21 February 2022

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

Frasers Property Australia & Altis Property Partners (Joint Venture)
(via Email)

Attn: Paul Solomon and Stephen O'Connor

RE: 657-703 Mamre Road, Kemps Creek (SSD-9522) Modification 2 – Response to Submission - Transport Statement

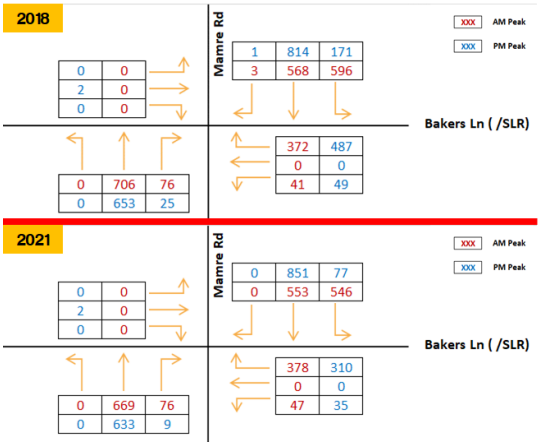
Dear Paul and Stephen,

Reference has been made to Transport for New South Wales' (TfNSW) response sent on 9 February 2022. In this regard, the Joint Venture (JV) has commissioned Ason Group to prepare a response in support of the Modification 2 (MOD 2) for SSD-9522 at 657-703 Mamre Road, Kemps Creek (the Site).

As such, the comments raised by TfNSW are reproduced in **Table 1** with MU Group's / Ason Group's response outlined in the respective sections.

TABLE 1: RESPONSE TO TFNSW'S COMMENTS

Item	TfNSW's Comments	Ason Group's / MU Group's Response
Road Design		
1	TfNSW has reviewed the designs of both Sequence 1A Modified and Sequence 1B to understand what the risks are should Sequence 1B not be constructed. TfNSW raises the following issues to the Department with Sequence 1A Modified which would be eliminated with the provision of Sequence 1B:	It should be noted that the detailed design for Modified Sequence 1A has been developed in accordance with the Austroads Guide and relevant TfNSW Supplements and Specifications. A Road Safety Audit (RSA) has also been conducted on the detailed design, in accordance with TfNSW Guidelines to Road Safety Audit Practices, with incorporations of the appropriate corrective actions. TfNSW's design review comments have also been incorporated in the development of the design (currently in the 100% detailed phase).
2	i. The "one lane to two lanes" and "two lanes to one lane" merging and diverging manoeuvres in close proximity to one another have been shown to create queuing. (examples are westbound on the G.W.H. west of Katoomba and eastbound on the G. W. H. approaching Mount Victoria/Blackheath also the M1 north and south of Sydney during the holiday periods).	The baseline traffic volumes on the Mamre Road / Bakers Lane intersection for the surveyed year 2018 and 2021 are shown in the figure overleaf.



Based on the figure above, the total traffic volumes heading northbound / southbound on Mamre Road are summarised as follows:

Traffic Volumes on Mamre Road		
Peak Hour / Direction	**NB (veh)**	**SB (veh)**
2018		
AM Peak	1,078	609
PM Peak	1,140	863
2021		
AM Peak	1,047	580
PM Peak	943	886

In this regard, it is important to give consideration to the existing capacity of Mamre Road with one lane, regardless of the development traffic. With reference to Section 4.2.3 of the TfNSW (formerly RTA) Guide to Traffic Generating Developments, the existing link Level of Service (LoS) along Mamre Road is shown in below table:

Existing Link LoS		
Peak Hour / Direction	**NB**	**SB**
2018		
AM Peak	E	C
PM Peak	E	D
2021		
AM Peak	E	C
PM Peak	D	D

The following table also confirms the baseline VoC on Mamre Road in the immediate vicinity of Bakers Lane:

Capacity Ratio Formula (Mamre Road)		
Peak Hour / Direction	**NB (veh)**	**SB (veh)**
2018		
AM Peak	1.078	0.609
PM Peak	1.140	0.863
2021		
AM Peak	1.047	0.580
PM Peak	0.943	0.886

		As noted in the above table, the existing traffic volumes heading northbound exceed the Mamre Road Lane capacity for 2018 during the AM and PM Peaks and 2021 during the AM Peak. Traffic volumes heading southbound in 2018 and 2021 during the PM Peak indicate that Mamre Road is operating near capacity as well. Therefore, it is evident that the link capacity issues along Mamre Road is an existing concern which does not relate to the Kemps Creek Estate development. This issue has been discussed with TfNSW in the early stages of the project and identifies the need for upgrading Mamre Road to two lanes even without this development. It is acknowledged that the JV has agreed to upgrade Mamre Road to two lanes from the northern boundary of the Site to the Mamre Road / Distribution Drive intersection. However, it does not necessitate the fact that the issue of the link capacity is only relevant to this development. It is also noted that by the 2025 / 2026 future assessment years, the background growth (again without the development traffic) exacerbates this issue. Based on the approved TA, the development traffic with 421,820m^2 GFA ONLY adds a net increase to the overall traffic on Mamre Road by 14% (NB) to 15% (SB) during the AM Peak and 22% (NB) to 17% (SB) during the PM Peak on Mamre Road, north and south of Bakers Lane by 2026 and really does not trigger upgrade for two-lanes in each direction by itself. Following the original SSD approval and upon further review of the project scope, it was established that upgrading Mamre Road to two lanes from the Site boundary to Distribution Drive, as stipulated in Condition B11, is not feasible which triggered the need for the MOD 2 application. Accordingly, the JV requested Ason Group to review opportunities for the localised upgrade at the Mamre Road / Bakers Lane signal. This, in fact, means that the Proposal intends to accommodate all of its vehicular demand as well as Southern Lots traffic to / from Mamre Road without any additional and material impact onto the surrounding road network (Modified Sequence 1A). We again emphasise that the design and modelling of Modified Sequence 1A has already been approved as part of MOD 1 and the current MOD 2 only requests removal of Sequence 1B on the basis that the approved Modified Sequence 1A can carry the development traffic without Sequence 1B in the longer-term future (refer to **Attachment A** for approved SIDRA modelling results). As such, consideration should mainly be given to the existing lane capacity issues for these signals to remain as a matter for TfNSW and other developers to review and discuss as part of other wider traffic studies. With regards to the above, it is important to compare the overall modelling results of Sequence 1B and Modified Sequence 1A with the development traffic for the modelling horizon 2026. A summary of the results are shown in the table below with detailed results outlined in **Attachment B**.

			SIDRA Modelling Results (Attachment B) **Sequence 1B – Mamre Rd / Bakers Ln (80 sec cycletime) with Development Traffic** **Time** / **Queue (m)** / **DoS** / **LoS** / **AVD** AM: 193.3 / 0.947 / C / 37.9 PM: 271.6 / 1.016 / D / 51.9 **Modified Sequence 1A - Mamre Rd / Bakers Ln (80 sec cycletime) with Development Traffic** AM: 193.3 / 0.947 / C / 37.9 PM: 271.6 / 0.959 / D / 45.2 As noted above, the overall results for Sequence 1B and Modified Sequence 1A are similar during the AM Peak. However, Modified Sequence 1A operates at a better DoS and AVD in the PM Peak, when compared to its counterpart. Furthermore, it is noted that that the queues from both Sequence 1B and Modified Sequence 1A does not encroach upon the merging lanes. Furthermore, with regards to item 15, the queue lengths at the specific right-turn movements for Modified Sequence 1A (modelling horizon 2026) with development traffic (for the Mamre Road / Bakers Lane intersection in isolation) is as follows: **SIDRA Modelling Results (Attachment B)** **Modified Sequence 1A - Mamre Rd / Bakers Ln (80 sec cycletime) with Development Traffic (2026)** **Direction / Peak Hour** / **AM Peak** / **PM Peak** **Queue lengths (m)** **Right Turn Bay at North Leg**: 121.6 / 30.6 **Right Turn Bay at East Leg**: 75.4 / 103.6 **Right Turn Bay at South Leg**: - / 7.6 **Right Turn Bay at West Leg**: - / 77.3 It is noted that the above queues can be well accommodated by the following right turn bay pockets: • Right-turn bay at northern leg: 220.0m; • Right-turn bay at eastern leg: 120.0m; • Right-turn bay at southern leg: 200.0m; and • Right-turn bay at western leg: 150.0m.
3	ii.	The access to the Sydney Water Pipeline from the northbound carriageway will be located soon after the end of the two lanes to one merge. The existing nearside shoulder in the vicinity of the pipeline is only 2m wide thereby requiring Sydney Water maintenance vehicles wishing to access the pipeline to decelerate partly in the through lane. This would not be desirable given that northbound drivers who have accelerated to operating speed and concentrated on merging safely could then have to contend with a maintenance vehicle slowing in front of them to access the pipeline.	The access to the WaterNSW pipelines is approximately 180m from the end of taper. The Stopping Sight Distance for a design speed of 90km/h is 107m, in accordance with Austroads. Therefore, this comment is not deemed a safety issue (noting that this has not been identified in the Road Safety Audit). In addition, the visibility at this location is good due to the straight geometry of the road and the position of the pipeline access at a crest. It should be noted that maintenance vehicles accessing the pipelines that are decelerating in the through lane is an existing condition. Improving access to the pipeline is outside the scope of this development.

4	iii.	Street lighting will be required in the vicinity of the two lanes to one merge on the northbound carriageway north of Bakers Lane.	This is addressed in the detailed design. The 100% Detailed Design had been submitted to the PV for review and will be passed on to TfNSW for subsequent review.
5	iv.	The 80% detailed design drawings for Sequence 1A Modified show that there are two driveways adjacent to the diverge from one lane to two south of the pipeline. Drivers travelling at operating speed and concentrating on whether they needed to diverge to the offside lane to access the Bakers Lane right turn lanes or remain in the nearside lane could then have to contend with a vehicle slowing in front of them to access one of the driveways.	Safety issues have been addressed in the detailed design development including the incorporation of corrective actions from the Road Safety Audit findings, HSiD workshop and design review comments from TfNSW. It is not anticipated that the comment raised would be a significant issue. It should be noted that this is an existing condition on a single lane approach. The diverging lane on the design is expected to make this condition better by providing the opportunity for overtaking.
6	v.	There is no runout area in the vicinity of the two lanes to one merge on the southbound carriageway north of the Sydney Water pipeline for drivers who have had difficulty merging.	Shoulder widening for errant merging vehicles have been designed in both directions, in accordance with Austroads and relevant standards and specifications. These were shown in the 80% Detailed Design and retained in the 100% Detailed Design submission.
7	The abovementioned safety concerns would be eliminated with the provision of Sequence 1B. In this regard TfNSW recommends that Condition B11 be retained to ensure a safer long term option is provided as the traffic increases as a result of this development.		Refer to responses detailed within items 1 to 6.
Item	**TfNSW's Comments**		**Ason Group's Response**
Cycletime			
8	The cycletime provided in the report should reflect a more realistic approach and worst case scenario should modelling be provided to justify the removal of Sequence 1B. The 80/90 second cycletimes are not realistic. The optimum SCATS Cycle Length for the corridor should consider a cycletime of 120 seconds (at a minimum). It should be noted, experience has revealed that if there is a Double Diamond Overlap (D.D.O.) intersection in the corridor, a 120 second may even be too low. This is the case if one or more of the four "Alternative Phases" (i.e. "B', "C", "F1" or "F2") are introduced. This will normally be the case in peak periods.		It is noted that the cycletimes provided within the model supporting the **approved** Sequence 1A has not been changed for the additional scenarios reviewed for future years 2026, 2031 and 2036. Notwithstanding, to address this comment, we have undertaken **option testing** for the Mamre Road / Bakers Lane intersection for Modified Sequence 1A in isolation to showcase the modelling results for the 120 second cycletime. The results of this option testing are shown within **Attachment C** with SIDRA files provided along with this memo. The results of this option testing indicate the following: • AM Peak (with development traffic): – LoS C (with no legs operating at LoS F); – DoS < 0.900 (including all legs); and – All queues can be stored within the respective pockets. • PM Peak (with development traffic): – LoS D (with no legs operating at LoS F); – DoS < 0.900 (including all legs); and – All queues can be stored within the respective pockets. The results within **Attachment C** also indicate that even with the Kemps Creek development traffic at 421,820m^2 plus the Southern Lots, there are minor changes to the overall LoS, queue lengths and DoS.
9	TfNSW does not consider the justification that the 80/90 second cycletime was used to determine the approved Sequence 1A Modified as a supported reason.		Noted. Hence, we have undertaken the above additional option testing to assess the 120 second cycletime. Furthermore, the results contained within **Attachment C** demonstrate that Modified

