



**Milldale Primary School Notice of Requirement
Integrated Transport Assessment**

Ministry of Education



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Quality Assurance Information

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Executive Summary

Introduction

The Ministry of Education (MOE) commissioned Abley Limited (Abley) to prepare an Integrated Transport Assessment (ITA) for the Notice of Requirement (NoR) for the Milldale Primary School. The MOE serve NoRs to designate land for educational purposes and protect the land for future development.

The proposed school will have a masterplan roll of 800 pupils, an opening roll of 370 pupils, and a proposed opening date of 2023. It will cater to Years 0 to 6. The designation will also include provision for an Early Childcare Education (ECE) facility, which will cater for up to approximately 50 children, and a Northern Health School (NHS) facility, which will be a small facility for approximately 23 children. The school will require an assumed staff of 43 staff based on a 1:20 staff to pupil ratio. The MOE expects that the catchment of Milldale Primary School will be limited to west of the Auckland Northern Corridor, and primarily contained within the proposed Milldale development.

The site of interest is located within Fulton Hogan's planned Milldale Precinct development found 30km north of Auckland, directly southeast of the planned intersection of Argent Lane, along the site's western frontage, and on the northern frontage, an unnamed future road, referred to in this report as Stream Edge Road based on its typology. The Milldale Structure Plan ITA (Milldale ITA) was prepared by Stantec on 16 November 2018 and indicated this site as a potential school site, and the local effects of school traffic were not required to be assessed as part of the structure plan ITA. The purpose of this Milldale Primary School ITA report is to evaluate and assess the transportation effects of Milldale Primary School.

A pre-application meeting with Auckland Council (AC) and a supporting growth discussion with Auckland Transport (AT) and the Strategic Growth Alliance (SGA) were both held on 19 June 2019. A further meeting with AT and SGA was held on 12 December 2019 to discuss the progress that had occurred with the Milldale development across the intervening months. See meeting notes for these two meetings in Appendix D.

Transport Environment

The Milldale development is currently under construction and is expected to establish 4,500 dwellings. The Milldale Primary School site is zoned Residential - Mixed Housing Urban Zone under the Auckland Unitary Plan Operative in part (AUPOP). The proposed transport network includes a mix of local roads, collector roads, 'Stream Edge Road', and Argent Lane, an arterial road that travels north/south through the development.

The proposed school site will have road frontage to Argent Lane to the west, Stream Edge Road to the north, Road 11 to the south, and Road 18 to the east. It is proposed that the primary vehicle access for Milldale Primary School be located on Road 11. Road 11 provides an east-west through function within Milldale and is a local road. The Stream Edge Road typology includes space for a 3m shared path that will provide access to the school by walking and cycling. Pedestrian crossing facilities have been discussed with the developer and will be included as part of the Milldale development, to be assessed further at the Outline Plan of Works (OPW) stage. While many vehicles will approach from Argent Lane, it is not appropriate to locate a school access on an arterial road.

Intersections within Milldale are undergoing detailed design, with current indications showing the intersection of Stream Edge Road and Argent Lane as a left-in, left-out arrangement, and the intersection of Road 11 and Argent Lane as a roundabout in the short term, with the option for conversion to a future signalised intersection coinciding with AT's four-laning of Argent Lane when Milldale is sufficiently occupied. The intersection of Road 11 and Road 18 is likely to be a small roundabout, a design which could be emulated for a school access point.

While all roads in the Milldale development will have footpaths per the Local Road cross section, the footpaths on the perimeter of the school site will be provided additional width (2.6m). The school will also benefit from the 3m shared path along Stream Edge Road as this will provide a link for children who cycle, walk, or scoot to school.

Regarding public transport, AT's current plans indicate a potential longer-term bus route that would approach Milldale from the north and south, using Argent Lane. This route would pass directly in front of Milldale Primary School on Argent Lane, and therefore will be a travel option for some children.

The proposed roading network supports a highly residential environment and is designed to create a relatively low speed environment through use of a tight and connected grid and the introduction of curves. On this basis, it is unlikely that the

future roading network surrounding the site will have any notable underlying safety concerns which would make developing the school unviable at the proposed location.

Assessment

The assessment takes into account access by walking, cycling, bus and car. The assumed level of private motor vehicle use is considered in the transport network assessment whereas the other modes are assessed to determine how well they are catered for in the proposed transport environment in terms of infrastructure and safety. In November 2019, Stantec undertook an update to the Milldale transport modelling taking into account the proposed school with a roll of 800 primary school students. The resultant service levels indicate no issues with capacity of nearby intersections in the AM or PM peak periods. This assessment is outlined in Stantec's Memo dated 28 November 2019.

To conservatively assess the performance of a school access intersection, the peak hour inbound and outbound trip estimates for a school were superimposed on the peak hour flows estimated in Stantec's Memo. The New Zealand Household Travel Survey School Travel Model was used to estimate the school-related traffic movements; this was considered conservative as the actual anticipated mode share for private motor vehicle trips is much lower than that assumed in the NZHTS model. A SIDRA intersection assessment indicates that there are no concerns in regard to the capacity of an intersection providing access to the school on Road 11.

The travel modes associated with a primary school include private vehicle, public transport by bus, walking, cycling and scooting. Accesses to the site will be designed to cater for all these modes of transport. In order to boost walking and cycling mode share, a travel plan will be prepared within 6 months of the school opening. Regular updates to the plan will help to maintain an increased active mode share and encourage safe and sustainable travel decisions. Engagement with Auckland Transport and the Council will help to support an overall integrated transport plan that covers the needs of all educational facilities in the area.

The priorities for pedestrian and cycle facility design are safety and comfort. Wider footpaths have been proposed by the developer along all school frontages, and crossing facilities have been drafted following preliminary consultation, with the developer to consult further with AT before finalising these designs. Accessibility should be assessed as part of the OPW stage to ensure these facilities are adequate, once the internal layout of the school is developed.

Parking will be provided for on-site at a level to accommodate the practical expected requirements for the school. It is expected that pick-up and drop-off will primarily take place on-site, but some may occur on the road frontage.

Conclusions

It is considered that the land to be designated for educational purposes and the surrounding roading network can accommodate the anticipated traffic from the proposed scale and use of the school 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. Some key findings have been summarised below:

- A school at this location, with primary access on Road 11, is expected to have low impact on the overall vehicular traffic volumes throughout Milldale.
- There are no issues with the planned school that would prevent the safe and appropriate design of accesses at the site.
- The developer has progressed with Milldale road designs on surrounding roads; these have been considered and some high level advice provided in order to align the development of the precinct with the proposed designation of the land for education purposes.
- There are no issues with the planned school that would prevent a safe and appropriate car park design at the site.
- Parking will be provided for on-site at a level to accommodate the practical expected requirements for the school. It is expected that pick-up and drop-off will primarily take place on-site, but some may occur on the road frontage.
- Detail of car and cycle parking, access arrangements and pedestrian crossings will be considered further during the OPW stage.
- The location provides for excellent access by walking and cycling for school pupils.

This assessment concludes that Auckland Council can recommend confirmation of the NoR to designate the land for education purposes.

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1. Introduction

The Ministry of Education (MOE) commissioned Abley Limited (Abley) to prepare an Integrated Transport Assessment (ITA) for the Notice of Requirement (NoR) for the Milldale Primary School. The MOE serve NoRs to designate land for educational purposes and protect the land for future development. In the case of schools, the designation authorises the MOE to undertake property projects on designated school sites without getting resource consent, as long as the work is within the scope of 'education purpose'.

The site of interest is located within Fulton Hogan's planned Milldale Precinct development found 30km north of Auckland, directly southeast of the planned intersection of Argent Lane and 'Stream Edge Road'. 'Stream Edge Road' is a temporary road name used in this report for clarity as this road has not yet been named. The Milldale Structure Plan ITA (Milldale ITA) was prepared by Stantec on 16 November 2018 and indicated this site as a potential school site, and the local effects of school traffic were not required to be assessed as part of the structure plan ITA. The purpose of this Milldale Primary School ITA report is to evaluate and assess the transportation effects of Milldale Primary School.

A pre-application meeting with Auckland Council (AC) and a supporting growth discussion with Auckland Transport (AT) and the Strategic Growth Alliance (SGA) were both held on 19 June 2019. A follow-up meeting was held on 12 December 2019. See meeting notes in Appendix D.

1.1 School Overview

The proposed school will have a masterplan roll of 800 pupils, an estimated first build roll of around 370 pupils, and a proposed opening date of 2023. The designation will also include provision for an Early Childcare Education (ECE) facility, which will cater for up to approximately 50 children, and a Northern Health School, accommodating up to 23 children. The school will require an assumed staff of 43 based on a 1:20 staff to pupil ratio^[1].

As is typical for any school catering for Years 0 to 6 some or all of the following are expected to be developed on the site:

- Buildings; including classrooms, hall, library, administration office space, staff workspace, caretakers' facilities, sick bay etc.
- Playing fields, hardcourts, playground structures
- Vehicle accessways, parking space for staff and visitors, temporary pick-up and drop-off areas, loading bays
- Footpaths, landscaping and fencing
- Servicing; including water, sewer, stormwater, electricity, heating, telecommunications and outdoor lighting

The MOE expects that the catchment of Milldale Primary School will be limited to west of the Northern Motorway (State Highway 1), and contained within the proposed Milldale Fulton Hogan development. Appendix E illustrates the proposed school catchment.

1.2 Report

This ITA focuses on the transport provisions required to support the NoR for the school. This report is structured as follows:

- Introduction
- Site Description
- Existing Transport Environment
- Strategic Context
- Predicted Travel Demands
- Assessment of Transport Effects
- Conclusion

[1] Milne, A, S Rendall and S Abley (2011) National travel profiles part B: Trips, trends and travel predictions. NZ Transport Agency research report 467.94pp.

The key outcomes of the ITA will be to establish:

- Combined trip generation and distribution of the site;
- Traffic impact on the transport network;
- Vehicular site access requirements and constraints;
- Access routes for walking and cycling;
- Public transport/school bus accessibility;
- Potential transport mitigation requirements.

Aerials from Auckland Council's GEOMAPS as part of the Auckland Unitary Plan Operative in part (AUPOP), have been used to illustrate the site location where appropriate.

2. Site Description

2.1 Site Location

The property that encompasses the school site is 17 Old Pine Valley Road, Pine Valley. This property is one of many that forms Fulton Hogan's planned Milldale development. The Milldale development is expected to establish 4,500 dwellings. The Milldale Primary School location and the Milldale development plan is shown in the Wider Context Locality Plan in **Figure 2.1**.

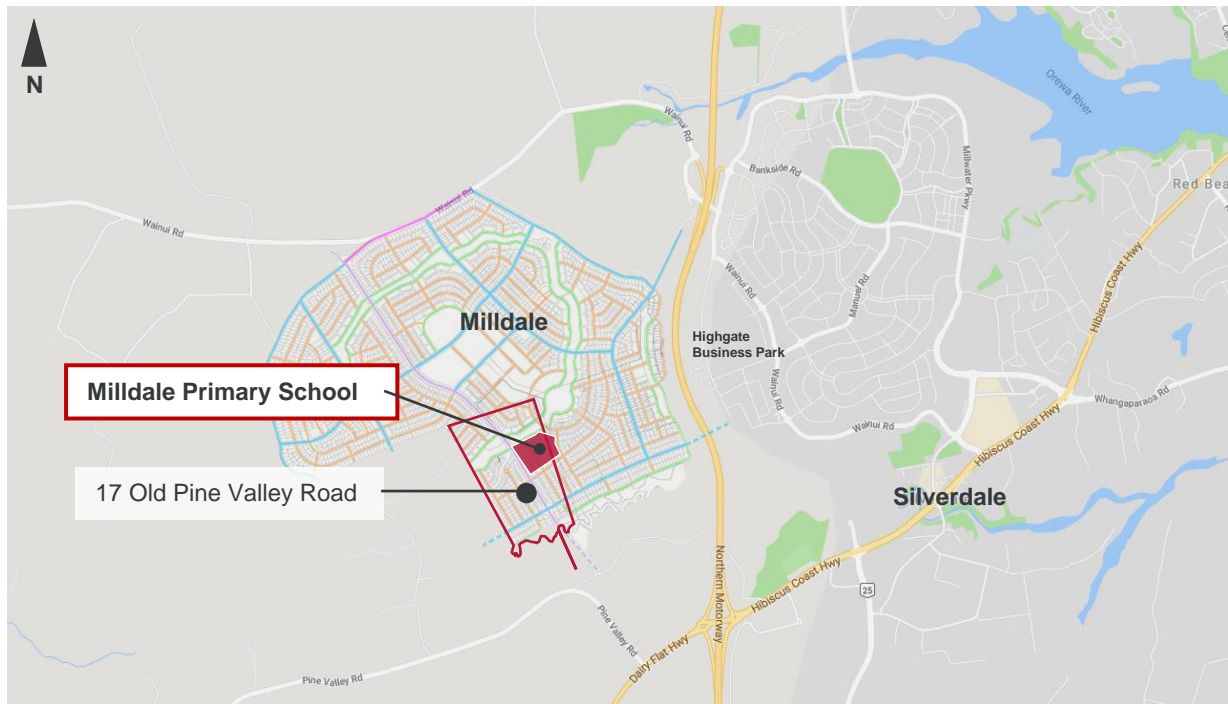


Figure 2.1 Wider Context Locality Plan (background sourced from Google Maps)

2.2 Zoning and Surrounding Land Use

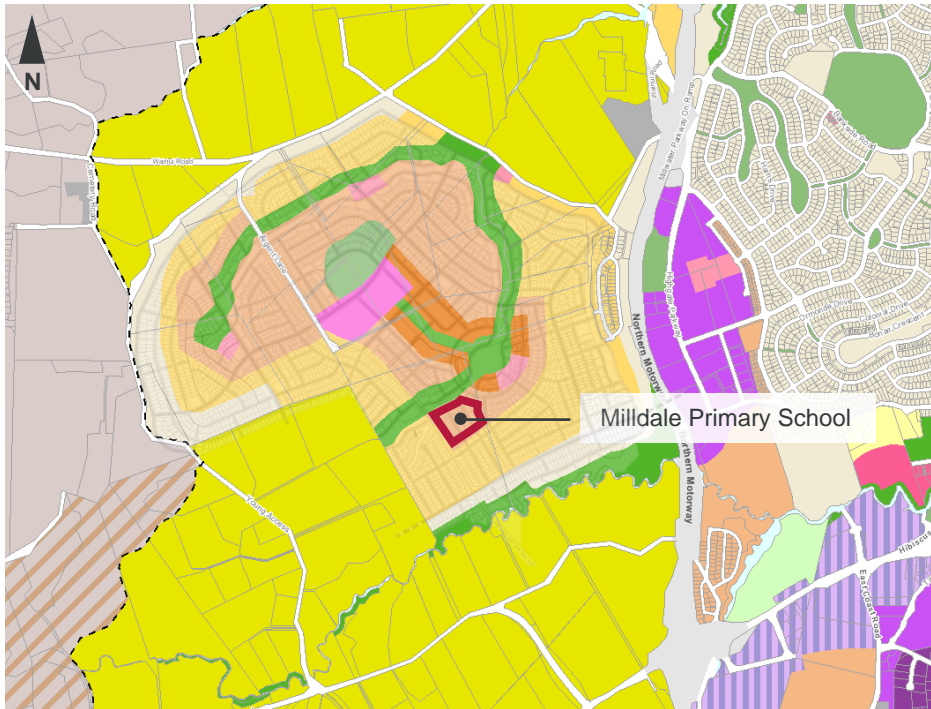


Figure 2.2 Zoning Map (AUPOP with Milldale network overlay)

The Milldale Primary School site is zoned Residential - Mixed Housing Urban Zone under the Auckland Unitary Plan Operative in Part (AUPOP). The land east of the site is also zoned Residential - Mixed Housing Urban Zone; the land south and west of the site is zoned Residential - Mixed Housing Suburban Zone; and the land north of the site is zoned Open Space - Conservation Zone.

