flow
TRANSPORTATION SPECIALISTS

23 December 2025

Daniel Nakhle
Knight Investments Limited
420 Airfield Road
Papakura
AUCKLAND 2582

Dear Daniel,

ARDMORE BUSINESS PARK – FAST TRACK REFERRAL – TRANSPORT OVERVIEW

This report has been prepared for Knight Investments Limited ("the Applicant") to assess transport matters relating to a proposed light industrial development in Ardmore, referred to as The Ardmore Business Park (or "the Project"). It has been prepared to support a Referral Application under the Fast Track Approval Act 2024 ("FTAA").

The purpose of this Project is to deliver a regionally significant industrial and employment hub which capitalises on its location surrounding (and including) the Ardmore Airport and its accessibility to major transport networks (particularly the planned Mill Road corridor) and the growing residential areas of Takaanini, Manurewa, Papakura and Drury.

The Project Area is approximately 511 hectares (gross and inclusive of the total land area associated with the Ardmore Airport).

Of this total it is anticipated that

(a) The net developable area will be between 193-276 hectares, which excludes significant ecological areas ("SEA"), streams, stormwater management areas and that part of the Airport used for existing operations/runways and activities that are already under construction

(b) The likely gross floor area for future activities/buildings would be between 67 hectares and 136 hectares, with additional land also for yards, individual site landscaping and car parking etc.

The Project at a broad level includes

(a) The construction and development of a business park for light industry/service type activities

(b) A green/blue network providing riparian planting, stormwater management and wastewater disposal and protection of existing SEAs

(c) Upgrades to existing roads and intersections

(d) New roading connections to the Airport and the wider site

(e) Land modification works and infrastructure.

The attached plan identifies the intersections and roads which infrastructure and/or upgrade works are required.

In addition to the above, the Project also seeks to establish the following (which are relevant from a transportation perspective):

- New roading connections including the potential for a more direct and safe access to Ardmore Airport and the wider Project Area.
- Active mode connections that enable the safe movement of pedestrians and cyclists between the Project site and residential catchment located to the west.

This overview has been provided to assist with the Referral Application and includes:

- A brief outline of the Project Area location.
- A summary of the wider transport projects occurring in the area.
- An outline of the projected land use activities of the Project, including an overview of what the development is expected to generate in terms of vehicle trips and mode requirements.
- The transport mitigation likely to be needed to support the Project.

A robust and detailed Integrated Transport Assessment will be completed to support a Substantive Application, if referred to the fast-track approvals process.

Our qualifications and experience are attached to this letter.