		Sequence 1A will achieve an acceptable LoS and DoS with the higher cycletimes.
10	TfNSW has concerns that reducing the footprint of road upgrades to Sequence 1A Modified only, may lead to worse results than what has been represented in the model to date.	Refer to response in item 8. It was concluded that the footprint does not lead to worse results as has been described above.
11	TfNSW recommends that all the models be updated to reflect the abovementioned cycletime. This should be rectified to enable a robust review of the modelling results and for it to be representative of realistic operation of the corridor.	Refer to response provided within item 8 and results shown within **Attachment C**. Furthermore, it is concluded that the 120 second cycletime analysis does not impact on the operation of the intersection (Modified Sequence 1A), as approved.
Modelling		
12	Although it is stated the 'the removal of Sequence 1B does not compromise the operation of the approved Sequence 1A intersection', this statement does not account for the impacts upstream/downstream in the vicinity of this intersection. SIDRA movement summaries should be provided for Sequence 1B to understand what the impacts are to these intersections.	It is noted that the impacts upstream / downstream on Mamre Road is an existing issue regardless of this development. The link capacity constraints, north and south of Bakers Lane have been discussed with TfNSW during the course of this project. Notably, as the timing for Stage 2 of the Mamre Road upgrade work is yet to be determined, we suggest that a minimum localised widening would be required to access the Site. This has satisfactorily been achieved under Modified Sequence 1A with almost similar operations and with no additional impact outside the signalised intersection proposed by JV. Furthermore, TfNSW has identified the need to widen Mamre Road to 4 lanes in the near future with the provision of up to 6 lanes in the longer term, to cater for the additional vehicles heading on this road. Certainly, broader upgrades to Mamre Road and delivery of other key connections like the Southern Link Road are welcomed in acknowledgement of the future demands forecast. However, delivery of these broader road upgrades is ultimately a matter for TfNSW in its role as the roads authority and is not something that a single Applicant should be reasonably burdened with. Rather than forming a requirement for this specific development in isolation, it is proposed that these broader upgrades to Mamre Road being undertaken as part of the staged infrastructure delivery to support the broader Mamre Road Precinct. For a more detailed discussion regarding the existing upstream / downstream traffic volumes on Mamre Road, refer to the discussion detailed within item 2.
13	It is recommended that the SIDRA movement summaries for Sequence 1B are provided for review and comparison. All movement summaries should be provided for any updated modelling.	The SIDRA movement summary for Sequence 1B has already been provided to TfNSW for review. However, this movement summary has been attached again within **Attachment D**.
14	It is difficult to compare the results and determine whether there is any significant impacts to the signal operation should Condition B11 be removed. The following observations are made in abeyance of the requested model:	Noted.
15	**2026 Modified Sequence 1A** **i. Mamre Rd & Bakers Ln** • Intersection of Mamre Road & Bakers lane appears to perform worse without Sequence 1B (based on 2025 Sequence 1B with SL); • **AM Peak –**	It is important to clarify that as acknowledged by TfNSW, this intersection would operate at a LoS C or D at the AM and PM Peaks respectively for the modelling horizon, 2026.

	• Right turn lane on north leg is operating at LOS F, 0.917 degree of saturation (DOS), and average of 1.37 cycles to depart; • Right turn lane on east leg is operating at LOS F, 0.899 DOS, and at with average of 1.34 cycles to depart; • **PM peak –** • Most right turn movements are operating at LOS F • North leg through movement is at LOS D at 0.839 DOS and drivers required on average 1.03 cycles to pass through the intersection; Despite the overall intersection LOS of D, having LOS F on individual movements, especially with high levels of queuing and number of cycles to depart, has an increased risk of drivers running the red light.	In this regard, Section 4.2.2 of the TfNSW (formerly RTA) Guide to Traffic Generating Developments states that for signalised intersections: *"The best indicator of the level of service at an intersection is the average delay experienced by vehicles at that intersection. For traffic signals, the average delay over all movements should be taken."* Furthermore, the modelling results show that Mamre Road, a major north-south connection, will operate at a satisfactory LoS, with reasonably low delays on through movements. This is an ideal outcome for the broader network travel times and is typical of the priority afforded to a Classified Road. Notwithstanding, the Modified Sequence 1A results (with 80 second cycletime) shown within **Attachment B** indicate that there are minor differences within the AVD and LoS, with and without the development traffic at all the legs for both the AM and PM Peaks. Therefore, as noted within item 2, the issue lies with the amount of existing vehicles on Mamre Road with background traffic growth being a result of all developments within the precinct.
16	**ii. Appendix 8 – TIA (P1780r01v7 TN_Kemps Creek SSD 9522 MOD 2)** • The SIDRA Network layout in Figure 8 appears to indicate that under Modified Sequence 1A, the section of Mamre Road between Distribution Drive (Mamre West precinct access) and James Erskine Drive is two lanes in each direction. However, the existing section is only one lane in each direction. This needs to be updated to reflect the actual lane arrangement.	It is important to emphasise that under the Stage 2 Mamre Road upgrade work, this section of the road (from Distribution Drive to James Erskine Drive) is expected to be upgraded by TfNSW (not as part of the SSD approval conditions). Hence, it makes sense to model this section as two lanes, noting future upgrades in the area. However, since the timing for the Stage 2 upgrade work has not been determined yet, we have undertaken an Option Testing to address this comment. Accordingly, the SIDRA Network layout has been amended to reflect TfNSW's request and the relevant movement summaries have been shown within **Attachment E.** Furthermore, as shown within **Attachment E**, the additional options testing indicates that Modified Sequence 1A (with one lane in both directions) operates at an acceptable LoS.
17	It is recommended that all SIDRA movement summaries for Sequence 1B (and 1A Modified) are provided for review and comparison. All movement summaries should be provided for any updated modelling.	The following revised SIDRA modelling results (for the Mamre Road / Bakers Lane intersection in isolation) have been attached to this memo: • **Attachment A:** Approved SIDRA modelling results for Sequence 1B and Modified Sequence 1A with 80 second cycletime (2025) with and without development traffic; • **Attachment B:** SIDRA modelling results for Sequence 1B and Modified Sequence 1A with 80 second cycletime (2026) with and without development traffic; • **Attachment C:** SIDRA modelling results for Modified Sequence 1A with 120 second cycletime (2026) with and without development traffic; • **Attachment D:** SIDRA movement summary for approved sequence 1B (2025) with and without development traffic; • **Attachment E:** SIDRA movement summary of amended Modified Sequence 1A (two lane approach at Distribution Drive) with and without development traffic; and • **Attachment F:** SIDRA movement summaries of Sequence 1B and Modified Sequence 1A with 80 second cycletime (2026) and Modified Sequence 1A with 120 second cycletime (2026) with and without development traffic Revised electronic SIDRA files will be emailed to TfNSW to review, along with this memo.

We trust the above is of assistance and if you have any questions, please do not hesitate to contact the undersigned or Dr Ali Rasouli.

Yours sincerely,

Osama Hashmi
Traffic Engineer
E Osama.hashmi@asongroup.com.au
M +61 405 889 732

Attachment A

Approved SIDRA Modelling Results for Sequence 1B (Mamre Road / Bakers Lane Intersection) and Modified Sequence 1A with 80 Second Cycletime (2025)

TABLE 2: SUMMARY OF SIDRA RESULTS FOR SEQUENCE 1B – 80 SECOND CYCLETIME

Modelling Horizon 2025							
Intersection	**Period**	**Approach**	**Turn**	**DoS**	**Queue (metres)**	**LoS**	**AVD (s)**
Mamre Road / Bakers Lane (in Isolation) without Development	AM	South	L	0.001	0.1	A	14.0
			T	0.625	99.5	B	16.9
			R	0.617	24.9	D	49.4
		East	L	0.107	10.1	C	30.0
			T	0.107	10.1	B	24.4
			R	0.918	73.9	E	58.0
		North	L	0.609	118.2	B	17.8
			T	0.482	83.2	B	18.0
			R	0.011	0.4	D	43.6
		West	L	0.013	0.5	C	42.4
			T	0.013	0.5	C	36.9
			R	0.007	0.3	D	43.5
	Overall			**0.918**	**118.2**	**B**	**24.5**
	PM	South	L	0.001	0.1	A	14.4
			T	0.584	87.4	B	19.2
			R	0.121	6.8	C	41.8
		East	L	0.089	10.7	B	24.4
			T	0.089	10.7	B	18.8
			R	0.929	100.6	E	59.2
		North	L	0.190	26.9	B	15.7
			T	0.898	203.2	C	41.0
			R	0.006	0.3	D	45.1
		West	L	0.019	0.8	D	42.5
			T	0.019	0.8	C	37.0
			R	0.007	0.3	D	43.5
	Overall			**0.929**	**203.2**	**C**	**36.0**

TABLE 3: SUMMARY OF SIDRA RESULTS FOR SEQUENCE 1B – 80 SECOND CYCLETIME

Modelling Horizon 2025							
Intersection	**Period**	**Approach**	**Turn**	**DoS**	**Queue (metres)**	**LoS**	**AVD (s)**
Mamre Road / Bakers Lane (in Isolation) with Development	AM	South	L	0.396	65.5	B	20.0
			T	0.851	151.9	C	33.2
			R	0.247	19.6	C	37.8
		East	L	0.091	9.5	B	27.4
			T	0.091	9.5	B	21.8
			R	0.918	73.9	E	58.0
		North	L	0.749	155.6	B	25.5
			T	0.656	100.7	B	26.1
			R	0.877	104.4	D	51.7
		West	L	0.491	61.0	C	29.5
			T	0.491	61.0	B	23.6
			R	0.665	46.0	D	45.4
	Overall			**0.918**	**155.6**	**C**	**34.8**
	PM	South	L	0.098	12.9	A	12.3
			T	0.671	100.1	B	23.7
			R	0.202	7.6	D	47.1
		East	L	0.144	13.0	C	32.8
			T	0.144	13.0	B	27.2
			R	0.929	100.6	E	59.2
		North	L	0.190	26.9	B	15.7
			T	0.898	203.2	C	41.0
			R	0.696	30.6	D	50.0
		West	L	0.887	156.2	D	49.6
			T	0.887	156.2	D	43.7
			R	0.664	73.1	C	39.1
	Overall			**0.929**	**203.2**	**C**	**38.8**

TABLE 4: SUMMARY OF SIDRA RESULTS FOR MODIFIED SEQUENCE 1A – 80 SECOND CYCLETIME

Modelling Horizon 2025							
Intersection	**Period**	**Approach**	**Turn**	**DoS**	**Queue (metres)**	**LoS**	**AVD (s)**
Mamre Road / Bakers Lane (in Isolation) without Development	AM	South	L	0.001	0.1	A	14.0
			T	0.625	99.5	B	16.9
			R	0.617	24.9	D	49.4
		East	L	0.107	10.1	C	30.0
			T	0.107	10.1	B	24.4
			R	0.918	73.9	E	58.0
		North	L	0.609	118.2	B	17.8
			T	0.482	83.2	B	18.0
			R	0.011	0.4	D	43.6
		West	L	0.013	0.5	C	42.4
			T	0.013	0.5	C	36.9
			R	0.007	0.3	D	43.5
	Overall			**0.918**	**118.2**	**B**	**24.5**
	PM	South	L	0.001	0.1	A	14.4
			T	0.584	87.4	B	19.2
			R	0.121	6.8	C	41.8
		East	L	0.089	10.7	B	24.4
			T	0.089	10.7	B	18.8
			R	0.929	100.6	E	59.2
		North	L	0.190	26.9	B	15.7
			T	0.898	203.2	C	41.0
			R	0.006	0.3	D	45.1
		West	L	0.019	0.8	D	42.5
			T	0.019	0.8	C	37.0
			R	0.007	0.3	D	43.5
	Overall			**0.929**	**203.2**	**C**	**36.0**

