Technical Memorandum

Title	**Joe White Maltings (JWM), Modification 4 (MP 08_0157) Addendum to Traffic Impact Assessment Report**		
Client	Joe White Maltings	**Project No**	600330
Date	22/11/2016	**Status**	Version A
Author	Tom Yang	**Discipline**	Traffic and Transport
Reviewer	Ivo Pais	**Office**	Sydney

1 Introduction

Cardno has been engaged by JWM to prepare a traffic addendum to the previously submitted Traffic Impact Assessment Report dated 15 August 2016 (**Attachment A**, herein referred to as TIA), which was prepared to address the additional traffic and transport assessment required as part of the Environmental Assessment Requirements raised in the letter dated 1 June 2016 from NSW Government Planning & Transport (MP 08_0157).

This traffic addendum has been set out to address further comments received from Roads and Maritime Services (herein referred to as Roads and Maritime) in an email dated 22 September 2016 and should be read in conjunction with the TIA.

2 Trip Generation and Assignment

2.1 JWM Operational Data

In accordance with Roads and Maritime's request, Cardno has liaised with Cargill to obtain the road intake of barley truck receivals for the period between 29 June 2016 to 13 October 2016, which spans over a total of 107 days with 76 work days (i.e. excluding weekends and public holidays during this period).

The full road intake data is reproduced in **Attachment B** and reveals the following:

> All truck intakes were recorded on work days.
> The site received truck intakes on 20 work days over the period of 76 work days.
> All truck movements were contained within 6:00am to 2:00pm.
> The majority of the trucks were recorded to arrive and depart in the same hour.
> All trucks were recorded as B-Doubles with a respective load capacity of 45 tonnes.
> There were a total of 47 trucks recorded over the period of 76 work days, corresponding to an intake volume of approximately 2,115 tonnes.

As summarised above, the operational data shows all truck movements are currently contained within 6:00am to 2:00pm on work days only. Cardno has then further liaised with Cargill whom have confirmed that in future, they seek to extend the truck intake hours to 6:00pm on work days, and also Saturdays between 6:00am to 2:00pm which is in accordance with previous assessment assumptions.

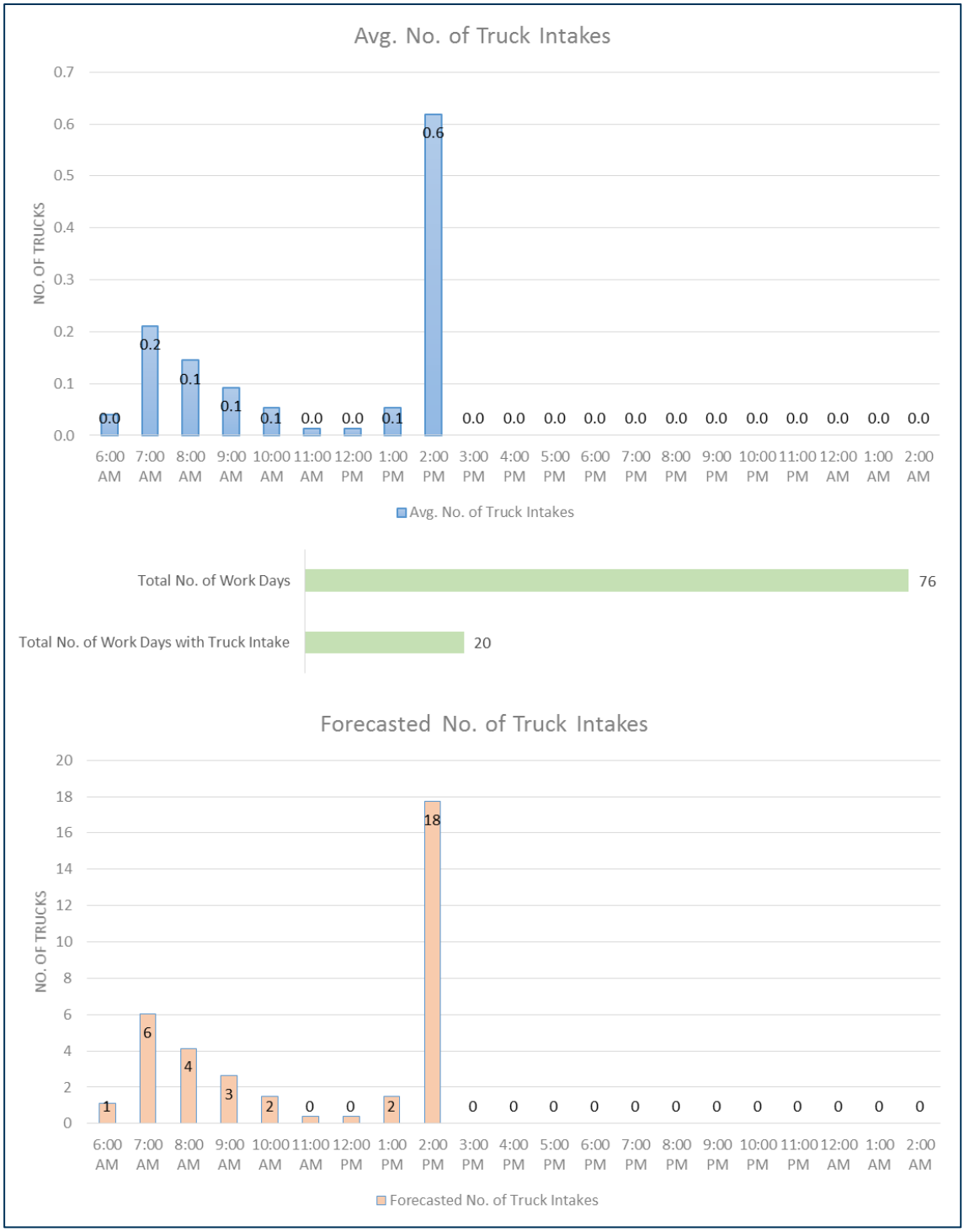
For the purpose of this assessment, Cardno has assumed the truck intake for the current recorded operational hours (40 hours per week) remains proportional with the future intake operational hours (68 hours per week). That is, JWM can be expected to receive approximately 59% of the truck intake between the hours of 6:00am to 2:00pm.

Application of this factor to the proposed modification seeking an additional import volume of 103,000 tonnes suggests that the site could be expected to bring in 60,770 tonnes of import between 6:00am to 2:00pm.

Accordingly, the previous traffic assessments for the PM peak hour in **Section 4** of the TIA remains valid given that there is no better way to estimate delivery profiles based on current operational data.

For the AM peak hour, the truck intake has been forecasted by factoring up the average number of truck intakes by 28.6, which is derived by the proposed truck intake volume (60,588 tonnes) divided by the recorded intake volume (2,115 tonnes). The results of the analysis is illustrated in **Figure 1** and in accordance with Roads and Maritime's request.

Figure 1 Truck Intake Forecast



Based on the operational data, JWM can be expected to receive 4 trucks in the AM peak hour between 8:00am to 9:00am corresponding to 8 truck movements, and the development peak is expected to be between 2:00pm to 3:00pm where JWM can expect to receive up to 18 trucks corresponding to 36 truck movements.

It is also pertinent to note in this regard that using the supplied operational data to forecast the truck intake numbers assumes that JWM will only be expecting to receive trucks approximately 26% of the time on work days only, that is, the site will not generate any additional truck movements in the AM peak hour for the 74% of the time. This is therefore a very conservative assessment given that realistically, it can be assumed that the arrival patterns of delivery trucks will be better distributed throughout the week.

On the above basis, applying the same directional distribution to the truck movements as outlined in **Section 4.1** of the Traffic Impact Assessment report, the nett increase in the truck movements in the vicinity of the site during the AM peak hour and the cumulative traffic volumes representing the additional truck movements plus the 2026 AM peak hour traffic volumes are summarised in **Attachment C**.

2.2 Intersection Operation

In order to determine the impacts of the additional 8 truck movements in the AM peak hour instead of the previously estimated 4 truck movements, all SIDRA analysis for the assessed intersections has been updated with results reproduced in full in **Attachment D** and summarised in **Figure 2**.

Figure 2 Horizon Year 2026 + Development Traffic

Intersection Location	Degree of Saturation	Delay (seconds)	Level of Service
Pembroke Road / Stonny Batter Road	0.495	5.1	A
Rose Payten Drive / Pembroke Road / Smiths Creek Bypass	0.947	43.4	D
Rose Payten Drive / Airds Road Intersection	0.393	6.0	A
Rose Payten Drive / Campbelltown Road Intersection	0.895	31.2	C

Based on the above updated SIDRA results, it is clear that all intersections will have sufficient capacity to accommodate background traffic in 2026 AM peak hour plus the additional truck movements generated by the modification proposal, with all intersection operating at level of service D or better.

3 Intersection Treatments for PM Peak Hour

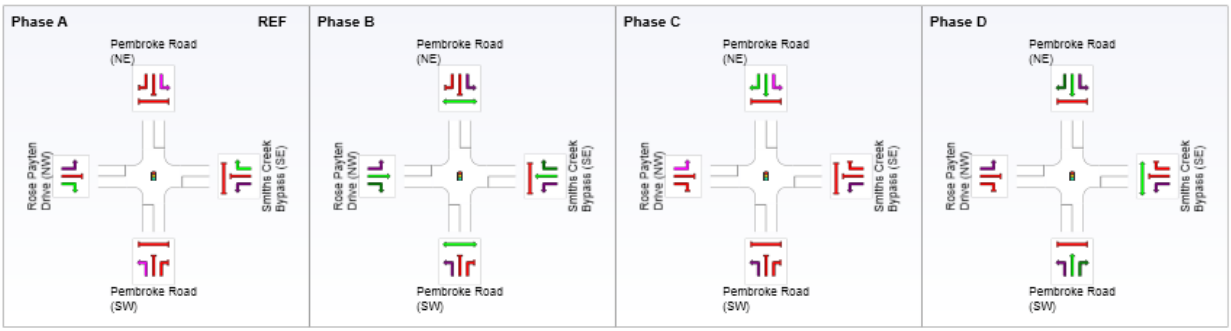
The TIA has previously identified that under the existing Rose Payten Drive / Pembroke Road / Smiths Creek Bypass intersection and Rose Payten Drive / Campbelltown Road intersection configuration and 10 years of linear background growth at a rate of 1.5% with existing signal phasing, this intersection is expected to deteriorate to a LoS F which is not a result of the nominal increase of 4 truck movements generated by the proposal. Notwithstanding, Roads and Maritime has further requested that intersection mitigation measures needs to be identified.

In this context, it is important to note that Campbelltown City Council is currently undertaking a review of the future year requirements for the Raby Precinct, which includes an assessment of the intersections evaluated as part of this study. It must be noted that the recommendations / comments below are independent of that review, which is still ongoing.

3.1 Rose Payten Drive / Pembroke Road / Smiths Creek Bypass

Cardno has reviewed the Rose Payten Drive / Pembroke Road / Smiths Creek Bypass intersection phasing and recommends the intersection to adopt a four phase sequence as illustrated in **Figure 3**, running at a cycle time of 120 seconds which is well within the maximum cycle time for four phased intersections as per *Roads and Maritime's Traffic Modelling Guidelines, Version 1.0, Feb 2013*.

Figure 3 Recommended Phase Sequence



The performance of the intersection under the recommended phase sequence is summarised in **Figure 4**, indicating the proposed mitigation measures will be able to accommodate 2026 background traffic volumes and further confirms that the nominal increase of 4 truck movements will have negligible impact on the operational performance of the intersection.

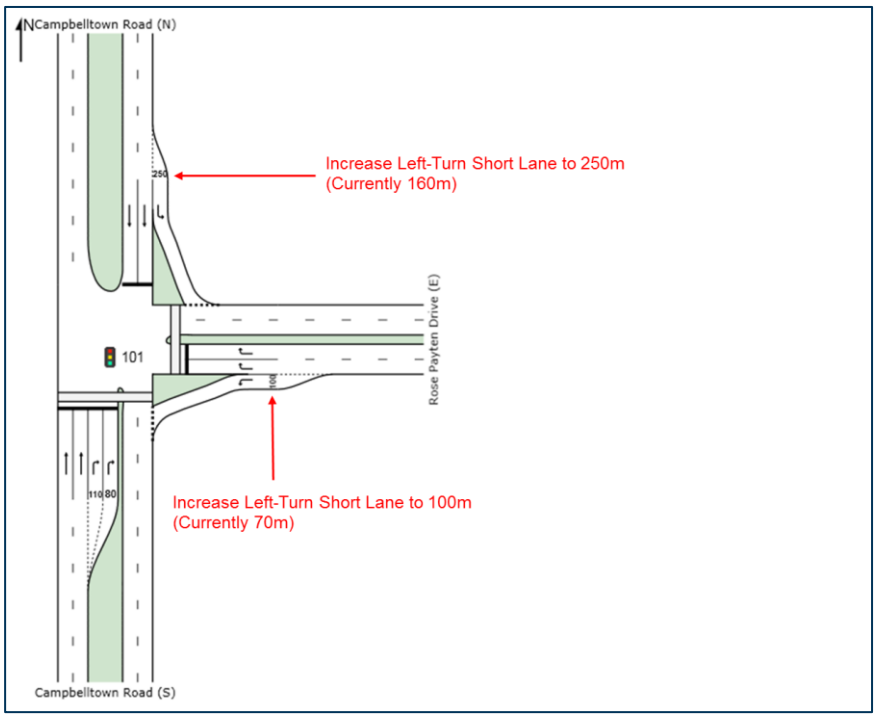
Figure 4 Rose Payten Drive / Pembroke Road / Smiths Creek Bypass Intersection Operation

Scenario	Degree of Saturation	Delay (seconds)	Level of Service
2026 PM Peak Hour	0.926	37.3	C
2026 PM Peak Hour + Development	0.935	37.9	C

3.2 Rose Payten Drive / Campbelltown Road

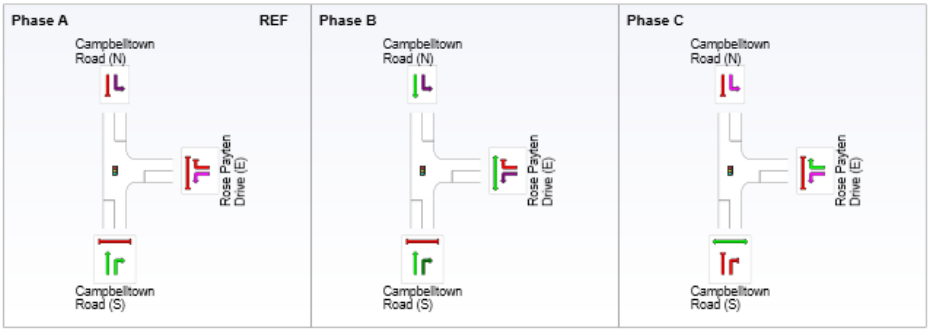
Cardno has reviewed the Rose Payten Drive / Campbelltown Road intersection and notes that both the southbound left-turn short lane, and the westbound left-turn short lane queues may extend into the adjacent full-length lanes, reducing its capacity. Accordingly, it is recommended that the southbound left-turn short lane to be increased to 250m from 180m, and the westbound left-turn short lane to 100m from 70m as illustrated in **Figure 5**.

Figure 5 Proposed Short Lane Extensions



Furthermore, Cardno has reviewed the intersection phasing and recommends the intersection to adopt a three phase sequence as illustrated in **Figure 6**, running at a cycle time of 115 seconds which is well within the maximum cycle time for four phased intersections as per *Roads and Maritime's Traffic Modelling Guidelines, Version 1.0, Feb 2013*.

Figure 6 Recommended Phase Sequence



The performance of the intersection under the recommended layout and phase sequence is summarised in **Figure 7**, indicating the proposed mitigation measures will be able to accommodate 2026 background traffic volumes and further confirms that the nominal increase of 4 truck movements will have negligible impact on the operational performance of the intersection.

Figure 7 Rose Payten Drive / Pembroke Road / Smiths Creek Bypass Intersection Operation

Scenario	Degree of Saturation	Delay (seconds)	Level of Service
2026 PM Peak Hour	0.977	38.2	C
2026 PM Peak Hour + Development	0.977	38.5	C

4 Conclusion

Based on the findings and discussions presented in this traffic addendum, the following is summarised:

> Based on the operational data, JWM can be expected to receive 4 truck in the AM peak hour between 8:00am to 9:00am corresponding to 8 truck movements, and the development peak is expected to be between 2:00pm to 3:00pm where JWM can expect to receive up to 18 trucks corresponding to 36 truck movements.

> It is also pertinent to note in this regard that using the supplied operational data to forecast the truck intake numbers assumes that JWM will only be expecting to receive trucks approximately 26% of the time on work days only, that is, the site will not generate any additional truck movements in the AM peak hour for the 74% of the time. This is therefore a very conservative assessment given that realistically, it can be assumed that the arrival patterns of delivery trucks will be better distributed throughout the week.

> All intersections will have sufficient capacity to accommodate background traffic in 2026 AM peak hour plus the additional truck movements generated by the modification proposal, with all intersection operating at level of service D or better

> Cardno has identified the mitigation measures required for Rose Payten Drive / Pembroke Road / Smiths Creek Bypass intersection and Rose Payten Drive / Campbelltown Road intersection under the 2026 PM peak hour traffic demands as per Roads and Maritime's request. In this context, it is important to note that Campbelltown City Council is currently undertaking a review of the future year requirements for the Raby Precinct, which includes an assessment of the intersections evaluated as part of this study. It must be noted that the recommendations / comments below are independent of that review, which is still ongoing:

  - With a revised phasing sequence, the Rose Payten Drive / Pembroke Road / Smiths Creek Bypass will be able to accommodate 2026 background traffic volumes and further confirms that the nominal increase of 4 truck movements will have negligible impact on the operational performance of the intersection.
  - With increased left-turn short lane lengths and revised phasing sequence, the Rose Payten Drive / Campbelltown Road will be able to accommodate 2026 background traffic volumes and further confirms that the nominal increase of 4 truck movements will have negligible impact on the operational performance of the intersection.

Joe White Maltings
(JWM), Modification 4
(MP 08_0157)

Attachment

A

TRAFFIC IMPACT ASSESSMENT

Cardno
Shaping the Future

Joe White Malting, Minto

Traffic Impact Assessment

600330

Prepared for
Joe White Malting

16 August 2016

Cardno
Shaping the Future

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A	16 August 2016	DRAFT	TY	IP
B	15 August 2016	FINAL	TY	IP

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1 Introduction

1.1 Background

Cardno (NSW/ACT) Pty Ltd has been commissioned by Joe White Malting to prepare a Traffic Impact Assessment (TIA) to accompany a modification request to the Department seeking to modify the Minister's approval for the Minto Malting Plant and Packing Facility (MP08_0157) under section 75W of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*.

In April 2012, a Section 75W Modification Application was approved to allow 20% raw and processed product to be transported via road and rail rather than just by rail. **The proposed modifications to the previous approval seeks to increase the volumes of grain and barley that can be delivered to the site by road rather than rail**.

Specifically, this report has been prepared to address the additional traffic and transport assessment required as part of the Environmental Assessment Requirements (EARs) raised in the letter dated 1 June 2016 from NSW Government Planning & Transport (ref: MP 08_0157 MOD 4) as follows:

> Details of the proposed routes for heavy vehicles to and from the site to the Hume Motorway (M31).

> Daily and peak traffic movements likely to be generated by the modification (including vehicle type and hours/day at which trucks may arrive/depart site).

> Key intersections to be modelled include:

- Pembroke Road / Stonny Batter Road,
- Rose Payten Drive / Pembroke Road,
- Rose Payten Drive / Airds Road, and
- Roads Payten Drive / Campbelltown Road.

> Consideration of the need / associated funding for upgrading or road improvement works to the abovementioned roads and intersections as a result of the modification.

> An assessment of cumulative traffic impacts associated with the modification and other nearby existing and proposed developments.

> Details of management and mitigation measures to minimise traffic impacts.

1.2 Scope of Works

The following scope of works has been undertaken as part of this traffic study:

> Collate and review background information.

> Undertake vehicle turning movement counts during the AM and PM peak period for the following intersections:

- Pembroke Road / Stonny Batter Road,
- Rose Payten Drive / Pembroke Road,
- Rose Payten Drive / Airds Road, and
- Roads Payten Drive / Campbelltown Road.

> Identify the heavy vehicle routes to and from the site.

> Estimate the additional freight traffic generated by the proposed modification in the AM and PM peak hour based on site operation characteristics, and assign those additional vehicle turning movements to the adjoining road network.

> Assess the operation of the key intersections using SIDRA Intersection 7 under the following scenarios:

  - Base Year (2016) without development, and
  - Horizon Year (2026) with and without development by applying a linear growth rate of 1.5% per annum as agreed with RMS.

> Identify mitigating measures or intersection treatments to accommodate the estimated future traffic demands where applicable.

1.3 Reference Documents

> Minto Joe White Malting's Plant, Traffic Impact Assessment Addendum (Cardno, 2011).

> National Heavy Vehicle Regulator (July, 2016).

> Guide to Traffic Generating Developments (RMS, 2002).

2 Existing Conditions

2.1 Subject Site

The subject site is located at 111 Stonny Batter Road in Minto, positioned between Reaghs Farm Road and the railway.

The subject site has a road frontage of approximately 225m in length to Reaghs Farm Road and comprises an area of approximately 28,000m^2.

The subject site is currently occupied by the Joe White Malting Plant and Packing Facility and the surrounding properties primarily comprise a mix of industrial land uses.

The subject site and surrounding environs is shown in **Figure 2-1**.

Figure 2-1 Subject Site and Surrounding Environs

Background Image: NearMap Ltd (2016)

2.2 Existing Road Network

2.2.1 Schedule of Road Classification

Roads and Maritime Services (RMS) in partnership with local government established an administrative framework of State, Regional, and Local Road categories to help manage the extensive network of roads.

State roads are managed and financed by RMS, and Regional / Local Roads are managed and financed by councils. Notwithstanding, Regional Roads perform an intermediate function between the main arterial network of State Roads and council controlled Local Roads and therefore receives financial assistance from RMS.

2.2.2 Campbelltown Road

Campbelltown Road is classified by the RMS as a State Road and provides the key road link for vehicles travelling to / from the Hume Motorway (M31). The road is typically configured with a four-lane, two-way divided carriageway, with opposing traffic flows separated by a central median island.

2.2.3 Rose Payten Drive

Rose Payten Drive is classified by the RMS as an *unclassified* Regional Road linking between Campbelltown Road and Pembroke Road. The road is typically configured with a four-lane, two-way divided carriageway, with opposing traffic flows separated by a central median island.

2.2.4 Pembroke Road

Pembroke Road is classified by the RMS as a State Road and links between Minto Road and O'Sullivan Road. The road is typically configured with a two-lane, two-way divided carriageway, with additional lanes provided at key intersections.

2.2.5 Stonny Batter Road

Stonny Batter Road is a local unclassified road primarily providing vehicular access to frontage properties. The road is typically configured with a two-lane, two-way undivided carriageway.

2.3 Existing Traffic Volumes

An indication of the existing traffic conditions in the vicinity of the subject site is provided by peak hour vehicle turning movement counts undertaken between 6:00am-10:00am and 2:30pm-6:30pm at the following locations:

> Pembroke Road / Stonny Batter Road (Tuesday, 26 July 2016),

> Rose Payten Drive / Pembroke Road (Thursday, 19 July 2016),

> Rose Payten Drive / Airds Road (Tuesday, 26 July 2016), and

> Roads Payten Drive / Campbelltown Road (Thursday, 19 July 2016).

The existing vehicle turning movements in AM and PM peak hour the vicinity of the site is summarised in **Figure 2-2** and **Figure 2-3** respectively, and the full results of the traffic surveys are provided in **Appendix A**.

