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Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

6th May 2020

Reference: 190746.05FA

Jacobs
Level 7, 177 Pacific Highway
North Sydney, NSW 2060
Attention: Myall Stevens

PEER REVIEW OF THE TRAFFIC AND PARKING ASSESSMENT OF THE PROPOSED MIXED USE DEVELOPMENT AT 187 - 203 PEATS FERRY ROAD

Dear Myall,

Reference is made to your request to provide a Peer Review for the Proposed Mixed Use Development at 187 - 203 Peats Ferry Road. This peer review should be read in conjunction with the previous Peer Reviews prepared by *M^CLaren Traffic Engineering* (MTE):

- Peer Review of Traffic Report dated 14th November 2019 (190746.01);
- Peer Review of Traffic Report dated 12th December 2019 (190746.02);
- Peer Review of Traffic Report dated 4th March 2020 (190746.03);
- Peer Review of Traffic Report dated 23rd March 2020 (190746.04).

The documents reviewed as part of this Peer Review are outlined below, which is Jacobs response to Council comments on the submitted Jacobs Traffic and Parking Report dated 10th March 2020 and consist of the following:

- Traffic and Transport Impacts Modelling Memorandum prepared by Jacobs, dated 5th May 2020.

The Memorandum reviewed is reproduced in **Annexure A** for reference. With Council comments provided in **Annexure B** for reference. Comments in relation to future 2031 traffic conditions are not included within this peer review.

In summary, the major Council comments relate to traffic modelling and future infrastructure upgrades. Council has advised that changes to the road network, including the closure of Station Street is no longer feasible and as a result the traffic modelling undertaken within the original Jacobs report is no longer valid / reliable to inform the development application.

1 Peer Review

The supplementary Memorandum prepared by Jacobs reassess the development application, with only the closure of Dural Lane, of which is assumed would still be occurring in the future.

A detailed review of the SIDRA files have not been undertaken, but it is expected the previous comments from previous peer reviews have been incorporated into the updated SIDRA results, with the only difference being the retention of the existing signalised intersection of Station Street / Peats Ferry Road and modified existing base case traffic flows.

The following are relevant to note with respect to the supplementary Traffic Assessment provided by Jacobs:

Future Intersection Comparison

- Most intersections retain their existing level of Service, with the only major change being the operation of Peats Ferry Road / George Street during the AM peak hour period which deteriorates from LoS D to LoS F.
- Do Minimum without development AM Peak:
 - The queue from George Street along Peats Ferry Road extends back to the intersection of William Street / Peats Ferry Road;
 - The queue at the intersection of Station Street / Peats Ferry Road almost extends to Dural Street, whilst the queue from the intersection of Coronation Street / Peats Ferry Road extends past Dural Street, although does not reach the intersection of Station Street / Peats Ferry Road.
 - The queue from William Street along Peats Ferry Road extends past High Street.
- Do Minimum without development PM Peak:
 - The queue from George Street along Peats Ferry Road extends back to the intersection of William Street / Peats Ferry Road;
 - The queue from the William Street / Peats Ferry Road queues back to Station Street and the queue from the intersection of Station Street / Peats Ferry Road queues back past Dural Street (approximately 20m past Dural Street).
 - The queue from the intersection of Coronation Street / Peats Ferry Road extends past Dural Street, although does not reach the intersection of Station Street / Peats Ferry Road.
 - The queue from William Street extends back to George Street.
- Do Minimum with development AM Peak:
 - The queue from George Street along Peats Ferry Road extends back to the intersection of Station Street / Peats Ferry Road;

- The queue at the intersection of Station Street / Peats Ferry Road extends to Dural Street.
- The queue from the intersection of Coronation Street / Peats Ferry Road extends past Dural Street, although does not reach the intersection of Station Street / Peats Ferry Road.
- The queue from William Street along Peats Ferry Road extends to George Street.
- Do Minimum with development PM Peak:
 - The queue from George Street along Peats Ferry Road extends back to the intersection of William Street / Peats Ferry Road;
 - The queue from the William Street / Peats Ferry Road queues back to Station Street and the queue from the intersection of Station Street / Peats Ferry Road queues back past Dural Street (approximately 50m past Dural Street);
 - The queue from the intersection of Coronation Street / Peats Ferry Road extends past Dural Street, although does not reach the intersection of Station Street / Peats Ferry Road.
 - The queue from William Street extends back to George Street.
- Based upon the above, the constraint of the southbound traffic is the intersection of Peats Ferry Road, with the impact from the development resulting in 95th percentile queues back to Coronation Street during the PM peak hour period, as compared to just past Dural Street. Considering this without infrastructure upgrades to the intersection of George Street / Peats Ferry Road / Pacific Highway, southbound traffic along Peats Ferry Road will continue to queue past Coronation Street and future deteriorate in any growth scenario. The entire corridor along Peats Ferry Road has its capacity reduced due to the oversaturated intersection of George Street / Peats Ferry Road, such that any additional traffic will just extend vehicle queues past Coronation Street and extend any commuter peak hour period.
- Northbound traffic between George Street and Coronation Street along Peats Ferry Road is largely unchanged in the PM peak hour period, as the capacity constraint is the signalised intersection of George Street / Peats Ferry Road, which is already operating at LoS F. Although, queues extend back to George Street from the signalised intersection of William Street which likely impacts the operation of the intersection during the PM peak hour period. The queues do not extend back to George Street in the existing AM peak hour period, but under development traffic extends back to George Street, resulting in the deterioration of the intersection of Peats Ferry Road / George Street / Pacific Highway from LoS D to LoS F.

2 Exclusions & Conclusion

The following has been excluded from this peer review:

- Comments in relation to the method of calibration cannot be provided, as MTE would need to undertake a site visit, undertake video footage of the signals and review the video footage to comment on if the SIDRA models are calibrated.
- It is expected that the model has been set up based upon previous comments provided within the previous peer reviews.
- Assessment of 2031 impacts based upon background growth.

Ultimately, it is up to Council on if they accept the provided supplementary traffic assessment, but there is sufficient information provided to inform the development application.

The entire corridor requires capacity upgrades (in the form of reduced traffic or additional traffic lanes), with the existing signalised intersection of William Street / Peats Ferry Road impacting upon the operation of George Street / Peats Ferry Road in the PM peak hour period, likely contributing to its existing bad level of service. The additional development traffic results in vehicle queues back to the intersection of George Street / Peats Ferry Road from William Street during the AM peak hour period, contributing to the LoS F result.

Any additional traffic along the corridor, above the proposed development will likely result in vehicle queues past Coronation Street, and deteriorate the signalised intersection of Coronation Street / Peats Ferry Road significantly, in addition to further delays and queues at the already failing intersection of George Street / Peats Ferry Road / Pacific Highway.

Please contact the undersigned on 8355 2440 should you require further information or assistance.

Yours faithfully

McLaren Traffic Engineering



Matthew McCarthy
Senior Traffic Engineer
BE Civil Engineering
Masters of Engineering Science
RMS Accredited Level 1 Road Safety Auditor
RMS Accredited Work Zone Traffic Management Plan Designer and Inspector



ANNEXURE A: JACOBS LETTER

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Subject	Traffic and Transport Impacts Modelling	Project Name	187-201 Peats Ferry Road Traffic and Transport Impact Assessment
Attention	Matthew Miles	Project Number	IA133100
From	Cassandra Min and Myall Stevens		
Date	5 May 2020		

1. Introduction

This memo has been developed to address Hornsby Council's traffic review comments of the traffic impact assessment submitted by Jacobs for DA/201/2018.

Specifically, this includes:

- Addressing the comment from Hornsby Council that the approach used by Jacobs to analyse the traffic impacts does not align with the Paramics and Vissim microsimulation modelling work for Hornsby West Side Planning Proposal. Providing demonstrated evidence that the SIDRA base models were calibrated and validated to reflect SCATS parameters which include traffic control signals (TCS) phasing and timing.
- Updated road geometry for the SIDRA future year models. This memo investigates the option to retain access to Station Street from Peats Ferry Road, which means existing road conditions would remain, and therefore the operation would not change from current operations.
- Separate Matters regarding parking, deliveries and vehicle right turning bays.

This memo is structured around these topics, with each chapter addressing a specific concern.

2. Base Model Development, Calibration and Validation

This chapter addresses the comment from Hornsby Council (16/04/2020):

"It is noted in the combined comments by the transport planning and traffic engineering teams that the approach used by Jacobs to analyse the traffic impacts of DA/201/2018 does not align with the Paramics and vissim microsimulation modelling work for Hornsby West Side Planning Proposal. A comparable analysis for this DA should be based on a microsimulation model to better account or reflect the operation of closely spaced traffic signals in the precinct. We did also raise concern that there was no demonstrated evidence that the Sidra Base Model were calibrated and validated to reflect SCATS parameters which includes TCS phasing and timing. This comment was based on our understanding that modelled traffic signals should replicate SCATS key operational characteristics as recommended in Section 2 of Traffic Signals in Microsimulation (RMS TTD 2018/002)."

As agreed with Hornsby Council, whilst a microsimulation model would provide a more accurate model that aligns with the Paramics and Vissim microsimulation modelling work for Hornsby West Side Planning Proposal, it would be unreasonable to request a new model at this stage. Instead, amendments to the existing SIDRA model have been completed to ensure the model satisfies the requirements of Hornsby Council.

This chapter details the base model development methodology and reasoning for the approach used by Jacobs. It provides demonstrated evidence that the SIDRA models were adequately calibrated and validated to reflect SCATS parameters which includes TCS phasing and timing.

2.1 Traffic Data

Traffic surveys were undertaken to understand the current performance of the study area. Intersection turning movement counts (TMCs) were collected on Tuesday 31 October 2017 between 6:00am – 10:00am and 3:00pm – 7:00pm at the following locations:

- Peats Ferry Road and Coronation Street
- Peats Ferry Road and Dural Street
- Peats Ferry Road and Dural Lane
- Peats Ferry Road and Station Street
- Peats Ferry Road and William Street
- Peats Ferry Road and High Street
- Peats Ferry Road and George Street
- Peats Ferry Road and Edgeworth David Avenue
- Dural Street and Frederick Street
- Frederick Street and William Street

To conduct the TMCs, video cameras installed at the survey locations were used to record vehicle movements and traffic throughput in 15-minute intervals. The surveyed data informed the volumes used for the base year SIDRA model development and calibration/validation.

2.2 Signal Data

The traffic signal operation data included:

- SCATS graphics sheet for Peats Ferry Road / Coronation Street, Peats Ferry Road / Station Street, Peats Ferry Road / George Street, Peats Ferry Road / William Street and Pacific Highway / Edgeworth David Avenue, including the phasing diagram.
- Observed on-site data was collected on Tuesday 31st October 2017 between 8:00am – 9:00am and 4:45pm – 5:45pm, including phase and cycles times for Peats Ferry Road / Coronation Street, Peats Ferry Road / Station Street, Peats Ferry Road / George Street, Peats Ferry Road / William Street and Pacific Highway / Edgeworth David Avenue.

Traffic signal timing and phasing was coded according to the traffic signal plans and from observations and videos of the intersection performance.

2.3 Base Model Development

SIDRA models have been built to provide a representation of traffic conditions for the year 2017, which is defined as the base year and provides a reliable reference point for testing future scenarios. Based on the TMC counts, the following peak hours were identified for the weekday AM and PM peaks hours:

- AM Peak: 8:00am – 9:00am
- PM Peak: 4:45pm – 5:45pm

The road network was developed based on the Google aerial imagery in SIDRA. The associated SIDRA Model Layout can be found in Figure 1. The intersections of William Street and Frederick Street, and Dural Street and Frederick Street have been modelled as standalone intersections.

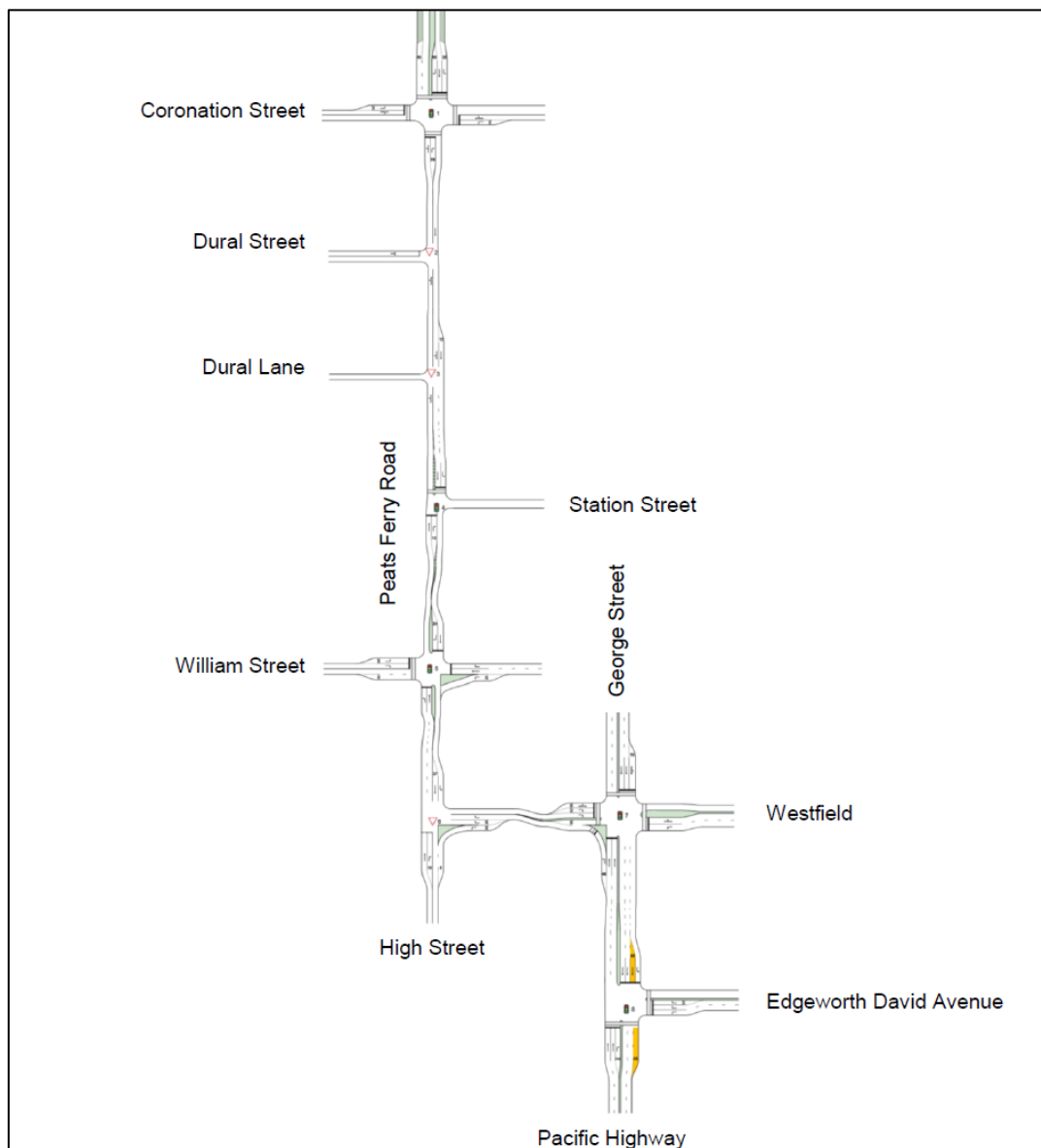


Figure 1: Peats Ferry Road Sidra Model (Base Year)