TABLE 5: SUMMARY OF SIDRA RESULTS FOR MODIFIED SEQUENCE 1A – 80 SECOND CYCLETIME

Modelling Horizon 2025							
Intersection	**Period**	**Approach**	**Turn**	**DoS**	**Queue (metres)**	**LoS**	**AVD (s)**
Mamre Road / Bakers Lane (in Isolation) with Development	AM	South	L	0.396	65.5	B	20.0
			T	0.851	151.9	C	33.2
			R	0.247	19.6	C	37.8
		East	L	0.091	9.5	B	27.4
			T	0.091	9.5	B	21.8
			R	0.918	73.9	E	58.0
		North	L	0.749	155.6	B	25.5
			T	0.656	100.7	B	26.1
			R	0.877	104.4	D	51.7
		West	L	0.461	61.0	C	29.5
			T	0.461	61.0	B	23.6
			R	0.665	46.0	D	45.4
	Overall			**0.918**	**155.6**	**C**	**34.8**
	PM	South	L	0.098	12.9	A	12.3
			T	0.671	100.1	B	23.7
			R	0.202	7.6	D	47.1
		East	L	0.144	13.0	C	32.8
			T	0.144	13.0	B	27.2
			R	0.929	100.6	E	59.2
		North	L	0.190	26.9	B	15.7
			T	0.898	203.2	C	41.0
			R	0.696	30.6	D	50.0
		West	L	0.887	156.2	D	49.6
			T	0.887	156.2	D	43.7
			R	0.664	73.1	C	39.1
	Overall			**0.929**	**203.2**	**C**	**38.8**

Attachment B

SIDRA Modelling Results for Sequence 1B (Mamre Road / Bakers Lane Intersection) and Modified Sequence 1A with 80 Second Cycletime (2026)

TABLE 6: SUMMARY OF SIDRA RESULTS FOR SEQUENCE 1B – 80 SECOND CYCLETIME

Modelling Horizon 2026							
Intersection	**Period**	**Approach**	**Turn**	**DoS**	**Queue (metres)**	**LoS**	**AVD (s)**
Mamre Road / Bakers Lane (in Isolation) without Development	AM	South	L	0.001	0.1	A	14.0
			T	0.639	102.8	B	17.1
			R	0.631	25.6	D	49.5
		East	L	0.116	10.8	C	30.9
			T	0.116	10.8	B	25.3
			R	0.931	76.9	E	60.3
		North	L	0.622	122.5	B	17.9
			T	0.493	85.5	B	18.1
			R	0.015	0.6	D	43.7
		West	L	0.013	0.5	C	42.4
			T	0.013	0.5	C	36.9
			R	0.007	0.3	D	43.5
	Overall			**0.931**	**122.5**	**B**	**25.0**
	PM	South	L	0.001	0.1	B	14.9
			T	0.617	93.5	B	20.4
			R	0.140	7.3	D	43.0
		East	L	0.049	5.5	B	26.3
			T	0.049	5.5	B	20.7
			R	0.873	92.2	D	50.4
		North	L	0.191	26.9	B	15.2
			T	0.917	218.8	D	45.0
			R	0.013	0.5	D	45.4
		West	L	0.019	0.8	D	42.5
			T	0.019	0.8	C	37.0
			R	0.007	0.3	D	43.5
	Overall			**0.917**	**218.8**	**C**	**36.3**

TABLE 7: SUMMARY OF SIDRA RESULTS FOR SEQUENCE 1B – 80 SECOND CYCLETIME

Modelling Horizon 2026							
Intersection	**Period**	**Approach**	**Turn**	**DoS**	**Queue (metres)**	**LoS**	**AVD (s)**
Mamre Road / Bakers Lane (in Isolation) with Development	AM	South	L	0.396	65.5	B	20.0
			T	0.869	160.3	C	34.9
			R	0.253	20.1	C	37.8
		East	L	0.105	10.4	C	29.1
			T	0.105	10.4	B	23.5
			R	0.931	76.9	E	60.3
		North	L	0.766	163.9	B	26.4
			T	0.670	104.1	B	26.4
			R	0.878	104.8	D	51.9
		West	L	0.461	61.0	C	29.5
			T	0.461	61.0	B	23.6
			R	0.665	46.0	D	45.4
	Overall			**0.931**	**163.9**	**C**	**35.6**
	PM	South	L	0.098	12.9	A	12.3
			T	0.686	103.8	B	24.0
			R	0.209	7.9	D	47.1
		East	L	0.081	6.6	C	34.2
			T	0.081	6.6	C	28.6
			R	0.941	104.7	E	61.9
		North	L	0.196	27.8	B	15.7
			T	0.917	218.8	D	45.0
			R	0.703	30.9	D	50.2
		West	L	0.887	156.2	D	49.6
			T	0.887	156.2	D	43.7
			R	0.664	73.1	C	39.1
	Overall			**0.941**	**218.8**	**C**	**40.5**

TABLE 8: SUMMARY OF SIDRA RESULTS FOR MODIFIED SEQUENCE 1A – 80 SECOND CYCLETIME

Modelling Horizon 2026							
Intersection	**Period**	**Approach**	**Turn**	**DoS**	**Queue (metres)**	**LoS**	**AVD (s)**
Mamre Road / Bakers Lane (in Isolation) without Development	AM	South	L	0.001	0.1	A	14.0
			T	0.697	118.8	B	17.7
			R	0.624	25.3	D	49.5
		East	L	0.107	10.1	C	300.0
			T	0.107	10.1	B	24.4
			R	0.925	75.4	E	59.1
		North	L	0.614	119.9	B	17.8
			T	0.511	89.7	B	18.3
			R	0.011	0.4	D	43.6
		West	L	0.013	0.5	C	42.4
			T	0.013	0.5	C	36.9
			R	0.007	0.3	D	43.5
	Overall			**0.925**	**119.9**	**B**	**24.7**
	PM	South	L	0.001	0.1	B	14.9
			T	0.639	98.5	B	20.6
			R	0.173	7.4	D	45.6
		East	L	0.096	11.2	B	25.2
			T	0.096	11.2	B	19.6
			R	0.871	91.5	D	50.1
		North	L	0.179	24.6	A	14.2
			T	0.926	243.7	D	46.1
			R	0.006	0.3	D	45.1
		West	L	0.019	0.8	D	42.5
			T	0.019	0.8	C	37.0
			R	0.007	0.3	D	43.5
	Overall			**0.926**	**243.7**	**C**	**36.7**

TABLE 9: SUMMARY OF SIDRA RESULTS FOR MODIFIED SEQUENCE 1A – 80 SECOND CYCLETIME

Modelling Horizon 2026							
Intersection	**Period**	**Approach**	**Turn**	**DoS**	**Queue (metres)**	**LoS**	**AVD (s)**
Mamre Road / Bakers Lane (in Isolation) with Development	AM	South	L	0.388	64.3	B	19.3
			T	0.912	193.3	C	39.9
			R	0.267	20.3	C	38.8
		East	L	0.095	9.7	B	28.2
			T	0.095	9.7	B	22.6
			R	0.925	75.4	E	59.1
		North	L	0.737	151.7	B	24.2
			T	0.668	106.7	B	25.6
			R	0.947	121.6	E	65.5
		West	L	0.482	62.5	C	30.5
			T	0.482	62.5	B	24.6
			R	0.669	46.4	D	45.4
	Overall			**0.947**	**193.3**	**C**	**37.9**
	PM	South	L	0.099	13.0	A	12.3
			T	0.684	105.6	B	23.0
			R	0.202	7.6	D	47.1
		East	L	0.146	13.3	C	32.8
			T	0.146	13.3	B	27.2
			R	0.938	103.6	E	61.1
		North	L	0.187	26.2	B	15.2
			T	0.959	271.6	E	57.2
			R	0.696	30.6	D	50.0
		West	L	0.938	178.5	E	61.0
			T	0.938	178.5	D	55.1
			R	0.716	77.3	C	41.3
	Overall			**0.959**	**271.6**	**D**	**45.2**

Attachment C

SIDRA Modelling Results for Modified Sequence 1A (Mamre Road / Bakers Lane Intersection) with 120 Second Cycletime (2026)

TABLE 10: SUMMARY OF SIDRA RESULTS FOR MODIFIED SEQUENCE 1A – 120 SECOND CYCLETIME

Modelling Horizon 2026							
Intersection	**Period**	**Approach**	**Turn**	**DoS**	**Queue (metres)**	**LoS**	**AVD (s)**
Mamre Road / Bakers Lane (in Isolation) without Development	AM	South	L	0.001	0.2	B	18.1
			T	0.726	184.9	B	28.3
			R	0.234	28.5	D	50.8
		East	L	0.105	15.0	C	41.9
			T	0.105	15.0	C	36.4
			R	0.816	95.0	E	65.9
		North	L	0.641	188.9	B	25.2
			T	0.532	136.7	C	28.7
			R	0.004	0.5	D	47.6
		West	L	0.013	0.8	E	59.4
			T	0.013	0.8	D	53.9
			R	0.004	0.4	D	52.6
	Overall			**0.816**	**188.9**	**C**	**33.8**
	PM	South	L	0.001	0.1	A	11.6
			T	0.625	142.1	C	29.3
			R	0.182	10.9	E	64.2
		East	L	0.187	21.1	D	51.6
			T	0.187	21.1	D	46.0
			R	0.871	131.0	E	67.9
		North	L	0.181	36.9	B	18.0
			T	0.875	295.1	D	46.5
			R	0.006	0.4	E	63.7
		West	L	0.008	1.0	D	46.3
			T	0.008	1.0	C	40.7
			R	0.002	0.3	C	36.3
	Overall			**0.875**	**295.1**	**D**	**43.8**

TABLE 11: SUMMARY OF SIDRA RESULTS FOR MODIFIED SEQUENCE 1A – 120 SECOND CYCLETIME

Modelling Horizon 2026							
Intersection	**Period**	**Approach**	**Turn**	**DoS**	**Queue (metres)**	**LoS**	**AVD (s)**
Mamre Road / Bakers Lane (in Isolation) with Development	AM	South	L	0.337	80.5	B	21.8
			T	0.726	184.9	B	28.3
			R	0.234	28.5	D	50.8
		East	L	0.105	15.0	C	41.9
			T	0.105	15.0	C	36.4
			R	0.816	95.0	E	65.9
		North	L	0.641	188.9	B	25.2
			T	0.532	136.7	C	28.7
			R	0.829	141.3	E	64.9
		West	L	0.527	96.3	D	45.4
			T	0.527	96.3	C	39.5
			R	0.590	64.8	E	59.8
	Overall			**0.829**	**188.9**	**C**	**38.1**
	PM	South	L	0.085	14.1	A	12.6
			T	0.625	142.1	C	29.3
			R	0.182	10.9	E	64.2
		East	L	0.187	21.1	D	51.6
			T	0.187	21.1	D	46.0
			R	0.871	131.0	E	67.9
		North	L	0.181	36.9	B	18.0
			T	0.875	295.1	D	46.5
			R	0.627	43.2	E	69.0
		West	L	0.841	204.5	E	57.0
			T	0.841	204.5	D	51.1
			R	0.477	94.0	D	43.1
	Overall			**0.875**	**295.1**	**D**	**45.4**

