

Mr S Ash / D Osborne
Winton

12 November 2025

Copy via email: Simon.Ash@winton.nz & David.Osborne@winton.nz

Dear Simon / David,

SUNFIELD – SENSITIVITY TESTING / STAGING

Further to your recent instructions and our meetings with Auckland Transport, we have undertaken an assessment of both the sensitivity of the previous modelling using the Beca traffic generation together with a review of the staging / appropriate triggers for each upgrade.

1 GENERAL

Following recent meetings with Auckland Transport there are outstanding issues / further information requested. This letter outlines what we understand to be the key items.

2 STAGING OF UPGRADES

2.1 INTERSECTIONS

As we noted in previous assessment, revised modelling has been undertaken by the Auckland Forecasting Centre ('AFC') and builds on initial modelling of the Sunfield Development undertaken for Auckland Transport. It includes scenarios with and without the Sunfield Development and with and without MRS2A.

Key assumptions include:

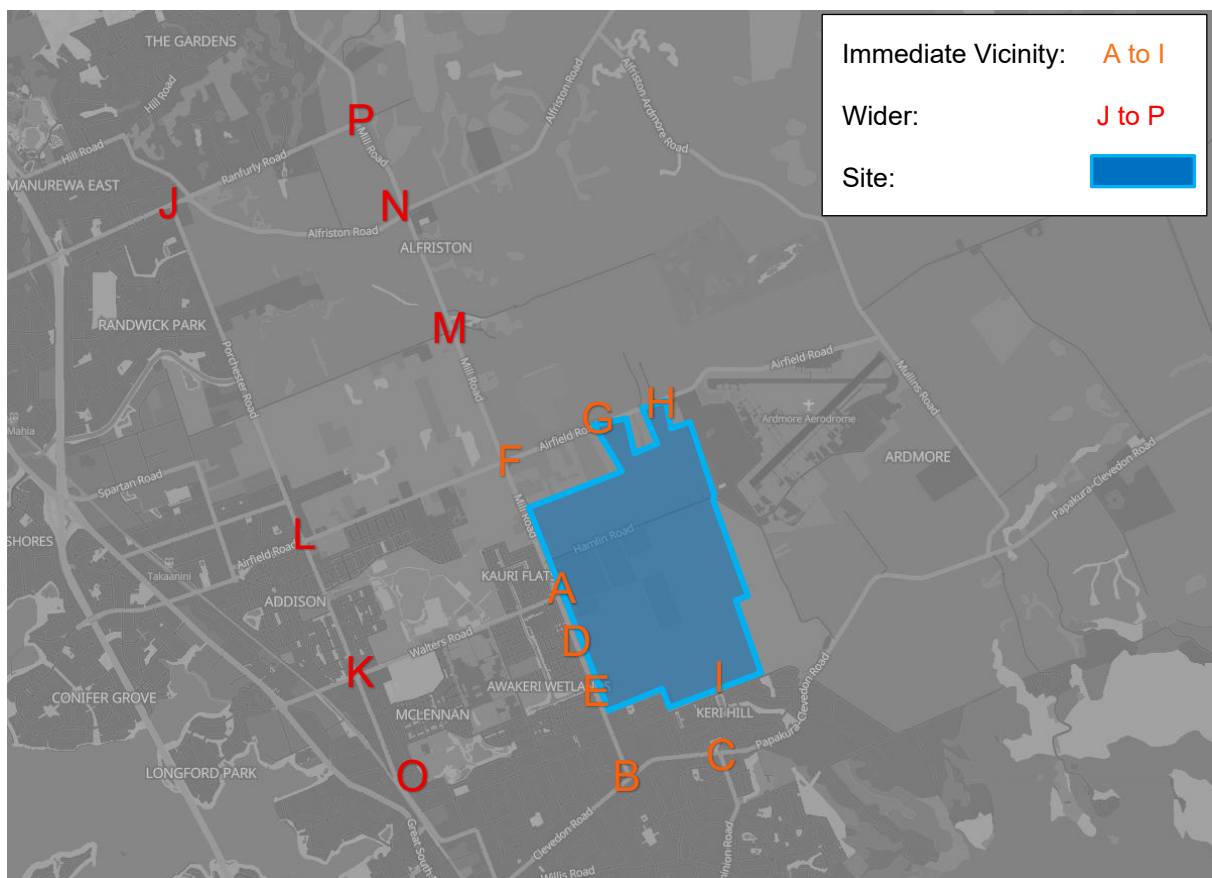
- Traffic generation for the Sunfield Development as estimated by Beca being 3,000 vehicles per hour (vph) which is significantly higher than the 1,100vph estimated in the Commute Sunfield ITA.
- The Sunfield Development scenarios included new or upgraded intersections as identified in the Sunfield ITA (however we note that there have been two upgrades detailed within the Sunfield ITA which have not been included which are discussed in later sections of this review).

Individual intersections have been discussed below. It is noted that intersections have been split into immediate vicinity (within 1km of the proposed Sunfield Site) and wider. As per **Error! Reference source not found.**, a map of the intersections discussed below can be seen. Items A-I were identified in the original ITA (1,100vph) while J-P have been identified in the Beca review and subsequent modelling of Mill Road Stage 2 both with an assessment of 3,000vph from the Sunfield Development.