2.4 Calibration and Validation

The modelled SIDRA signals have been designed to reasonably replicate the SCATS parameters. The base models were calibrated for weekday AM and PM peaks in terms of flows, network geometry, signals co-ordination and TCS phase sequence. Volumes were based on classified intersection TMCs collected on Tuesday 31 October 2017 between 6:00am – 10:00am and 3:00pm – 7:00pm. TCS drawings and video footage of intersections informed the phasing configuration. This process of adjusting the model network parameters ensured the base model reflected the observed site conditions.

Validation is the process of comparing model output against independently measured data that was not used during the calibration process. Queue lengths and travel time are two common metrics used for validation of a traffic model, however during the data collection process in 2017, no queue lengths or travel time data were recorded. Furthermore, given the current COVID-19 pandemic, traffic profiles differ significantly from typical traffic, preventing the collection of new data. For this validation check, signal phase splits were used as a validation tool.

The base models used a 120 second AM peak cycle time and 140 second PM peak cycle time. These cycle times were coordinated for the network and based on recorded average cycle time observations. The 'user given cycle time' option enables SIDRA to calculate the optimum phase timing and splits during its analysis. To validate these outputs, the SIDRA base model has been compared against the observed average phase splits, which were recorded for the following intersections:

- Peats Ferry Road / Coronation Street
- Peats Ferry Road / Station Street
- Peats Ferry Road / George Street
- Peats Ferry Road / William Street
- Pacific Highway / Edgeworth David Avenue

The validation results and comparison can be found in Table 1.

Table 1: Phase Split Comparison for Observed Data and SIDRA

Intersection	Phase	AM Peak Phase Splits			PM Peak Phase Splits		
		Observed Data	SIDRA	Diff	Observed Data	SIDRA	Diff
Peats Ferry Road / Coronation Street	A	56%	72%	10-20%	60%	67%	<10%
	B	3%	0%	<10%	1%	0%	<10%
	C	10%	10%	<10%	10%	9%	<10%
	D	29%	18%	10-20%	28%	24%	<10%
	E	2%	0%	<10%	0%	0%	<10%
Peats Ferry Road / Station Street	A	67%	84%	10-20%	68%	76%	<10%
	B	3%	0%	<10%	9%	0%	<10%
	C	29%	16%	10-20%	23%	24%	<10%

Intersection	Phase	AM Peak Phase Splits			PM Peak Phase Splits		
		Observed Data	SIDRA	Diff	Observed Data	SIDRA	Diff
Peats Ferry Road / George Street	A	34%	37%	<10%	25%	30%	<10%
	B	29%	40%	10-20%	29%	39%	10-20%
	C	28%	13%	10-20%	24%	14%	10-20%
	D	9%	10%	<10%	22%	16%	<10%
Peats Ferry Road / William Street	A	70%	84%	10-20%	70%	76%	<10%
	B	0%	0%	<10%	0%	0%	<10%
	C	30%	16%	10-20%	30%	24%	<10%
Pacific Hwy / Edgeworth David	A/D	52%	47%	<10%	55%	46%	<10%
	B	26%	40%	10-20%	30%	39%	<10%
	C	22%	13%	<10%	15%	14%	<10%

As shown in Table 1, all the morning phase splits from SIDRA are within 20% of the observed phase split results from the observed data. Almost all evening phase splits were within 10% of the observed phase split results. Based on this comparison, the AM and PM peaks modelled show a good match to the observed signal timings. Without other suitable validation metrics such as queue lengths, the base model conditions are considered well-calibrated in terms of volume flows, network geometry and phase configuration. The base models therefore, provide a suitable representation of the base year conditions within the study area and can be used to assess the performance of the future scenarios and the impacts of the proposed development.

2.5 Base Model Intersection Performance Assessment

The existing intersection performance is shown in Table 2. The results show that the following intersections perform poorly at LoS F:

- Peats Ferry Road / George Street during the evening peak period
- Pacific Highway / Edgeworth David Avenue during the morning and evening peak period

Table 2: Sidra Results Base Model

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / Coronation Street	Morning	0.56	17	110	B
	Evening	0.55	21	105	B
Peats Ferry Road / Dural Street	Morning	0.39	14	<5	A
	Evening	0.40	15	45	B
Peats Ferry Road / Dural Lane	Morning	0.29	7	65	A
	Evening	0.32	7	100	A
	Morning	0.44	<5	45	A

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / Station Street	Evening	0.52	7	45	A
Peats Ferry Road / William Street	Morning	0.91	13	70	A
	Evening	0.90	23	100	B
Peats Ferry Road / High Street	Morning	0.69	27	55	B
	Evening	0.39	30	120	C
Peats Ferry Road / George Street	Morning	0.90	44	185	D
	Evening	>1	>100	215	F
Pacific Highway / Edgeworth David Avenue	Morning	>1	42	285	C
	Evening	>1	77	465	F
Frederick Street / Dural Street	Morning	0.08	5	<5	A
	Evening	0.10	5	<5	A
Frederick Street / William Street	Morning	0.13	7	5	A
	Evening	0.13	7	5	A

3. Future Model Development

This chapter addresses the comments from Hornsby Council (16/04/2020):

"Other critical comments that we raised included:

- *TfNSW informed Council that it will not support the signalisation of the intersection of Peats Ferry Road with High Street. This has implications for circulation and access arrangement requirements thereby decreasing the ability of the local road network to cater for the envisaged future traffic growth in Hornsby West Side Precinct. In order to maintain adequate vehicular access (includes access to the passenger set down and pick up area opposite the taxi rank), the proposed closure of Station Street at Peat Ferry Road is no longer feasible.*
- *Modelling of future traffic conditions has not demonstrated the impact of the closure of Station Street and how traffic redirected to Coronation Street will enter and exit the passenger set down and pick up area opposite the taxi rank and bus interchange. The current arrangement does not allow general vehicles (taxis and buses excepted) to enter Station Street from Coronation Street. South of the Taxi Rank, Station Street currently operates as a southbound only link for buses and taxis. The outcome of sidra models for future traffic conditions is therefore questionable."*

The Jacobs SIDRA models were not modelled with a signalised intersection at Peats Ferry Road / High Street. Therefore, no changes regarding Peats Ferry Road / High Street were required for the updated SIDRA models.

Since the proposed closure of Station Street with Peat Ferry Road is no longer feasible, the future models developed for this memo have been updated to reflect the actual future road geometry. The models retain access to Station Street with Peats Ferry Road, which means existing road conditions would remain, and therefore the operation would not change from current operations. Future year and 2031 SIDRA models have been updated to reflect these changes.

The differences in the models in this memo compared to the TIA report are shown in Figure 2 and described as follows:

- Access to Station Street from Peats Ferry Road is retained. The pedestrian crossing at Station Street with Peats Ferry Road, as shown in the previous model is replaced with the Station Street/Peats Ferry Road signalised intersection.
- Vehicles which had previously been redistributed away from Station Street return to the distribution patterns that align with the base models. As a result, there is a decrease in the volume of vehicles turning into Coronation Street from Peats Ferry Road. There is also an increase in the volume of vehicles travelling on Peats Ferry Road between Coronation Street and Station Street.
- Volume inputs at the intersections of Coronation Street/Peats Ferry Road, Dural Street/Peats Ferry Road and Station Street/Peats Ferry Road are updated to reflect changes in distribution due to the access to Station Street with Peats Ferry Road being retained.

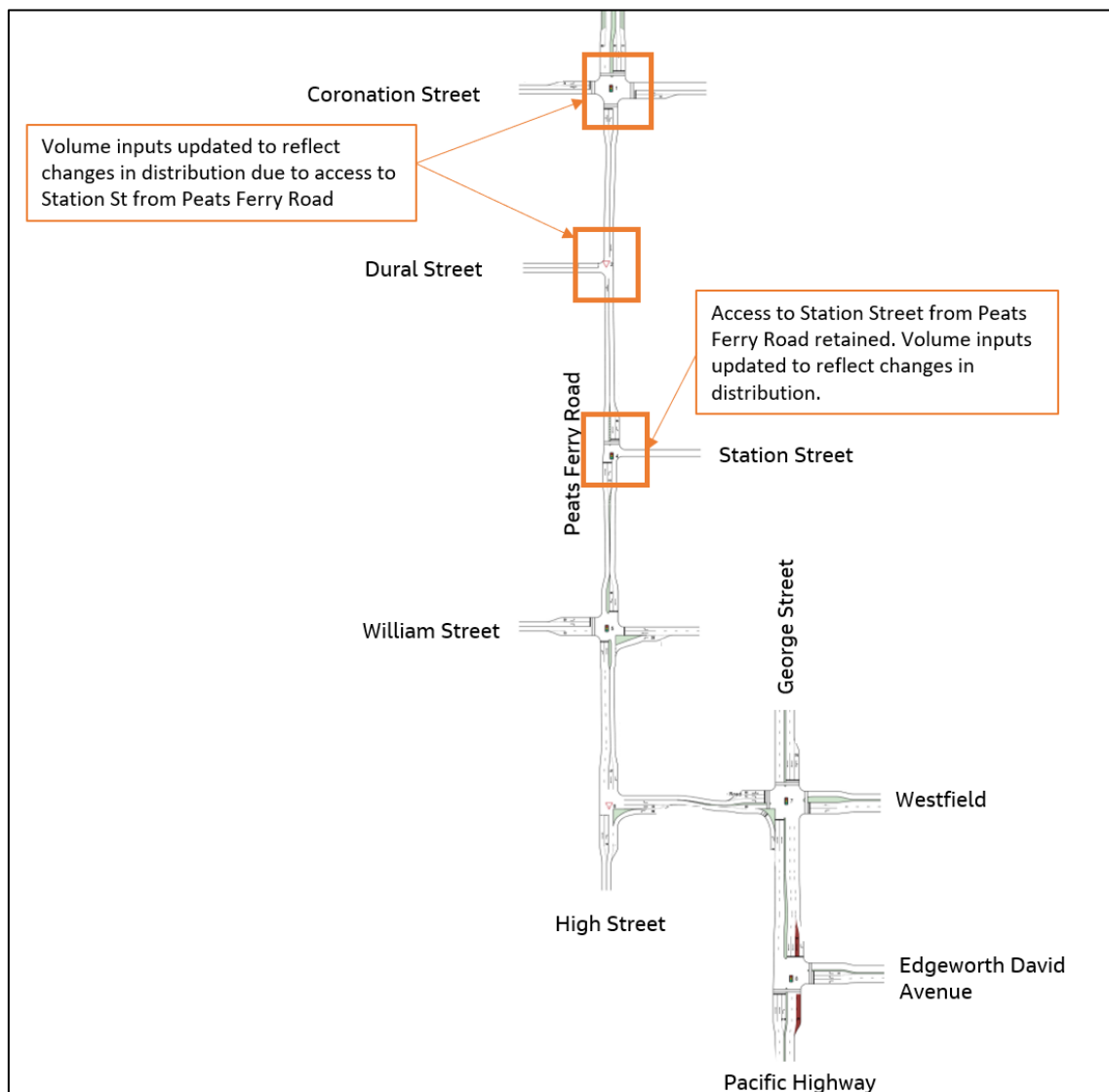


Figure 2: Peats Ferry Road SIDRA Model (Future Year and 2031 Layouts) – Key differences with TIA Model Outlined

The impacts that the proposed development have on the surrounding network are discussed. These impacts are also compared with the changes that occurred in the previous TIA model.

3.1 Future Year Scenario Summary

For the future year modelling analysis, four scenarios have been tested to identify the traffic impacts of the proposed development under the different conditions of the road network and traffic demand, as summarised in Table 3:

Table 3: Future year Scenarios Summary

Scenario	Traffic Demand		Road Network
	Proposed Development	Background Traffic Growth	Do Minimum
Future No Development Do Minimum	N	N	Y
Future with Development Do Minimum	Y	N	Y
2031 No Development Do Minimum	N	Y	Y
2031 with Development Do Minimum	Y	Y	Y

The background traffic growth scenarios assumed a 2% per annum growth in traffic as suggested by Hornsby Shire Council.