2.3 Existing Site Information

As seen in **Figure 2.3**, the Milldale development is currently under construction. The school site is a greenfield with no roading network surrounding it. The topography is generally rolling with an existing stream (Weiti Stream) on the south edge of the Milldale development.



Figure 2.3 Existing Site

3. Existing Transport Environment

3.1 Introduction

The proposed site is located within Fulton Hogan’s planned Milldale development, approximately 30km north of Auckland. The roads that surround the site are currently under construction as part of the Milldale Structure Plan. Argent Lane is the key link to the rest of the Milldale development, forming a connection between Wainui Road and Pine Valley Road. Argent Lane is anticipated to be operational when the school would open.

The surrounding environment of the school should be conducive to good transport connectivity. Fulton Hogan’s proposed design of the surrounding roads within the Milldale development seek to achieve a well-integrated transport network which promotes walking and cycling. Locating a school within the Milldale development also means that children living within the development do not have to travel to other areas in order to attend school, thus reducing the need for longer trips on the road network. The existing and proposed transport environment is described in detail below.

3.2 Adjacent Road Network

Existing

The existing roading network does not yet connect to the proposed school site. Argent Lane terminates at the construction entrance to the Milldale development, located 1km south of Wainui Road. See **Figure 3.1** for a map of the existing roading network.

The Milldale development is directly west of the Auckland Northern Motorway (State Highway 1), a four-lane highway that links Northland and Auckland. The Milldale development will utilise the existing Wainui and Hibiscus Coast Highway interchanges, north and south of the development, respectively. The existing road network within the Milldale and Wainui East communities is sparse whereas the Millwater and Silverdale roading network is more complete and well-connected.

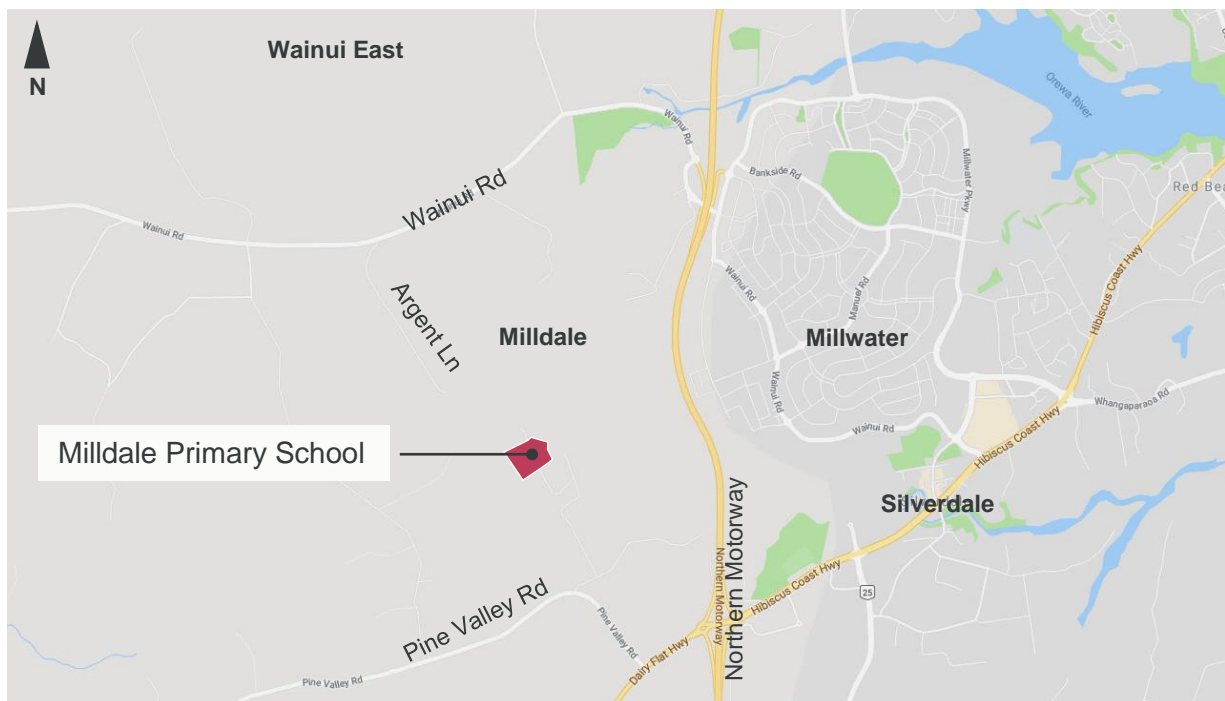


Figure 3.1 Existing Roding Network (sourced from Google Maps)

Proposed

The proposed roading network and hierarchy is shown in **Figure 3.2**. Argent Lane, which is planned as an arterial road, will function as the school’s primary route for vehicular travel to the rest of the development. Argent Lane also provides key access out of the development for vehicles headed to the Auckland Northern Motorway. Highgate Road, the nearest collector road to the school, will allow travel over the Auckland Northern Motorway to the Highgate Business Park and Millwater to the east of the development. This proposed bridge will function as a direct link to communities east of SH1 such as Millwater and Red Beach. Local roads, or suburban streets, complete the rest of the Milldale roading network. The roading network within Milldale is expected to be completed in stages.

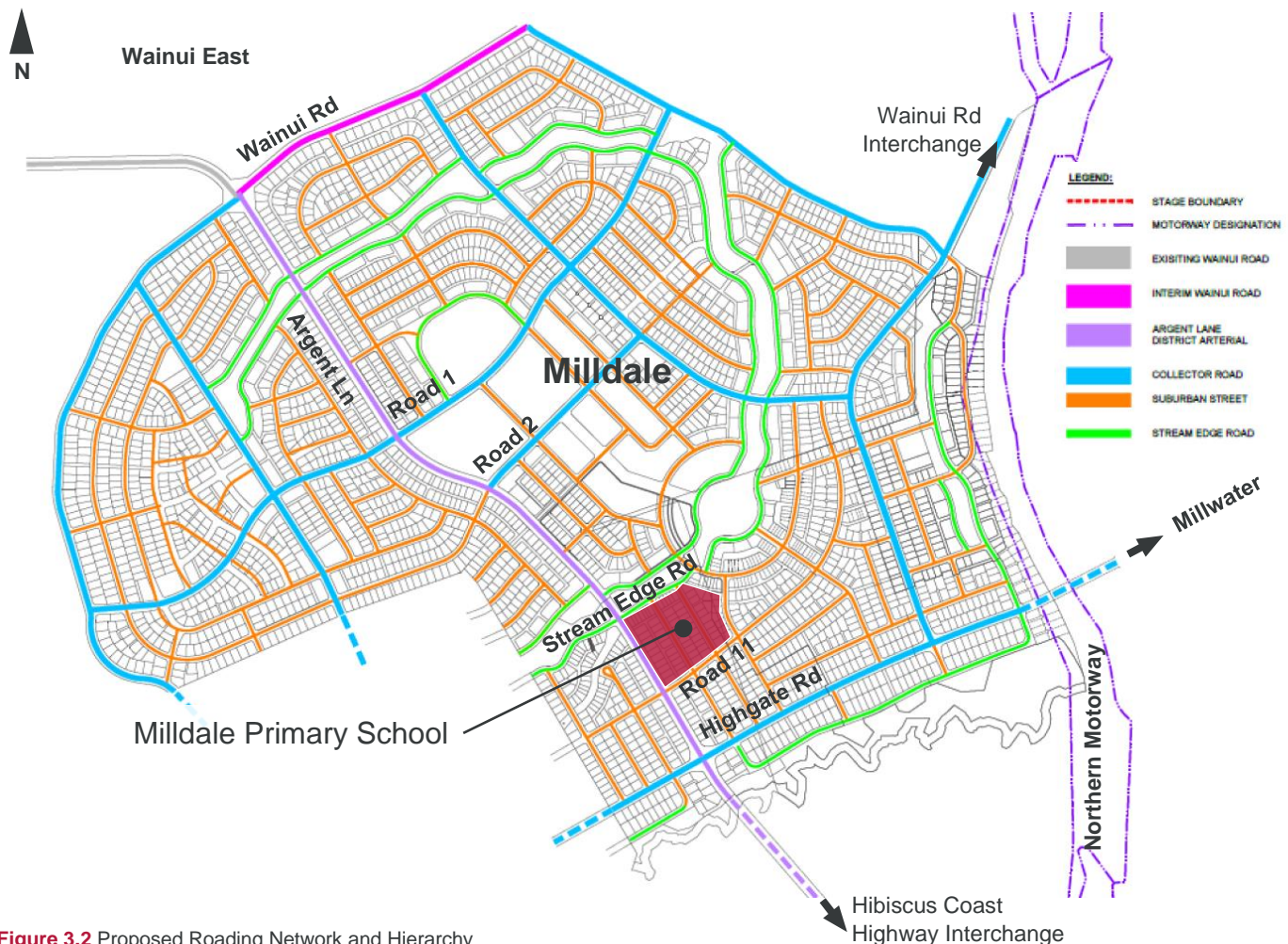


Figure 3.2 Proposed Roding Network and Hierarchy

3.3 Proposed Road Frontage

The proposed school site will have road frontage to Argent Lane to the west, Stream Edge Road to the north, and local roads to the south (Road 11) and east (Road 18), as shown in **Figure 3.3**. All cross sections have been sourced from the Milldale ITA.

During an initial meeting in 19 June 2019, AT indicated that Stream Edge Road may be a suitable frontage for the school access because of the proposed 3m shared path along Stream Edge Road. Stream Edge Road circles around the wider development, providing direct access to much of the catchment. Because the shared path will be located on the stream side of the road, crossing facilities provide safe movement for pedestrians from the north and east regardless of the location of a vehicle access. Stream Edge Road also provides enhanced amenity regarding the proposed stream. There may be benefit in locating vehicle access on a different frontage in order to maintain the Stream Edge Road as a safe

and comfortable environment for walking and cycling. Additional pedestrian, cycle and scooter access to the school site would be suitable along any of the frontages.

A subsequent meeting on 12 December 2019, following draft road layouts that were under review by AT, it was agreed that Road 11 may be a more suitable location for a vehicle access as it maintains Stream Edge Road as a safe and comfortable environment while offering a similar road width and better connection to Argent Lane. This is discussed further in Section 3.4 below.

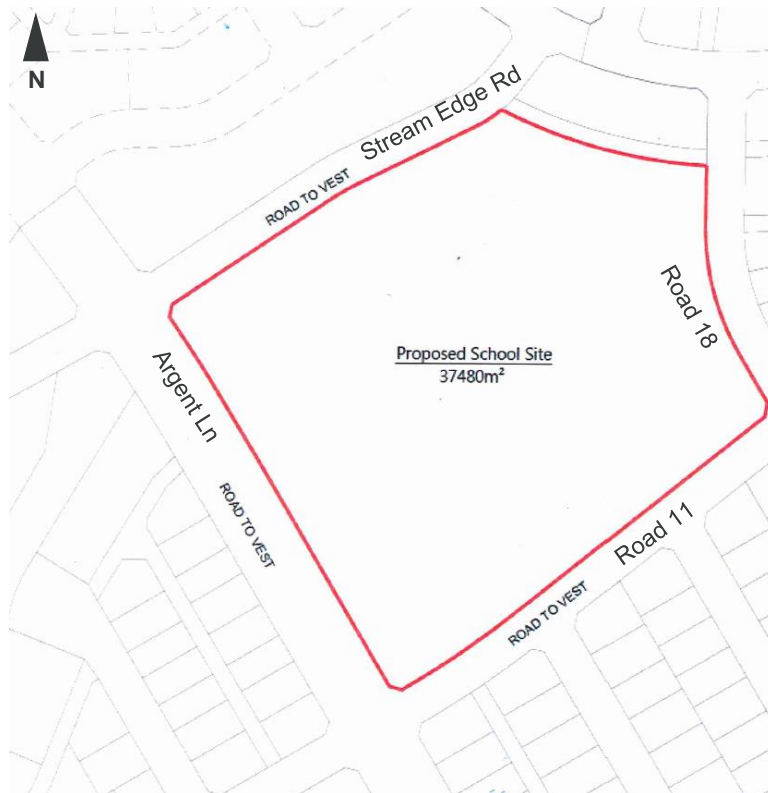


Figure 3.3 Road Frontages

Argent Lane

The proposed interim and future cross sections for Argent Lane, as provided in the Milldale ITA, are shown in **Figure 3.4**. Argent Lane will be classified as an arterial road and will accommodate buses in addition to vehicles, cyclists and pedestrians. Argent Lane will provide footpaths, separated cycleways, and indented bus stops. The cross-section shows 1.8m footpaths on both sides, 1.8m separated cycleways, and two 3.5m vehicle lanes. If needed, the future Argent Lane cross section will accommodate four travel lanes (two in each direction) after the removal of parking space. This report anticipates the interim cross section to be operational when the school would open, with the future cross section likely to be adopted at a later stage. Milldale Primary School will have frontage to Argent Lane along the west boundary. The developer has proposed to provide a wider 2.6m footpath along the proposed school frontage, namely the eastern side of Argent Lane between the Stream Edge Road and Road 11.