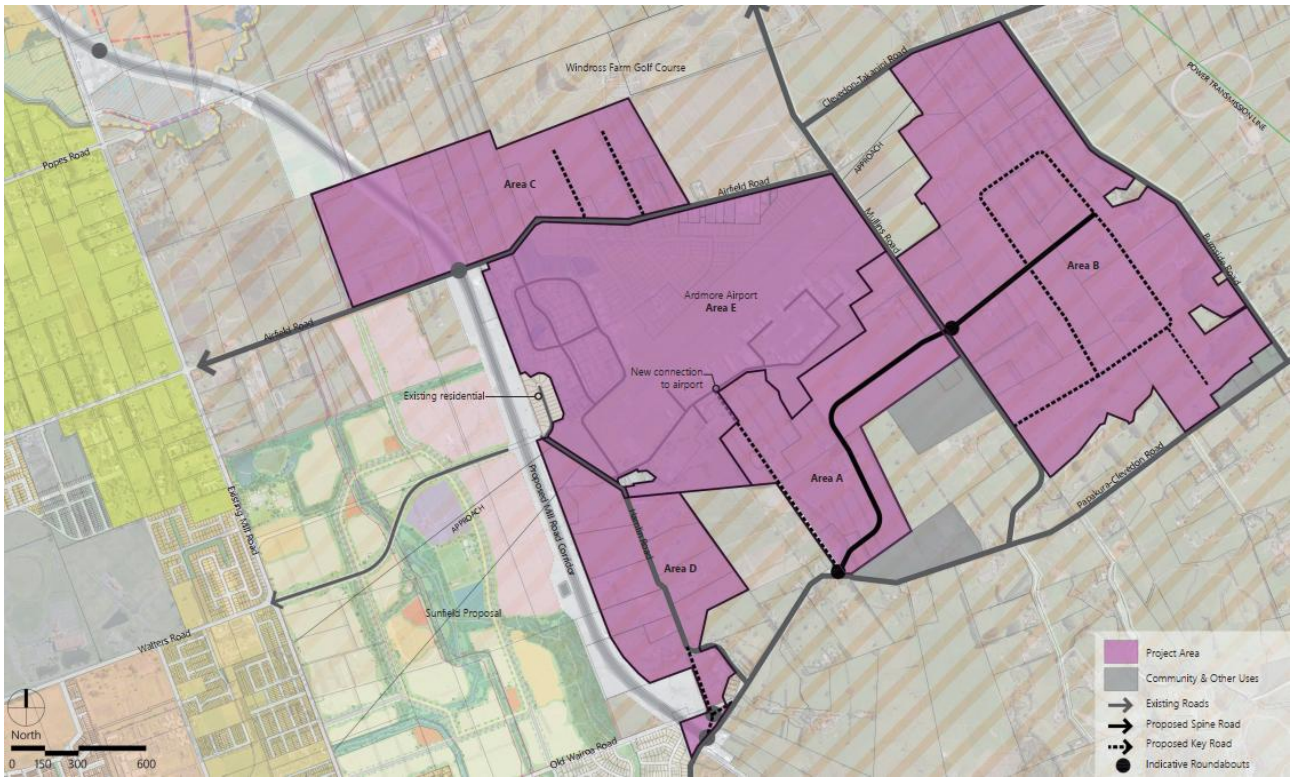
1 PROJECT AREA LOCATION

The Project Area includes properties located in and around the Ardmore Airport.

The area around the Ardmore Airport is currently utilised for a mix of rural, rural lifestyle activities.

The subject land is broadly shown in Figure 1, outlining the areas that make up the Project, marked A, B, C, D and the Ardmore Airport blocks marked AA (current operations), AA-1, AA-2, AA-3 and AA-4.

Figure 1 – The Ardmore Business Park



2 TRANSPORT CONTEXT

2.1 Connectivity for vehicles

The Project Area is well-connected to the arterial and freight roading networks. The key roads include:

- Airfield Road and Papakura-Clevedon Road (arterial roads) which provide east-west connections towards the SH1 interchange at Takanini and Papakura. Papakura-Clevedon Road is also a designated over-dimension route.
- Great South Road, Cosgrave Road and Mill Road (also arterial roads) providing north-south connections. Mill Road is also a designated over-dimension route.
- Mullins Road, Clevedon-Takanini Road, Alfriston-Ardmore Road, Bullens Road and Hamlin Road, are not arterial roads.

2.2 Traffic volumes

Traffic volumes of the arterial road network, based on Auckland Transport traffic data, are set out below. We note that the heavy vehicle percentage of these routes is reasonably high, reflective of the quarry activities, clean-fill and industrial activities that occur in the wider area.

- Airfield Road currently carries approximately 8,225 vehicles per day (weekday average), with peak hour flows of 775 vehicles per hour (two-way). A heavy vehicle percentage of 9.1% is recorded.

- Papakura-Clevedon Road currently carries approximately 6,900 vehicles per day (weekday average), with peak hour flows of 800 vehicles per hour (two-way). A heavy vehicle percentage of 16% is recorded.
- Clevedon-Takanini Road currently carries 4,300 vehicles per day (weekday average), with peak hour flows of some 400 vehicles per hour (two way). A heavy vehicle percentage of 7.0% is recorded.
- Alfirston-Ardmore Road carries some 4,000 vehicles per day (weekday average), with peak hour flows of some 450 vehicles per hour (two way). A heavy vehicle percentage of 14.0% is recorded.

3 FUTURE TRANSPORT INITIATIVES

3.1 Notices of Requirement and Designations

Relevant to the Project Area, there is 1 Notice of Requirement (NoR) and 1 Designation, namely:

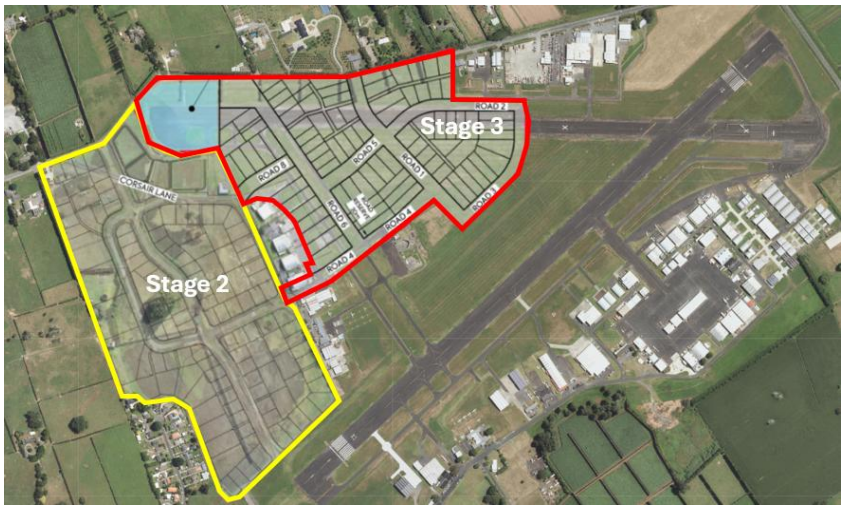
- Mill Road Stage 1 (Designation 6786) for the construction, operation and maintenance of an arterial transport corridor, (Mill Road – between the Redoubt Road interchange on SH1 in Manukau to the Phillip Road intersection with Mill Road in Takanini).
- Mill Road Stage 2 – Takaanini Section (NoR), for a designation to realign Mill Road which connects to Mill Road Stage 1 (north of the Project Area) with roundabouts at the intersections with Airfield Road and Papakura–Clevedon Road (south of the Project Area).

