12 December 2024

Aliro Group
Level 38, Gateway, 1 Macquarie Place
Sydney NSW 2000

Attn: Andrew Simpson, Development Director (NSW)

info@asongroup.com.au
+61 2 9083 6601
Suite 17.02, Level 17,
1 Castlereagh Street,
Sydney, NSW 2000
ABN: 81 168 423 872

RE: Schools Access Queue and Delay Traffic Assessment

Dear Andrew

We take the opportunity to respond to the key items raised by the Schools in response to the Summit Application including: traffic management, queueing, and school peaks.

Traffic Management

Access Strategy

The proposed access strategy has been designed to maximise the separation between school and development traffic, minimising the number of conflict points, and providing avenues for safe interaction where separation is not achieved.

Figure 1 illustrates the partial road network upgrade.

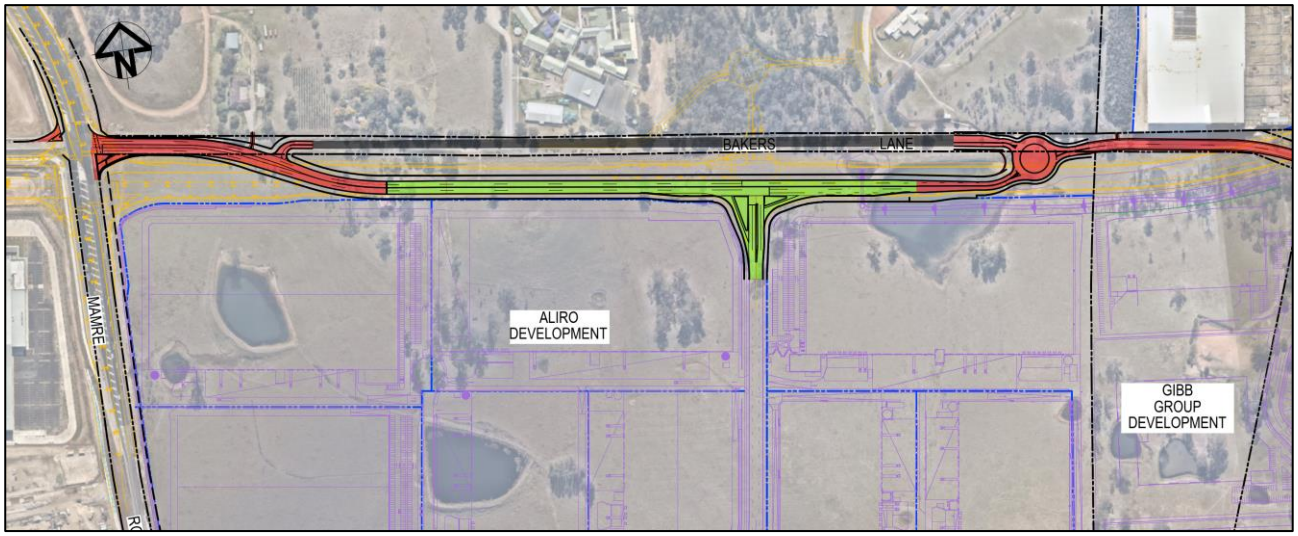


Figure 1: Future road network upgrade

The strategy has sought to minimise the degree of external influence, with the parallel roadway enabling the school pick-up / drop-off operation to occur independently of the external development traffic. This solution would not be expected to adversely affect traffic management solutions currently used by the schools.

The number of conflict points would be reduced as Bakers Lane would largely operate under a clockwise flow. The majority of school movements would simplify to left-in and left-out movements at the access

driveways and pick-up / drop-off facilities, which exhibits reduced risk of conflict compared to the current right-turn and u-turn movements.

Where the school traffic and development traffic intersects, the proposal includes formalised facilities which moderates delays across the approaches (such as at the roundabout) or prioritises vehicular movement on the main line (such as at the new signalised intersection at the Summit access), both of which benefit the school traffic and reduces incidence of excessive delays.

Future Network Design

The proposed access strategy is consistent with the future network design outlined in the Mamre Road Development Control Plan (DCP), addressing current and immediate needs while aligning with the longer-term structure plan.

The upgraded access road provides wider lanes, improved intersection capacity, and increased queue storage spaces to maintain safe operation of the road network.

Intersection Operation & Queueing

Modelling Assumptions

The following provides an update to the modelling presented in the October 2024 memo. The revised modelling has been completed to assess the combined impacts assuming the peak development demands occur at the same time as the peak school demands.

