70%	<1%	100%
Number of Students By Mode	60	30	0	210	0.9	300

**Table 3-2** shows that the majority of school children are expected to be dropped off and picked up by caregivers using a private car. It is predicted that the remainder (approximately 30%) of students will walk/cycle/scooter to school. Assuming a car occupancy of 1.4<sup>1</sup> students per vehicle, it is expected that there will be approximately 150 vehicles trips in the morning arrival and 150 trips in the afternoon departure.

The number of staff vehicle trips is expected to be 11 in the morning and 11 in the afternoon assuming a 90% car mode share and 12 staff. Servicing trips have been estimated as a total of 4 trips.

It is therefore estimated that 162 morning and 162 afternoon daily vehicle trips (students, staff and servicing) will occur - a total of approximately 325 daily vehicle trips. This equates to 133 trips in the AM peak hour (8am- 9am) and a 110 trips in the PM peak hour (3pm-4pm).

### 3.5.3 Roll of 700 students

It is considered that the predicted walking and cycling mode share will eventually be higher for the school with a roll of 700, given the location within a residential catchment and the future high amenity walking and cycling infrastructure to encourage these active modes. **Table 3-3** shows an adjusted predicted mode share for the school for 700 students. This shows an increase in walking and cycling mode share and a decrease in car mode share, when the surrounding development is fully built out.

Table 3-3: Predicted Mode Share – Roll of 700 students

	Walk	Cycle and Scooter	Public Transport (Bus)	Car Passenger	Other	Total
Mode Share %	40%	10%	1%	49%	1%	100%
Number of Students By Mode	280	70	7	343	4	700

<sup>1</sup> New Zealand Transport Agency's school travel model spreadsheet  
[www.nzta.govt.nz/assets/resources/research/reports/467/docs/nzhts-school-travelmodel.xls](http://www.nzta.govt.nz/assets/resources/research/reports/467/docs/nzhts-school-travelmodel.xls)

Assuming a car occupancy of 1.4 students per vehicle<sup>2</sup>, it is expected that there will be approximately 245 vehicle trips in the morning arrival and 245 trips in the afternoon departure.

The number of staff vehicle trips is expected to be 22 in the morning and 22 in the afternoon assuming an 80% car mode share and 28 staff. Servicing trips have been estimated as a total of 5 trips.

It is therefore estimated that 270 morning and 270 afternoon daily vehicle trips (students, staff and servicing) will occur - a total of 540 daily vehicle trips. This equates to 221 trips in the AM peak hour (8am- 9am) and a 183 trips in the PM peak hour (3pm-4pm).

### 3.5.4 ECE and Staff Trips

It has been estimated that the ECE is expected to have a vehicle mode share of 80% private car and 20% walking for both staff and children based on previous experience of ECE facilities across Auckland. In addition to the daily school vehicle generation, this equates to a vehicle generation of 80 daily vehicle trips for the children and 16 vehicle trips for the staff.

It is also noted that some of these trips may be linked with the Primary School, so the number of trips could be slightly less. In addition, as the residential catchment develops and the high quality walking and cycling infrastructure is in place the vehicle trip generation may also decrease.

## 3.6 Predicted Trip Distribution

The school site will be connected to the proposed road network being developed by KDL, as shown in **Figure 2-2**. It is anticipated that at opening, the majority of vehicle trips will come from the north and east of the site, as the first stages of residential development in Auranga Stage 1.

In the longer term, future phases of residential development are proposed to the west and south of the site and the school will be more central to its catchment. When the roll gets progressively closer to 700 students, it will generally attract and disperse trips reasonably evenly across the wider network.

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<sup>2</sup> New Zealand Transport Agency's school travel model spreadsheet  
[www.nzta.govt.nz/assets/resources/research/reports/467/docs/nzhts-school-travelmodel.xls](http://www.nzta.govt.nz/assets/resources/research/reports/467/docs/nzhts-school-travelmodel.xls)



## 4 Assessment of Traffic Effects

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### 4.1 Traffic Effects

An Integrated Transport Assessment Report was prepared by Commute Transportation Specialists (Commute) entitled “*Auranga B1, Proposed Plan Change, Bremner Road, Drury, Integrated Transportation Assessment Report* (May 2017) to support the PC6 (extension of Drury 1 Precinct – Stage 2 – Auranga B1) to enable 1,300 new residential houses.