Our assessment has considered the existing environment at this time, noting that the Mill Road project as a whole will provide improved connectivity and distribution of traffic when constructed. The Mill Road project is a Road of National Significance (RoNS). Consistent with the approach taken to the Sunfield substantive application, the proposal seeks to integrate the relevant part of the Mill Road NOR into the design.

3.2 Ardmore Airport redevelopment

The Ardmore Airport redevelopment seeks to establish an industrial and commercial development alongside Airfield Road. Stage 2 has been granted resource consent and is under construction, with a resource consent application in progress for Stage 3. The Stage 3 area is excluded from this Project. Ardmore Airport Stage 2 and Stage 3 development areas are shown below.

Figure 2 – Ardmore Airport Stage 2 (Consented) and Stage 3 (Lodged) development areas



The Stage 3 resource consent includes intersection upgrades to the immediate network which have been reflected in this overview, and would either form the baseline (if initiated earlier as part of Ardmore Airport development) or be future upgrades to support the Project Area (if required to mitigate effects associated with the Project).

Accordingly, our transport assessment has included traffic volumes from the planned Stage 2 and Stage 3 developments within our transport analysis of the Project.

3.3 Takanini Level Crossings project

This Project proposes to close the existing level road crossings at Spartan Road and Manuroa Road and introduce new vehicle bridges at Taka Street, Walters Road, and Manuia Road. This is a designated and funded project, with the works expected to be completed before development associated with this Project commences. The locations of these upgrades, relevant to the Project Area, are reflected in Figure 3 below.

Figure 3 – Takanini Level Crossings project relevant to the Project Area

The new vehicle bridges will provide routes for industrial traffic from the Project Area to the Takanini SH1 interchange, improving safe access to the state highway network.

3.4 Winton Sunfield development

On the western border of the Project Area, separated by Hamlin Road, and the Mill Road Stage 2 NoR is the proposed Winton Sunfield Development Fast Track project,[1] which is anticipated to provide some 5,000 dwellings and some 11,000 jobs. This is being processed under the FTAA as a Substantive Application with hearings held on 10 and 17 December 2025.

As with Mill Road Stage 2, our preliminary assessment of the surrounding transport network has excluded traffic volumes associated with this development at this time, as it does not form part of the existing or future environment against which this proposal must be assessed. The Substantive Application will consider how this development is accounted for, in the event that resource consents are confirmed by the Expert Panel appointed to consider the substantive application.

[1] https://www.fasttrack.govt.nz/projects/sunfield

4 FAST TRACK REFERRAL PROPOSAL

4.1 Overview

A map of the Project and the areas is shown in Figure 1. The Project includes:

- A net developable area between 193-276 hectares, which excludes significant ecological areas ("SEA"), streams, stormwater management areas and that part of the Airport used for existing operations/runways and activities that are already under construction.
- A likely gross floor area for future activities / buildings would be between 67 hectares and 130 hectares, with additional land also for yards, individual site landscaping and car parking etc.
- Upgrades to existing roads and intersections.
- New roading connections including the potential for a more direct and safe access to Ardmore Airport and the wider Project Area.
- Active mode connections that enable the safe movement of pedestrians and cyclists between the Project site and residential catchment located to the west.

4.2 Concept Plan and indicative build-out timing

The Project Concept Plans show a potential development layout, incorporating access, yards, built form, parking, stormwater, landscaping and roads.

Key highlights from the Concept Plan that are relevant to transport include:

- Gross Area of 511 hectares.
- Gross Development Area – circa 394 hectares (excluding that part of the Ardmore Airport used for existing operations, runways and development that is already under construction).
- A likely Net Development Area (allowing for roads, stormwater, landscaping etc) – of between 193-276 hectares.
- GFA of approximately 136 hectares – utilising the higher end of the estimated GFA for the purpose of determining transportation effects and mitigation.
- Predominantly warehouse/industrial GFA with small supporting ancillary office and convenience retail component.

In terms of delivery and considering the time it takes to construct and build-out a large industrial estate, we have considered how long areas such as Highbrook (circa 2006) and The Landing (circa 2005 south of Montgomerie Road at the Auckland International Airport) have taken to develop. Noting that blocks still remain vacant in these areas (around 20 years later), it may take 15 to 20 years+ to build out the full Project Area, ie 2040-2045. This equates to approximately 60,000m^2 to 80,000m^2 operational GFA per year.

In considering the above, the extent of development and therefore total traffic generated by the full development may not come to fruition until around 2040-2045. From a transport perspective, the

performance of the surrounding road network, transport options available and travel behaviour may be very different to that experienced today. However, the assessment below is based on the best available information at this current time.

4.3 Trip Generation

To understand the known and anticipated effects of the Project, we have outlined the predicted traffic that will be generated based on the higher gross floor area estimate. We note that a full assessment will be set out in a comprehensive Integrated Transport Assessment that supports the Substantive Application.

