

Before the Hearing Panel  
Appointed by the Waimakariri District Council

Under the Resource Management Act 1991

In the matter of the proposed Waimakariri District Plan, Hearing Stream 12:  
Rezoning

Submission by DM & AD Smith Investments Ltd

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**Evidence of Andrew Metherell**

12 March 2024

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## Introduction

- 1 My full name is Andrew Alan Metherell. I am a Chartered Professional Engineer, a Chartered Member of Engineering New Zealand, and am included on the International Professional Engineers Register. I hold a Bachelor of Engineering (Civil) with Honours degree from the University of Canterbury. I am also an Associate Member of the New Zealand Planning Institute.
- 2 I have twenty-five years' experience, practising as a traffic engineering and transportation planning specialist based in Christchurch. I am currently employed as the Christchurch Traffic Engineering Team Leader at Stantec New Zealand (Stantec), a global multi-disciplinary engineering consultancy. In this role I am responsible for providing transport engineering advice, assessment, and design for a wide range of activities.
- 3 I have had extensive experience providing transportation engineering advice and assessment for land development projects in the greater Christchurch area. Relevant to this project I am regularly involved in the planning, assessment, and design of the transport networks for residential, commercial, and industrial growth areas.
- 4 I have carried out transportation assessment and transport design for many land development projects in the greater Christchurch area including:
  - (a) A transport assessment and evidence for applicants and submitters seeking residential, industrial, and large format retail rezoning of rural land as part of Selwyn District Plan Changes and as part of the Selwyn District Plan review;
  - (b) A transport assessment for Plan Change 30 to the Operative Waimakariri District Plan (OWDP) to establish additional business zoned land and a key activity centre at Ravenswood;
  - (c) A transport assessment for Plan Change 29 to the OWDP to establish a revised residential zoning and retirement village on South Belt, Rangiora;
  - (d) Submitter evidence (for Waimakariri District Council) reviewing Private Plan Change 31 to the OWDP seeking a large residential development at Ohoka;
  - (e) transport assessments for various residential and commercial developments within Rangiora, Kaiapoi, Rolleston, Woodend, Ravenswood, and Pegasus.
- 5 I have prepared the Integrated Transport Assessment (ITA, **attached** as Appendix A) supporting the submission of DM & AD Smith Investments Ltd (**the Submitter**) to the Proposed Waimakariri District Plan (PWDP).
- 6 The Submitter seeks a Special Purpose Zone (Rangiora Airfield) encompassing Rangiora Airfield and land between Priors Road and the Airfield (**the Site**).

7 This evidence provides a brief summary of my attached ITA.

### **Code of Conduct for Expert Witnesses**

8 While this is not a hearing before the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2023 and that I have complied with it when preparing my evidence. Other than when I state I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

### **Summary**

9 My Integrated Transport Assessment supports the rezoning of the Site to Special Purpose Zone (Rangiora Airfield) in the PWDP. The details of that assessment are set out in the report attached at Appendix A.

10 The existing environment is characterised by low volume rural roads. No road capacity or serious road safety issues exist, and no specific future changes have been identified for the surrounding road network.

11 The proposed rezoning is intended to facilitate expansion of airfield activity, including supporting residential activity. I have forecast based off a concept development plan that the scale of activity that could be enabled by the rezoning could generate approximately 600 more vehicles per day than existing and consented activity, with most new development likely to access Merton Road and Priors Road. I consider that the change in traffic volumes will not require reclassification of roads in the road hierarchy, with local road status remaining suitable.

12 I consider that the form of development and integration with the transport network will be managed by the TRAN (transport) rule provisions already included in the Proposed District Plan, including new road design, intersections, access, vehicle crossings, pedestrian and cycling provision, and wider traffic effects assessment for large developments.

13 My assessment of the surrounding transport network shows that over time, traffic volumes may increase to levels that require Council to review road delineation. It is my opinion that will be necessary with or without rezoning as a result of general traffic growth in the wider area.

14 I have identified that the unsealed section of Priors Road may be required to accommodate small increases in traffic at levels that, together with other traffic growth, warrant consideration of road sealing. I have recommended that the formation of Priors Road south west of the Site is considered as an assessment

matter for development of the site, as the form and staging of development may enable effects to be minimised, or mitigation to be implemented.

- 15 I have noted that the provision of pedestrian and cycle connection from the airfield to the urban area is not identified in future strategies. I consider that the level of increased demand for active mode travel will be small, and most likely would only justify connection to existing tracks along the Ashley Rakahuri Regional Park. This would be a matter considered as part of a High Trip Generator assessment as per the PWDP requirements.
- 16 My assessment shows that the Merton Road / Priors Road intersection is expected to be able to accommodate increased levels of traffic comfortably, and any specific consideration of upgrades from a safety or wayfinding perspective would be considered as part of a High Trip Generator assessment or at the time of engineering design of the Priors Road sealing.
- 17 Similarly, the wider area intersection at Merton Road / Oxford Road has been assessed and I consider it is capable of accommodating increased traffic volumes over time, and any review of intersection control would be a matter for Council as part of managing their road network.
- 18 The Site will not be accessible by public transport, and will not generate sufficient demand to warrant changes in services. The low number of houses enabled have a focus on integration with airfield activity. I consider this will not create tensions with the typical desire for residential development areas to be accessible to public transport.
- 19 I have concluded that the rezoning of the site can be supported from a transport perspective.

### **Conclusion**

- 20 I am satisfied from a transportation perspective that the proposed rezoning of the Site can be supported from a transportation perspective.

Dated 12 March 2024

**Andrew Metherell**

## **APPENDIX A – INTEGRATED TRANSPORT ASSESSMENT**

# Rangiora Airfield Rezoning Submission Integrated Transport Assessment



12 March 2024

Ref: 310206005

PREPARED FOR:

DM & AD Smith Investments Ltd

PREPARED BY:

Stantec New Zealand

# Revision Schedule

Revision No.	Date	Description	Prepared by	Quality Reviewer	Final Approval
A	5 March 2024	Report for Evidence	Andrew Metherell	Andrew Leckie	Andrew Metherell
B	12 March 2024	Updated Development Areas	Andrew Metherell		Andrew Metherell

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# 1. Introduction

Stantec New Zealand (Stantec) has been commissioned by DM & AD Smith Investments Ltd to prepare an Integrated Transport Assessment (ITA) for rezoning of land to enable extension of the runway safety areas and proposed development adjacent to the Rangiora Airfield. The proposed development will be on the southern side of the existing Rangiora Airfield and will integrate with previously consented roading changes.

The Proposed Waimakariri District Plan (PWDP) includes the site as “Rural Lifestyle Zone” (RLZ). The submission seeks to rezone the site into a “Special Purpose (Airport) Zone” (SPAZ) to accommodate the proposed development.

This report, which assesses transport related matters of the proposed development, includes:

- A description of the site and its surrounding transport environment;
- Consented residential development on the site and changes planned in the area;
- A description of the key transport-related aspects for the proposed development;
- The anticipated traffic generation from the site and changes in traffic volume on surrounding roads;
- Transport provisions of the Proposed District Plan that will guide development of the site;
- The potential effects on the transport network and provisions that need to be considered for the proposed rezoning.