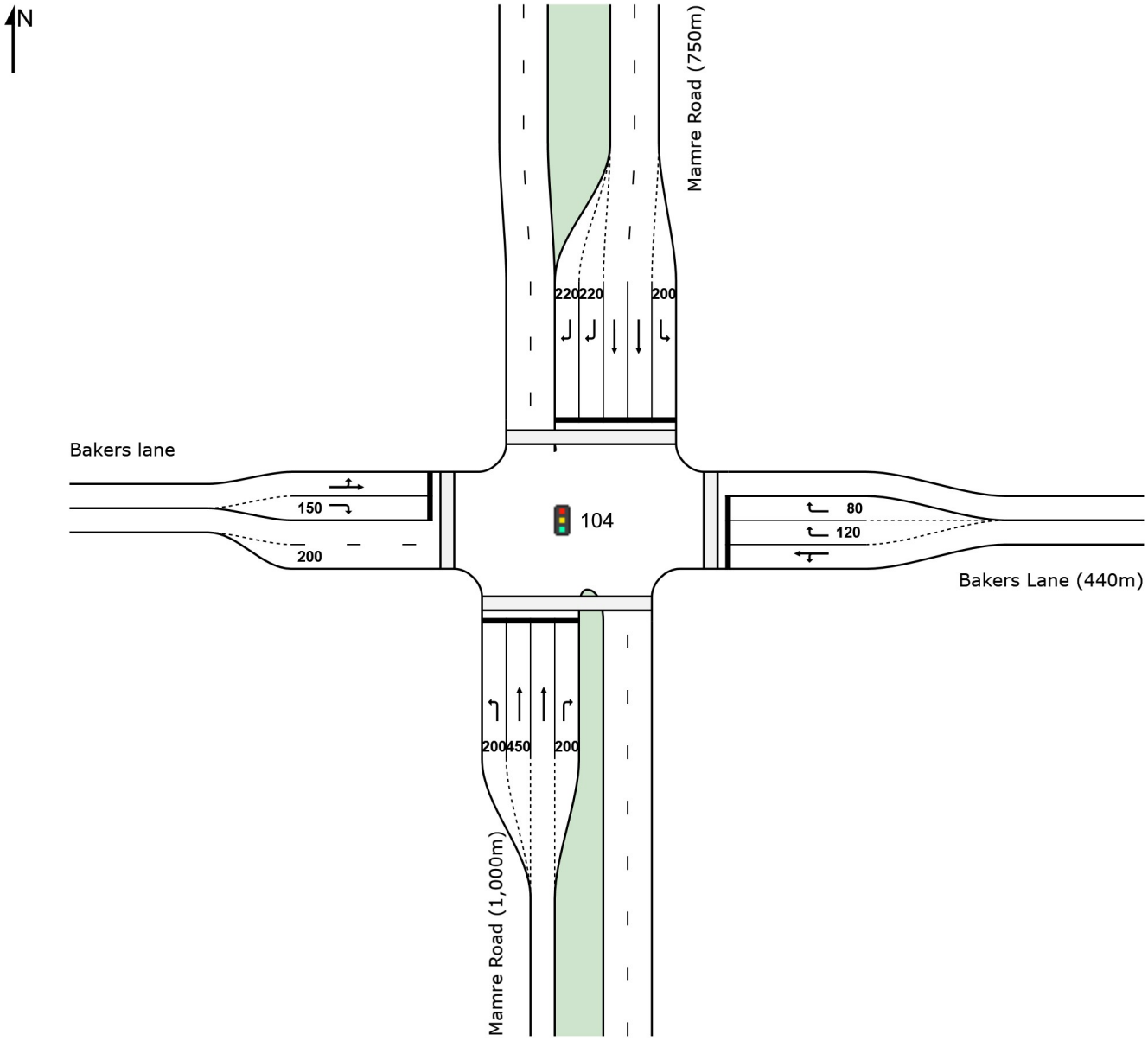
Attachment D

SIDRA Movement Summary for Approved Sequence 1B (2025) With and Without Development Traffic at the Mamre Road / Bakers Lane Intersection (in Isolation)

SITE LAYOUT

Site: 104 [2025 Mamre Road x Bakers Lane_AM (without Development)]

Config: 2025 Sequence 1B
Traffic: 2018 Survey + 2025 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated



MOVEMENT SUMMARY

Site: 104 [2025 Mamre Road x Bakers Lane_AM (without Development)]

Config: 2025 Sequence 1B
Traffic: 2018 Survey + 2025 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	1	0.0	0.001	14.0	LOS A	0.0	0.1	0.46	0.59	0.46	51.2
2	T1	958	14.4	0.625	16.9	LOS B	12.7	99.5	0.72	0.63	0.72	65.9
3	R2	85	2.5	0.617	49.4	LOS D	3.5	24.9	1.00	0.79	1.08	42.6
Approach		1044	13.4	0.625	19.6	LOS B	12.7	99.5	0.74	0.65	0.75	63.6
East: Bakers Lane (440m)												
4	L2	46	2.3	0.107	30.0	LOS C	1.4	10.1	0.79	0.72	0.79	49.6
5	T1	1	0.0	0.107	24.4	LOS B	1.4	10.1	0.79	0.72	0.79	39.5
6	R2	418	4.3	0.918	58.0	LOS E	10.2	73.9	1.00	1.10	1.61	35.7
Approach		465	4.1	0.918	55.1	LOS D	10.2	73.9	0.98	1.06	1.53	36.9
North: Mamre Road (750m)												
7	L2	669	3.3	0.609	17.8	LOS B	16.4	118.2	0.68	0.82	0.68	53.9
8	T1	718	19.2	0.482	18.0	LOS B	10.2	83.2	0.77	0.67	0.77	65.2
9	R2	3	0.0	0.011	43.6	LOS D	0.1	0.4	0.94	0.60	0.94	37.6
Approach		1391	11.5	0.609	18.0	LOS B	16.4	118.2	0.73	0.74	0.73	60.2
West: Bakers lane												
10	L2	1	0.0	0.013	42.4	LOS C	0.1	0.5	0.93	0.59	0.93	38.9
11	T1	1	0.0	0.013	36.9	LOS C	0.1	0.5	0.93	0.59	0.93	35.6
12	R2	1	0.0	0.007	43.5	LOS D	0.0	0.3	0.94	0.59	0.94	40.4
Approach		3	0.0	0.013	40.9	LOS C	0.1	0.5	0.94	0.59	0.94	38.5
All Vehicles		2903	11.0	0.918	24.5	LOS B	16.4	118.2	0.77	0.76	0.86	56.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 104 [2025 Mamre Road x Bakers Lane_PM (without Development)]

Config: 2025 Sequence 1B
Traffic: 2018 Survey + 2025 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	1	0.0	0.001	14.4	LOS A	0.0	0.1	0.47	0.59	0.47	51.0
2	T1	821	13.3	0.584	19.2	LOS B	11.2	87.4	0.74	0.64	0.74	64.5
3	R2	28	0.0	0.121	41.8	LOS C	1.0	6.8	0.88	0.71	0.88	45.5
Approach		851	12.9	0.584	19.9	LOS B	11.2	87.4	0.74	0.65	0.74	63.7
East: Bakers Lane (440m)												
4	L2	55	5.8	0.089	24.4	LOS B	1.5	10.7	0.70	0.71	0.70	52.1
5	T1	1	0.0	0.089	18.8	LOS B	1.5	10.7	0.70	0.71	0.70	42.2
6	R2	546	5.2	0.929	59.2	LOS E	13.8	100.6	1.00	1.12	1.60	35.3
Approach		602	5.2	0.929	55.9	LOS D	13.8	100.6	0.97	1.08	1.52	36.6
North: Mamre Road (750m)												
7	L2	192	9.9	0.190	15.7	LOS B	3.5	26.9	0.51	0.73	0.51	55.0
8	T1	1089	14.8	0.898	41.0	LOS C	25.8	203.2	1.00	1.07	1.33	52.8
9	R2	1	100.0	0.006	45.1	LOS D	0.0	0.3	0.94	0.58	0.94	36.5
Approach		1282	14.1	0.898	37.2	LOS C	25.8	203.2	0.93	1.02	1.20	53.0
West: Bakers lane												
10	L2	1	0.0	0.019	42.5	LOS D	0.1	0.8	0.93	0.60	0.93	39.2
11	T1	2	0.0	0.019	37.0	LOS C	0.1	0.8	0.93	0.60	0.93	35.9
12	R2	1	0.0	0.007	43.5	LOS D	0.0	0.3	0.94	0.59	0.94	40.4
Approach		4	0.0	0.019	40.0	LOS C	0.1	0.8	0.94	0.60	0.94	38.1
All Vehicles		2739	11.8	0.929	36.0	LOS C	25.8	203.2	0.88	0.92	1.13	52.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 104 [2025 Mamre Road x Bakers Lane_AM (with Development)]

Config: 2025 Sequence 1B
Traffic: 2018 Survey + 2025 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	296	31.3	0.396	20.0	LOS B	7.4	65.5	0.68	0.77	0.68	47.9
2	T1	958	14.4	0.851	33.2	LOS C	19.3	151.9	0.97	0.94	1.14	56.4
3	R2	85	2.5	0.247	37.8	LOS C	2.7	19.6	0.84	0.75	0.84	47.1
Approach		1339	17.4	0.851	30.6	LOS C	19.3	151.9	0.89	0.89	1.02	53.9
East: Bakers Lane (440m)												
4	L2	46	2.3	0.091	27.4	LOS B	1.3	9.5	0.75	0.71	0.75	50.8
5	T1	1	0.0	0.091	21.8	LOS B	1.3	9.5	0.75	0.71	0.75	40.7
6	R2	418	4.3	0.918	58.0	LOS E	10.2	73.9	1.00	1.10	1.61	35.7
Approach		465	4.1	0.918	54.8	LOS D	10.2	73.9	0.97	1.06	1.52	37.0
North: Mamre Road (750m)												
7	L2	669	3.3	0.749	25.5	LOS B	21.6	155.6	0.87	0.87	0.89	49.1
8	T1	718	19.2	0.656	26.1	LOS B	12.4	100.7	0.92	0.79	0.92	60.2
9	R2	505	31.0	0.877	51.7	LOS D	11.8	104.4	1.00	1.02	1.43	34.9
Approach		1893	16.7	0.877	32.7	LOS C	21.6	155.6	0.92	0.88	1.04	48.6
West: Bakers lane												
10	L2	216	31.2	0.461	29.5	LOS C	6.9	61.0	0.84	0.80	0.84	42.0
11	T1	1	0.0	0.461	23.6	LOS B	6.9	61.0	0.84	0.80	0.84	39.8
12	R2	127	31.4	0.665	45.4	LOS D	5.2	46.0	1.00	0.85	1.12	39.5
Approach		344	31.2	0.665	35.4	LOS C	6.9	61.0	0.90	0.82	0.94	40.9
All Vehicles		4041	16.7	0.918	34.8	LOS C	21.6	155.6	0.92	0.90	1.08	48.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 104 [2025 Mamre Road x Bakers Lane_PM (with Development)]

Config: 2025 Sequence 1B
Traffic: 2018 Survey + 2025 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	94	31.5	0.098	12.3	LOS A	1.4	12.9	0.42	0.67	0.42	51.3
2	T1	821	13.3	0.671	23.7	LOS B	12.8	100.1	0.84	0.73	0.84	61.6
3	R2	28	0.0	0.202	47.1	LOS D	1.1	7.6	0.95	0.71	0.95	43.6
Approach		943	14.7	0.671	23.3	LOS B	12.8	100.1	0.80	0.72	0.80	59.9
East: Bakers Lane (440m)												
4	L2	55	5.8	0.144	32.8	LOS C	1.8	13.0	0.84	0.73	0.84	48.0
5	T1	1	0.0	0.144	27.2	LOS B	1.8	13.0	0.84	0.73	0.84	38.2
6	R2	546	5.2	0.929	59.2	LOS E	13.8	100.6	1.00	1.12	1.60	35.3
Approach		602	5.2	0.929	56.7	LOS E	13.8	100.6	0.98	1.08	1.53	36.3
North: Mamre Road (750m)												
7	L2	192	9.9	0.190	15.7	LOS B	3.5	26.9	0.51	0.73	0.51	55.0
8	T1	1089	14.8	0.898	41.0	LOS C	25.8	203.2	1.00	1.07	1.33	52.8
9	R2	160	31.6	0.696	50.0	LOS D	3.4	30.6	1.00	0.85	1.22	35.3
Approach		1441	16.0	0.898	38.6	LOS C	25.8	203.2	0.93	1.00	1.21	50.8
West: Bakers lane												
10	L2	369	31.1	0.887	49.6	LOS D	17.6	156.2	1.00	1.02	1.38	35.5
11	T1	2	0.0	0.887	43.7	LOS D	17.6	156.2	1.00	1.02	1.38	32.3
12	R2	217	31.1	0.664	39.1	LOS C	8.2	73.1	0.97	0.85	1.03	41.3
Approach		588	30.9	0.887	45.7	LOS D	17.6	156.2	0.99	0.96	1.25	37.6
All Vehicles		3575	16.3	0.929	38.8	LOS C	25.8	203.2	0.92	0.93	1.16	48.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