For the 'do minimum' modelling with development traffic, changes were made to the road network improvements including:

- Closure of Dural Lane at Peats Ferry Road and removal of the intersection from the network model for the future years
- Major routes for the network model that include northbound and southbound movements have not been changed.
- Addition of a leading right turn phase for vehicles on William Street in the eastbound direction

The cycle time for all signalised intersections has been set to 120 seconds during the morning peak, and 140 seconds during the evening peak, which aligns with the base models.

3.2 Model Layout

The network model was developed in SIDRA version 8 and included the Pacific Highway from Edgeworth David Avenue to Coronation Street. The model network layout is shown in Figure 3. The intersections of William Street and Frederick Street and Dural Street and Frederick Street have been modelled as standalone intersections. This model retains access to Station Street with Peats Ferry Road, which means existing road conditions would remain.

The key difference from this Future SIDRA layout in comparison to the Base SIDRA layout is Dural Lane is not included.

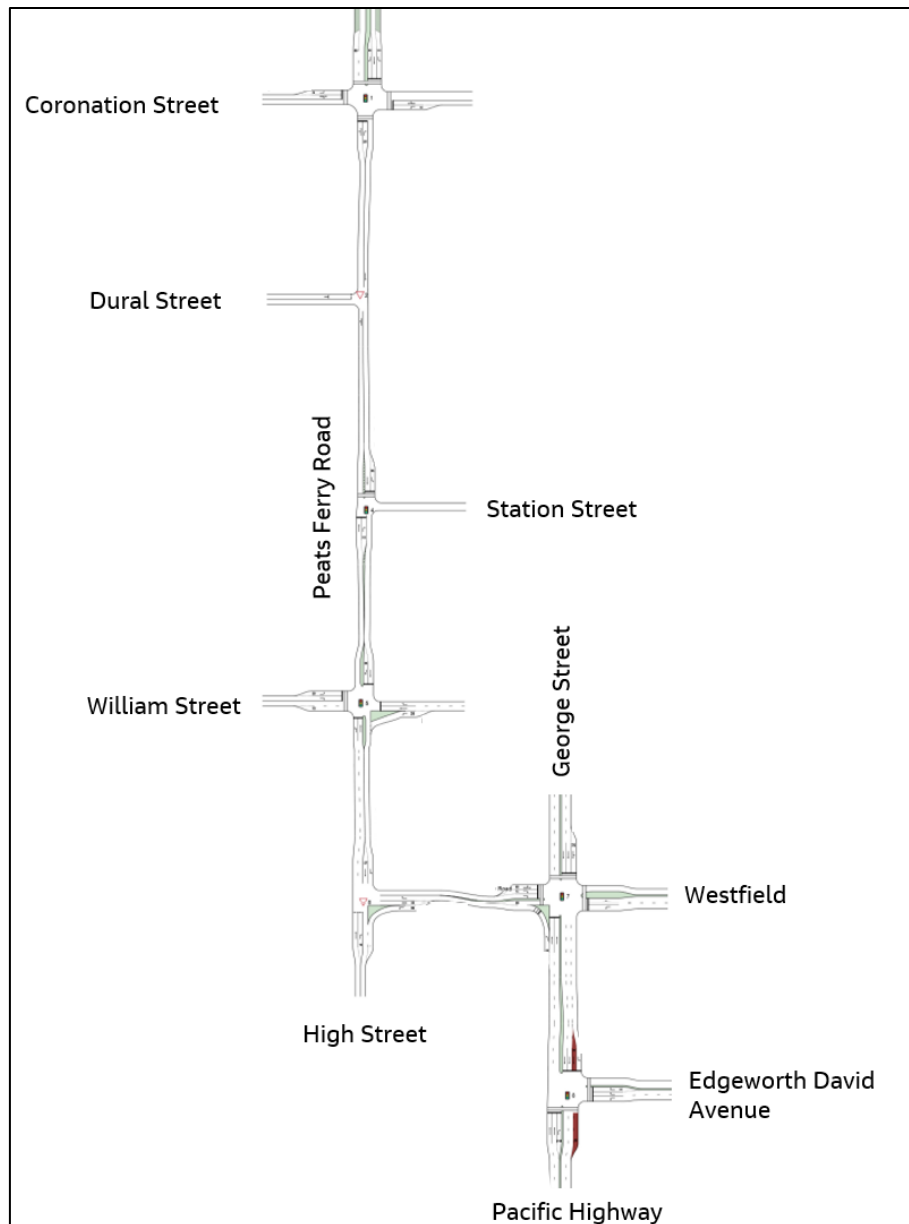


Figure 3: Peats Ferry Road SIDRA Model (Future Year and 2031 Layouts)

3.3 Future SIDRA Model Performance

The intersection performance for future 'do minimum' without proposed development scenario is shown in Table 4. This scenario retains access to Station Street with Peats Ferry Road and the previous pedestrian crossing in the TIA model is replaced with a signalised intersection. Volumes were updated to ensure no redistribution of traffic occurs due to the previous closure of Station Street.

The results show that the following intersections perform poorly at LoS F or DoS > 1:

- Peats Ferry Road / George Street in the evening peak
- Pacific Highway / Edgeworth David Avenue in the morning and evening peak

Table 4: Future SIDRA Model – Do Minimum without Proposed Development Scenario but with Do Minimum road network improvements

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / Coronation Street	Morning	0.53	17	121	B
	Evening	0.92	21	107	B
Peats Ferry Road / Dural Street	Morning	0.48	<5	<5	A
	Evening	0.49	<5	25	A
Peats Ferry Road / Station Street	Morning	0.43	<5	72	A
	Evening	0.47	<5	100	A
Peats Ferry Road / William Street	Morning	0.90	13	70	A
	Evening	0.74	19	75	B
Peats Ferry Road / High Street	Morning	0.70	<5	57	A
	Evening	0.39	<5	15	A
Peats Ferry Road / George Street	Morning	0.90	44	185	D
	Evening	>1	>100	270	F
Pacific Highway / Edgeworth David Avenue	Morning	>1	42	285	C
	Evening	>1	82	491	F
Frederick Street / Dural Street	Morning	0.08	<5	<5	A
	Evening	0.10	<5	<5	A
Frederick Street / William Street	Morning	0.13	<5	5	A
	Evening	0.13	<5	5	A

The intersection performance for future 'do minimum' with proposed development scenario is shown in Table 5.

Table 5: Future SIDRA Model – Do Minimum with Proposed Development Scenario

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / Coronation Street	Morning	0.57	17	136	B
	Evening	0.84	20	128	B
Peats Ferry Road / Dural Street	Morning	0.56	<5	7	A
	Evening	0.70	<5	37	A
Peats Ferry Road / Station Street	Morning	0.74	<5	81	A
	Evening	0.84	6	127	A
Peats Ferry Road / William Street	Morning	0.59	15	59	B
	Evening	0.72	18	87	B
Peats Ferry Road / High Street	Morning	0.75	<5	95	A
	Evening	0.45	<5	112	A
	Morning	>1	77	266	F

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / George Street	Evening	>1	>100	336	F
Pacific Highway / Edgeworth David Avenue	Morning	>1	35	215	C
	Evening	>1	86	>500	F
Frederick Street / Dural Street	Morning	0.16	<5	<5	A
	Evening	0.19	<5	<5	A
Frederick Street / William Street	Morning	0.17	<5	7	A
	Evening	0.17	<5	6	A

3.3.1 Future Intersection Comparison

A comparison between the future intersection performance with/without development is shown in Table 6. This shows that:

- The majority of intersections would perform at a similar LoS and DoS
- The Peats Ferry Road / George Street and Pacific Highway / Edgeworth David Avenue intersections would continue to perform at a poor LoS with the 'do minimum' upgrades and development traffic

Table 6: The comparison between without development and with development performance

Intersection	Peak period	Without Development LoS	With Development LoS	Change from existing to future
Peats Ferry Road / Coronation Street	Morning	B	B	Minimal impact
	Evening	B	B	Minimal impact
Peats Ferry Road / Dural Street	Morning	A	A	Minimal impact
	Evening	A	A	Minimal impact
Peats Ferry Road / Station Street	Morning	A	A	Minimal impact
	Evening	A	A	Minimal impact
Peats Ferry Road / William Street	Morning	A	B	Minor increase in average delay
	Evening	B	B	Minimal impact
Peats Ferry Road / High Street	Morning	A	A	Minimal impact
	Evening	A	A	Minimal impact
Peats Ferry Road / George Street	Morning	D	F	Major increase in average delay
	Evening	F	F	Minimal impact
Pacific Highway / Edgeworth David Avenue	Morning	C	C	Minimal impact
	Evening	F	F	Minimal impact
Frederick Street / Dural Street	Morning	A	A	Minimal impact
	Evening	A	A	Minimal impact

Intersection	Peak period	Without Development LoS	With Development LoS	Change from existing to future
Frederick Street / William Street	Morning	A	A	Minimal impact
	Evening	A	A	Minimal impact

3.3.2 Results Comparison and Mitigation Measures

Key differences when the Future SIDRA Model results in this memo are compared with the TIA Future SIDRA Model are as follows:

- Peats Ferry Road/Station Street experiences minimal impact due to the change from existing conditions to future conditions incorporating development traffic.
- Peats Ferry Road/William Street experiences minor increases in average delay when the development is included. This is different to the TIA Model, which recorded major increases and identified capacity constraints on the road network when the development was introduced. The changes in performance could be a result of changes to the network, with resultant phase splits allocating more green time for turning vehicles in the western approach of the intersection.
- The modelling in the memo and the TIA model has identified capacity constraints on the road network given that the Peats Ferry Road / George Street and Pacific Highway / Edgeworth David Avenue intersections would operate at LoS F. It should be noted that these capacity constraints were already identified in existing conditions, therefore the overcapacity observed is independent of whether traffic from the proposed development is included.

A range of mitigation measures were previously proposed in the Hornsby West Side Traffic Study report. Advice from Council has been that these options are unlikely to be supported by TfNSW as they require using land located between Peats Ferry Road and the Railway. These options include widening between William Street and George Street.

3.4 2031 Future Model Performance

The background traffic forecast is assumed not to increase in the future due to the constrained nature of the surrounding road network and an analysis of historical trends. Despite this, two scenarios with an additional 2% increase rate per annum to 2031 has been assessed without the closure of Station Street, as required by Hornsby Shire Council. SIDRA model outputs with/without the proposed development are shown below.

Table 7: SIDRA Results with do minimum without proposed development in 2031

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / Coronation Street	Morning	0.93	25	181	B
	Evening	>1	>100	406	F
Peats Ferry Road / Dural Street	Morning	0.60	<5	37	A
	Evening	0.50	<5	75	A
Peats Ferry Road / Station Street	Morning	0.69	13	127	A
	Evening	0.87	13	127	A
Peats Ferry Road / William Street	Morning	0.89	15	87	B
	Evening	>1	>100	149	F
Peats Ferry Road / High Street	Morning	0.65	5	63	A
	Evening	0.40	< 5	119	A
Peats Ferry Road / George Street	Morning	>1	>100	>500	F
	Evening	>1	>100	>500	F
Pacific Highway / Edgeworth David Avenue	Morning	>1	>100	>500	F
	Evening	>1	>100	>500	F
Frederick Street / Dural Street	Morning	0.10	<5	<5	A
	Evening	0.13	<5	<5	A
Frederick Street / William Street	Morning	0.17	7	5	A
	Evening	0.17	7	5	A

Table 8: SIDRA Results with do minimum with proposed development in 2031

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / Coronation Street	Morning	>1	>100	>500	F
	Evening	>1	>100	>500	F
Peats Ferry Road / Dural Street	Morning	0.47	<5	78	A
	Evening	0.74	<5	78	A
Peats Ferry Road / Station Street	Morning	>1	43	127	D
	Evening	0.94	24	127	B
Peats Ferry Road / William Street	Morning	0.82	21	71	B
	Evening	>1	>100	189	F
Peats Ferry Road / High Street	Morning	0.43	<5	97	A
	Evening	0.39	<5	119	A
Peats Ferry Road / George Street	Morning	> 1	>100	>500	F
	Evening	>1	>100	>500	F
Pacific Highway / Edgeworth David Avenue	Morning	>1	>100	>500	F
	Evening	>1	>100	>500	F

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Frederick Street / Dural Street	Morning	0.18	<5	<5	A
	Evening	0.22	<5	5	A
Frederick Street / William Street	Morning	0.21	<5	10	A
	Evening	0.20	<5	10	A

The 2031 modelled scenario with 2% annual background traffic growth shows that:

- Without the proposed development, the intersections of Peats Ferry Road at Coronation Street, William Street, George Street and Edgeworth David Avenue all operate with high delays and Level of Service F.
- With the proposed development, the above intersections continue to operate at a poor level of service and with high delays.

The additional traffic from the development does not significantly increase the delays on the road network compared to the delays caused by the growth in background traffic. However, given that the road network is already constrained, it is unlikely that a 2% increase in background traffic will occur unless significant regional increases in road capacity are created.

3.4.1 Results Comparison

Key differences when the 2031 SIDRA Model results in this memo are compared with the TIA 2031 SIDRA Model are as follows:

- Peats Ferry Road/Station Street is modelled instead of the Pedestrian Crossing at Station Street. Minor adjustments to the phasing configuration at Peats Ferry Road/Station Street by removing the filter right turn from the southern approach were added to reflect the adaptive signals of SCATS control. The Peats Ferry Road / Station Street intersection is forecast to operate near capacity in 2031 without development traffic. There are increases in delay and DoS in the AM peak as a result of incorporating development traffic.
- In both models, the intersections of Peats Ferry Road at Coronation Street, William Street, George Street and Edgeworth David Avenue operate with high delays and LoS F without the proposed development. With the proposed development, the above intersections continue to operate at a poor level of service and with high delays.