## 2. Site Location

### 2.1 Location in Transport Network

Figure 2-1 shows the location of the Rangiora Airfield development site in the context of the nearby Rangiora urban area. The site is located approximately five kilometers north-west of central Rangiora and two kilometers from the existing urban perimeter of Rangiora. The site incorporates the existing Rangiora Airfield and land along the southern side of the airfield, north and east of Priors Road and west of Merton Road.





**Figure 2-1: Location of Requested Rezoning**

Figure 2-2 shows that the Notified Proposed Waimakariri District Plan includes the site as a Rural Lifestyle Zone.



**Figure 2-2: Proposed Waimakariri District Plan Zoning and Requested Rezoning Site**

The proposed rezoning site is currently classified in the Operative Waimakariri District Plan as a Rural Zone, as shown in Figure 2-3. The runway is specifically identified on the planning maps, and the Rangiora Airfield is shown as a designated “significant site”.



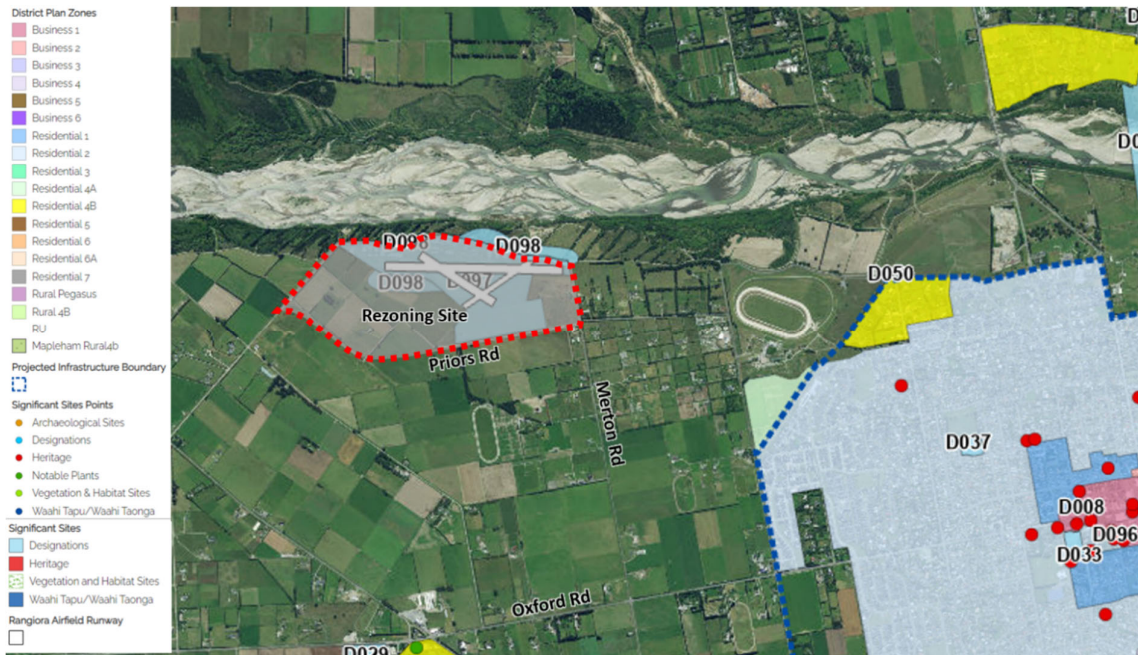


Figure 2-3: Waimakariri Operative District Plan Zoning and Location of Rezoning Request

## 2.2 Road Infrastructure

The location and alignment of roads in the immediate vicinity of the site subject to the rezoning request are shown in Figure 2-4.

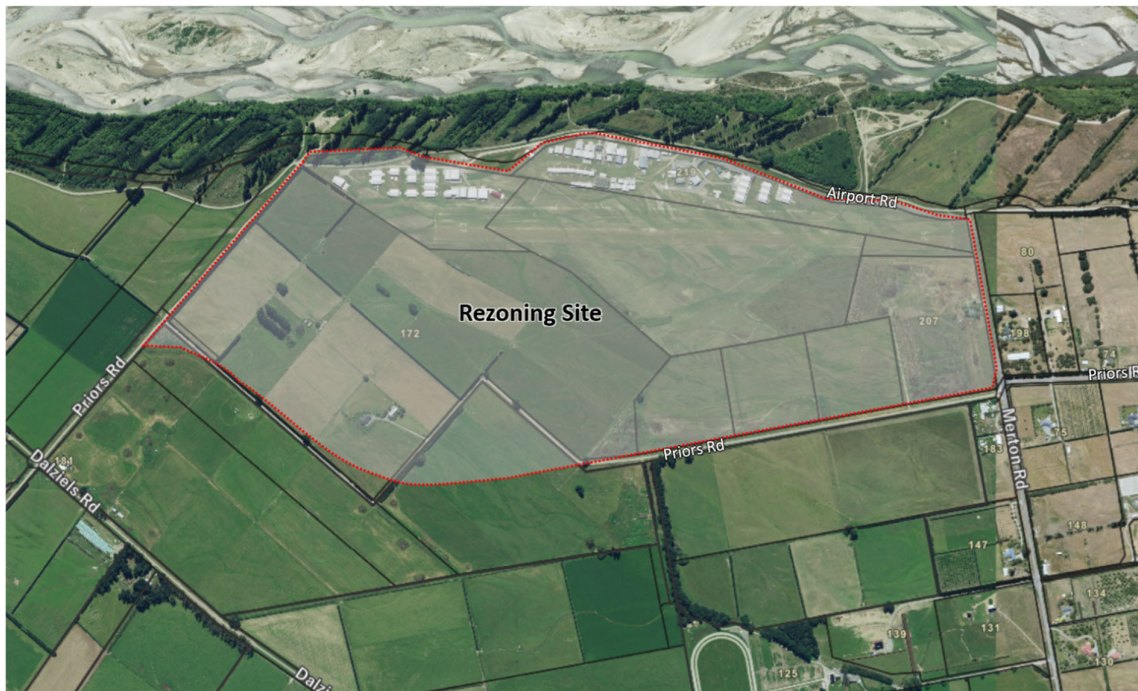


Figure 2-4: Location Road Network



Airport Road provides the only access to the existing Rangiora Airfield. It is a rural two lane road surfaced with chip seal. It has a carriageway width of approximately 5.5m and flat grassy berms along both sides. The road is classified as a local road in the PWDP.

Airport Road continues to the south as Merton Road, which is a rural two lane road surfaced with chip seal, and without centreline or edgeline delineation. It has a carriageway width of approximately 6.0m to 6.2m, and wide flat berms on both sides. The road is classified as a local road in the PWDP.



**Photograph 2-1: Merton Road north of Priors Road intersection**

Priors Road, which meets Merton Road at two staggered T-intersections, provides a local road access function. East of Merton Road, it has two lanes and is marked with a road centreline. It is surfaced with chip seal and has a carriageway width of approximately 6.0m to 6.6m. The road continues on the western side of Merton Road as a single lane road with a gravel surface. The carriageway width of the road is 4.7m.



**Photograph 2-2: Priors Road/Merton Road intersection looking north**





**Photograph 2-3: Priors Road/Merton Road intersection looking south**



**Photograph 2-4: Priors Road/Merton Road intersection west approach**





**Photograph 2-5: Priors Road**

Dalziels Road is a single lane gravel road which intersects Priors Road south-west of the site. At its south-eastern end, Dalziels Road meets Oxford Road and is sealed for the first 15m. Dalziels Road has a carriageway width of approximately 4m and has grass berms on both sides.