The assumptions made in that ITA consider that the Auranga residents would predominantly use the existing local primary schools. The closest primary school is Drury School, which is currently located approximately 3km away to the east and not within walking or cycling distance of the Auranga B1 population. As such, the educational needs of the population would need to be met by residents undertaking external trips to Drury. The ITA recognises that a potential primary school is anticipated in the wider Jesmond Road area.

A new school in the Auranga area would mean that the majority of the external trips previously predicted in the Commute ITA to and from existing local primary schools will remain internal to the site. Further, with the excellent provision of cycle/pedestrian facilities car trips are expected to reduce. Therefore, the assessment of the potential external traffic effects in the Commute ITA has considered a ‘worse case’ with more external trips. The suggested mitigation in the Commute ITA is therefore based on this ‘worse case’ with a school being located outside Auranga. This includes the following specific upgrades for Auranga B which are in addition to the transport provisions provided and improvements for Auranga A:

- Upgrade of Jesmond Road / SH 22 intersection to either signals or a roundabout;
- Upgrade of Jesmond Road to a collector road status and urbanisation within the Precinct
- Safety works on SH22, including possible four-laning, flush medians and intersection upgrades between Jesmond Road and SH1 interchange.

As part of the recommended changes to the AUP (OP) Drury 1 Precinct Text and maps it is recognised that for Precinct 2 there is the potential for adverse effects at five identified intersections within Stage 2 area and the Norrie Road one-way bridge. Those effects will be assessed at the time of subdivision application and required upgrades or other mitigation determined at that time.

It is assumed Drury Primary school located within the Drury township will stay open and the proposed new Primary School will not be attracting external trips.

It is considered that the anticipated school trips can be accommodated on Road 70, East-West Collector Road and surrounding local roads given the suggested mitigation and ‘worse case’ which has been assessed. Road 70 provides the main vehicular access to the school and it is anticipated the road is likely to be designed to carry traffic volumes of between a local and a neighbourhood collector road, i.e. more than 3,000 vehicles per day and has appropriate capacity to accommodate the predicted school and ECE trips.

It is assumed that the roads have been designed to accommodate 10 or 20 years of growth with the Auranga area and will provide more than satisfactory performance in the early stages of residential growth including the primary school.

### 4.2 Vehicle Access Effects

The site is capable of providing vehicle access to the school and ECE carparks from Road 70. Access from Road 70 is necessary, given that access off the East-West Collector Road is less desirable given its likely arterial function.

It is not anticipated that the proposed site access points will have adverse effects on the safe and efficient operation of Road 70. Road 70 does not have a significant through traffic function and is predicted to have low to medium traffic volumes other than during peak school times. Road 70 is straight and will have good sightlines for drivers exiting the driveways.

It is likely that Road 70 will have a target design speed of between 30km/hr and 40km/hr under the Roads and Streets Framework (RASf) which will provide a safe speed environment around the school and ECE site.

A School Concept Plan will be prepared, which will include an access strategy identifying the general location of access points on Road 70 for the primary school and ECE with future secondary access from a local road on the western side of the site.

It is recognised that other vehicles including buses (taking children on school trips) and rubbish trucks will also access the school site. Therefore, details regarding the ability for these vehicles to access the school site safely will be provided in the School Concept Plan.

## 4.3 Parking Effects

### 4.3.1 Private Vehicles

Providing on-site PUDO facilities and parking for primary school and ECE staff and visitors will reduce the reliance on on-street parking and making these spaces available for non-school use. However, it is recognised that on-street parking on local streets will have a role to play for pick-up and drop-off.

To encourage a quick turnaround of the recessed residential parking bays on Road 70 the bays could be managed through restricting parking on school days to short-stay (5-10 minutes) during the busy drop-off (8:30am and 9:30am) and pick-up (2:30pm and 3:30pm) times. This would enable the parking spaces to become available during the busy drop-off and pick-up times only.

The school site will be surrounded by local roads. The cross sections for local roads that will be immediately opposite the school to the east (Roads 72 and 73) provide parking spaces between the street trees within the berm. These cross sections are included as Appendix A. This is also consistent with the RASf for local streets which provides for parking on-street for residents.

The Outline Plan will be provided which includes information on the general location and design of on-site PUDO areas for the primary school and the ECE. The site is large enough (approximately 4.73ha) to cater for on-site drop-off and pick up areas, if required.