4. Separate Matters

This chapter addresses the comments from Hornsby Council (16/04/2020):

"The TIA and peer review recommend restricting parking on the southern side of Dural Street – The parking along the southern side is already restricted as follows: No Parking; 8am-5.30pm M-F, 8am-12.30pm Sat.

The current condition No. 82 allows deliveries outside of the current parking restriction hours. However, it is noted that there will be no vehicles 6m in length or over using Dural St west of the loading dock entry (as per Condition No. 84) so the impact would potentially only be on the spaces shown below.

Council is not convinced that a vehicle turning right into the loading bay driveway would need to impact on these spaces (see page from TIA attached) although an exiting vehicle may impact on 2-3 spaces east of the driveway to the apartment building opposite."

The assessment of the turn paths assumes 2 way traffic on Dural Street west of the development, which is consistent with current conditions. A delivery vehicle or garbage collection vehicle travelling westbound on Dural Street between the development site and Frederick Street will take up more than half of the remaining road width. A larger vehicle using this route, which is recommended to avoid conflicts on the Peats Ferry Road and Dural Street intersection, will require cars to wait west of Frederick Street intersection for the larger vehicle to manoeuvre to Frederick Street. To avoid unnecessary wait times and conflicts further restrictions on parking in Dural Street is recommended.

The turn paths and buffers have been checked and to avoid impact on the eastbound traffic on Dural Street. The turn path assessments are correct and it is likely that parked cars on the southern side of Dural Street will be at risk of conflict with vehicles using the loading dock.

5. Summary

In summary, Jacobs responses to address Hornsby Council's traffic review comments of the traffic impact assessment for DA/201/2018 are outlined in Table 9.

Table 9: Jacobs responses to comments from Hornsby Council

Comments from Hornsby Council	Jacobs Response
<i>It is noted in the combined comments by the transport planning and traffic engineering teams that the approach used by Jacobs to analyse the traffic impacts of DA/201/2018 does not align with the Paramics and vissim microsimulation modelling work for Hornsby West Side Planning Proposal. A comparable analysis for this DA should be based on a microsimulation model to better account or reflect the operation of closely spaced traffic signals in the precinct.</i>	Amendments to the existing SIDRA model, instead of creating a new microsimulation model, have been agreed with Hornsby Council to ensure the model satisfies the requirements of Hornsby Council.
<i>We did also raise concern that there was no demonstrated evidence that the Sidra Base Model were calibrated and validated to reflect SCATS parameters which includes TCS phasing and timing. This comment was based on our understanding that modelled traffic signals should replicate SCATS key operational characteristics as recommended in Section 2 of Traffic Signals in Microsimulation (RMS TTD 2018/002).</i>	The modelled SIDRA signals have been adequately calibrated and validated to reasonably replicate the SCATS parameters. The base models were calibrated for weekday AM and PM peaks in terms of flows, network geometry, signals co-ordination and TCS phase sequence. Regarding validation, some suitable validation metrics such as queue lengths and travel time were considered, however during the data collection process in 2017, no queue lengths or travel time data were recorded. Furthermore, given the current COVID-19 pandemic, traffic volumes differ significantly from typical traffic, preventing the collection of new data. To validate, signal phase splits were used as the validation tool. Based on the validation analysis, the AM and PM peaks modelled show a good match to the observed signal timings. Without other suitable

Comments from Hornsby Council	Jacobs Response
	validation metrics such as queue lengths, the base model conditions are considered well-calibrated in terms of volume flows, network geometry and phase configuration. The base models therefore, provide a suitable representation of the base year conditions within the study area and can be used to assess the performance of the future scenarios and the impacts of the proposed development.
<i>TfNSW informed Council that it will not support the signalisation of the intersection of Peats Ferry Road with High Street. This has implications for circulation and access arrangement requirements thereby decreasing the ability of the local road network to cater for the envisaged future traffic growth in Hornsby West Side Precinct. In order to maintain adequate vehicular access (includes access to the passenger set down and pick up area opposite the taxi rank), the proposed closure of Station Street at Peat Ferry Road is no longer feasible.</i>	Regarding the intersection of Peats Ferry Road with High Street, Jacobs SIDRA model was not modelled with a signalised intersection at Peats Ferry Road / High Street. Therefore, no changes regarding Peats Ferry Road / High Street were required for the updated SIDRA models. Since the proposed closure of Station Street with Peats Ferry Road is no longer feasible, the future models developed for this memo have been updated to reflect the actual future road geometry. The incorporation of access of Station Street with Peats Ferry Road has minor changes to the future model. Based on the comparison between existing and scenarios with development with 'do minimum', the traffic would impact the road network as follows: ▪ The majority of intersections would perform at a similar or improved LoS and DoS ▪ The Peats Ferry Road / George Street and Pacific Highway / Edgeworth David Avenue intersections would continue to perform at a poor LoS with the 'do minimum' upgrades and development traffic
<i>Modelling of future traffic conditions has not demonstrated the impact of the closure of Station Street and how traffic redirected to Coronation Street will enter and exit the passenger set down and pick up area opposite the taxi rank and bus interchange. The current arrangement does not allow general vehicles (taxis and buses excepted) to enter Station Street from Coronation Street. South of the Taxi Rank, Station Street currently operates as a southbound only link for buses and taxis. The outcome of sidra models for future traffic conditions is therefore questionable.</i>	If the closure of Station Street with Peats Ferry Road is not going to occur, existing road conditions would remain, and therefore the operation would not change from current operations. If the closure of Station Street was to occur, passenger vehicles would not be able to access the drop-off/pick -up area on the western side of the road. In the model developed for this memo, it assumes that the closure of Station Street with Peats Ferry Road does not occur.
<i>The TIA and peer review recommend restricting parking on the southern side of Dural Street – The parking along the southern side is already restricted as follows: No Parking; 8am-5.30pm M-F, 8am-12.30pm Sat.</i>	The concern is two-way passing within Dural Street for normal passenger vehicles along the narrow section of the road and not the parking spaces directly opposite the loading dock. The parking spaces opposite the loading dock can remain unless they are impacted on via the heavy vehicle access outside of existing parking restrictions.
<i>The current condition No. 82 allows deliveries outside of the current</i>	

Comments from Hornsby Council	Jacobs Response
<i>parking restriction hours. However, it is noted that there will be no vehicles 6m in length or over using Dural St west of the loading dock entry (as per Condition No. 84) so the impact would potentially only be on the spaces shown below.</i>	
<i>Council is not convinced that a vehicle turning right into the loading bay driveway would need to impact on these spaces (see page from TIA attached) although an exiting vehicle may impact on 2-3 spaces east of the driveway to the apartment building opposite.</i>	Turn paths have been rechecked with the same outcome. Turn paths will likely result in conflicts with parked cars in this section of Dural Street, particularly in the instance where a vehicle is leaving the loading dock in an easterly direction as another vehicle is entering.

ANNEXURE B: COUNCIL COMMENTS

From: Matthew Miles <MMiles@hornsby.nsw.gov.au>
Sent: Wednesday, 15 April 2020 10:55 AM
To: Stevens, Myall <Myall.Stevens@jacobs.com>
Cc: Rodney Pickles <RPickles@Hornsby.nsw.gov.au>
Subject: [EXTERNAL] DA/201/2018 - Traffic response

Hi Myall,

Please find below comments raised in Council's Traffic review of the traffic documentation submitted, could you please engage Jacobs Traffic Team and McLaren's to respond to the below including the two bullet points and the issues raised:

It is noted in the combined comments by the transport planning and traffic engineering teams that the approach used by Jacobs to analyse the traffic impacts of DA/201/2018 does not align with the Paramics and vissim microsimulation modelling work for Hornsby West Side Planning Proposal. A comparable analysis for this DA should be based on a microsimulation model to better account or reflect the operation of closely spaced traffic signals in the precinct. We did also raise concern that there was no demonstrated evidence that the Sidra Base Model were calibrated and validated to reflect SCATS parameters which includes TCS phasing and timing. This comment was based on our understanding that modelled traffic signals should replicate SCATS key operational characteristics as recommended in Section 2 of Traffic Signals in Microsimulation (RMS TTD 2018/002).

Other critical comments that we raised included:

- TfNSW informed Council that it will not support the signalisation of the intersection of Peats Ferry Road with High Street. This has implications for circulation and access arrangement requirements thereby decreasing the ability of the local road network to cater for the envisaged future traffic

growth in Hornsby West Side Precinct. In order to maintain adequate vehicular access (includes access to the passenger set down and pick up area opposite the taxi rank), the proposed closure of Station Street at Peat Ferry Road is no longer feasible.

- Modelling of future traffic conditions has not demonstrated the impact of the closure of Station Street and how traffic redirected to Coronation Street will enter and exit the passenger set down and pick up area opposite the taxi rank and bus interchange. The current arrangement does not allow general vehicles (taxis and buses excepted) to enter Station Street from Coronation Street. South of the Taxi Rank, Station Street currently operates as a southbound only link for buses and taxis. The outcome of sidra models for future traffic conditions is therefore questionable.

Separate matter

The TIA and peer review recommend restricting parking on the southern side of Dural Street – The parking along the southern side is already restricted as follows: No Parking; 8am-5.30pm M-F, 8am-12.30pm Sat

The current condition No. 82 allows deliveries outside of the current parking restriction hours. However, it is noted that there will be no vehicles 6m in length or over using Dural St west of the loading dock entry (as per Condition No. 84) so the impact would potentially only be on the spaces shown below.

Council is not convinced that a vehicle turning right into the loading bay driveway would need to impact on these spaces (see page from TIA attached) although an exiting vehicle may impact on 2-3 spaces east of the driveway to the apartment building opposite.

Could you please review the swept path to ascertain whether it does not impact on those spaces identified below.

Regards

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Subject	Traffic and Transport Impacts Modelling	Project Name	187-201 Peats Ferry Road Traffic and Transport Impact Assessment
Attention	Matthew Miles	Project Number	IA133100
From	Cassandra Min and Myall Stevens		
Date	5 May 2020		

1. Introduction

This memo has been developed to address Hornsby Council's traffic review comments of the traffic impact assessment submitted by Jacobs for DA/201/2018.

Specifically, this includes:

- Addressing the comment from Hornsby Council that the approach used by Jacobs to analyse the traffic impacts does not align with the Paramics and Vissim microsimulation modelling work for Hornsby West Side Planning Proposal. Providing demonstrated evidence that the SIDRA base models were calibrated and validated to reflect SCATS parameters which include traffic control signals (TCS) phasing and timing.
- Updated road geometry for the SIDRA future year models. This memo investigates the option to retain access to Station Street from Peats Ferry Road, which means existing road conditions would remain, and therefore the operation would not change from current operations.
- Separate Matters regarding parking, deliveries and vehicle right turning bays.

This memo is structured around these topics, with each chapter addressing a specific concern.

2. Base Model Development, Calibration and Validation

This chapter addresses the comment from Hornsby Council (16/04/2020):

"It is noted in the combined comments by the transport planning and traffic engineering teams that the approach used by Jacobs to analyse the traffic impacts of DA/201/2018 does not align with the Paramics and vissim microsimulation modelling work for Hornsby West Side Planning Proposal. A comparable analysis for this DA should be based on a microsimulation model to better account or reflect the operation of closely spaced traffic signals in the precinct. We did also raise concern that there was no demonstrated evidence that the Sidra Base Model were calibrated and validated to reflect SCATS parameters which includes TCS phasing and timing. This comment was based on our understanding that modelled traffic signals should replicate SCATS key operational characteristics as recommended in Section 2 of Traffic Signals in Microsimulation (RMS TTD 2018/002)."

As agreed with Hornsby Council, whilst a microsimulation model would provide a more accurate model that aligns with the Paramics and Vissim microsimulation modelling work for Hornsby West Side Planning Proposal, it would be unreasonable to request a new model at this stage. Instead, amendments to the existing SIDRA model have been completed to ensure the model satisfies the requirements of Hornsby Council.

This chapter details the base model development methodology and reasoning for the approach used by Jacobs. It provides demonstrated evidence that the SIDRA models were adequately calibrated and validated to reflect SCATS parameters which includes TCS phasing and timing.

2.1 Traffic Data

Traffic surveys were undertaken to understand the current performance of the study area. Intersection turning movement counts (TMCs) were collected on Tuesday 31 October 2017 between 6:00am – 10:00am and 3:00pm – 7:00pm at the following locations:

- Peats Ferry Road and Coronation Street
- Peats Ferry Road and Dural Street
- Peats Ferry Road and Dural Lane
- Peats Ferry Road and Station Street
- Peats Ferry Road and William Street
- Peats Ferry Road and High Street
- Peats Ferry Road and George Street
- Peats Ferry Road and Edgeworth David Avenue
- Dural Street and Frederick Street
- Frederick Street and William Street

To conduct the TMCs, video cameras installed at the survey locations were used to record vehicle movements and traffic throughput in 15-minute intervals. The surveyed data informed the volumes used for the base year SIDRA model development and calibration/validation.

2.2 Signal Data

The traffic signal operation data included:

- SCATS graphics sheet for Peats Ferry Road / Coronation Street, Peats Ferry Road / Station Street, Peats Ferry Road / George Street, Peats Ferry Road / William Street and Pacific Highway / Edgeworth David Avenue, including the phasing diagram.
- Observed on-site data was collected on Tuesday 31st October 2017 between 8:00am – 9:00am and 4:45pm – 5:45pm, including phase and cycles times for Peats Ferry Road / Coronation Street, Peats Ferry Road / Station Street, Peats Ferry Road / George Street, Peats Ferry Road / William Street and Pacific Highway / Edgeworth David Avenue.