- A. Cosgrave Road / Walters Road
- B. Cosgrave Road / Clevedon Road
- C. Okawa Avenue / Clevedon Road / Dominion Road / Papakura-Clevedon Road
- D. Cosgrave Road / Road 4
- E. Cosgrave Road / Road 2 / Bellbird Street
- F. Airfield Road / Mill Road
- G. Airfield Road / Road 1

- H. Airfield Road / Road 7
- I. Pakaraka Drive / Old Wairoa Road / Road 1
- J. Ranfurly Road / Alfriston Road
- K. Walters Road / Porchester Road
- L. Porchester Road / Kuaka Drive
- M. Mill Road / Popes Road
- N. Alfriston Road / Mill Road
- O. Old Wairoa Road / Porchester Road
- P. Ranfurly Road / Mill Road

Figure 1: Individual Intersections



For this assessment, based on the proposed conditions, in terms of timing we have concentrated on the immediate vicinity intersections which are subject to specific upgrades (ie A to I).

2.2 TIMING / TRIGGER

Each of the intersection upgrades is discussed as follows in relation to the trigger for the upgrade.

2.2.1 COSGRAVE ROAD / WALTERS ROAD (A)

This intersection is a major intersection in the area both in terms of vehicular access for the site and significantly pedestrian / cycling access to the wider network (especially Walters Road). As such it is recommended the upgrade be completed as part of the first stage of works, noting that the Intersection Upgrade relates just to the signalisation of the intersection and not the construction of the

entire 'realigned Hamlin Road'. Thus the trigger should be prior to the occupation of any dwellings within the development site (ie dwelling 0)

2.2.2 COSGRAVE ROAD / CLEVEDON ROAD (B)

This intersection already is subject to existing delay especially relating to right turn out of Cosgrave Road onto Clevedon Road. This is considered to be a major route for the sites traffic, As such it is recommended the upgrade be completed as part of the first stage of works and thus the trigger should be prior to the occupation of any dwellings within the development site (ie dwelling 0)

2.2.3 OKAWA AVENUE / CLEVEDON ROAD / DOMINION ROAD / PAPAKURA-CLEVEDON ROAD (C)

Currently AT are proposing a "Road Safety" upgrade of this intersection however this has less capacity of the proposed Sunfield upgrade. This AT upgrade will proceed the further upgrade required for the Sunfield development given the immediate need for the initial upgrade.

The main reason for the upgrade of this intersection is the increase in traffic from the south of the Sunfield area which gains access to Old Wairoa Road which links to Okawa Avenue (and thus to this intersection). As such the upgrade to this intersection should be linked to any development to Old Wairoa Road (intersection I) which is prior to the occupation of 1,204 dwellings within the development site or when any access is gained via Old Wairoa Road.

2.2.4 COSGRAVE ROAD / ROAD 4 (D)

This is now a priority intersection upgrade (with right turn bay), To be completed as part of the Superlot 2 works. Trigger considered to be prior to the occupation of 562 dwellings within the development site or as part of the construction of Road 4.

2.2.5 COSGRAVE ROAD / ROAD 2 / BELLBIRD STREET (E)

This is a signalised intersection upgrade to provide direct link to Road 2 (current Stage 1) of Sunfield. As such considered to be required when this stage of Sunfield is developed (Stage 1). Trigger will therefore be prior to the occupation of any dwellings within the development site (ie dwelling 0).

2.2.6 AIRFIELD ROAD / MILL ROAD (F)

The timing of this upgrade is the most difficult to evaluate. The trigger / timing of this upgrade is not related to any access to the site or considered to be required straight away. A review of the existing performance of this intersection is provided below assuming the existing roundabout-controlled intersection remains. The existing volumes as surveyed in Figure 4-3 and 4-4 of the original ITA have been used as a stating point.

Table 1: Existing Airfield Road / Mill Road roundabout operation

Approach	AM Peak Hour			PM Peak Hour		
	DoS %	LOS	95 th %ile Queue (m)	DoS %	LOS	95 th %ile Queue (m)
Mill (South)	0.75	A	73	0.47	A	30
Airfield (east)	0.09	A	4	0.27	B	14
Mill (north)	0.34	A	18	0.88	B	141
Airfield (west)	0.41	B	22	0.42	A	21

This analysis shows the intersection is currently operating well in the AM but nearing capacity in the PM peak with a small amount of capacity remaining.

In the initial stages of development, Sunfield will typically generate traffic on the Mill Road approaches of the intersection and Airfield Road (west) as there will be no access on Airfield Road in the initial stages.

From the SIDRA result the critical moment in the PM peak southbound through movement on Mill Road. This movement can cater for approximately 80 additional movement per hour (with corresponding increase in the northbound through movement of 12 additional movement per hour) before reaching theoretical capacity (degree of saturation 0.96 and Level of Service C and approaching D). This is in the order of 25% the traffic assumed at this intersection in Figure 9-3 of the ITA (1,100vph scenario). Given this volume was approximately one third of that now used in the Beca / AT analysis (3,000vph), this results in 8% of the site development or approximately 320 dwellings before the upgrade (to traffic signal) should occur.