Footpaths are shown on the cross sections on both sides of Road 70, where parking is also located. As discussed in **Section 5**, a Kea crossing will be located on pedestrian desire lines opposite any future main pedestrian access to the school on Road 70. This will enable the safe crossing of Road 70 for any caregivers who chose to drop-off/pick-up on-street.

### 4.3.2 Active Modes

The site (including the ECE) will also provide cycle/scooter parking for staff and students. The details of cycle/scooter parking supply and demand are not addressed in this ITA, this will need to be addressed within an Outline Plan following designation and through the Travel Plan process. A School Design Concept Plan will be provided, which includes information on the general location and design of on-site staff and visitor cycle parking.



## 4.4 Walking and Cycling Effects

The school site is well located within the proposed residential catchment to encourage walking and cycling for children of appropriate age groups. There is significant potential for children to walk to school with most of the residential dwellings proposed in the Auranga Stage 1 and Stage 2 within a 5-10 minute walk as shown on **Figure 4-1**. **Figure 4-2** below shows that the site also has excellent cycle accessibility with both staged of Auranga within an approximate 5 minute cycle ride.

The planned high amenity walking and cycling facilities on Road 70 and East-West Collector Road proposed on-site cycle parking facilities and cycle/pedestrian connections can accommodate the anticipated walking and cycling demand for the school and ECE. As Auranga 2 grows a similar network is planned so the whole community will have high quality pedestrian and cycle access to the school when fully developed.

Footpaths and cycle lanes are shown on the cross sections on both sides of the East-West Collector road in **Figure 2-6** so there is a need to cross the students and parents safely. As discussed in Section 5 a zebra crossing on the East-West Collector Road is recommended and this will be located opposite any future main pedestrian access to the school on the future collector road.

The Road 70 cross section (**Figure 2-5**) shows a footpath on the school side and a shared path on the opposite side of the road from the school. Therefore, there is a need to cross the students and parents safely. As discussed in Section 5 a kea crossing on Road 70 is recommended and this will be located opposite any future main pedestrian access to the school.

It is desirable to have a shared path on the school side, however the kea crossing will provide safe crossing for cyclists and pedestrians. The opportunity to explore the potential of a shared path on the school side will be discussed with KDL and AT.

Information on appropriate measures and treatments at access points on Road 70 to manage conflict between pedestrians and vehicles will be included in the School Design Concept Plan. Further, it is recommended that measures required for the safe movements of pedestrians/cyclists to/from the school are also included in the School Design Concept Plan.