An overall trip rate of 0.26 trips per 100 m^2 GFA has been used. We note that the latest industry guidance coming out of Australia has trip rates for large warehousing/industrial estates as low as 0.17 trips per 100 m^2 GFA. Using the higher trip generation value of 0.26, some 3,555 vehicle trips per hour are predicted. Using the lower trip generation value of 0.17, some 2,325 vehicle trips per hour are predicted. We have used the higher trip rate (0.26) to inform our high-level assessment of the transport network on a conservative basis.

We note that the Project Area is a significant area of land, and as a result consider this trip rate to sit towards the higher end of an overall average trip rate for what is approximately 136 hectares of GFA of a total net developable area of 276 hectares.

Additionally, while the introduction of employment opportunities will generate traffic, the traffic generated will predominantly be in the counter-peak direction. That is, rather than adding high traffic volumes to the current northbound peak commuter flow, traffic generated by the development will predominantly occur in the opposite direction across both morning and evening commuter periods. While existing and forecast traffic volumes will coincide at key intersections, this has been assessed, with mitigation proposed.

The anticipated trip generation per block of the Project area is summarised in Table 1. The GFA is estimated to be some 1.36 million m^2 (or 136 hectares).

Table 1: Weekday peak hour trip generation of the Ardmore Business Park Project area

Area #	Gross Land Area per Area (ha)	Gross Land Area per area (m^2)	Net Land Area (m^2) (70% of gross land area)	Likely GFA (m^2) (49.5% of net land area)	Commonly used warehousing trip rate per 100sqm GFA	
					0.17	0.26
A	63	626,245	438,370	216,995	370	565
B	175	1,746,580	1,222,605	605,190	1,030	1,575
C	75	747,815	523,470	259,115	440	675
D	53	532,925	373,050	184,660	315	480
E	29[2]	288,080	201,655	99,820	170	260
TOTAL	**394**	**3,941,645**	**2,759,150**	**1,365,780**	**2,325**	**3,555**

5 PROPOSED UPGRADES TO SUPPORT THE DEVELOPMENT

5.1 Roading Upgrades

Opportunities exist that will help manage traffic demand and the effects of development on the immediate and wider transport network. Acknowledging that there are transport projects that will inevitably improve connectivity and provide additional routes and capacity to and from the area, our assessment has assumed the existing transport network and connections. This could therefore be considered a "worst case scenario", as we expect the network to improve by the time final build out occurs, as it is highly likely to include projects such as the Takaanini Level Crossings and Mill Road Stage 1 projects as a minimum, with sections of Mill Road Stage 2 also possible.

Taking into account the existing traffic flows reported about the immediate network, the projected increases from the Ardmore Airport (Stage 2 and Stage 3) and our predicted trip generation of the proposal, a range of upgrades are required to the existing network. The detail of these upgrades will be developed as part of the Integrated Transport Assessment to be provided as part of the Substantive Application.

Upgrades associated with the Ardmore Airport Stage 3 development are outlined below (noting that if these are not in place before the Project commences then these may need to be undertaken by the Applicant)

- Right turn bay at the Mullins Road/Airfield Road stop-controlled intersection.

[2] Excludes that part of Ardmore Airport used for existing operations, runways and development that is already underway

- Roundabout at the Cosgrave Road/Hamlin Road intersection.
- Roundabout at the Ardmore entrance on Hamlin Road.
- Right turn priority-controlled intersection at the Ardmore Stage 1 access on Airfield Road.
- Right turn priority-controlled intersection at the Ardmore Stage 2 access on Airfield Road.

In addition to the above, further upgrades to the surrounding road network are likely to include:

- Traffic signals at the Mill Road/Airfield Road intersection, with additional traffic lanes.
- Safety improvements at the Mullins Road/Clevedon-Takanini Road intersection.
- Roundabout at the Papakura-Clevedon Road/Bullens Road intersection.
- Two options have been assessed for the Hamlin Road connection to Papakura-Clevedon Road, being either
    - Upgrade of the existing Hamlin Road intersection, with improved safety for right turn movements, or
    - A new extension of Hamlin Road and new roundabout at Papakura-Clevedon Road if land at 881 Papakura-Clevedon Road is available.
- New roundabout on Mullins Road and a new east-west spine road.
- Extension of Bullens Road to connect to Harvard Lane.
- Corridor upgrades fronting the development on Airfield Road and Mullins Road, allowing for a flush median and safe sight distance for new accesses.

All of the above upgrades can be accommodated within the existing road reserve and on land included in the Project area.

The Project will include a new spine road to provide a safe connection between Papakura–Clevedon Road and the Project area (Spine Road). The new spine road connection at the Papakura-Clevedon Road/Bullens Road intersection (roundabout) assists with removing pressure from the Papakura-Clevedon Road/Mullins Road intersection and provide a much safer access route for development traffic.

The Spine Road is likely to require early delivery alongside development of Areas A and B, which can be secured by appropriate conditions as part of any substantive application.

The upgrades to the surrounding road network are illustrated in the attached plan.