2.2.7 AIRFIELD ROAD / ROAD 1 (G)

This intersection is primarily positioned to serve the industrial development. It is now proposed that this intersection should be either traffic signals or single lane roundabout. Any access to Airfield should trigger this intersection upgrade and / or any development of the industrial land. This is programmed to occur after approximately 2,845 dwellings.

2.2.8 AIRFIELD ROAD / ROAD 7 (H)

Intersection no longer proposed.

2.2.9 PAKARAKA DRIVE / OLD WAIROA ROAD / ROAD 1 (I)

This is to be completed with any access to Old Wairoa Road which is currently occurring as part of the Superlot 6 work which this upgrade is proposed and links to the site. Stage 6 currently occurs after approximately 1204 dwellings.

2.3 EXTENRAL CYCLING / PEDESTRIAN UPGRADES

The pedestrian / cycling connections for the development site to key local destinations by providing improved active mode facilities. There are a number of external upgrades discussed with Auckland Transport as per Figure 2 below.

Figure 2: External pedestrian / cycling upgrades



Upgrades include:

1. Separated bi-directional cycle lane and footpath on Cosgrave Road / Mill Road along the site frontage and north to Airfield Road. Section 1a is along site frontage and full separated bi-directional cycle lane and footpath possible. The small section north of the site (1b) is constrained in width with the Mill Road / Airfield Road upgrade. The section 1b is not able to be upgraded without the purchase of third-party land.
2. Extend the existing 3.0m shared path on Airfield Road through to Mill Road including signalised pedestrian crossing across Cosgrave Road (south) as part of the Mill Road / Airfield Road signalised upgrade. While possible in existing road reserve this section would not achieve anything significant in terms of pedestrian / cyclist without 1b above in place and further we do not consider there to be a significant desire line from the Sunfield site to Airfield Road. The Sunfield site concentrates the residential development generally in the central / south of the site which better links to Walters Road pedestrian / cycling facilities and the off-road paths within the existing Awakeri Wetlands.
3. Signalised pedestrian / cycle crossing on Cosgrave Road (connecting off-road paths). See Section 4.
4. Extend existing footpath (northside) along Old Wairoa Road along site frontage and some 50m east to tie into existing footpath at Brightwell Street.

Items 1a and 3 are considered to be required early in the development to encourage pedestrian / cycling in the site.

2.4 UPGRADE SUMMARY

The following provides a summary of the trigger for each upgrade.

Table 2: Upgrade summary

Upgrade no	Description	Upgrade	Trigger	Comment
A	Intersection upgrade – Cosgrave Road / Walters Road / Hamlin Road (Road 6)	Traffic signals	Prior to the occupation of the first dwelling within the development site.	To be completed as part of the first stage of works, noting that the Intersection Upgrade relates just to the signalisation of the intersection and not the construction of the entire 'realigned Hamlin Road'.
B	Upgrade Intersection – Cosgrave Road / Clevedon Road	Traffic signals	Prior to the occupation of the first dwelling within the development site.	To be completed as part of the initial works for Sunfield regardless of where the first development stage is located.
C	Intersection upgrade – Okawa Ave / Clevedon Rd / Dominion Rd / Papakura-Clevedon Rd	Traffic signals	Prior to the occupation of 1,204 dwellings within the development site or when any access is gained via Old Wairoa Road.	Scope of upgrade yet to be confirmed - currently AT are proposing a "Road Safety" upgrade, likely this will go ahead of the further upgrade required for the Sunfield development given the immediate need for the initial upgrade.
D	New/Upgrade Intersection – Cosgrave Road / Road 4	Priority intersection	Prior to the occupation of 562 dwellings within the development site or as part of the construction of Road 4	To be completed as part of the Superlot 2 works.
E	New/Upgrade Intersection – Cosgrave Road / Road 2 / Bellbird Street	Traffic signals	Prior to the occupation of the first dwelling within the development site.	To be completed as part of the Superlot 1 works.
F	Intersection Upgrade – Airfield Road / Mill Road	Traffic Signals	Prior to the occupation of 320 dwellings within the development site or as part of any stage of works that has access from Airfield Road, whichever occurs first.	To be completed as part of the Superlot 1 works.
G	New/Upgrade Intersection – Airfield Road / Road 1	Traffic Signals	Prior to the occupation of 2,845 dwellings within the development site or as part of any stage of works that has access from Airfield	To be completed as part of Superlot 18 works.

			Road, whichever occurs first.	
H	DELETED			
I	New/Upgrade Intersection – Pakaraka Drive / Old Wairoa Road / Road 1	Traffic Signals	Prior to the occupation of 1,204 dwellings within the development site or when any access is gained via Old Wairoa Road.	To be completed as part of the Superlot 6 works.
Other modes				
1a	Cosgrave / Mill Road cycleway	Separated bi-directional cycleway / footpath along frontage	Prior to the occupation of the first dwelling within the development site.	To be completed as part of the Superlot 1 works.
3	Crossing Cosgrave Road	Signalised pedestrian / cycle crossing of Cosgrave Road at off-road paths	Prior to the occupation of the first dwelling within the development site.	To be completed as part of the Superlot 1 works.
4	Old Wairoa Road	Extend existing footpath (northside)	Prior to any access / site frontage on Old Wairoa Road	Need to connect to existing path

3 SENSITIVITY MODELLING

3.1 GENERAL

A request has been made in relation to sensitivity testing of the 3,000vph scenario.