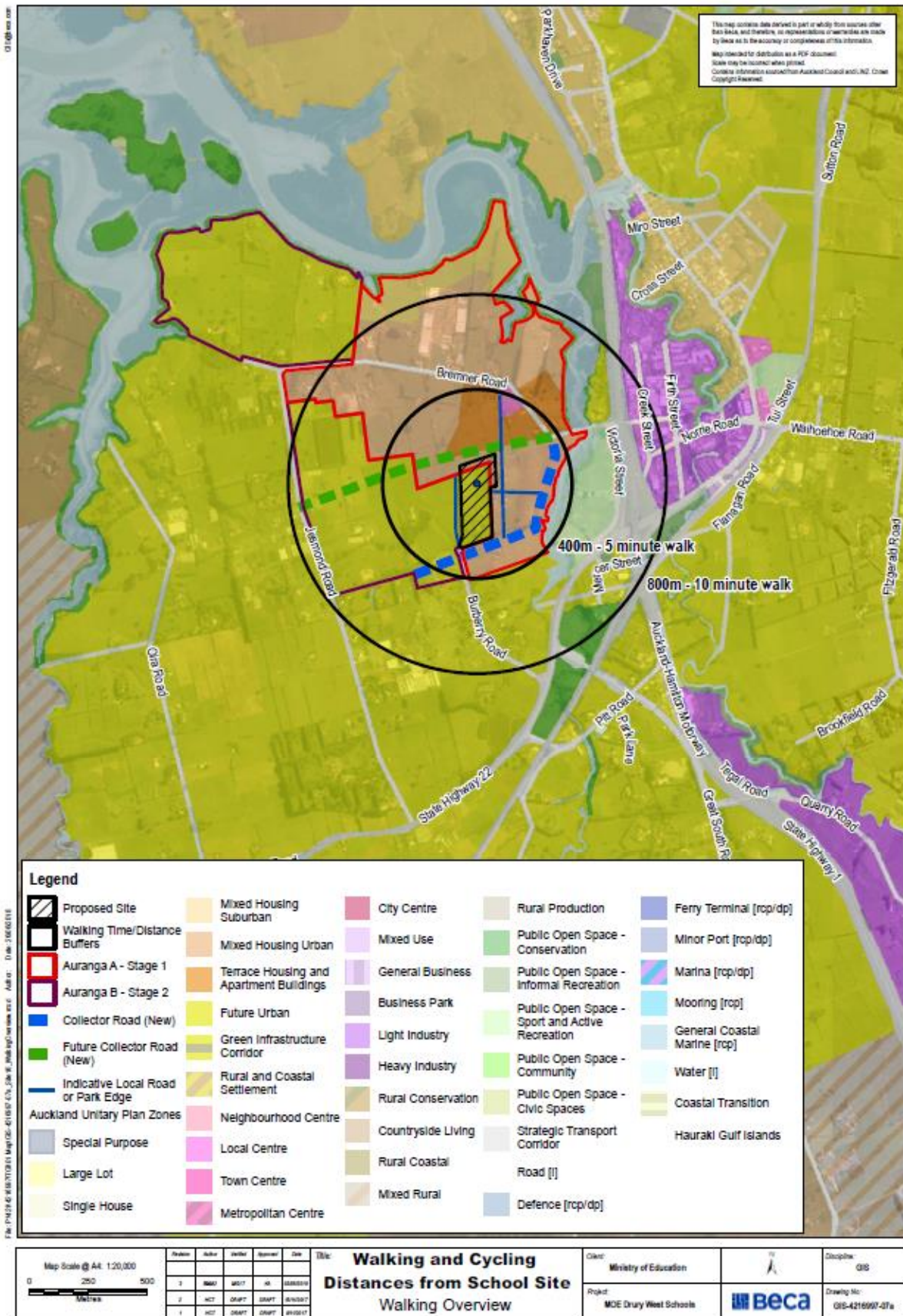


Figure 4-1: Proposed Site Walk Radii



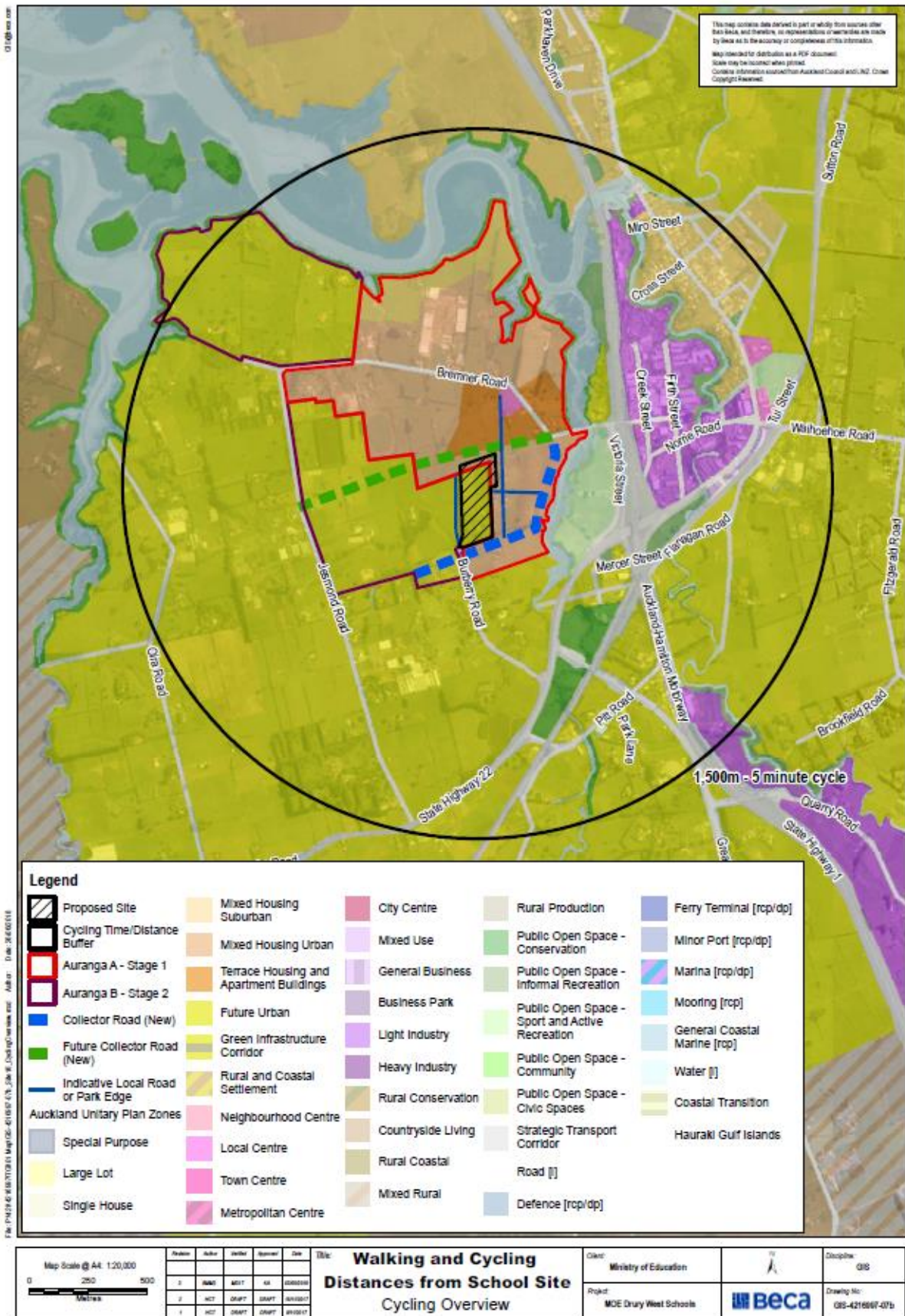


Figure 4-2 Proposed Site Cycle Radii

For those students and caregivers travelling from the north and using the intersection of East-West Collector Road (Road 1), Bremner Road (Road 2) and the proposed Collector Road (Road 3) high quality cycling and pedestrian crossing facilities will be provided as seen in a fully protected intersection below in **Figure 4-3**. This will help encourage active mode travel to and from the school.