Traffic signal timing and phasing was coded according to the traffic signal plans and from observations and videos of the intersection performance.

2.3 Base Model Development

SIDRA models have been built to provide a representation of traffic conditions for the year 2017, which is defined as the base year and provides a reliable reference point for testing future scenarios. Based on the TMC counts, the following peak hours were identified for the weekday AM and PM peaks hours:

- AM Peak: 8:00am – 9:00am
- PM Peak: 4:45pm – 5:45pm

The road network was developed based on the Google aerial imagery in SIDRA. The associated SIDRA Model Layout can be found in Figure 1. The intersections of William Street and Frederick Street, and Dural Street and Frederick Street have been modelled as standalone intersections.

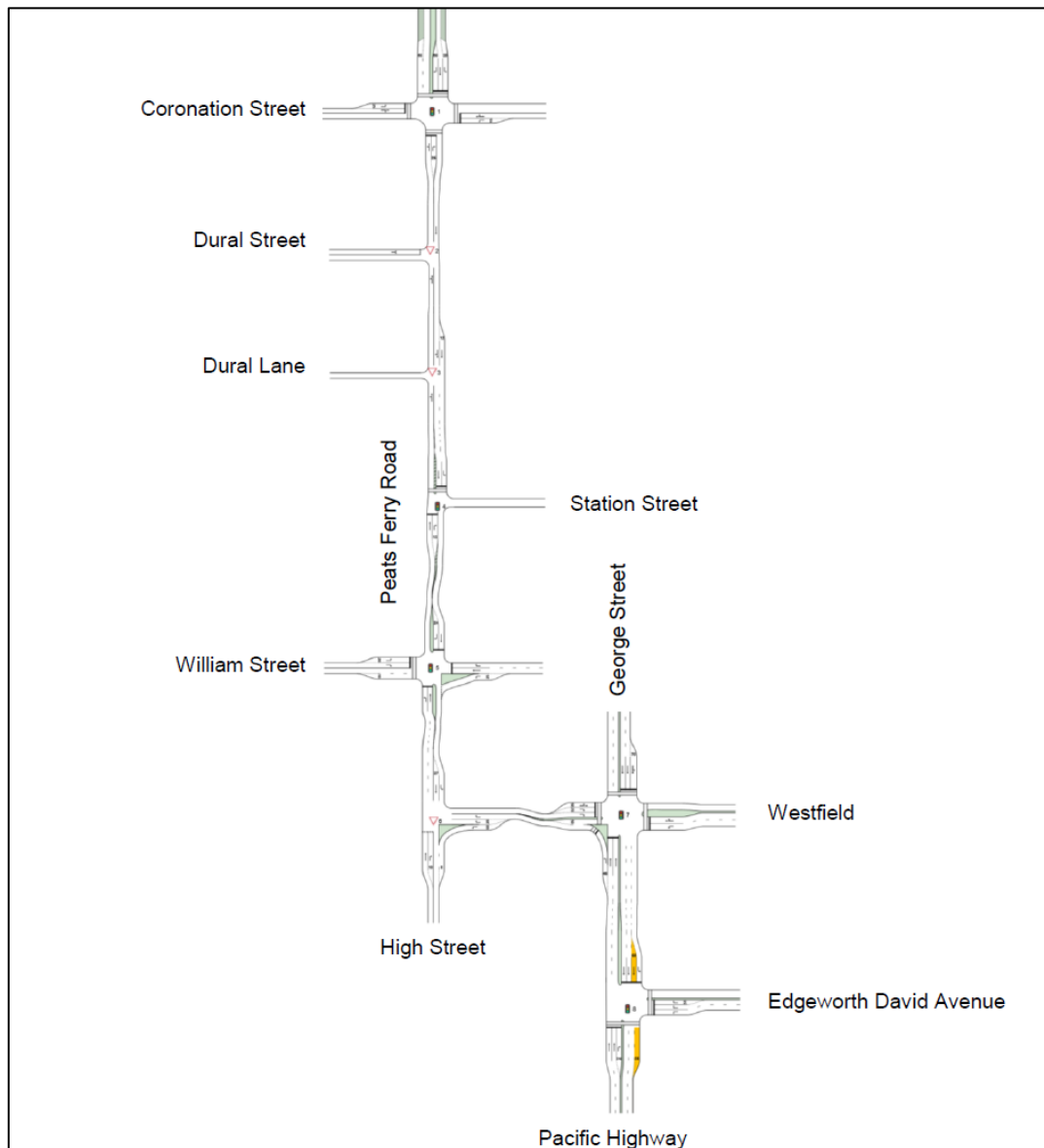


Figure 1: Peats Ferry Road Sidra Model (Base Year)

2.4 Calibration and Validation

The modelled SIDRA signals have been designed to reasonably replicate the SCATS parameters. The base models were calibrated for weekday AM and PM peaks in terms of flows, network geometry, signals co-ordination and TCS phase sequence. Volumes were based on classified intersection TMCs collected on Tuesday 31 October 2017 between 6:00am – 10:00am and 3:00pm – 7:00pm. TCS drawings and video footage of intersections informed the phasing configuration. This process of adjusting the model network parameters ensured the base model reflected the observed site conditions.

Validation is the process of comparing model output against independently measured data that was not used during the calibration process. Queue lengths and travel time are two common metrics used for validation of a traffic model, however during the data collection process in 2017, no queue lengths or travel time data were recorded. Furthermore, given the current COVID-19 pandemic, traffic profiles differ significantly from typical traffic, preventing the collection of new data. For this validation check, signal phase splits were used as a validation tool.

The base models used a 120 second AM peak cycle time and 140 second PM peak cycle time. These cycle times were coordinated for the network and based on recorded average cycle time observations. The 'user given cycle time' option enables SIDRA to calculate the optimum phase timing and splits during its analysis. To validate these outputs, the SIDRA base model has been compared against the observed average phase splits, which were recorded for the following intersections:

- Peats Ferry Road / Coronation Street
- Peats Ferry Road / Station Street
- Peats Ferry Road / George Street
- Peats Ferry Road / William Street
- Pacific Highway / Edgeworth David Avenue

The validation results and comparison can be found in Table 1.

Table 1: Phase Split Comparison for Observed Data and SIDRA

Intersection	Phase	AM Peak Phase Splits			PM Peak Phase Splits		
		Observed Data	SIDRA	Diff	Observed Data	SIDRA	Diff
Peats Ferry Road / Coronation Street	A	56%	72%	10-20%	60%	67%	<10%
	B	3%	0%	<10%	1%	0%	<10%
	C	10%	10%	<10%	10%	9%	<10%
	D	29%	18%	10-20%	28%	24%	<10%
	E	2%	0%	<10%	0%	0%	<10%
Peats Ferry Road / Station Street	A	67%	84%	10-20%	68%	76%	<10%
	B	3%	0%	<10%	9%	0%	<10%
	C	29%	16%	10-20%	23%	24%	<10%

Intersection	Phase	AM Peak Phase Splits			PM Peak Phase Splits		
		Observed Data	SIDRA	Diff	Observed Data	SIDRA	Diff
Peats Ferry Road / George Street	A	34%	37%	<10%	25%	30%	<10%
	B	29%	40%	10-20%	29%	39%	10-20%
	C	28%	13%	10-20%	24%	14%	10-20%
	D	9%	10%	<10%	22%	16%	<10%
Peats Ferry Road / William Street	A	70%	84%	10-20%	70%	76%	<10%
	B	0%	0%	<10%	0%	0%	<10%
	C	30%	16%	10-20%	30%	24%	<10%
Pacific Hwy / Edgeworth David	A/D	52%	47%	<10%	55%	46%	<10%
	B	26%	40%	10-20%	30%	39%	<10%
	C	22%	13%	<10%	15%	14%	<10%

As shown in Table 1, all the morning phase splits from SIDRA are within 20% of the observed phase split results from the observed data. Almost all evening phase splits were within 10% of the observed phase split results. Based on this comparison, the AM and PM peaks modelled show a good match to the observed signal timings. Without other suitable validation metrics such as queue lengths, the base model conditions are considered well-calibrated in terms of volume flows, network geometry and phase configuration. The base models therefore, provide a suitable representation of the base year conditions within the study area and can be used to assess the performance of the future scenarios and the impacts of the proposed development.

2.5 Base Model Intersection Performance Assessment

The existing intersection performance is shown in Table 2. The results show that the following intersections perform poorly at LoS F:

- Peats Ferry Road / George Street during the evening peak period
- Pacific Highway / Edgeworth David Avenue during the morning and evening peak period

Table 2: Sidra Results Base Model

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / Coronation Street	Morning	0.56	17	110	B
	Evening	0.55	21	105	B
Peats Ferry Road / Dural Street	Morning	0.39	14	<5	A
	Evening	0.40	15	45	B
Peats Ferry Road / Dural Lane	Morning	0.29	7	65	A
	Evening	0.32	7	100	A
	Morning	0.44	<5	45	A

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / Station Street	Evening	0.52	7	45	A
Peats Ferry Road / William Street	Morning	0.91	13	70	A
	Evening	0.90	23	100	B
Peats Ferry Road / High Street	Morning	0.69	27	55	B
	Evening	0.39	30	120	C
Peats Ferry Road / George Street	Morning	0.90	44	185	D
	Evening	>1	>100	215	F
Pacific Highway / Edgeworth David Avenue	Morning	>1	42	285	C
	Evening	>1	77	465	F
Frederick Street / Dural Street	Morning	0.08	5	<5	A
	Evening	0.10	5	<5	A
Frederick Street / William Street	Morning	0.13	7	5	A
	Evening	0.13	7	5	A

3. Future Model Development

This chapter addresses the comments from Hornsby Council (16/04/2020):

"Other critical comments that we raised included:

- *TfNSW informed Council that it will not support the signalisation of the intersection of Peats Ferry Road with High Street. This has implications for circulation and access arrangement requirements thereby decreasing the ability of the local road network to cater for the envisaged future traffic growth in Hornsby West Side Precinct. In order to maintain adequate vehicular access (includes access to the passenger set down and pick up area opposite the taxi rank), the proposed closure of Station Street at Peat Ferry Road is no longer feasible.*
- *Modelling of future traffic conditions has not demonstrated the impact of the closure of Station Street and how traffic redirected to Coronation Street will enter and exit the passenger set down and pick up area opposite the taxi rank and bus interchange. The current arrangement does not allow general vehicles (taxis and buses excepted) to enter Station Street from Coronation Street. South of the Taxi Rank, Station Street currently operates as a southbound only link for buses and taxis. The outcome of sidra models for future traffic conditions is therefore questionable."*

The Jacobs SIDRA models were not modelled with a signalised intersection at Peats Ferry Road / High Street. Therefore, no changes regarding Peats Ferry Road / High Street were required for the updated SIDRA models.

Since the proposed closure of Station Street with Peat Ferry Road is no longer feasible, the future models developed for this memo have been updated to reflect the actual future road geometry. The models retain access to Station Street with Peats Ferry Road, which means existing road conditions would remain, and therefore the operation would not change from current operations. Future year and 2031 SIDRA models have been updated to reflect these changes.

The differences in the models in this memo compared to the TIA report are shown in Figure 2 and described as follows:

- Access to Station Street from Peats Ferry Road is retained. The pedestrian crossing at Station Street with Peats Ferry Road, as shown in the previous model is replaced with the Station Street/Peats Ferry Road signalised intersection.
- Vehicles which had previously been redistributed away from Station Street return to the distribution patterns that align with the base models. As a result, there is a decrease in the volume of vehicles turning into Coronation Street from Peats Ferry Road. There is also an increase in the volume of vehicles travelling on Peats Ferry Road between Coronation Street and Station Street.
- Volume inputs at the intersections of Coronation Street/Peats Ferry Road, Dural Street/Peats Ferry Road and Station Street/Peats Ferry Road are updated to reflect changes in distribution due to the access to Station Street with Peats Ferry Road being retained.