In terms of the wider area, there are a few intersections that are at / approaching capacity with the 3,000vph assumed in the latest modelling from the Auckland Transport review, which is significantly higher than the 1,100vph estimated in the Commute Sunfield ITA. It is therefore recommended (previous response) that after approximately one third of the development consented, monitoring should occur regarding the trip generation of the Sunfield Development with an Integrated Transport Assessment (ITA) produced to determine if the wider intersections identified require additional mitigation and / or additional measures are needed to reduce trip generation.

From the Beca memo (Appendix A – Trip Rate Methodology) the approximately 3,000vph trip rate has been estimated using:

- More standard / typical trip rates such as:
 - 0.65 peak hour trips per dwelling for medium-density residential flat buildings
 - 16 peak hour trips per hectare for industrial
 - 2 peak hour trips per 100 sqm for office
 - 6.3 peak hour trips per 100 sqm for medical
- Allowance for linked trips between land uses, particularly for school trips, i.e. a parent drives to work and drops a child off on the way, creating one trip not two
- Allowance for internalisation of trips (ie trip that only occur internal to the site) eg between the dwellings and employment areas

- This overall results in 3,041vph and 3,100vph in the am and pm peak for external trips to / from Sunfield.

We do not have any issue with any of the trip rates / factors used, however we consider that these rates are all appropriate for a “standard” mixed use development in this location. The proposal is for a “car less” society with additional provisions including a specific Sunfield bus, provision of shared parking and significantly a limitation on parking within the site. With these provisions in place, we consider that the standard trip rates as estimated by Beca is unlikely to eventuate and the actual external trip rate will be lower and thus additional sensitivity is not necessary.

We also note again that after approximately one third development the trip rates will be reviewed / monitored to determine if they are valid and if additional physical mitigation and / or additional measures are needed to reduce trip generation.

We have however reviewed the upgrades proposed in relation to capacity available in terms of the 1,100 and 3,100vph scenarios. Of note the PM peak has been assessed as this is considered critical in the area.

3.2 COSGRAVE ROAD / WALTERS ROAD / ROAD 6 (A)

This intersection is currently a priority-controlled intersection. The Sunfield Development proposes to join Road 6 (the realigned Hamlin Road) with this intersection and for it to be upgraded to a four-leg signalised intersection.

The modelling suggests with the updated layout (as proposed in 14 October response), the intersection with all 3,000vph and 2041 flows (with background growth and Sunfield) performs at LOS D and Degree of Saturation of 0.911 indicating appropriate operating performance with a small level of capacity available in the PM peak (AM peak significantly greater remaining capacity). Modelling has shown that an additional 5% of traffic can be added to the intersection (all movements) before reaching “capacity” (DoS greater than 0.95 and LoS approaching E). This is in practice an increase of around 150 vehicles per hour through the intersection.

It is further noted that the Mill Road Stage 2a significantly removes traffic from Mill Road in this area in the order of 30%. This is shown in Figure 3 below showing the volume in the corridor without and with Mill Road Stage 2a (with Sunfield).

Figure 3: PM peak volumes (without and with Stage 2A)



Currently, this intersection is priority-controlled, and it is proposed to upgrade this intersection to be a signalised intersection as part of the Sunfield Development (early stages). Currently AT are proposing a "Road Safety" upgrade of this intersection however this has less capacity of the proposed Sunfield upgrade. This AT upgrade will proceed the further upgrade required for the Sunfield development given the immediate need for the initial upgrade.

The modelling suggests with the updated layout, the intersection with all 3,000 vph with 2041 flows (with background growth and Sunfield) will be at capacity (LOS F), while the 1,100vph scenario performs under / near capacity (see ITA). There is potentially a solution / additional upgrade possible which converts the eastbound left turn lane into a through / left lane.

[illegible]

J002635 Sunfield staging and sensitivity 121125

Figure 5: PM peak volumes (without and with Stage 2A)



As such the need for this upgrade will depend on final traffic flow and Mill Road Stage 2a upgrade which can be determined at the monitoring point condition at a third occupied.