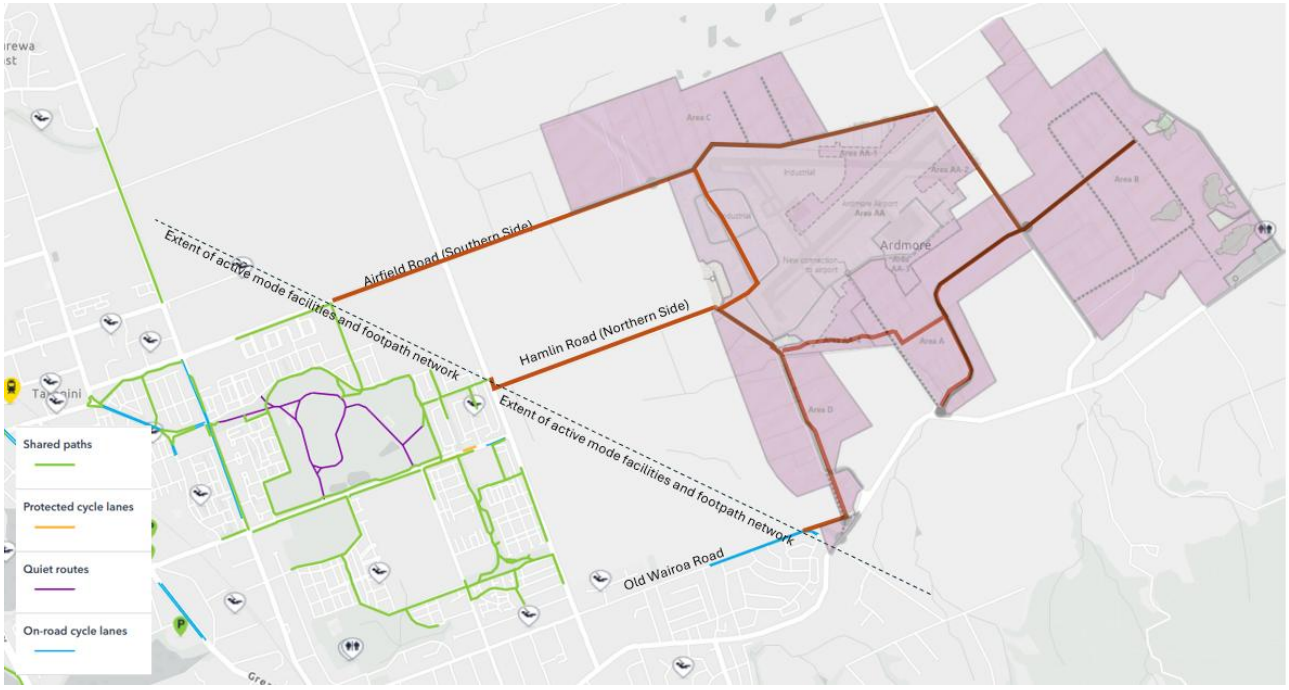
In relation to the Sunfield development and Mill Road Stage 2, future transport assessments as part of the substantive application process will consider the implication of these projects if and when they form part of the future environment against which the proposal is to be assessed.

5.2 Active mode connectivity

Indicative active mode connections, which may include boardwalks, footpaths or multi-modal paths will connect the Project area with the existing active mode network to the west of the Site.

The indicative primary path routes are shown in brown in Figure 4. Figure 4 excludes footpaths, which are present on all roads west of the dashed line.

Figure 4 – Indicative Primary Path Connections



We note that new roads and access connections that serve the development will provide safe pedestrian access which will be assessed as part of the Substantive Application.