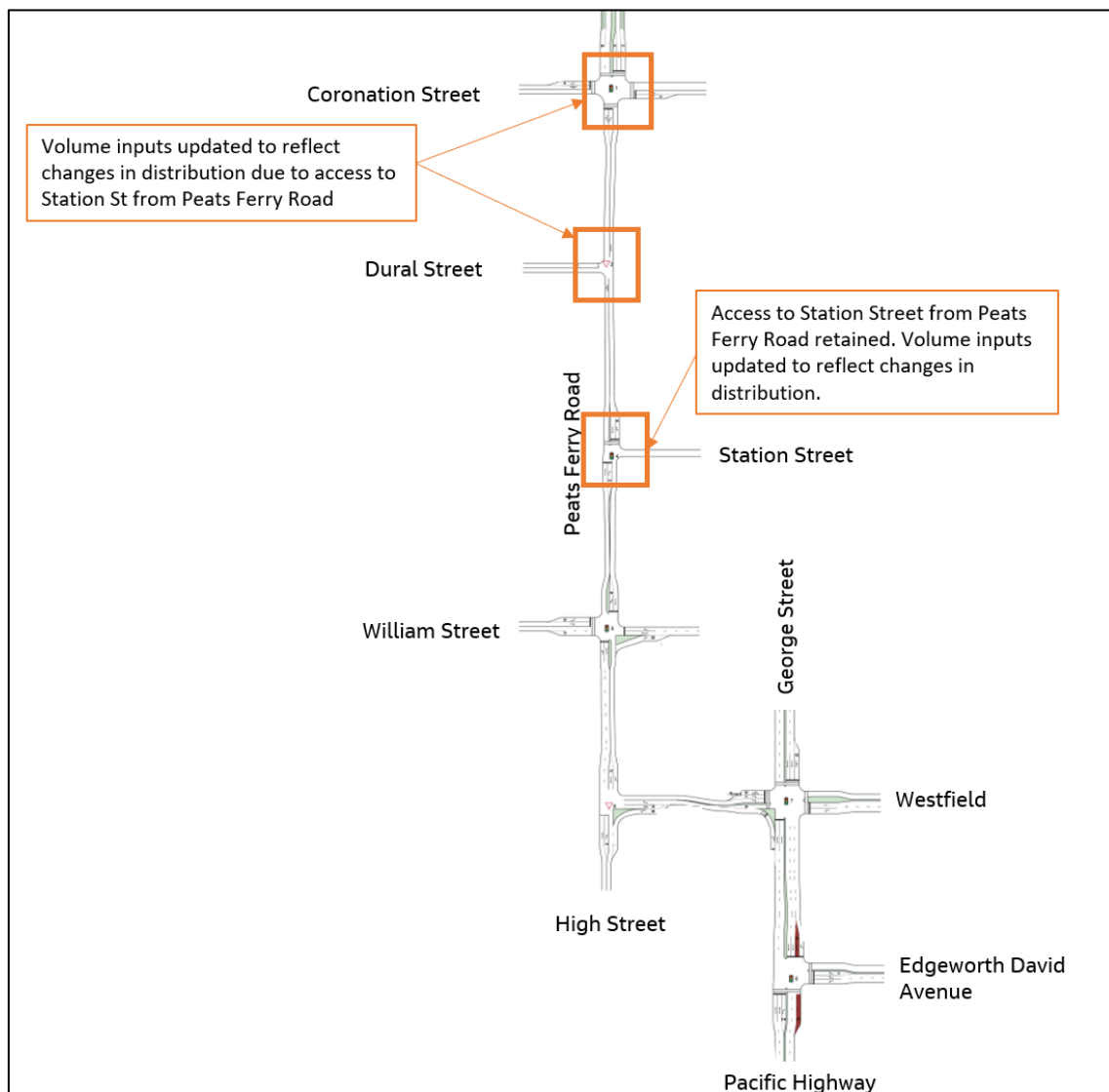


Figure 2: Peats Ferry Road SIDRA Model (Future Year and 2031 Layouts) – Key differences with TIA Model Outlined

The impacts that the proposed development have on the surrounding network are discussed. These impacts are also compared with the changes that occurred in the previous TIA model.

3.1 Future Year Scenario Summary

For the future year modelling analysis, four scenarios have been tested to identify the traffic impacts of the proposed development under the different conditions of the road network and traffic demand, as summarised in Table 3:

Table 3: Future year Scenarios Summary

Scenario	Traffic Demand		Road Network
	Proposed Development	Background Traffic Growth	Do Minimum
Future No Development Do Minimum	N	N	Y
Future with Development Do Minimum	Y	N	Y
2031 No Development Do Minimum	N	Y	Y
2031 with Development Do Minimum	Y	Y	Y

The background traffic growth scenarios assumed a 2% per annum growth in traffic as suggested by Hornsby Shire Council.

For the 'do minimum' modelling with development traffic, changes were made to the road network improvements including:

- Closure of Dural Lane at Peats Ferry Road and removal of the intersection from the network model for the future years
- Major routes for the network model that include northbound and southbound movements have not been changed.
- Addition of a leading right turn phase for vehicles on William Street in the eastbound direction

The cycle time for all signalised intersections has been set to 120 seconds during the morning peak, and 140 seconds during the evening peak, which aligns with the base models.

3.2 Model Layout

The network model was developed in SIDRA version 8 and included the Pacific Highway from Edgeworth David Avenue to Coronation Street. The model network layout is shown in Figure 3. The intersections of William Street and Frederick Street and Dural Street and Frederick Street have been modelled as standalone intersections. This model retains access to Station Street with Peats Ferry Road, which means existing road conditions would remain.

The key difference from this Future SIDRA layout in comparison to the Base SIDRA layout is Dural Lane is not included.

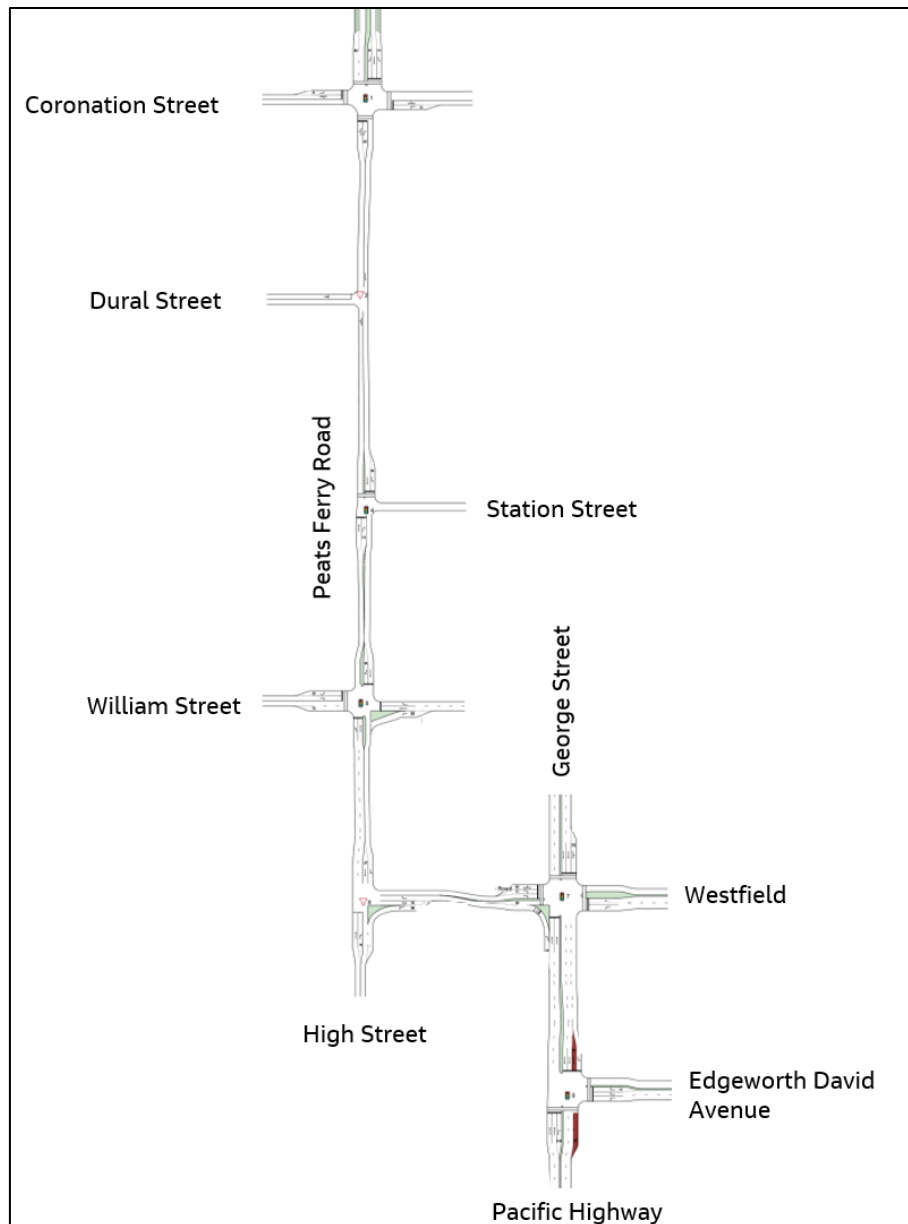


Figure 3: Peats Ferry Road SIDRA Model (Future Year and 2031 Layouts)

3.3 Future SIDRA Model Performance

The intersection performance for future 'do minimum' without proposed development scenario is shown in Table 4. This scenario retains access to Station Street with Peats Ferry Road and the previous pedestrian crossing in the TIA model is replaced with a signalised intersection. Volumes were updated to ensure no redistribution of traffic occurs due to the previous closure of Station Street.

The results show that the following intersections perform poorly at LoS F or DoS > 1:

- Peats Ferry Road / George Street in the evening peak
- Pacific Highway / Edgeworth David Avenue in the morning and evening peak

Table 4: Future SIDRA Model – Do Minimum without Proposed Development Scenario but with Do Minimum road network improvements

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / Coronation Street	Morning	0.53	17	121	B
	Evening	0.92	21	107	B
Peats Ferry Road / Dural Street	Morning	0.48	<5	<5	A
	Evening	0.49	<5	25	A
Peats Ferry Road / Station Street	Morning	0.43	<5	72	A
	Evening	0.47	<5	100	A
Peats Ferry Road / William Street	Morning	0.90	13	70	A
	Evening	0.74	19	75	B
Peats Ferry Road / High Street	Morning	0.70	<5	57	A
	Evening	0.39	<5	15	A
Peats Ferry Road / George Street	Morning	0.90	44	185	D
	Evening	>1	>100	270	F
Pacific Highway / Edgeworth David Avenue	Morning	>1	42	285	C
	Evening	>1	82	491	F
Frederick Street / Dural Street	Morning	0.08	<5	<5	A
	Evening	0.10	<5	<5	A
Frederick Street / William Street	Morning	0.13	<5	5	A
	Evening	0.13	<5	5	A

The intersection performance for future 'do minimum' with proposed development scenario is shown in Table 5.

Table 5: Future SIDRA Model – Do Minimum with Proposed Development Scenario

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / Coronation Street	Morning	0.57	17	136	B
	Evening	0.84	20	128	B
Peats Ferry Road / Dural Street	Morning	0.56	<5	7	A
	Evening	0.70	<5	37	A
Peats Ferry Road / Station Street	Morning	0.74	<5	81	A
	Evening	0.84	6	127	A
Peats Ferry Road / William Street	Morning	0.59	15	59	B
	Evening	0.72	18	87	B
Peats Ferry Road / High Street	Morning	0.75	<5	95	A
	Evening	0.45	<5	112	A
	Morning	>1	77	266	F

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / George Street	Evening	>1	>100	336	F
Pacific Highway / Edgeworth David Avenue	Morning	>1	35	215	C
	Evening	>1	86	>500	F
Frederick Street / Dural Street	Morning	0.16	<5	<5	A
	Evening	0.19	<5	<5	A
Frederick Street / William Street	Morning	0.17	<5	7	A
	Evening	0.17	<5	6	A

3.3.1 Future Intersection Comparison

A comparison between the future intersection performance with/without development is shown in Table 6. This shows that:

- The majority of intersections would perform at a similar LoS and DoS
- The Peats Ferry Road / George Street and Pacific Highway / Edgeworth David Avenue intersections would continue to perform at a poor LoS with the 'do minimum' upgrades and development traffic

Table 6: The comparison between without development and with development performance

Intersection	Peak period	Without Development LoS	With Development LoS	Change from existing to future
Peats Ferry Road / Coronation Street	Morning	B	B	Minimal impact
	Evening	B	B	Minimal impact
Peats Ferry Road / Dural Street	Morning	A	A	Minimal impact
	Evening	A	A	Minimal impact
Peats Ferry Road / Station Street	Morning	A	A	Minimal impact
	Evening	A	A	Minimal impact
Peats Ferry Road / William Street	Morning	A	B	Minor increase in average delay
	Evening	B	B	Minimal impact
Peats Ferry Road / High Street	Morning	A	A	Minimal impact
	Evening	A	A	Minimal impact
Peats Ferry Road / George Street	Morning	D	F	Major increase in average delay
	Evening	F	F	Minimal impact
Pacific Highway / Edgeworth David Avenue	Morning	C	C	Minimal impact
	Evening	F	F	Minimal impact
Frederick Street / Dural Street	Morning	A	A	Minimal impact
	Evening	A	A	Minimal impact

Intersection	Peak period	Without Development LoS	With Development LoS	Change from existing to future
Frederick Street / William Street	Morning	A	A	Minimal impact
	Evening	A	A	Minimal impact

3.3.2 Results Comparison and Mitigation Measures

Key differences when the Future SIDRA Model results in this memo are compared with the TIA Future SIDRA Model are as follows:

- Peats Ferry Road/Station Street experiences minimal impact due to the change from existing conditions to future conditions incorporating development traffic.
- Peats Ferry Road/William Street experiences minor increases in average delay when the development is included. This is different to the TIA Model, which recorded major increases and identified capacity constraints on the road network when the development was introduced. The changes in performance could be a result of changes to the network, with resultant phase splits allocating more green time for turning vehicles in the western approach of the intersection.
- The modelling in the memo and the TIA model has identified capacity constraints on the road network given that the Peats Ferry Road / George Street and Pacific Highway / Edgeworth David Avenue intersections would operate at LoS F. It should be noted that these capacity constraints were already identified in existing conditions, therefore the overcapacity observed is independent of whether traffic from the proposed development is included.

A range of mitigation measures were previously proposed in the Hornsby West Side Traffic Study report. Advice from Council has been that these options are unlikely to be supported by TfNSW as they require using land located between Peats Ferry Road and the Railway. These options include widening between William Street and George Street.

3.4 2031 Future Model Performance

The background traffic forecast is assumed not to increase in the future due to the constrained nature of the surrounding road network and an analysis of historical trends. Despite this, two scenarios with an additional 2% increase rate per annum to 2031 has been assessed without the closure of Station Street, as required by Hornsby Shire Council. SIDRA model outputs with/without the proposed development are shown below.