Figure 2-2 Existing AM Peak Hour Vehicle Turning Movements

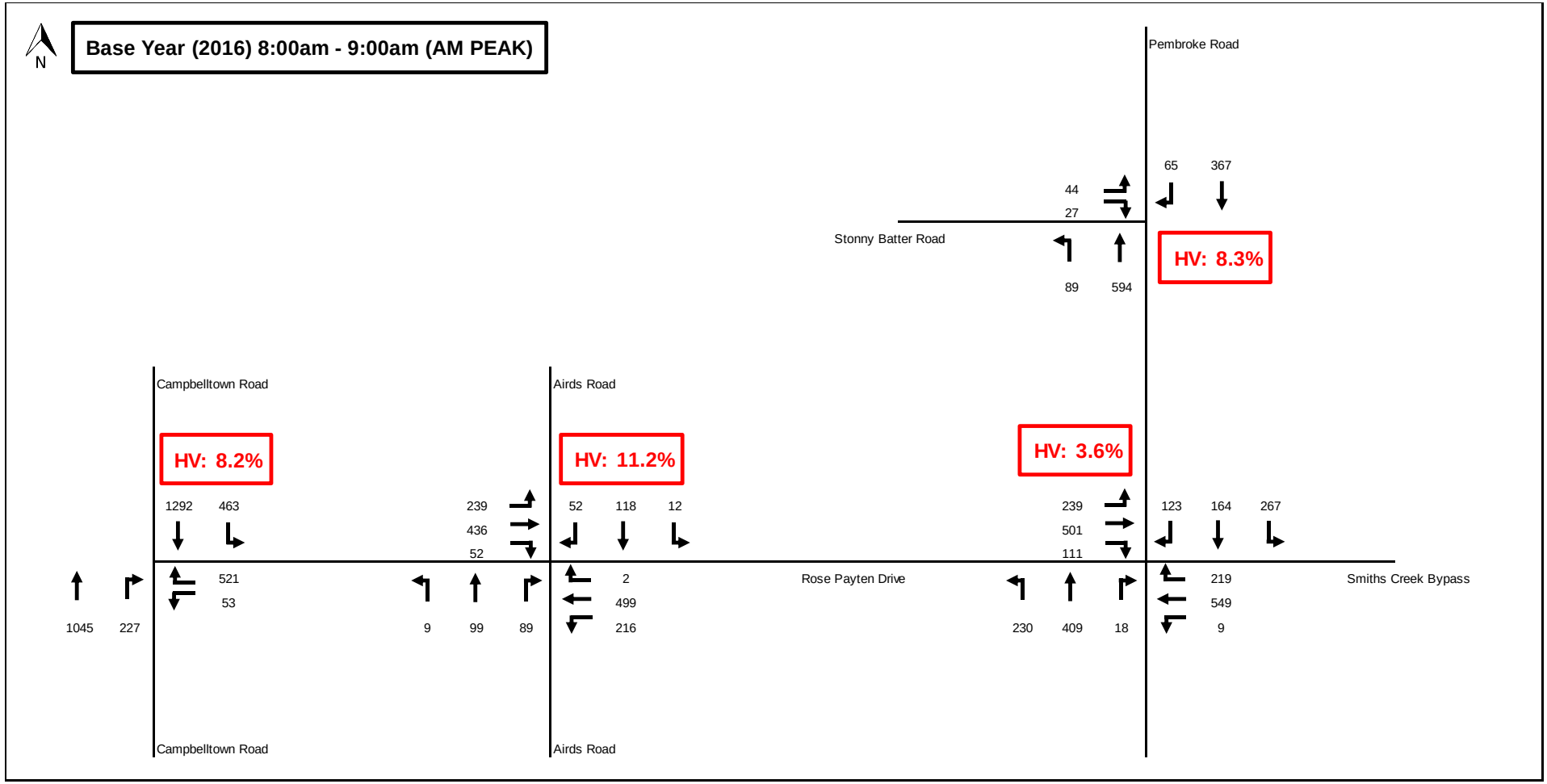
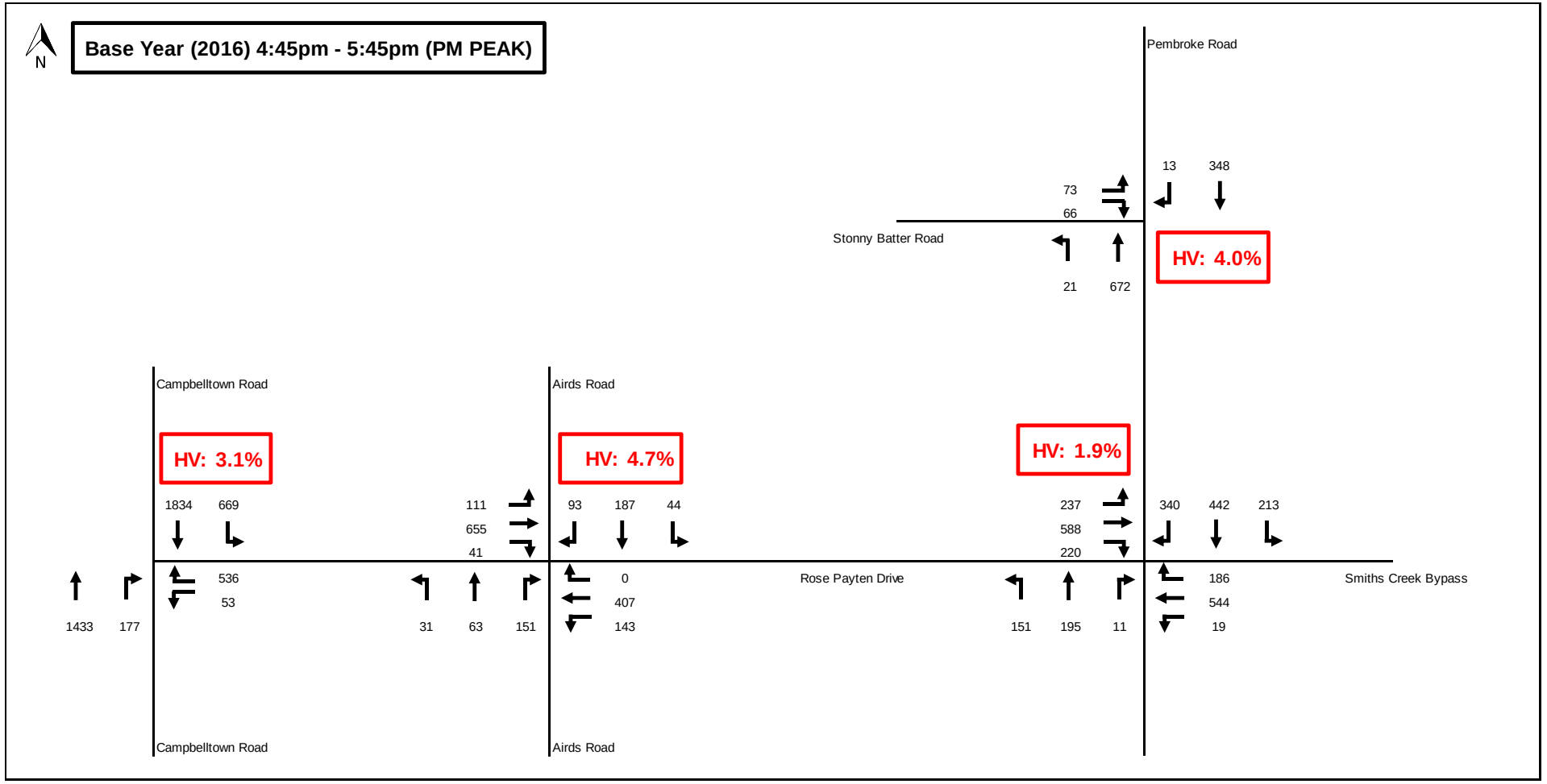


Figure 2-3 Existing PM Peak Hour Vehicle Turning Movements



3 Proposed Development Modification

3.1 Previously Approved Development

May 2009

In May 2009, approval was granted to Joe White Maltings Pty Ltd (JWM) to construct a malt manufacturing and grain packing plant in Minto (Department Reference 09_0157).

The original development consent for the JWM facility was granted under Part 3A of the Environmental Planning and Assessment Act 1979 (EP & A Act) subject to the following conditions:

> *Condition 6:* The proponent shall not:
  - Import more than 270,000 tonnes of malting grain and barley per annum on the site.
  - Produce more than 130,000 tonnes of malt per annum on site.
  - Export more than 140,000 tonnes of grain and 130,000 tonnes of malt per annum from the site.
> *Condition 7:* All delivery of grain and barley to and all dispatch of product from the site to be by rail.

The plant was subsequently constructed and has since been in operation.

April 2012

In April 2012, approval was granted to a Section 75W Modification Application for the transport of some goods by road rather than rail (MOD1) to allow up to 20% of grain and barley to be delivered to the site by road rather than by rail, and up to 20% of the dispatch from the site to also be by road.

Accordingly, *Condition 7* of the approval was amended as follows

> The proponent shall ensure that the project:
  - Does not import more than 54,000 tonnes per annum of grain and barley by road.
  - Does not export more than 25,000 tonnes per annum of malt and grain by road.
  - Import / exports all remaining grain and malting barley via the rail siding to the Main Southern Railway.

June 2014

In June 2014, approval was granted to a second S75W application for the construction of up to an additional 12 storage silos on the site as MOD2 to the original consent. It is understood that from a transport perspective, the operation of the site was not affected, and will continue to operate as per existing.

June 2015

In June 2015, approval was granted for an office expansion (MOD3).

3.2 Proposed Development Modification

In the last four years, deliveries to the plant have continued to largely utilise rail rather than road. Notwithstanding, this is due to the current road transportation arrangement for Joe White Maltings (JWM, now owned by Cargill) has depended on the operational partnership with Qube, which is a major intermodal hub located next door.

Whilst it is JWM's intent to maintain this operational relationship with Qube, a prudent risk has been determined by JWM that their entire operation will be solely dependent on the continued operation of a third party – Qube.

On the above basis, JWM are seeking a modification to the previous approval to increase the volumes of grain and barley that can be delivered to the site by road rather than rail and allow them to be an independent operator if desired or required, and not have their deliveries to depend on the future operation of Qube or rail arrangements.

In order to keep the plant operating at full capacity, the JWM needs to bring in approximately 157,000 tonnes of grain and barley per annum. Given the previous MOD1 allowed up to 54,000 tonnes of grain and barley to be transported by road, **the proposed modification to the previous approval seeks to transport an additional 103,000 tonnes of grain and barley by road instead of rail.**

3.3 Operational Characteristics

The operational hours of the site has been obtained from the operator of the plant as outlined below:

> Monday to Friday: 6:00am-6:00pm (12 hours), and

> Saturday: 6:00am-2:00pm (8 hours).

In this regard, the traffic assessment has assumed there will be 249 working days with 52 Saturdays in a year.

Furthermore, the plant operator has advised Cardno that the transportation of deliveries by road will be undertaken by a mix of articulated trucks which can carry an average load of 45 tonnes of grain or barley per truck.

The plant operator has also advised Cardno that the truck movements are expected to be evenly spread throughout the day, week and year, and the existing operation of the plant does not indicate any signs that the number of truck movements will intensify during a specific period or season.

4 Traffic Impact Assessment

4.1 Trip Generation and Assignment

An indication of the traffic generation potential of a development is typically provided by reference to the *RMS Guide to Traffic Generating Developments*, notwithstanding, the *RMS Guide* does not nominate a traffic generation rate applicable to a malt manufacturing and grain packing plant.

The number of truck movements generated by the proposed modification has therefore been estimated based on the operational characteristics of the development.

Accordingly, the following equation was used in estimating the total peak hourly truck movements, that is, truck movements travelling to / from the site.

$$Total\ Peak\ Hour\ Truck\ Movements = 2 \times \frac{V_{Import}}{L \times (D_W \times H_w + D_S \times H_S)}$$

V_{Import} = Nett grain and barley import volumes. (**103,000 tonnes**)

L = Load capacity. (**45 tonnes per truck**)

D_w = Number of working weekdays per annum. (**249 days**)

D_S = Number of Saturdays per annum. (**52 days**)

H_w = Hours of operation on a typical weekday. (**12 hours**)

H_w = Hours of operation on a Saturday. (**8 hours**)

Based on the above calculation, the proposed modification will yield a traffic generation potential of:

> 2 truck movements during the AM and PM peak hour (i.e. an additional 1 truck arriving and departing the site in the same hour),

> 18 truck movements on a typical weekday (i.e. an additional 9 trucks arriving and departing on the same weekday), and

> 12 truck movements on a Saturday (i.e. an additional 6 trucks arriving and departing on the same Saturday.

The plant operator has also advised that the imports are primarily to be transported via two depots, one located in St Marys and another located in Narellan. Accordingly, for the purposes of traffic distribution, it is assumed that the imported grain and barley will be 50:50 split between the two depots. In this regard, one (1) truck entering and leaving the site in the peak hour cannot be split to the two depot locations, and therefore the traffic assessment has adopted 4 truck movements in the peak hour (i.e. 2 trucks arriving and departing in the same hour) to account for truck movements in all directions.

On the above basis, the assumed directional distribution of the truck movements are summarised in **Figure 4-1**, and the nett increase in the truck movements in the vicinity of the site during the AM and PM peak hour is summarised in **Figure 4-2**.

4.2 Cumulative Traffic Impacts

To account for the cumulative traffic impacts associated with the modification and other nearby existing and proposed developments, a linear growth rate of 1.5% per annum over a 10 year horizon has been applied to the road network as agreed with the RMS.

The increased vehicle turning movements in the vicinity of the site during the AM and PM peak hour as a result of background traffic growth are summarised in **Figure 4-3** and **Figure 4-4** respectively.

Figure 4-1 Truck Directional Distribution

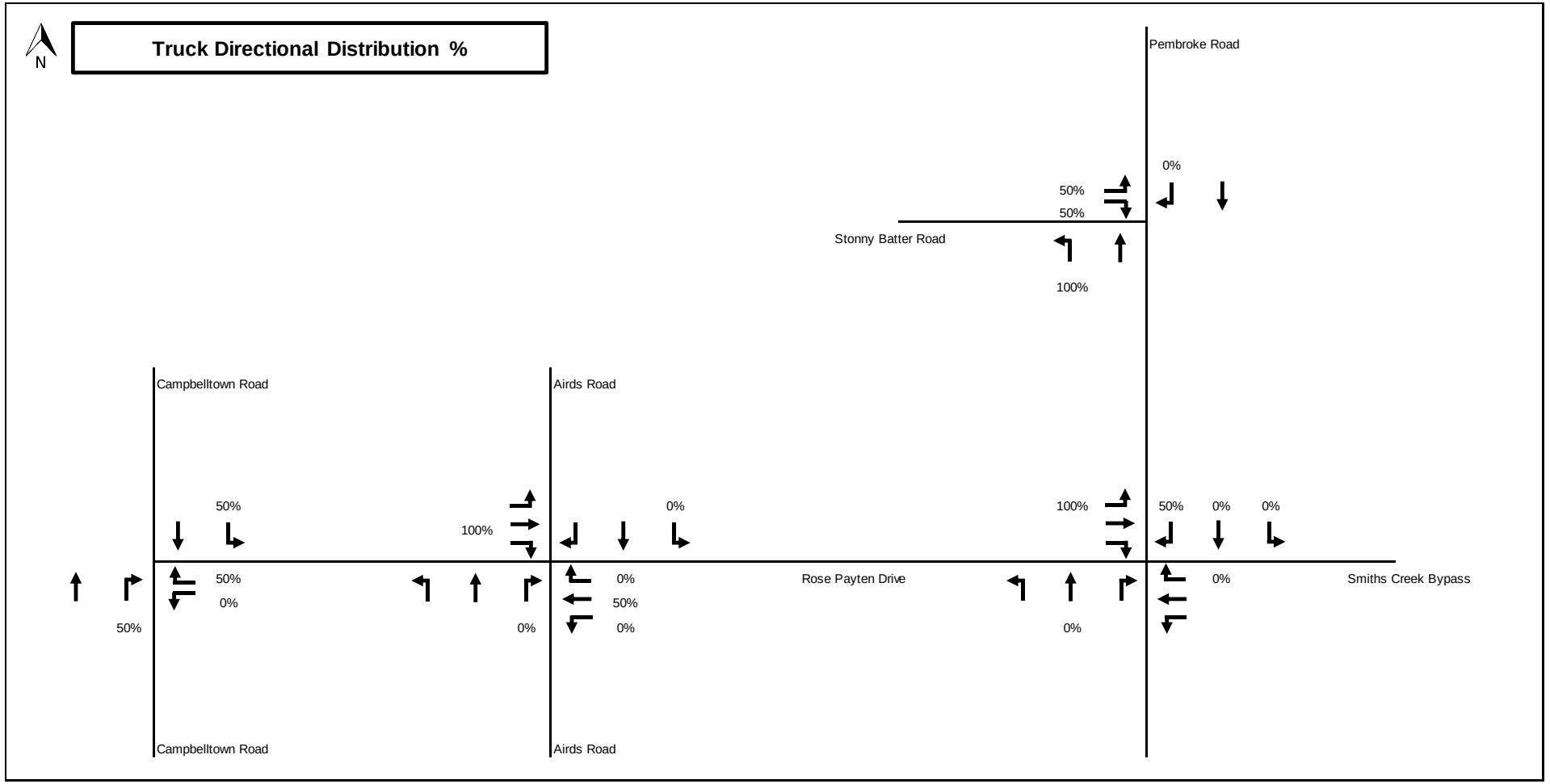


Figure 4-2 Peak Hour Truck Movements

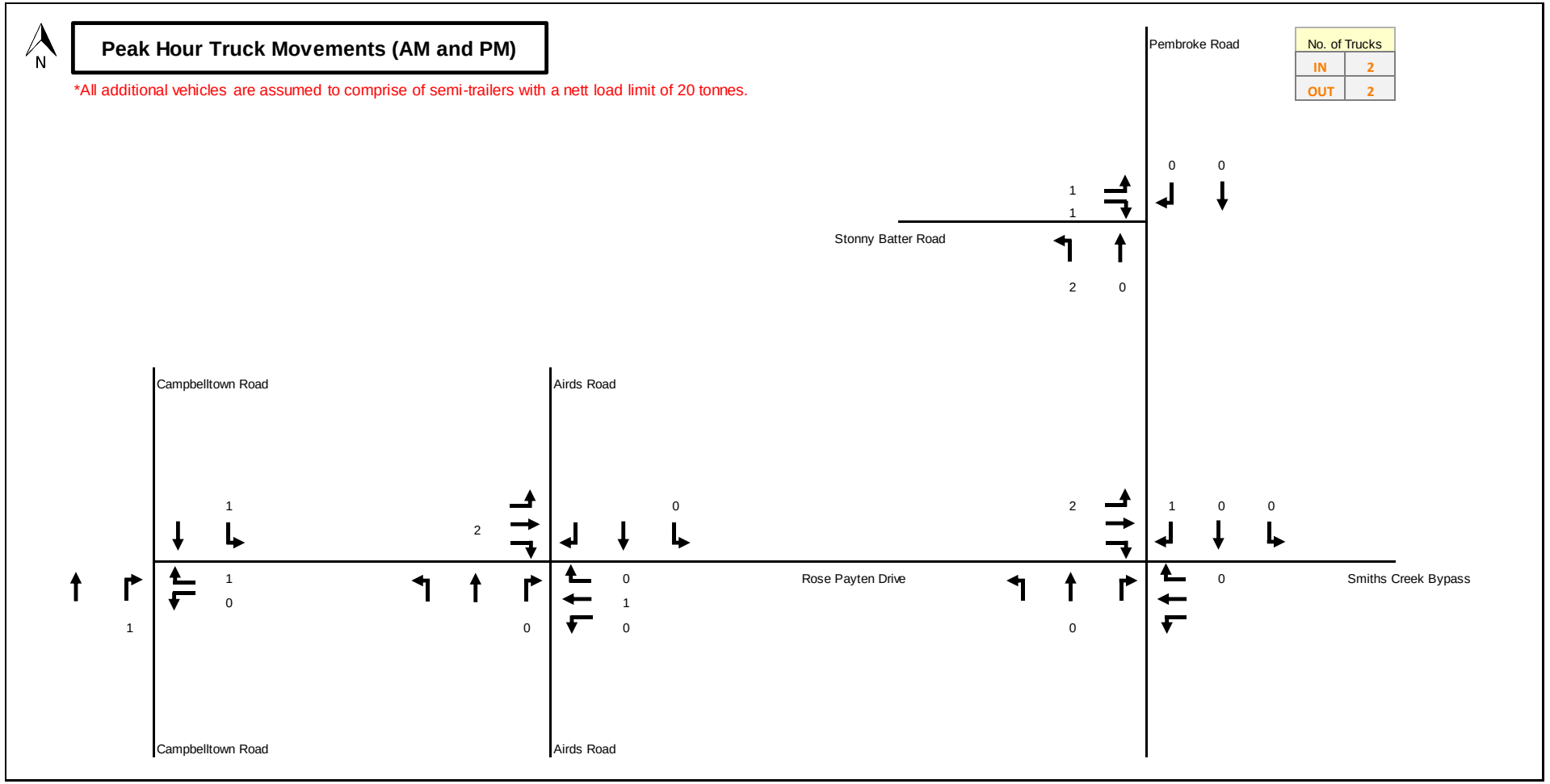


Figure 4-3 2026 AM Peak Hour

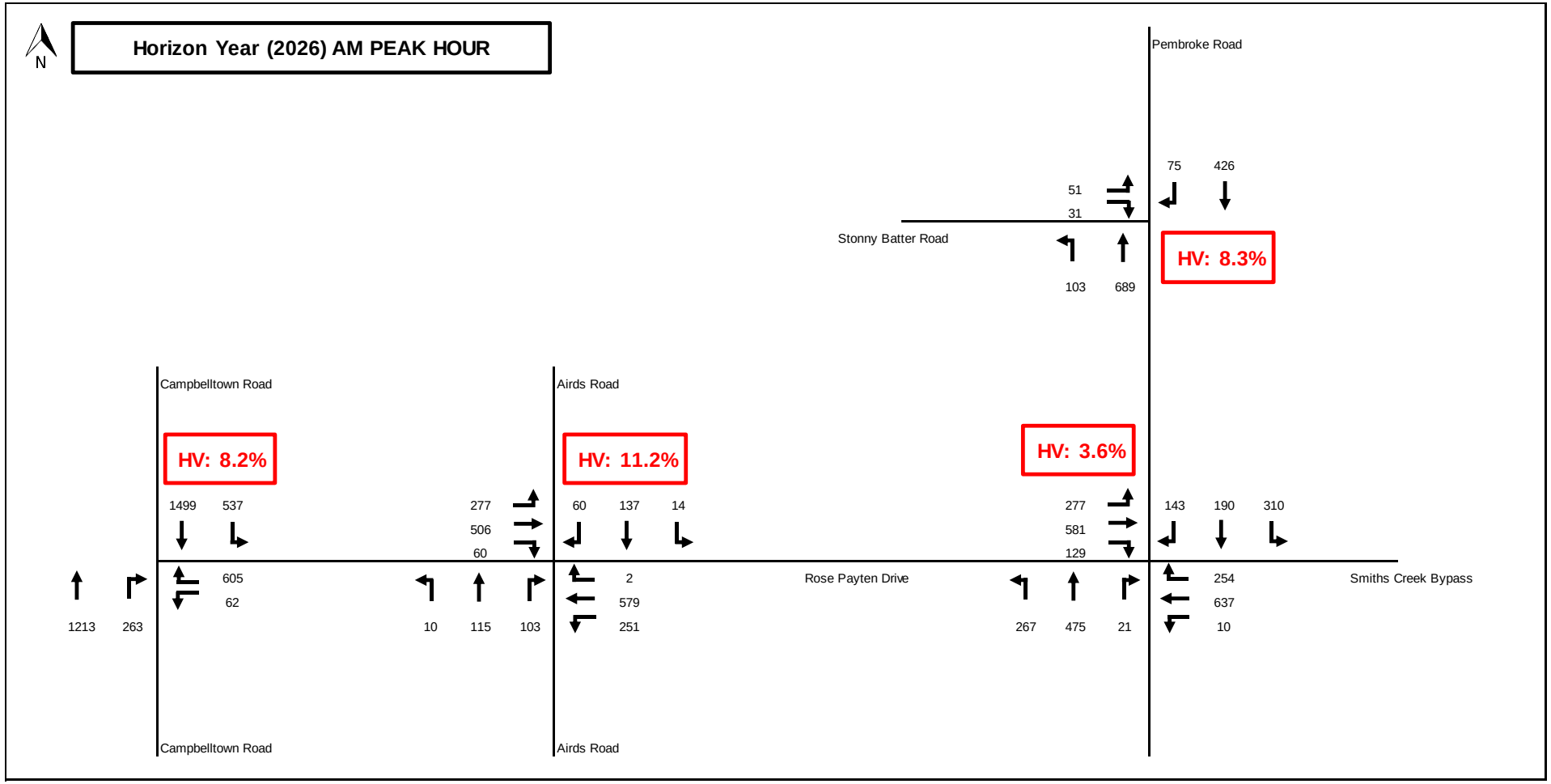
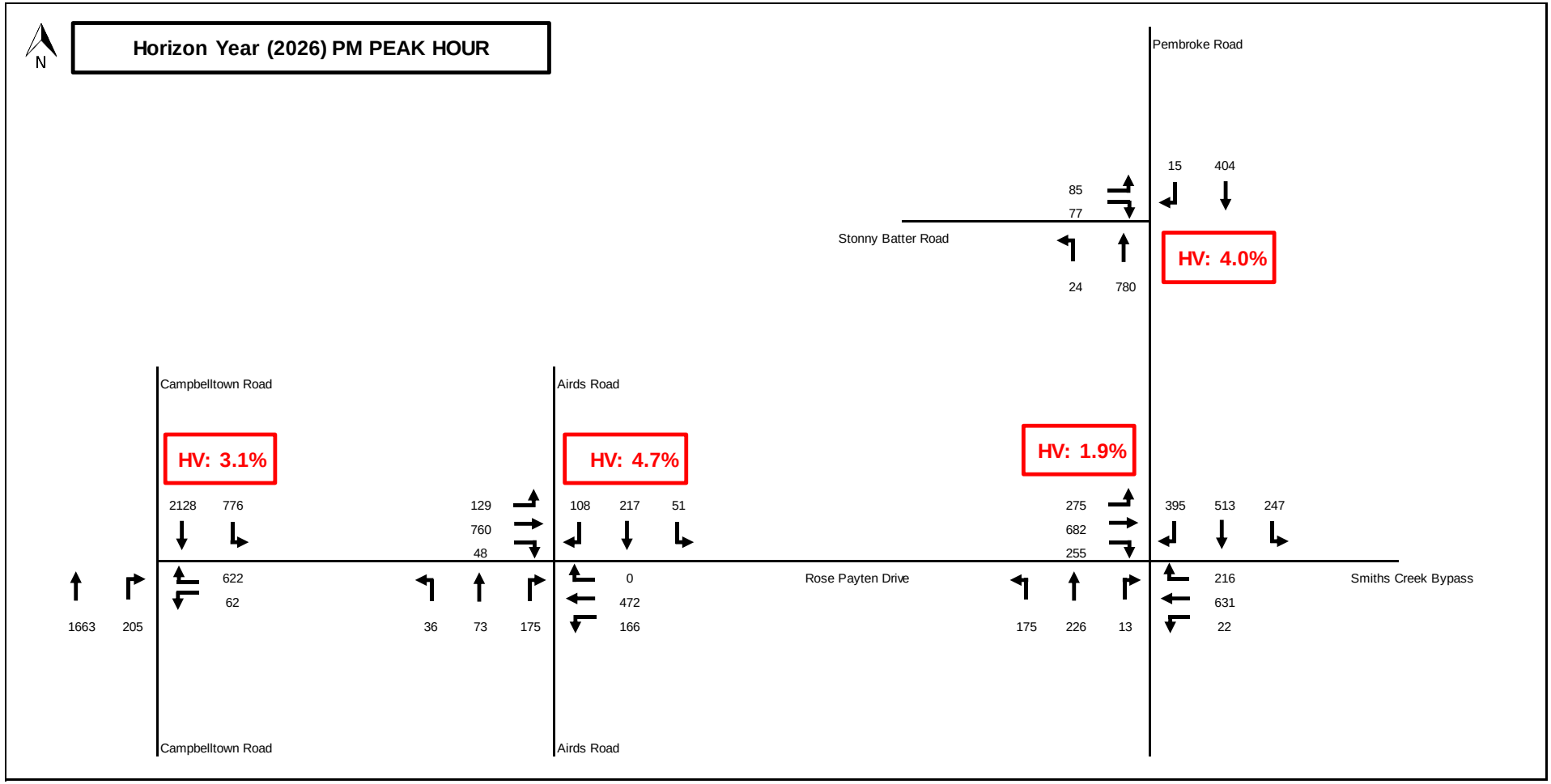


Figure 4-4 2026 PM Peak Hour



4.3 Intersection Operation

4.3.1 Key Intersections

The traffic impacts of the proposed modification to the previously approved development has been assessed for the following four (4) intersections as per RMS's request, with the respective intersection layouts adopted in the assessment shown in the subsequent figures:

> Pembroke Road / Stonny Batter Road Intersection (**Figure 4-5**)

> Rose Payten Drive / Pembroke Road (**Figure 4-6**)

> Rose Payten Drive / Airds Road (**Figure 4-7**)

> Rose Payten Drive / Campbelltown Road Intersection (**Figure 4-8**).