**Photograph 2-6: Priors Road/ Dalziels Road Intersection**

Oxford Road (Inland Scenic Route 72) is a “strategic” road in the District Plan, connecting Rangiora to Oxford and beyond. The road is a sealed, two-lane rural road.

The intersection of Oxford Road with Merton Road and Plaskett Road (to the south) is Stop controlled, with standard road markings at the intersection. Oxford Road as the main priority road, has a simple form through the intersection without turn lanes.





**Photograph 2-7: Merton Road / Oxford Road / Plaskett Road intersection**

The Plaskett Road approach has a small traffic island at the intersection that separates the two traffic lanes. The Merton Road leg has a small flush median to separate entering and exiting traffic. It has road markings for the first 40 meters before the road narrows.

It is understood there are currently no planned roading projects in the nearby area of the site.

## 2.3 Provision for Alternative Transport Modes

Being located within the rural road network, there are currently no cycleways on roads near the location of the site. There are also currently no dedicated walking pathways on roads near the site. There are trails adjacent to the Ashley River which provide opportunities for cyclists and pedestrians to access the existing airfield site from the north of Rangiora, including the low use road/track along the stop banks adjacent to River Road and within the Ashley Rakahuri Regional Park.



**Photograph 2-8: River Road stopbank track**





Figure 2-5 below shows the Cycling Network Plan for the area near the site. It considers the existing and future infrastructure of the network.



**Figure 2-5: Existing and Future Cycling Infrastructure**

It can be seen that there are currently no plans to connect Rangiora Airfield to the Rangiora urban cycle network.

Whilst Rangiora is serviced by public buses, the closest bus stops at the northern end of West Belt are approximately a four kilometer walk distance from the site. It is understood that there are no proposals for new bus routes or bus stops near to the site.

### 3. Existing Transport Environment

#### 3.1 Daily Traffic Volumes

The average daily traffic volumes and heavy vehicle percentages on nearby roads have been obtained from traffic counts recorded by Waimakariri District Council and as part of this assessment. These are summarised in Table 3-1.

**Table 3-1: Daily Traffic Volumes**

Road Name	Road Classification	Average Daily Traffic Volume	Percentage of Heavy Vehicles	Count Start Date
Merton Road North of Priors Road	Local	341vpd	10%	6/12/2023
Merton Road North of Oxford Road	Local	633vpd	11%	22/07/2021
Priors Road East of Merton Road	Local	399vpd	13%	22/07/2021
Priors Road East of Dalziels Road	Local	58vpd	9%	22/07/2021
Dalziels Road South of Priors Road	Local	25vpd	22%	22/07/2021
Mount Thomas Road North of Oxford Road	Local	928vpd	10%	22/07/2021
Plaskett Road	Collector	1,553vpd	12%	30/06/2022
Oxford Road (Inland Scenic Route 72) East of Merton Rd	Strategic	5,640vpd	7%	27/7/2023

This table shows the dominance of Oxford Road in the area, albeit its traffic volumes are such that it retains a good level of service for a rural strategic road. The Merton Road and Priors Road connections to the airfield area are low traffic volume road, carrying less than 650 vehicles per day (vpd)

## 3.2 Hourly Patterns

An automatic traffic count was set up in early December 2023 on the northern part of Merton Road, north of the Priors Road / Merton Road intersection to gauge the level of traffic generated by the airfield. The results show the peak day for traffic was Thursday, however Saturday had a higher hourly peak than the weekday average.



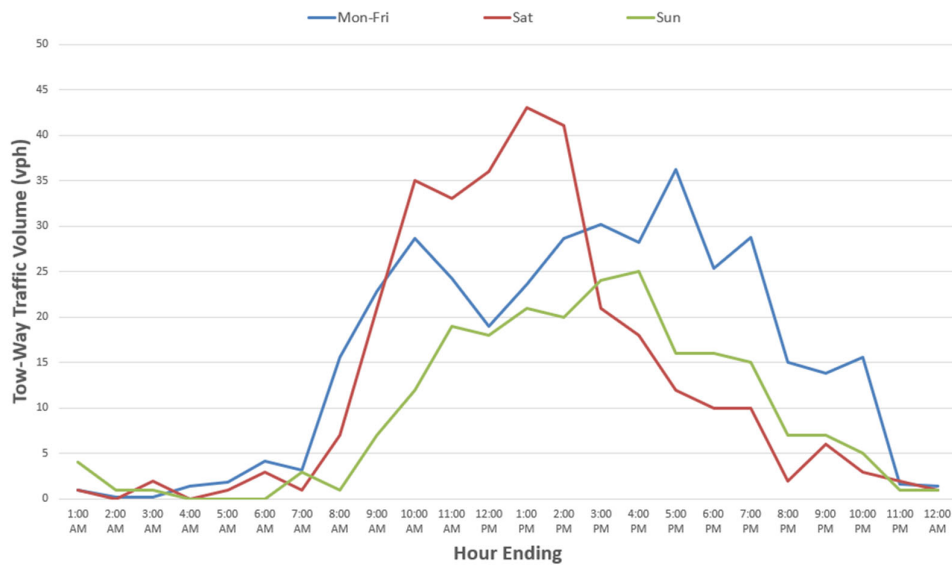


Figure 3-1: Hourly Traffic Volumes on Merton Road North of Priors Road

### 3.3 Intersection Turn Counts

Figure 3-2 shows the vehicle movements recorded at the Merton Road / Priors Road and Merton Road / Oxford Road / Plaskett Road intersections during morning and evening peak hours on Wednesday 6 December 2023. During the morning peak, 621 vehicles in total went through the Merton Road / Oxford Road / Plaskett Road intersection and 52 vehicles went through the Merton Road / Priors Road intersection. The evening peak traffic volumes were higher, with 714 vehicles travelling through the Oxford Road intersection and 73 vehicles travelling through the Priors Road intersection.