Table 7: SIDRA Results with do minimum without proposed development in 2031

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / Coronation Street	Morning	0.93	25	181	B
	Evening	>1	>100	406	F
Peats Ferry Road / Dural Street	Morning	0.60	<5	37	A
	Evening	0.50	<5	75	A
Peats Ferry Road / Station Street	Morning	0.69	13	127	A
	Evening	0.87	13	127	A
Peats Ferry Road / William Street	Morning	0.89	15	87	B
	Evening	>1	>100	149	F
Peats Ferry Road / High Street	Morning	0.65	5	63	A
	Evening	0.40	< 5	119	A
Peats Ferry Road / George Street	Morning	>1	>100	>500	F
	Evening	>1	>100	>500	F
Pacific Highway / Edgeworth David Avenue	Morning	>1	>100	>500	F
	Evening	>1	>100	>500	F
Frederick Street / Dural Street	Morning	0.10	<5	<5	A
	Evening	0.13	<5	<5	A
Frederick Street / William Street	Morning	0.17	7	5	A
	Evening	0.17	7	5	A

Table 8: SIDRA Results with do minimum with proposed development in 2031

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Peats Ferry Road / Coronation Street	Morning	>1	>100	>500	F
	Evening	>1	>100	>500	F
Peats Ferry Road / Dural Street	Morning	0.47	<5	78	A
	Evening	0.74	<5	78	A
Peats Ferry Road / Station Street	Morning	>1	43	127	D
	Evening	0.94	24	127	B
Peats Ferry Road / William Street	Morning	0.82	21	71	B
	Evening	>1	>100	189	F
Peats Ferry Road / High Street	Morning	0.43	<5	97	A
	Evening	0.39	<5	119	A
Peats Ferry Road / George Street	Morning	> 1	>100	>500	F
	Evening	>1	>100	>500	F
Pacific Highway / Edgeworth David Avenue	Morning	>1	>100	>500	F
	Evening	>1	>100	>500	F

Intersection	Peak Period	Degree of Saturation	Average Delay (s)	95% percentile queue length	Level of Service
Frederick Street / Dural Street	Morning	0.18	<5	<5	A
	Evening	0.22	<5	5	A
Frederick Street / William Street	Morning	0.21	<5	10	A
	Evening	0.20	<5	10	A

The 2031 modelled scenario with 2% annual background traffic growth shows that:

- Without the proposed development, the intersections of Peats Ferry Road at Coronation Street, William Street, George Street and Edgeworth David Avenue all operate with high delays and Level of Service F.
- With the proposed development, the above intersections continue to operate at a poor level of service and with high delays.

The additional traffic from the development does not significantly increase the delays on the road network compared to the delays caused by the growth in background traffic. However, given that the road network is already constrained, it is unlikely that a 2% increase in background traffic will occur unless significant regional increases in road capacity are created.

3.4.1 Results Comparison

Key differences when the 2031 SIDRA Model results in this memo are compared with the TIA 2031 SIDRA Model are as follows:

- Peats Ferry Road/Station Street is modelled instead of the Pedestrian Crossing at Station Street. Minor adjustments to the phasing configuration at Peats Ferry Road/Station Street by removing the filter right turn from the southern approach were added to reflect the adaptive signals of SCATS control. The Peats Ferry Road / Station Street intersection is forecast to operate near capacity in 2031 without development traffic. There are increases in delay and DoS in the AM peak as a result of incorporating development traffic.
- In both models, the intersections of Peats Ferry Road at Coronation Street, William Street, George Street and Edgeworth David Avenue operate with high delays and LoS F without the proposed development. With the proposed development, the above intersections continue to operate at a poor level of service and with high delays.

4. Separate Matters

This chapter addresses the comments from Hornsby Council (16/04/2020):

"The TIA and peer review recommend restricting parking on the southern side of Dural Street – The parking along the southern side is already restricted as follows: No Parking; 8am-5.30pm M-F, 8am-12.30pm Sat.

The current condition No. 82 allows deliveries outside of the current parking restriction hours. However, it is noted that there will be no vehicles 6m in length or over using Dural St west of the loading dock entry (as per Condition No. 84) so the impact would potentially only be on the spaces shown below.

Council is not convinced that a vehicle turning right into the loading bay driveway would need to impact on these spaces (see page from TIA attached) although an exiting vehicle may impact on 2-3 spaces east of the driveway to the apartment building opposite."

The assessment of the turn paths assumes 2 way traffic on Dural Street west of the development, which is consistent with current conditions. A delivery vehicle or garbage collection vehicle travelling westbound on Dural Street between the development site and Frederick Street will take up more than half of the remaining road width. A larger vehicle using this route, which is recommended to avoid conflicts on the Peats Ferry Road and Dural Street intersection, will require cars to wait west of Frederick Street intersection for the larger vehicle to manoeuvre to Frederick Street. To avoid unnecessary wait times and conflicts further restrictions on parking in Dural Street is recommended.

The turn paths and buffers have been checked and to avoid impact on the eastbound traffic on Dural Street. The turn path assessments are correct and it is likely that parked cars on the southern side of Dural Street will be at risk of conflict with vehicles using the loading dock.

5. Summary

In summary, Jacobs responses to address Hornsby Council's traffic review comments of the traffic impact assessment for DA/201/2018 are outlined in Table 9.

Table 9: Jacobs responses to comments from Hornsby Council

Comments from Hornsby Council	Jacobs Response
<i>It is noted in the combined comments by the transport planning and traffic engineering teams that the approach used by Jacobs to analyse the traffic impacts of DA/201/2018 does not align with the Paramics and vissim microsimulation modelling work for Hornsby West Side Planning Proposal. A comparable analysis for this DA should be based on a microsimulation model to better account or reflect the operation of closely spaced traffic signals in the precinct.</i>	Amendments to the existing SIDRA model, instead of creating a new microsimulation model, have been agreed with Hornsby Council to ensure the model satisfies the requirements of Hornsby Council.
<i>We did also raise concern that there was no demonstrated evidence that the Sidra Base Model were calibrated and validated to reflect SCATS parameters which includes TCS phasing and timing. This comment was based on our understanding that modelled traffic signals should replicate SCATS key operational characteristics as recommended in Section 2 of Traffic Signals in Microsimulation (RMS TTD 2018/002).</i>	The modelled SIDRA signals have been adequately calibrated and validated to reasonably replicate the SCATS parameters. The base models were calibrated for weekday AM and PM peaks in terms of flows, network geometry, signals co-ordination and TCS phase sequence. Regarding validation, some suitable validation metrics such as queue lengths and travel time were considered, however during the data collection process in 2017, no queue lengths or travel time data were recorded. Furthermore, given the current COVID-19 pandemic, traffic volumes differ significantly from typical traffic, preventing the collection of new data. To validate, signal phase splits were used as the validation tool. Based on the validation analysis, the AM and PM peaks modelled show a good match to the observed signal timings. Without other suitable

Comments from Hornsby Council	Jacobs Response
	validation metrics such as queue lengths, the base model conditions are considered well-calibrated in terms of volume flows, network geometry and phase configuration. The base models therefore, provide a suitable representation of the base year conditions within the study area and can be used to assess the performance of the future scenarios and the impacts of the proposed development.
<i>TfNSW informed Council that it will not support the signalisation of the intersection of Peats Ferry Road with High Street. This has implications for circulation and access arrangement requirements thereby decreasing the ability of the local road network to cater for the envisaged future traffic growth in Hornsby West Side Precinct. In order to maintain adequate vehicular access (includes access to the passenger set down and pick up area opposite the taxi rank), the proposed closure of Station Street at Peat Ferry Road is no longer feasible.</i>	Regarding the intersection of Peats Ferry Road with High Street, Jacobs SIDRA model was not modelled with a signalised intersection at Peats Ferry Road / High Street. Therefore, no changes regarding Peats Ferry Road / High Street were required for the updated SIDRA models. Since the proposed closure of Station Street with Peats Ferry Road is no longer feasible, the future models developed for this memo have been updated to reflect the actual future road geometry. The incorporation of access of Station Street with Peats Ferry Road has minor changes to the future model. Based on the comparison between existing and scenarios with development with 'do minimum', the traffic would impact the road network as follows: ▪ The majority of intersections would perform at a similar or improved LoS and DoS ▪ The Peats Ferry Road / George Street and Pacific Highway / Edgeworth David Avenue intersections would continue to perform at a poor LoS with the 'do minimum' upgrades and development traffic
<i>Modelling of future traffic conditions has not demonstrated the impact of the closure of Station Street and how traffic redirected to Coronation Street will enter and exit the passenger set down and pick up area opposite the taxi rank and bus interchange. The current arrangement does not allow general vehicles (taxis and buses excepted) to enter Station Street from Coronation Street. South of the Taxi Rank, Station Street currently operates as a southbound only link for buses and taxis. The outcome of sidra models for future traffic conditions is therefore questionable.</i>	If the closure of Station Street with Peats Ferry Road is not going to occur, existing road conditions would remain, and therefore the operation would not change from current operations. If the closure of Station Street was to occur, passenger vehicles would not be able to access the drop-off/pick -up area on the western side of the road. In the model developed for this memo, it assumes that the closure of Station Street with Peats Ferry Road does not occur.
<i>The TIA and peer review recommend restricting parking on the southern side of Dural Street – The parking along the southern side is already restricted as follows: No Parking; 8am-5.30pm M-F, 8am-12.30pm Sat.</i>	The concern is two-way passing within Dural Street for normal passenger vehicles along the narrow section of the road and not the parking spaces directly opposite the loading dock. The parking spaces opposite the loading dock can remain unless they are impacted on via the heavy vehicle access outside of existing parking restrictions.
<i>The current condition No. 82 allows deliveries outside of the current</i>	

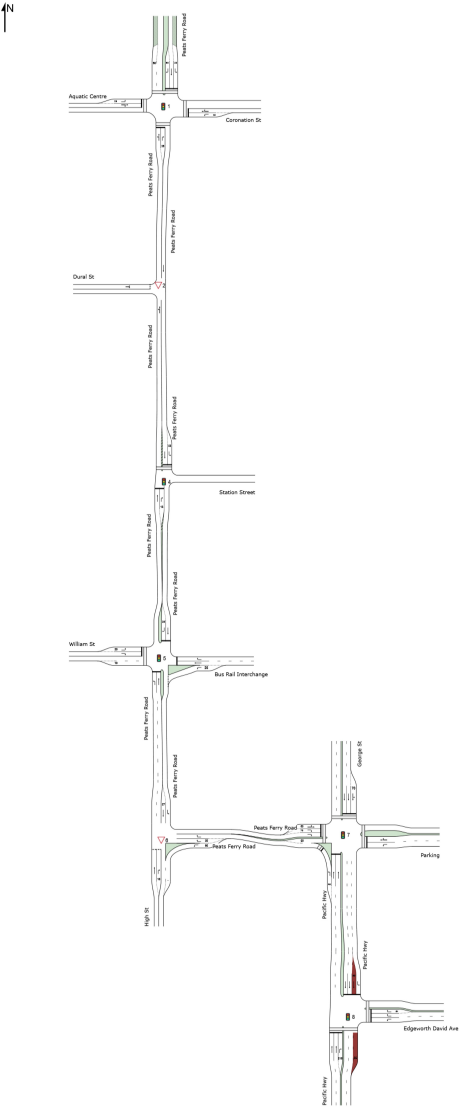
Comments from Hornsby Council	Jacobs Response
<i>parking restriction hours. However, it is noted that there will be no vehicles 6m in length or over using Dural St west of the loading dock entry (as per Condition No. 84) so the impact would potentially only be on the spaces shown below.</i>	
<i>Council is not convinced that a vehicle turning right into the loading bay driveway would need to impact on these spaces (see page from TIA attached) although an exiting vehicle may impact on 2-3 spaces east of the driveway to the apartment building opposite.</i>	Turn paths have been rechecked with the same outcome. Turn paths will likely result in conflicts with parked cars in this section of Dural Street, particularly in the instance where a vehicle is leaving the loading dock in an easterly direction as another vehicle is entering.

Appendix: SIDRA Analysis Outputs – Future and 2031 Scenarios

NETWORK LAYOUT

Network: 1 [AM - Updated w Station St]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	CCG ID	Site Name
1	NA	Future - Coronation St / Peats Ferry Road AM_without_Dev_DoMin
2	NA	Future - Dural St / Peats Ferry Road AM_without_Dev_DoMin
5	NA	Future - William St / Peats Ferry Road AM_without_Dev_DoMin
6	NA	Future - High St / Peats Ferry Road AM_without_Dev_DoMin
7	CCG2	Future - George St / Peats Ferry Road / Pacific Hwy AM_without_Dev_DoMin
8	CCG2	Future - Edgeworth David Ave / Pacific Hwy AM_without_Dev_DoMin
4	NA	Peats Ferry Road / Station Street - 2017 AM - Future

LANE SUMMARY

 Site: 1 [Future - Coronation St / Peats Ferry Road
AM_without_Dev_DoMin]

 Network: 1 [AM - Updated w
Station St]

Coronation St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Lane Use and Performance																	
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.		
	Total	HV	Total	HV						Veh	Dist					m	m
	veh/h	%	veh/h	%	veh/h	v/c	%	sec									
South: Peats Ferry Road																	
Lane 1	456	5.3	456	5.3	1138 ¹	0.400	100	5.5	LOS A	9.7	71.2	Full	48	0.0	41.0		
Lane 2	112	17.9	112	17.9	453	0.247	100	10.6	LOS A	1.5	12.4	Short	25	0.0	NA		
Approach	567	7.8	567	7.8		0.400		6.5	LOS A	9.7	71.2						
East: Coronation St																	
Lane 1	155	1.4	155	1.4	337 ¹	0.460	100	44.3	LOS D	7.6	53.5	Short	15	0.0	NA		
Lane 2	74	0.0	74	0.0	142 ¹	0.517	100	59.3	LOS E	4.2	29.4	Full	73	0.0	0.0		
Approach	228	0.9	228	0.9		0.517		49.1	LOS D	7.6	53.5						
North: Peats Ferry Road																	
Lane 1	76	13.9	76	13.9	1002	0.076	100	13.6	LOS A	1.8	13.9	Short (P)	20	0.0	NA		
Lane 2	565	1.7	565	1.7	1072 ¹	0.527	100	12.2	LOS A	17.0	120.9		Full	500	0.0	0.0	
Lane 3	41	0.0	41	0.0	572	0.072	100	12.4	LOS A	0.9	6.4		Short	60	0.0	NA	
Approach	682	2.9	682	2.9		0.527		12.4	LOS A	17.0	120.9						
West: Aquatic Centre																	
Lane 1	23	4.5	23	4.5	192	0.121	100	56.7	LOS E	1.3	9.1	Short	25	0.0	NA		
Lane 2	23	0.0	23	0.0	120	0.193	100	62.1	LOS E	1.3	9.4	Full	90	0.0	0.0		
Approach	46	2.3	46	2.3		0.193		59.4	LOS E	1.3	9.4						
Intersection	1524	4.4	1524	4.4		0.527		17.1	LOS B	17.0	120.9						