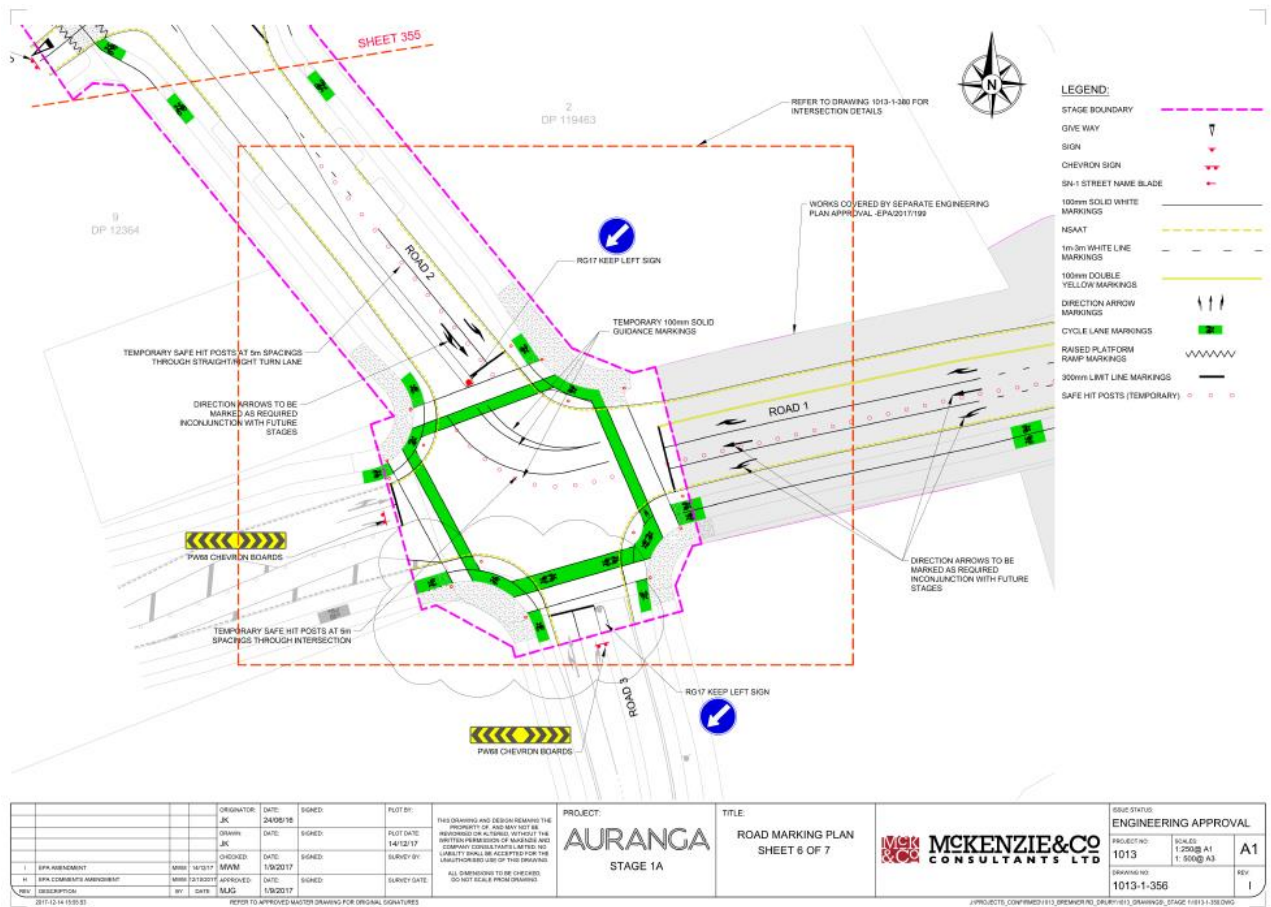


Figure 4-3 Proposed intersection at Bremner / East-West Collector Road / Road 3

### 4.5 Public Transport Effects

It is recognised that due to the small catchment size of the Primary School, it is unlikely to require a school bus service. However, as the roll grows the catchment may widen and older children could catch a public bus to school.

Buses are not expected to be operating on the local network when the school opens in 2021. It is not known when AT plans to operate buses in the local area. However, it will likely take a number of years for the future phases of development to occur and the school roll to increase to a level that will generate significant demand for bus trips.

Not having public transport services available when the school opens is considered acceptable, as it is likely that the size of the immediate small catchment lends itself to students travelling by other modes, such as walking and cycling.

Based on the predicted mode share only 1% of students are estimated to use public transport (bus) to travel to and from the school when the full roll occurs. This equates to 7 students catching a bus to school for a 700 roll size and any additional vehicle trips made by public transport will be negligible in terms of traffic impacts.

## 4.6 Effects Summary

The proposed primary school is expected to generate 325 daily vehicle trips (students, staff and servicing) for a 300 student school. The school's roll will increase progressively and with a roll of 700 students, 540 vehicle trips are expected per day.

The ECE children and staff are expected to generate another 96 daily vehicle trips to these totals. However, it is expected these predicted trips could be less as a number of these trips may be linked to the primary school. Further, as the school roll increases progressively a shift away from car may occur with more residential development and high quality walking and cycling infrastructure proposed.

This is a total daily vehicle trips for the school and ECE on opening of around 420 vehicle trips and with a full roll around 630 vehicle trips.

Vehicle trips are expected to come from the north to begin with via two new signalised intersections with the proposed East-West Collector Road. It is anticipated that the Road 70, as the main vehicle access, can accommodate the estimated daily vehicle trips for a roll of 300 students and a roll of 700 students.

As Auranga develops there will be a more even distribution of trips, with more coming from the west. These trips can be reduced by the implementation of a Safe School Travel Plan, which is discussed below in **Section 4.7.3**.

The planned high amenity walking and cycling facilities of the Road 70 and proposed on-site cycle parking facilities and cycle/pedestrian connections can accommodate the anticipated walking and cycling demand for the school and ECE. However, a pedestrian crossing is required to facilitate safe crossing movements across Road 70 and the East-West Collector Road as discussed below in **Section 4.7.1**.

## 4.7 Transport Mitigation

### 4.7.1 Pedestrian Crossings

There are no proposed crossing points on Road 70 and the assessment in the previous chapter identified a need for a crossing facility to support safe pedestrian crossing of this road.