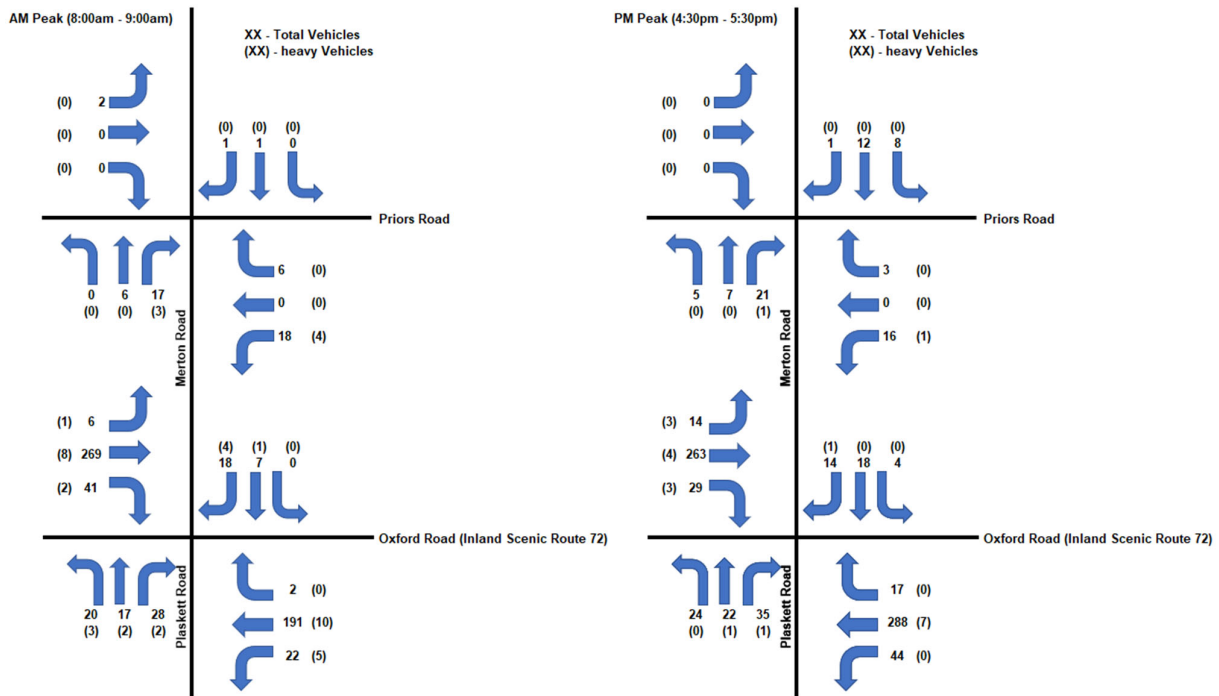


Figure 3-2: Merton Road Intersection Turn Counts

### 3.4 Walking and Cycling Patterns

As part of the intersection traffic counts at peak times on the road network, the cycle and pedestrian activity was also recorded. Across the four hours of data collection (7:00am-9:00am and 4:00pm-6:00pm), three pedestrians were recorded crossing Priors Road at the Merton Road intersection. During the same period, seven cyclists were recorded travelling through the intersection on the road, making a range of different movements.

At the Merton Road / Oxford Road / Plaskett Road intersection, there was no pedestrian activity recorded while there were nine cyclists recorded across the four hours. Four of the cyclists were heading westbound through the intersection on Oxford Road during the morning hours.

The Strava Global Heatmap records general density of movement by cycling and walking based on aggregation of data from recreational users recording trips on an app. Figure 3-3 shows that Merton Road south of Priors Road, and Priors Road east of Merton Road are reasonably well used for cycling (with a red colour indicating busier use), and the stop bank tracks are used to a lesser extent. Figure 3-4 shows that roads and tracks in the vicinity are used less than the urban area for walking, which will be a function of the distance from the urban area.



Figure 3-3: Strava Global Heatmap for Cycling

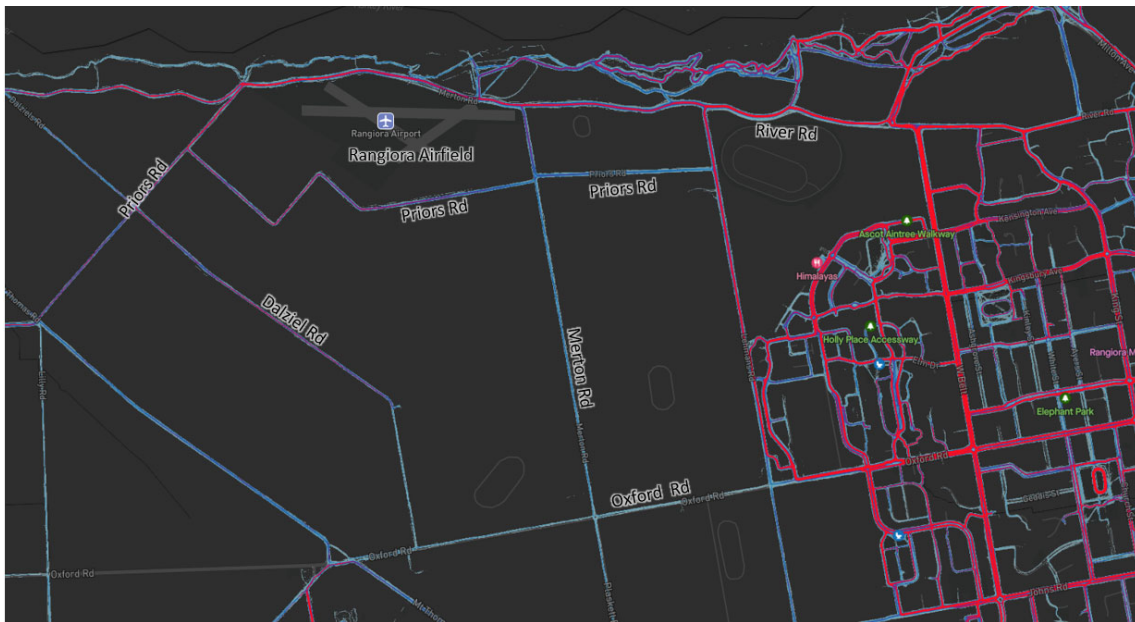


Figure 3-4: Strava Global Heatmap for Walking / Running



## 4. Road Safety

### 4.1 Road Safety Risk Classification

Waka Kotahi Mega Maps classifies sections of roads based on a calculated crash risk for three different categories:

- **Collective Risk** density measured as the number of fatal and serious casualties over a distance, e.g. deaths and serious injuries (DSI) per kilometer or within a set distance of an intersection.
- **Personal Risk** to the individual of fatal or serious casualties per million vehicle kilometers travelled.
- **Infrastructure Risk Rating (IRR)** score, a proactive measure of risk that aligns with personal risk but does not rely on (and is less sensitive to) crash history.

The following risks apply to Merton Road:

- Collective Risk: Low
- Personal Risk: Low
- Infrastructure Risk Rating: Medium

The following risks apply to the unsealed section of Priors Road to the east of Merton Road:

- Collective Risk: Low
- Personal Risk: Medium
- Infrastructure Risk Rating: Medium High

This indicates that the roads have a low to medium crash risk, although Priors Road in its unsealed form has a higher infrastructure risk rating.

### 4.2 Reported Road Safety

The Waka Kotahi Crash Analysis System (CAS) has been used to investigate the road safety records for the area surrounding the proposed development, including Merton Road, Priors Road northeast of Dalziel Road, Airfield Road, and the Oxford Road / Merton Road intersection. The analysis has been undertaken for a period of ten years (2014 to 2023) due to the low traffic volumes on the roads. Table 4-1 summarises the reported crashes.

**Table 4-1: Summary of Crashes within Search Area**

Location	NZTA Crash Reference	Crash Type	Severity	Description
Stop bank road adjacent to Airport Road on northern side of airport	201711904	Single vehicle lost control turning right (Old DA code)	Minor	Driver was travelling on stop bank road, lost control, struck tree stump and vehicle flipped into a ditch. Speed and road condition a factor.
Western intersection on Priors Road (with	201752813	Single vehicle - Off roadway to left	Non-Injury	Driver lost control at night southbound on the gravel road and went through a fence, hit fence posts and pine trees. Alcohol and