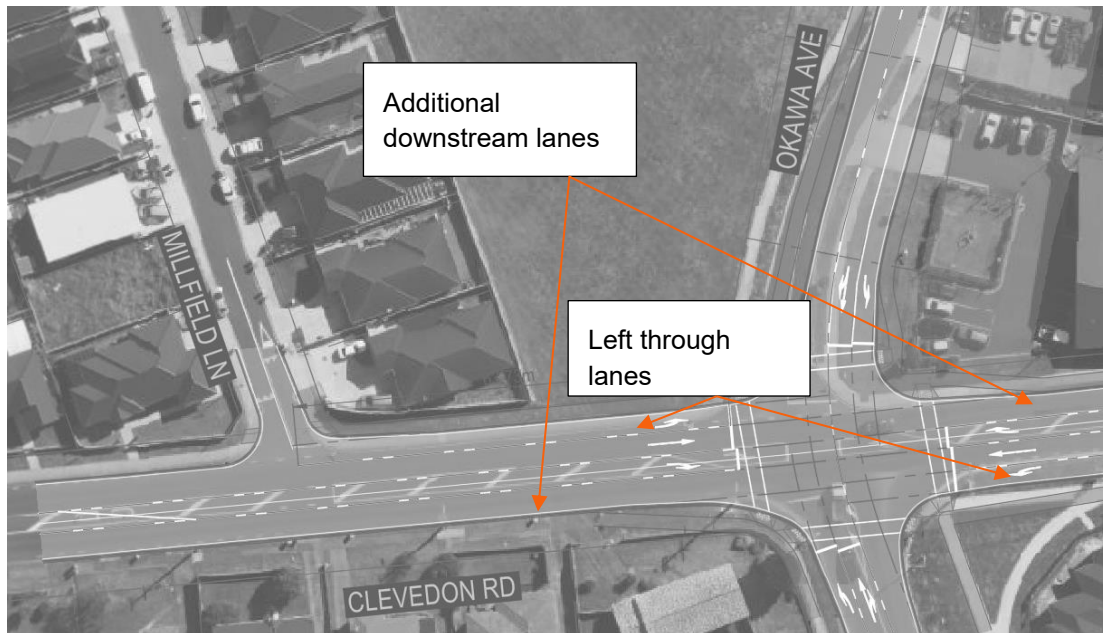
3.4 OKAWA AVENUE / CLEVEDON ROAD / DOMINION ROAD / PAPAKURA CLEVEDON ROAD (C)

Currently, this intersection is priority-controlled, and it is proposed to upgrade this intersection to be a signalised intersection as part of the Sunfield Development. Currently AT are proposing a "Road Safety" upgrade of this intersection however this has less capacity of the proposed Sunfield upgrade. This AT upgrade will precede the further upgrade required for the Sunfield development.

It is noted that the NZTA / AFC model is not updated in this area to include the signalised intersection proposed by Sunfield. We have thus used the ITA traffic model (including 10 years growth) but added 3,100vph from Sunfield rather than the 1,100vph in the ITA (2.8 times).

The modelling suggests with the updated layout, the intersection with all 3,000 vph with 2041 flows (with background growth and Sunfield) will be at capacity (LOS F), while the 1,100vph scenario performs near capacity (see ITA). There is potentially a solution / additional upgrade possible which converts both Papakura / Clevedon left turn lanes into through / left lanes.

Figure 6: Dominion Road / Clevedon Road potential additional upgrade



It is noted that the Mill Road Stage 2a adds significant traffic on the eastern (Papakura Clevedon Road) and southern Dominion Road legs of the intersection if the Mill Road arterial is not extended further south at the same time (ie Mill Road stage 2b). This is considered beyond the ability / responsibility of Sunfield to mitigate.

As such the need for this further upgrade will depend on final traffic flow and Mill Road Stage 2a upgrade which can be determined at the monitoring point condition at a third occupied.

3.5 COSGRAVE ROAD / ROAD 4 (D)

Currently, this intersection does not exist (it is created as a result of the Sunfield Development being undertaken), and it is proposed for this intersection to be a priority intersection as part of the Sunfield Development.

With the 3,000vph scenario this intersection will operate at acceptable levels.

3.6 COSGRAVE ROAD / ROAD 2 / BELLBIRD STREET (E)

Currently, this intersection does not exist (it is created as a result of the Sunfield Development), and it is proposed for this intersection to be a signalised intersection as part of the Sunfield Development.

The ITA showed that this intersection had some spare capacity in the 1,100vph scenario with the Cosgrave Road northern approach in the evening peak being the critical movement.

The 1,100 vph scenario operates with a small amount of spare capacity (see ITA). We have reviewed the 3,000 vph scenario based on the AFC forecast which shows the intersection to have excessive queueing / delay on Cosgrave Road. MRS2A is however anticipated to negate the need for this second upgrade (as 25-30% of traffic will be removed from Cosgrave Road).

We also note again that after approximately one third development the trip rates will be reviewed / monitored to determine if they are valid and if additional physical mitigation and / or additional measures are needed to reduce trip generation.

3.7 AIRFIELD ROAD / MILL ROAD (F)

This intersection is currently a single lane roundabout. Sunfield Development upgrade being the construction of a signalised intersection as per 14 October 2025 response. As noted previously the key aspects of the modelling:

- For the 1,100 vph scenario the upgrade is nearing capacity
- With 3,000 vph Sunfield Development and without MRS2A it is noted that some links either side on Airfield Road in particular are over capacity. The Sunfield Development upgrade being the construction of a signalised intersection as outlined within the Sunfield ITA / 14 October letter improves the operation in the short term.
- With Sunfield Development and with MRS2A the intersection operates acceptably as 40% of traffic is removed (see below).

Overall, the Sunfield Development is anticipated to result in improvements in the operation of the Airfield Road / Mill Road intersection in the short to medium term (with upgrade). It is noted that the Beca review considers further upgrading is required. It appears that the Sunfield upgrade is sufficient in the short / medium term however in the longer-term an additional upgrade is required if the AT / Beca prediction trip generation of 3,000vph eventuates (upgrade is essentially additional lanes on Airfield Road and likely MRS2A).

Traffic at this intersection is significantly reduced as a result of MR2S. The AFC modelling indicates a 40% overall reduction in traffic at this intersection in relation to that modelled above (3,000 vph scenario). With this reduction, the critical PM peak performs well, as per below (3,000 vph scenario and MRS2a with layout as proposed by Sunfield).