It is anticipated that a 'Kea' (school patrol) pedestrian crossing will be required as the pedestrian demand will only be linked to school starting and finishing times, with low demand at other times. An example of a kea crossing is shown in **Figure 4-4**. It is preferable that the crossing is located on the pedestrian desire line opposite the main pedestrian entrance to the school.



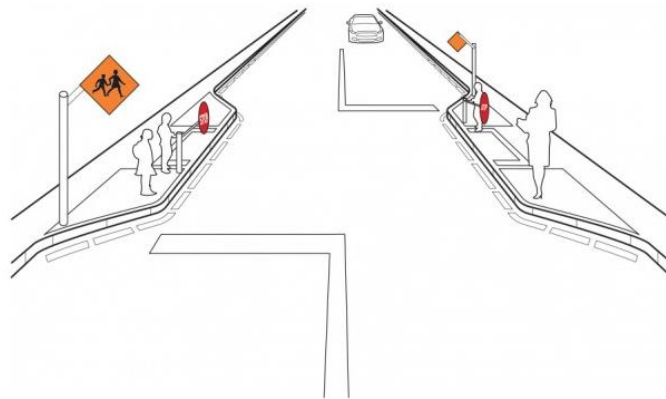


Figure 4-4 Kea Crossing (Source: NZ Transport Agency)

It is recommended that the type of pedestrian crossing, the design and the location should be agreed with Auckland Transport at the Outline Plan stage.

A zebra crossing on the East-West Collector Road is recommended due to the higher traffic volumes anticipated on this road. This will be located opposite any future main pedestrian access to the school on the future collector road. Footpaths and cycle lanes are shown on the cross sections on both sides of the road so there is a need to cross the students and parents safely.

#### 4.7.2 Speed Limit

It is likely that the East-West Collector Road may have a target design speed of up to 50km/hr under the RASF. It has a straight alignment past the school which could encourage speeding. Therefore, it is recommended that a Variable Speed Limit of 40km/hr during school start and finish times is explored with Auckland Transport at the Outline Plan stage.

#### 4.7.3 Travel Demand Management

It is recommended that a Safe School Travel Plan is developed with the school, Auckland Transport and other organisations including NZ Police.

A Safe School Travel Plan is an action plan for road safety and encouraging active modes of travel. Measures to be included in the Travel Plan include Walking School Buses, promotional activities that encourage carpooling, walking and cycling and public transport, cyclist and road safety education. An important element of the Plan will be discouraging staff from parking in the drop-off/pick up areas, when the roll reaches a maximum of 700 students.

#### 4.7.4 Construction Traffic Management

It is recommended that a Construction Traffic Management Plan (CTMP) is prepared by the contractors.

## 5 Consistency with Relevant Transport Strategies

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### 5.1 Auckland Plan 2012

The Auckland Plan (2102-2042) is a strategic local government document that assists to guide Auckland's future over the next 30 years and addresses issues including reducing transport and housing shortages.

One of the principles of the Plan is to use travel demand management techniques, such as school travel plans, to manage the growth in demand for private vehicle travel and improve the way existing infrastructure networks operate, before providing additional capacity to the transport system. The Plan also recognises that schools should be located where growth is going to occur. The proposed school and ECE is consistent with the Auckland Plan as the school is located within a significant growth area (Auranga) and one of the recommendations of this ITA is to prepare a Safe Schools Travel Plan.

### 5.2 Auckland Integrated Transport Programme

Auckland's ITP sets out the 30-year investment programme to meet the transport priorities outlined in the Auckland Plan across modes covering the responsibilities of all transport agencies. Developed by Auckland Transport (AT) and The Transport Agency in collaboration with Auckland Council, the ITP provides a consolidated transport investment programme across the transport system over the next 30 years. The programme covers state highways and local roads, railways, buses, ferries, footpaths, cycleways, intermodal transport facilities and supporting facilities such as parking and park-and-ride.

A key future direction for the regional cycle and walking network includes improving cycling and walking routes to schools and implementing travel planning and behaviour change programmes to support and promote increased safe cycling. The site also provides safe and separate access to the school for pedestrians and cyclists.

### 5.3 Regional Public Transport Plan

The RPTP is a statutory document that describes the services that are integral to Auckland's public transport network and the policies and procedures that apply to those services. The RPTP also describes the public transport services that AT proposes for the region over a 10-year period and outlines how this vision will be delivered.