We confirm the modelling now assumes:

- Approximately 65% development of the Mamre Road Precinct likely to reflect a scenario within a 5-10 year horizon.
- Peak development and peak school operation (that is, worst case analysis).
- A partial road network upgrade (see **Figure 1**) consistent with the application being assessed by DPHI that:
  - Has consideration to the Mamre Road DCP and future road network (including the SLR)
  - Establishes a future access strategy that provides for safe and efficient access for all users.
  - Separates operational and school traffic as much as is reasonably practical noting land ownership and other constraints.

Data Collection Informing Assessment

In response to the issues raised in relation to data collection, we confirm the modelling is informed by surveys and inspections including:

- 25 June 2024 – Classified intersection counts at the school accesses
- 22-28 June 2024 – Tube counts on Bakers Lane east and west of the schools
- 21 May 2024 – Classified intersection counts at Mamre Road / Bakers Lane (alongside other intersections on Mamre Road)
- 24-31 August 2023 – Tube count on Mamre Road
- 18 August 2022 – Classified intersection counts at Mamre Road / Bakers Lane (alongside other intersections on Mamre Road)
- 14-20 May 2019 – Tube count on Mamre Road, north of Bakers Lane

Video footage has been collected for the 25 June 2024 surveyed intersections and is available upon request.

Traffic Movement Analysis

Figure 2 illustrates the assessed inbound and outbound movements to the schools. **Table 1** outlines the intersection layout for Mamre Road / Bakers Lane, under current conditions (left), and under the proposed layout (right).

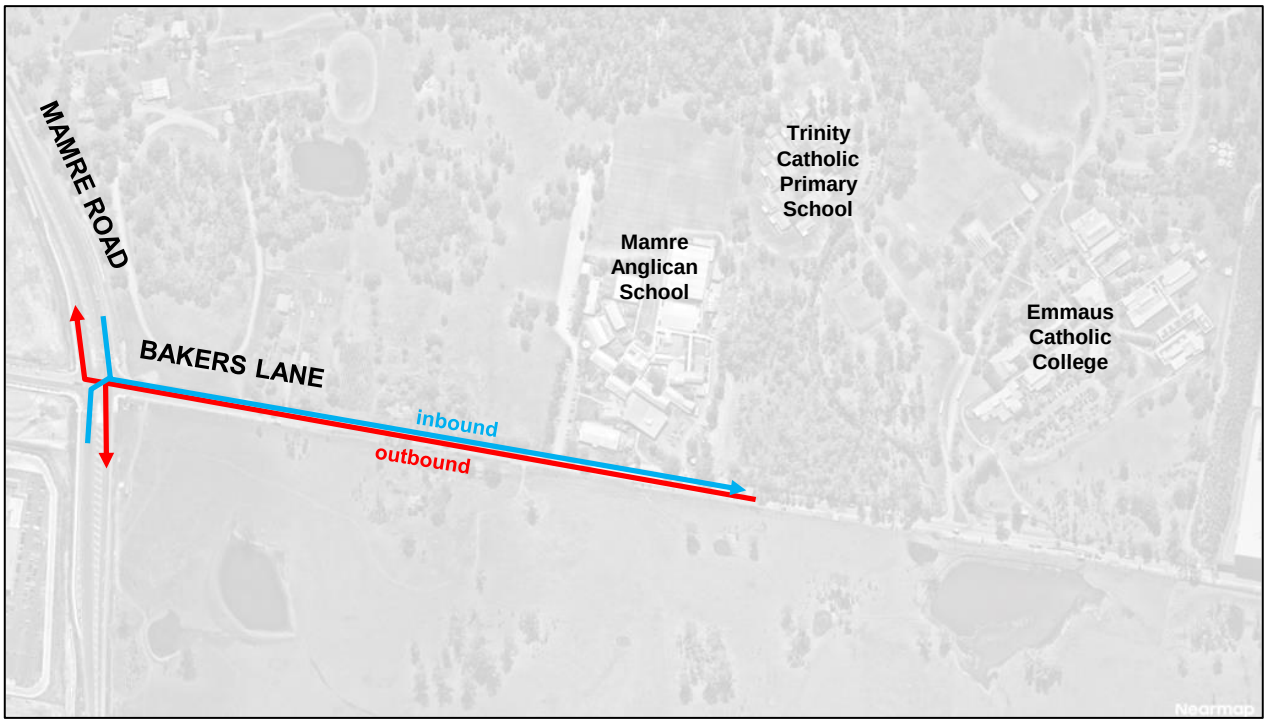
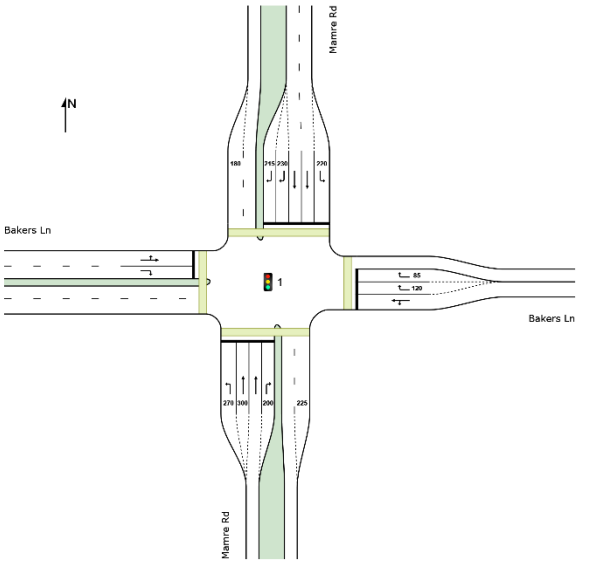
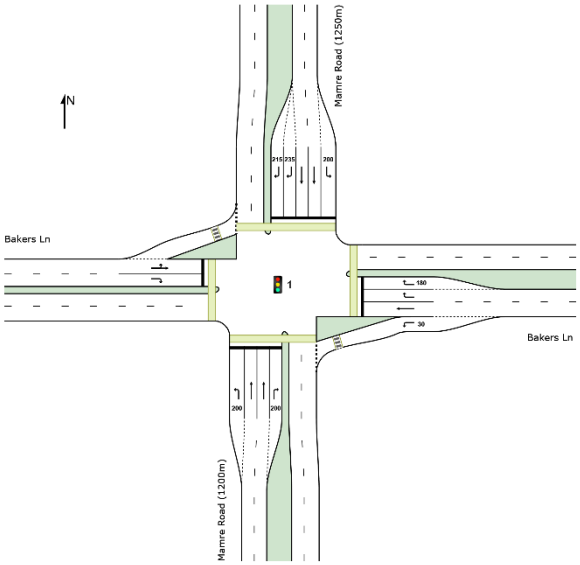