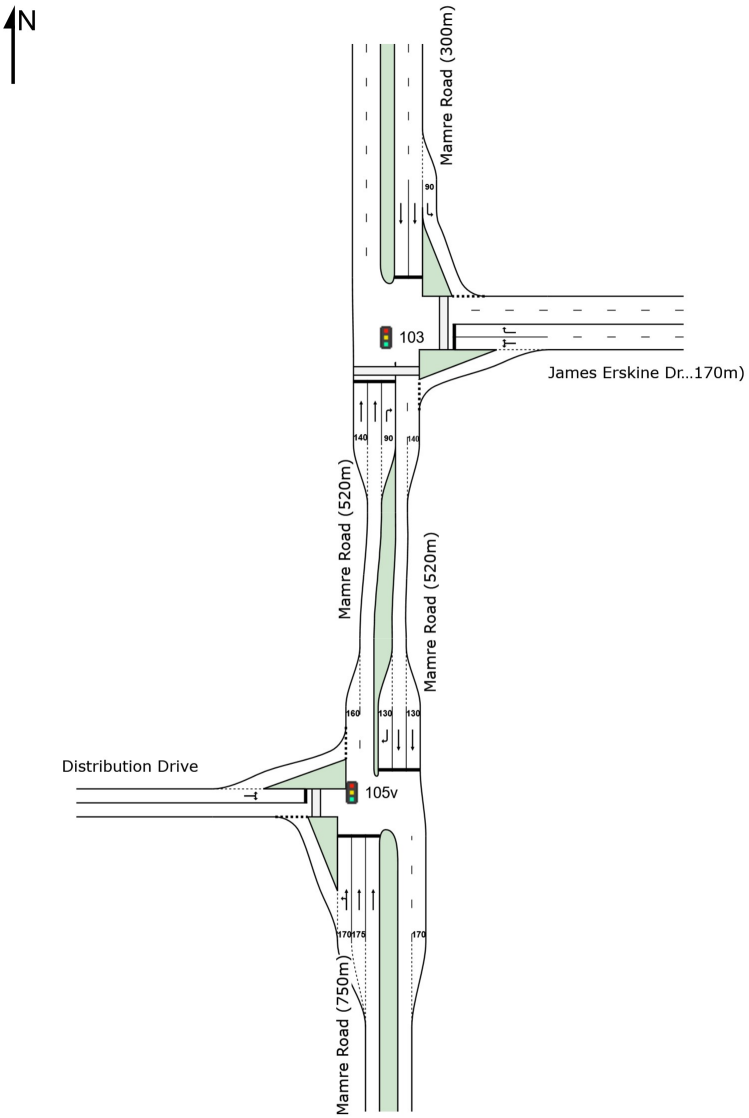
Attachment E

SIDRA Movement Summary of Amended Modified Sequence 1A (Two Lane Approach at Distribution Drive) at the Mamre Road / Distribution Drive and Mamre Road / James Erskine Drive Intersections

NETWORK LAYOUT

Network: N101 [AM Network]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
103	NA	2026 Mamre Road x James Erskine Drive_AM
105v	NA	2026 Mamre Road x Distribution Drive_AM

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com
Organisation: ASON GROUP PTY LTD | Created: Monday, 21 February 2022 9:43:47 pm
Project: C:\Users\Osama Hashmi\OneDrive - Ason Group\1780 - MOD 2\RtS Letter 2\Modelling\Amended Modified Sequence 1A Network - 2026 \P1780 2026 Modified Sequence 1A 120s cycletime (Amended Two-Lane).sip8

MOVEMENT SUMMARY

Site: 103 [2026 Mamre Road x James Erskine Drive_AM] Network: N101 [AM Network]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	Aver. Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mamre Road (520m)														
2	T1	1488	13.6	1488	13.6	0.475	0.3	LOS A	1.0	7.6	0.04	0.04	0.04	79.3
3	R2	100	22.1	100	22.1	0.575	70.1	LOS E	3.7	31.0	1.00	0.79	1.00	23.4
Approach		1588	14.2	1588	14.2	0.575	4.7	LOS A	3.7	31.0	0.10	0.08	0.10	70.4
East: James Erskine Drive (170m)														
4	L2	38	55.6	38	55.6	0.600	49.1	LOS D	2.9	30.2	0.99	0.80	1.03	11.4
6	R2	101	55.2	101	55.2	0.600	59.4	LOS E	2.9	30.2	1.00	0.80	1.06	18.3
Approach		139	55.3	139	55.3	0.600	56.6	LOS E	2.9	30.2	0.99	0.80	1.05	17.0
North: Mamre Road (300m)														
7	L2	320	18.4	320	18.4	0.225	8.6	LOS A	1.6	13.2	0.17	0.65	0.17	49.7
8	T1	2096	16.4	2096	16.4	0.997	44.2	LOS D	67.2	536.1	0.83	0.97	1.06	19.5
Approach		2416	16.6	2416	16.6	0.997	39.5	LOS C	67.2	536.1	0.75	0.92	0.94	22.1
All Vehicles		4143	17.0	4143	17.0	0.997	26.7	LOS B	67.2	536.1	0.51	0.60	0.62	37.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	8.1	LOS A	0.1	0.1	0.37	0.37
All Pedestrians		105	31.2	LOS D			0.66	0.66

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 105v [2026 Mamre Road x Distribution Drive_AM]

Network: N101 [AM Network]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	Aver. Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mamre Road (750m)														
1	L2	111	31.4	111	31.4	0.150	9.9	LOS A	1.2	10.5	0.25	0.48	0.25	62.4
2	T1	1619	13.5	1619	13.5	0.750	19.4	LOS B	20.5	159.8	0.79	0.73	0.79	50.8
Approach		1729	14.6	1729	14.6	0.750	18.8	LOS B	20.5	159.8	0.75	0.72	0.75	51.8
North: Mamre Road (520m)														
8	T1	1976	15.9	1976	15.9	0.718	4.2	LOS A	15.2	121.3	0.42	0.40	0.42	74.5
9	R2	186	31.1	186	31.1	0.613	55.4	LOS D	6.2	55.2	0.96	0.82	0.96	33.1
Approach		2162	17.2	2162	17.2	0.718	8.6	LOS A	15.2	121.3	0.47	0.43	0.47	68.5
West: Distribution Drive														
10	L2	62	30.5	62	30.5	0.196	16.3	LOS B	1.5	13.4	0.51	0.69	0.51	39.7
12	R2	37	31.4	37	31.4	0.196	16.2	LOS B	1.5	13.4	0.51	0.69	0.51	51.8
Approach		99	30.9	99	30.9	0.196	16.3	LOS B	1.5	13.4	0.51	0.69	0.51	46.1
All Vehicles		3991	16.4	3991	16.4	0.750	13.2	LOS A	20.5	159.8	0.59	0.56	0.59	61.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P4	West Full Crossing	53	13.1	LOS B	0.1	0.1	0.47	0.47
All Pedestrians		53	13.1	LOS B			0.47	0.47

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 103 [2026 Mamre Road x James Erskine Drive_PM]

Network: N101 [PM Network]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	Aver. Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mamre Road (520m)														
2	T1	1631	18.9	1631	18.9	0.640	3.4	LOS A	6.3	51.2	0.24	0.22	0.24	73.4
3	R2	29	57.1	29	57.1	0.117	45.8	LOS D	0.8	8.1	0.75	0.72	0.75	29.3
Approach		1660	19.6	1660	19.6	0.640	4.1	LOS A	6.3	51.2	0.25	0.23	0.25	71.8
East: James Erskine Drive (170m)														
4	L2	117	8.1	117	8.1	0.688	41.5	LOS C	6.2	48.3	0.97	0.92	1.18	13.0
6	R2	332	17.8	332	17.8	0.688	51.3	LOS D	6.6	52.9	0.98	0.88	1.11	21.5
Approach		448	15.3	448	15.3	0.688	48.7	LOS D	6.6	52.9	0.98	0.89	1.13	19.9
North: Mamre Road (300m)														
7	L2	154	56.8	154	56.8	0.135	8.7	LOS A	0.4	3.9	0.13	0.63	0.13	45.8
8	T1	1405	19.0	1405	19.0	0.974	51.6	LOS D	41.2	335.7	0.93	1.02	1.14	17.3
Approach		1559	22.8	1559	22.8	0.974	47.4	LOS D	41.2	335.7	0.85	0.98	1.04	19.0
All Vehicles		3667	20.4	3667	20.4	0.974	28.0	LOS B	41.2	335.7	0.59	0.63	0.69	37.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	52.4	LOS E	0.2	0.2	0.94	0.94
P2	East Full Crossing	53	21.1	LOS C	0.1	0.1	0.59	0.59
All Pedestrians		105	36.7	LOS D			0.76	0.76

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 105v [2026 Mamre Road x Distribution Drive_PM]

Network: N101 [PM Network]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	Aver. Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mamre Road (750m)														
1	L2	38	30.6	38	30.6	0.180	13.1	LOS A	2.0	16.1	0.41	0.42	0.41	62.2
2	T1	1791	14.2	1791	14.2	0.898	34.0	LOS C	32.7	256.4	0.87	0.89	0.99	40.1
Approach		1828	14.5	1828	14.5	0.898	33.5	LOS C	32.7	256.4	0.86	0.88	0.97	40.6
North: Mamre Road (520m)														
8	T1	1551	18.5	1551	18.5	0.622	1.0	LOS A	2.3	18.7	0.08	0.07	0.08	78.6
9	R2	64	31.1	64	31.1	0.267	56.3	LOS D	2.0	17.5	0.88	0.76	0.88	32.8
Approach		1615	19.0	1615	19.0	0.622	3.2	LOS A	2.3	18.7	0.11	0.10	0.11	75.2
West: Distribution Drive														
10	L2	192	31.3	192	31.3	0.577	29.1	LOS C	8.1	71.5	0.82	0.82	0.82	31.2
12	R2	113	30.8	113	30.8	0.577	29.1	LOS C	8.1	71.5	0.82	0.82	0.82	45.2
Approach		304	31.1	304	31.1	0.577	29.1	LOS C	8.1	71.5	0.82	0.82	0.82	38.1
All Vehicles		3747	17.8	3747	17.8	0.898	20.1	LOS B	32.7	256.4	0.53	0.54	0.59	54.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P4	West Full Crossing	53	14.5	LOS B	0.1	0.1	0.49	0.49
All Pedestrians		53	14.5	LOS B			0.49	0.49

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

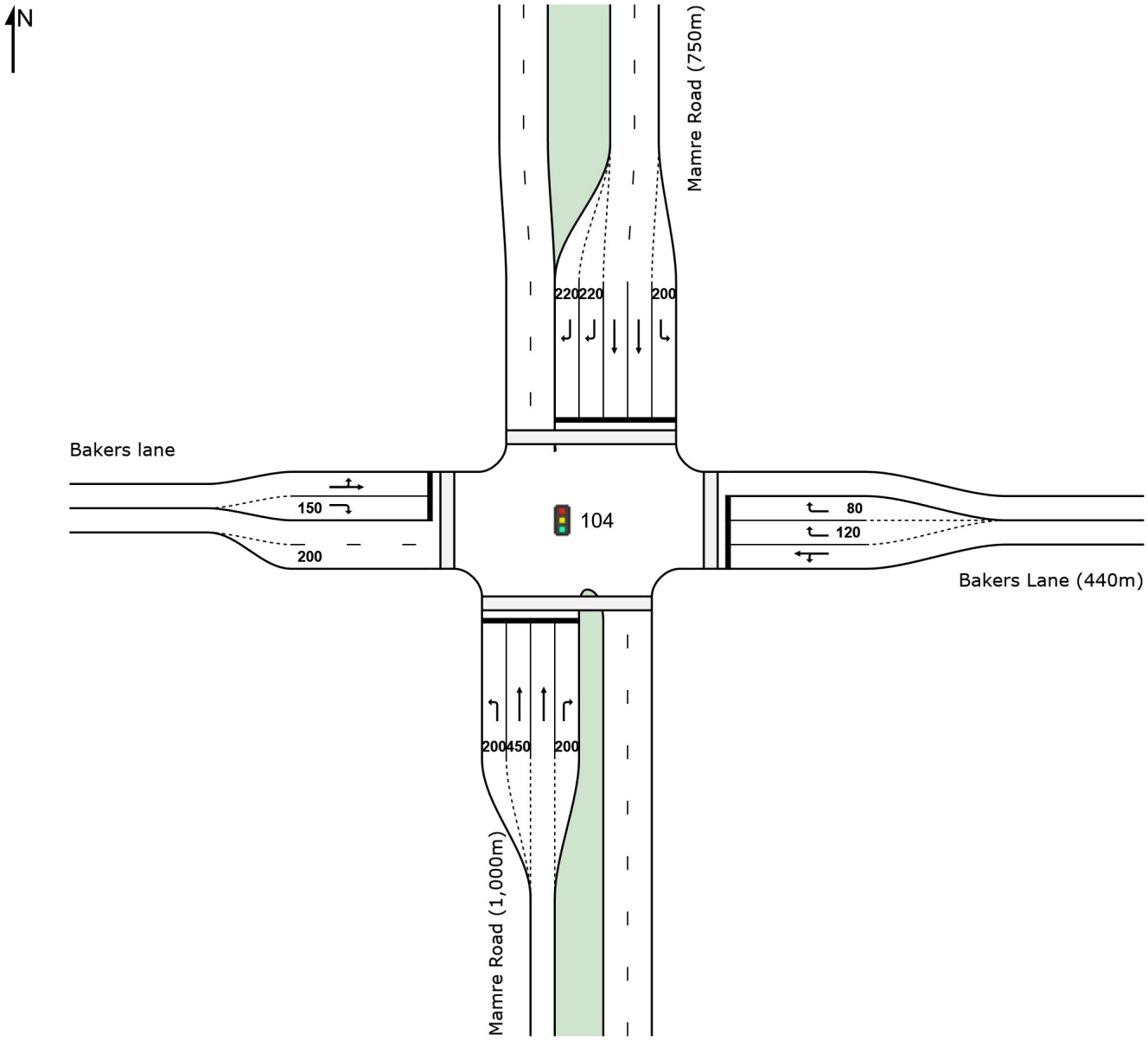
Attachment F

SIDRA Movement Summaries of Sequence 1B and Modified Sequence 1A with 80 Second Cycletime (2026) & Modified Sequence 1A with 120 Second Cycletime (2026) for the Mamre Road / Bakers Lane Intersection (in Isolation)