Figure 4-5 Pembroke Rd / Stonny Batter Rd

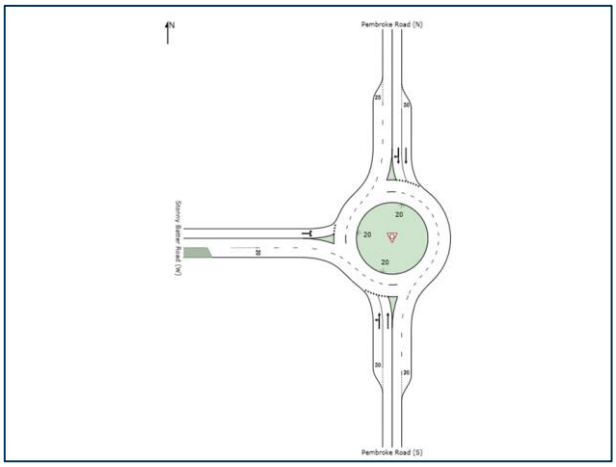


Figure 4-6 Rose Payten Dr / Pembroke Rd

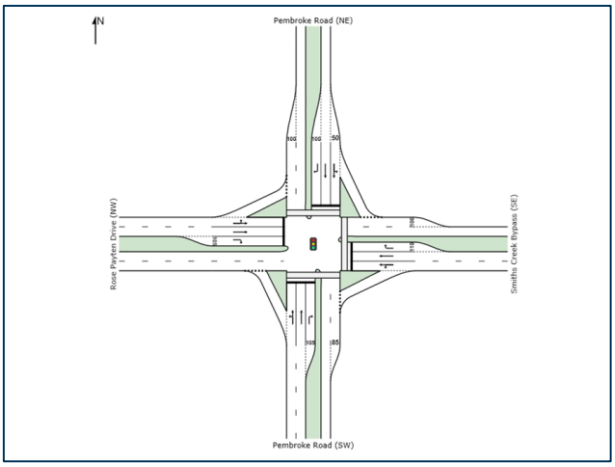


Figure 4-7 Rose Payten Dr / Airds Rd

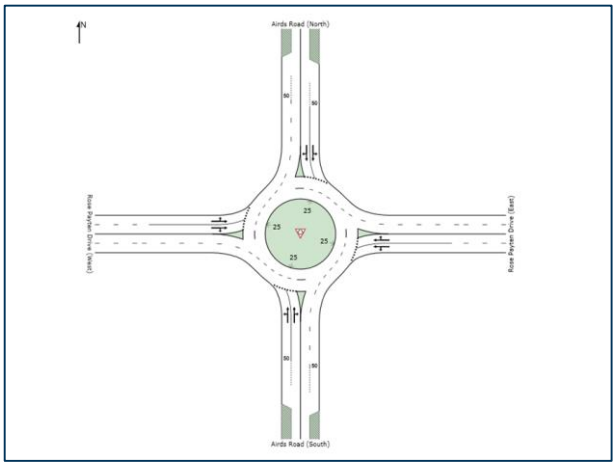
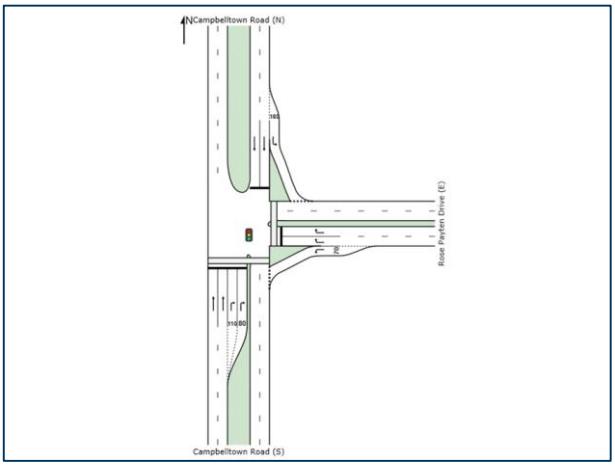


Figure 4-8 Rose Payten Dr / Campbelltown Rd



The assessment for each of the abovementioned intersections also considers the following scenarios:

> **2016**: Existing Traffic Conditions,

> **2026**: Existing Traffic Conditions + 10 years of background growth at a rate of 1.5% per annum to account for the cumulative traffic impacts, and

> **2026 + Development**: Existing Traffic Conditions + 10 years of background growth at a rate of 1.5% per annum + The Additional Truck Movements as a Result of the Modification Proposal.

It is also noted that the additional vehicle movements generated by the proposed modification will primarily comprise of articulated vehicles and has been defined as 'Large Trucks' in the SIDRA Models. This affects the following modelling parameters to account for the increased vehicle length and slower acceleration / deceleration:

> Passenger Car Unit Factor per Vehicle = 2.5 (instead of the default 1.65 for Heavy Vehicles),

> Gap Acceptance Factor = 2.5 (instead of the default 1.5 for Heavy Vehicles), and

> Opposing Vehicle Factor = 2.5 (instead of the default 1.5 for Heavy Vehicles).

4.3.2 Level of Service Criteria for Intersections

The key indicator of intersection performance is typically the Level of Service (LoS), where results are placed on a scale from 'A' to 'F', outlined in **Table 4-1**.

Table 4-1 Level of Service Criteria for Intersections

Level of Service	Average Delay per Vehicle (sec/veh)	Traffic Signals, Roundabout	Giveway & Stop Signs
A	< 14	Good Operation	Good Operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near Capacity & accident study required
E	57 to 70	At Capacity, at signals incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode
F	> 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires additional capacity.

Source: Guide to Traffic Generating Developments (RMS, 2002)

The Average Vehicle Delay (AVD) provides a measure of the operational performance of an intersection and determines the LoS when applying the RMS method. It should be noted that the AVD's should be taken as a guide only as longer delays could be tolerated in some locations (i.e. inner city conditions) and on some roads (i.e. minor side street intersecting with a major arterial route). For traffic signals, the weighted average delay over all movements should be utilised. For roundabouts and priority control intersections (sign control) the critical movement for assessing LoS should be the movement with the highest average delay.

The Degree of Saturation (DoS) is another measure of the operational performance of individual intersections. For intersections controlled by traffic signals, both queue length and delay increase rapidly as DOS approaches 1.0. It is usual to attempt to keep DOS to less than 0.9. Degrees of Saturation in the order of 0.7 generally represent satisfactory intersection operation. When DOS exceed 0.9 queues can be anticipated.

4.3.3 Pembroke Road / Stonny Batter Road Intersection

The impact of the traffic generated by the proposed modification on the Pembroke Road / Stonny Batter Road intersection has been assessed using SIDRA INTERSECTION 7.

It is pertinent to note that the SIDRA model of this intersection has considered the vertical road alignment of all approaches, and the respective gradients has been taken from the NearMap elevation profile which is based on data collected by both NearMap and Google. These values have also been further scaled up to the nearest 5% to be conservative. Accordingly, the gradient values for each approach has been adopted as follows:

> Stonny Batter Road approaching the intersection:10% uphill,

> Pembroke Road (North) approaching the intersection: 5% uphill, and

> Pembroke Road (South) approaching the intersection: 5% uphill.

Accordingly, the results of the SIDRA assessment is summarised in **Table 4-2** and reproduced in full in **Appendix B**.

Table 4-2 Pembroke Road / Stonny Batter Road Intersection SIDRA Results

Scenario	AM Peak			PM Peak		
	DoS	Delay (sec)	LoS	DoS	Delay (sec)	LoS
2016	0.418	4.9	A	0.368	4.8	A
2026	0.489	5.0	A	0.428	4.9	A
2026 + Development	0.492	5.0	A	0.431	4.9	A

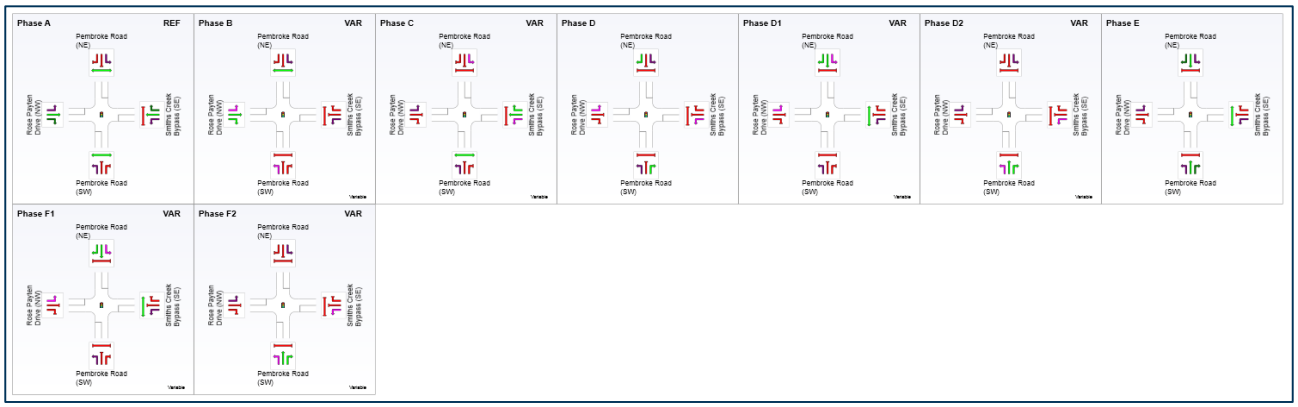
Based on the above SIDRA analysis, the additional traffic generated by the proposed modification has negligible impact on the operation of the intersection, where it will continue to operate at a satisfactory LoS A with background traffic growth and also the additional truck movements during the AM and PM peak hours.

4.3.4 Rose Payten Drive / Pembroke Road / Smiths Creek Bypass Intersection

The impact of the traffic generated by the proposed modification on the Rose Payten Drive / Pembroke Road / Smiths Creek Bypass intersection has been assessed using SIDRA INTERSECTION 7.

The phase sequence adopted in the SIDRA Model has been based on the Traffic Control Signal Plan obtained from the RMS's Plan Management Centre (TCS No.3373) and is illustrated in **Figure 4-9**.

Figure 4-9 TCS No.3373 Phase Diagram



The 'Practical Cycle Time' option has been adopted in the SIDRA Model, which allows the program to calculate a cycle time and green times that satisfy the practical (target) average delay for critical movements.

Accordingly, the results of the SIDRA assessment is summarised in **Table 4-3** and reproduced in full in **Appendix B**.

Table 4-3 Rose Payten Drive / Pembroke Road / Smiths Creek Bypass Intersection SIDRA Results

Scenario	AM Peak			PM Peak		
	DoS	Delay (sec)	LoS	DoS	Delay (sec)	LoS
2016	0.831	30.0	C	0.905	31.0	C
2026	0.937	42.5	D	1.148	85.4	F
2026 + Development	0.947	43.3	D	1.148	85.5	F

Based on the above SIDRA analysis, the intersection currently operates at a satisfactory LoS C, and is expected to deteriorate to LoS D and F during the AM and PM peak hours with background traffic growth and will be unable to accommodate any additional traffic demand.

In this regard, it is noted that the additional 3 truck movements generated by the proposed modification contributes to an increase of less than 0.1% traffic at this intersection, and therefore is clearly not the primary contributing factor to the deterioration of the service levels of the intersection.

On the above basis, it is recommended that RMS undertake an investigation of this intersection prior to the background traffic reaches the forecasted traffic conditions to ensure that the intersection will have sufficient spare capacity to accommodate future traffic demands.

4.3.5 Rose Payten Drive / Airds Road Intersection

The impact of the traffic generated by the proposed modification on the Rose Payten Drive / Airds Road intersection has been assessed using SIDRA INTERSECTION 7.

Accordingly, the results of the SIDRA assessment is summarised in **Table 4-4** and reproduced in full in **Appendix B**.

Table 4-4 Rose Payten Drive / Airds Road Intersection SIDRA Results

Scenario	AM Peak			PM Peak		
	DoS	Delay (sec)	LoS	DoS	Delay (sec)	LoS
2016	0.328	5.7	A	0.369	6.4	A
2026	0.392	6.0	A	0.441	6.8	A
2026 + Development	0.939	6.0	A	0.443	6.8	A

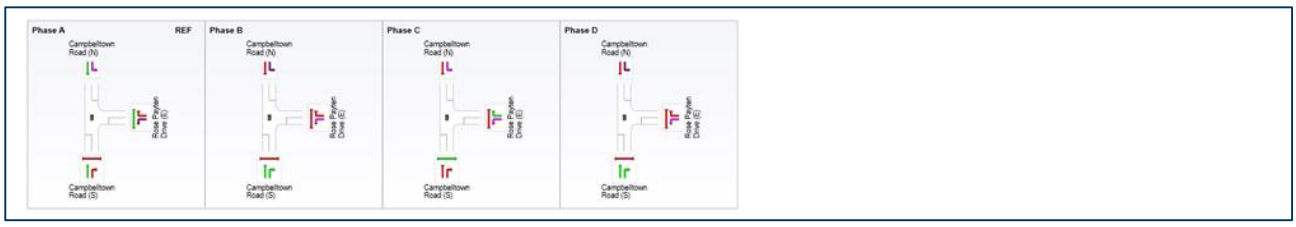
Based on the above SIDRA analysis, the additional traffic generated by the proposed modification has negligible impact on the operation of the intersection, where it will continue to operate at a satisfactory LoS A with background traffic growth and also the additional truck movements during the AM and PM peak hours.

4.3.6 Rose Payten Drive / Campbelltown Road Intersection

The impact of the traffic generated by the proposed modification on the Rose Payten Drive / Campbelltown Road intersection has been assessed using SIDRA INTERSECTION 7.

The phase sequence adopted in the SIDRA Model has been based on the Traffic Control Signal Plan obtained from the RMS's Plan Management Centre (TCS No.3275) and is illustrated in **Figure 4-10**.

Figure 4-10 TCS No.3373 Phase Diagram



The 'Practical Cycle Time' option has been adopted in the SIDRA Model, which allows the program to calculate a cycle time and green times that satisfy the practical (target) average delay for critical movements.

Accordingly, the results of the SIDRA assessment is summarised in **Table 4-35** and reproduced in full in **Appendix B**.

Table 4-5 Rose Payten Drive / Campbelltown Road Intersection SIDRA Results

Scenario	AM Peak			PM Peak		
	DoS	Delay (sec)	LoS	DoS	Delay (sec)	LoS
2016	0.879	25.3	B	0.955	36.1	C
2026	0.891	30.6	C	1.128	102.1	F
2026 + Development	0.892	30.8	C	1.129	102.7	F

Based on the above SIDRA analysis, the intersection currently operates at a satisfactory LoS B, and is expected to continually to operate satisfactorily with LoS C with the background traffic growth and also the additional truck movements during the AM peak hour. Notwithstanding, the intersection is expected to deteriorate to LoS F during the PM peak hours with the background traffic growth and will be unable to accommodate any additional traffic demand.

In this regard, it is noted that the additional 3 truck movements generated by the proposed modification contributes to an increase of less than 0.1% traffic at this intersection, and therefore is clearly not the primary contributing factor to the deterioration of the service levels of the intersection.

On the above basis, it is recommended that RMS undertake an investigation of this intersection prior to the background traffic reaches the forecasted traffic conditions to ensure that the intersection will have sufficient spare capacity to accommodate future traffic demands.

5 Conclusion

Cardno (NSW/ACT) Pty Ltd has been commissioned by Joe White Malting to prepare a Traffic Impact Assessment (TIA) to accompany a modification request to the Department seeking to modify the Minister's approval for the Minto Malting Plant and Packing Facility (MP08_0157) under section 75W of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*.

The proposed modification seeks to deliver an additional 103,000 tonnes of grain and barley on top of the previously approved 54,000 tonnes of grain and barley by road. The analysis presented in the report shows that the proposed modification will yield a traffic generation potential of:

> 2 truck movements during the AM and PM peak hour (i.e. an additional 1 truck arriving and departing the site in the same hour),

> 18 truck movements on a typical weekday (i.e. an additional 9 trucks arriving and departing on the same weekday), and

> 12 truck movements on a Saturday (i.e. an additional 6 trucks arriving and departing on the same Saturday.

Notwithstanding the above, given the truck movements will be 50:50 split between two depots, one (1) truck entering and leaving the site in the peak hour cannot be split to the two different locations/ Accordingly, the traffic assessment has adopted 4 truck movements in the peak hour (i.e. 2 trucks arriving and departing in the same hour) to account for truck movements in all directions.

Further to the above, in order to account for the cumulative traffic impacts associated with the modification and other nearby existing and proposed developments, a linear growth rate of 1.5% per annum over a 10 year horizon has been applied to the road network as agreed with RMS.

Accordingly, the impacts of the traffic generated by the proposed modification on the key intersections in the vicinity of the subject site have been analysed and the SIDRA results are summarised below in **Table 5-1**.

Table 5-1 SIDRA Results Summary

Scenario	Pembroke Rd & Stonny Batter Rd		Rose Payten Dr & Pembroke Rd & Smiths Creek Byp		Rose Payten Dr / Airds Rd		Pacific Motorway & Wyong Road (West)	
	AM	PM	AM	PM	AM	PM	AM	PM
2016	A	A	C	C	A	A	B	C
2026	A	A	D	F	A	A	C	F
2026 + Development	A	A	D	F	A	A	C	F

Based on the SIDRA results, the following are summarised:

> The additional traffic generated by the proposed modification has negligible impact on the operation of the Pembroke Road / Stonny Batter Road intersection, where it will continue to operate at a satisfactory LoS A with background traffic growth and also the additional truck movements during the AM and PM peak hours.

> The Rose Payten Drive / Pembroke Road / Smiths Creek Bypass intersection currently operates at a satisfactory LoS C, and is expected to deteriorate to LoS D and F during the AM and PM peak hours with background traffic growth. Notwithstanding, the assessment shows that the additional traffic generated by the proposed development contributes to an increase of less than 0.1% traffic at this intersection, and is clearly not the primary contributing factor to the deterioration of the service levels of the intersection.

> The additional traffic generated by the proposed modification has negligible impact on the operation of the Rose Payten Drive / Airds Road intersection, where it will continue to operate at a satisfactory LoS A with background traffic growth and also the additional truck movements during the AM and PM peak hours.

> The Rose Payten Drive / Campbelltown Road intersection currently operates at a satisfactory LoS B, and is expected to deteriorate to LoS C and F during the AM and PM peak hours with background traffic growth. Notwithstanding, the assessment shows that the additional traffic generated by the proposed development contributes to an increase of less than 0.1% traffic at this intersection, and is clearly not the primary contributing factor to the deterioration of the service levels of the intersection.

On the above basis, there are no traffic and transport considerations that would preclude the proposed modification to bring in an additional 103,000 tonnes of grain and barley by road per annum.

Traffic Impact Assessment

APPENDIX A

Location	ROSE PAYTEN DRIVE	Duration	0600 - 1000
	PEMBROKE ROAD		1430 - 1830
	SMITHS CREEK BYPASS		-
	PEMBROKE ROAD	Day/Date	Tuesday, 19 July 2016
Suburb	MINTO	Weather	FINE

All Vehicles	NORTH										EAST											
Time Per 15 Mins	ROSE PAYTEN DRIVE										PEMBROKE ROAD										TOTAL	
	L			T			R				L			T			R					
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00 - 6:15	31	5	36	8	0	8	6	1	7	51	0	0	0	42	2	44	27	1	28	72	331	13	344
6:15 - 6:30	45	3	48	18	0	18	19	0	19	85	0	0	0	36	0	36	15	4	19	55	409	10	419
6:30 - 6:45	44	4	48	17	1	18	14	0	14	80	0	2	2	30	2	32	17	2	19	53	512	12	524
6:45 - 7:00	55	2	57	26	3	29	20	1	21	107	2	0	2	57	1	58	16	0	16	76	520	16	536
7:00 - 7:15	43	5	48	18	1	19	20	0	20	87	1	0	1	33	1	34	20	7	27	62	461	19	480
7:15 - 7:30	41	3	44	34	0	34	17	2	19	97	1	0	1	59	2	61	24	1	25	87	511	11	522
7:30 - 7:45	43	5	48	50	0	50	20	0	20	118	2	2	4	80	3	83	40	1	41	128	630	16	646
7:45 - 8:00	52	7	59	46	0	46	23	1	24	129	4	1	5	79	3	82	30	4	34	121	655	25	680
8:00 - 8:15	50	6	56	46	1	47	23	0	23	126	0	0	0	96	0	96	33	4	37	133	621	22	643
8:15 - 8:30	65	7	72	50	1	51	33	0	33	156	3	0	3	120	2	122	47	8	55	180	741	23	764
8:30 - 8:45	67	8	75	36	1	37	26	12	38	150	2	1	3	165	1	166	59	4	63	232	709	31	740
8:45 - 9:00	55	9	64	29	0	29	29	0	29	122	2	1	3	164	1	165	60	4	64	232	667	25	692
9:00 - 9:15	42	5	47	25	3	28	32	0	32	107	4	0	4	148	1	149	40	6	46	199	551	19	570
9:15 - 9:30	34	4	38	33	1	34	30	0	30	102	3	0	3	134	2	136	28	0	28	167	529	17	546
9:30 - 9:45	29	4	33	32	0	32	31	0	31	96	2	0	2	146	0	146	34	3	37	185	498	9	507
9:45 - 10:00	35	6	41	35	1	36	28	0	28	105	2	0	2	110	1	111	25	4	29	142	476	17	493
Period End	731	83	814	503	13	516	371	17	388	1718	28	7	35	1499	22	1521	515	53	568	2124	8821	285	9106
14:30 - 14:45	46	11	57	72	3	75	52	1	53	185	3	0	3	125	0	125	37	3	40	168	669	19	688
14:45 - 15:00	56	11	67	90	0	90	64	0	64	221	6	0	6	143	3	146	33	6	39	191	721	24	745
15:00 - 15:15	51	5	56	70	2	72	41	0	41	169	9	0	9	130	3	133	66	3	69	211	690	20	710
15:15 - 15:30	53	5	58	89	6	95	81	0	81	234	6	0	6	158	1	159	42	7	49	214	736	25	761
15:30 - 15:45	50	6	56	64	2	66	71	2	73	195	3	0	3	158	0	158	47	5	52	213	755	21	776
15:45 - 16:00	62	5	67	95	1	96	61	0	61	224	5	0	5	157	1	158	48	4	52	215	700	16	716
16:00 - 16:15	51	3	54	91	2	93	68	1	69	216	3	0	3	164	0	164	49	3	52	219	741	11	752
16:15 - 16:30	48	7	55	90	2	92	73	0	73	220	4	0	4	157	2	159	51	2	53	216	750	14	764
16:30 - 16:45	37	4	41	112	5	117	92	1	93	251	5	0	5	145	0	145	42	4	46	196	772	17	789
16:45 - 17:00	51	8	59	117	2	119	77	0	77	255	5	0	5	158	1	159	34	3	37	201	747	20	767
17:00 - 17:15	42	2	44	119	2	121	71	0	71	236	3	0	3	108	0	108	60	10	70	181	774	17	791
17:15 - 17:30	59	4	63	102	0	102	103	0	103	268	5	0	5	117	2	119	34	5	39	163	773	13	786
17:30 - 17:45	46	1	47	98	2	100	87	2	89	236	5	1	6	158	0	158	39	1	40	204	791	11	802
17:45 - 18:00	48	1	49	100	0	100	74	2	76	225	3	0	3	146	0	146	37	3	40	189	739	10	749
18:00 - 18:15	48	0	48	89	1	90	73	0	73	211	7	0	7	136	1	137	43	2	45	189	727	7	734
18:15 - 18:30	48	2	50	103	0	103	98	0	98	251	2	0	2	125	1	126	29	1	30	158	730	6	736
Period End	796	75	871	1501	30	1531	1186	9	1195	3597	74	1	75	2285	15	2300	691	62	753	3128	11815	251	12066

All Vehicles	SOUTH										WEST											
Time Per 15 Mins	SMITHS CREEK BYPASS										PEMBROKE ROAD										TOTAL	
	L			T			R				L			T			R					
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00 - 6:15	20	3	23	87	1	88	1	0	1	112	66	0	66	34	0	34	9	0	9	109	331	13	344
6:15 - 6:30	19	0	19	97	0	97	0	1	1	117	82	1	83	74	1	75	4	0	4	162	409	10	419
6:30 - 6:45	49	0	49	102	0	102	2	0	2	153	162	0	162	65	0	65	10	1	11	238	512	12	524
6:45 - 7:00	50	2	52	103	1	104	2	2	4	160	83	0	83	91	2	93	15	2	17	193	520	16	536
7:00 - 7:15	53	1	54	130	3	133	0	0	0	187	67	0	67	61	0	61	15	1	16	144	461	19	480
7:15 - 7:30	49	1	50	126	0	126	0	0	0	176	75	1	76	69	1	70	16	0	16	162	511	11	522
7:30 - 7:45	52	1	53	133	1	134	6	0	6	193	76	0	76	104	1	105	24	2	26	207	630	16	646
7:45 - 8:00	61	0	61	148	1	149	8	0	8	218	81	0	81	98	8	106	25	0	25	212	655	25	680
8:00 - 8:15	40	0	40	130	0	130	4	0	4	174	61	8	69	115	1	116	23	2	25	210	621	22	643
8:15 - 8:30	66	2	68	110	1	111	6	1	7	186	70	0	70	133	0	133	38	1	39	242	741	23	764
8:30 - 8:45	64	2	66	90	0	90	5	0	5	161	55	0	55	117	1	118	23	1	24	197	709	31	740
8:45 - 9:00	56	0	56	77	1	78	2	0	2	136	45	0	45	126	8	134	22	1	23	202	667	25	692
9:00 - 9:15	37	1	38	55	2	57	3	0	3	98	48	1	49	100	0	100	17	0	17	166	551	19	570
9:15 - 9:30	40	1	41	58	3	61	1	0	1	103	54	2	56	91	1	92	23	3	26	174	529	17	546
9:30 - 9:45	44	1	45	44	0	44	3	0	3	92	45	0	45	66	1	67	22	0	22	134	498	9	507
9:45 - 10:00	28	0	28	55	0	55	6	0	6	89	28	3	31	99	0	99	25	2	27	157	476	17	493
Period End	728	15	743	1545	14	1559	49	4	53	2355	1098	16	1114	1443	25	1468	311	16	327	2909	8821	285	9106
14:30 - 14:45	40	1	41	55	0	55	3	0	3	99	43	0	43	156	0	156	37	0	37	236	669	19	688
14:45 - 15:00	36	0	36	51	1	52	3	0	3	91	44	0	44	152	3	155	43	0	43	242	721	24	745
15:00 - 15:15	51	0	51	55	2	57	5	0	5	113	43	2	45	113	2	115	56	1	57	217	690	20	710
15:15 - 15:30	33	4	37	65	0	65	4	0	4	106	39	0	39	129	1	130	37	1	38	207	736	25	761
15:30 - 15:45	41	1	42	50	1	51	3	0	3	96	51	2	53	168	1	169	49	1	50	272	755	21	776
15:45 - 16:00	28	0	28	46	0	46	2	0	2	76	38	2	40	123	1	124	35	2	37	201	700	16	716
16:00 - 16:15	33	1	34	45	0	45	4	0	4	83	45	0	45	146	0	146	42	1	43	234	741	11	752
16:15 - 16:30	41	0	41	49	0	49	3	0	3	93	45	1	46	131	0	131	58	0	58	235	750	14	764
16:30 - 16:45	39	1	40	42	0	42	1	0	1	83	58	0	58	138	1	139	61	1	62	259	772	17	789
16:45 - 17:00	32	1	33	40	3	43	1	0	1	77	52	0	52	145	1	146	35	1	36	234	747	20	767
17:00 - 17:15	39	2	41	50	0	50	3	0	3	94	57	0	57	157	0	157	65	1	66	280	774	17	791
17:15 - 17:30	34	0	34	48	0	48	4	0	4	86	60	0	60	148	1	149	59	1	60	269	773	13	786
17:30 - 17:45	41	2	43	53	1	54	3	0	3	100	68	0	68	136	0	136	57	1	58	262	791	11	802
17:45 - 18:00	35	1	36	50	0	50	1	0	1	87	37	0	37	144	1	145	64	2	66	248	739	10	749
18:00 - 18:15	41	2	43	49	0	49	1	0	1	93	51	1	52	126	0	126	63	0	63	241	727	7	734
18:15 - 18:30	45	0	45	53	0	53	3	0	3	101	49	0	49	114	1	115	61	1	62	226	730	6	736
Period End	609	16	625	801	8	809	44	0	44	1478	780	8	788	2226	13	2239	822	14	836	3863	11815	251	12066