Figure 3.6 Local Road Cross Section

3.4 Intersections

The design details of the intersections surrounding the school site have not yet been finalised. It is anticipated that intersection designs will be developed further by the developer, including consultation with Auckland Transport. It is understood that this is currently in progress. A draft roading plan prepared by the developer (dated 16 January 2020), with some design aspects held for further consultation, prepared by the developer is shown in Figure 3.7.



Figure 3.7 Proposed roading plan

The developer intends to design the intersection for Road 11 and Argent Lane to be a mid-sized roundabout intersection for the interim case (2-lane Argent Lane cross-section), with AT likely to upgrade this to a signalised intersection when the future case (4-lane) for Argent Lane is implemented. A mid-sized roundabout is more likely to provide a future-proof layout and safe opportunities for pedestrian crossings, whereas a full-sized roundabout may be difficult for crossing. The island may have a mountable apron to allow for buses and heavy vehicles. As no issues with capacity have been identified, it is considered that either intersection type will be comfortably able to accommodate the levels of anticipated school traffic. The design of this intersection is subject to consultation between the developer and AT and will include pedestrian crossings. A draft roundabout layout, currently held for further consultation, is shown in **Figure 3.8**.

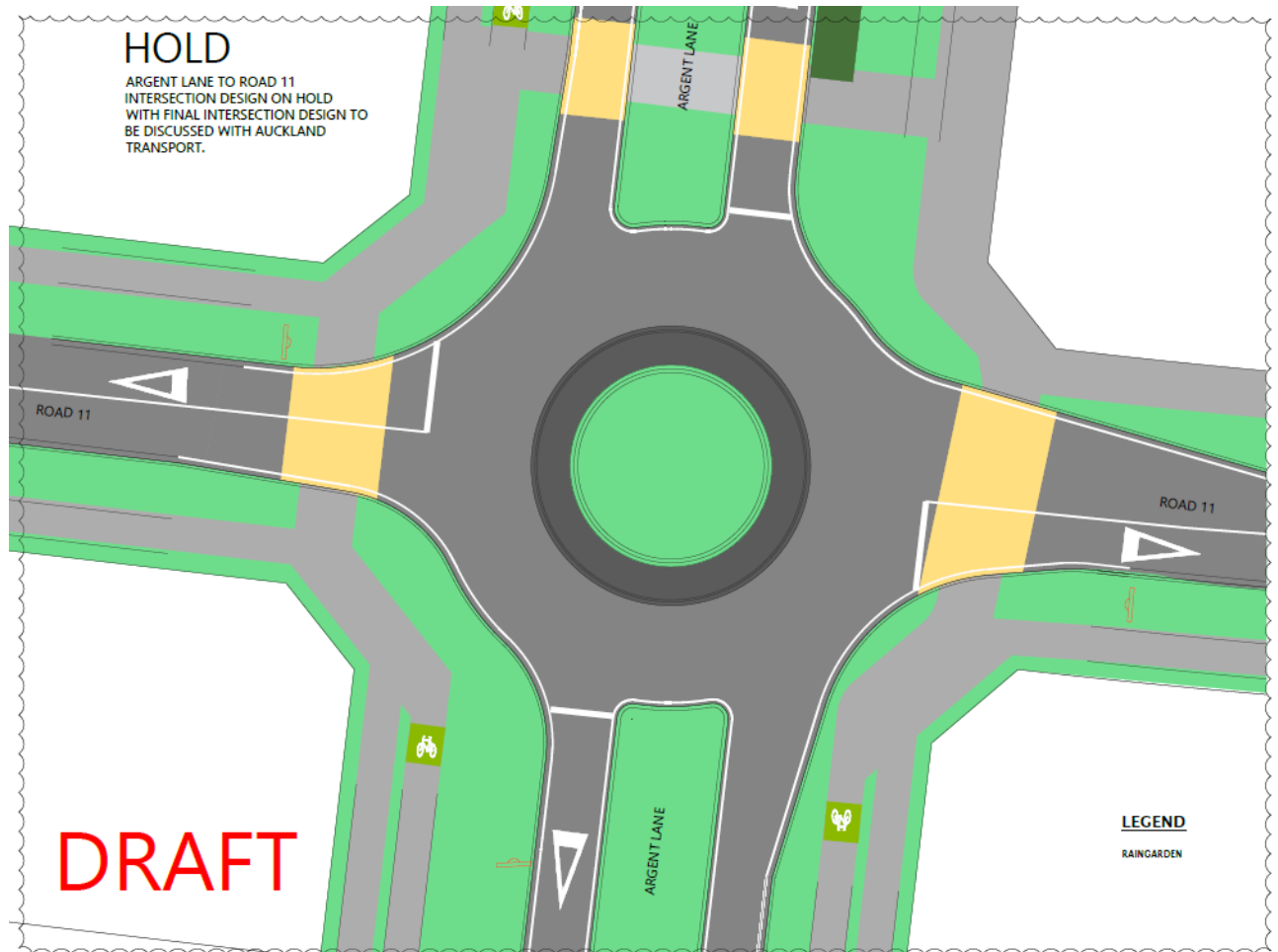


Figure 3.8 Draft Argent Lane / Road 11 roundabout layout

The intersection of Argent Lane and Stream Edge Road is proposed by the developer to allow only left-in and left-out access, maintaining through movement only on Argent Lane. As it is not likely that the primary vehicle access to the school will be on Stream Edge Road, this arrangement is expected to work well and will support good access for walking and cycling from the north. The intersection of Road 11 and Road 18 is proposed in the draft plans to be a mini-roundabout; this may also be adopted for a school access point along Road 11. This will be considered further at the OPW stage.

Stantec, as part of the Milldale ITA, has provided modelled intersection traffic volumes for the Milldale network in their memorandum dated 28 November 2019. This memo is included in Appendix F. These traffic volumes did not indicate any issues with the capacity of intersections in Milldale, with a Level of Service (LoS) of B indicated for the intersection of Road 11 and Argent Lane.

As per the Milldale ITA, the intersection of Argent Lane and Wainui Road will be reconfigured from a T-intersection into a three-legged roundabout, with the potential to include a fourth leg if required in the future.

3.5 Walking and Cycling Facilities

The surrounding environment should be conducive to good transport connectivity. When designing for walking, scooting and cycling the following key components need to be considered:

- **Desire lines** – children who travel by active modes are likely to follow their desire line. Crossing points and paths should be located on desire lines so that they are used. Desire lines can also assist with understanding where the pinch points, warranting detailed attention, will be.
- **Interactions with Other Modes** – The layout of a site needs to be designed so that interactions between children walking, scooting or cycling to school and motor vehicles are minimised. Crossing points and paths also need to be located so that no hazards are introduced along the route.
- **Path and Crossing Design** – Both within the site and outside the school gates, paths need to have the capacity to accommodate the expected flows and mix of uses.

Existing

There are no existing footpaths, cycle lanes or shared paths at the site, as the development is still under construction.

Proposed

The proposed active transport mode network is shown below in **Figure 3.9**. While all roads in the Milldale development will have footpaths as per the Local Road cross section, additional facilities are proposed along key routes. The 3m shared path along Stream Edge Road will be an important link for children that cycle, walk, or scoot to school from the north of the site. Stream Edge Road circles around the Milldale development and will therefore provide a direct and safe active mode link to a large proportion of the school catchment within the development. Additional facilities including on and off-road cycle lanes spur from the Stream Edge Road to provide further links for cyclists.

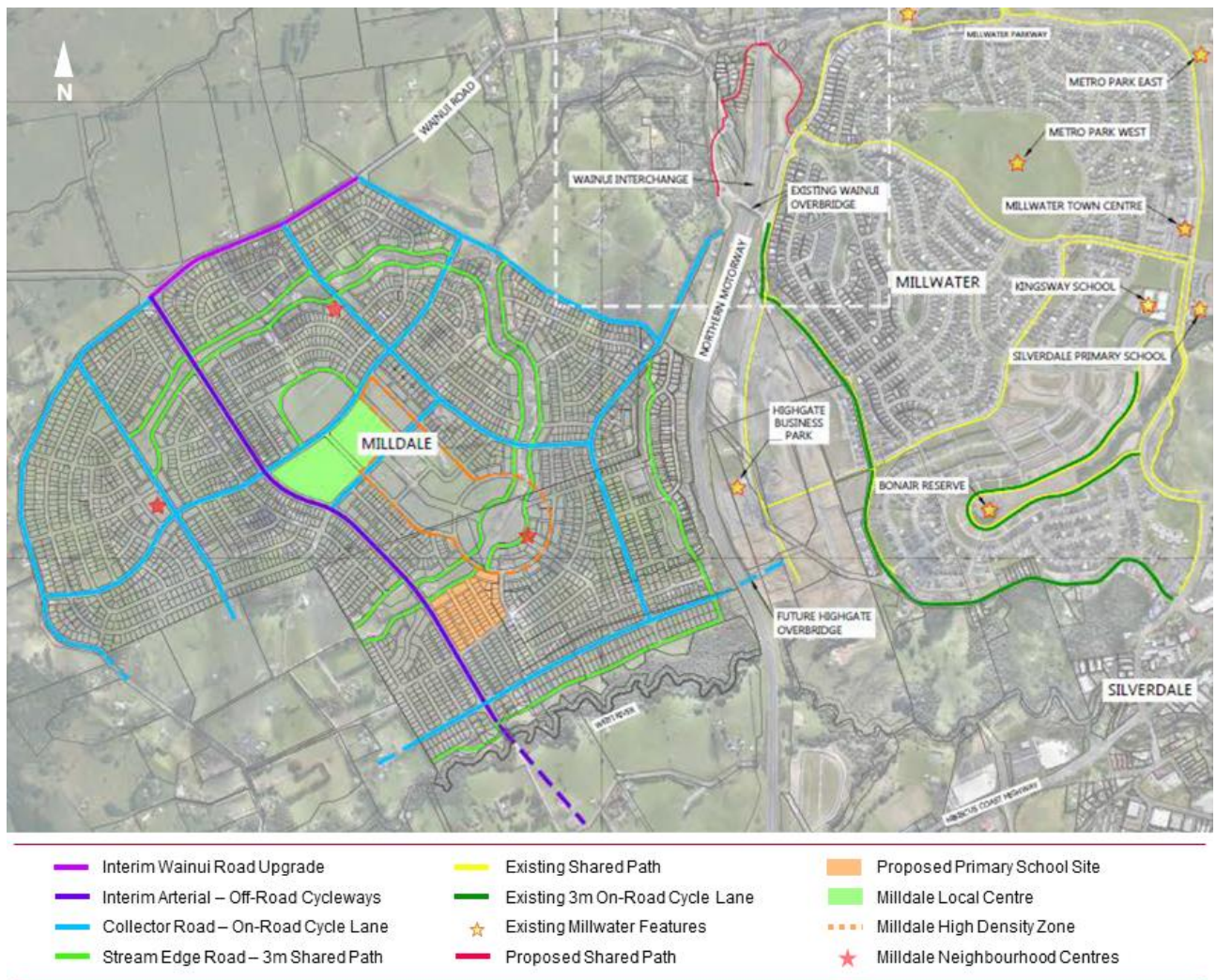


Figure 3.9 Proposed Active Transport Mode Network

The footpaths have been designed by the developer to be 2.6m wide along the proposed school site frontages, in order to more comfortably accommodate the volume and variety of people likely to be walking to and from the school. While ordinarily footpath widths would be a stronger consideration at the OPW stage, there was an opportunity to reduce the need for later changes by consulting with the developer on the proposed intention to designate the site for education purposes. The roading plans are currently under consultation with AT and early support of the 2.6m footpath widths was indicated in the 12 December 2019 meeting.

Pedestrian crossings have been discussed with the developer and some initial crossing locations determined, and feedback sought from AT in the 12 December 2019 meeting regarding the likely type of crossings. Some draft crossing locations can be seen in the proposed road layout in **Figure 3.7** above. Abley have provided feedback to the developer in the form of an initial review and identified no major concerns. AT advised that Swedish crossings were preferred where crossings are to be located along bus routes; the developer has accepted this preference. Other crossings may provide raised tables where appropriate for the location, for example where there may be turning traffic to or from Argent Lane. The crossings will be placed in order to provide safe crossing from all catchment directions such that walking to school is able to be a safe and comfortable method of travel for a majority of school students. The crossing locations and designs are expected to be further reviewed in detail at the OPW stage once internal design features of the school are better understood and accessibility can be qualified. It is expected that the actual crossing locations will be used to determine the position of entrances to the school.

3.6 Public Transport

While still in development, AT's planned bus network through Milldale is shown in **Figure 3.10**. The potential shorter-term bus route would approach Milldale from the east over the Highgate Bridge and service the Milldale town centre. This route would come within 0.5km of Milldale Primary School at the intersection of Argent Lane and Road 2.