Figure 2: Travel routes to schools

TABLE 1: INTERSECTION LAYOUT – MAMRE ROAD / BAKERS LANE

Existing Layout	Proposed Layout
	

Key Findings

Our assessment forecasts an increase in traffic delays and vehicle queues at the Mamre Road / Bakers Lane intersection under the future scenario. This increase is greatest in the AM peak, in the outbound direction. In the PM peak, and in the other directions, the increases are minor.

- **AM School peak (8:00 am – 9:00 am)**
  - In the AM peak, the average outbound delay at the intersection is expected to rise by 44 seconds, from 51 to 95 seconds, while the maximum vehicle queue is expected to increase by 16 vehicles.
  - In the AM peak, the average inbound delay is expected to rise by 1 second, from 23 to 24 seconds, while the maximum vehicle queue is expected to increase by 8 vehicles.
- **PM School peak (2:30 pm – 3:30 pm)**
  - In the PM peak, the average outbound delay at the intersection is expected to rise by 7 seconds, from 51 to 58 seconds, while the maximum vehicle queue is expected to increase by 6 vehicles.
  - In the PM peak, the average inbound delay is expected to rise by 2 seconds, from 20 to 22 seconds, while the maximum vehicle queue is expected to increase by 2 vehicles.

Table 2 summarises the changes in travel delay and queueing. Note that queues at the intersection are maintained within the turn bays capacity (i.e. in a manner such that vehicles waiting to turn do not extend to the adjacent through lane).

TABLE 2: CHANGES IN DELAY AND MAXIMUM VEHICLE QUEUES AT THE MAMRE ROAD / BAKERS LANE INTERSECTION

Peak	Direction	Item	Future 2026-2031	Current 2024	Difference
AM	Outbound (Westbound)	Delay (s)	95	51	+44
		Queue (veh)	26	10	+16
	Inbound (Eastbound)	Delay (s)	24	23	+1
		Queue (veh)	23	15	+8
PM	Outbound (Westbound)	Delay (s)	58	51	+7
		Queue (veh)	19	13	+6
	Inbound (Eastbound)	Delay (s)	22	20	+2
		Queue (veh)	6	4	+2

In the PM school peak, and for the inbound direction during the AM school peak, the increase in delays and queueing are minor. Greater queues and delays are expected in the outbound direction during the AM school peak, as a result of the increased demands at the intersection resulting from the development in the precinct.