All Vehicles Time Per 15 Mins			NORTH *ROSE PAYTEN DRIVE*										EAST *PEMBROKE ROAD*											
			L			T			R				L			T			R			TOTAL			
			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00	-	7:00	175	14	189	69	4	73	59	2	61	323	2	2	4	165	5	170	75	7	82	256	1772	51	1823
6:15	-	7:15	187	14	201	79	5	84	73	1	74	359	3	2	5	156	4	160	68	13	81	246	1902	57	1959
6:30	-	7:30	183	14	197	95	5	100	71	3	74	371	4	2	6	179	6	185	77	10	87	278	2004	58	2062
6:45	-	7:45	182	15	197	128	4	132	77	3	80	409	6	2	8	229	7	236	100	9	109	353	2122	62	2184
7:00	-	8:00	179	20	199	148	1	149	80	3	83	431	8	3	11	251	9	260	114	13	127	398	2257	71	2328
7:15	-	8:15	186	21	207	176	1	177	83	3	86	470	7	3	10	314	8	322	127	10	137	469	2417	74	2491
7:30	-	8:30	210	25	235	192	2	194	99	1	100	529	9	3	12	375	8	383	150	17	167	562	2647	86	2733
7:45	-	8:45	234	28	262	178	3	181	105	13	118	561	9	2	11	460	6	466	169	20	189	666	2726	101	2827
8:00	-	9:00	237	30	267	161	3	164	111	12	123	554	7	2	9	545	4	549	199	20	219	777	2738	101	2839
8:15	-	9:15	229	29	258	140	5	145	120	12	132	535	11	2	13	597	5	602	206	22	228	843	2668	98	2766
8:30	-	9:30	198	26	224	123	5	128	117	12	129	481	11	2	13	611	5	616	187	14	201	830	2456	92	2548
8:45	-	9:45	160	22	182	119	4	123	122	0	122	427	11	1	12	592	4	596	162	13	175	783	2245	70	2315
9:00	-	10:00	140	19	159	125	5	130	121	0	121	410	11	0	11	538	4	542	127	13	140	693	2054	62	2116
Period End			2500	277	2777	1733	47	1780	1238	65	1303	5860	99	26	125	5012	75	5087	1761	181	1942	7154	30008	983	30991
14:30	-	15:30	206	32	238	321	11	332	238	1	239	809	24	0	24	556	7	563	178	19	197	784	2816	88	2904
14:45	-	15:45	210	27	237	313	10	323	257	2	259	819	24	0	24	589	7	596	188	21	209	829	2902	90	2992
15:00	-	16:00	216	21	237	318	11	329	254	2	256	822	23	0	23	603	5	608	203	19	222	853	2881	82	2963
15:15	-	16:15	216	19	235	339	11	350	281	3	284	869	17	0	17	637	2	639	186	19	205	861	2932	73	3005
15:30	-	16:30	211	21	232	340	7	347	273	3	276	855	15	0	15	636	3	639	195	14	209	863	2946	62	3008
15:45	-	16:45	198	19	217	388	10	398	294	2	296	911	17	0	17	623	3	626	190	13	203	846	2963	58	3021
16:00	-	17:00	187	22	209	410	11	421	310	2	312	942	17	0	17	624	3	627	176	12	188	832	3010	62	3072
16:15	-	17:15	178	21	199	438	11	449	313	1	314	962	17	0	17	568	3	571	187	19	206	794	3043	68	3111
16:30	-	17:30	189	18	207	450	9	459	343	1	344	1010	18	0	18	528	3	531	170	22	192	741	3066	67	3133
16:45	-	17:45	198	15	213	436	6	442	338	2	340	995	18	1	19	541	3	544	167	19	186	749	3085	61	3146
17:00	-	18:00	195	8	203	419	4	423	335	4	339	965	16	1	17	529	2	531	170	19	189	737	3077	51	3128
17:15	-	18:15	201	6	207	389	3	392	337	4	341	940	20	1	21	557	3	560	153	11	164	745	3030	41	3071
17:30	-	18:30	190	4	194	390	3	393	332	4	336	923	17	1	18	565	2	567	148	7	155	740	2987	34	3021
Period End			2595	233	2828	4951	107	5058	3905	31	3936	11822	243	4	247	7556	46	7602	2311	214	2525	10374	38738	837	39575

All Vehicles Time Per Hour			SOUTH *SMITHS CREEK BYPASS*										WEST *PEMBROKE ROAD*											
			L			T			R				L			T			R			TOTAL			
			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00	-	7:00	138	5	143	389	2	391	5	3	8	542	393	1	394	264	3	267	38	3	41	702	1772	51	1823
6:15	-	7:15	171	3	174	432	4	436	4	3	7	617	394	1	395	291	3	294	44	4	48	737	1902	57	1959
6:30	-	7:30	201	4	205	461	4	465	4	2	6	676	387	1	388	286	3	289	56	4	60	737	2004	58	2062
6:45	-	7:45	204	5	209	492	5	497	8	2	10	716	301	1	302	325	4	329	70	5	75	706	2122	62	2184
7:00	-	8:00	215	3	218	537	5	542	14	0	14	774	299	1	300	332	10	342	80	3	83	725	2257	71	2328
7:15	-	8:15	202	2	204	537	2	539	18	0	18	761	293	9	302	386	11	397	88	4	92	791	2417	74	2491
7:30	-	8:30	219	3	222	521	3	524	24	1	25	771	288	8	296	450	10	460	110	5	115	871	2647	86	2733
7:45	-	8:45	231	4	235	478	2	480	23	1	24	739	267	8	275	463	10	473	109	4	113	861	2726	101	2827
8:00	-	9:00	226	4	230	407	2	409	17	1	18	657	231	8	239	491	10	501	106	5	111	851	2738	101	2839
8:15	-	9:15	223	5	228	332	4	336	16	1	17	581	218	1	219	476	9	485	100	3	103	807	2668	98	2766
8:30	-	9:30	197	4	201	280	6	286	11	0	11	498	202	3	205	434	10	444	85	5	90	739	2456	92	2548
8:45	-	9:45	177	3	180	234	6	240	9	0	9	429	192	3	195	383	10	393	84	4	88	676	2245	70	2315
9:00	-	10:00	149	3	152	212	5	217	13	0	13	382	175	6	181	356	2	358	87	5	92	631	2054	62	2116
Period End			2553	48	2601	5312	50	5362	166	14	180	8143	3640	51	3691	4937	95	5032	1057	54	1111	9834	30008	983	30991
14:30	-	15:30	160	5	165	226	3	229	15	0	15	409	169	2	171	550	6	556	173	2	175	902	2816	88	2904
14:45	-	15:45	161	5	166	221	4	225	15	0	15	406	177	4	181	562	7	569	185	3	188	938	2902	90	2992
15:00	-	16:00	153	5	158	216	3	219	14	0	14	391	171	6	177	533	5	538	177	5	182	897	2881	82	2963
15:15	-	16:15	135	6	141	206	1	207	13	0	13	361	173	4	177	566	3	569	163	5	168	914	2932	73	3005
15:30	-	16:30	143	2	145	190	1	191	12	0	12	348	179	5	184	568	2	570	184	4	188	942	2946	62	3008
15:45	-	16:45	141	2	143	182	0	182	10	0	10	335	186	3	189	538	2	540	196	4	200	929	2963	58	3021
16:00	-	17:00	145	3	148	176	3	179	9	0	9	336	200	1	201	560	2	562	196	3	199	962	3010	62	3072
16:15	-	17:15	151	4	155	181	3	184	8	0	8	347	212	1	213	571	2	573	219	3	222	1008	3043	68	3111
16:30	-	17:30	144	4	148	180	3	183	9	0	9	340	227	0	227	588	3	591	220	4	224	1042	3066	67	3133
16:45	-	17:45	146	5	151	191	4	195	11	0	11	357	237	0	237	586	2	588	216	4	220	1045	3085	61	3146
17:00	-	18:00	149	5	154	201	1	202	11	0	11	367	222	0	222	585	2	587	245	5	250	1059	3077	51	3128
17:15	-	18:15	151	5	156	200	1	201	9	0	9	366	216	1	217	554	2	556	243	4	247	1020	3030	41	3071
17:30	-	18:30	162	5	167	205	1	206	8	0	8	381	205	1	206	520	2	522	245	4	249	977	2987	34	3021
Period End			1941	56	1997	2575	28	2603	144	0	144	4744	2574	28	2602	7281	40	7321	2662	50	2712	12635	38738	837	39575

Location	CAMPBELLTOWN ROAD		Duration	0600 - 1000	
	ROSE PAYTEN DRIVE			1430 - 1830	
	CAMPBELLTOWN ROAD			-	
	-		Day/Date	Tuesday, 19 July 2016	
Suburb	LEUMEAH		Weather	FINE	

All Vehicles Time Per 15 Mins	NORTH CAMPBELLTOWN ROAD										EAST ROSE PAYTEN DRIVE										TOTAL		
	L			T			R				L			T			R						
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00 - 6:15	41	6	47	64	4	68			0	115	4	1	5			0	124	16	140	145	531	40	571
6:15 - 6:30	77	10	87	100	3	103			0	190	3	1	4			0	166	15	181	185	720	47	767
6:30 - 6:45	89	12	101	165	7	172			0	273	4	2	6			0	154	13	167	173	799	44	843
6:45 - 7:00	114	11	125	160	14	174			0	299	2	2	4			0	153	11	164	168	718	48	766
7:00 - 7:15	78	16	94	155	10	165			0	259	4	4	8			0	147	13	160	168	723	67	790
7:15 - 7:30	91	8	99	196	19	215			0	314	4	1	5			0	154	18	172	177	769	58	827
7:30 - 7:45	110	20	130	183	8	191			0	321	10	3	13			0	152	20	172	185	831	74	905
7:45 - 8:00	105	17	122	255	8	263			0	385	10	3	13			0	155	12	167	180	877	58	935
8:00 - 8:15	81	15	96	301	17	318			0	414	3	2	5			0	122	12	134	139	890	61	951
8:15 - 8:30	113	19	132	341	12	353			0	485	12	6	18			0	149	13	162	180	890	65	955
8:30 - 8:45	97	18	115	339	21	360			0	475	12	3	15			0	96	13	109	124	805	73	878
8:45 - 9:00	86	34	120	245	16	261			0	381	10	5	15			0	98	18	116	131	722	95	817
9:00 - 9:15	75	20	95	293	19	312			0	407	10	0	10			0	80	16	96	106	723	76	799
9:15 - 9:30	52	19	71	244	17	261			0	332	11	2	13			0	92	18	110	123	619	86	705
9:30 - 9:45	56	23	79	291	21	312			0	391	17	1	18			0	85	10	95	113	661	72	733
9:45 - 10:00	59	18	77	217	16	233			0	310	15	2	17			0	59	15	74	91	567	70	637
Period End	1324	266	1590	3549	212	3761	0	0	0	5351	131	38	169	0	0	0	1986	233	2219	2388	11845	1034	12879
14:30 - 14:45	116	28	144	335	12	347			0	491	14	1	15			0	80	12	92	107	838	73	911
14:45 - 15:00	135	18	153	290	13	303			0	456	11	2	13			0	92	10	102	115	794	69	863
15:00 - 15:15	119	14	133	356	14	370			0	503	8	1	9			0	107	11	118	127	867	59	926
15:15 - 15:30	137	19	156	341	15	356			0	512	17	1	18			0	115	12	127	145	953	66	1019
15:30 - 15:45	124	15	139	401	16	417			0	556	9	5	14			0	110	13	123	137	946	77	1023
15:45 - 16:00	145	4	149	409	13	422			0	571	18	2	20			0	101	10	111	131	1007	46	1053
16:00 - 16:15	137	14	151	449	14	463			0	614	15	0	15			0	110	7	117	132	1040	52	1092
16:15 - 16:30	149	14	163	429	9	438			0	601	11	1	12			0	101	9	110	122	1040	56	1096
16:30 - 16:45	167	15	182	448	16	464			0	646	14	2	16			0	129	7	136	152	1110	58	1168
16:45 - 17:00	162	6	168	466	10	476			0	644	8	1	9			0	87	9	96	105	1159	40	1199
17:00 - 17:15	166	9	175	418	11	429			0	604	17	2	19			0	143	10	153	172	1116	37	1153
17:15 - 17:30	157	12	169	499	16	515			0	684	14	0	14			0	137	9	146	160	1219	43	1262
17:30 - 17:45	151	6	157	406	8	414			0	571	11	0	11			0	138	3	141	152	1060	28	1088
17:45 - 18:00	146	8	154	480	17	497			0	651	12	1	13			0	107	5	112	125	1048	36	1084
18:00 - 18:15	142	1	143	390	8	398			0	541	13	0	13			0	84	4	88	101	895	15	910
18:15 - 18:30	161	8	169	380	11	391			0	560	8	1	9			0	99	3	102	111	902	29	931
Period End	2314	191	2505	6497	203	6700	0	0	0	9205	200	20	220	0	0	0	1740	134	1874	2094	15994	784	16778

All Vehicles Time Per 15 Mins	SOUTH CAMPBELLTOWN ROAD										WEST -										TOTAL		
	L			T			R				L			T			R						
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00 - 6:15			0	271	8	279	27	5	32	311			0			0			0	0	531	40	571
6:15 - 6:30			0	350	15	365	24	3	27	392			0			0			0	0	720	47	767
6:30 - 6:45			0	352	7	359	35	3	38	397			0			0			0	0	799	44	843
6:45 - 7:00			0	253	8	261	36	2	38	299			0			0			0	0	718	48	766
7:00 - 7:15			0	309	17	326	30	7	37	363			0			0			0	0	723	67	790
7:15 - 7:30			0	294	10	304	30	2	32	336			0			0			0	0	769	58	827
7:30 - 7:45			0	329	16	345	47	7	54	399			0			0			0	0	831	74	905
7:45 - 8:00			0	297	12	309	55	6	61	370			0			0			0	0	877	58	935
8:00 - 8:15			0	338	6	344	45	9	54	398			0			0			0	0	890	61	951
8:15 - 8:30			0	217	11	228	58	4	62	290			0			0			0	0	890	65	955
8:30 - 8:45			0	222	9	231	39	9	48	279			0			0			0	0	805	73	878
8:45 - 9:00			0	232	10	242	51	12	63	305			0			0			0	0	722	95	817
9:00 - 9:15			0	225	12	237	40	9	49	286			0			0			0	0	723	76	799
9:15 - 9:30			0	174	18	192	46	12	58	250			0			0			0	0	619	86	705
9:30 - 9:45			0	179	10	189	33	7	40	229			0			0			0	0	661	72	733
9:45 - 10:00			0	181	11	192	36	8	44	236			0			0			0	0	567	70	637
Period End	0	0	0	4223	180	4403	632	105	737	5140	0	0	0	0	0	0	0	0	0	0	11845	1034	12879
14:30 - 14:45			0	260	14	274	33	6	39	313			0			0			0	0	838	73	911
14:45 - 15:00			0	204	18	222	62	8	70	292			0			0			0	0	794	69	863
15:00 - 15:15			0	237	8	245	40	11	51	296			0			0			0	0	867	59	926
15:15 - 15:30			0	297	12	309	46	7	53	362			0			0			0	0	953	66	1019
15:30 - 15:45			0	257	16	273	45	12	57	330			0			0			0	0	946	77	1023
15:45 - 16:00			0	279	10	289	55	7	62	351			0			0			0	0	1007	46	1053
16:00 - 16:15			0	290	10	300	39	7	46	346			0			0			0	0	1040	52	1092
16:15 - 16:30			0	296	15	311	54	8	62	373			0			0			0	0	1040	56	1096
16:30 - 16:45			0	315	10	325	37	8	45	370			0			0			0	0	1110	58	1168
16:45 - 17:00			0	397	10	407	39	4	43	450			0			0			0	0	1159	40	1199
17:00 - 17:15			0	331	4	335	41	1	42	377			0			0			0	0	1116	37	1153
17:15 - 17:30			0	362	5	367	50	1	51	418			0			0			0	0	1219	43	1262
17:30 - 17:45			0	314	10	324	40	1	41	365			0			0			0	0	1060	28	1088
17:45 - 18:00			0	267	4	271	36	1	37	308			0			0			0	0	1048	36	1084
18:00 - 18:15			0	227	2	229	39	0	39	268			0			0			0	0	895	15	910
18:15 - 18:30			0	214	5	219	40	1	41	260			0			0			0	0	902	29	931
Period End	0	0	0	4547	153	4700	696	83	779	5479	0	0	0	0	0	0	0	0	0	0	15994	784	16778

All Vehicles Time Per 15 Mins			NORTH *CAMPBELLTOWN ROAD*										EAST *ROSE PAYTEN DRIVE*											
			L			T			R				L			T			R				TOTAL		
			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00	-	7:00	321	39	360	489	28	517	0	0	0	877	13	6	19	0	0	0	597	55	652	671	2768	179	2947
6:15	-	7:15	358	49	407	580	34	614	0	0	0	1021	13	9	22	0	0	0	620	52	672	694	2960	206	3166
6:30	-	7:30	372	47	419	676	50	726	0	0	0	1145	14	9	23	0	0	0	608	55	663	686	3009	217	3226
6:45	-	7:45	393	55	448	694	51	745	0	0	0	1193	20	10	30	0	0	0	606	62	668	698	3041	247	3288
7:00	-	8:00	384	61	445	789	45	834	0	0	0	1279	28	11	39	0	0	0	608	63	671	710	3200	257	3457
7:15	-	8:15	387	60	447	935	52	987	0	0	0	1434	27	9	36	0	0	0	583	62	645	681	3367	251	3618
7:30	-	8:30	409	71	480	1080	45	1125	0	0	0	1605	35	14	49	0	0	0	578	57	635	684	3488	258	3746
7:45	-	8:45	396	69	465	1236	58	1294	0	0	0	1759	37	14	51	0	0	0	522	50	572	623	3462	257	3719
8:00	-	9:00	377	86	463	1226	66	1292	0	0	0	1755	37	16	53	0	0	0	465	56	521	574	3307	294	3601
8:15	-	9:15	371	91	462	1218	68	1286	0	0	0	1748	44	14	58	0	0	0	423	60	483	541	3140	309	3449
8:30	-	9:30	310	91	401	1121	73	1194	0	0	0	1595	43	10	53	0	0	0	366	65	431	484	2869	330	3199
8:45	-	9:45	269	96	365	1073	73	1146	0	0	0	1511	48	8	56	0	0	0	355	62	417	473	2725	329	3054
9:00	-	10:00	242	80	322	1045	73	1118	0	0	0	1440	53	5	58	0	0	0	316	59	375	433	2570	304	2874
Period End			4589	895	5484	12162	716	12878	0	0	0	18362	412	135	547	0	0	0	6647	758	7405	7952	39906	3438	43344
14:30	-	15:30	507	79	586	1322	54	1376	0	0	0	1962	50	5	55	0	0	0	394	45	439	494	3452	267	3719
14:45	-	15:45	515	66	581	1388	58	1446	0	0	0	2027	45	9	54	0	0	0	424	46	470	524	3560	271	3831
15:00	-	16:00	525	52	577	1507	58	1565	0	0	0	2142	52	9	61	0	0	0	433	46	479	540	3773	248	4021
15:15	-	16:15	543	52	595	1600	58	1658	0	0	0	2253	59	8	67	0	0	0	436	42	478	545	3946	241	4187
15:30	-	16:30	555	47	602	1688	52	1740	0	0	0	2342	53	8	61	0	0	0	422	39	461	522	4033	231	4264
15:45	-	16:45	598	47	645	1735	52	1787	0	0	0	2432	58	5	63	0	0	0	441	33	474	537	4197	212	4409
16:00	-	17:00	615	49	664	1792	49	1841	0	0	0	2505	48	4	52	0	0	0	427	32	459	511	4349	206	4555
16:15	-	17:15	644	44	688	1761	46	1807	0	0	0	2495	50	6	56	0	0	0	460	35	495	551	4425	191	4616
16:30	-	17:30	652	42	694	1831	53	1884	0	0	0	2578	53	5	58	0	0	0	496	35	531	589	4604	178	4782
16:45	-	17:45	636	33	669	1789	45	1834	0	0	0	2503	50	3	53	0	0	0	505	31	536	589	4554	148	4702
17:00	-	18:00	620	35	655	1803	52	1855	0	0	0	2510	54	3	57	0	0	0	525	27	552	609	4443	144	4587
17:15	-	18:15	596	27	623	1775	49	1824	0	0	0	2447	50	1	51	0	0	0	466	21	487	538	4222	122	4344
17:30	-	18:30	600	23	623	1656	44	1700	0	0	0	2323	44	2	46	0	0	0	428	15	443	489	3905	108	4013
Period End			7606	596	8202	21647	670	22317	0	0	0	30519	666	68	734	0	0	0	5857	447	6304	7038	98664	6638	56030

All Vehicles Time Per Hour			SOUTH *CAMPBELLTOWN ROAD*										WEST -											
			L			T			R				L			T			R				TOTAL		
			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00	-	7:00	0	0	0	1226	38	1264	122	13	135	1399	0	0	0	0	0	0	0	0	0	0	2768	179	2947
6:15	-	7:15	0	0	0	1264	47	1311	125	15	140	1451	0	0	0	0	0	0	0	0	0	0	2960	206	3166
6:30	-	7:30	0	0	0	1208	42	1250	131	14	145	1395	0	0	0	0	0	0	0	0	0	0	3009	217	3226
6:45	-	7:45	0	0	0	1185	51	1236	143	18	161	1397	0	0	0	0	0	0	0	0	0	0	3041	247	3288
7:00	-	8:00	0	0	0	1229	55	1284	162	22	184	1468	0	0	0	0	0	0	0	0	0	0	3200	257	3457
7:15	-	8:15	0	0	0	1258	44	1302	177	24	201	1503	0	0	0	0	0	0	0	0	0	0	3367	251	3618
7:30	-	8:30	0	0	0	1181	45	1226	205	26	231	1457	0	0	0	0	0	0	0	0	0	0	3488	258	3746
7:45	-	8:45	0	0	0	1074	38	1112	197	28	225	1337	0	0	0	0	0	0	0	0	0	0	3462	257	3719
8:00	-	9:00	0	0	0	1009	36	1045	193	34	227	1272	0	0	0	0	0	0	0	0	0	0	3307	294	3601
8:15	-	9:15	0	0	0	896	42	938	188	34	222	1160	0	0	0	0	0	0	0	0	0	0	3140	309	3449
8:30	-	9:30	0	0	0	853	49	902	176	42	218	1120	0	0	0	0	0	0	0	0	0	0	2869	330	3199
8:45	-	9:45	0	0	0	810	50	860	170	40	210	1070	0	0	0	0	0	0	0	0	0	0	2725	329	3054
9:00	-	10:00	0	0	0	759	51	810	155	36	191	1001	0	0	0	0	0	0	0	0	0	0	2570	304	2874
Period End			0	0	0	13952	588	14540	2144	346	2490	17030	0	0	0	0	0	0	0	0	0	0	39906	3438	43344
14:30	-	15:30	0	0	0	998	52	1050	181	32	213	1263	0	0	0	0	0	0	0	0	0	0	3452	267	3719
14:45	-	15:45	0	0	0	995	54	1049	193	38	231	1280	0	0	0	0	0	0	0	0	0	0	3560	271	3831
15:00	-	16:00	0	0	0	1070	46	1116	186	37	223	1339	0	0	0	0	0	0	0	0	0	0	3773	248	4021
15:15	-	16:15	0	0	0	1123	48	1171	185	33	218	1389	0	0	0	0	0	0	0	0	0	0	3946	241	4187
15:30	-	16:30	0	0	0	1122	51	1173	193	34	227	1400	0	0	0	0	0	0	0	0	0	0	4033	231	4264
15:45	-	16:45	0	0	0	1180	45	1225	185	30	215	1440	0	0	0	0	0	0	0	0	0	0	4197	212	4409
16:00	-	17:00	0	0	0	1298	45	1343	169	27	196	1539	0	0	0	0	0	0	0	0	0	0	4349	206	4555
16:15	-	17:15	0	0	0	1339	39	1378	171	21	192	1570	0	0	0	0	0	0	0	0	0	0	4425	191	4616
16:30	-	17:30	0	0	0	1405	29	1434	167	14	181	1615	0	0	0	0	0	0	0	0	0	0	4604	178	4782
16:45	-	17:45	0	0	0	1404	29	1433	170	7	177	1610	0	0	0	0	0	0	0	0	0	0	4554	148	4702
17:00	-	18:00	0	0	0	1274	23	1297	167	4	171	1468	0	0	0	0	0	0	0	0	0	0	4443	144	4587
17:15	-	18:15	0	0	0	1170	21	1191	165	3	168	1359	0	0	0	0	0	0	0	0	0	0	4222	122	4344
17:30	-	18:30	0	0	0	1022	21	1043	155	3	158	1201	0	0	0	0	0	0	0	0	0	0	3905	108	4013
Period End			0	0	0	15400	503	15903	2287	283	2570	18473	0	0	0	0	0	0	0	0	0	0	98664	6638	56030

Location	PEMBROKE ROAD	Duration	0600 - 1000
	-		1430 - 1830
	PEMBROKE ROAD		-
	STONNY BATTER ROAD	Day/Date	Tuesday, 26 July 2016
Suburb	MINTO	Weather	FINE

All Vehicles Time Per 15 Mins	NORTH *PEMBROKE ROAD*													EAST -														TOTAL		
	L			T			R			U				L			T			R			U							
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00 - 6:15			0	43	1	44	6	1	7	0	0	0	51			0			0			0			0	0	126	13	139
6:15 - 6:30			0	27	4	31	26	0	26	0	0	0	57			0			0			0			0	0	145	14	159
6:30 - 6:45			0	29	4	33	28	0	28	0	0	0	61			0			0			0			0	0	167	15	182
6:45 - 7:00			0	39	3	42	23	1	24	0	0	0	66			0			0			0			0	0	197	20	217
7:00 - 7:15			0	42	2	44	4	2	6	0	0	0	50			0			0			0			0	0	130	21	151
7:15 - 7:30			0	52	3	55	5	3	8	0	0	0	63			0			0			0			0	0	190	17	207
7:30 - 7:45			0	64	5	69	10	1	11	0	0	0	80			0			0			0			0	0	211	25	236
7:45 - 8:00			0	65	3	68	18	2	20	0	0	0	88			0			0			0			0	0	238	28	266
8:00 - 8:15			0	74	1	75	13	2	15	0	0	0	90			0			0			0			0	0	229	15	244
8:15 - 8:30			0	78	2	80	16	4	20	0	0	0	100			0			0			0			0	0	300	37	337
8:30 - 8:45			0	112	3	115	15	2	17	0	0	0	132			0			0			0			0	0	291	27	318
8:45 - 9:00			0	95	2	97	10	3	13	0	0	0	110			0			0			0			0	0	267	20	287
9:00 - 9:15			0	97	2	99	9	1	10	0	0	0	109			0			0			0			0	0	237	17	254
9:15 - 9:30			0	102	3	105	9	3	12	0	0	0	117			0			0			0			0	0	233	29	262
9:30 - 9:45			0	92	3	95	8	3	11	0	0	0	106			0			0			0			0	0	233	23	256
9:45 - 10:00			0	99	5	104	7	2	9	0	0	0	113			0			0			0			0	0	228	23	251
Period End	0	0	0	1110	46	1156	207	30	237	0	0	0	1393	0	0	0	0	0	0	0	0	0	0	0	0	0	3422	344	3766
14:30 - 14:45			0	94	2	96	25	5	30	0	0	0	126			0			0			0			0	0	309	26	335
14:45 - 15:00			0	91	3	94	19	3	22	0	0	0	116			0			0			0			0	0	326	19	345
15:00 - 15:15			0	96	5	101	7	3	10	0	0	0	111			0			0			0			0	0	299	21	320
15:15 - 15:30			0	112	7	119	5	2	7	0	0	0	126			0			0			0			0	0	325	19	344
15:30 - 15:45			0	92	8	100	9	0	9	0	0	0	109			0			0			0			0	0	313	28	341
15:45 - 16:00			0	114	1	115	2	2	4	0	0	0	119			0			0			0			0	0	301	10	311
16:00 - 16:15			0	86	0	86	4	1	5	0	0	0	91			0			0			0			0	0	318	8	326
16:15 - 16:30			0	87	1	88	1	3	4	0	0	0	92			0			0			0			0	0	269	18	287
16:30 - 16:45			0	76	1	77	3	2	5	0	0	0	82			0			0			0			0	0	273	19	292
16:45 - 17:00			0	83	1	84	4	3	7	0	0	0	91			0			0			0			0	0	288	15	303
17:00 - 17:15			0	101	0	101	1	0	1	0	0	0	102			0			0			0			0	0	317	11	328
17:15 - 17:30			0	88	0	88	2	1	3	0	0	0	91			0			0			0			0	0	278	11	289
17:30 - 17:45			0	75	0	75	2	0	2	0	0	0	77			0			0			0			0	0	263	11	274
17:45 - 18:00			0	70	1	71	3	2	5	0	0	0	76			0			0			0			0	0	280	11	291
18:00 - 18:15			0	52	1	53	0	1	1	0	0	0	54			0			0			0			0	0	241	10	251
18:15 - 18:30			0	73	0	73	0	0	0	0	0	0	73			0			0			0			0	0	208	5	213
Period End	0	0	0	1390	31	1421	87	28	115	0	0	0	1536	0	0	0	0	0	0	0	0	0	0	0	0	0	4608	242	4850