The longer-term bus route would approach Milldale from the north and south, using Argent Lane and still servicing the town centre. This route would pass directly in front of Milldale Primary School on Argent Lane. AT has indicated that they may site a bus stop on Argent Lane directly in front of Milldale Primary School. Longer-term bus routes would likely travel south to Albany as well as any future busway stations closer to Milldale.

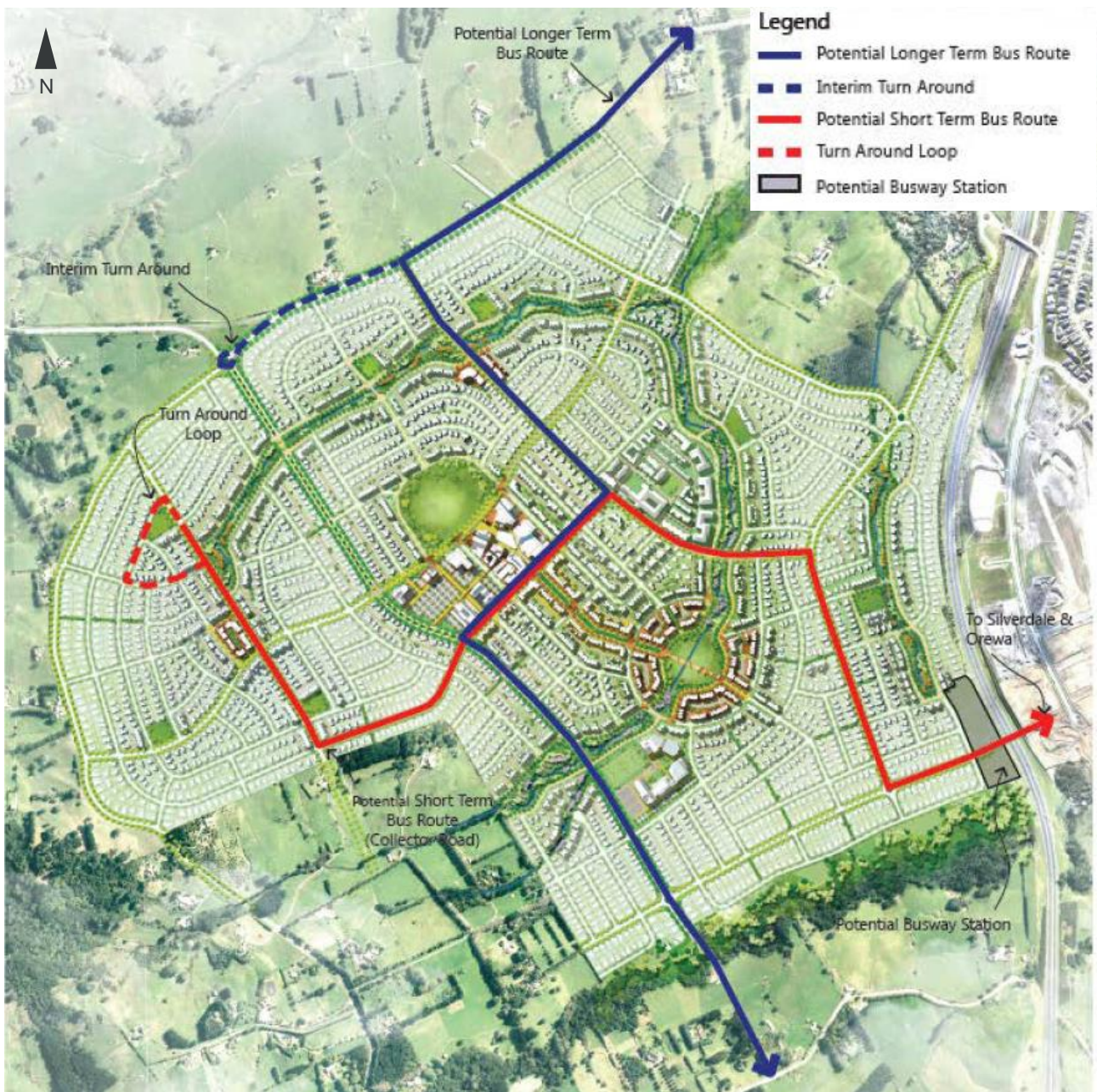


Figure 3.10 Proposed Bus Network

3.7 Road Safety

In order to understand the existing safety performance of the road network in the vicinity of the site, crashes that were recorded within the last five years (2015 – 2019 inclusive) were obtained through the NZTA Crash Analysis System (CAS) database. The extent of the crash search area is shown in **Figure 3.11**. A total of 18 crashes were recorded, of which eleven crashes resulted in no injuries, six crashes resulted in minor injuries, and one crash resulted in a serious injury. The predominant crash type (12 crashes) was loss of control on a straight section. This crash type can be attributed to the existing roading infrastructure which is primarily comprised of high speed, rural, two-lane, and undivided roads. The CAS collision diagram is shown in **Figure 3.12**.

The roading network surrounding the site is still largely undeveloped and hence the crash history is not entirely representative of the road safety performance in the immediate vicinity of the proposed school. The proposed roading network supports a highly residential environment and is designed to create a relatively low speed environment through use of a tight and connected grid and the introduction of curves. On this basis, it is unlikely that the future roading network surrounding the site will have any notable underlying safety concerns which would make developing the school unviable at the proposed location.



Figure 3.11 Crash Search Area

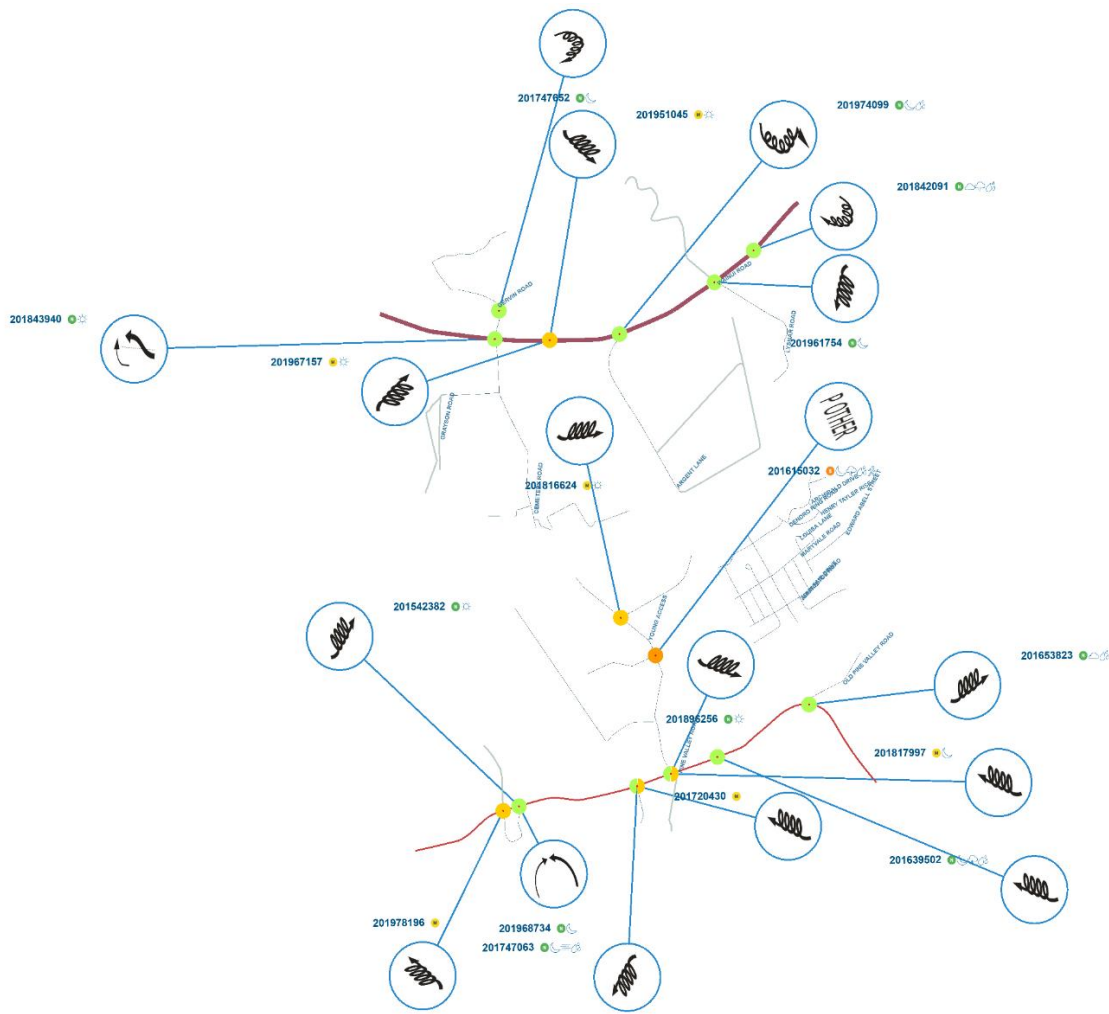


Figure 3.12 CAS Analysis - Collision Diagram

4. Strategic Context

4.1 Relevant Strategies and Policies

The following relevant regional and local plans need to be considered from a transport perspective to ensure consistency with outcomes.

Auckland Plan

A 30-year strategy to manage Auckland's growth and development. The plan identified three major challenges facing Auckland:

- Population growth and its implications
- Sharing prosperity with all Aucklanders
- Reducing environmental degradation

Some the transport related focus areas of the plan include making walking, cycling and public transport preferred choices, reducing death and serious injuries on the road, and developing a sustainable and resilient transport network. The plan acknowledges that not many Aucklanders use their bikes to travel to school. Getting more children to cycle will ease congestion, reduce the environmental impact of travel, and improve the health of those that cycle. Auckland Council has indicated cycling infrastructure as an area for increased investment.

Auckland Regional Land Transport Plan

A 10-year transport investment programme for Auckland. The programme aims to encourage a move away from single-occupant vehicles as the dominant mode of travel, and toward public transport, walking, and cycling. It will lead Auckland towards being a city where there is growth without increased congestion and one with multiple and genuine travel choices.

In order to address Auckland's challenges, the plan tracks the active and sustainable mode share at schools as a performance measure. The plan seeks to achieve 45% by 2028.

North Auckland Indicative Strategic Transport Network

A 30-year transport network plan that aims to deliver safe, accessible, and liveable outcomes in North Auckland. The Supporting Growth Programme for North Auckland specifically proposes a new road connection along Argent Lane, connecting Wainui Road to Pine Valley Road as well as a bridge over SH1 along Highgate Road. The plan also proposes new bus shoulder lanes from Albany to Silverdale and upgrades to Wainui Road and Pine Valley Road. See meeting notes in Appendix D for a supporting growth discussion with the SGA.

Auckland Future Urban Land Supply Strategy

The Auckland Future Urban Land Supply Strategy sets out how and when new urban land is to be supplied for development. The plan lays out the desired development sequencing for regions around Auckland. **Figure 4.1** presents a Milldale focused view of the development sequencing in the North region. Milldale Primary School sits within the already contracted Wainui East development (now Milldale).

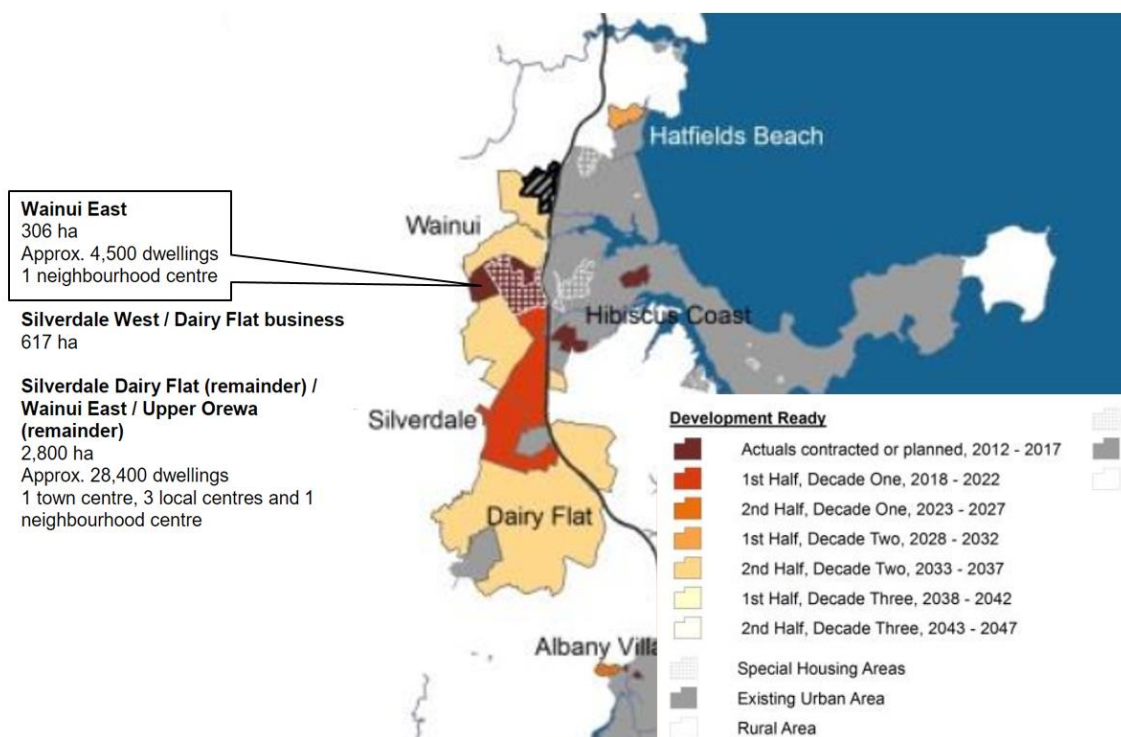


Figure 4.1 Auckland Future Urban Land Supply Strategy – North Region

Engagement and collaboration

Engagement with key organisations has been undertaken as part of the preparation for this ITA and is expected to continue as the proposed school is developed. These are listed and summarised below in Table 4.1. No parties to date have raised any significant concerns as to the proposed location of the school. Auckland Transport and the Supporting Growth Alliance in particular expressed a desire to be involved to collaboratively support high-quality and safe access to the proposed school by walking and cycling. Minutes of these meetings are available in Appendix D.