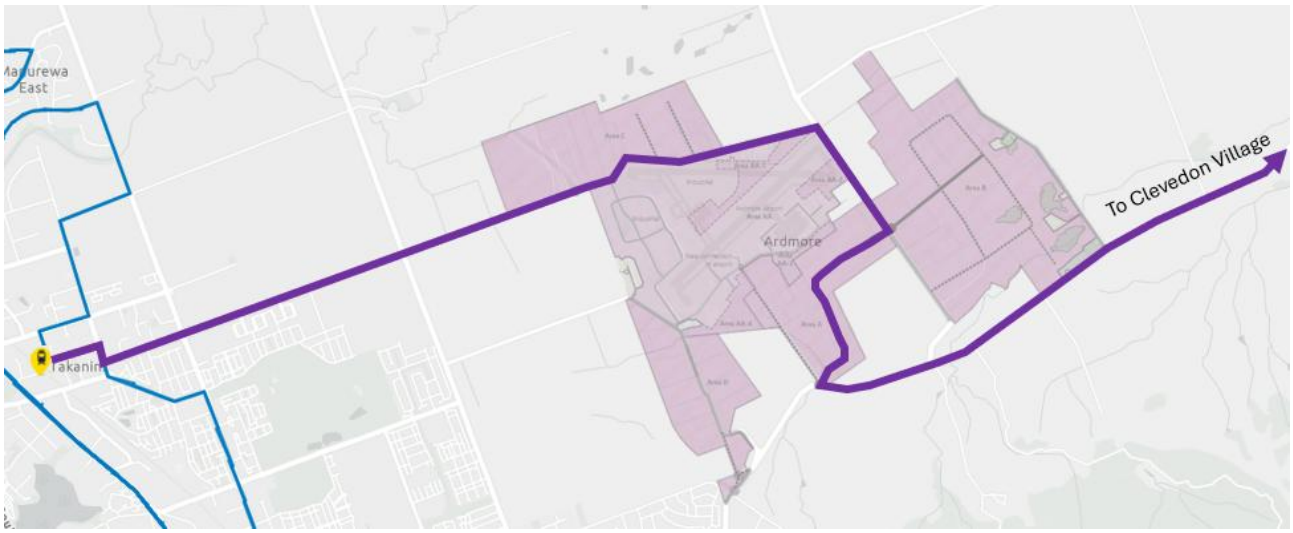
5.3 Bus service

Through engagement with Auckland Transport, it was noted by Auckland Transport that a public bus route will be required in the next 10 years to serve Clevedon Village in response to the increase in population. Auckland Council/Auckland Transport policy is to provide public transport services to settlements of over 2,000 people.

Conceptually, Auckland Transport envisages a future bus route to connect Clevedon Village via Ardmore to either Takaanini or Papakura Station.

An indicative bus route that responds to Auckland Transport's conceptual route has been considered, which would serve the Project area well. We note that the route does not rely on Hamlin Road as the Mill Road Stage 2 project proposes to pass through (at grade) and therefore close Hamlin Road. An indicative route is provided in Figure 5.

Figure 5 – Indicative bus service route



6 CONSTRUCTION TRAFFIC MANAGEMENT

Construction is expected to result in temporary traffic effects, which include the potential for delays along adjoining transport corridors, where those corridors are near the Project area.

Construction-related traffic effects will be temporary and can be managed through a Construction Traffic Management Plan (CTMP). A CTMP will detail key measures including the anticipated number of daily truck movements, designated truck routes, and other mitigation strategies to ensure traffic impacts are appropriately addressed. As highlighted earlier, the adjacent roading network includes both arterial road and heavy vehicle routes.

7 CONSULTATION

Consultation with Auckland Council, Auckland Transport and the NZ Transport Agency have taken place, with transport focussed meetings held on Friday 5 December 2025.

In response to this initial consultation, our assessment has considered

- how the Project area allows for a bus route that connects Takaanini Station to Clevedon Village
- how the project can integrate with the Mill Road Stage 2 project, and provide continued connectivity to the area given the proposed severance of Hamlin Road
- Acknowledged that the substantive application will need to consider the outcome of the Sunfield and Mill Road Stage 2 projects, noting that the Sunfield project is currently before an Expert Panel and hearing.

8 CONCLUSIONS

Based on the analysis described in this letter, we conclude that the Project enables activities that can operate safely and efficiently from a transportation perspective and that appropriate mitigation can be provided to manage any transportation effects. We conclude that the Project:

- seeks to establish 193-276 (net) hectares of light industry development to the Takanini/Ardmore area;
- will generate up to 3,555 vehicle trips per hour when fully developed;
- aligns well with relevant transport strategies, including the Takanini Level Crossings project and the Mill Road Stage 2 project which will, in time further improve connectivity of the site to the wider strategic network;
- includes improvements to the intersections and road corridors that provide access to the Project site. New or upgraded intersections provide safer intersections for all road users; and
- is able to include a connected development to the wider residential catchment, through future active mode and public transport connections.

Our review has identified a range of potential opportunities to manage the adverse traffic effects of the Project. The upgrades sit within the road corridor, land falling within the Project area and/or within land 881 Papakura-Clevedon Road (which has been included in the Project for infrastructure purposes). A comprehensive Integrated Transport Assessment will support the Substantive Application. It will outline the transport implications of development and any necessary mitigation to address the effects identified.

Yours sincerely

Terry Church
DIRECTOR

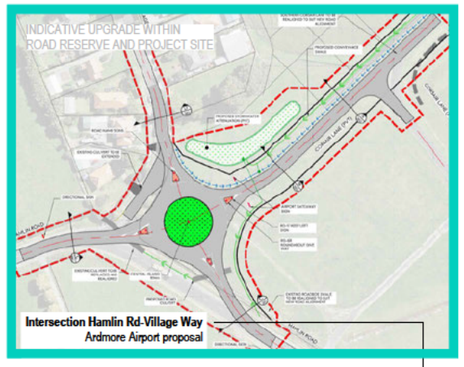
enc: Plan 1 – Anticipated roading connections and upgrades
Terry Church Qualifications and Environment Court Code of Conduct

Reference: P:\TNGX\034 Ardmore Transport Review\4.0 Reporting\L4G251218 The Ardmore Business Park - Transport.docx