SITE LAYOUT

Site: 104 [2026 Mamre Road x Bakers Lane_AM (without Development)]

Config: 2026 Sequence 1B
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated



MOVEMENT SUMMARY

Site: 104 [2026 Mamre Road x Bakers Lane_AM (without Development)]

Config: 2026 Sequence 1B
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	1	0.0	0.001	14.0	LOS A	0.0	0.1	0.46	0.59	0.46	51.2
2	T1	978	14.4	0.639	17.1	LOS B	13.1	102.8	0.73	0.64	0.73	65.9
3	R2	87	2.4	0.631	49.5	LOS D	3.6	25.6	1.00	0.79	1.09	42.6
Approach		1066	13.4	0.639	19.7	LOS B	13.1	102.8	0.75	0.65	0.76	63.5
East: Bakers Lane (440m)												
4	L2	47	2.2	0.116	30.9	LOS C	1.5	10.8	0.81	0.72	0.81	49.2
5	T1	2	0.0	0.116	25.3	LOS B	1.5	10.8	0.81	0.72	0.81	39.1
6	R2	423	4.5	0.931	60.3	LOS E	10.6	76.9	1.00	1.13	1.67	35.0
Approach		473	4.2	0.931	57.2	LOS E	10.6	76.9	0.98	1.08	1.58	36.2
North: Mamre Road (750m)												
7	L2	684	3.4	0.622	17.9	LOS B	17.0	122.5	0.69	0.82	0.69	53.8
8	T1	734	19.2	0.493	18.1	LOS B	10.5	85.5	0.78	0.67	0.78	65.1
9	R2	4	0.0	0.015	43.7	LOS D	0.1	0.6	0.94	0.61	0.94	37.6
Approach		1422	11.5	0.622	18.1	LOS B	17.0	122.5	0.73	0.74	0.73	60.1
West: Bakers lane												
10	L2	1	0.0	0.013	42.4	LOS C	0.1	0.5	0.93	0.59	0.93	38.9
11	T1	1	0.0	0.013	36.9	LOS C	0.1	0.5	0.93	0.59	0.93	35.6
12	R2	1	0.0	0.007	43.5	LOS D	0.0	0.3	0.94	0.59	0.94	40.4
Approach		3	0.0	0.013	40.9	LOS C	0.1	0.5	0.94	0.59	0.94	38.5
All Vehicles		2964	11.0	0.931	25.0	LOS B	17.0	122.5	0.78	0.77	0.88	56.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 104 [2026 Mamre Road x Bakers Lane_PM (without Development)]

Config: 2026 Sequence 1B
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	1	0.0	0.001	14.9	LOS B	0.0	0.1	0.49	0.59	0.49	50.7
2	T1	839	13.4	0.617	20.4	LOS B	12.0	93.5	0.77	0.67	0.77	63.7
3	R2	29	0.0	0.140	43.0	LOS D	1.0	7.3	0.90	0.71	0.90	45.1
Approach		869	13.0	0.617	21.1	LOS B	12.0	93.5	0.78	0.67	0.78	62.9
East: Bakers Lane (440m)												
4	L2	24	13.0	0.049	26.3	LOS B	0.7	5.5	0.73	0.68	0.73	50.8
5	T1	2	0.0	0.049	20.7	LOS B	0.7	5.5	0.73	0.68	0.73	41.4
6	R2	553	5.3	0.873	50.4	LOS D	12.6	92.2	1.00	1.02	1.39	38.0
Approach		579	5.6	0.873	49.3	LOS D	12.6	92.2	0.99	1.00	1.36	38.5
North: Mamre Road (750m)												
7	L2	197	10.2	0.191	15.2	LOS B	3.5	26.9	0.49	0.73	0.49	55.3
8	T1	1113	14.9	0.917	45.0	LOS D	27.7	218.8	1.00	1.11	1.39	51.1
9	R2	2	100.0	0.013	45.4	LOS D	0.0	0.5	0.94	0.60	0.94	36.4
Approach		1312	14.3	0.917	40.5	LOS C	27.7	218.8	0.92	1.05	1.26	51.5
West: Bakers lane												
10	L2	1	0.0	0.019	42.5	LOS D	0.1	0.8	0.93	0.60	0.93	39.2
11	T1	2	0.0	0.019	37.0	LOS C	0.1	0.8	0.93	0.60	0.93	35.9
12	R2	1	0.0	0.007	43.5	LOS D	0.0	0.3	0.94	0.59	0.94	40.4
Approach		4	0.0	0.019	40.0	LOS C	0.1	0.8	0.94	0.60	0.94	38.1
All Vehicles		2764	12.0	0.917	36.3	LOS C	27.7	218.8	0.89	0.92	1.13	51.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 104 [2026 Mamre Road x Bakers Lane_AM (with Development)]

Config: 2026 Sequence 1B
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	296	31.3	0.396	20.0	LOS B	7.4	65.5	0.68	0.77	0.68	47.9
2	T1	978	14.4	0.869	34.9	LOS C	20.4	160.3	0.98	0.97	1.18	55.6
3	R2	87	2.4	0.253	37.8	LOS C	2.8	20.1	0.84	0.75	0.84	47.1
Approach		1361	17.3	0.869	31.8	LOS C	20.4	160.3	0.90	0.91	1.05	53.4
East: Bakers Lane (440m)												
4	L2	47	2.2	0.105	29.1	LOS C	1.5	10.4	0.78	0.72	0.78	50.0
5	T1	2	0.0	0.105	23.5	LOS B	1.5	10.4	0.78	0.72	0.78	39.9
6	R2	423	4.5	0.931	60.3	LOS E	10.6	76.9	1.00	1.13	1.67	35.0
Approach		473	4.2	0.931	57.0	LOS E	10.6	76.9	0.98	1.08	1.57	36.3
North: Mamre Road (750m)												
7	L2	684	3.4	0.766	26.4	LOS B	22.8	163.9	0.88	0.88	0.91	48.7
8	T1	734	19.2	0.670	26.4	LOS B	12.8	104.1	0.93	0.80	0.93	60.0
9	R2	506	31.0	0.878	51.9	LOS D	11.8	104.8	1.00	1.02	1.43	34.8
Approach		1924	16.7	0.878	33.1	LOS C	22.8	163.9	0.93	0.89	1.06	48.5
West: Bakers lane												
10	L2	216	31.2	0.461	29.5	LOS C	6.9	61.0	0.84	0.80	0.84	42.0
11	T1	1	0.0	0.461	23.6	LOS B	6.9	61.0	0.84	0.80	0.84	39.8
12	R2	127	31.4	0.665	45.4	LOS D	5.2	46.0	1.00	0.85	1.12	39.5
Approach		344	31.2	0.665	35.4	LOS C	6.9	61.0	0.90	0.82	0.94	40.9
All Vehicles		4102	16.7	0.931	35.6	LOS C	22.8	163.9	0.92	0.91	1.11	47.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 104 [2026 Mamre Road x Bakers Lane_PM (with Development)]

Config: 2026 Sequence 1B
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	94	31.5	0.098	12.3	LOS A	1.4	12.9	0.42	0.67	0.42	51.3
2	T1	839	13.4	0.686	24.0	LOS B	13.3	103.8	0.85	0.74	0.86	61.4
3	R2	29	0.0	0.209	47.1	LOS D	1.1	7.9	0.95	0.71	0.95	43.5
Approach		962	14.8	0.686	23.6	LOS B	13.3	103.8	0.81	0.73	0.82	59.8
East: Bakers Lane (440m)												
4	L2	24	13.0	0.081	34.2	LOS C	0.9	6.6	0.84	0.70	0.84	47.2
5	T1	2	0.0	0.081	28.6	LOS C	0.9	6.6	0.84	0.70	0.84	37.8
6	R2	553	5.3	0.941	61.9	LOS E	14.3	104.7	1.00	1.14	1.65	34.5
Approach		579	5.6	0.941	60.6	LOS E	14.3	104.7	0.99	1.12	1.61	35.0
North: Mamre Road (750m)												
7	L2	197	10.2	0.196	15.7	LOS B	3.7	27.8	0.51	0.73	0.51	54.9
8	T1	1113	14.9	0.917	45.0	LOS D	27.7	218.8	1.00	1.11	1.39	51.1
9	R2	161	32.0	0.703	50.2	LOS D	3.5	30.9	1.00	0.86	1.23	35.3
Approach		1471	16.1	0.917	41.6	LOS C	27.7	218.8	0.93	1.03	1.25	49.6
West: Bakers lane												
10	L2	369	31.1	0.887	49.6	LOS D	17.6	156.2	1.00	1.02	1.38	35.5
11	T1	2	0.0	0.887	43.7	LOS D	17.6	156.2	1.00	1.02	1.38	32.3
12	R2	217	31.1	0.664	39.1	LOS C	8.2	73.1	0.97	0.85	1.03	41.3
Approach		588	30.9	0.887	45.7	LOS D	17.6	156.2	0.99	0.96	1.25	37.6
All Vehicles		3600	16.5	0.941	40.5	LOS C	27.7	218.8	0.92	0.95	1.20	47.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