All Vehicles Time Per 15 Mins	SOUTH *PEMBROKE ROAD*													WEST *STONNY BATTER ROAD*														TOTAL		
	L			T			R			U				L			T			R			U							
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00 - 6:15	15	1	16	58	5	63	0	0	0	0	0	0	79	2	1	3	0	0	0	2	4	6	0	0	0	9	126	13	139
6:15 - 6:30	23	3	26	63	4	67	0	0	0	0	0	0	93	2	2	4	0	0	0	4	1	5	0	0	0	9	145	14	159
6:30 - 6:45	22	0	22	83	5	88	0	0	0	0	0	0	110	4	5	9	0	0	0	1	1	2	0	0	0	11	167	15	182
6:45 - 7:00	35	5	40	94	10	104	0	0	0	0	0	0	144	4	1	5	0	0	0	2	0	2	0	0	0	7	197	20	217
7:00 - 7:15	14	3	17	64	11	75	0	0	0	0	0	0	92	6	2	8	0	0	0	0	1	1	0	0	0	9	130	21	151
7:15 - 7:30	10	2	12	94	5	99	0	0	0	0	0	0	111	10	1	11	0	0	0	19	3	22	0	0	0	33	190	17	207
7:30 - 7:45	15	3	18	105	12	117	0	0	0	0	0	0	135	11	4	15	0	0	0	6	0	6	0	0	0	21	211	25	236
7:45 - 8:00	18	2	20	122	15	137	0	0	0	0	0	0	157	11	4	15	0	0	0	4	2	6	0	0	0	21	238	28	266
8:00 - 8:15	23	3	26	110	3	113	0	0	0	0	0	0	139	6	5	11	0	0	0	3	1	4	0	0	0	15	229	15	244
8:15 - 8:30	25	4	29	179	16	195	0	0	0	0	0	0	224	2	6	8	0	0	0	0	5	5	0	0	0	13	300	37	337
8:30 - 8:45	13	4	17	138	8	146	0	0	0	0	0	0	163	9	7	16	0	0	0	4	3	7	0	0	0	23	291	27	318
8:45 - 9:00	13	4	17	137	3	140	0	0	0	0	0	0	157	7	2	9	0	0	0	5	6	11	0	0	0	20	267	20	287
9:00 - 9:15	9	3	12	115	6	121	0	0	0	0	0	0	133	6	3	9	0	0	0	1	2	3	0	0	0	12	237	17	254
9:15 - 9:30	5	3	8	109	9	118	0	0	0	0	0	0	126	6	7	13	0	0	0	2	3	5	0	1	1	19	233	29	262
9:30 - 9:45	6	2	8	115	7	122	0	0	0	0	0	0	130	9	4	13	0	0	0	3	4	7	0	0	0	20	233	23	256
9:45 - 10:00	5	4	9	104	7	111	0	0	0	0	0	0	120	9	3	12	0	0	0	4	2	6	0	0	0	18	228	23	251
Period End	251	46	297	1690	126	1816	0	0	0	0	0	0	2113	104	57	161	0	0	0	60	38	98	0	1	1	260	3422	344	3766
14:30 - 14:45	14	7	21	138	11	149	0	0	0	0	0	0	170	28	1	29	0	0	0	10	0	10	0	0	0	39	309	26	335
14:45 - 15:00	21	3	24	168	7	175	0	0	0	0	0	0	199	14	2	16	0	0	0	12	1	13	1	0	1	30	326	19	345
15:00 - 15:15	6	3	9	139	8	147	0	0	0	0	0	0	156	25	2	27	0	0	0	26	0	26	0	0	0	53	299	21	320
15:15 - 15:30	3	3	6	148	6	154	0	0	0	0	0	0	160	42	0	42	0	0	0	15	1	16	0	0	0	58	325	19	344
15:30 - 15:45	7	5	12	145	8	153	0	0	0	0	1	1	166	44	3	47	0	0	0	16	3	19	0	0	0	66	313	28	341
15:45 - 16:00	2	1	3	160	0	160	0	0	0	0	0	0	163	17	0	17	0	0	0	6	6	12	0	0	0	29	301	10	311
16:00 - 16:15	4	0	4	168	3	171	0	0	0	0	0	0	175	37	2	39	0	0	0	19	2	21	0	0	0	60	318	8	326
16:15 - 16:30	5	3	8	148	3	151	0	0	0	0	0	0	159	14	3	17	0	0	0	13	4	17	1	1	2	36	269	18	287
16:30 - 16:45	2	1	3	161	4	165	0	0	0	0	0	0	168	20	6	26	0	0	0	11	5	16	0	0	0	42	273	19	292
16:45 - 17:00	3	5	8	165	3	168	0	0	0	0	0	0	176	21	1	22	0	0	0	12	2	14	0	0	0	36	288	15	303
17:00 - 17:15	2	1	3	167	3	170	0	0	0	0	0	0	173	29	1	30	0	0	0	17	6	23	0	0	0	53	317	11	328
17:15 - 17:30	1	3	4	167	3	170	0	0	0	0	0	0	174	10	2	12	0	0	0	9	2	11	1	0	1	24	278	11	289
17:30 - 17:45	2	4	6	160	4	164	0	0	0	0	0	0	170	9	0	9	0	0	0	15	3	18	0	0	0	27	263	11	274
17:45 - 18:00	0	2	2	188	4	192	0	0	0	0	0	0	194	7	1	8	0	0	0	12	1	13	0	0	0	21	280	11	291
18:00 - 18:15	0	4	4	167	2	169	0	0	0	0	0	0	173	15	0	15	0	0	0	7	2	9	0	0	0	24	241	10	251
18:15 - 18:30	2	1	3	116	1	117	0	0	0	0	0	0	120	10	1	11	0	0	0	7	2	9	0	0	0	20	208	5	213
Period End	74	46	120	2505	70	2575	0	0	0	0	1	1	2696	342	25	367	0	0	0	207	40	247	3	1	4	618	4608	242	4850

All Vehicles Time Per 15 Mins			NORTH *PEMBROKE ROAD*											EAST -													
			L			T			R			U				L			T			R			U			TOTAL		
			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00	-	7:00	0	0	0	138	12	150	83	2	85	0	0	0	235	0	0	0	0	0	0	0	0	0	0	0	0	0	635	62	697
6:15	-	7:15	0	0	0	137	13	150	81	3	84	0	0	0	234	0	0	0	0	0	0	0	0	0	0	0	0	0	639	70	709
6:30	-	7:30	0	0	0	162	12	174	60	6	66	0	0	0	240	0	0	0	0	0	0	0	0	0	0	0	0	0	684	73	757
6:45	-	7:45	0	0	0	197	13	210	42	7	49	0	0	0	259	0	0	0	0	0	0	0	0	0	0	0	0	0	728	83	811
7:00	-	8:00	0	0	0	223	13	236	37	8	45	0	0	0	281	0	0	0	0	0	0	0	0	0	0	0	0	0	769	91	860
7:15	-	8:15	0	0	0	255	12	267	46	8	54	0	0	0	321	0	0	0	0	0	0	0	0	0	0	0	0	0	868	85	953
7:30	-	8:30	0	0	0	281	11	292	57	9	66	0	0	0	358	0	0	0	0	0	0	0	0	0	0	0	0	0	978	105	1083
7:45	-	8:45	0	0	0	329	9	338	62	10	72	0	0	0	410	0	0	0	0	0	0	0	0	0	0	0	0	0	1058	107	1165
8:00	-	9:00	0	0	0	359	8	367	54	11	65	0	0	0	432	0	0	0	0	0	0	0	0	0	0	0	0	0	1087	99	1186
8:15	-	9:15	0	0	0	382	9	391	50	10	60	0	0	0	451	0	0	0	0	0	0	0	0	0	0	0	0	0	1095	101	1196
8:30	-	9:30	0	0	0	406	10	416	43	9	52	0	0	0	468	0	0	0	0	0	0	0	0	0	0	0	0	0	1028	93	1121
8:45	-	9:45	0	0	0	386	10	396	36	10	46	0	0	0	442	0	0	0	0	0	0	0	0	0	0	0	0	0	970	89	1059
9:00	-	10:00	0	0	0	390	13	403	33	9	42	0	0	0	445	0	0	0	0	0	0	0	0	0	0	0	0	0	931	92	1023
Period End			0	0	0	3645	145	3790	684	102	786	0	0	0	4576	0	0	0	0	0	0	0	0	0	0	0	0	0	11470	1150	12620
14:30	-	15:30	0	0	0	393	17	410	56	13	69	0	0	0	479	0	0	0	0	0	0	0	0	0	0	0	0	0	1259	85	1344
14:45	-	15:45	0	0	0	391	23	414	40	8	48	0	0	0	462	0	0	0	0	0	0	0	0	0	0	0	0	0	1263	87	1350
15:00	-	16:00	0	0	0	414	21	435	23	7	30	0	0	0	465	0	0	0	0	0	0	0	0	0	0	0	0	0	1238	78	1316
15:15	-	16:15	0	0	0	404	16	420	20	5	25	0	0	0	445	0	0	0	0	0	0	0	0	0	0	0	0	0	1257	65	1322
15:30	-	16:30	0	0	0	379	10	389	16	6	22	0	0	0	411	0	0	0	0	0	0	0	0	0	0	0	0	0	1201	64	1265
15:45	-	16:45	0	0	0	363	3	366	10	8	18	0	0	0	384	0	0	0	0	0	0	0	0	0	0	0	0	0	1161	55	1216
16:00	-	17:00	0	0	0	332	3	335	12	9	21	0	0	0	356	0	0	0	0	0	0	0	0	0	0	0	0	0	1148	60	1208
16:15	-	17:15	0	0	0	347	3	350	9	8	17	0	0	0	367	0	0	0	0	0	0	0	0	0	0	0	0	0	1147	63	1210
16:30	-	17:30	0	0	0	348	2	350	10	6	16	0	0	0	366	0	0	0	0	0	0	0	0	0	0	0	0	0	1156	56	1212
16:45	-	17:45	0	0	0	347	1	348	9	4	13	0	0	0	361	0	0	0	0	0	0	0	0	0	0	0	0	0	1146	48	1194
17:00	-	18:00	0	0	0	334	1	335	8	3	11	0	0	0	346	0	0	0	0	0	0	0	0	0	0	0	0	0	1138	44	1182
17:15	-	18:15	0	0	0	285	2	287	7	4	11	0	0	0	298	0	0	0	0	0	0	0	0	0	0	0	0	0	1062	43	1105
17:30	-	18:30	0	0	0	270	2	272	5	3	8	0	0	0	280	0	0	0	0	0	0	0	0	0	0	0	0	0	992	37	1029
Period End			0	0	0	4607	104	4711	225	84	309	0	0	0	5020	0	0	0	0	0	0	0	0	0	0	0	0	0	15168	785	15953

All Vehicles Time Per Hour			SOUTH *PEMBROKE ROAD*													WEST *STONNY BATTER ROAD*													
			L			T			R			U				L			T			R			U			TOTAL		
			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00	-	7:00	95	9	104	298	24	322	0	0	0	0	0	0	426	12	9	21	0	0	0	9	6	15	0	0	0	36	635	62	697
6:15	-	7:15	94	11	105	304	30	334	0	0	0	0	0	0	439	16	10	26	0	0	0	7	3	10	0	0	0	36	639	70	709
6:30	-	7:30	81	10	91	335	31	366	0	0	0	0	0	0	457	24	9	33	0	0	0	22	5	27	0	0	0	60	684	73	757
6:45	-	7:45	74	13	87	357	38	395	0	0	0	0	0	0	482	31	8	39	0	0	0	27	4	31	0	0	0	70	728	83	811
7:00	-	8:00	57	10	67	385	43	428	0	0	0	0	0	0	495	38	11	49	0	0	0	29	6	35	0	0	0	84	769	91	860
7:15	-	8:15	66	10	76	431	35	466	0	0	0	0	0	0	542	38	14	52	0	0	0	32	6	38	0	0	0	90	868	85	953
7:30	-	8:30	81	12	93	516	46	562	0	0	0	0	0	0	655	30	19	49	0	0	0	13	8	21	0	0	0	70	978	105	1083
7:45	-	8:45	79	13	92	549	42	591	0	0	0	0	0	0	683	28	22	50	0	0	0	11	11	22	0	0	0	72	1058	107	1165
8:00	-	9:00	74	15	89	564	30	594	0	0	0	0	0	0	683	24	20	44	0	0	0	12	15	27	0	0	0	71	1087	99	1186
8:15	-	9:15	60	15	75	569	33	602	0	0	0	0	0	0	677	24	18	42	0	0	0	10	16	26	0	0	0	68	1095	101	1196
8:30	-	9:30	40	14	54	499	26	525	0	0	0	0	0	0	579	28	19	47	0	0	0	12	14	26	0	1	1	74	1028	93	1121
8:45	-	9:45	33	12	45	476	25	501	0	0	0	0	0	0	546	28	16	44	0	0	0	11	15	26	0	1	1	71	970	89	1059
9:00	-	10:00	25	12	37	443	29	472	0	0	0	0	0	0	509	30	17	47	0	0	0	10	11	21	0	1	1	69	931	92	1023
Period End			859	156	1015	5726	432	6158	0	0	0	0	0	0	7173	351	192	543	0	0	0	205	120	325	0	3	3	871	11470	1150	12620
14:30	-	15:30	44	16	60	593	32	625	0	0	0	0	0	0	685	109	5	114	0	0	0	63	2	65	1	0	1	180	1259	85	1344
14:45	-	15:45	37	14	51	600	29	629	0	0	0	0	1	1	681	125	7	132	0	0	0	69	5	74	1	0	1	207	1263	87	1350
15:00	-	16:00	18	12	30	592	22	614	0	0	0	0	1	1	645	128	5	133	0	0	0	63	10	73	0	0	0	206	1238	78	1316
15:15	-	16:15	16	9	25	621	17	638	0	0	0	0	1	1	664	140	5	145	0	0	0	56	12	68	0	0	0	213	1257	65	1322
15:30	-	16:30	18	9	27	621	14	635	0	0	0	0	1	1	663	112	8	120	0	0	0	54	15	69	1	1	2	191	1201	64	1265
15:45	-	16:45	13	5	18	637	10	647	0	0	0	0	0	0	665	88	11	99	0	0	0	49	17	66	1	1	2	167	1161	55	1216
16:00	-	17:00	14	9	23	642	13	655	0	0	0	0	0	0	678	92	12	104	0	0	0	55	13	68	1	1	2	174	1148	60	1208
16:15	-	17:15	12	10	22	641	13	654	0	0	0	0	0	0	676	84	11	95	0	0	0	53	17	70	1	1	2	167	1147	63	1210
16:30	-	17:30	8	10	18	660	13	673	0	0	0	0	0	0	691	80	10	90	0	0	0	49	15	64	1	0	1	155	1156	56	1212
16:45	-	17:45	8	13	21	659	13	672	0	0	0	0	0	0	693	69	4	73	0	0	0	53	13	66	1	0	1	140	1146	48	1194
17:00	-	18:00	5	10	15	682	14	696	0	0	0	0	0	0	711	55	4	59	0	0	0	53	12	65	1	0	1	125	1138	44	1182
17:15	-	18:15	3	13	16	682	13	695	0	0	0	0	0	0	711	41	3	44	0	0	0	43	8	51	1	0	1	96	1062	43	1105
17:30	-	18:30	4	11	15	631	11	642	0	0	0	0	0	0	657	41	2	43	0	0	0	41	8	49	0	0	0	92	992	37	1029
Period End			200	141	341	8261	214	8475	0	0	0	0	4	4	8820	1164	87	1251	0	0	0	701	147	848	10	4	14	2113	15168	785	15953

Location	AIRDS ROAD		Duration	0600 - 1000	
	ROSE PAYTEN DRIVE			1430 - 1830	
	AIRDS ROAD			-	
	ROSE PAYTEN DRIVE		Day/Date	Tuesday, 26 July 2016	
Suburb	LEUMEAH		Weather	FINE	

All Vehicles Time Per 15 Mins	NORTH *AIRDS ROAD*													EAST *ROSE PAYTEN DRIVE*													TOTAL		
	L			T			R			U				L			T			R			U						
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00 - 6:15	2	0	2	6	6	12	4	6	10	0	0	0	24	32	0	32	136	7	143	9	1	10	1	1	2	187	292	36	328
6:15 - 6:30	4	0	4	7	5	12	9	9	18	0	0	0	34	26	0	26	140	5	145	13	0	13	0	0	0	184	351	40	391
6:30 - 6:45	3	0	3	7	5	12	3	8	11	0	0	0	26	35	1	36	159	5	164	22	0	22	0	0	0	222	386	32	418
6:45 - 7:00	1	0	1	9	7	16	3	7	10	0	0	0	27	40	2	42	152	4	156	23	1	24	0	0	0	222	446	51	497
7:00 - 7:15	3	0	3	7	7	14	4	13	17	0	0	0	34	33	0	33	130	5	135	4	0	4	0	0	0	172	339	41	380
7:15 - 7:30	2	1	3	12	6	18	3	12	15	0	0	0	36	53	0	53	150	8	158	19	0	19	0	0	0	230	411	44	455
7:30 - 7:45	1	1	2	13	12	25	6	7	13	0	0	0	40	60	0	60	148	7	155	11	0	11	0	0	0	226	431	50	481
7:45 - 8:00	0	1	1	21	7	28	5	9	14	0	0	0	43	73	3	76	144	4	148	19	1	20	1	0	1	245	463	55	518
8:00 - 8:15	3	0	3	19	10	29	3	4	7	0	0	0	39	54	1	55	140	8	148	24	0	24	1	1	2	229	462	42	504
8:15 - 8:30	0	1	1	18	12	30	5	5	10	0	0	0	41	59	1	60	138	5	143	14	1	15	1	0	1	219	472	52	524
8:30 - 8:45	4	0	4	19	8	27	6	13	19	0	0	0	50	55	1	56	98	3	101	17	0	17	1	0	1	175	398	51	449
8:45 - 9:00	5	0	5	22	10	32	5	11	16	0	0	0	53	45	0	45	98	9	107	12	1	13	0	0	0	165	362	61	423
9:00 - 9:15	6	1	7	27	7	34	6	5	11	0	0	0	52	62	1	63	85	2	87	7	1	8	0	0	0	158	361	40	401
9:15 - 9:30	5	2	7	20	8	28	5	3	8	0	0	0	43	40	2	42	65	7	72	10	1	11	0	0	0	125	338	49	387
9:30 - 9:45	2	0	2	29	8	37	9	12	21	0	0	0	60	37	1	38	71	10	81	3	0	3	1	0	1	123	305	52	357
9:45 - 10:00	2	1	3	13	10	23	6	12	18	0	0	0	44	45	1	46	57	8	65	4	1	5	1	0	1	117	248	57	305
Period End	43	8	51	249	128	377	82	136	218	0	0	0	646	749	14	763	1911	97	2008	211	8	219	7	2	9	2999	6065	753	6818
14:30 - 14:45	8	0	8	54	2	56	8	6	14	0	0	0	78	40	1	41	72	5	77	8	2	10	1	0	1	129	417	47	464
14:45 - 15:00	5	2	7	21	0	21	9	6	15	0	0	0	43	28	1	29	74	6	80	9	1	10	1	1	2	121	381	54	435
15:00 - 15:15	8	1	9	52	4	56	20	6	26	0	0	0	91	47	1	48	85	4	89	3	0	3	0	0	0	140	415	49	464
15:15 - 15:30	12	1	13	37	3	40	23	6	29	0	0	0	82	36	0	36	66	8	74	6	0	6	0	0	0	116	416	48	464
15:30 - 15:45	10	2	12	54	3	57	13	11	24	0	0	0	93	46	0	46	78	11	89	5	0	5	1	0	1	141	452	49	501
15:45 - 16:00	13	0	13	48	3	51	6	5	11	0	0	0	75	57	0	57	66	7	73	4	0	4	0	0	0	134	476	45	521
16:00 - 16:15	11	0	11	66	1	67	20	3	23	0	0	0	101	47	2	49	78	8	86	4	1	5	0	0	0	140	475	42	517
16:15 - 16:30	13	1	14	48	4	52	19	3	22	0	0	0	88	42	2	44	96	3	99	5	0	5	0	0	0	148	477	39	516
16:30 - 16:45	17	0	17	52	0	52	22	1	23	0	0	0	92	38	1	39	84	8	92	6	0	6	0	0	0	137	504	27	531
16:45 - 17:00	5	2	7	36	0	36	20	1	21	0	0	0	64	36	0	36	86	4	90	10	0	10	0	0	0	136	457	27	484
17:00 - 17:15	15	0	15	64	0	64	29	2	31	0	0	0	110	36	0	36	96	0	96	14	0	14	0	0	0	146	514	17	531
17:15 - 17:30	10	1	11	53	1	54	14	3	17	1	0	1	83	39	0	39	103	2	105	9	0	9	0	0	0	153	443	26	469
17:30 - 17:45	14	0	14	33	0	33	21	3	24	0	0	0	71	32	0	32	113	3	116	10	0	10	0	0	0	158	475	24	499
17:45 - 18:00	7	0	7	31	0	31	6	3	9	0	0	0	47	37	1	38	69	2	71	11	0	11	0	0	0	120	436	13	449
18:00 - 18:15	11	0	11	23	2	25	12	1	13	0	0	0	49	41	0	41	72	1	73	7	1	8	0	0	0	122	416	11	427
18:15 - 18:30	6	0	6	15	4	19	12	3	15	0	0	0	40	33	0	33	75	1	76	4	0	4	0	0	0	113	391	15	406
Period End	165	10	175	687	27	714	254	63	317	1	0	1	1207	635	9	644	1313	73	1386	115	5	120	3	1	4	2154	7145	533	7678

All Vehicles Time Per 15 Mins	SOUTH *AIRDS ROAD*													WEST *ROSE PAYTEN DRIVE*													TOTAL		
	L			T			R			U				L			T			R			U						
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00 - 6:15	0	0	0	16	3	19	15	1	16	0	0	0	35	34	3	37	31	8	39	6	0	6	0	0	0	82	292	36	328
6:15 - 6:30	0	2	2	18	2	20	32	1	33	0	0	0	55	42	6	48	56	7	63	4	1	5	0	2	2	118	351	40	391
6:30 - 6:45	3	0	3	30	2	32	17	0	17	1	0	1	53	42	6	48	45	5	50	18	0	18	1	0	1	117	386	32	418
6:45 - 7:00	0	1	1	22	2	24	31	3	34	2	0	2	61	72	14	86	75	10	85	16	0	16	0	0	0	187	446	51	497
7:00 - 7:15	6	1	7	19	3	22	12	0	12	1	0	1	42	52	7	59	51	5	56	17	0	17	0	0	0	132	339	41	380
7:15 - 7:30	2	0	2	27	5	32	21	0	21	1	0	1	56	36	8	44	67	4	71	17	0	17	1	0	1	133	411	44	455
7:30 - 7:45	3	1	4	20	2	22	18	5	23	1	0	1	50	60	9	69	67	6	73	22	0	22	1	0	1	165	431	50	481
7:45 - 8:00	0	1	1	29	1	30	19	6	25	0	0	0	56	56	16	72	72	5	77	24	1	25	0	0	0	174	463	55	518
8:00 - 8:15	2	1	3	18	3	21	17	0	17	0	0	0	41	62	6	68	110	8	118	7	0	7	2	0	2	195	462	42	504
8:15 - 8:30	2	1	3	23	0	23	32	0	32	0	0	0	58	43	12	55	118	12	130	19	2	21	0	0	0	206	472	52	524
8:30 - 8:45	1	2	3	28	4	32	20	2	22	0	0	0	57	51	10	61	85	7	92	11	1	12	2	0	2	167	398	51	449
8:45 - 9:00	0	0	0	18	5	23	17	1	18	0	0	0	41	41	14	55	86	10	96	12	0	12	1	0	1	164	362	61	423
9:00 - 9:15	0	2	2	16	4	20	33	3	36	0	0	0	58	32	7	39	73	7	80	13	0	13	1	0	1	133	361	40	401
9:15 - 9:30	3	0	3	23	4	27	34	2	36	0	0	0	66	42	13	55	80	6	86	11	1	12	0	0	0	153	338	49	387
9:30 - 9:45	3	1	4	26	1	27	27	2	29	0	0	0	60	27	9	36	63	7	70	7	1	8	0	0	0	114	305	52	357
9:45 - 10:00	0	0	0	19	3	22	21	1	22	2	0	2	46	19	11	30	51	8	59	8	1	9	0	0	0	98	248	57	305
Period End	25	13	38	352	44	396	366	27	393	8	0	8	835	711	151	862	1130	115	1245	212	8	220	9	2	11	2338	6065	753	6818
14:30 - 14:45	1	1	2	21	4	25	40	1	41	0	1	1	69	34	14	48	122	8	130	8	2	10	0	0	0	188	417	47	464
14:45 - 15:00	0	1	1	24	4	28	43	5	48	0	0	0	77	35	14	49	124	13	137	7	0	7	1	0	1	194	381	54	435
15:00 - 15:15	5	0	5	14	7	21	32	5	37	0	1	1	64	32	12	44	112	8	120	5	0	5	0	0	0	169	415	49	464
15:15 - 15:30	3	2	5	11	4	15	40	0	40	1	0	1	61	29	9	38	143	14	157	9	1	10	0	0	0	205	416	48	464
15:30 - 15:45	3	2	5	16	3	19	33	1	34	0	1	1	59	31	4	35	149	10	159	9	1	10	4	0	4	208	452	49	501
15:45 - 16:00	4	0	4	21	3	24	31	6	37	0	1	1	66	41	14	55	173	6	179	11	0	11	1	0	1	246	476	45	521
16:00 - 16:15	3	1	4	16	6	22	37	1	38	0	0	0	64	28	8	36	151	10	161	12	1	13	2	0	2	212	475	42	517
16:15 - 16:30	6	0	6	32	4	36	38	1	39	0	0	0	81	18	9	27	147	10	157	13	2	15	0	0	0	199	477	39	516
16:30 - 16:45	9	1	10	24	2	26	56	2	58	0	0	0	94	24	7	31	163	4	167	8	1	9	1	0	1	208	504	27	531
16:45 - 17:00	3	2	5	17	0	17	39	1	40	1	0	1	63	21	10	31	171	7	178	12	0	12	0	0	0	221	457	27	484
17:00 - 17:15	6	1	7	16	1	17	33	3	36	0	1	1	61	21	4	25	173	5	178	9	0	9	2	0	2	214	514	17	531
17:15 - 17:30	7	0	7	13	1	14	28	1	29	1	0	1	51	11	9	20	140	8	148	11	0	11	3	0	3	182	443	26	469
17:30 - 17:45	10	2	12	15	0	15	46	0	46	0	0	0	73	24	11	35	146	5	151	9	0	9	2	0	2	197	475	24	499
17:45 - 18:00	2	1	3	12	0	12	60	1	61	0	0	0	76	22	3	25	169	2	171	9	0	9	1	0	1	206	436	13	449
18:00 - 18:15	3	0	3	23	0	23	63	0	63	0	0	0	89	13	2	15	143	4	147	4	0	4	1	0	1	167	416	11	427
18:15 - 18:30	5	0	5	13	1	14	53	3	56	0	0	0	75	17	3	20	150	0	150	6	0	6	2	0	2	178	391	15	406
Period End	70	14	84	288	40	328	672	31	703	3	5	8	1123	401	133	534	2376	114	2490	142	8	150	20	0	20	3194	7145	533	7678