Location	NZTA Crash Reference	Crash Type	Severity	Description
Priors Road connection to river)				other factors including argument shortly before crash.
Priors Road between Dalziel Road and Merton Road	201632456	Single vehicle - Lost control turning right at right angle bend in road	Non-Injury	The driver was travelling north-east on gravel section of Priors Road and failed to negotiate the tight bend late at night. They mounted the bank and hit the fence. Other factors included an argument shortly before crash.
	2021190845	Single vehicle – Lost control off roadway to left on straight	Minor	Driver was following a 4wd vehicle on the gravel road. There was a large windfall that the driver failed to see. The driver swerved to avoid it and hit a shelter belt (adjacent trees have since been removed)
Oxford Road / Merton Road intersection	2020144664	Single vehicle turning left – off roadway to right	Non-Injury	The vehicle was travelling east into Rangiora. A vehicle crash had required a detour onto Merton Road and the driver lost control turning left. Signage was noted as being poorly placed, the driver was distracted by the other crash.
	201416791	Right angle collision	Minor Injury	Vehicle southbound on Merton failed to stop and collided with an emergency vehicle travelling westbound on Oxford Road. The driver of the vehicle on Merton Road was intoxicated.
	2020160746	Single vehicle turning left – off roadway	Non-Injury	Travelling east on Oxford Road. GPS showed straight on Oxford Road. The passenger yelled “left here”. The driver did not have time to make the corner
	2020144796	Right angle collision	Non-Injury	A vehicle failed to stop at the stop sign after doing a U-turn and was clipped by a vehicle on Oxford Road. The vehicle veered into a power pole
	2020171264	Right angle collision	Fatal	A vehicle failed to stop at the stop sign heading northbound on Plaskett Road, and hit a westbound vehicle on Oxford Road, and was then hit by an eastbound vehicle on Oxford Road.

The predominant mid-block crash type is single vehicle loss of control on gravel road surface, and the intersection crashes at Oxford Road / Merton Road include a combination of single vehicle loss of control and multiple vehicle crossing collisions.



## 5. Consented Developments

DM & AD Smith Investments Limited hold resource consents in the vicinity of the proposed rezoning. Firstly, the site development has two resource consents in place as shown in the plans set out in Figure 5-1 and Figure 5-2. These provide for 4 ha lot subdivision both north and south of Priors Road between Merton Road and Dalziels Road, and realignment and sealing of Priors Road to a 6m width.

The consents generally allow for the subdivision of the land into 4 ha lots. 20 lots are consented; nine on the northern side of Priors Road and 11 on the southern side. As part of the consents, there is a requirement with the subdivision north of Priors Road to upgrade the eastern section of Priors Road west of Merton Road (along the frontage of Lot 21). As part of the subdivision consent for development south of Priors Road there is a requirement that Priors Road is upgraded to provide a fully sealed road alignment on Priors Road between Merton Road and Dalziels Road.

The landowner has already started the road development in the form of establishing landscaping and fencing on the edge of the proposed road corridor as shown in Photograph 5-1.









**Photograph 5-1: Priors Road Pre-Implementation Planting for Road Realignment**

## 6. Proposed Rezoning

### 6.1 General Outline of submission

The DM & AD Smith Investments Ltd submission is requesting a Special Purpose (Airport) Zone covering the existing airport and land north of Priors Road. The intention of the zoning is to enable development that supports the expansion of airfield related activities, as well as enabling runway extensions to be achieved. The zone would enable land north of Priors Road to be further developed in a way that supports airfield activity. This would include for example:

- Aircraft hangars
- Residential properties with attached hangars and
- Airfield support and business activities.

The Priors Road realignment and sealing described earlier will support the wider development that could result from rezoning. An internal network of roads or access lanes from Priors Road and Merton Road would provide access to the new development. These may be in the form of private ways, as there will be no through traffic function.

Taxiways between the airfield runways and the development areas will be provided, so there may be potential interaction between minor taxiways and vehicles / pedestrians accessing development areas.



## 6.2 Concept Development

In order to understand the potential for traffic generation, the submitter has developed a broad concept plan with a vision of how the site could ultimately be developed. For the purpose of this assessment, the following scenario for land north of Priors Road has been considered based on information considered from an indicative concept plan

Directly accessed from Priors Road (west of runway extension):

- 16 large airside residential lots, each with a hangar for owner/tenant use
- 20 airfield residential lots with hangar
- Approximately 30 centrally located rented hangars, with a fuel zone (indicative hangar floor area 12,000m<sup>2</sup>)
- Accessed from Priors Road (east of runway extension):
  - Four residential lots with associated hangars
- Accessed from Merton Road north of Priors Road:
  - Seven hangars (indicative hangar floor area 8,500m<sup>2</sup>)
  - Eight hangars with potential accommodation (indicative hangar floor area 6,000m<sup>2</sup>)

## 7. Traffic Generation

### 7.1 Existing Site Generation

#### 7.1.1 Existing Airfield Activity

There is no reliable industry sourced traffic generation data for an airfield comparable to Rangiora. The survey data from the existing airfield has been used together with residential traffic generation data to estimate the potential trip generation.

The existing airfield has approximately 19,700m<sup>2</sup> of building area in total spread across 60 buildings, ranging from approximately 65m<sup>2</sup> to 1,250m<sup>2</sup>, and an average of approximately 325m<sup>2</sup>. It generates approximately 340 vehicle movements per day on average to and from Airfield Road.

Broadly, this equates to rates of traffic generation as follows:

- 1.7 vpd per 100m<sup>2</sup> of airfield building area
- 5.7 vpd per building (typical 325m<sup>2</sup>)

It is considered that the building area is most likely to be the most suitable variable for assessment as it dictates the number of planes stored, and hence impacts aircraft activity. It is acknowledged that there will be some activities such as training that will proportionally generate high levels of activity compared to many of the hangars that have a predominant storage function.

#### 7.1.2 Consented Residential

The consented subdivision north of Priors Road would enable nine residential lots. Considering the location, a typical residential trip generation rate of 8vpd per dwelling is assumed, resulting in an estimated traffic generation of 72vpd.



## 7.2 Site Generation with Rezoning

### 7.2.1 Future Non-Residential (Airfield Activities)

Based on the concept plan it is assumed that the future aircraft hangars with a non-residential use will generate traffic at a level comparable to the rate determined from the existing airfield. That is approximately an additional 23,760m<sup>2</sup> at 1.7vpd per 100m<sup>2</sup> of building area, split as follows:

**Table 7-1: Non Residential Traffic Generation with Rezoning**

Location / Access	Activity	Area	Rate (vpd / 100m <sup>2</sup> GFA)	Traffic volume (vpd)
Airfield Road	Existing airfield	19,700m <sup>2</sup>	1.7	340
Merton Road	Hangar + Office / Workshop	8,500m <sup>2</sup>	1.7	144
Priors Road (eastern development)	-			-
Priors Road (western development)	Hangar	12,000m <sup>2</sup>	1.7	204
<b>Total</b>				<b>688</b>

### 7.2.2 Future Airside Residential

The future residential activity that is associated with aircraft activity has been considered in two ways:

- Large lot residential, which have a hangar available and would be fully occupied and have standard residential activity characteristics. For the purpose of the rezoning assessment, a typical suburban residential trip generation rate of 8vpd per dwelling is assumed.
- Standard residential units with hangar, where it is assumed some will be fly in fly out accommodation or partially occupied residential. The standard trip generation rate for a residential dwelling is reduced to 6vpd per dwelling based on 75% occupancy and / or lower traffic generating characteristics.

**Table 7-2: Residential Trip Generation with Rezoning**

Location / Access	Activity	Number of units	Rate (vpd / unit)	Traffic volume (vpd)
Airfield Road	-			-
Merton Road	Standard residential with hangar	8	6	48
Priors Road (eastern development)	Standard residential with hangar	4	6	24
Priors Road (western development)	Standard residential with hangar	20	6	120
	Large Lot residential with hangar	16	8	128
<b>Total</b>				<b>320</b>



### 7.2.3 Total Traffic Generation

The potential combined zone traffic generation is set out in Table 7-3 below, by road location. It is noted that not all traffic generation from the rezoning is new, given existing airfield activity and consented residential activity.