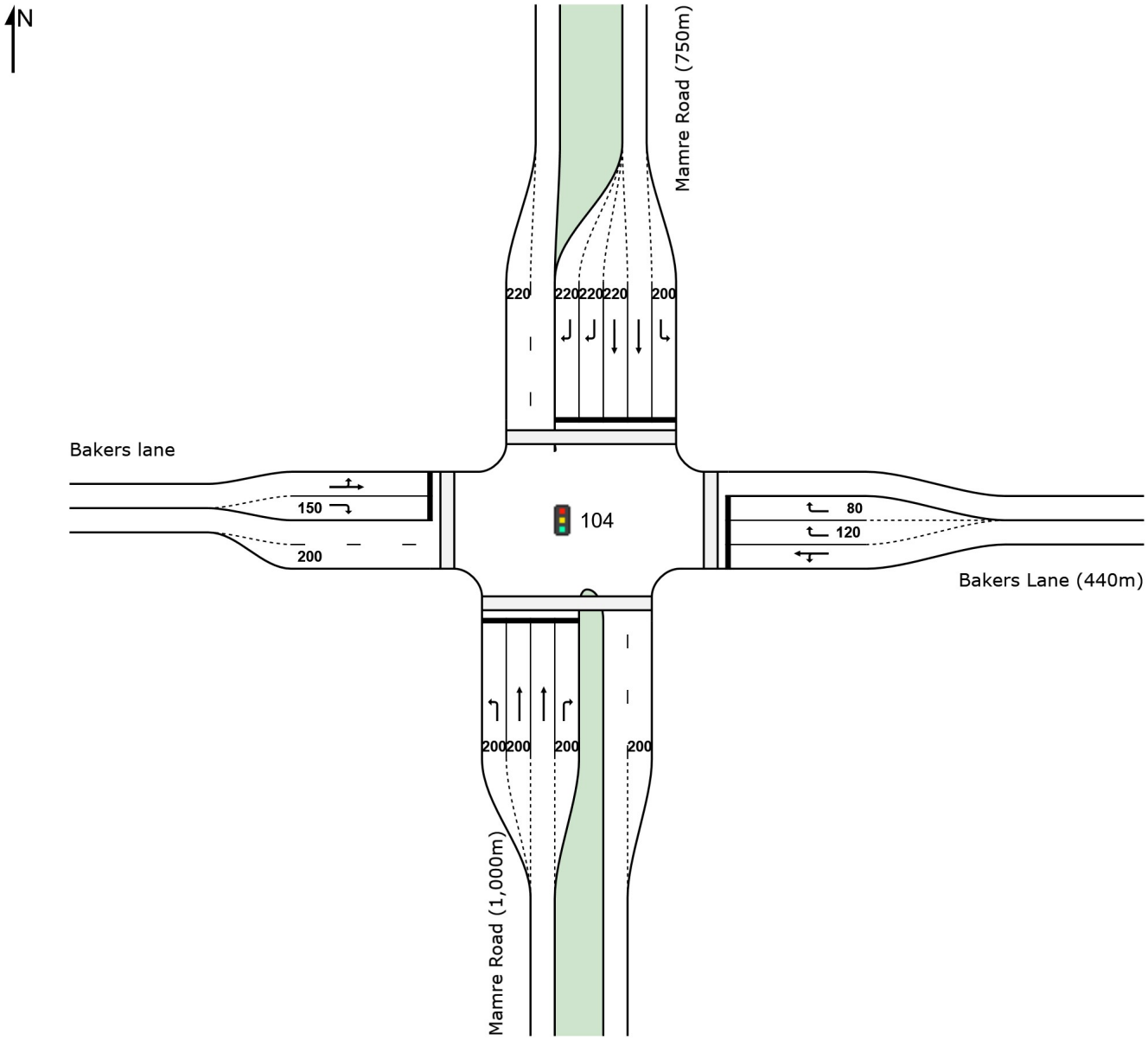
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

SITE LAYOUT

Site: 104 [2026 Mamre Road x Bakers Lane_AM (without Development)]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated



SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com
Organisation: ASON GROUP PTY LTD | Created: Monday, 21 February 2022 10:06:16 pm
Project: C:\Users\Osama Hashmi\OneDrive - Ason Group\1780 - MOD 2\RtS Letter 2\Modelling\Cycletime\Modified Sequence 1A - 2026 - 80s \Without Development\P1780 2026 Modified Sequence 1A 80s cycletime (without Dev).sip8

MOVEMENT SUMMARY

Site: 104 [2026 Mamre Road x Bakers Lane_AM (without Development)]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	1	0.0	0.001	14.0	LOS A	0.0	0.1	0.46	0.59	0.46	51.2
2	T1	1060	15.7	0.697	17.7	LOS B	15.0	118.8	0.77	0.68	0.77	65.4
3	R2	86	2.4	0.624	49.5	LOS D	3.5	25.3	1.00	0.79	1.08	42.6
Approach		1147	14.7	0.697	20.1	LOS B	15.0	118.8	0.79	0.69	0.79	63.3
East: Bakers Lane (440m)												
4	L2	46	2.3	0.107	30.0	LOS C	1.4	10.1	0.79	0.72	0.79	49.6
5	T1	1	0.0	0.107	24.4	LOS B	1.4	10.1	0.79	0.72	0.79	39.5
6	R2	421	4.3	0.925	59.1	LOS E	10.4	75.4	1.00	1.11	1.64	35.3
Approach		468	4.0	0.925	56.2	LOS D	10.4	75.4	0.98	1.07	1.55	36.6
North: Mamre Road (750m)												
7	L2	676	3.3	0.614	17.8	LOS B	16.7	119.9	0.68	0.82	0.68	53.8
8	T1	759	19.7	0.511	18.3	LOS B	11.0	89.7	0.78	0.68	0.78	65.0
9	R2	3	0.0	0.011	43.6	LOS D	0.1	0.4	0.94	0.60	0.94	37.6
Approach		1438	11.9	0.614	18.2	LOS B	16.7	119.9	0.74	0.74	0.74	60.2
West: Bakers lane												
10	L2	1	0.0	0.013	42.4	LOS C	0.1	0.5	0.93	0.59	0.93	38.9
11	T1	1	0.0	0.013	36.9	LOS C	0.1	0.5	0.93	0.59	0.93	35.6
12	R2	1	0.0	0.007	43.5	LOS D	0.0	0.3	0.94	0.59	0.94	40.4
Approach		3	0.0	0.013	40.9	LOS C	0.1	0.5	0.94	0.59	0.94	38.5
All Vehicles		3057	11.7	0.925	24.7	LOS B	16.7	119.9	0.79	0.77	0.88	56.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 104 [2026 Mamre Road x Bakers Lane_PM (without Development)]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	1	0.0	0.001	14.9	LOS B	0.0	0.1	0.49	0.59	0.49	50.7
2	T1	865	14.0	0.639	20.6	LOS B	12.6	98.5	0.79	0.69	0.79	63.5
3	R2	28	0.0	0.173	45.6	LOS D	1.1	7.4	0.93	0.71	0.93	44.1
Approach		895	13.5	0.639	21.4	LOS B	12.6	98.5	0.79	0.69	0.79	62.8
East: Bakers Lane (440m)												
4	L2	56	5.7	0.096	25.2	LOS B	1.5	11.2	0.72	0.71	0.72	51.7
5	T1	1	0.0	0.096	19.6	LOS B	1.5	11.2	0.72	0.71	0.72	41.8
6	R2	552	5.2	0.871	50.1	LOS D	12.5	91.5	1.00	1.02	1.38	38.1
Approach		608	5.2	0.871	47.8	LOS D	12.5	91.5	0.97	0.99	1.32	39.2
North: Mamre Road (750m)												
7	L2	193	9.8	0.179	14.2	LOS A	3.2	24.6	0.46	0.72	0.46	56.0
8	T1	1198	16.0	0.926	46.1	LOS D	30.6	243.7	1.00	1.13	1.41	50.6
9	R2	1	100.0	0.006	45.1	LOS D	0.0	0.3	0.94	0.58	0.94	36.5
Approach		1392	15.2	0.926	41.7	LOS C	30.6	243.7	0.93	1.07	1.28	51.1
West: Bakers lane												
10	L2	1	0.0	0.019	42.5	LOS D	0.1	0.8	0.93	0.60	0.93	39.2
11	T1	2	0.0	0.019	37.0	LOS C	0.1	0.8	0.93	0.60	0.93	35.9
12	R2	1	0.0	0.007	43.5	LOS D	0.0	0.3	0.94	0.59	0.94	40.4
Approach		4	0.0	0.019	40.0	LOS C	0.1	0.8	0.94	0.60	0.94	38.1
All Vehicles		2899	12.6	0.926	36.7	LOS C	30.6	243.7	0.89	0.94	1.13	51.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 104 [2026 Mamre Road x Bakers Lane_AM (with Development)]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	298	31.1	0.388	19.3	LOS B	7.3	64.3	0.66	0.76	0.66	48.2
2	T1	1060	15.7	0.912	39.9	LOS C	24.3	193.3	1.00	1.05	1.30	53.3
3	R2	86	2.4	0.267	38.8	LOS C	2.8	20.3	0.86	0.76	0.86	46.6
Approach		1444	18.1	0.912	35.6	LOS C	24.3	193.3	0.92	0.98	1.14	51.9
East: Bakers Lane (440m)												
4	L2	46	2.3	0.095	28.2	LOS B	1.4	9.7	0.76	0.71	0.76	50.4
5	T1	1	0.0	0.095	22.6	LOS B	1.4	9.7	0.76	0.71	0.76	40.3
6	R2	421	4.3	0.925	59.1	LOS E	10.4	75.4	1.00	1.11	1.64	35.3
Approach		468	4.0	0.925	56.0	LOS D	10.4	75.4	0.98	1.07	1.55	36.6
North: Mamre Road (750m)												
7	L2	676	3.3	0.737	24.2	LOS B	21.1	151.7	0.85	0.86	0.86	49.9
8	T1	759	19.7	0.668	25.6	LOS B	13.0	106.7	0.92	0.80	0.92	60.5
9	R2	509	31.0	0.947	65.5	LOS E	13.7	121.6	1.00	1.13	1.72	31.6
Approach		1944	16.9	0.947	35.6	LOS C	21.1	151.7	0.92	0.91	1.11	47.5
West: Bakers lane												
10	L2	217	31.1	0.482	30.5	LOS C	7.1	62.5	0.86	0.80	0.86	41.6
11	T1	1	0.0	0.482	24.6	LOS B	7.1	62.5	0.86	0.80	0.86	39.4
12	R2	128	31.1	0.669	45.4	LOS D	5.2	46.4	1.00	0.85	1.12	39.4
Approach		346	31.0	0.669	36.0	LOS C	7.1	62.5	0.91	0.82	0.96	40.7
All Vehicles		4203	17.1	0.947	37.9	LOS C	24.3	193.3	0.92	0.94	1.16	47.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 104 [2026 Mamre Road x Bakers Lane_PM (with Development)]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	95	31.1	0.099	12.3	LOS A	1.5	13.0	0.42	0.67	0.42	51.3
2	T1	865	14.0	0.684	23.0	LOS B	13.5	105.6	0.84	0.73	0.84	62.0
3	R2	28	0.0	0.202	47.1	LOS D	1.1	7.6	0.95	0.71	0.95	43.6
Approach		988	15.2	0.684	22.7	LOS B	13.5	105.6	0.80	0.72	0.80	60.4
East: Bakers Lane (440m)												
4	L2	56	5.7	0.146	32.8	LOS C	1.8	13.3	0.84	0.73	0.84	48.0
5	T1	1	0.0	0.146	27.2	LOS B	1.8	13.3	0.84	0.73	0.84	38.2
6	R2	552	5.2	0.938	61.1	LOS E	14.2	103.6	1.00	1.14	1.64	34.7
Approach		608	5.2	0.938	58.5	LOS E	14.2	103.6	0.98	1.10	1.56	35.8
North: Mamre Road (750m)												
7	L2	193	9.8	0.187	15.2	LOS B	3.5	26.2	0.49	0.73	0.49	55.3
8	T1	1198	16.0	0.959	57.2	LOS E	34.1	271.6	1.00	1.21	1.56	46.5
9	R2	160	31.6	0.696	50.0	LOS D	3.4	30.6	1.00	0.85	1.22	35.3
Approach		1551	16.8	0.959	51.2	LOS D	34.1	271.6	0.94	1.12	1.39	46.1
West: Bakers lane												
10	L2	373	31.1	0.938	61.0	LOS E	20.2	178.5	1.00	1.10	1.58	32.6
11	T1	2	0.0	0.938	55.1	LOS D	20.2	178.5	1.00	1.10	1.58	29.2
12	R2	220	31.1	0.716	41.3	LOS C	8.7	77.3	0.99	0.88	1.10	40.6
Approach		595	31.0	0.938	53.7	LOS D	20.2	178.5	1.00	1.02	1.41	35.5
All Vehicles		3742	16.8	0.959	45.2	LOS D	34.1	271.6	0.92	1.00	1.27	45.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