All Vehicles Time Per 15 Mins			NORTH *AIRDS ROAD*												EAST *ROSE PAYTEN DRIVE*														
			L			T			R			U				L			T			R			U				TOTAL		
			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00	-	7:00	10	0	10	29	23	52	19	30	49	0	0	0	111	133	3	136	587	21	608	67	2	69	1	1	2	815	1475	159	1634
6:15	-	7:15	11	0	11	30	24	54	19	37	56	0	0	0	121	134	3	137	581	19	600	62	1	63	0	0	0	800	1522	164	1686
6:30	-	7:30	9	1	10	35	25	60	13	40	53	0	0	0	123	161	3	164	591	22	613	68	1	69	0	0	0	846	1582	168	1750
6:45	-	7:45	7	2	9	41	32	73	16	39	55	0	0	0	137	186	2	188	580	24	604	57	1	58	0	0	0	850	1627	186	1813
7:00	-	8:00	6	3	9	53	32	85	18	41	59	0	0	0	153	219	3	222	572	24	596	53	1	54	1	0	1	873	1644	190	1834
7:15	-	8:15	6	3	9	65	35	100	17	32	49	0	0	0	158	240	4	244	582	27	609	73	1	74	2	1	3	930	1767	191	1958
7:30	-	8:30	4	3	7	71	41	112	19	25	44	0	0	0	163	246	5	251	570	24	594	68	2	70	3	1	4	919	1828	199	2027
7:45	-	8:45	7	2	9	77	37	114	19	31	50	0	0	0	173	241	6	247	520	20	540	74	2	76	4	1	5	868	1795	200	1995
8:00	-	9:00	12	1	13	78	40	118	19	33	52	0	0	0	183	213	3	216	474	25	499	67	2	69	3	1	4	788	1694	206	1900
8:15	-	9:15	15	2	17	86	37	123	22	34	56	0	0	0	196	221	3	224	419	19	438	50	3	53	2	0	2	717	1593	204	1797
8:30	-	9:30	20	3	23	88	33	121	22	32	54	0	0	0	198	202	4	206	346	21	367	46	3	49	1	0	1	623	1459	201	1660
8:45	-	9:45	18	3	21	98	33	131	25	31	56	0	0	0	208	184	4	188	319	28	347	32	3	35	1	0	1	571	1366	202	1568
9:00	-	10:00	15	4	19	89	33	122	26	32	58	0	0	0	199	184	5	189	278	27	305	24	3	27	2	0	2	523	1252	198	1450
Period End			140	27	167	840	425	1265	254	437	691	0	0	0	2123	2564	48	2612	6419	301	6720	741	25	766	20	5	25	10123	20604	2468	23072
14:30	-	15:30	33	4	37	164	9	173	60	24	84	0	0	0	294	151	3	154	297	23	320	26	3	29	2	1	3	506	1629	198	1827
14:45	-	15:45	35	6	41	164	10	174	65	29	94	0	0	0	309	157	2	159	303	29	332	23	1	24	2	1	3	518	1664	200	1864
15:00	-	16:00	43	4	47	191	13	204	62	28	90	0	0	0	341	186	1	187	295	30	325	18	0	18	1	0	1	531	1759	191	1950
15:15	-	16:15	46	3	49	205	10	215	62	25	87	0	0	0	351	186	2	188	288	34	322	19	1	20	1	0	1	531	1819	184	2003
15:30	-	16:30	47	3	50	216	11	227	58	22	80	0	0	0	357	192	4	196	318	29	347	18	1	19	1	0	1	563	1880	175	2055
15:45	-	16:45	54	1	55	214	8	222	67	12	79	0	0	0	356	184	5	189	324	26	350	19	1	20	0	0	0	559	1932	153	2085
16:00	-	17:00	46	3	49	202	5	207	81	8	89	0	0	0	345	163	5	168	344	23	367	25	1	26	0	0	0	561	1913	135	2048
16:15	-	17:15	50	3	53	200	4	204	90	7	97	0	0	0	354	152	3	155	362	15	377	35	0	35	0	0	0	567	1952	110	2062
16:30	-	17:30	47	3	50	205	1	206	85	7	92	1	0	1	349	149	1	150	369	14	383	39	0	39	0	0	0	572	1918	97	2015
16:45	-	17:45	44	3	47	186	1	187	84	9	93	1	0	1	328	143	0	143	398	9	407	43	0	43	0	0	0	593	1889	94	1983
17:00	-	18:00	46	1	47	181	1	182	70	11	81	1	0	1	311	144	1	145	381	7	388	44	0	44	0	0	0	577	1868	80	1948
17:15	-	18:15	42	1	43	140	3	143	53	10	63	1	0	1	250	149	1	150	357	8	365	37	1	38	0	0	0	553	1770	74	1844
17:30	-	18:30	38	0	38	102	6	108	51	10	61	0	0	0	207	143	1	144	329	7	336	32	1	33	0	0	0	513	1718	63	1781
Period End			571	35	606	2370	82	2452	888	202	1090	4	0	4	4152	2099	29	2128	4365	254	4619	378	10	388	7	2	9	7144	23711	1754	25465

All Vehicles Time Per Hour			SOUTH *AIRDS ROAD*												WEST *ROSE PAYTEN DRIVE*														
			L			T			R			U				L			T			R			U				TOTAL		
			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
6:00	-	7:00	3	3	6	86	9	95	95	5	100	3	0	3	204	190	29	219	207	30	237	44	1	45	1	2	3	504	1475	159	1634
6:15	-	7:15	9	4	13	89	9	98	92	4	96	4	0	4	211	208	33	241	227	27	254	55	1	56	1	2	3	554	1522	164	1686
6:30	-	7:30	11	2	13	98	12	110	81	3	84	5	0	5	212	202	35	237	238	24	262	68	0	68	2	0	2	569	1582	168	1750
6:45	-	7:45	11	3	14	88	12	100	82	8	90	5	0	5	209	220	38	258	260	25	285	72	0	72	2	0	2	617	1627	186	1813
7:00	-	8:00	11	3	14	95	11	106	70	11	81	3	0	3	204	204	40	244	257	20	277	80	1	81	2	0	2	604	1644	190	1834
7:15	-	8:15	7	3	10	94	11	105	75	11	86	2	0	2	203	214	39	253	316	23	339	70	1	71	4	0	4	667	1767	191	1958
7:30	-	8:30	7	4	11	90	6	96	86	11	97	1	0	1	205	221	43	264	367	31	398	72	3	75	3	0	3	740	1828	199	2027
7:45	-	8:45	5	5	10	98	8	106	88	8	96	0	0	0	212	212	44	256	385	32	417	61	4	65	4	0	4	742	1795	200	1995
8:00	-	9:00	5	4	9	87	12	99	86	3	89	0	0	0	197	197	42	239	399	37	436	49	3	52	5	0	5	732	1694	206	1900
8:15	-	9:15	3	5	8	85	13	98	102	6	108	0	0	0	214	167	43	210	362	36	398	55	3	58	4	0	4	670	1593	204	1797
8:30	-	9:30	4	4	8	85	17	102	104	8	112	0	0	0	222	166	44	210	324	30	354	47	2	49	4	0	4	617	1459	201	1660
8:45	-	9:45	6	3	9	83	14	97	111	8	119	0	0	0	225	142	43	185	302	30	332	43	2	45	2	0	2	564	1366	202	1568
9:00	-	10:00	6	3	9	84	12	96	115	8	123	2	0	2	230	120	40	160	267	28	295	39	3	42	1	0	1	498	1252	198	1450
Period End			88	46	134	1162	146	1308	1187	94	1281	25	0	25	2748	2463	513	2976	3911	373	4284	755	24	779	35	4	39	8078	20604	2468	23072
14:30	-	15:30	9	4	13	70	19	89	155	11	166	1	2	3	271	130	49	179	501	43	544	29	3	32	1	0	1	756	1629	198	1827
14:45	-	15:45	11	5	16	65	18	83	148	11	159	1	2	3	261	127	39	166	528	45	573	30	2	32	5	0	5	776	1664	200	1864
15:00	-	16:00	15	4	19	62	17	79	136	12	148	1	3	4	250	133	39	172	577	38	615	34	2	36	5	0	5	828	1759	191	1950
15:15	-	16:15	13	5	18	64	16	80	141	8	149	1	2	3	250	129	35	164	616	40	656	41	3	44	7	0	7	871	1819	184	2003
15:30	-	16:30	16	3	19	85	16	101	139	9	148	0	2	2	270	118	35	153	620	36	656	45	4	49	7	0	7	865	1880	175	2055
15:45	-	16:45	22	2	24	93	15	108	162	10	172	0	1	1	305	111	38	149	634	30	664	44	4	48	4	0	4	865	1932	153	2085
16:00	-	17:00	21	4	25	89	12	101	170	5	175	1	0	1	302	91	34	125	632	31	663	45	4	49	3	0	3	840	1913	135	2048
16:15	-	17:15	24	4	28	89	7	96	166	7	173	1	1	2	299	84	30	114	654	26	680	42	3	45	3	0	3	842	1952	110	2062
16:30	-	17:30	25	4	29	70	4	74	156	7	163	2	1	3	269	77	30	107	647	24	671	40	1	41	6	0	6	825	1918	97	2015
16:45	-	17:45	26	5	31	61	2	63	146	5	151	2	1	3	248	77	34	111	630	25	655	41	0	41	7	0	7	814	1889	94	1983
17:00	-	18:00	25	4	29	56	2	58	167	5	172	1	1	2	261	78	27	105	628	20	648	38	0	38	8	0	8	799	1868	80	1948
17:15	-	18:15	22	3	25	63	1	64	197	2	199	1	0	1	289	70	25	95	598	19	617	33	0	33	7	0	7	752	1770	74	1844
17:30	-	18:30	20	3	23	63	1	64	222	4	226	0	0	0	313	76	19	95	608	11	619	28	0	28	6	0	6	748	1718	63	1781
Period End			249	50	299	930	130	1060	2105	96	2201	12	16	28	3588	1301	434	1735	7873	388	8261	490	26	516	69	0	69	10581	23711	1754	25465

Traffic Impact Assessment

APPENDIX B

SIDRA RESULTSA

Cardno
Shaping the Future

MOVEMENT SUMMARY

Site: 101 [2016 AM]

Campbelltown Road & Rose Payten Drive Intersection
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Campbelltown Road (S)											
2	T1	1100	8.2	0.431	6.6	LOS A	10.6	79.1	0.48	0.43	61.0
3	R2	239	8.2	0.511	28.7	LOS C	3.4	25.7	0.97	0.78	40.0
Approach		1339	8.2	0.511	10.5	LOS A	10.6	79.1	0.57	0.49	55.8
East: Rose Payten Drive (E)											
4	L2	56	8.2	0.068	14.3	LOS A	1.1	7.9	0.51	0.66	47.9
6	R2	548	8.2	0.879	55.7	LOS D	14.0	105.0	1.00	1.00	32.0
Approach		604	8.2	0.879	51.9	LOS D	14.0	105.0	0.95	0.97	33.0
North: Campbelltown Road (N)											
7	L2	487	8.2	0.344	7.0	LOS A	3.7	27.5	0.28	0.64	52.8
8	T1	1360	8.2	0.870	34.6	LOS C	32.2	241.2	0.98	1.02	38.3
Approach		1847	8.2	0.870	27.4	LOS B	32.2	241.2	0.80	0.92	41.3
All Vehicles		3791	8.2	0.879	25.3	LOS B	32.2	241.2	0.74	0.78	43.6

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	22.1	LOS C	0.1	0.1	0.70	0.70
All Pedestrians		105	30.7	LOS D			0.82	0.82

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.

MOVEMENT SUMMARY

Site: 101 [2016 PM]

Campbelltown Road & Rose Payten Drive Intersection
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Campbelltown Road (S)											
2	T1	1508	3.1	0.524	7.9	LOS A	21.9	157.2	0.44	0.41	59.8
3	R2	186	3.1	0.641	53.7	LOS D	5.3	38.1	1.00	0.79	31.5
Approach		1695	3.1	0.641	12.9	LOS A	21.9	157.2	0.50	0.45	54.5
East: Rose Payten Drive (E)											
4	L2	56	3.1	0.092	35.8	LOS C	2.6	18.6	0.68	0.70	37.5
6	R2	564	3.1	0.955	100.5	LOS F	26.2	188.1	1.00	1.03	23.2
Approach		620	3.1	0.955	94.7	LOS F	26.2	188.1	0.97	1.00	24.0
North: Campbelltown Road (N)											
7	L2	704	3.1	0.443	6.8	LOS A	7.3	52.3	0.22	0.62	53.1
8	T1	1931	3.1	0.943	48.4	LOS D	85.4	613.4	0.91	0.97	33.5
Approach		2635	3.1	0.943	37.3	LOS C	85.4	613.4	0.73	0.88	37.2
All Vehicles		4949	3.1	0.955	36.1	LOS C	85.4	613.4	0.68	0.75	38.7

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	66.4	LOS F	0.2	0.2	0.94	0.94
P2	East Full Crossing	53	17.8	LOS B	0.1	0.1	0.49	0.49
All Pedestrians		105	42.1	LOS E			0.71	0.71

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.

MOVEMENT SUMMARY

Site: 101 [2026 AM]

Campbelltown Road & Rose Payten Drive Intersection
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Campbelltown Road (S)											
2	T1	1277	8.2	0.499	9.2	LOS A	17.2	129.2	0.51	0.46	58.5
3	R2	277	8.2	0.789	43.7	LOS D	6.1	45.4	1.00	0.87	34.4
Approach		1554	8.2	0.789	15.3	LOS B	17.2	129.2	0.60	0.54	52.0
East: Rose Payten Drive (E)											
4	L2	65	8.2	0.087	19.8	LOS B	1.9	13.9	0.55	0.68	44.7
6	R2	637	8.2	0.883	67.4	LOS E	21.3	159.6	1.00	0.97	29.0
Approach		702	8.2	0.883	63.0	LOS E	21.3	159.6	0.96	0.94	30.0
North: Campbelltown Road (N)											
7	L2	565	8.2	0.387	7.4	LOS A	6.1	45.3	0.28	0.64	52.6
8	T1	1578	8.2	0.891	39.6	LOS C	49.3	369.5	0.96	0.98	36.4
Approach		2143	8.2	0.891	31.1	LOS C	49.3	369.5	0.78	0.89	39.6
All Vehicles		4399	8.2	0.891	30.6	LOS C	49.3	369.5	0.74	0.77	41.0

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	50.5	LOS E	0.2	0.2	0.92	0.92
P2	East Full Crossing	53	21.6	LOS C	0.1	0.1	0.60	0.60
All Pedestrians		105	36.1	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.

MOVEMENT SUMMARY

Site: 101 [2026 PM]

Campbelltown Road & Rose Payten Drive Intersection
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Campbelltown Road (S)											
2	T1	1751	3.1	0.608	8.8	LOS A	28.4	203.9	0.50	0.46	59.0
3	R2	216	3.1	0.742	57.6	LOS E	6.3	45.4	1.00	0.84	30.5
Approach		1966	3.1	0.742	14.2	LOS A	28.4	203.9	0.55	0.50	53.5
East: Rose Payten Drive (E)											
4	L2	65	3.1	0.109	40.6	LOS C	3.2	23.4	0.73	0.71	35.8
6	R2	655	3.1	1.102	194.0	LOS F	42.4	304.6	1.00	1.25	14.6
Approach		720	3.1	1.102	180.1	LOS F	42.4	304.6	0.98	1.20	15.4
North: Campbelltown Road (N)											
7	L2	817	3.1	0.518	7.1	LOS A	10.1	72.7	0.26	0.64	52.9
8	T1	2240	3.1	1.128	188.9	LOS F	178.5	1282.4	1.00	1.63	14.7
Approach		3057	3.1	1.128	140.4	LOS F	178.5	1282.4	0.80	1.37	18.2
All Vehicles		5743	3.1	1.128	102.1	LOS F	178.5	1282.4	0.74	1.05	22.8

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 per ped
P1	South Full Crossing	53	66.4	LOS F	0.2	0.2	0.94	0.94
P2	East Full Crossing	53	17.8	LOS B	0.1	0.1	0.49	0.49
All Pedestrians		105	42.1	LOS E			0.71	0.71

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.

MOVEMENT SUMMARY

Site: 101 [2026 AM + Development]

Campbelltown Road & Rose Payten Drive Intersection
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Campbelltown Road (S)											
2	T1	1277	8.2	0.499	9.2	LOS A	17.2	129.2	0.51	0.46	58.5
3	R2	278	8.5	0.796	44.3	LOS D	6.1	46.2	1.00	0.88	34.2
Approach		1555	8.3	0.796	15.5	LOS B	17.2	129.2	0.60	0.54	51.9
East: Rose Payten Drive (E)											
4	L2	65	8.2	0.087	19.8	LOS B	1.9	13.9	0.55	0.68	44.7
6	R2	638	8.4	0.888	68.1	LOS E	21.5	161.7	1.00	0.97	28.8
Approach		703	8.3	0.888	63.6	LOS E	21.5	161.7	0.96	0.95	29.8
North: Campbelltown Road (N)											
7	L2	566	8.4	0.389	7.4	LOS A	6.1	45.7	0.28	0.64	52.5
8	T1	1578	8.2	0.892	39.7	LOS C	49.4	370.1	0.96	0.98	36.4
Approach		2144	8.2	0.892	31.2	LOS C	49.4	370.1	0.78	0.89	39.6
All Vehicles		4402	8.3	0.892	30.8	LOS C	49.4	370.1	0.74	0.77	40.9

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	50.5	LOS E	0.2	0.2	0.92	0.92
P2	East Full Crossing	53	21.6	LOS C	0.1	0.1	0.60	0.60
All Pedestrians		105	36.1	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.

MOVEMENT SUMMARY

Site: 101 [2026 PM + Development]

Campbelltown Road & Rose Payten Drive Intersection
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Campbelltown Road (S)											
2	T1	1751	3.1	0.635	8.8	LOS A	30.8	221.6	0.50	0.46	58.9
3	R2	217	3.6	0.751	58.3	LOS E	6.4	46.3	1.00	0.85	30.3
Approach		1967	3.2	0.751	14.3	LOS A	30.8	221.6	0.55	0.51	53.4
East: Rose Payten Drive (E)											
4	L2	65	3.1	0.109	40.6	LOS C	3.2	23.4	0.73	0.71	35.8
6	R2	656	3.3	1.106	197.7	LOS F	42.9	309.4	1.00	1.26	14.4
Approach		721	3.2	1.106	183.5	LOS F	42.9	309.4	0.98	1.21	15.2
North: Campbelltown Road (N)											
7	L2	818	3.2	0.519	7.2	LOS A	10.2	73.3	0.26	0.64	52.9
8	T1	2240	3.1	1.129	189.2	LOS F	178.6	1283.6	1.00	1.64	14.7
Approach		3058	3.1	1.129	140.5	LOS F	178.6	1283.6	0.80	1.37	18.2
All Vehicles		5746	3.2	1.129	102.7	LOS F	178.6	1283.6	0.74	1.05	22.8

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	66.4	LOS F	0.2	0.2	0.94	0.94
P2	East Full Crossing	53	17.8	LOS B	0.1	0.1	0.49	0.49
All Pedestrians		105	42.1	LOS E			0.71	0.71

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.

MOVEMENT SUMMARY

Site: 101 [2016 AM]

Pembroke Road & Stonny Batter Road Intersection
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (S)											
1	L2	94	8.3	0.129	4.7	LOS A	0.5	4.0	0.22	0.48	50.7
2	T1	625	8.3	0.418	4.5	LOS A	2.5	18.5	0.23	0.42	55.8
Approach		719	8.3	0.418	4.6	LOS A	2.5	18.5	0.23	0.43	55.1
North: Pembroke Road (N)											
8	T1	386	8.3	0.255	4.3	LOS A	1.5	11.0	0.14	0.44	55.8
9	R2	68	8.3	0.255	8.9	LOS A	1.5	11.0	0.14	0.45	52.1
Approach		455	8.3	0.255	5.0	LOS A	1.5	11.0	0.14	0.44	55.2
West: Stonny Batter Road (W)											
10	L2	46	8.3	0.099	5.8	LOS A	0.4	3.3	0.56	0.69	48.4
12	R2	28	8.3	0.099	10.3	LOS A	0.4	3.3	0.56	0.69	49.5
Approach		75	8.3	0.099	7.6	LOS A	0.4	3.3	0.56	0.69	48.8
All Vehicles		1248	8.3	0.418	4.9	LOS A	2.5	18.5	0.21	0.45	54.7

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2016 PM]

Pembroke Road & Stonny Batter Road Intersection
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (S)											
1	L2	22	4.0	0.114	4.3	LOS A	0.5	3.5	0.08	0.41	51.2
2	T1	707	4.0	0.368	4.2	LOS A	2.1	15.4	0.08	0.40	56.6
Approach		729	4.0	0.368	4.2	LOS A	2.1	15.4	0.08	0.40	56.5
North: Pembroke Road (N)											
8	T1	366	4.0	0.227	4.5	LOS A	1.2	9.0	0.22	0.42	55.8
9	R2	14	4.0	0.227	9.1	LOS A	1.2	9.0	0.22	0.42	52.2
Approach		380	4.0	0.227	4.6	LOS A	1.2	9.0	0.22	0.42	55.7
West: Stonny Batter Road (W)											
10	L2	77	4.0	0.185	6.0	LOS A	0.8	5.7	0.57	0.75	48.1
12	R2	69	4.0	0.185	10.5	LOS A	0.8	5.7	0.57	0.75	49.2
Approach		146	4.0	0.185	8.1	LOS A	0.8	5.7	0.57	0.75	48.6
All Vehicles		1256	4.0	0.368	4.8	LOS A	2.1	15.4	0.18	0.45	55.2

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2026 AM]

Pembroke Road & Stonny Batter Road Intersection
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (S)											
1	L2	108	8.3	0.151	4.8	LOS A	0.6	4.8	0.24	0.48	50.6
2	T1	725	8.3	0.489	4.6	LOS A	3.2	24.0	0.27	0.43	55.6
Approach		834	8.3	0.489	4.7	LOS A	3.2	24.0	0.27	0.44	54.9
North: Pembroke Road (N)											
8	T1	448	8.3	0.296	4.3	LOS A	1.8	13.6	0.16	0.44	55.7
9	R2	79	8.3	0.296	9.0	LOS A	1.8	13.6	0.16	0.45	52.0
Approach		527	8.3	0.296	5.0	LOS A	1.8	13.6	0.16	0.44	55.1
West: Stonny Batter Road (W)											
10	L2	54	8.3	0.124	6.6	LOS A	0.6	4.3	0.62	0.74	48.0
12	R2	33	8.3	0.124	11.1	LOS A	0.6	4.3	0.62	0.74	49.0
Approach		86	8.3	0.124	8.3	LOS A	0.6	4.3	0.62	0.74	48.4
All Vehicles		1447	8.3	0.489	5.0	LOS A	3.2	24.0	0.25	0.46	54.6

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2026 PM]

Pembroke Road & Stonny Batter Road Intersection
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (S)											
1	L2	25	4.0	0.132	4.3	LOS A	0.6	4.1	0.09	0.41	51.2
2	T1	821	4.0	0.428	4.2	LOS A	2.7	19.7	0.10	0.39	56.6
Approach		846	4.0	0.428	4.3	LOS A	2.7	19.7	0.10	0.39	56.4
North: Pembroke Road (N)											
8	T1	425	4.0	0.267	4.5	LOS A	1.5	11.2	0.25	0.43	55.7
9	R2	16	4.0	0.267	9.1	LOS A	1.5	11.2	0.25	0.43	52.1
Approach		441	4.0	0.267	4.7	LOS A	1.5	11.2	0.25	0.43	55.5
West: Stonny Batter Road (W)											
10	L2	89	4.0	0.230	6.7	LOS A	1.0	7.4	0.62	0.80	47.7
12	R2	81	4.0	0.230	11.2	LOS A	1.0	7.4	0.62	0.80	48.7
Approach		171	4.0	0.230	8.8	LOS A	1.0	7.4	0.62	0.80	48.2
All Vehicles		1458	4.0	0.428	4.9	LOS A	2.7	19.7	0.20	0.45	55.0

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2026 AM + Development]

Pembroke Road & Stonny Batter Road Intersection
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (S)											
1	L2	111	10.0	0.152	4.9	LOS A	0.6	5.0	0.24	0.49	50.6
2	T1	725	8.3	0.492	4.6	LOS A	3.2	24.3	0.28	0.43	55.6
Approach		836	8.5	0.492	4.7	LOS A	3.2	24.3	0.27	0.44	54.9
North: Pembroke Road (N)											
8	T1	448	8.3	0.298	4.3	LOS A	1.8	13.8	0.16	0.44	55.7
9	R2	79	8.3	0.298	9.0	LOS A	1.8	13.8	0.16	0.45	52.0
Approach		527	8.3	0.298	5.0	LOS A	1.8	13.8	0.16	0.44	55.1
West: Stonny Batter Road (W)											
10	L2	55	10.1	0.134	6.8	LOS A	0.6	4.9	0.63	0.76	47.8
12	R2	34	11.2	0.134	11.4	LOS A	0.6	4.9	0.63	0.76	48.8
Approach		88	10.5	0.134	8.6	LOS A	0.6	4.9	0.63	0.76	48.2
All Vehicles		1452	8.6	0.492	5.0	LOS A	3.2	24.3	0.25	0.46	54.5

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2026 PM + Development]

Pembroke Road & Stonny Batter Road Intersection
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (S)											
1	L2	27	11.4	0.133	4.3	LOS A	0.6	4.3	0.09	0.41	51.1
2	T1	821	4.0	0.431	4.2	LOS A	2.8	20.0	0.10	0.39	56.6
Approach		848	4.2	0.431	4.3	LOS A	2.8	20.0	0.10	0.39	56.4
North: Pembroke Road (N)											
8	T1	425	4.0	0.268	4.5	LOS A	1.5	11.2	0.25	0.43	55.7
9	R2	16	4.0	0.268	9.1	LOS A	1.5	11.2	0.25	0.43	52.1
Approach		441	4.0	0.268	4.7	LOS A	1.5	11.2	0.25	0.43	55.5
West: Stonny Batter Road (W)											
10	L2	91	5.1	0.239	6.8	LOS A	1.1	7.9	0.62	0.81	47.6
12	R2	82	5.2	0.239	11.3	LOS A	1.1	7.9	0.62	0.81	48.6
Approach		173	5.2	0.239	9.0	LOS A	1.1	7.9	0.62	0.81	48.1
All Vehicles		1462	4.3	0.431	4.9	LOS A	2.8	20.0	0.21	0.46	55.0

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2016 AM]