Figure 7: Airfield Road / Mill Road PM peak (with MRS2a and 3,000vph)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mill Road															
1	L2	All MCs	155	5.0	155	5.0	* 0.858	30.3	LOS C	19.7	144.8	1.00	1.03	1.22	35.2
2	T1	All MCs	646	6.0	646	6.0	0.858	47.0	LOS D	19.7	144.8	1.00	1.04	1.22	38.5
3	R2	All MCs	9	23.0	9	23.0	0.089	50.0	LOS D	0.4	3.5	0.96	0.67	0.96	33.8
Approach			811	6.0	811	6.0	0.858	43.8	LOS D	19.7	144.8	1.00	1.03	1.22	37.9
East: Airfield Road															
4	L2	All MCs	5	13.0	5	13.0	0.009	26.0	LOS C	0.1	1.2	0.68	0.62	0.68	40.0
5	T1	All MCs	176	7.0	176	7.0	0.887	49.5	LOS D	17.2	129.4	1.00	1.09	1.32	29.5
6	R2	All MCs	160	11.0	160	11.0	0.887	54.3	LOS D	17.2	129.4	1.00	1.09	1.32	33.7
Approach			341	9.0	341	9.0	0.887	51.4	LOS D	17.2	129.4	1.00	1.08	1.31	31.7
North: Mill Road															
7	L2	All MCs	171	40.0	171	40.0	* 0.799	22.8	LOS C	14.3	118.8	0.99	1.01	1.13	36.5
8	T1	All MCs	553	4.0	553	4.0	0.799	43.4	LOS D	16.7	121.0	1.00	0.97	1.13	39.5
9	R2	All MCs	14	9.0	14	9.0	* 0.118	49.9	LOS D	0.6	4.5	0.97	0.68	0.97	33.9
Approach			737	12.4	737	12.4	0.799	38.7	LOS D	16.7	121.0	0.99	0.98	1.13	38.8
West: Airfield Road															
10	L2	All MCs	11	7.0	11	7.0	0.021	17.9	LOS B	0.2	1.3	0.75	0.64	0.75	42.4
11	T1	All MCs	203	9.0	203	9.0	0.842	44.0	LOS D	15.5	115.8	1.00	1.02	1.22	30.8
12	R2	All MCs	120	6.0	120	6.0	0.842	48.6	LOS D	15.5	115.8	1.00	1.02	1.22	34.8
Approach			334	7.9	334	7.9	0.842	44.8	LOS D	15.5	115.8	0.99	1.01	1.21	32.9
All Vehicles			2222	8.9	2222	8.9	0.887	43.4	LOS D	19.7	144.8	1.00	1.02	1.20	36.8

We also note again that after approximately one third development the trip rates will be reviewed / monitored to determine if they are valid and if additional physical mitigation and / or additional measures are needed to reduce trip generation.

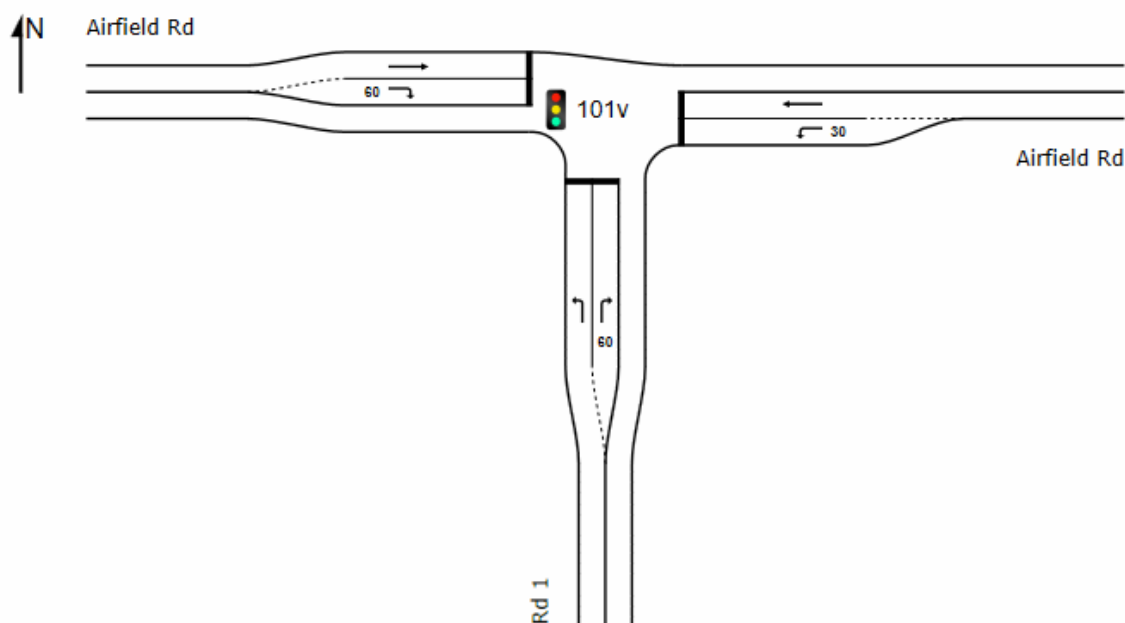
3.8 ROAD 1 / AIRFIELD ROAD (G)

This intersection is proposed to be a signal controlled or roundabout intersection as part of the Sunfield Development. It is noted that the NZTA model is not updated in this area to include the signalised intersection now proposed by Sunfield (and only one road to Airfield).