Table 4.1 Summary of engagement

Organisation	Engagement	Actions
Auckland Transport (AT)	<p>6 June 2019 Pre-pre application meeting</p> <p>19 June 2019 Attended round table meeting with Supporting Growth Alliance</p> <p>12 December 2019 Subsequent meeting with Supporting Growth Alliance</p>	<p><i>From 12 December 2019 meeting</i> AT to corroborate target mode share (completed)</p> <p>Abley to discuss AT's preferences for crossing types and feedback on approach for footpath widths, pedestrian crossings and accessibility (completed)</p> <p>Abley to redevelop previous ITA in context of Stantec's updated Milldale transport model.</p>
Auckland Council (Council)	<p>19 June 2019 Pre-application meeting.</p>	MOE to progress with preparation of the NoR application.
Supporting Growth Alliance (SGA)	<p>19 June 2019 Round table meeting with Auckland Transport in attendance</p> <p>12 December 2019</p>	As above.

	Subsequent meeting with Auckland Transport	
NZ Transport Agency (NZTA)	12 July 2019 Email engagement – assigned to NZTA planning specialist on 2 August who indicated they wished to see the completed proposal for comment.	MOE and Abley to provide final proposal to NZTA and invite comment.

4.2 Summary

From the review of the strategies and plans the following transport aspects need to be considered in the development of the site for use as a school.

- **Accessibility** – The school site needs to have a high level of accessibility by all modes to support travel choice. This means that access by bus, either school bus or public transport is well catered for, and that walking and cycling are provided for through a site that is well connected with the surrounding transport network.
- **Safety** – Access to the school is developed with safety as key criteria. This means measures such as suitable road crossings, access to the bus bays without crossing roads and sufficiently wide shared paths. It is important that safe vehicle speeds around the school site be encouraged through road design, monitored, and enforced.
- **Efficiency** – The traffic generated by the site should not have an unacceptable adverse impact on the surrounding road network in terms of travel time. Fewer vehicle trips will lead to reduced environmental degradation.

Over the next 10 years, Auckland is expected to grow by 300,000 people, and existing and new transportation challenges will grow with it. The Milldale development and Milldale Primary School will help to support that growth. The planned school can comply with the objectives of the listed plans and strategies.

5. Predicted Travel Demands

This section outlines the predicted travel demands arising from the development of the school.

5.1 Vehicle Trip Generation

The school roll is expected to be a maximum of 800 pupils with an additional 50 pupils for early childhood education. The school will require an assumed staff of 43 staff based on a 1:20 staff to pupil ratio. The New Zealand Household Travel Survey (NZHTS) indicates that for primary school (aged 5-12) children in Auckland, the private vehicle passenger mode share is 54%^[2]. 38% walk, while the balance either use public transport, bicycle or a combination of modes. For the purposes of this ITA, an approximate assumed vehicle passenger mode share of 55% has been adopted in order to estimate vehicle trip generation. This aligns with the ARLTP which targets a 45% active and sustainable mode share for schools by 2028. In practice, it is considered likely that the proposed location of the school will result in a much lower vehicle mode share as many pupils will be located within walking distance of the site, walking and cycling will be facilitated through subdivision design of quality facilities, and it is intended that cycling to school be safely provided for and promoted. Additionally, travel planning is anticipated to encourage greater use of healthier and more sustainable travel modes among children and parents, including walking and cycling. Overall, the mode share figures used to estimate vehicle trips are conservative given the expected higher active transport mode share in Milldale.

In a memo dated 28 November 2019, Stantec updated the Milldale transport model to include the trip generation of the proposed school, using the above statistics. The estimated peak hour trip generation (for the full roll of 800 primary school students and ECE accommodating 50 children) in this memo was approximately 424 trips per hour in the morning (8am – 9am) and 358 trips per hour in the afternoon (3pm – 4pm). A review against the NZHTS School Travel Model^[3] indicates a similar number of trips with a mode share which is very conservative in the context of the mode share aspirations for Auckland; the output is shown in Appendix A. Therefore, the trip numbers estimated by Stantec are considered to be on the conservative side, which is appropriate for this stage of assessment.

5.2 Trip Generation Impacts

These trips were incorporated into the Milldale model such that intersection performance could be evaluated using SIDRA. The memo (Appendix F) states that the intersection of Road 11 and Argent Lane performs at Level of Service (LoS) B, with no capacity issues evident throughout the Milldale network. The average delay at the intersection was estimated at 20 seconds for the morning peak and 17 seconds for the afternoon peak, accounting for a fully occupied Milldale precinct and a full school roll. The morning peak was considered critical as it is closer to the network (commuter) peak than the afternoon peak, which occurs before the evening commuter peak.

As the school has been incorporated into the wider Milldale precinct model and no capacity issues have been identified, it is considered that school traffic can be accommodated by the proposed road network. Additionally, there is good accessibility throughout the network with no cul-de-sacs nearby and a grid formation that provides permeability and choice of route, therefore localised congestion is not likely to be a major concern.

As the catchment is expected to be the Milldale precinct, and the presence of the school will avert the need for Milldale residents to travel afield to attend school, there are considered to be no wider traffic impacts associated with designating the site for education purposes.

5.3 School Access

A mock school access on Road 11 was modelled using SIDRA in order to test the practicality of an access on this frontage. For testing purposes, it was assumed that the access point could be aligned with a local road intersection to create a 4-approach intersection (such as a mountable mini-roundabout) rather than introducing an additional intersection. It was conservatively assumed that all school traffic would use this theoretical access and a separate exit

^[2] <https://www.transport.govt.nz/mot-resources/transport-dashboard/1-household-travel/hd011-mode-share-of-journeys-to-school-aged-5-12/hd013-mode-share-of-journeys-to-school-by-region-aged-5-12/>

^[3] Milne, A, S Rendall and S Abley (2011) National travel profiles part B: Trips, trends and travel predictions. NZ Transport Agency research report 467. 94pp.

point would not be provided. In practice there will be several possible designs that will be considered as part of the masterplan and OPW process, therefore this early approximation is considered conservative.

The following conservative assumptions have been made in estimating the potential intersection usage at the access point:

- The estimated school traffic movements have been superimposed on the background flows travelling past the site, though the overall Milldale model includes potential school traffic; a more refined model is expected to be produced at OPW stage in light of an actual proposed design.
- The traffic generation for the residential street to the south, Road 19, has conservatively been estimated at 2 trips per peak hour per residential site (with up to 30 sites accessing the street). It has been conservatively assumed that all generated traffic on Road 19 travels to and from the north, rather than south toward Highgate. 70% of this traffic generated from Road 19 has been assumed to turn to/from the west at the access intersection (toward Argent Lane) and 30% to the east (toward Road 18). In reality, much of the traffic will travel to and from the south, toward Highgate.
- 10% of arriving and departing school traffic has been apportioned to Road 19 (a through-movement at the school access intersection). This acknowledges that some traffic may use this quieter street when travelling to/from the southern part of Milldale.
- 65% of school traffic has been assumed to travel to/from the western approach of Road 11, and 25% to/from the eastern approach. This assumes that a larger proportion of drivers may access the school via Argent Lane to the west.

As the estimations of vehicle trip generation and the distribution of traffic have been very conservative, the assessment is considered to be a 'worst case' scenario that is not likely to eventuate.

The intersection has been modelled as a mini-roundabout with an island of diameter 9m, circulating aisle width of 6m, and single-lane approaches as per a potential draft design currently undergoing review with AT. An image of a potential layout (subject to review and further design iterations) and the SIDRA layout are shown in Appendix B. The SIDRA outputs are summarised in **Table 5.1**. The movement summaries are provided in Appendix C.

Table 5.1 SIDRA Output Summary - School Access on Road 11

Approach	Movement	AM Peak hour			PM Peak Hour				
		Flow (vph)	Avg Delay (seconds)	LoS	Approach LoS	Flow (vph)	Avg Delay (seconds)	LoS	Approach LoS
School Access (North)	Left	115	3.9	A	A	105	5.0	A	A
	Through	46	3.6	A		42	4.7	A	
	Right	299	6.6	A		273	7.7	A	
Road 11 (West)	Left	274	4.8	A	A	214	4.4	A	A
	Through	81	4.5	A		197	4.1	A	
	Right	44	7.5	A		44	7.1	A	
Road 19 (South)	Left	44	7.8	A	A	44	6.6	A	A
	Through	49	7.5	A		39	6.3	A	
	Right	19	10.5	B		19	9.3	A	
Road 11 (East)	Left	19	6.3	A	A	19	5.7	A	A
	Through	185	5.9	A		136	5.3	A	
	Right	174	9.0	A		136	8.4	A	

These outputs indicate that the school does not create any issues in terms of capacity, with all movements able to achieve a level of service of A or B. As the Milldale network model and a conservative localised analysis of a potential

school access both indicate that the network will operate at a good level of service with a school at the proposed location, it is considered that the traffic generation effects of the school are acceptable. A more detailed assessment of actual access designs is expected at the OPW stage.

5.4 Access and Movement

A number of aspects are considered in relation to school site accesses including the number of accesses, the function, type and location of each access.

Access Function

The travel modes associated with a primary school include private vehicle, public transport by bus, walking, cycling and scooting. Accesses to the site will be designed to cater for all these modes of transport.

The site will have servicing requirements such as waste collection and goods deliveries. Typically, these activities require heavy vehicles in order to carry out the required service. Accordingly, accesses will likely be used by heavy vehicles and should be designed to accommodate the largest expected service vehicle.

Another important function of accesses is to provide for emergency vehicles such as fire engines and ambulances. All accesses and the internal school movement network should be designed to accommodate emergency vehicles.

No vehicular access shall be allowed on Argent Lane, an arterial road.

Access Safety

The proposed school site will have road frontage to Argent Lane to the west, Stream Edge Road to the north, Road 11 to the south and Road 18 to the east. Road 11 is the likely location of the primary vehicle access to the school for parking, drop-off and pick-up. Road 11 provides east-west access across Argent Lane and good circulation and permeability through the local road network such that school traffic does not result in undue congestion. Stream Edge Road circles around the wider development, providing direct access to much of the catchment and a high level of amenity for walking and cycling, thus the most desirable access for children walking and cycling is on the opposite side of the school from the main vehicle access. Crossing facilities will be provided on each frontage as the school catchment includes all residential areas in the Milldale precinct. AT has indicated that any raised crossings would need to be in the form of a Swedish Crossing where it falls on a bus route. In terms of vehicle access to the school site, while many vehicles will approach from Argent Lane, it is not appropriate to site a school entrance on an arterial road designed for a high movement function, therefore Road 11 is preferable.

Additional pedestrian, cycle and scooter access would be suitable along any of the frontages and will be developed at the OPW stage, including an accessibility and desire line assessment. A pedestrian access on Argent Lane is likely to be included that provides easy access to and from the bus stops, as some children may use the public bus to get to school. The developer is consulting with AT to determine suitable pedestrian crossing points on Argent Lane that will benefit both the school and the general public.

Appropriate sight distance between drivers exiting the site and approaching drivers on the frontage road should be provided at all accessways. The Austroads Guide to Road Design Part 4A provides the types of sight distance to consider when designing intersections. These include safe intersection sight distance (SISD)^[4], approach sight distance (ASD)^[5] and minimum gap sight distance (MGSD)^[6]. A minimum of 97m SISD, 55m ASD and 69m of left turn MGSD are required for a 50km/h design speed. SISD is considered the minimum sight distance requirement that must be satisfied.

As the block length of Road 11 along the school frontage is less than 200m, and features local road intersections at intervals of less than 100m, it is anticipated that vehicle speeds will be low and that sight distances will be adequate for the operating speeds.

[4] Distance for a driver on a major road to observe a vehicle on a minor approach moving into a collision situation and to decelerate to a stop before reaching the collision point

[5] Sight distance on minor road approaches to all intersections to ensure that drivers are aware of the presence of an intersection

[6] Distance corresponding to the critical acceptance gap that drivers are prepared to accept when undertaking a turning manoeuvre at intersections

A separate vehicle access is likely to be provided for the ECE to ensure safe access for pre-school children. This access will be designed at the OPW stage.

5.5 Walking and Cycling Provision

While facilities will be designed and assessed fully at the OPW stage, the priorities for pedestrian and cycle facility design are safety and comfort. Some consultation has been held with Auckland Transport and some preliminary advice discussed with the developer, with the following items proposed:

- AT have suggested wider footpaths (>2m) throughout the Milldale Primary School catchment would help to make walking a desirable choice for children. The developer proposes 2.6m footpaths along all school frontages.
- Children do not always fully check before making a crossing, so increased visibility at crossings and entrances along pedestrian and cycle facilities in the vicinity of the school would increase safety. AT have suggested that raised zebra crossings be provided, and that along bus routes Swedish Crossings would be preferred. The roading plans are being prepared by the developer in conjunction with AT, and will include crossings designed with this advice in mind, and will be subject to further review at the OPW stage.
- The organisation of walking school buses can further increase the safety of pupils.

While the school is not considered to generate any adverse effects that directly necessitate these interventions, it is agreed that they would be highly beneficial to school pupils and the public, therefore, further consultation will be held at the OPW stage in regard to these items.

In order to boost walking and cycling mode share, a school travel plan will be developed within 6 months of the school opening. Regular updates to the plan will help to maintain an increased active mode share. Engagement with Auckland Transport and the Council will help to support an overall integrated transport plan that covers the needs of all educational facilities in the area. Overall, the surrounding environment and frontage roads lend themselves well to walking and cycling; therefore, the location of the school in this regard is considered excellent.