**Table 7-3: Total Traffic Generation with Rezoning**

<b>Location / Access</b>	<b>Non-Residential (vpd)</b>	<b>Residential (vpd)</b>	<b>Total (vpd)</b>
Airfield Road	340	-	340
Merton Road	144	48	192
Priors Road (eastern development)	-	24	24
Priors Road (western development)	204	248	452
<b>Total Zone Traffic Generation</b>	<b>688</b>	<b>320</b>	<b>1,008</b>
<i>Less Existing/Consented</i>	340	72	412
<b><i>Change from Existing/Consented</i></b>	<b>348</b>	<b>248</b>	<b>596</b>

## 8. Traffic Distribution

The existing traffic counts at Priors Road / Merton Road have been analysed to determine the potential traffic distribution. For the rezoning traffic assessment, the following traffic distribution is applied to existing and future airfield zone activities, with slightly more traffic expected to use Priors Road west from development on Priors Road:

- Merton Road (south) 55%
- Priors Road (east) 35%-40%
- Priors Road (west) 5%-10%

The resultant traffic volumes are shown in Figure 8-1 to Figure 8-3 for the existing and future scenarios. Future scenarios allow for ten years of growth in background (non-airfield) traffic volumes and the traffic generation from the consented subdivision south of Priors Road.



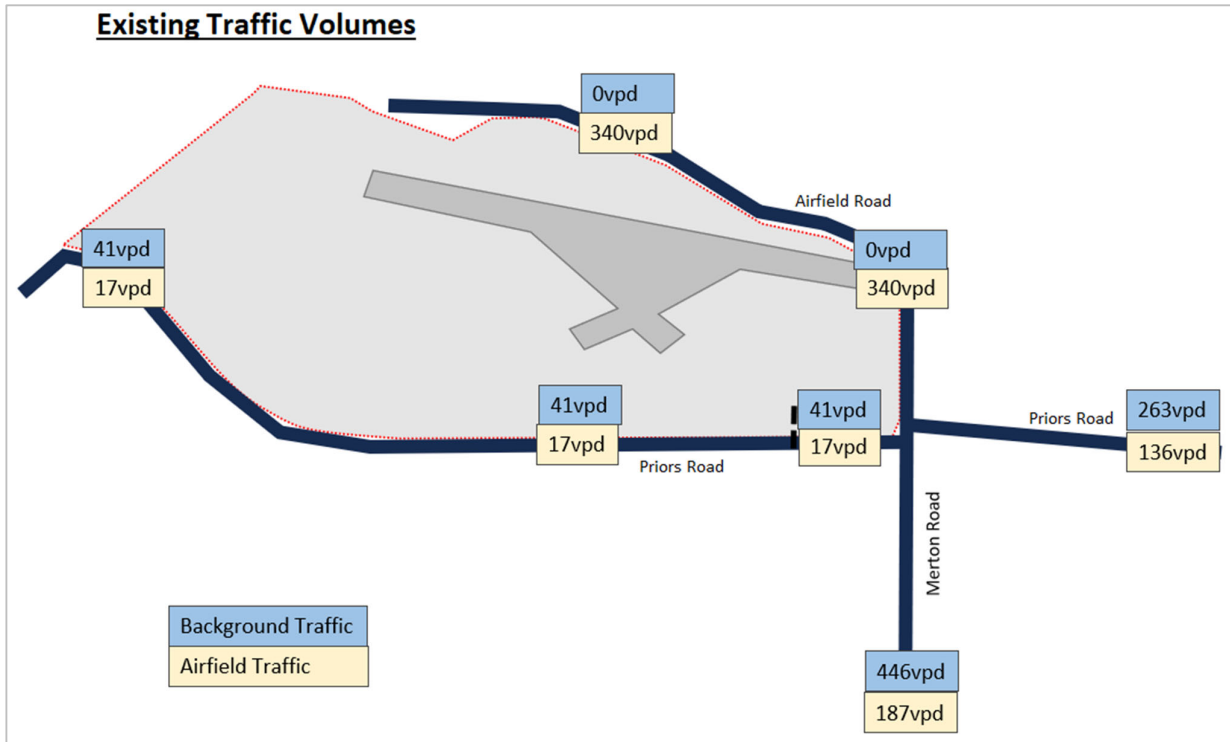


Figure 8-1: Existing Daily Traffic Volumes (vpd)