Rose Payten Drive & Airds Road Intersection
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Airds Road (South)											
1	L2	9	11.2	0.071	7.0	LOS A	0.3	2.1	0.54	0.65	53.1
2	T1	104	11.2	0.163	6.2	LOS A	0.7	5.6	0.53	0.67	53.7
3	R2	94	11.2	0.163	11.0	LOS A	0.7	5.6	0.52	0.68	53.2
Approach		207	11.2	0.163	8.4	LOS A	0.7	5.6	0.53	0.67	53.4
East: Rose Payten Drive (East)											
4	L2	227	11.2	0.328	5.0	LOS A	1.7	13.0	0.40	0.52	54.0
5	T1	525	11.2	0.328	5.0	LOS A	1.7	13.0	0.41	0.50	55.5
6	R2	2	11.2	0.328	10.3	LOS A	1.7	12.8	0.41	0.49	55.3
Approach		755	11.2	0.328	5.0	LOS A	1.7	13.0	0.40	0.51	55.0
North: Airds Road (North)											
7	L2	13	11.2	0.065	7.1	LOS A	0.3	2.1	0.54	0.63	53.1
8	T1	124	11.2	0.148	6.2	LOS A	0.7	5.5	0.53	0.64	54.0
9	R2	55	11.2	0.148	11.1	LOS A	0.7	5.5	0.53	0.64	53.7
Approach		192	11.2	0.148	7.7	LOS A	0.7	5.5	0.53	0.64	53.8
West: Rose Payten Drive (West)											
10	L2	252	11.2	0.325	4.8	LOS A	1.5	11.9	0.34	0.50	54.2
11	T1	459	11.2	0.325	4.9	LOS A	1.5	11.9	0.34	0.51	55.5
12	R2	55	11.2	0.325	10.1	LOS A	1.5	11.7	0.35	0.51	55.2
Approach		765	11.2	0.325	5.2	LOS A	1.5	11.9	0.34	0.51	55.1
All Vehicles		1919	11.2	0.328	5.7	LOS A	1.7	13.0	0.41	0.54	54.7

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2016 PM]

Rose Payten Drive & Airds Road Intersection
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Airds Road (South)											
1	L2	33	11.2	0.087	6.9	LOS A	0.3	2.6	0.53	0.66	53.2
2	T1	66	11.2	0.198	6.1	LOS A	0.9	7.0	0.52	0.69	53.4
3	R2	159	11.2	0.198	10.9	LOS A	0.9	7.0	0.52	0.71	52.5
Approach		258	11.2	0.198	9.1	LOS A	0.9	7.0	0.52	0.70	52.8
East: Rose Payten Drive (East)											
4	L2	151	11.2	0.278	5.4	LOS A	1.4	10.8	0.47	0.56	53.6
5	T1	428	11.2	0.278	5.4	LOS A	1.4	10.8	0.47	0.54	55.2
6	R2	1	11.2	0.278	10.7	LOS A	1.4	10.6	0.48	0.53	55.0
Approach		580	11.2	0.278	5.4	LOS A	1.4	10.8	0.47	0.55	54.8
North: Airds Road (North)											
7	L2	46	11.2	0.130	8.1	LOS A	0.5	4.2	0.62	0.76	52.4
8	T1	197	11.2	0.295	7.0	LOS A	1.5	11.9	0.66	0.74	53.2
9	R2	98	11.2	0.295	12.1	LOS A	1.5	11.9	0.66	0.74	53.0
Approach		341	11.2	0.295	8.6	LOS A	1.5	11.9	0.65	0.74	53.0
West: Rose Payten Drive (West)											
10	L2	117	11.2	0.369	5.0	LOS A	1.8	14.1	0.37	0.49	54.0
11	T1	689	11.2	0.369	5.0	LOS A	1.8	14.1	0.38	0.51	55.4
12	R2	43	11.2	0.369	10.3	LOS A	1.8	13.8	0.38	0.52	55.2
Approach		849	11.2	0.369	5.3	LOS A	1.8	14.1	0.38	0.51	55.2
All Vehicles		2028	11.2	0.369	6.4	LOS A	1.8	14.1	0.47	0.58	54.4

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2026 AM]

Rose Payten Drive & Airds Road Intersection
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Airds Road (South)											
1	L2	11	11.2	0.087	7.5	LOS A	0.4	2.7	0.58	0.69	52.9
2	T1	121	11.2	0.199	6.6	LOS A	0.9	7.2	0.58	0.71	53.5
3	R2	108	11.2	0.199	11.3	LOS A	0.9	7.2	0.58	0.72	52.9
Approach		240	11.2	0.199	8.8	LOS A	0.9	7.2	0.58	0.71	53.2
East: Rose Payten Drive (East)											
4	L2	264	11.2	0.392	5.2	LOS A	2.2	16.6	0.45	0.55	53.7
5	T1	609	11.2	0.392	5.3	LOS A	2.2	16.6	0.46	0.53	55.2
6	R2	2	11.2	0.392	10.6	LOS A	2.1	16.3	0.47	0.52	55.0
Approach		876	11.2	0.392	5.3	LOS A	2.2	16.6	0.46	0.53	54.8
North: Airds Road (North)											
7	L2	15	11.2	0.080	7.6	LOS A	0.3	2.6	0.58	0.67	52.8
8	T1	144	11.2	0.182	6.6	LOS A	0.9	7.0	0.59	0.68	53.7
9	R2	63	11.2	0.182	11.5	LOS A	0.9	7.0	0.59	0.68	53.4
Approach		222	11.2	0.182	8.1	LOS A	0.9	7.0	0.59	0.68	53.5
West: Rose Payten Drive (West)											
10	L2	292	11.2	0.387	5.0	LOS A	2.0	15.1	0.38	0.53	54.0
11	T1	533	11.2	0.387	5.1	LOS A	2.0	15.1	0.39	0.53	55.3
12	R2	63	11.2	0.387	10.3	LOS A	1.9	14.8	0.39	0.53	55.0
Approach		887	11.2	0.387	5.4	LOS A	2.0	15.1	0.39	0.53	54.8
All Vehicles		2225	11.2	0.392	6.0	LOS A	2.2	16.6	0.46	0.57	54.5

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2026 PM]

Rose Payten Drive & Airds Road Intersection
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Airds Road (South)											
1	L2	38	11.2	0.106	7.3	LOS A	0.4	3.3	0.56	0.70	52.9
2	T1	77	11.2	0.242	6.4	LOS A	1.2	8.9	0.57	0.73	53.1
3	R2	184	11.2	0.242	11.2	LOS A	1.2	8.9	0.57	0.75	52.3
Approach		299	11.2	0.242	9.5	LOS A	1.2	8.9	0.57	0.74	52.6
East: Rose Payten Drive (East)											
4	L2	175	11.2	0.337	5.7	LOS A	1.8	14.0	0.53	0.59	53.4
5	T1	497	11.2	0.337	5.8	LOS A	1.8	14.0	0.53	0.58	54.9
6	R2	1	11.2	0.337	11.1	LOS A	1.8	13.6	0.54	0.57	54.7
Approach		673	11.2	0.337	5.7	LOS A	1.8	14.0	0.53	0.58	54.5
North: Airds Road (North)											
7	L2	54	11.2	0.162	8.8	LOS A	0.7	5.5	0.67	0.81	51.9
8	T1	228	11.2	0.370	7.8	LOS A	2.1	16.2	0.73	0.81	52.8
9	R2	114	11.2	0.370	12.8	LOS A	2.1	16.2	0.74	0.81	52.6
Approach		396	11.2	0.370	9.4	LOS A	2.1	16.2	0.72	0.81	52.6
West: Rose Payten Drive (West)											
10	L2	136	11.2	0.441	5.2	LOS A	2.4	18.3	0.43	0.52	53.7
11	T1	800	11.2	0.441	5.3	LOS A	2.4	18.3	0.43	0.53	55.2
12	R2	51	11.2	0.441	10.6	LOS A	2.3	17.8	0.44	0.55	54.9
Approach		986	11.2	0.441	5.6	LOS A	2.4	18.3	0.43	0.53	54.9
All Vehicles		2354	11.2	0.441	6.8	LOS A	2.4	18.3	0.53	0.62	54.1

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2026 AM + Development]

Rose Payten Drive & Airds Road Intersection
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Airds Road (South)											
1	L2	11	11.2	0.088	7.5	LOS A	0.4	2.7	0.58	0.69	52.9
2	T1	121	11.2	0.199	6.6	LOS A	0.9	7.2	0.58	0.71	53.5
3	R2	108	11.2	0.199	11.3	LOS A	0.9	7.2	0.58	0.72	52.9
Approach		240	11.2	0.199	8.8	LOS A	0.9	7.2	0.58	0.71	53.2
East: Rose Payten Drive (East)											
4	L2	264	11.2	0.393	5.2	LOS A	2.2	16.7	0.45	0.55	53.7
5	T1	611	11.4	0.393	5.3	LOS A	2.2	16.7	0.46	0.53	55.2
6	R2	2	11.2	0.393	10.6	LOS A	2.1	16.4	0.47	0.52	55.0
Approach		877	11.3	0.393	5.3	LOS A	2.2	16.7	0.46	0.53	54.8
North: Airds Road (North)											
7	L2	15	11.2	0.080	7.6	LOS A	0.3	2.6	0.58	0.67	52.8
8	T1	144	11.2	0.182	6.6	LOS A	0.9	7.1	0.59	0.68	53.7
9	R2	63	11.2	0.182	11.5	LOS A	0.9	7.1	0.59	0.68	53.4
Approach		222	11.2	0.182	8.1	LOS A	0.9	7.1	0.59	0.68	53.5
West: Rose Payten Drive (West)											
10	L2	292	11.2	0.390	5.0	LOS A	2.0	15.3	0.39	0.53	54.0
11	T1	535	11.5	0.390	5.1	LOS A	2.0	15.3	0.39	0.53	55.3
12	R2	63	11.2	0.390	10.3	LOS A	1.9	15.0	0.40	0.53	54.9
Approach		889	11.4	0.390	5.4	LOS A	2.0	15.3	0.39	0.53	54.8
All Vehicles		2228	11.3	0.393	6.0	LOS A	2.2	16.7	0.46	0.57	54.5

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2026 PM + Development]

Rose Payten Drive & Airds Road Intersection
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Airds Road (South)											
1	L2	38	11.2	0.106	7.3	LOS A	0.4	3.3	0.57	0.70	52.9
2	T1	77	11.2	0.242	6.4	LOS A	1.2	8.9	0.57	0.73	53.1
3	R2	184	11.2	0.242	11.2	LOS A	1.2	8.9	0.57	0.75	52.3
Approach		299	11.2	0.242	9.5	LOS A	1.2	8.9	0.57	0.74	52.6
East: Rose Payten Drive (East)											
4	L2	175	11.2	0.339	5.7	LOS A	1.8	14.1	0.53	0.59	53.4
5	T1	498	11.4	0.339	5.8	LOS A	1.8	14.1	0.53	0.58	54.9
6	R2	1	11.2	0.339	11.1	LOS A	1.8	13.7	0.54	0.57	54.7
Approach		674	11.3	0.339	5.8	LOS A	1.8	14.1	0.53	0.58	54.5
North: Airds Road (North)											
7	L2	54	11.2	0.163	8.8	LOS A	0.7	5.6	0.68	0.81	51.9
8	T1	228	11.2	0.371	7.8	LOS A	2.1	16.3	0.73	0.81	52.7
9	R2	114	11.2	0.371	12.8	LOS A	2.1	16.3	0.74	0.81	52.6
Approach		396	11.2	0.371	9.4	LOS A	2.1	16.3	0.72	0.81	52.6
West: Rose Payten Drive (West)											
10	L2	136	11.2	0.443	5.2	LOS A	2.4	18.6	0.43	0.52	53.7
11	T1	802	11.4	0.443	5.3	LOS A	2.4	18.6	0.44	0.54	55.1
12	R2	51	11.2	0.443	10.6	LOS A	2.3	18.1	0.44	0.55	54.9
Approach		988	11.4	0.443	5.6	LOS A	2.4	18.6	0.43	0.53	54.9
All Vehicles		2357	11.3	0.443	6.8	LOS A	2.4	18.6	0.53	0.62	54.1

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2016 AM]

Rose Payten Drive, Pembroke Road and Smiths Creek Bypass Intersection
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (SW)											
1	L2	242	3.6	0.467	14.4	LOS A	6.0	43.5	0.69	0.72	49.0
2	T1	431	3.6	0.817	37.1	LOS C	16.7	120.8	0.92	0.90	37.0
3	R2	19	3.6	0.035	24.1	LOS B	0.5	3.8	0.72	0.67	42.2
Approach		692	3.6	0.817	28.8	LOS C	16.7	120.8	0.84	0.83	40.6
East: Smiths Creek Bypass (SE)											
4	L2	9	3.6	0.341	29.5	LOS C	9.6	69.2	0.68	0.63	42.6
5	T1	578	3.6	0.341	21.4	LOS B	9.6	69.2	0.69	0.61	44.4
6	R2	231	3.6	0.692	48.8	LOS D	10.3	74.7	0.99	0.98	32.9
Approach		818	3.6	0.692	29.3	LOS C	10.3	74.7	0.77	0.71	40.4
North: Pembroke Road (NE)											
7	L2	129	3.6	0.210	13.8	LOS A	2.8	20.2	0.60	0.66	49.3
8	T1	173	3.6	0.420	33.1	LOS C	5.8	41.7	0.86	0.73	38.5
9	R2	281	3.6	0.735	32.2	LOS C	10.0	72.2	0.99	0.86	38.7
Approach		583	3.6	0.735	28.4	LOS B	10.0	72.2	0.86	0.78	40.6
West: Rose Payten Drive (NW)											
10	L2	252	3.6	0.475	16.0	LOS B	6.8	49.4	0.74	0.74	48.1
11	T1	527	3.6	0.831	36.4	LOS C	21.0	151.9	0.94	0.92	37.3
12	R2	117	3.6	0.658	51.3	LOS D	5.8	41.8	0.98	0.85	32.2
Approach		896	3.6	0.831	32.6	LOS C	21.0	151.9	0.89	0.86	39.0
All Vehicles		2988	3.6	0.831	30.0	LOS C	21.0	151.9	0.84	0.80	40.0

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 per ped
P1	South Full Crossing	53	23.9	LOS C	0.1	0.1	0.69	0.69
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	38.8	LOS D	0.1	0.1	0.88	0.88
All Pedestrians		158	35.6	LOS D			0.84	0.84

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.

MOVEMENT SUMMARY

Site: 101 [2016 PM]

Rose Payten Drive, Pembroke Road and Smiths Creek Bypass Intersection
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (SW)											
1	L2	159	1.9	0.360	19.6	LOS B	5.7	40.8	0.71	0.72	45.8
2	T1	205	1.9	0.629	44.6	LOS D	8.7	61.9	0.92	0.79	34.4
3	R2	12	1.9	0.048	31.8	LOS C	0.4	2.9	0.86	0.67	38.8
Approach		376	1.9	0.629	33.6	LOS C	8.7	61.9	0.83	0.76	38.6
East: Smiths Creek Bypass (SE)											
4	L2	20	1.9	0.334	28.7	LOS C	10.2	72.6	0.67	0.62	42.9
5	T1	573	1.9	0.334	22.5	LOS B	10.9	77.5	0.68	0.61	43.8
6	R2	196	1.9	0.905	78.3	LOS F	14.6	103.7	1.00	1.05	26.0
Approach		788	1.9	0.905	36.5	LOS C	14.6	103.7	0.76	0.72	37.4
North: Pembroke Road (NE)											
7	L2	224	1.9	0.438	15.0	LOS B	8.3	59.3	0.66	0.70	48.9
8	T1	465	1.9	0.877	38.3	LOS C	19.3	137.6	0.80	0.85	36.6
9	R2	358	1.9	0.614	32.0	LOS C	14.6	104.2	0.90	0.83	38.7
Approach		1047	1.9	0.877	31.2	LOS C	19.3	137.6	0.80	0.81	39.5
West: Rose Payten Drive (NW)											
10	L2	249	1.9	0.349	13.2	LOS A	5.6	39.6	0.57	0.67	49.7
11	T1	619	1.9	0.611	23.7	LOS B	23.5	167.2	0.78	0.72	43.0
12	R2	232	1.9	0.731	45.3	LOS D	12.7	90.6	0.92	0.88	34.0
Approach		1100	1.9	0.731	25.8	LOS B	23.5	167.2	0.76	0.74	41.9
All Vehicles		3312	1.9	0.905	31.0	LOS C	23.5	167.2	0.78	0.76	39.6

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 per ped
P1	South Full Crossing	53	26.1	LOS C	0.1	0.1	0.66	0.66
P2	East Full Crossing	53	36.1	LOS D	0.1	0.1	0.78	0.78
P3	North Full Crossing	53	26.1	LOS C	0.1	0.1	0.66	0.66
All Pedestrians		158	29.4	LOS C			0.70	0.70

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.

MOVEMENT SUMMARY

Site: 101 [2026 AM]

Rose Payten Drive, Pembroke Road and Smiths Creek Bypass Intersection
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pembroke Road (SW)											
1	L2	281	3.6	0.523	20.4	LOS B	11.3	81.7	0.73	0.75	45.3
2	T1	500	3.6	0.915	64.5	LOS E	33.4	240.7	0.95	1.00	29.0
3	R2	22	3.6	0.066	42.0	LOS C	1.1	7.8	0.81	0.69	35.0
Approach		803	3.6	0.915	48.5	LOS D	33.4	240.7	0.87	0.90	33.4
East: Smiths Creek Bypass (SE)											
4	L2	11	3.6	0.315	26.4	LOS B	12.4	89.3	0.56	0.52	44.2
5	T1	671	3.6	0.315	19.4	LOS B	12.8	92.6	0.56	0.51	45.5
6	R2	267	3.6	0.682	61.9	LOS E	17.1	123.1	0.98	0.99	29.4
Approach		948	3.6	0.682	31.4	LOS C	17.1	123.1	0.68	0.64	39.4
North: Pembroke Road (NE)											
7	L2	326	3.6	0.421	21.1	LOS B	11.1	80.3	0.67	0.76	44.1
8	T1	200	3.6	0.505	52.9	LOS D	12.5	90.3	0.91	0.75	32.2
9	R2	151	3.6	0.738	51.7	LOS D	8.4	60.5	1.00	0.84	32.0
Approach		677	3.6	0.738	37.3	LOS C	12.5	90.3	0.81	0.78	37.0
West: Rose Payten Drive (NW)											
10	L2	292	3.6	0.536	23.8	LOS B	10.8	77.9	0.80	0.79	43.3
11	T1	612	3.6	0.937	63.4	LOS E	44.1	318.0	0.92	1.01	29.3
12	R2	136	3.6	0.605	56.9	LOS E	8.8	63.8	0.92	0.82	30.7
Approach		1039	3.6	0.937	51.5	LOS D	44.1	318.0	0.89	0.92	32.5
All Vehicles		3467	3.6	0.937	42.5	LOS D	44.1	318.0	0.81	0.81	35.2

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	21.4	LOS C	0.1	0.1	0.53	0.53
P2	East Full Crossing	53	56.5	LOS E	0.2	0.2	0.87	0.87
P3	North Full Crossing	53	39.0	LOS D	0.2	0.2	0.72	0.72
All Pedestrians		158	38.9	LOS D			0.71	0.71

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.

MOVEMENT SUMMARY

Site: 101 [2026 PM]

Rose Payten Drive, Pembroke Road and Smiths Creek Bypass Intersection
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pembroke Road (SW)											
1	L2	184	1.9	0.459	24.5	LOS B	7.5	53.1	0.79	0.76	43.1
2	T1	238	1.9	0.803	60.6	LOS E	13.4	95.1	0.94	0.87	29.9
3	R2	14	1.9	0.109	47.3	LOS D	0.7	4.7	0.97	0.68	33.4
Approach		436	1.9	0.803	44.9	LOS D	13.4	95.1	0.88	0.82	34.5
East: Smiths Creek Bypass (SE)											
4	L2	23	1.9	0.335	32.0	LOS C	15.2	108.3	0.60	0.60	41.3
5	T1	664	1.9	0.335	23.6	LOS B	15.2	108.3	0.60	0.56	43.2
6	R2	227	1.9	0.965	109.4	LOS F	19.8	140.8	1.00	1.21	21.3
Approach		915	1.9	0.965	45.1	LOS D	19.8	140.8	0.70	0.73	34.4
North: Pembroke Road (NE)											
7	L2	260	1.9	0.537	27.7	LOS B	16.9	120.5	0.78	0.75	41.8
8	T1	540	1.9	1.077	153.8	LOS F	50.2	357.3	0.94	1.28	17.0
9	R2	416	1.9	0.859	56.7	LOS E	27.5	195.4	1.00	0.92	30.7
Approach		1216	1.9	1.077	93.6	LOS F	50.2	357.3	0.93	1.05	23.6
West: Rose Payten Drive (NW)											
10	L2	289	1.9	0.587	24.5	LOS B	15.4	109.8	0.82	0.78	43.4
11	T1	718	1.9	1.026	114.6	LOS F	62.3	443.4	0.96	1.21	20.8
12	R2	268	1.9	1.148	239.6	LOS F	40.2	286.3	1.00	1.38	12.1
Approach		1276	1.9	1.148	120.4	LOS F	62.3	443.4	0.94	1.15	20.2
All Vehicles		3842	1.9	1.148	85.4	LOS F	62.3	443.4	0.87	0.98	25.0

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	24.1	LOS C	0.1	0.1	0.57	0.57
P2	East Full Crossing	53	47.3	LOS E	0.2	0.2	0.80	0.80
P3	North Full Crossing	53	37.5	LOS D	0.2	0.2	0.71	0.71
All Pedestrians		158	36.3	LOS D			0.69	0.69

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.

MOVEMENT SUMMARY

Site: 101 [2026 AM + Development]

Rose Payten Drive, Pembroke Road and Smiths Creek Bypass Intersection
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (SW)											
1	L2	281	3.6	0.523	20.3	LOS B	11.1	80.1	0.73	0.75	45.4
2	T1	500	3.6	0.914	64.2	LOS E	33.2	239.9	0.95	1.00	29.1
3	R2	22	3.6	0.064	41.7	LOS C	1.1	7.8	0.81	0.69	35.1
Approach		803	3.6	0.914	48.2	LOS D	33.2	239.9	0.87	0.90	33.5
East: Smiths Creek Bypass (SE)											
4	L2	11	3.6	0.315	27.1	LOS B	12.4	89.3	0.56	0.52	43.8
5	T1	671	3.6	0.315	19.7	LOS B	12.8	92.6	0.56	0.51	45.3
6	R2	267	3.6	0.679	61.3	LOS E	17.0	123.0	0.98	0.99	29.6
Approach		948	3.6	0.679	31.5	LOS C	17.0	123.0	0.68	0.64	39.4
North: Pembroke Road (NE)											
7	L2	326	3.6	0.420	20.7	LOS B	11.0	79.1	0.66	0.76	44.4
8	T1	200	3.6	0.627	55.9	LOS D	12.9	92.9	0.93	0.77	31.4
9	R2	152	4.3	0.752	52.2	LOS D	8.5	62.4	1.00	0.85	31.9
Approach		678	3.7	0.752	38.1	LOS C	12.9	92.9	0.82	0.78	36.7
West: Rose Payten Drive (NW)											
10	L2	294	4.3	0.542	23.5	LOS B	10.7	78.6	0.80	0.78	43.4
11	T1	612	3.6	0.947	67.4	LOS E	45.8	330.2	0.93	1.03	28.4
12	R2	136	3.6	0.605	56.9	LOS E	8.8	63.8	0.92	0.82	30.7
Approach		1041	3.8	0.947	53.7	LOS D	45.8	330.2	0.89	0.94	31.8
All Vehicles		3471	3.7	0.947	43.3	LOS D	45.8	330.2	0.81	0.82	35.0

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 per ped
P1	South Full Crossing	53	21.4	LOS C	0.1	0.1	0.53	0.53
P2	East Full Crossing	53	59.1	LOS E	0.2	0.2	0.89	0.89
P3	North Full Crossing	53	39.0	LOS D	0.2	0.2	0.72	0.72
All Pedestrians		158	39.8	LOS D			0.71	0.71

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.

MOVEMENT SUMMARY

Site: 101 [2026 PM + Development]

Rose Payten Drive, Pembroke Road and Smiths Creek Bypass Intersection
Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Phase Times)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (SW)											
1	L2	184	1.9	0.459	24.9	LOS B	7.6	53.9	0.80	0.76	42.9
2	T1	238	1.9	0.803	60.8	LOS E	13.4	95.2	0.95	0.87	29.8
3	R2	14	1.9	0.109	47.3	LOS D	0.7	4.7	0.97	0.68	33.4
Approach		436	1.9	0.803	45.2	LOS D	13.4	95.2	0.88	0.82	34.4
East: Smiths Creek Bypass (SE)											
4	L2	23	1.9	0.335	32.0	LOS C	15.2	108.3	0.60	0.60	41.3
5	T1	664	1.9	0.335	23.6	LOS B	15.2	108.3	0.60	0.56	43.2
6	R2	227	1.9	0.965	109.4	LOS F	19.8	140.8	1.00	1.21	21.3
Approach		915	1.9	0.965	45.1	LOS D	19.8	140.8	0.70	0.73	34.4
North: Pembroke Road (NE)											
7	L2	260	1.9	0.537	31.2	LOS C	17.9	127.5	0.78	0.77	40.2
8	T1	540	1.9	1.077	154.9	LOS F	50.4	358.3	0.94	1.29	16.9
9	R2	417	2.1	0.864	57.4	LOS E	27.8	198.9	1.00	0.93	30.6
Approach		1217	2.0	1.077	95.1	LOS F	50.4	358.3	0.93	1.05	23.4
West: Rose Payten Drive (NW)											
10	L2	292	2.6	0.585	24.1	LOS B	15.3	110.4	0.82	0.78	43.7
11	T1	718	1.9	1.023	112.3	LOS F	61.6	438.2	0.96	1.20	21.1
12	R2	268	1.9	1.148	239.5	LOS F	40.2	286.2	1.00	1.38	12.1
Approach		1278	2.1	1.148	118.9	LOS F	61.6	438.2	0.93	1.14	20.3
All Vehicles		3845	2.0	1.148	85.5	LOS F	61.6	438.2	0.87	0.98	24.9

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 per ped
P1	South Full Crossing	53	24.1	LOS C	0.1	0.1	0.57	0.57
P2	East Full Crossing	53	47.3	LOS E	0.2	0.2	0.80	0.80
P3	North Full Crossing	53	37.5	LOS D	0.2	0.2	0.71	0.71
All Pedestrians		158	36.3	LOS D			0.69	0.69

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.