5.6 Public Transport Provisions

School buses are not proposed; some students may choose to use public buses to travel to school however the preferred modes of travel are anticipated (and, through a school travel plan, intended) to be walking and cycling.

A pedestrian entrance and pathway is likely to be located near the bus stops on Argent Lane in order to minimise the need for children to walk around to enter via the vehicle entrance on Road 11. It will also be more pleasant and convenient for children to be able to walk straight into school from the bus stop and to walk away from the roadway rather than along the road.

5.7 Parking and Servicing

The 'AUPOP Chapter K – Designations - Minister of Education' conditions require that:

- On-site car parking shall be provided at the rate of two carparks per new classroom or classroom equivalent, except where the council accepts, on the basis of a specifically commissioned parking study by an appropriately qualified engineer and/or transportation planner, that a lesser level is appropriate.
- In addition to any car parking required for the school, on-site car parking for early childhood education (preschool) shall be provided at the rate of one car park per every 10 children the facility is licensed or designed to accommodate, plus one per each full time equivalent staff member required for the license or design capacity of the centre, except where the Council accepts, on the basis of a specifically commissioned parking study by an appropriately qualified engineer and/or transportation planner, that a lesser level is appropriate.

The number of classrooms in Milldale Primary School has not yet been determined. For the ECE roll of 50, at least 5 parking spaces will be required; these will likely be in a separate location to parking for the primary school. Parking will be provided for on-site at a level to accommodate the practical expected requirements for the school. It is expected that pick-up and drop-off will primarily take place on-site, but some may occur on the road frontage. The effects of parking on the surrounding network will be minimal as the school is located close to residential areas; therefore, in comparison to

schools of a similar size, the need for pupils to be dropped off and picked up by car will be reduced. Areas of cycle parking for staff and pupils will also be provided.

With a frontage on Road 11 of almost 200m, it is expected that there will be a range of design options for parking and drop-off areas developed as part of the masterplanning process, and these will be assessed at the OPW stage to determine the most appropriate design. It is expected that the design will include a dedicated pick-up and drop-off (PUDO) zone and that the main accessway will either form a loop via a two-way access point or feature a separate egress on Road 11 or Road 18. The SIDRA model for the potential access point outlined in Section 5.3 of this report indicates that a single access point for both entry and exit for PUDO (a worst-case scenario) can function well in terms of intersection capacity; a dual access point would have a more dispersed impact on the road network.

Service vehicles requiring access to the school include waste collection trucks, delivery vehicles and mobile health vehicles. Any service accesses will be designed in accordance with the service vehicles likely to use the accesses.

There are no issues with the planned school that would prevent a safe and appropriate car park design at the site.

6. Conclusions

It is considered that the land to be designated for educational purposes and the surrounding roading network can accommodate the anticipated traffic from the proposed scale and use of the school 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. Some key findings have been summarised below:

- A school at this location, with primary access on Road 11, is expected to have low impact on the overall vehicular traffic volumes throughout Milldale.
- There are no issues with the planned school that would prevent the safe and appropriate design of accesses at the site.
- The developer has progressed with Milldale road designs on surrounding roads; these have been considered and some high level advice provided in order to align the development of the precinct with the proposed designation of the land for education purposes.
- There are no issues with the planned school that would prevent a safe and appropriate car park design at the site.
- Parking will be provided for on-site at a level to accommodate the practical expected requirements for the school. It is expected that pick-up and drop-off will primarily take place on-site, but some may occur on the road frontage.
- Detail of car and cycle parking, access arrangements and pedestrian crossings will be considered further during the OPW stage.
- The location provides for excellent access by walking and cycling for school pupils.

This assessment concludes that Auckland Council can recommend confirmation of the NoR to designate the land for education purposes.

Appendix A
NZHTS School Travel Model Output



Inputs

School Type (drop-down menu): Approx. Enrolment Age:

Area Type (drop-down menu):

Enrolment Size: students



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Outputs

Total daily student trips: arrivals + departures

Students by Mode of Travel - Arrivals

	Walk	Cycle	P.T.	V. Driver	V. Pass.	Taxi	Other
Mode Split (%)	24.1	0.1	8.7	0.0	65.5	0.3	1.4
No. of Students by Mode	193	0	70	0	524	3	11
Trips by Mode	259	1	94	0	704	4	15

Students by Mode of Travel - Departures

	Walk	Cycle	P.T.	V. Driver	V. Pass.	Taxi	Other
Mode Split (%)	27.6	0.2	8.7	0.0	60.4	0.3	2.8
No. of Students by Mode	221	2	69	0	483	3	22
Trips by Mode	297	3	93	0	650	4	30

School Trips undertaken by Private Motor Vehicles

	Arrivals	Departures
Student Passenger Vehicle Trips	<input type="text" value="506"/>	<input type="text" value="467"/>
Student Driver Vehicle Trips	<input type="text" value="0"/>	<input type="text" value="0"/>
Staff Trip Legs	<input type="text" value="40"/>	<input type="text" value="40"/>
Service Vehicle Trips	<input type="text" value="3"/>	<input type="text" value="3"/>

Including taxi passengers.
One staff member per 20 students; all drive.
Service vehicles represent 1% of total daily flows.

Total Daily Vehicles: Vehicles

Peak Hour Private Motor Vehicles

AM Peak (8AM to 9AM)	<input type="text" value="429"/> Vehicles
PM Peak (3PM to 4PM)	<input type="text" value="362"/> Vehicles

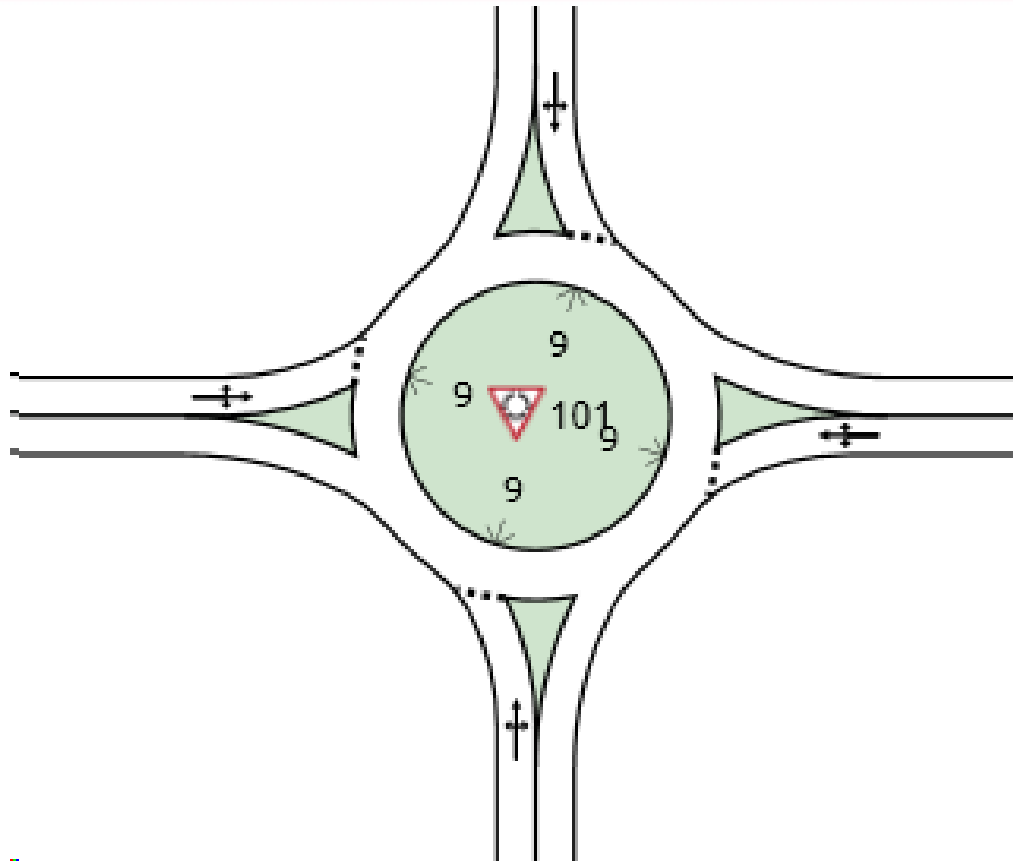
Trips by Mode

Mode

Confidence Intervals - 95%

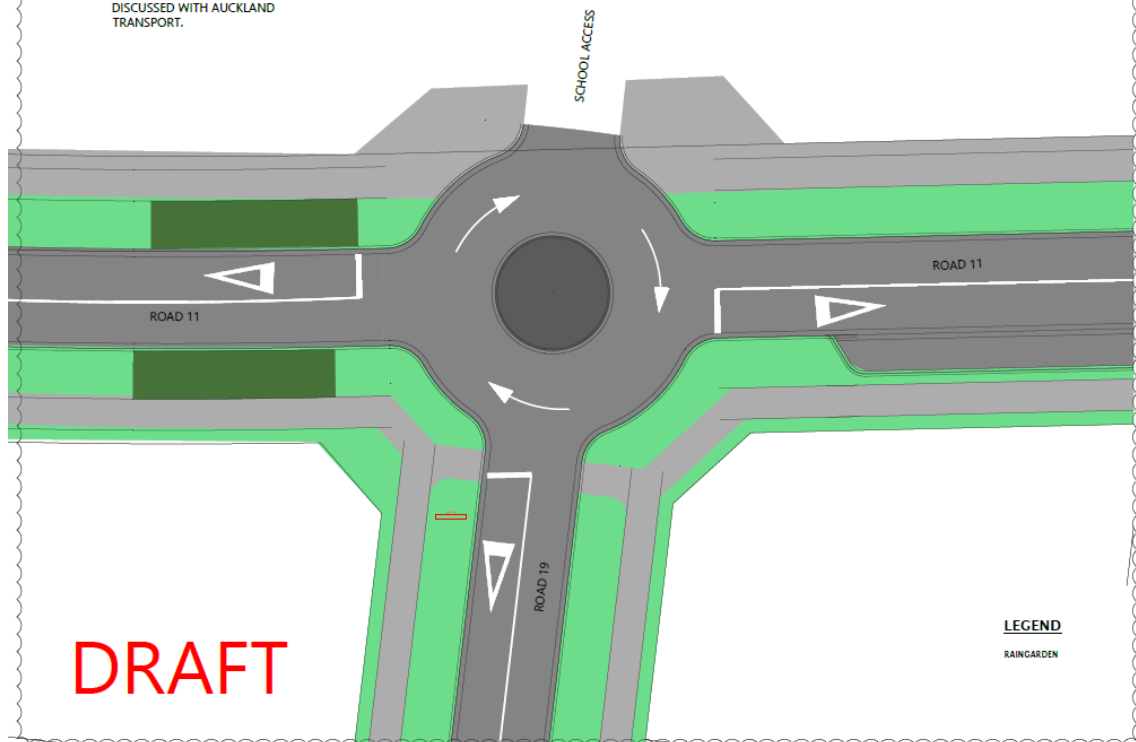
Appendix B
School Access Diagram – SIDRA Input





HOLD

SCHOOL ACCESS INTERSECTION DESIGN ON HOLD WITH FINAL INTERSECTION DESIGN TO BE DISCUSSED WITH AUCKLAND TRANSPORT.



Appendix C

SIDRA Traffic Model Outputs



School Access – AM Peak

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
		Total veh/h	HV %				Vehicles veh	Distance m				
South: Road 19												
1	L2	44	1.0	0.171	7.8	LOS A	1.1	7.4	0.74	0.75	0.74	36.7
2	T1	49	1.0	0.171	7.5	LOS A	1.1	7.4	0.74	0.75	0.74	37.2
3	R2	19	1.0	0.171	10.5	LOS B	1.1	7.4	0.74	0.75	0.74	37.1
Approach		113	1.0	0.171	8.1	LOS A	1.1	7.4	0.74	0.75	0.74	37.0
East: Road 11 E												
4	L2	19	1.0	0.444	6.3	LOS A	3.2	22.7	0.73	0.74	0.73	37.0
5	T1	185	1.0	0.444	5.9	LOS A	3.2	22.7	0.73	0.74	0.73	37.5
6	R2	174	1.0	0.444	9.0	LOS A	3.2	22.7	0.73	0.74	0.73	37.5
Approach		378	1.0	0.444	7.3	LOS A	3.2	22.7	0.73	0.74	0.73	37.4
North: School Access												
7	L2	115	1.0	0.399	3.9	LOS A	3.1	22.1	0.48	0.57	0.48	37.5
8	T1	46	1.0	0.399	3.6	LOS A	3.1	22.1	0.48	0.57	0.48	37.9
9	R2	299	1.0	0.399	6.6	LOS A	3.1	22.1	0.48	0.57	0.48	37.9
Approach		460	1.0	0.399	5.6	LOS A	3.1	22.1	0.48	0.57	0.48	37.8
West: Road 11 W												
10	L2	274	1.0	0.400	4.8	LOS A	3.0	21.0	0.60	0.61	0.60	37.8
11	T1	81	1.0	0.400	4.5	LOS A	3.0	21.0	0.60	0.61	0.60	38.3
12	R2	44	1.0	0.400	7.5	LOS A	3.0	21.0	0.60	0.61	0.60	38.2
Approach		399	1.0	0.400	5.0	LOS A	3.0	21.0	0.60	0.61	0.60	37.9
All Vehicles		1349	1.0	0.444	6.1	LOS A	3.2	22.7	0.61	0.64	0.61	37.7