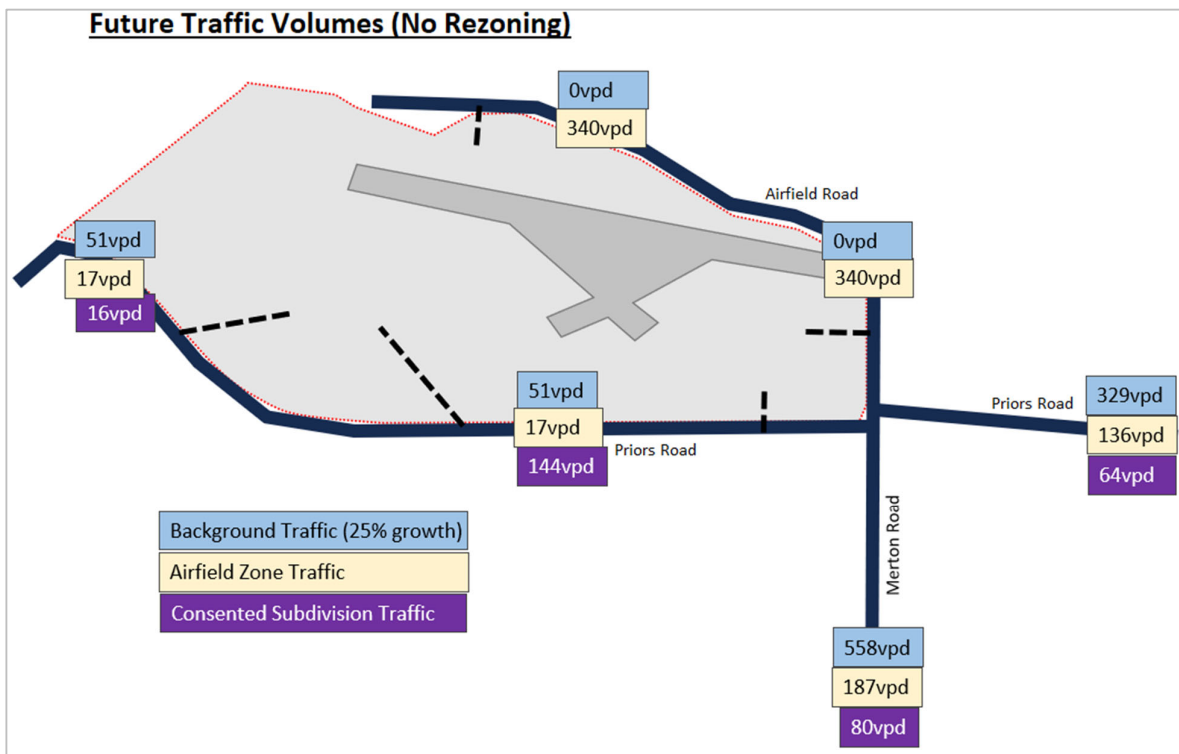
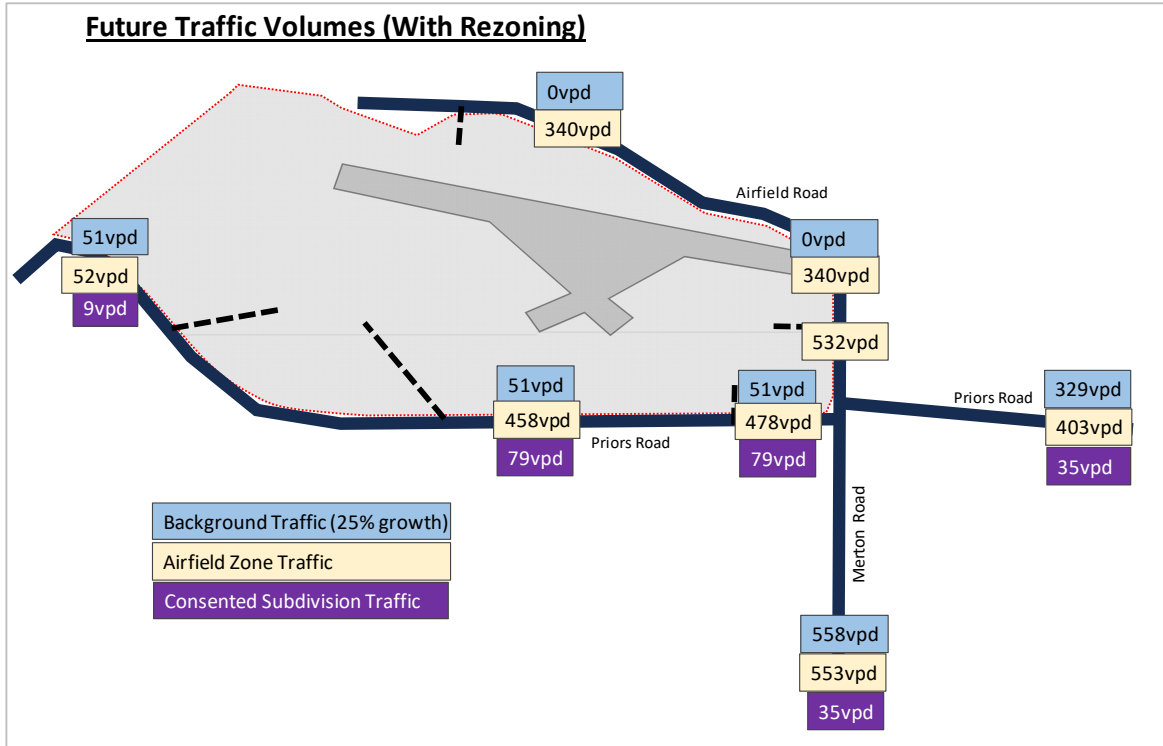


Figure 8-2: Future Traffic Volumes without Rezoning (vpd)





**Figure 8-3: Future Traffic Volumes with Rezoning (vpd)**

The diagrams show the contribution that the airfield rezoning will make to overall traffic volumes. Consented subdivision north of Priors Road is replaced with future airfield activity. The total traffic volumes with the fully developed airfield zone are then set out in Table 8-1 below, compared to the existing and future without rezoning scenarios.

**Table 8-1: Future Traffic Volumes**

Location / Access	Existing (vpd)	Future without Rezoning (vpd)* <sup>1</sup>	Future with Rezoning (vpd)	Change due to Rezoning (vpd)
Airfield Road	340	340	340	0
Merton Road (north of Priors)	340	340	532	192
Merton Road (north of Oxford)	633	825	1,155	330
Priors Road (east of Merton)	399	529	767	238
Priors Road (west of Merton)	58	212	608	396
Priors Road (east of Dalziels)	58	84	112	27

The spread-out traffic distribution means that connecting roads would have changes of up to 330vpd, which represents approximately 30 vehicles per hour at peak times.

<sup>1</sup> This assumes no growth in the airfield, which is likely to be unrealistic as airfield activity could increase although storage on-site will become constrained.

## 9. Site Layout Matters

The site development is likely to require new roading or access, vehicle crossings, and on-site car parking and loading. These matters are primarily managed at the time of site development and consenting through the District Plan Transport provisions. Those rules cover relevant matters including:

- New roads (TRAN-R2, TRAN-R3) – this would be in relation to Priors Road, and any internal road network.
- Intersection form and locations (TRAN-R4) – this would address the location of new road intersections with the existing road network (if any).
- Vehicle crossing location and design (TRAN-R5, TRAN-R7, TRAN-R12) – individual lot access to the road network is managed with reference to speed, formation of road, and road hierarchy.
- Access corridors (TRAN-R6, TRAN-R12) – any private access corridors to development lots have set standards to meet.
- Car parking, loading, and on-site manoeuvring (TRAN-R9, TRAN-R10, TRAN-R11) – rules ensuring the internal site functions well and does not affect the external road network.
- Provision of footpaths (TRAN-R14) - sets a requirement that a Special Purpose Zone is required to have a footpath in the road reserve. This will require consideration of connectivity around the site.
- Provision of cycle parking (TRAN-R15) – sets a requirement for cycle parking based on number of car parking spaces provided for non-residential activities.
- High Trip Generators (TRAN-R20) – where activities are deemed to be a High Trip Generator, a more detailed Integrated Transport Assessment is required for the activity. The threshold in the District Plan is 200 vehicle movements per day for a rural zone, or 250 vehicle movements per day for a Special Purpose Zone. As set out in this report, the overall development has the potential to trigger these requirements, which would then enable Council to consider further a range assessment matters which address access, road network capacity and pedestrian / cycle provisions.

The overall rule provisions reduce or remove reliance on site specific transport rule requirements. Any recommendations set out as a result of transport effects assessment give consideration to the ability of the standard transport rules to address effects that could arise through development.

## 10. Transport Assessment

### 10.1 Road Formation

Based on the assessment of traffic generation and traffic distribution, and allowing for some background traffic growth it is forecast that all of the sealed roads connecting to the site (Airfield Road, Merton Road, Priors Road) will continue to operate with traffic volumes consistent with a local road environment. That is, forecast traffic volumes of 500vpd to 1,200vpd with the rezoning and full development indicate a continued local access function.

The Code of Engineering Practice Table 8.3 indicates a required sealed width for a rural local road of 6m, which is already available on Merton Road and the sealed section of Priors Road. The Priors Road sealing and realignment will also meet that standard.

Existing road safety records do not highlight specific issues with the connecting roads, although loss-of control crashes exist. Operationally, Council may increase road delineation as road volumes increase to reduce the likelihood of loss-of control crashes. The NZTA document “RTS 5: Guidelines for rural road marking and delineation” sets guidelines for when road delineation will occur. It indicates that Merton Road would warrant a centreline treatment along its length under existing traffic volumes, and potentially an edgeline once traffic volumes increase beyond 750vpd. That volume would be





reached even without rezoning in the future. Overall, it is considered rezoning will have minimal change to how and when Council would consider altering road widths and road delineation on Merton Road and the sealed sections of Priors Road.