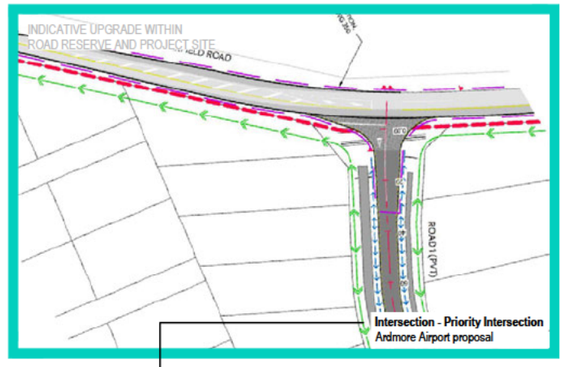
INTERSECTION UPGRADES TO SUPPORT THE PROJECT

INTERSECTION UPGRADES TO SUPPORT THE ARDMORE AIRPORT REDEVELOPMENT

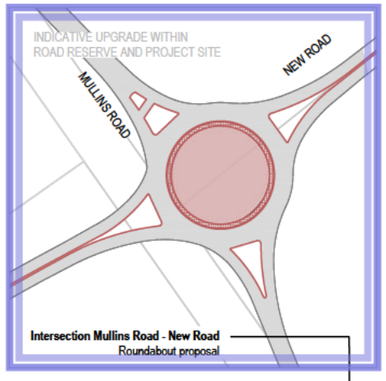
LODGED MILL ROAD DESIGNATION



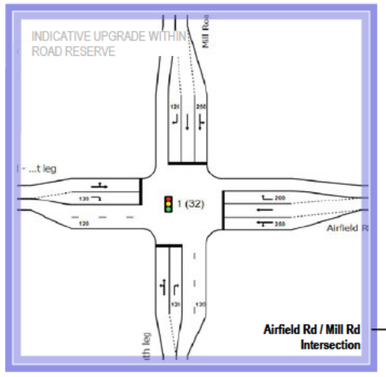
Intersection Hamlin Rd-Village Way
Ardmore Airport proposal



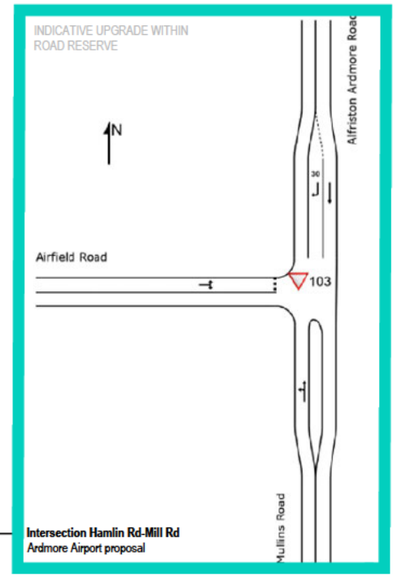
Intersection - Priority Intersection
Ardmore Airport proposal