School Access – PM Peak

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
		Total veh/h	HV %				Vehicles veh	Distance m				
South: Road 19												
1	L2	44	1.0	0.137	6.6	LOS A	0.8	5.7	0.67	0.69	0.67	37.1
2	T1	39	1.0	0.137	6.3	LOS A	0.8	5.7	0.67	0.69	0.67	37.6
3	R2	19	1.0	0.137	9.3	LOS A	0.8	5.7	0.67	0.69	0.67	37.6
Approach		102	1.0	0.137	7.0	LOS A	0.8	5.7	0.67	0.69	0.67	37.4
East: Road 11 E												
4	L2	19	1.0	0.334	5.7	LOS A	2.3	16.2	0.66	0.70	0.66	37.2
5	T1	136	1.0	0.334	5.3	LOS A	2.3	16.2	0.66	0.70	0.66	37.6
6	R2	136	1.0	0.334	8.4	LOS A	2.3	16.2	0.66	0.70	0.66	37.6
Approach		291	1.0	0.334	6.8	LOS A	2.3	16.2	0.66	0.70	0.66	37.6
North: School Access												
7	L2	105	1.0	0.428	5.0	LOS A	3.3	23.0	0.63	0.67	0.63	37.2
8	T1	42	1.0	0.428	4.7	LOS A	3.3	23.0	0.63	0.67	0.63	37.7
9	R2	273	1.0	0.428	7.7	LOS A	3.3	23.0	0.63	0.67	0.63	37.6
Approach		420	1.0	0.428	6.8	LOS A	3.3	23.0	0.63	0.67	0.63	37.5
West: Road 11 W												
10	L2	214	1.0	0.421	4.4	LOS A	3.3	23.0	0.55	0.55	0.55	37.8
11	T1	197	1.0	0.421	4.1	LOS A	3.3	23.0	0.55	0.55	0.55	38.3
12	R2	44	1.0	0.421	7.1	LOS A	3.3	23.0	0.55	0.55	0.55	38.3
Approach		455	1.0	0.421	4.5	LOS A	3.3	23.0	0.55	0.55	0.55	38.1
All Vehicles		1267	1.0	0.428	6.0	LOS A	3.3	23.0	0.61	0.64	0.61	37.7

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Appendix D
Pre-Application and Supporting Growth Meeting
Notes



19 June 2019 Meeting Notes

Milldale and Wainui School NoR

Prepared for: Ministry of Education

Job Number: MED-J014 & J015

Prepared by: Shane Ingley, Senior Transportation Engineer

Pre-application meeting

A pre-application meeting was held at Auckland Council at 9am. The meeting attendees were:

- Natasha Rivai, The Property Group
- Marty Van Aken, Ministry of Education
- Jo Draper, Abley
- Shane Ingley, Abley
- Peter Vari, Auckland Council
- Dave Paul, Auckland Council

Discussion

- Prior to the pre-application meeting, Marty confirmed that the ECE activities would be reduced from 150 to 50 children for both Milldale and Wainui North schools.
- The likely timeframes for the Milldale NoR submission was mid-August. This was being prepared with the expectation that the application will be non-notified; Council did not indicate that this would be an issue.
- Abley confirmed we have key traffic flows for Milldale from the model used in the Stantec ITA. These would be used as inputs, with the expectation that SIDRA would be a suitable analysis tool for the scale of the application.
- Confirmed that MoE have acquired site A and working on B and C.
- The future zoning of Wainui depends on how quickly Milldale fills up, may be Mixed Housing Urban or Suburban.
- Wainui has a fairly long lead time so no news on how this might look.
- It was discussed that the Highgate Bridge might not be a certainty, and should be followed up with the developer.
- MoE likely to use standard conditions.

Actions

Supporting Growth discussion

A discussion was held at Auckland Transport at 3pm to gather information on future plans for Milldale and Wainui. The attendees were:

- Alastair Lovell, Auckland Transport
- Steve Wrenn, Auckland Transport
- Graham Norman, Supporting Growth
- Mitra Prasad, Auckland Transport

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- Jimin Hong, Auckland Transport
 - Srishti Lal, Auckland Transport
 - Evandro Scherer, Auckland Transport
 - Samantha Petersen, Auckland Transport
 - Mathew Rudez, Auckland Transport
 - Jo Draper, Abley
 - Shane Ingley, Abley

Discussion

- Steve suggested that the stream edge road at Milldale could be a primary walking/cycling link which would make it an excellent location for a school access.
- The school in Milldale may lead to a need for signalisation of nearby intersections; we should address this in our ITA.
- Confirmed the Milldale modelling in Stantec report should be a good basis for our assessments. SGA model more recent but not likely to be required for Milldale.
- Roads are not yet vested in Milldale so there is flexibility to have different cross-sections and features.
- Samantha suggested walking school buses, wide footpaths (>2m), possible separated cycleway as potential interventions for Milldale and that it should serve a walking catchment and be safe and comfortable for walking.
- AT supportive of the concept of no on-street parking directly outside the school as parking would encourage stressful behaviours.
- Crossings should include raised zebras.
- Schools will evolve over time as will the surrounds – this should be discussed in the ITAs.
- Highgate bridge discussed; Alistair assumed it would certainly be happening, just a matter of when.
- Graham: Future Urban Zone (Wainui) not live-zoned yet so not much more known than previous discussions. Council's timing for development at odds with MoE's aspiration as North Local package not a high priority in relation to other parts of the programme.
- Check IBC for network modelling, this should be available Mid-July. Arterial width (Upper Orewa) slated as 32m standard, but SGA intends to challenge to reduce this as not necessary for the likely volumes of the road.
- Kowhai – key walking and cycling link which may extend Wainui catchment to the east of SH1.
- Wainui old bridge – potential walking/cycling link to separate from road??
- Safe to assume new links (eg to Grand Drive) and upgrades will not be done by the time MoE intends to open Wainui school.
- Pick-up and drop-off would need to be on-site (Samantha), not on-street. Other forms of transport should be provided for and encouraged. Abley agrees.
- For Milldale it was suggested that the stream-side road could be a suitable road for access (with which we agree) and that it could even potentially be a private road (we don't think this is necessary and may have unintended challenges).
- Graham advised there are no specific working roading cross-sections for Wainui.
- It was confirmed that Upper Orewa Road was to be converted to arterial primarily due to requirements for public transport, rather than any expectation that it would be a high volume road. Therefore, there was agreement that the arterial nature of the road does not preclude access to a school.
- Alistair stated there is an opportunity for MoE and SGA to work together to shape the road design at Wainui.
- Internal bus bays are worth considering (Samantha); Abley confirmed these would be considered at resource consent stage.
- Further interventions to encourage good drop-off behaviour and keep stress levels low could include staggered start times (eg secondary/primary start at different times) for Wainui given it will likely be more reliant on vehicle PUDO than Milldale.
- Road and intersection design, though not yet determined, would need to address safety concerns regarding sightlines and speeds at the Wainui / Upper Orewa intersection, particularly if a school will be nearby.
- Steve advised all bus services (Milldale and Wainui) are conceptual at this stage and dependent upon funding, which is challenging. Both sites likely to need school buses at first.

Actions

- Discuss Highgate Bridge with Stantec/FH, start with Trevor Lee-Joe
- Contact NZTA mike.wood@nzta.govt.nz
- Mitra Prasad to provide bus route plans – follow up as needed.

Other notes/post-meeting discussions

- Leave 'intersection design' (access design) aspect of scope for the end as we are considering whether or not this can be pushed back to the Resource Consent stage.
- We can progress Milldale NoR ITA almost to completion with the information we have; Wainui we may suggest to MoE to slow down if need be.
- Ensure it is noted in Wainui report that a minimum 10-12m strip of land should be protected in anticipation of road widening on Upper Orewa Road. At this stage the working assumption is for a 32m arterial.

Meeting Agenda and Minutes – 12 December 2019

Milldale and Wainui North Schools

1:30pm, AT Offices

Attendees

- Martien Van Aken (MVA) – Ministry of Education
- Jo Draper (JD) – Abley
- Shane Ingley (SI) – Abley
- Ruby Kim (RK) – Abley
- Kelly Seekup (KS) – Auckland Transport
- Mitra Prasad (MP) – Auckland Transport
- Nicola Broadbent (NB) – Auckland Transport
- Ashrita Lilori (AL) – Auckland Transport
- Lorraine Stone (LS) – Supporting Growth Alliance

Actions

Who	Action	Due date
Milldale School		
MVA	Arrange meeting with Fulton Hogan and Abley <ul style="list-style-type: none"> - Confirm intentions for intersection of Road 11 / Argent lane - Confirm footpath widening around the school border (except Argent Lane which already has separated cycle facility) 	16 Dec 2019
SI / JD	Revise and Review ITA once intersection understood.	19 Dec 2019 (Pending sufficient information from FH in time; else to be issued early January)
SI	Provide advice to Fulton Hogan regarding likely best pedestrian crossing locations (NB: This is separate from the NoR process and just happens to be occurring in parallel).	19 Dec 2019
KS	To provide advice on desired mode share for schools to Abley.	16 Dec 2019
Wainui North School		
LS	To confirm the proposed alignment of Upper Orewa Road and advise Abley.	18 Dec 2019
LS	Confirm what is proposed on Wainui Road in terms of walking and cycling facilities and advise Abley.	18 Dec 2019
General		
KS	Obtain, collate, filter and share feedback from AT technical teams.	As needed

Wainui North School

Abley outlined the catchment and staging of planning:

- The site of interest is located within the Wainui North Future Urban Zone area found 30km north of Auckland, directly north of the planned Milldale development. The Milldale development is currently under construction and is expected to establish 4,500 dwellings upon completion. It is expected that the majority of the secondary students for the Wainui North School will be fed from the Milldale area in the short term.
- The Wainui North School will have a masterplan roll of 2,850 pupils, which will be staged with the first stage maximising the school roll to 750 pupils and 50 staff with the proposed opening date of 2025 (subject to area growth). Staging is proposed due to the school opening before the development of the Wainui North area and hence the assessment for the second stage for the full roll will be completed in a future ITA.
- Stage 1 is a pre-development stage and involves a maximum of 750 students and 50 staff which can be accommodated within the existing transport network with the school operating as a rural school. Stage 2 is a post-development stage in which the proposal is to accommodate a full roll of 2,850 students once the infrastructure upgrades have been completed within the Wainui North area. Stage 1 can be accommodated by the nearby intersection (Upper Orewa Road / Wainui Road).

Points from discussion:

- LS – Should modelling be completed to future proof the roll of 800 for after 2025?
- What are the walking and cycling provisions on Wainui? SGA to check what has been proposed on Wainui Road.
- **Action** – LS to check what has been proposed on Wainui Road and get back to us.
- If there are walking and cycling facilities proposed for Wainui Road, thought should be given to provide a walking and cycling connection to connect between Milldale Precinct and Wainui North School, especially when it is assumed that the Wainui North school will be fed by the Milldale area in the short term.
- It was discussed whether mitigation was required if the school is planned ahead of facilities being developed on surrounding roads.
- LS – is the location of the Wainui school the best location for the Secondary school? MED – Location represents area of growth and the expected demand.
- AT – Thoughts should be provided around the adequate speed limits around the school. To be thought about in the next stage.
- Abley – Confirmed PUDO and school buses will be accommodated on site.
- LS – the IBC is current, and the DBC is around 2 years away (end of 2021). So until that is supplied, it is difficult to be clear about alignment of roads.
- What is the proposed alignment of Upper Orewa Road. **Action** – LS to check the alignment and get back to us.
- LS – North of Wainui, the low-density Hall Farm development is consented.
- MVA noted that this school does not preclude the development of other secondary schools in the surrounding areas should demand arise.
- AL – interested in speed limits, intersection design and PUDO. RK confirmed this is included in the ITA report, at least as far as NoR considerations go.

Milldale School

MVA confirmed what the Northern Health School is and that it would be a small number of students (secondary school age) and would have separate parking/access. The intention is for this school is for the NoR to be non-notified as it sits within agreed plans with Fulton Hogan.

The key discussion for Milldale was the intersection form at Road 11 / Argent lane.

- MP advised that the interim plan (with Argent Lane as a 2-lane arterial) is for a roundabout as discussed with Fulton Hogan. The design must not preclude future signalisation.

-
- MP advised that the intersection would be signalised when Argent Lane is 4-laned.
 - JD and SI agreed that these intentions should be fine for the purposes of designating MoE's site for education purposes and for the provision of suitable crossing points.
 - MVA advised a meeting is required with Fulton Hogan to discuss this as not clear if Fulton Hogan have taken on AT's advice.
 - AL advised that AT would act in the capacity of reviewers of any designs presented by Fulton Hogan.

Access and pedestrian crossing locations were discussed:

- Primary vehicle access (PUDO) would likely be on Road 11.
- Though not required for an NoR, it would be helpful to show that pedestrian crossing locations have had some thought applied.
- AL advised that consideration of where people would be walking from would be needed, and indicated the north and east as strong walking catchments.
- Kea crossings were also discussed; Abley stated these do not need to be designed at NoR stage but agreed that at least one kea crossing would be of benefit.
- Consider locations of raingardens etc when providing advice on pedestrian crossings and access location.
- For raised crossings, Swedish Crossings were the preferred design.

Mode share was discussed:

- Abley are currently using a 55% mode share as a conservative modelling assumption, and would like to know if AT have any agreed mode share usage or aspirations.
- Travel planning will assist in achieving mode share aspirations as the school grows, so it is likely that the conservative vehicle movement rates will never be reached.

Footpath widths were discussed with Abley to confirm that Fulton Hogan are acting on AT's earlier advice. Current understanding is that they have proposed to widen the footpaths around the school but the exact extent and coverage of this widening is not yet known.