We have reviewed the 3,000 vph scenario based on the AFC forecast which shows the intersection (upgraded to signalised) to be operating at acceptable levels even with all Airfield Road traffic using it. While not in the AFC results, we have combined both Roads 1 and 7 into one signalised intersection. The layout and resulting operation are shown below.

The results show the intersection performing well with the 3,000vph scenario.

Figure 8: Airfield / Road 1 signalised intersection



Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total		Arrival Flows [Total		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue Dist [Veh.		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Rd 1															
1	L2	All MCs	228	5.0	228	5.0	0.232	10.7	LOS B	2.3	17.1	0.55	0.72	0.55	49.1
3	R2	All MCs	343	5.0	343	5.0	0.851	28.4	LOS C	8.2	59.8	1.00	1.04	1.48	39.5
Approach			572	5.0	572	5.0	0.851	21.4	LOS C	8.2	59.8	0.82	0.91	1.11	42.9
East: Airfield Rd															
4	L2	All MCs	392	5.0	392	5.0	0.416	12.0	LOS B	4.8	34.8	0.65	0.76	0.65	48.2
5	T1	All MCs	267	5.0	267	5.0	0.944	33.8	LOS C	7.7	56.4	1.00	1.26	2.07	38.5
Approach			659	5.0	659	5.0	0.944	20.9	LOS C	7.7	56.4	0.79	0.96	1.22	43.8
West: Airfield Rd															
11	T1	All MCs	141	5.0	141	5.0	0.157	6.5	LOS A	1.6	11.6	0.60	0.48	0.60	54.2
12	R2	All MCs	262	5.0	262	5.0	0.835	28.7	LOS C	6.2	44.9	1.00	1.03	1.49	39.4
Approach			403	5.0	403	5.0	0.835	21.0	LOS C	6.2	44.9	0.86	0.84	1.18	43.6
All Vehicles			1634	5.0	1634	5.0	0.944	21.1	LOS C	8.2	59.8	0.82	0.91	1.17	43.4

3.9 ROAD 7 / AIRFIELD ROAD (H)

This intersection is no longer proposed.

3.10 PAKARAKA DRIVE / ROAD 1 / OLD WAIROA ROAD (I)

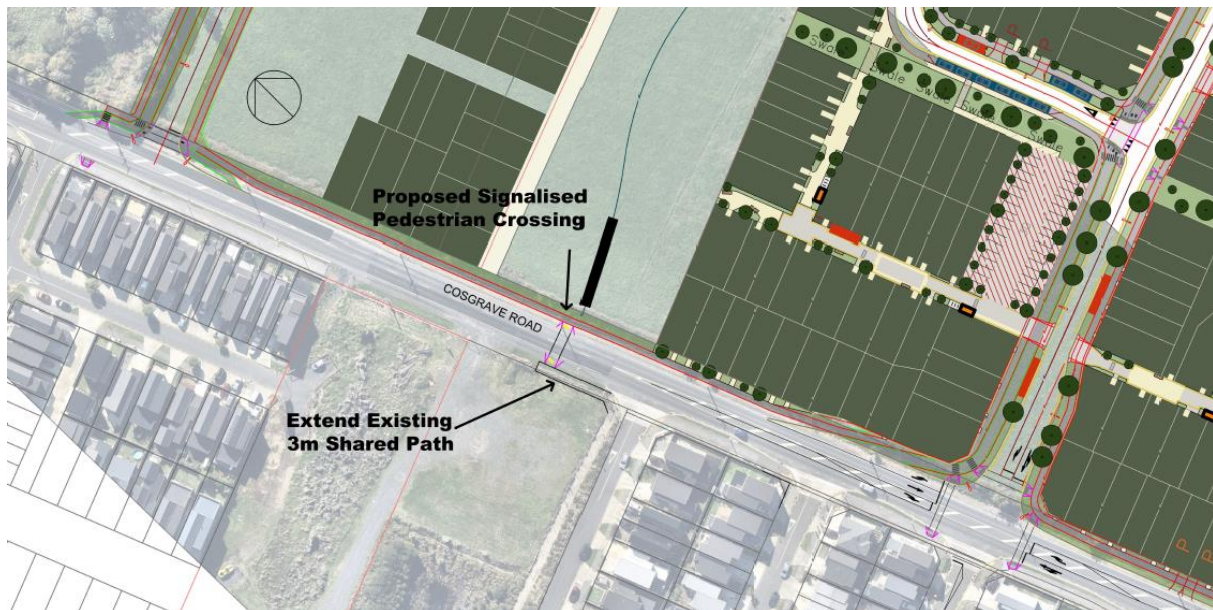
This intersection is proposed as part of the Sunfield Development as a signal-controlled intersection.