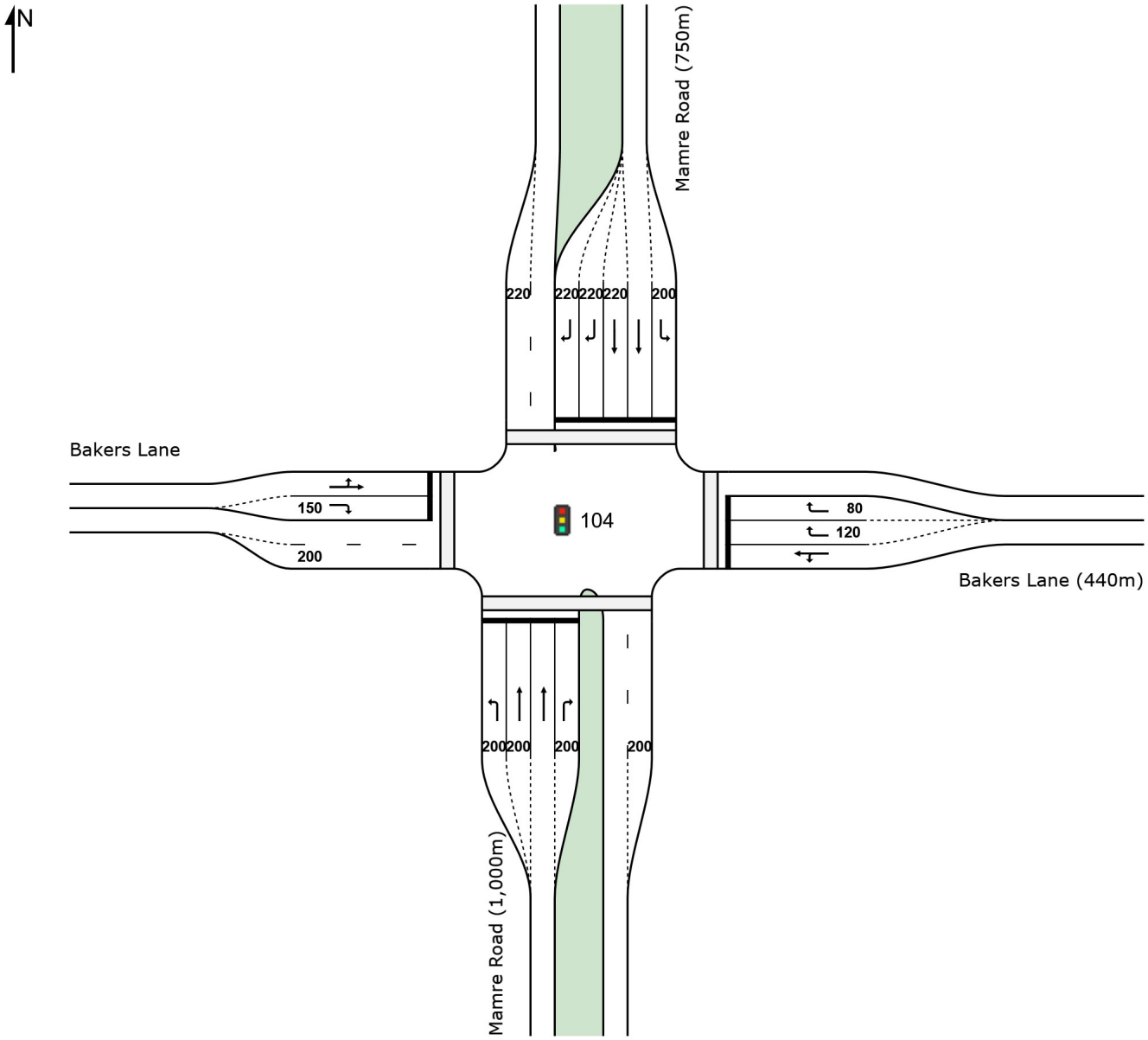
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

SITE LAYOUT

Site: 104 [2026 Mamre Road x Bakers Lane_AM (without Development)]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated



SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com
Organisation: ASON GROUP PTY LTD | Created: Monday, 21 February 2022 10:11:17 pm
Project: C:\Users\Osama Hashmi\OneDrive - Ason Group\1780 - MOD 2\RtS Letter 2\Modelling\Cycletime\Modified Sequence 1A - 2026 - 120s \Without Development\P1780 2026 Modified Sequence 1A 120s cycletime (without Dev).sip8

MOVEMENT SUMMARY

Site: 104 [2026 Mamre Road x Bakers Lane_AM (without Development)]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	1	0.0	0.001	18.1	LOS B	0.0	0.2	0.43	0.62	0.43	57.1
2	T1	1060	15.7	0.726	28.3	LOS B	23.3	184.9	0.81	0.72	0.81	59.0
3	R2	86	2.4	0.234	50.8	LOS D	4.0	28.5	0.82	0.76	0.82	42.2
Approach		1147	14.7	0.726	30.0	LOS C	23.3	184.9	0.81	0.73	0.81	57.5
East: Bakers Lane (440m)												
4	L2	46	2.3	0.105	41.9	LOS C	2.1	15.0	0.80	0.72	0.80	44.6
5	T1	1	0.0	0.105	36.4	LOS C	2.1	15.0	0.80	0.72	0.80	34.7
6	R2	421	4.3	0.816	65.9	LOS E	13.1	95.0	1.00	0.92	1.20	33.6
Approach		468	4.0	0.816	63.4	LOS E	13.1	95.0	0.98	0.90	1.16	34.6
North: Mamre Road (750m)												
7	L2	676	3.3	0.641	25.2	LOS B	26.3	188.9	0.73	0.83	0.73	49.5
8	T1	759	19.7	0.532	28.7	LOS C	16.7	136.7	0.81	0.71	0.81	58.8
9	R2	3	0.0	0.004	47.6	LOS D	0.1	0.5	0.82	0.62	0.82	40.1
Approach		1438	11.9	0.641	27.1	LOS B	26.3	188.9	0.77	0.77	0.77	54.8
West: Bakers Lane												
10	L2	1	0.0	0.013	59.4	LOS E	0.1	0.8	0.93	0.60	0.93	36.6
11	T1	1	0.0	0.013	53.9	LOS D	0.1	0.8	0.93	0.60	0.93	30.3
12	R2	1	0.0	0.004	52.6	LOS D	0.1	0.4	0.88	0.59	0.88	41.6
Approach		3	0.0	0.013	55.3	LOS D	0.1	0.8	0.91	0.60	0.91	36.4
All Vehicles		3057	11.7	0.816	33.8	LOS C	26.3	188.9	0.82	0.77	0.85	52.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	54.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 104 [2026 Mamre Road x Bakers Lane_PM (without Development)]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	1	0.0	0.001	11.6	LOS A	0.0	0.1	0.28	0.63	0.28	61.3
2	T1	865	14.0	0.625	29.3	LOS C	18.1	142.1	0.77	0.68	0.77	58.4
3	R2	28	0.0	0.182	64.2	LOS E	1.6	10.9	0.94	0.72	0.94	38.1
Approach		895	13.5	0.625	30.4	LOS C	18.1	142.1	0.78	0.68	0.78	57.6
East: Bakers Lane (440m)												
4	L2	56	5.7	0.187	51.6	LOS D	2.9	21.1	0.89	0.75	0.89	41.2
5	T1	1	0.0	0.187	46.0	LOS D	2.9	21.1	0.89	0.75	0.89	31.6
6	R2	552	5.2	0.871	67.9	LOS E	17.9	131.0	1.00	0.97	1.26	33.0
Approach		608	5.2	0.871	66.4	LOS E	17.9	131.0	0.99	0.95	1.23	33.8
North: Mamre Road (750m)												
7	L2	193	9.8	0.181	18.0	LOS B	4.9	36.9	0.47	0.73	0.47	53.9
8	T1	1198	16.0	0.875	46.5	LOS D	37.1	295.1	1.00	1.00	1.14	50.5
9	R2	1	100.0	0.006	63.7	LOS E	0.0	0.4	0.93	0.58	0.93	34.6
Approach		1392	15.2	0.875	42.6	LOS D	37.1	295.1	0.93	0.96	1.05	50.8
West: Bakers Lane												
10	L2	1	0.0	0.008	46.3	LOS D	0.1	1.0	0.82	0.56	0.82	41.3
11	T1	2	0.0	0.008	40.7	LOS C	0.1	1.0	0.82	0.56	0.82	34.6
12	R2	1	0.0	0.002	36.3	LOS C	0.0	0.3	0.72	0.59	0.72	47.5
Approach		4	0.0	0.008	41.0	LOS C	0.1	1.0	0.79	0.57	0.79	39.8
All Vehicles		2899	12.6	0.875	43.8	LOS D	37.1	295.1	0.89	0.87	1.00	48.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	54.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 104 [2026 Mamre Road x Bakers Lane_AM (with Development)]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	298	31.1	0.337	21.8	LOS B	9.1	80.5	0.56	0.77	0.56	54.4
2	T1	1060	15.7	0.726	28.3	LOS B	23.3	184.9	0.81	0.72	0.81	59.0
3	R2	86	2.4	0.234	50.8	LOS D	4.0	28.5	0.82	0.76	0.82	42.2
Approach		1444	18.1	0.726	28.3	LOS B	23.3	184.9	0.76	0.73	0.76	56.9
East: Bakers Lane (440m)												
4	L2	46	2.3	0.105	41.9	LOS C	2.1	15.0	0.80	0.72	0.80	44.6
5	T1	1	0.0	0.105	36.4	LOS C	2.1	15.0	0.80	0.72	0.80	34.7
6	R2	421	4.3	0.816	65.9	LOS E	13.1	95.0	1.00	0.92	1.20	33.6
Approach		468	4.0	0.816	63.4	LOS E	13.1	95.0	0.98	0.90	1.16	34.6
North: Mamre Road (750m)												
7	L2	676	3.3	0.641	25.2	LOS B	26.3	188.9	0.73	0.83	0.73	49.5
8	T1	759	19.7	0.532	28.7	LOS C	16.7	136.7	0.81	0.71	0.81	58.8
9	R2	509	31.0	0.829	64.9	LOS E	16.0	141.3	1.00	0.91	1.20	34.5
Approach		1944	16.9	0.829	37.0	LOS C	26.3	188.9	0.83	0.81	0.88	48.3
West: Bakers Lane												
10	L2	217	31.1	0.527	45.4	LOS D	10.9	96.3	0.89	0.82	0.89	36.2
11	T1	1	0.0	0.527	39.5	LOS C	10.9	96.3	0.89	0.82	0.89	33.6
12	R2	128	31.1	0.590	59.8	LOS E	7.3	64.8	0.99	0.80	0.99	38.5
Approach		346	31.0	0.590	50.7	LOS D	10.9	96.3	0.93	0.81	0.93	37.1
All Vehicles		4203	17.1	0.829	38.1	LOS C	26.3	188.9	0.83	0.79	0.88	48.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	54.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 104 [2026 Mamre Road x Bakers Lane_PM (with Development)]

Config: 2026 Modified Sequence 1A
Traffic: 2018 Survey + 2026 Growth + MWP1 + MP2 + SL (v3)
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mamre Road (1,000m)												
1	L2	95	31.1	0.085	12.6	LOS A	1.6	14.1	0.31	0.69	0.31	59.9
2	T1	865	14.0	0.625	29.3	LOS C	18.1	142.1	0.77	0.68	0.77	58.4
3	R2	28	0.0	0.182	64.2	LOS E	1.6	10.9	0.94	0.72	0.94	38.1
Approach		988	15.2	0.625	28.7	LOS C	18.1	142.1	0.73	0.68	0.73	57.8
East: Bakers Lane (440m)												
4	L2	56	5.7	0.187	51.6	LOS D	2.9	21.1	0.89	0.75	0.89	41.2
5	T1	1	0.0	0.187	46.0	LOS D	2.9	21.1	0.89	0.75	0.89	31.6
6	R2	552	5.2	0.871	67.9	LOS E	17.9	131.0	1.00	0.97	1.26	33.0
Approach		608	5.2	0.871	66.4	LOS E	17.9	131.0	0.99	0.95	1.23	33.8
North: Mamre Road (750m)												
7	L2	193	9.8	0.181	18.0	LOS B	4.9	36.9	0.47	0.73	0.47	53.9
8	T1	1198	16.0	0.875	46.5	LOS D	37.1	295.1	1.00	1.00	1.14	50.5
9	R2	160	31.6	0.627	69.0	LOS E	4.9	43.2	1.00	0.80	1.07	33.5
Approach		1551	16.8	0.875	45.3	LOS D	37.1	295.1	0.93	0.95	1.05	48.8
West: Bakers Lane												
10	L2	373	31.1	0.841	57.0	LOS E	23.1	204.5	1.00	0.94	1.16	33.2
11	T1	2	0.0	0.841	51.1	LOS D	23.1	204.5	1.00	0.94	1.16	30.2
12	R2	220	31.1	0.477	43.1	LOS D	10.6	94.0	0.87	0.81	0.87	43.6
Approach		595	31.0	0.841	51.8	LOS D	23.1	204.5	0.95	0.89	1.05	36.8
All Vehicles		3742	16.8	0.875	45.4	LOS D	37.1	295.1	0.89	0.87	1.00	46.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	54.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com