General points

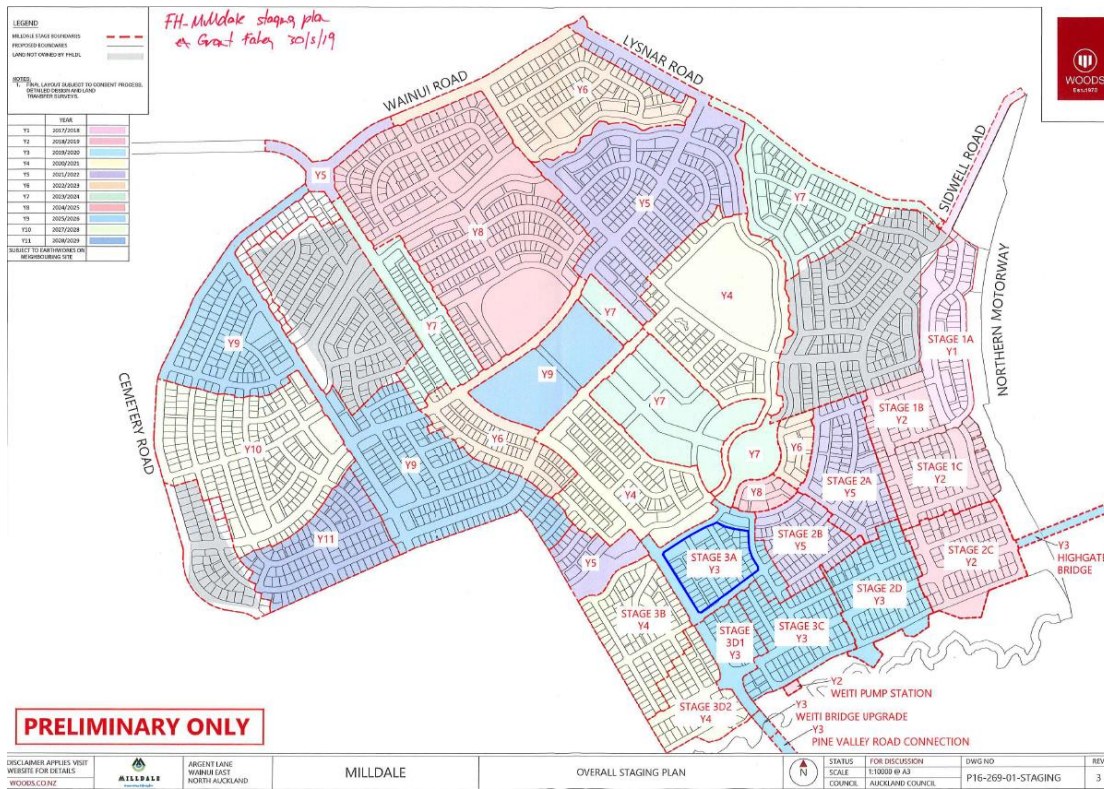
As a general point, KS advised that she would relay any feedback from technical experts at AT to Abley/MoE and would filter this feedback to specify what points should be addressed at NoR stage and what points should be addressed at masterplanning/OPW stages.

Appendix E
Proposed Milldale School Catchment



Preliminary Catchment Area for proposed Milldale Primary School

The area SE&S Network anticipates students who will attend the proposed Milldale Primary School will come from within the Fulton Hogan Development; see map below:



The Fulton Hogan development is currently staged to be delivered out to 2029, with the proposed Milldale school initially being the only school within the development area. The existing Wainui School is about 6.5 km away.

Future planned capacity will be added to the network of schools at a later stage north of Wainui Road. The northern part of the Fulton Hogan development will be included as part of the catchment of the future school.

Appendix F
Stantec Traffic Memo



Stantec Memo

To: Grant Fahey
Fulton Hogan Land Development Ltd

From: Trevor Lee-Joe
Stantec - Auckland

File: 310200126 – Memo (Milldale School) Date: November 28, 2019

BACKGROUND

Milldale is a new suburb to the north of Auckland, adjacent to Silverdale. Fulton Hogan Land Development Ltd (FHLDL) has already obtained approval from Auckland Council for 2,800 dwellings and 40,000sqm of commercial area to be established within the suburb. Recently an Integrated Transportation Assessment (ITA) was submitted to Auckland Council (AC), Auckland Transport (AT) and the New Zealand Transport Agency (NZTA) for approval of an increased yield to 4,500 dwellings and 40,000sqm of commercial area within the suburb and it is understood that the ITA is currently on the verge of being approved.

The modelling which informed the ITA was subject to peer review by representatives of AC, AT and NZTA and this modelling has been used to assist with the assessment for this particular project which is the subject of this memorandum.

INTRODUCTION

This memorandum summarises the results of an assessment for a proposed primary school to be established in Milldale. The entire suburb is being developed in stages with construction within some of the earlier stages already complete. The first residents moved in at the beginning of November 2019. The primary school has been given the green light by the Ministry of Education. It is understood that initially the school will cater for up to 370 students but will have capacity to increase to around 800 students as residential demand increases through the suburb.

SITE LOCATION

The site location, within the context of the overall Milldale development, is highlighted below in yellow within Figure 1.



Figure 1: Site Location

MODELLING

As noted earlier, the model which was developed for the ITA was used to assist with the assessment for the school project. The ITA model was a wider area regional model extending from Albany through to Orewa and the zone structure was relatively coarse. Whilst this scale of model was appropriate for assessing the wider area effects of the Milldale development, its ability to assess the internal roading structure was limited. As a consequence, a cordon around Milldale was created within the ITA model and traversals extracted to obtain the demand matrices. In addition, a more refined network structure for the internal area was developed, which increased the number of roading links and internal zones such that the effects at individual intersections could be more accurately assessed. This methodology was considered appropriate to assess the internal effects of the proposed school. The revised model extent is shown in Figure 2.

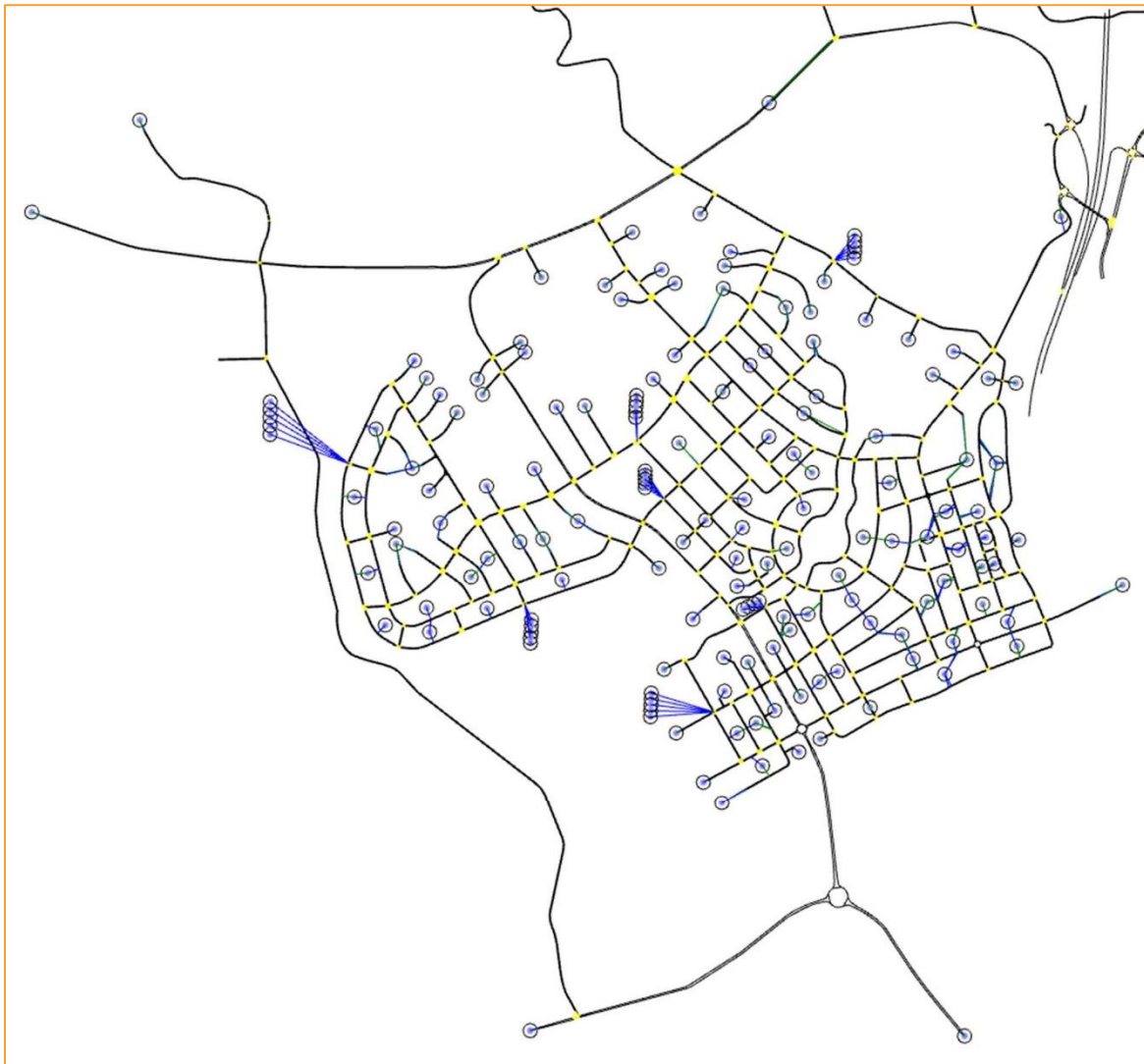


Figure 2: Model Extent

The model scenarios included (for the morning and evening peak periods):

- Milldale 2,800 dwellings, school 370 students
- Milldale 4,500 dwellings, school 800 students, ECE 50 students

The assumed trip generations for the scenarios relied on the Household Travel Survey data which assumed a mode share (private vehicles) of around 55%. This results in a peak hour trip generation of around 424 trips/hour and 358 trips/hour in the morning and afternoon peak hours respectively.

The key intersection in the vicinity of the site is the Argent Lane / Road 11 intersection. Due to the proximity of the school and Road 11 being a suburban street which provides some through-function, it was considered that the intersection would be best formed as a signalised intersection so that pedestrian and cyclist facilities can be incorporated into the design. The Stream Edge/Argent Lane intersection could be a Left-In, Left-Out intersection. All other intersections along Road 11 could be priority intersections, with priority for traffic travelling on Road 11.

MODELLING RESULTS

The performance of the Argent Lane / Road 11 intersection has been extracted from the model for the morning and afternoon peak hours. The peak hours for the school are 8am to 9am and 3pm to 4pm, coinciding with the drop-off and pick-up of students.

The performance of the intersection is summarised in terms of the average delay in seconds for each movement and the Level of Service (LOS) which is defined as an incremental scale using the letters A through F, with A indicating the best LOS and F indicating the worst.

Table 1 describes traffic flow operation for each of the LOS scales at a basic level. In general, an average LOS D or better for an intersection during the peak hours is considered appropriate for an urbanised area.

LOS	Description of operation
A	Free flow conditions; little interaction between vehicles
B	Reasonably free flow condition; speeds similar to LOS A but some movement is restricted due to interaction between vehicles within traffic streams
C	Stable flow conditions; ability to manoeuvre within traffic streams is notably restricted but roads remain below capacity
D	Approaching unstable flow; freedom to manoeuvre is much more limited and driver comfort levels decrease. This is the common level for urban streets during peak hours of travel
E	Unstable flow; operating at capacity; drivers comfort level becoming poor. This would be a more common standard in larger urban areas where some congestion is inevitable during peak hours
F	Forced or breakdown flow; vehicle movement very constrained; traffic demand generally higher than capacity

Table 1: LOS description

The results for the morning peak hour for both model scenarios are summarised in Table 2.

Approach	Movement	School Morning Peak Hour							
		2800HH, 370 Students				4500HH, 800 students, 50 ECE			
		Flow (vph)	Delay (s)	LOS	Approach LOS	Flow (vph)	Delay (s)	LOS	Approach LOS
Road 11 (East)	Left	5	18	B	B	27	31	C	C
	Through	22	20	B		22	27	C	
	Right	15	18	B		122	27	C	
Argent Lane (North)	Left	33	19	A	A	160	19	B	B
	Through	489	18	A		645	18	B	
	Right	5	48	C		15	48	D	
Road 11 (West)	Left	2	6	B	B	6	33	C	B
	Through	37	27	B		27	32	C	
	Right	22	15	B		15	32	C	
Argent Lane (South)	Left	7	13	B	B	11	13	B	C
	Through	111	13	A		220	13	B	
	Right	15	42	C		22	42	D	
Intersection	All	763	20	B		1,292	20	B	

Table 2: Argent Lane / Road 11 Modelling Results (School Morning Peak Hour)

As can be seen, the overall intersection performs well, with an average delay of around 20 seconds/vehicle for both scenarios corresponding to a LOS of B.

No other issues through the internal road network were identified through the modelling.

The results for the afternoon peak hour for both model scenarios are summarised in Table 3.

Approach	Movement	School Afternoon Peak Hour							
		2800HH, 370 Students				4500HH, 800 students, 50 ECE			
		Flow (vph)	Delay (s)	LOS	Approach LOS	Flow (vph)	Delay (s)	LOS	Approach LOS
Road 11 (East)	Left	2	17	B	B	2	30	C	C
	Through	25	17	B		20	26	C	
	Right	15	18	B		107	25	C	
Argent Lane (North)	Left	21	8	A	A	118	16	B	B
	Through	174	7	A		300	14	B	
	Right	8	24	C		22	36	D	
Road 11 (West)	Left	3	9	A	B	8	33	C	C
	Through	27	7	A		22	33	C	
	Right	12	20	C		18	30	C	
Argent Lane (South)	Left	26	18	B	A	30	17	B	B
	Through	451	18	B		640	14	B	
	Right	21	19	B		47	38	D	
Intersection	All	785	9	A		1,334	17	B	

Table 3: Argent Lane / Road 11 Modelling Results (School Afternoon Peak Hour)

As can be seen, the overall intersection performs well during the afternoon peak hour, with an average delay of around 20 seconds/vehicle for both scenarios corresponding to a LOS of B.

CONCLUSIONS AND RECOMMENDATIONS

It is recommended that:

- The Argent Lane / Road 11 intersection be signalised;
- Movements at the Argent Lane / Stream Edge Road be restricted to left-in and left-out only; and Other intersections along Road 11 can be priority intersections.

In terms of overall effect, the modelling confirms that the signalised intersection is able to accommodate the anticipated traffic volumes through to a full buildout of Milldale to 4,500 dwellings and a school roll of 800 students plus 50 additional ECE students.

Stantec

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