The RPTP is relevant in so far as it relates to the provision of bus transport to school. Policy 7.3 is concerned with providing safe public transport access for school students to and from their zoned and/or nearest school.

### 5.4 Regional Land Transport Plan

The RLTP is a plan of how transport delivery agencies intend to respond to growth and other challenges facing Auckland over the next 10 years. It includes a 10-year prioritised delivery programme of transport services and activities for Auckland, and is the combined transport programme of the NZ Transport Agency, Auckland Transport and KiwiRail.

A relevant objective for walking, cycling and travel demand management is to increase the proportion of trips made by walking, for short local trips especially trips to school. A core policy to achieve this is to support schools to develop and implement Safe School Travel Plans. One of the recommendations of this ITA is to prepare a Safe Schools Travel Plan.

## 6 Summary, Conclusions and Recommendations

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### 6.1 Summary and Conclusions

The proposed school designation is located in Drury West (Auranga) in South Auckland. Significant residential development will initially occur to the north and the west of the site and long term the site will be surrounded by residential development.

The site is a land locked greenfield site and this assessment assumes that the planned transport network will be in place to facilitate access to and from the site before the school is in use.

A summary of the predicted transportation effects are as follows

### 6.2 Transportation Effects Summary

- The primary school roll could be up to 700 students, 28 staff and 50 ECE students with 10 staff members.
- The school is likely to be constructed in stages with a gradual increase in the roll (and therefore traffic effects) over time, in line with the development of the surrounding Auranga residential development.
- The future daily vehicle trips the site is expected to generate on opening is approximately 420 vehicles and approximately 640 vehicles with a full roll.
- It is anticipated that Road 70 will be designed for more than 3,000 vehicles per day and as such could accommodate the daily predicted traffic demand.
- The site is accessible by a local street/neighbour collector road that is anticipated to have low traffic volumes and low target operating speed, which will both contribute to the safe operation for vehicles accessing the school.
- Appropriate vehicle access points from the Road 70 have been identified with a secondary access from the western side of the site in the future.
- High quality walking and cycling opportunities for students are enabled with most of the Stage 1 and Stage 2 of the Auranga development within a 10 minute walk or 5 minute cycle/scooter ride.
- On opening the school will have a higher car mode share which will decrease over time as the surrounding area develops and the high quality walking and cycling connections and infrastructure are provided.
- Appropriate on-site drop-off and pick-up arrangements for vehicles have been identified in combination with some on-street drop-off and pick-up arrangements.

It is considered the proposed transport network can accommodate the proposed ECE and school on opening (with a roll of approximately 300 students) and an increasing roll of 700 students and ECE with the recommendations provided below.

### 6.3 Transportation Recommendation Summary

The following recommendations are identified for the NOR and the Outline Plan stage:

- Preparation of a School Design Concept Plan
- The main vehicular access for the site is from Road 70 with a future secondary access from the western side of the site.
- On-site drop-off and pick-up bays are provided for the primary school and the ECE.
- Two dedicated pedestrian/cycle entrances to the school are provided, the main one on Road 70 and a secondary one on East West Collector Road



- Provision of pedestrian crossings on Road 70 and East-West Collector Road with the location and design to be agreed with Auckland Transport
- The level of car and cycle parking proposed will be confirmed at the Outline Plan stage, however it is anticipated that the required parking spaces, based on demand, can be accommodated on the site.
- Loading spaces and end of trip facilities will be confirmed at the Outline Plan stage.
- Engagement with Auckland Transport to explore the implementation of a 40km/hr Variable Speed Limit on the East West Collector Road during school start and finish times
- Development of a Safe School Travel Plan to include such measures as Walking School Buses, promotional activities that encourage carpooling, walking and cycling, cyclist and road safety education
- Preparation of a CTMP by the contractors and agreed with Auckland Transport.

## 6.4 Conclusion

The identified site is considered to be highly appropriate for the proposed primary school and ECE, given its central location within future residential development and proposed high quality walking and cycling connections and infrastructure.

It is considered that the land to be designated for educational purposes can accommodate the anticipated traffic and can provide suitable potential access arrangements. It is also considered that a school on this site can satisfy the outcomes sought by the regional and local transport strategies and plans.

On the basis of this assessment of the transport effects and the associated recommendations, it is considered that the NOR to designate land for the proposed School and ECE should be confirmed by Auckland Council.