Joe White Maltings
(JWM), Modification 4
(MP 08_0157)

Attachment

B

JWM OPERATIONAL DATA

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Road Intake Barley Truck Receivals for the period June 2016- October 2016

Sum of Truck	Date																							
Time of the day	29-Jun-16	01-Jul-16	05-Jul-16	06-Jul-16	07-Jul-16	08-Jul-16	08-Aug-16	09-Aug-16	10-Aug-16	15-Aug-16	06-Sep-16	07-Sep-16	08-Sep-16	08-Sep-16	15-Sep-16	27-Sep-16	28-Sep-16	07-Oct-16	12-Oct-16	13-Oct-16	Total			
6 AM						1												1		1	3	0.15	3	0.02000
7 AM	1	1	1			1		2	1	1				1		1	1	2	1	2	16	0.80	16	0.10667
8 AM		2			1		1	1	2							1		1		2	11	0.55	11	0.07333
9 AM								1	1		1					1	1	1		1	7	0.35	7	0.04667
10 AM			2					1												1	4	0.20	4	0.02667
11 AM									1												1	0.05	1	0.00667
1 PM				1																	1	0.05	1	0.00667
2 PM												1	1		2						4	0.20	4	0.02667
Total	1	3	3	1	1	2	1	5	5	1	1	1	1	1	2	3	2	5	1	7	47			

* No Road Intake in May 2016

Number in boxes represents number of trucks per hour.All trucks were B-doubles . Total of 47 barley B-double trucks received for the period May2016-October2016

Ticket	Date	Time In	Time of the day	Time of the day (period)	Time Out	Turn Around (mins)	Nett
57839	29-Jun-16	7:32	7:32	7am-8am	29/06/2016 8:18:40 AM	46	40.49
57963	01-Jul-16	7:23	7:23	7am-8am	1/07/2016 8:28:48 AM	65	36.30
57964	01-Jul-16	8:14	8:14	8am-9am	1/07/2016 9:05:57 AM	51	41.12
57965	01-Jul-16	8:55	8:55	8am-9am	1/07/2016 9:35:21 AM	40	40.59
58045	05-Jul-16	7:40	7:40	7am-8am	5/07/2016 8:49:07 AM	68	40.93
58047	05-Jul-16	10:01	10:01	10am-11am	5/07/2016 10:34:55 AM	33	40.56
58048	05-Jul-16	10:27	10:27	10am-11am	5/07/2016 11:11:26 AM	43	40.35
58160	06-Jul-16	13:39	13:39	1pm-2pm	6/07/2016 2:19:05 PM	39	40.31
58184	07-Jul-16	8:51	8:51	8am-9am	7/07/2016 9:34:04 AM	42	38.24
58219	08-Jul-16	6:02	6:02	6am-7am	8/07/2016 6:37:51 AM	35	41.02
58220	08-Jul-16	7:14	7:14	7am-8am	8/07/2016 7:49:19 AM	34	40.44
59172	08-Aug-16	8:01	8:01	8am-9am	8/08/2016 8:39:44 AM	37	40.51
59211	09-Aug-16	7:17	7:17	7am-8am	9/08/2016 8:02:51 AM	45	41.02
59243	09-Aug-16	7:54	7:54	7am-8am	9/08/2016 8:39:35 AM	44	40.97
59244	09-Aug-16	8:38	8:38	8am-9am	9/08/2016 9:21:12 AM	42	44.09
59248	09-Aug-16	9:31	9:31	9am-10am	9/08/2016 10:03:24 AM	31	43.40
59249	09-Aug-16	10:40	10:40	10am-11am	9/08/2016 11:10:42 AM	30	40.98
59267	10-Aug-16	7:09	7:09	7am-8am	10/08/2016 8:02:01 AM	52	40.06
59268	10-Aug-16	8:04	8:04	8am-9am	10/08/2016 8:40:44 AM	36	40.82
59269	10-Aug-16	8:31	8:31	8am-9am	10/08/2016 9:13:03 AM	41	43.96
59270	10-Aug-16	9:53	9:53	9am-10am	10/08/2016 10:25:18 AM	32	43.01
59271	10-Aug-16	11:00	11:00	10am-11am	10/08/2016 11:41:17 AM	40	43.75
59484	15-Aug-16	7:36	7:36	7am-8am	15/08/2016 8:48:00 AM	71	35.76
60400	06-Sep-16	9:20	9:20	9am-10am	6/09/2016 9:53:44 AM	32	39.96
60468	07-Sep-16	14:51	14:51	2pm-3pm	7/09/2016 3:40:58 PM	49	40.07
60490	08-Sep-16	7:21	7:21	7am-8am	8/09/2016 8:05:13 AM	44	39.63
60535	08-Sep-16	14:02	14:02	2pm-3pm	8/09/2016 3:04:02 PM	61	40.18
61408	27-Sep-16	8:05	8:05	8am-9am	27/09/2016 9:24:55 AM	79	38.32
61410	27-Sep-16	9:15	9:15	9am-10am	27/09/2016 9:54:00 AM	38	40.79
61411	07-Oct-16	6:32	6:32	6am-7am	7/10/2016 7:23:23 AM	50	39.95
61963	07-Oct-16	7:08	7:08	7am-8am	7/10/2016 7:56:07 AM	47	41.79
61973	07-Oct-16	7:44	7:44	7am-8am	7/10/2016 8:22:01 AM	37	39.70
61974	07-Oct-16	8:07	8:07	8am-9am	7/10/2016 8:52:03 AM	44	40.14
61975	07-Oct-16	9:11	9:11	9am-10am	7/10/2016 9:46:30 AM	35	38.33
62140	12-Oct-16	7:18	7:18	7am-8am	12/10/2016 8:14:17 AM	55	40.15
62191	13-Oct-16	6:52	6:52	6am-7am	13/10/2016 7:36:56 AM	44	41.20
62192	13-Oct-16	7:22	7:22	7am-8am	13/10/2016 8:06:59 AM	44	40.25
62193	13-Oct-16	7:48	7:48	7am-8am	13/10/2016 8:36:33 AM	47	42.42
62194	13-Oct-16	8:18	8:18	8am-9am	13/10/2016 9:07:22 AM	48	43.17
62195	13-Oct-16	8:59	8:59	8am-9am	13/10/2016 9:42:15 AM	42	38.80
62196	13-Oct-16	9:23	9:23	9am-10am	13/10/2016 10:17:04 AM	53	43.54
62197	13-Oct-16	10:05	10:05	10am-11am	13/10/2016 10:41:39 AM	36	40.00

Joe White Maltings
(JWM), Modification 4
(MP 08_0157)

Attachment

C

TURNING MOVEMENT DIAGRAMS

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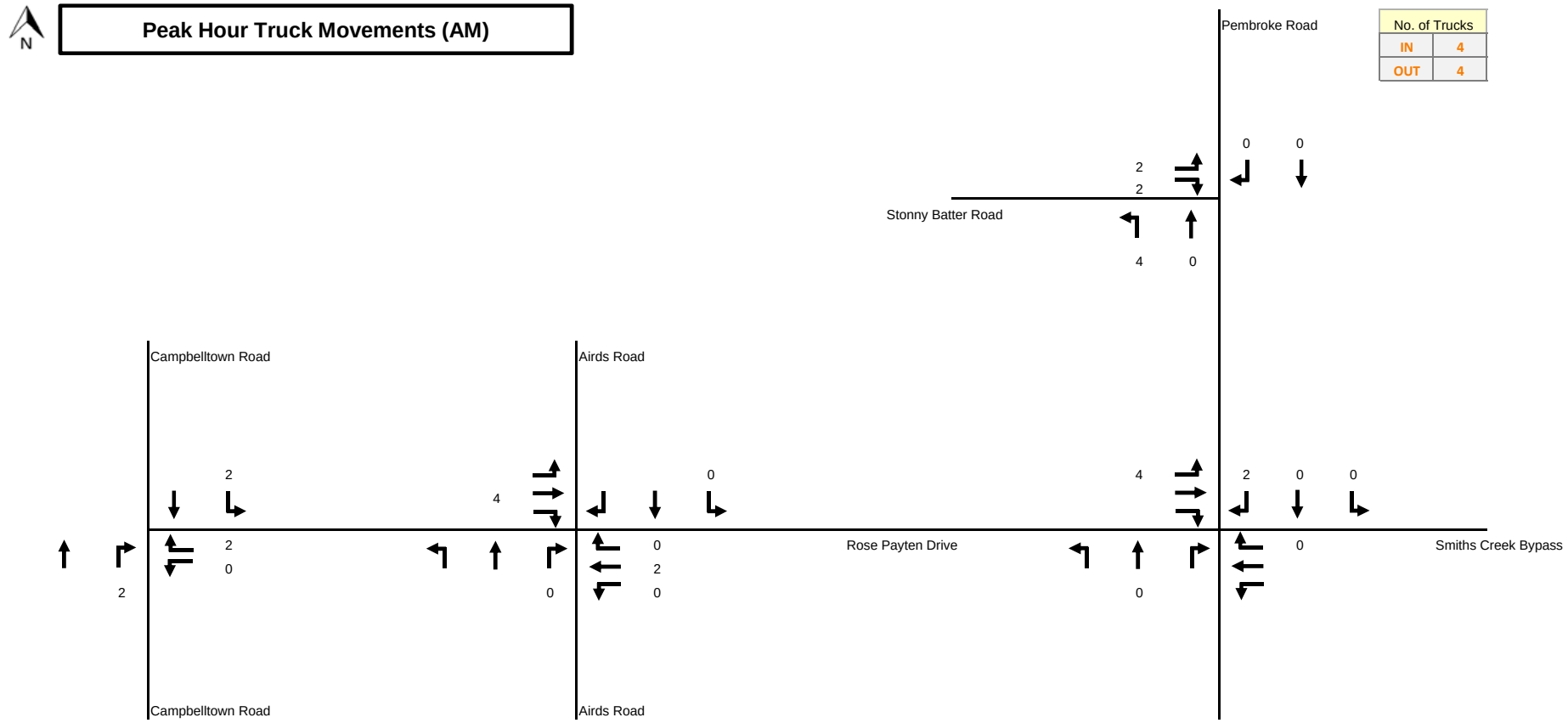
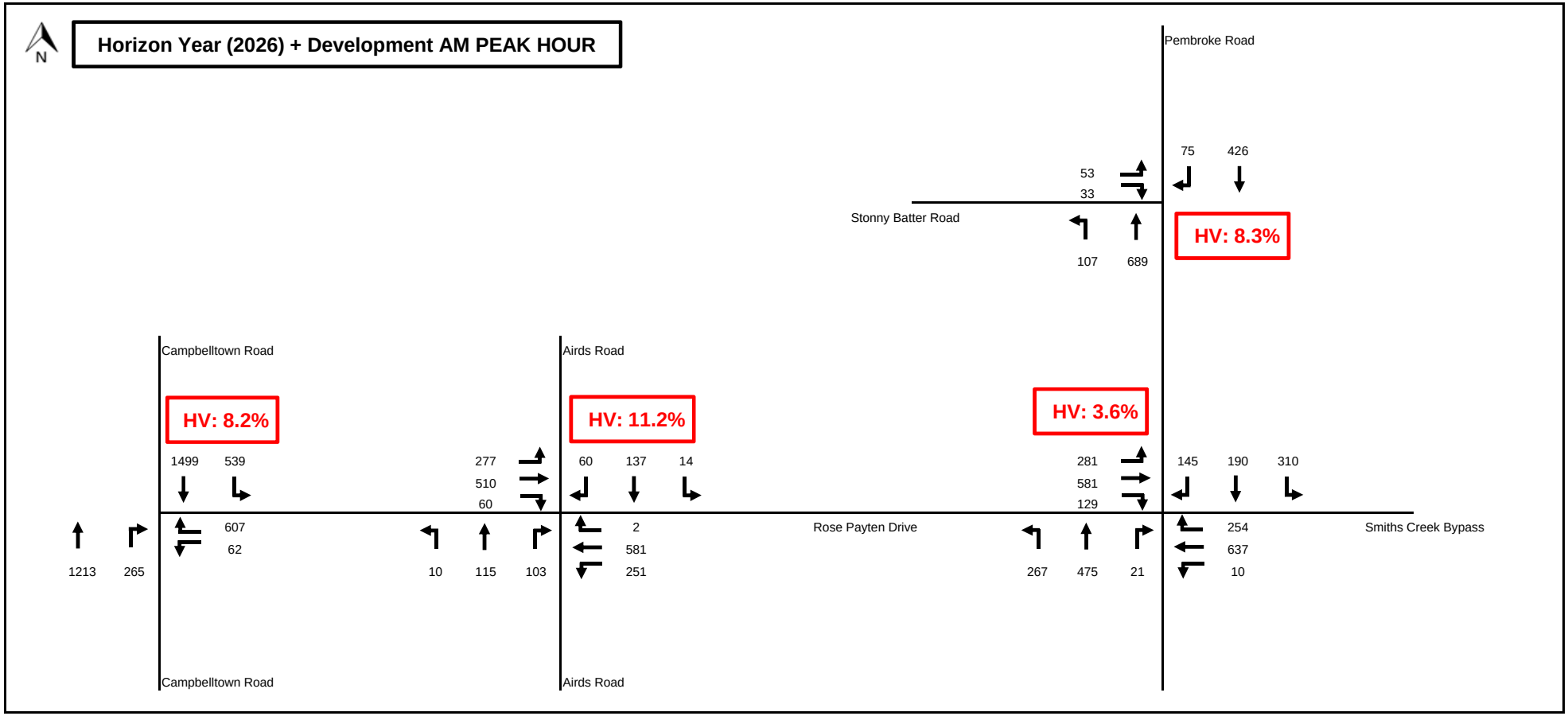
Peak Hour Truck Movements (AM)




Horizon Year (2026) + Development AM PEAK HOUR
N
Pembroke Road
75
426
53
33
Stonny Batter Road
107
689
HV: 8.3%
Campbelltown Road
Airds Road
HV: 8.2%
HV: 11.2%
HV: 3.6%
1499
539
277
510
60
60
137
14
281
581
129
145
190
310
607
62
2
581
251
254
637
10
1213
265
10
115
103
Rose Payten Drive
267
475
21
Smiths Creek Bypass
Campbelltown Road
Airds Road

Joe White Maltings
(JWM), Modification 4
(MP 08_0157)

Attachment

D

SIDRA RESULTS

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MOVEMENT SUMMARY

Site: 101 [2026 AM + Development]

Campbelltown Road & Rose Payten Drive Intersection
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Campbelltown Road (S)											
2	T1	1277	8.2	0.499	9.2	LOS A	17.2	129.2	0.51	0.46	58.5
3	R2	279	8.9	0.810	45.5	LOS D	6.2	47.2	1.00	0.89	33.8
Approach		1556	8.3	0.810	15.7	LOS B	17.2	129.2	0.60	0.54	51.7
East: Rose Payten Drive (E)											
4	L2	65	8.2	0.087	19.8	LOS B	1.9	13.9	0.55	0.68	44.7
6	R2	639	8.5	0.895	69.5	LOS E	21.8	164.9	1.00	0.98	28.5
Approach		704	8.5	0.895	64.8	LOS E	21.8	164.9	0.96	0.96	29.5
North: Campbelltown Road (N)											
7	L2	567	8.5	0.392	7.4	LOS A	6.1	46.2	0.28	0.64	52.5
8	T1	1578	8.2	0.893	39.9	LOS C	49.6	371.6	0.96	0.98	36.3
Approach		2145	8.3	0.893	31.3	LOS C	49.6	371.6	0.78	0.89	39.6
All Vehicles		4405	8.3	0.895	31.2	LOS C	49.6	371.6	0.74	0.78	40.7

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	51.5	LOS E	0.2	0.2	0.93	0.93
P2	East Full Crossing	53	22.3	LOS C	0.1	0.1	0.61	0.61
All Pedestrians		105	36.9	LOS D			0.77	0.77

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.

MOVEMENT SUMMARY

Site: 101 [2026 AM + Development]

Pembroke Road & Stonny Batter Road Intersection
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (S)											
1	L2	113	11.7	0.153	4.9	LOS A	0.6	5.2	0.25	0.49	50.6
2	T1	725	8.3	0.495	4.6	LOS A	3.3	24.7	0.28	0.43	55.6
Approach		838	8.8	0.495	4.7	LOS A	3.3	24.7	0.27	0.44	54.9
North: Pembroke Road (N)											
8	T1	448	8.3	0.300	4.4	LOS A	1.9	13.9	0.17	0.44	55.7
9	R2	79	8.3	0.300	9.0	LOS A	1.9	13.9	0.17	0.45	52.0
Approach		527	8.3	0.300	5.1	LOS A	1.9	13.9	0.17	0.44	55.1
West: Stonny Batter Road (W)											
10	L2	56	11.8	0.144	7.1	LOS A	0.7	5.6	0.64	0.77	47.6
12	R2	35	13.9	0.144	11.8	LOS A	0.7	5.6	0.64	0.77	48.5
Approach		91	12.6	0.144	8.9	LOS A	0.7	5.6	0.64	0.77	47.9
All Vehicles		1456	8.8	0.495	5.1	LOS A	3.3	24.7	0.26	0.46	54.5

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2026 AM + Development]

Rose Payten Drive & Airds Road Intersection
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Airds Road (South)											
1	L2	11	11.2	0.088	7.5	LOS A	0.4	2.7	0.58	0.69	52.9
2	T1	121	11.2	0.199	6.6	LOS A	0.9	7.2	0.58	0.71	53.5
3	R2	108	11.2	0.199	11.3	LOS A	0.9	7.2	0.58	0.72	52.9
Approach		240	11.2	0.199	8.8	LOS A	0.9	7.2	0.58	0.71	53.2
East: Rose Payten Drive (East)											
4	L2	264	11.2	0.393	5.2	LOS A	2.2	16.7	0.45	0.55	53.7
5	T1	611	11.4	0.393	5.3	LOS A	2.2	16.7	0.46	0.53	55.2
6	R2	2	11.2	0.393	10.6	LOS A	2.1	16.4	0.47	0.52	55.0
Approach		877	11.3	0.393	5.3	LOS A	2.2	16.7	0.46	0.53	54.8
North: Airds Road (North)											
7	L2	15	11.2	0.080	7.6	LOS A	0.3	2.6	0.58	0.67	52.8
8	T1	144	11.2	0.182	6.6	LOS A	0.9	7.1	0.59	0.68	53.7
9	R2	63	11.2	0.182	11.5	LOS A	0.9	7.1	0.59	0.68	53.4
Approach		222	11.2	0.182	8.1	LOS A	0.9	7.1	0.59	0.68	53.5
West: Rose Payten Drive (West)											
10	L2	292	11.2	0.390	5.0	LOS A	2.0	15.3	0.39	0.53	54.0
11	T1	535	11.5	0.390	5.1	LOS A	2.0	15.3	0.39	0.53	55.3
12	R2	63	11.2	0.390	10.3	LOS A	1.9	15.0	0.40	0.53	54.9
Approach		889	11.4	0.390	5.4	LOS A	2.0	15.3	0.39	0.53	54.8
All Vehicles		2228	11.3	0.393	6.0	LOS A	2.2	16.7	0.46	0.57	54.5

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.
Roundabout Capacity Model: SIDRA Standard.
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 SUMMARY

Site: 101 [2026 AM + Development]

Rose Payten Drive, Pembroke Road and Smiths Creek Bypass Intersection
Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (SW)											
1	L2	281	3.6	0.523	20.3	LOS B	11.1	80.1	0.73	0.75	45.3
2	T1	500	3.6	0.915	64.5	LOS E	33.3	240.6	0.95	1.00	29.0
3	R2	22	3.6	0.064	41.2	LOS C	1.1	7.7	0.80	0.69	35.3
Approach		803	3.6	0.915	48.4	LOS D	33.3	240.6	0.87	0.90	33.4
East: Smiths Creek Bypass (SE)											
4	L2	11	3.6	0.319	27.2	LOS B	12.6	90.8	0.57	0.53	43.8
5	T1	671	3.6	0.319	20.0	LOS B	13.0	94.0	0.57	0.51	45.2
6	R2	267	3.6	0.692	62.8	LOS E	17.1	123.4	0.98	1.00	29.2
Approach		948	3.6	0.692	32.2	LOS C	17.1	123.4	0.69	0.65	39.1
North: Pembroke Road (NE)											
7	L2	326	3.6	0.425	21.6	LOS B	11.3	81.6	0.68	0.77	43.9
8	T1	200	3.6	0.503	52.9	LOS D	12.5	90.3	0.91	0.75	32.2
9	R2	153	4.9	0.730	50.9	LOS D	8.4	62.8	1.00	0.84	32.2
Approach		679	3.9	0.730	37.4	LOS C	12.5	90.3	0.82	0.78	36.9
West: Rose Payten Drive (NW)											
10	L2	296	5.0	0.542	23.7	LOS B	11.3	84.0	0.80	0.79	43.3
11	T1	612	3.6	0.947	67.3	LOS E	45.3	326.7	0.93	1.03	28.5
12	R2	136	3.6	0.620	57.9	LOS E	8.9	64.5	0.92	0.83	30.4
Approach		1043	4.0	0.947	53.7	LOS D	45.3	326.7	0.89	0.94	31.8
All Vehicles		3474	3.8	0.947	43.4	LOS D	45.3	326.7	0.82	0.82	34.9

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 per ped
P1	South Full Crossing	53	21.9	LOS C	0.1	0.1	0.54	0.54
P2	East Full Crossing	53	56.5	LOS E	0.2	0.2	0.87	0.87
P3	North Full Crossing	53	39.7	LOS D	0.2	0.2	0.73	0.73
All Pedestrians		158	39.4	LOS D			0.71	0.71

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.

MOVEMENT SUMMARY

Site: 101 [2026 PM + Development]

Rose Payten Drive, Pembroke Road and Smiths Creek Bypass Intersection
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pembroke Road (SW)											
1	L2	184	1.9	0.355	19.2	LOS B	7.8	55.5	0.65	0.69	46.1
2	T1	238	1.9	0.620	40.9	LOS C	9.1	64.5	0.88	0.77	35.5
3	R2	14	1.9	0.081	56.0	LOS D	0.7	5.1	0.91	0.70	30.9
Approach		436	1.9	0.620	32.2	LOS C	9.1	64.5	0.78	0.73	39.1
East: Smiths Creek Bypass (SE)											
4	L2	23	1.9	0.535	42.2	LOS C	15.7	111.4	0.86	0.79	37.1
5	T1	664	1.9	0.535	35.7	LOS C	16.2	115.6	0.86	0.77	37.8
6	R2	227	1.9	0.699	33.1	LOS C	8.0	56.6	0.99	0.84	38.3
Approach		915	1.9	0.699	35.2	LOS C	16.2	115.6	0.89	0.79	37.9
North: Pembroke Road (NE)											
7	L2	260	1.9	0.461	20.3	LOS B	12.7	90.4	0.61	0.75	45.9
8	T1	540	1.9	0.923	43.3	LOS D	22.0	156.2	0.73	0.88	34.8
9	R2	417	2.1	0.872	48.5	LOS D	22.7	162.7	1.00	0.95	33.0
Approach		1217	2.0	0.923	40.2	LOS C	22.7	162.7	0.80	0.87	36.0
West: Rose Payten Drive (NW)											
10	L2	292	2.6	0.535	22.3	LOS B	14.0	100.4	0.70	0.79	44.7
11	T1	718	1.9	0.935	51.1	LOS D	37.4	265.8	0.92	1.04	32.5
12	R2	268	1.9	0.665	28.2	LOS B	9.4	67.0	0.90	0.82	40.4
Approach		1278	2.1	0.935	39.7	LOS C	37.4	265.8	0.86	0.94	36.2
All Vehicles		3845	2.0	0.935	37.9	LOS C	37.4	265.8	0.84	0.86	36.8

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	37.7	LOS D	0.1	0.1	0.79	0.79
P2	East Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	37.7	LOS D	0.1	0.1	0.79	0.79
All Pedestrians		158	43.2	LOS E			0.85	0.85

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.

MOVEMENT SUMMARY

Site: 101 [2026 PM]

Rose Payten Drive, Pembroke Road and Smiths Creek Bypass Intersection
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Pembroke Road (SW)											
1	L2	184	1.9	0.355	18.8	LOS B	7.6	54.3	0.65	0.69	46.4
2	T1	238	1.9	0.620	40.8	LOS C	9.1	64.5	0.88	0.77	35.6
3	R2	14	1.9	0.081	56.0	LOS D	0.7	5.1	0.91	0.70	30.9
Approach		436	1.9	0.620	32.0	LOS C	9.1	64.5	0.78	0.73	39.2
East: Smiths Creek Bypass (SE)											
4	L2	23	1.9	0.535	42.2	LOS C	15.7	111.4	0.86	0.79	37.1
5	T1	664	1.9	0.535	35.7	LOS C	16.2	115.6	0.86	0.77	37.8
6	R2	227	1.9	0.694	32.9	LOS C	7.9	56.5	0.99	0.84	38.4
Approach		915	1.9	0.694	35.1	LOS C	16.2	115.6	0.89	0.79	38.0
North: Pembroke Road (NE)											
7	L2	260	1.9	0.459	20.2	LOS B	12.7	90.1	0.61	0.74	45.9
8	T1	540	1.9	0.920	42.5	LOS C	21.8	154.8	0.73	0.87	35.0
9	R2	416	1.9	0.865	47.4	LOS D	22.3	159.0	1.00	0.94	33.3
Approach		1216	1.9	0.920	39.4	LOS C	22.3	159.0	0.80	0.87	36.2
West: Rose Payten Drive (NW)											
10	L2	289	1.9	0.530	22.8	LOS B	14.3	101.9	0.70	0.80	44.4
11	T1	718	1.9	0.926	49.1	LOS D	36.2	257.5	0.91	1.03	33.0
12	R2	268	1.9	0.665	28.2	LOS B	9.4	67.0	0.90	0.82	40.4
Approach		1276	1.9	0.926	38.7	LOS C	36.2	257.5	0.86	0.93	36.6
All Vehicles		3842	1.9	0.926	37.3	LOS C	36.2	257.5	0.84	0.85	37.1

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 per ped
P1	South Full Crossing	53	37.7	LOS D	0.1	0.1	0.79	0.79
P2	East Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	37.7	LOS D	0.1	0.1	0.79	0.79
All Pedestrians		158	43.2	LOS E			0.85	0.85

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.

MOVEMENT SUMMARY

Site: 101 [2026 PM + Development]

Campbelltown Road & Rose Payten Drive Intersection
Signals - Fixed Time Isolated Cycle Time = 115 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Campbelltown Road (S)											
2	T1	1751	3.1	0.650	9.8	LOS A	26.3	188.9	0.59	0.55	58.0
3	R2	217	3.6	0.672	41.8	LOS C	4.5	32.9	1.00	0.81	35.1
Approach		1967	3.2	0.672	13.3	LOS A	26.3	188.9	0.64	0.58	54.1
East: Rose Payten Drive (E)											
4	L2	65	3.1	0.106	32.4	LOS C	2.5	18.3	0.72	0.69	38.8
6	R2	656	3.3	0.947	80.1	LOS F	23.5	169.3	1.00	1.05	26.6
Approach		721	3.2	0.947	75.7	LOS F	23.5	169.3	0.97	1.02	27.4
North: Campbelltown Road (N)											
7	L2	818	3.2	0.544	7.0	LOS A	7.5	53.9	0.29	0.65	53.1
8	T1	2240	3.1	0.977	60.0	LOS E	86.1	618.8	1.00	1.19	30.3
Approach		3058	3.1	0.977	45.9	LOS D	86.1	618.8	0.81	1.05	34.2
All Vehicles		5746	3.2	0.977	38.5	LOS C	86.1	618.8	0.77	0.88	37.8

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	51.8	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	14.7	LOS B	0.1	0.1	0.51	0.51
All Pedestrians		105	33.2	LOS D			0.73	0.73

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.

MOVEMENT SUMMARY

Site: 101 [2026 PM]

Campbelltown Road & Rose Payten Drive Intersection
Signals - Fixed Time Isolated Cycle Time = 115 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Campbelltown Road (S)											
2	T1	1751	3.1	0.650	9.8	LOS A	26.3	188.9	0.59	0.55	58.0
3	R2	216	3.1	0.662	41.3	LOS C	4.5	32.2	1.00	0.80	35.3
Approach		1966	3.1	0.662	13.3	LOS A	26.3	188.9	0.64	0.58	54.2
East: Rose Payten Drive (E)											
4	L2	65	3.1	0.106	32.4	LOS C	2.5	18.3	0.72	0.69	38.8
6	R2	655	3.1	0.942	78.3	LOS F	23.1	166.2	1.00	1.05	27.0
Approach		720	3.1	0.942	74.1	LOS F	23.1	166.2	0.97	1.01	27.8
North: Campbelltown Road (N)											
7	L2	817	3.1	0.542	7.0	LOS A	7.3	52.5	0.29	0.65	53.1
8	T1	2240	3.1	0.977	60.0	LOS E	86.1	618.8	1.00	1.19	30.3
Approach		3057	3.1	0.977	45.9	LOS D	86.1	618.8	0.81	1.05	34.2
All Vehicles		5743	3.1	0.977	38.2	LOS C	86.1	618.8	0.77	0.88	37.9

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	51.8	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	14.7	LOS B	0.1	0.1	0.51	0.51
All Pedestrians		105	33.2	LOS D			0.73	0.73

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.