Whilst it is acknowledged that increased queues and delays are expected at the Mamre Road / Bakers Lane intersection as a result of future intensification, these are mitigated by the upgrades proposed at the intersection and along the partial road network upgrade as described above. This access strategy focuses on safety as the primary outcome, isolating the development traffic from school traffic as far as practicable and providing avenues for safe interaction where the two user groups meet.

Roundabout Delay Assessment

Following a meeting with the Schools and the Department of Planning on 10 December 2024, Ason Group has updated the analysis for the roundabout proposed as part of the access strategy (see **Figure 1**). Similar modelling assumptions as detailed above have been adopted in this analysis (i.e. update to school peak hours and school traffic flows). The traffic flows at the roundabout are illustrated in **Figure 3** and results are summarised in in **Table 3**.

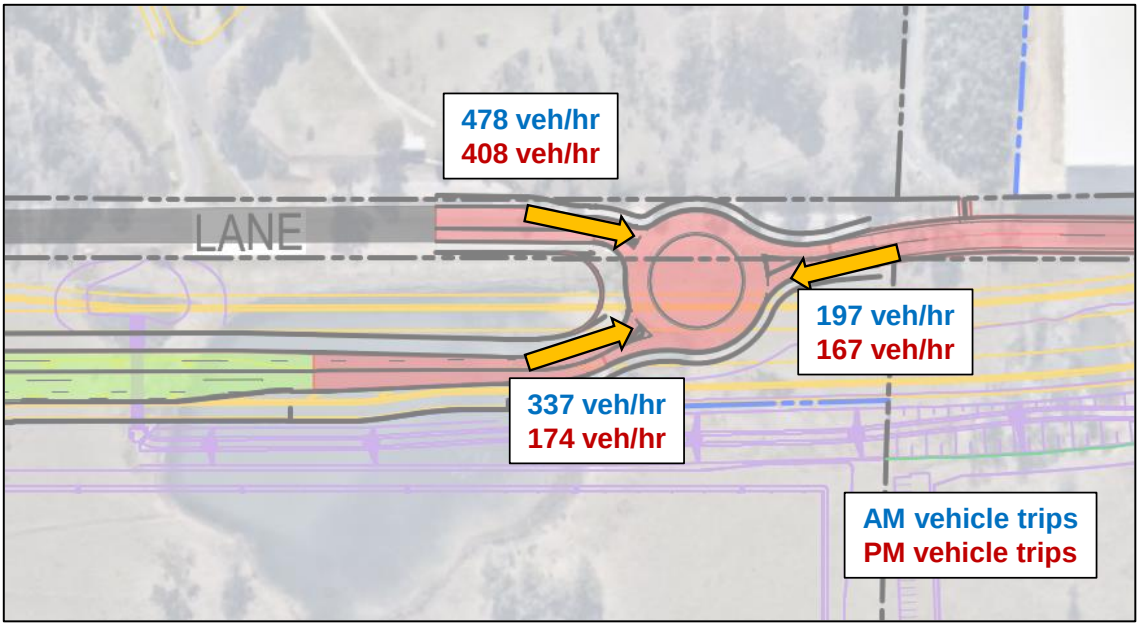


Figure 3: AM and PM school peak vehicle trips

TABLE 3: DELAY AND MAXIMUM VEHICLE QUEUES AT THE ROUNDABOUT

Peak	Direction	Item	Future (2026-2031)
AM	Outbound (Westbound)	Delay (s)	12
		Queue (veh)	3
PM	Outbound (Westbound)	Delay (s)	10
		Queue (veh)	2

Based on the analysis, there is forecast to be minimal delay and queueing at this roundabout. The roundabout operates with delays below 14 seconds, which indicates it operates at a Level of Service A, the best possible Level of Service (a measure used to describe operational performance of transport infrastructure). The queues are minimal, not exceeding 3 vehicles in either school peak hour. Therefore the roundabout is expected to comfortably accommodate the forecast future traffic volumes.

I trust the above is clear. Should you require further information, please do not hesitate to contact the undersigned.

Yours sincerely,

Edmund Cheung
Principal Lead – Modelling & Data Analytics
E edmund.cheung@asongroup.com.au
M +61 404 883 632