The 1.2km western section of Priors Road connecting the site through to Mount Thomas Road is unsealed, and there is the potential upon full development it could accommodate some site generated traffic. For this assessment, that was assumed to be 5-10% of site generated traffic. The traffic volume without rezoning will result in the volume sitting at a level (between 30vpd and 100vpd) where road sealing may be warranted. Road sealing is usually related to road maintenance, levels of service for drivers, and nuisance of dust for neighbouring properties. The future traffic volume with rezoning of approximately 110vpd on that section of road is at a level that may warrant consideration of road sealing<sup>2</sup>. The actual need for road sealing would depend on funding priorities, road performance and actual traffic.

If the scale of development triggers TRAN-R20 High Trip Generator requirements, then this matter can be considered at the time of consenting. Alternatively, to minimise uncertainty, development of the activities at the western end of Priors Road could be specifically assessed against a restricted discretionary rule requiring assessment of the safety and suitability of Priors Road between Mount Thomas Road and the site as an unsealed road. Assessment matters could include consideration of the volume of traffic, speed environment, road delineation and the extent to which any identified serious safety concerns could be addressed by sealing of the road.

## 10.2 Road Capacity

The existing traffic patterns show that traffic volumes on Merton Road and Priors Road are very low. Projected traffic volumes remain low, and no capacity related concerns would result in the immediate vicinity of the site.

The Oxford Road / Merton Road intersection carries higher through traffic volumes on Oxford Road as indicated by the existing traffic counts. To better understand existing levels of performance, a SIDRA Intersection model has been developed for the existing intersection. It shows that drivers using the Merton Road and Plaskett Road approaches will experience minimal queuing and delay at the stop line. Levels of service will be acceptable at Level of Service C (representing stable traffic flow).

A further model of future performance at the Oxford Road / Merton Road intersection shows that with 25% added to background movement, and allowing for airport growth and consented development adjacent to the airfield all movements traffic delays are still acceptable. Delays on each minor road approach remain at levels representing Level of Service C during both peak periods and queues are negligible.

Whilst the level of delay is not of concern from a network efficiency perspective, drivers may start to find using the Oxford Road / Merton Road intersection more challenging as volumes increase due to the cross-road formation, and safety interventions may become a consideration in the future. This is likely to be a consideration without, or with development. Safety interventions would potentially require third party land and it would be necessary for Council to lead any improvement project in the longer term. It is not considered necessary or appropriate for a specific development related rule referencing the intersection, and the TRAN-R20 High Trip Generator requirements can enable assessment of performance for high trip generating activities at the time of consenting.

## 10.3 Walking / Cycling Provisions

The roads connecting the site to Rangiora are rural roads, and as such vehicles can travel at speeds higher than in urban areas. Those walking and cycling are more vulnerable where there is an absence of facilities, although wide berms are available for walking. Currently, there is some active modes use of roads in the area, although at low levels as shown by existing traffic counts. There are no specific plans included in the Council walking and cycling strategy that will connect the airfield to Rangiora with new facilities, beyond the existing tracks through the Ashley Rakahuri Regional Park.

If the potential development is realised, there will be some increase, albeit small, in pedestrian and cycle activity. Typically, rural residential development has not been provided with dedicated cycle or pedestrian infrastructure for

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<sup>2</sup> NZTA RTS5 includes some old road standards indicating roads carrying traffic volumes beyond 100vpd should be sealed.



connection to urban areas. TRAN-R14 requires footpaths in the adjacent road reserve for Special Purpose Zones, and that may then apply as a matter for consideration as part of development.

In addition, TRAN-R20 High Trip Generator requires for larger developments consideration of the accessibility of the site by pedestrians and cyclists. That would enable consideration of the availability of and need for safe routes to connect the site to the Ashley Rakahuri Regional Park tracks, and/or potentially to the urban area via Priors Road and part of Lehmans Road.

## 10.4 Merton Road / Priors Road

The intersection of Merton Road / Priors Road will have increases in traffic as a result of rezoning. It is considered that the intersection can operate safely and efficiently with standard sign controls. The form of intersection will be considered as part of engineering design of the Priors Road upgrade and can be considered as part of Integrated Transport Assessment requirements where development levels trigger TRAN-R20 High Trip Generator requirements.

In the event that an upgrade is required, there is sufficient land available within the site to enable upgrades either from a safety or a wayfinding perspective. That can be considered as part of the standard resource consent process.

## 10.5 Public Transport

At this time, it is understood that no public bus service is intended to service the area to the west of Rangiora. An extract of the Rangiora bus network is shown in the Greater Christchurch Public Transport Futures Combined Business Cases document<sup>3</sup>.



**Figure 10-1: Future Public Transport Network (PT Futures Summary)**

The site is expected to remain beyond walking distance to bus services, and the level of development (approximately 40 residential units plus airfield activity) will be insufficient to generate the demand for additional bus services. Those wanting to use public transport would need to consider park n ride services in Rangiora. Those accessing the site by vehicles

<sup>3</sup> <https://www.ecan.govt.nz/document/download?uri=4012459>

other than private vehicle, would need to be in the form of taxi / ride share. Given the specific nature of the activity at the site, and relatively low number of residential dwellings, it is considered that the typical desire for new development areas to be serviced by public transport is less critical for this zone.

## 11. Conclusion

The proposed rezoning of Rangiora Airfield and adjacent land north of Priors Road has been assessed in this Integrated Transport Assessment report.

The existing environment is characterised by low volume rural roads. No road capacity or serious road safety issues exist, and no specific future changes have been identified for the surrounding road network.

The proposed rezoning is intended to facilitate expansion of airfield activity, including supporting residential activity. The scale of activity that could be enabled is forecast to generate approximately 600 vehicles per day more than existing and consented activity, with most new development likely to access Merton Road and Priors Road. The additional traffic will not require reclassification of roads in the road hierarchy, with local road status remaining suitable.

The form of development and integration with the transport network will be managed by the transport rule provisions already included in the District Plan, including new road design, intersections, access, vehicle crossings, pedestrian and cycling provision, and wider traffic effects assessment for large developments.

Assessment of the surrounding transport network shows that over time traffic volumes may increase to levels that require Council to review road delineation. That will be necessary with or without rezoning.

The unsealed section of Priors Road, south-west of Dalziels Road, may be required to accommodate small increases in traffic at levels that together with other traffic growth warrant consideration of road sealing. It is recommended that is considered as an assessment matter for development of the site, as the form and staging of development may enable effects to be minimised, or mitigation to be implemented.

The provision of pedestrian and cycle connection from the airfield to the urban area is not identified in future strategies. The level of increased demand will be small, and most likely would only justify connection to existing tracks along the Ashley Rakahuri Regional Park. This would be a matter considered as part of a High Trip Generator assessment.

The Merton Road / Priors Road intersection is expected to be able to accommodate traffic generation comfortably, and any specific consideration of upgrades from a safety or wayfinding perspective would be considered as part of a High Trip Generator assessment or at the time of engineering design of the Priors Road sealing.

In the wider area, the Merton Road / Oxford Road intersection has been assessed as capable of accommodating increased traffic volumes over time, and any review of intersection control would be a matter for Council as part of managing their road network.

The site will not be accessible by public transport and will not generate sufficient demand to warrant changes in services. The low number of houses enabled have a focus on integration with airfield activity. It is considered this will not create tensions with the typical desire for residential development areas to be accessible to public transport.

It is concluded that the rezoning of the site can be supported from a transport perspective.





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