As per the 14 October response we have reviewed this intersection in the critical PM peak. With the addition of a short left turn lane from Old Wairoa Road into Road 1 the intersection with the full 3,000vph performs at LOS D and Degree of Saturation of 0.745 indicating an appropriate operating performance. This indicates significant level of capacity remaining in the order of 25% increase in all flows on top of the 3,000 vph Sunfield scenario.

4 PEDESTRIAN / CYCLIST UPGRADES

As per discussions, we have reviewed the pedestrian crossing on Cosgrove Road near the Awakeri Wetland area north of Bellbird Street signalised intersection. From this review we consider it to be appropriate to include an additional signalised pedestrian / cycling crossing of Cosgrove Road to link the two sides of the wetland off-road paths (both existing and in the Sunfield site). This is shown in Figure 8 below and included at Upgrade #3 in Table 2 previously.

Figure 9: Cosgrove Road pedestrian / cyclist upgrade



5 PUBLIC TRANSPORT NODES

There has been some discussion regarding the capacity / ability of the existing public transport nodes / terminal and, if any upgrades are required. In this regard the two bus nodes at both Papakura and Takanini stations are shown in Figure 9 and 10 below.

Figure 10: Papakura (Railway Street)

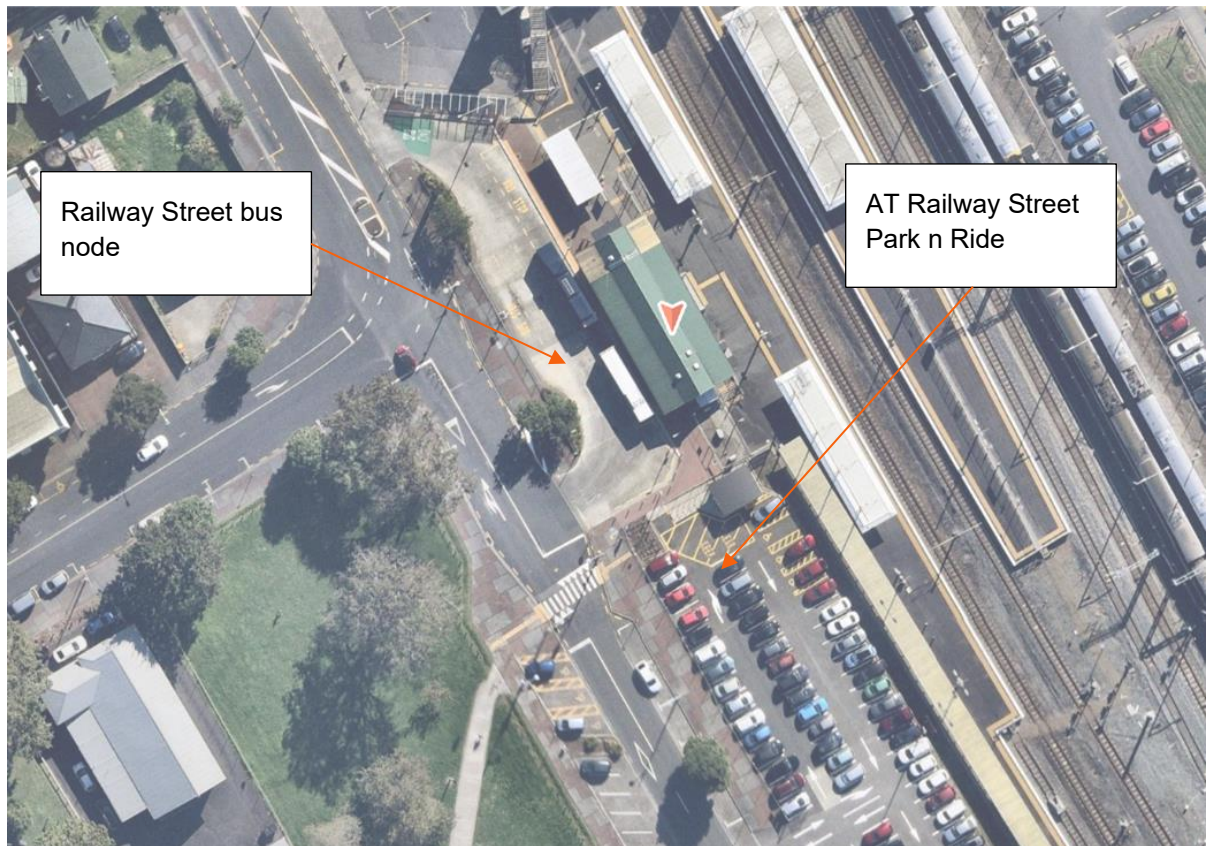


Figure 11: Takanini (Station Road)



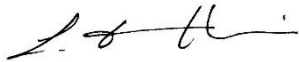
In this regard:

- Papakura Station has an off-line bus node on Railway Road which can accommodate four buses at any one time. It would be relatively easy to extend the bus node to the south however this would mean the removal of some park 'n ride parking spaces (some 8-10 spaces to obtain two more bus parks) in the Auckland Transport Park n ride parking area and re-arrangement of the existing pedestrian crossing.
- Takanini Station simply has a bus stop on Station Road accommodating one bus. This could be easily extended along Station Road to accommodate more buses if required.

We trust this answers the questions you have at this time.

Yours sincerely

Commute Transportation Consultants



Leo Hills

Director

leo@commute.kiwi