Intersection Mullins Road - New Road
Roundabout proposal

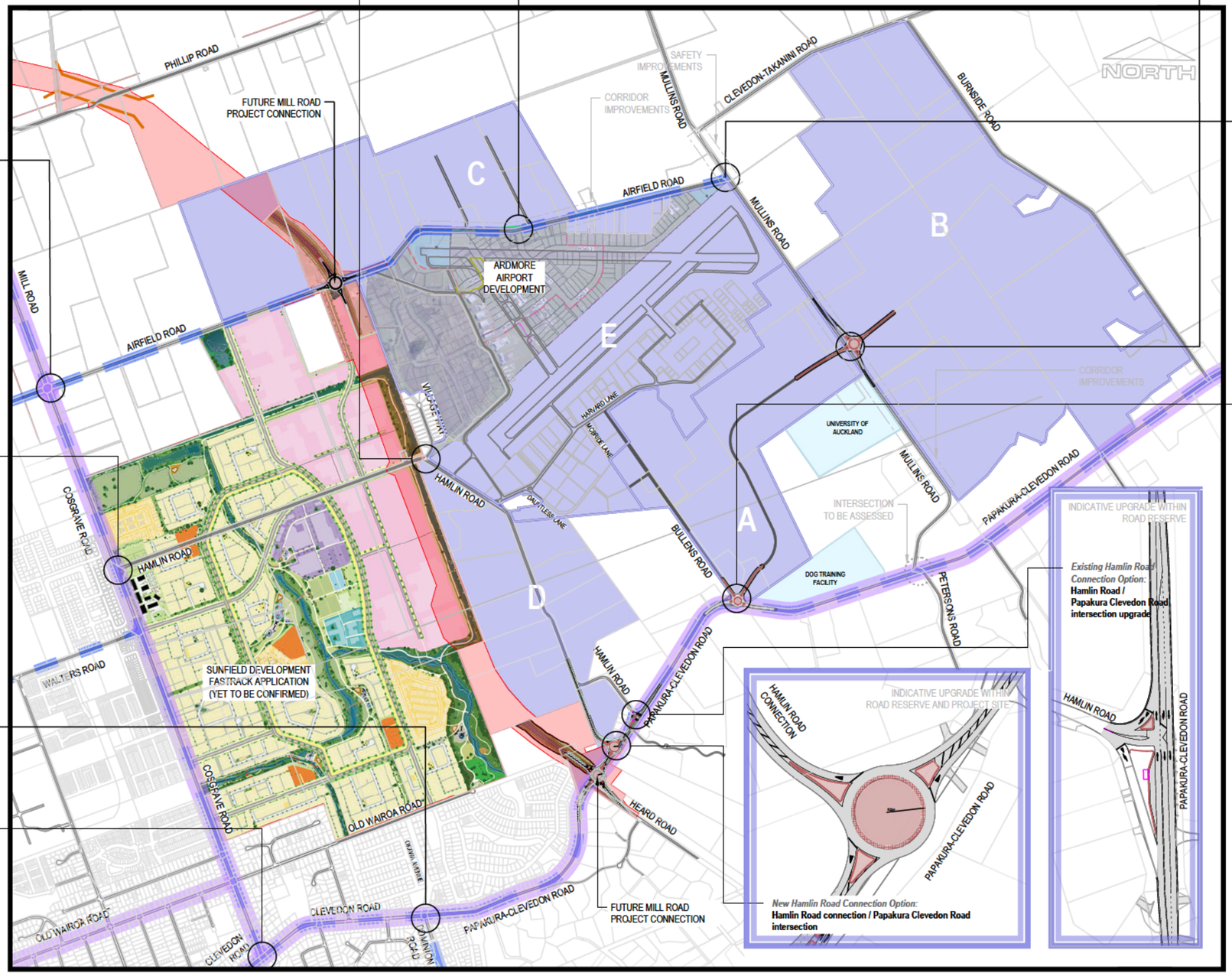


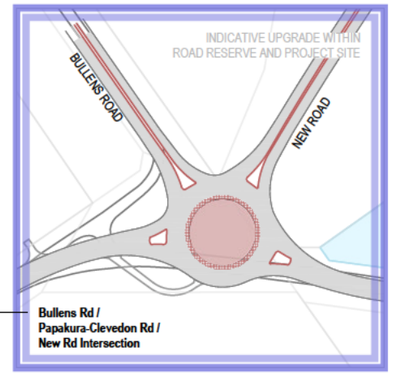
Airfield Rd / Mill Rd Intersection



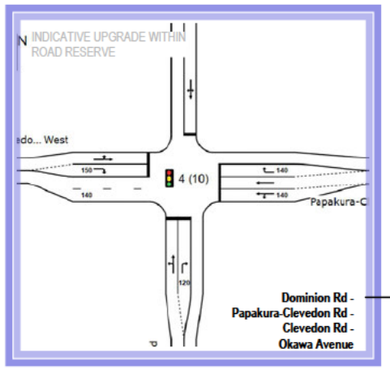
Intersection Hamlin Rd-Mill Rd
Ardmore Airport proposal

Intersection Hamlin Rd-Mill Rd
Ardmore Airport proposal

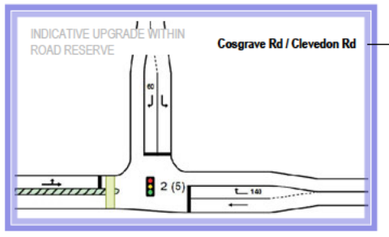




Bullens Rd / Papakura-Clevedon Rd / New Rd Intersection



Dominion Rd - Papakura-Clevedon Rd - Clevedon Rd - Okawa Avenue



Cosgrave Rd / Clevedon Rd

New Hamlin Road Connection Option:
Hamlin Road connection / Papakura Clevedon Road intersection

Existing Hamlin Road Connection Option:
Hamlin Road / Papakura Clevedon Road intersection upgrade

HEAVY VEHICLE ROUTES

ARTERIAL ROADS

ARDMORE BUSINESS PARK

TNGX037-NW-SK01-E

PLAN01: INTERSECTION UPGRADES

flow
TRANSPORTATION SPECIALISTS
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SCALE: 0 NTS
NTS

SCHEMATIC LAYOUT

23 DECEMBER 2025

Terry Church Bio

Terry has over 25 years' experience and is a recognised leader in the transportation planning, assessment, modelling and economic evaluation field within New Zealand.

Terry has a Bachelor of Engineering Technology (Civil) and a Certificate in Engineering (Civil). He is a Chartered Member of Engineering NZ and a Chartered Professional Engineer. He is an Affiliated Member of the Engineering NZ Transportation Group.

He has been responsible for a large number of traffic and transportation projects for a variety of clients. He leads small to large scale development projects, covering private land use developments, plan changes, master planning projects and transport elements of large sub regional or regional transport upgrades.

He has a thorough understanding of District Plans and engineering design standards, as they apply to transportation. He has extensive experience writing or reviewing Precinct Provisions and conditions of consent related to transport matters through his role on designation, plan change and resource consent applications.

Terry regularly acts as an expert witness. He regularly attends as a transport expert before Council Hearings, Environment Court mediations and Environment Court Hearings, as well as Boards of Inquiry.

His knowledge and approach to assessing large complex projects gives clients confidence that the project assessment is completed robustly, within a safe pair of hands and provides a successful outcome to both the client and the community in which the project is located.

Environment Court Practice Note 2023

I, Terry Church of Flow Transportation Specialists confirm that this report I prepared, for the Ardmore Business Park Fast-track Application, was prepared in accordance with the Environment Court Practice Note 2023 (Code of Conduct for Expert Witnesses).