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

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Project: C:\Users\minck\Documents\2020\0420 Peats Ferry TIA\Memo SIDRAS\Peats Ferry Road - future do minimum without development - Memo.sip8

LANE SUMMARY

Site: 2 [Future - Dural St / Peats Ferry Road
AM_without_Dev_DoMin]

Network: 1 [AM - Updated w
Station St]

Dural St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance																
	Demand		Arrival		Flows Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.	
	Total	HV	Total	HV						Veh	Dist m					
	veh/h	%	veh/h	%												veh/h
South: Peats Ferry Road																
Lane 1	515	9.2	515	9.2	1079	0.477	100	0.2	LOS A	0.0	0.0	Full	78	-40.0 ^{N3}	0.0	
Approach	515	9.2	515	9.2		0.477		0.2	NA	0.0	0.0					
North: Peats Ferry Road																
Lane 1	727	1.4	727	1.4	1873	0.388	100	0.0	LOS A	0.0	0.0	Full	48	0.0	0.0	
Approach	727	1.4	727	1.4		0.388		0.0	NA	0.0	0.0					
West: Dural St																
Lane 1	94	1.1	94	1.1	552	0.170	100	5.8	LOS A	0.4	2.8	Full	500	-40.2 ^{N3}	0.0	
Approach	94	1.1	94	1.1		0.170		5.8	LOS A	0.4	2.8					
Intersection	1336	4.4	1336	4.4		0.477		0.5	NA	0.4	2.8					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

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LANE SUMMARY

 Site: 4 [Future - Peats Ferry Road / Station Street
_AM_Nodev]

 Network: 1 [AM - Updated w
Station St]

Peats Ferry Road / Station Street

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	519	8.9	519	8.9	1206 ¹	0.430	100	2.6	LOS A	5.5	41.7	Full	27	0.0	44.9
Lane 2	81	0.0	81	0.0	667	0.122	100	4.1	LOS A	0.6	4.1	Short	13	0.0	NA
Approach	600	7.7	600	7.7		0.430		2.8	LOS A	5.5	41.7				
North: Peats Ferry Road															
Lane 1	96	0.0	96	0.0	1463	0.065	100	6.0	LOS A	1.1	8.0	Short	28	0.0	NA
Lane 2	611	1.9	611	1.9	1451 ¹	0.421	100	3.7	LOS A	10.2	72.4	Full	78	0.0	0.0
Approach	706	1.6	706	1.6		0.421		4.0	LOS A	10.2	72.4				
Intersection	1306	4.4	1306	4.4		0.430		3.5	LOS A	10.2	72.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

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LANE SUMMARY

 Site: 5 [Future - William St / Peats Ferry Road
AM_without_Dev_DoMin]

 Network: 1 [AM - Updated w
Station St]

William St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	91	1.2	91	1.2	1390	0.065	100	8.7	LOS A	2.1	15.1	Full	35	0.0	0.0
Lane 2	560	6.2	560	6.2	809	0.692	100	6.4	LOS A	7.7 ^{N4}	57.1 ^{N4}	Full	35	-44.9 ^{N3}	50.0
Approach	651	5.5	651	5.5		0.692		6.7	LOS A	7.7	57.1				
East: Bus Rail Interchange															
Lane 1	4946.8		49	46.8	621	0.080	100	4.1	LOS A	0.4	4.3	Short	25	0.0	NA
Lane 2	1	0.0	1	0.0	208	0.005	100	51.2	LOS D	0.1	0.4	Full	30	0.0	0.0
Lane 3	1864.7		18	64.7	70	0.257	100	58.4	LOS E	1.0	10.9	Full	30	-44.9 ^{N3}	0.0
Approach	6850.8		68	50.8		0.257		19.0	LOS B	1.0	10.9				
North: Peats Ferry Road															
Lane 1	509	1.9	509	1.9	1541	0.331	100	0.4	LOS A	0.9	6.1	Full	27	0.0	0.0
Lane 2	104	0.0	104	0.0	469	0.222	100	10.1	LOS A	1.8	12.7	Short	24	0.0	NA
Approach	614	1.5	614	1.5		0.331		2.1	LOS A	1.8	12.7				
West: William St															
Lane 1	26	4.0	26	4.0	107	0.247	100	56.8	LOS E	1.4	10.3	Short	20	-44.9 ^{N3}	NA
Lane 2	144	1.5	144	1.5	160 ¹	0.904	100	75.6	LOS F	9.8	69.7	Full	500	0.0	0.0
Approach	171	1.9	171	1.9		0.904		72.7	LOS F	9.8	69.7				
Intersection	1503	5.5	1503	5.5		0.904		12.9	LOS A	9.8	69.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

▽ Site: 6 [Future - High St / Peats Ferry Road
AM_without_Dev_DoMin]

♣♣ Network: 1 [AM - Updated w
Station St]

High St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: High St															
Lane 1	32	0.0	32	0.0	566	0.056	100	7.0	LOS A	0.2	1.6	Full	500	0.0	0.0
Lane 2	28	0.0	28	0.0	93	0.307	100	27.6	LOS B	0.6	3.9	Short	10	-47.9 ^{N3}	NA
Approach	60	0.0	60	0.0		0.307		16.8	LOS B	0.6	3.9				
East: Peats Ferry Road															
Lane 1	46	0.0	46	0.0	1857	0.025	100	2.9	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	307	6.0	307	6.0	1781	0.173	100	3.5	LOS A	0.0	0.0	Short	20	0.0	NA
Lane 3	307	6.0	307	6.0	1781	0.173	100	3.5	LOS A	7.7 ^{N5}	56.6 ^{N5}	Full	80	0.0	0.0
Approach	661	5.6	661	5.6		0.173		3.5	NA	7.7	56.6				
North: Peats Ferry Road															
Lane 1	651	5.5	651	5.5	925	0.703	100	3.0	LOS A	0.0	0.0	Full	35	-47.9 ^{N3}	0.0
Lane 2	53	0.0	53	0.0	494	0.106	100	5.7	LOS A	0.4	2.9	Short	27	0.0	NA
Approach	703	5.1	703	5.1		0.703		3.2	NA	0.4	2.9				
Intersection	1424	5.1	1424	5.1		0.703		3.9	NA	7.7	56.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

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LANE SUMMARY

 **Site: 7 [Future - George St / Peats Ferry Road / Pacific Hwy**  **Network: 1 [AM - Updated w Station St]**
AM_without_Dev_DoMin]

George St / Peats Ferry Road / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance																
	Demand		Arrival		Flows	Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV							Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	%	sec			m		m	%	%
South: Pacific Hwy																
Lane 1	655	5.5	655	5.5	738 ¹	0.888	100	42.1	LOS C		14.5 ^{N4}	106.1 ^{N4}	Short	45	0.0	NA
Lane 2	359	6.8	359	6.8	832	0.432	100	18.2	LOS B		10.4	77.1	Full	65	0.0	50.0 ⁸
Lane 3	369	6.8	369	6.8	854	0.432	100	18.0	LOS B		10.6	78.5	Full	65	0.0	22.1
Approach	1383	6.2	1383	6.2		0.888		29.5	LOS C		14.5	106.1				
East: Parking																
Lane 1	20	0.0	20	0.0	96	0.208	100	65.9	LOS E		1.2	8.3	Full	500	0.0	0.0
Lane 2	27	0.0	27	0.0	99	0.277	100	65.1	LOS E		1.6	11.5	Full	500	0.0	0.0
Approach	47	0.0	47	0.0		0.277		65.4	LOS E		1.6	11.5				
North: George St																
Lane 1	402	4.5	402	4.5	447 ¹	0.900	100	57.0	LOS E		25.4	184.6	Short	70	0.0	NA
Lane 2	263	6.1	263	6.1	292	0.900	100	58.0	LOS E		16.3	119.8	Full	500	-50.0 ^{N3}	0.0
Lane 3	263	6.1	263	6.1	292	0.900	100	58.0	LOS E		16.3	119.8	Full	500	-50.0 ^{N3}	0.0
Approach	928	5.4	928	5.4		0.900		57.6	LOS E		25.4	184.6				
West: Peats Ferry Road																
Lane 1	147	0.0	147	0.0	623	0.237	100	35.0	LOS C		6.2	43.4	Short	50	0.0	NA
Lane 2	261	6.5	261	6.5	292 ¹	0.895	100	60.6	LOS E		15.7	116.3	Short	70	-50.0 ^{N3}	NA
Lane 3	275	6.5	275	6.5	307	0.895	100	60.2	LOS E		16.6	122.7	Full	80	-50.0 ^{N3}	44.2
Approach	683	5.1	683	5.1		0.895		54.9	LOS D		16.6	122.7				
Intersection	3042	5.6	3042	5.6		0.900		44.3	LOS D		25.4	184.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

 Site: 8 [Future - Edgeworth David Ave / Pacific Hwy
AM_without_Dev_DoMin]

 Network: 1 [AM - Updated w
Station St]

Edgeworth David Ave / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %	Total veh/h	HV %						Veh	Dist m				
South: Pacific Hwy															
Lane 1	406	6.9	406	6.9	508	0.799	100	23.0	LOS B	15.7	116.6	Full	500	-50.0 ^{N3}	0.0
Lane 2	645	6.9	645	6.9	807	0.799	100	21.5	LOS B	26.8	198.8	Full	500	-20.1 ^{N3}	0.0
Lane 3	286	7.0	286	7.0	243	1.180	100	218.0	LOS F	38.4	285.0	Short	215	0.0	NA
Approach	1337	6.9	1337	6.9		1.180		64.0	LOS E	38.4	285.0				
East: Edgeworth David Ave															
Lane 1	251	8.0	251	8.0	849	0.295	100	25.5	LOS B	8.7	65.2	Full	500	0.0	0.0
Lane 2	125	3.9	125	3.9	311	0.402	100	34.7	LOS C	5.1	36.8	Full	500	-50.0 ^{N3}	0.0
Lane 3	200	3.9	200	3.9	497	0.402	100	36.2	LOS C	8.5	61.7	Short	51	-20.1 ^{N3}	NA
Approach	576	5.7	576	5.7		0.402		31.2	LOS C	8.7	65.2				
North: Pacific Hwy															
Lane 1	277	7.2	277	7.2	1435	0.193	100	5.9	LOS A	1.6	12.1	Full	65	0.0	0.0
Lane 2	910.0		910.0		485	0.020	100	21.9	LOS B	0.3	4.2	Short	50	0.0	NA
Lane 3	554	6.0	554	6.0	770	0.719	100	31.2	LOS C	14.4 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0
Lane 4	554	6.0	554	6.0	770	0.719	100	30.2	LOS C	14.4 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0
Approach	1394	6.9	1394	6.9		0.719		25.7	LOS B	14.4	106.1				
Intersection	3306	6.7	3306	6.7		1.180		42.2	LOS C	38.4	285.0				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

▽ Site: 9 [Future - Dural St / Frederick St AM_without_Dev_DoMin]

Dural St / Frederick St
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1	101	0.0	1268	0.080	100	3.6	LOS A	0.3	2.0	Full	500	0.0	0.0
Approach	101	0.0		0.080		3.6	LOS A	0.3	2.0				
East: Dural St													
Lane 1	32	3.3	1854	0.017	100	2.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	32	3.3		0.017		2.0	NA	0.0	0.0				
North: Quarry Rd													
Lane 1	18	11.8	1237	0.014	100	3.4	LOS A	0.0	0.4	Full	500	0.0	0.0
Approach	18	11.8		0.014		3.4	LOS A	0.0	0.4				
Intersection	151	2.1		0.080		3.2	NA	0.3	2.0				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

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LANE SUMMARY

 **Site: 10 [Future - William St / Frederick St AM_without_Dev_DoMin]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1 ^d	172	0.0	1299	0.132	100	4.4	LOS A	0.7	4.8	Full	500	0.0	0.0
Approach	172	0.0		0.132		4.4	LOS A	0.7	4.8				
East: William St													
Lane 1 ^d	113	0.0	1316	0.086	100	3.3	LOS A	0.4	3.0	Full	500	0.0	0.0
Approach	113	0.0		0.086		3.3	LOS A	0.4	3.0				
North: Frederick St													
Lane 1 ^d	43	2.4	1103	0.039	100	3.5	LOS A	0.2	1.3	Full	500	0.0	0.0
Approach	43	2.4		0.039		3.5	LOS A	0.2	1.3				
West: William St													
Lane 1 ^d	95	2.2	1101	0.086	100	4.0	LOS A	0.4	3.0	Full	500	0.0	0.0
Approach	95	2.2		0.086		4.0	LOS A	0.4	3.0				
Intersection	422	0.7		0.132		3.9	LOS A	0.7	4.8				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

^d Dominant lane on roundabout approach

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LANE SUMMARY

 **Site: 1 [Future - Coronation St / Peats Ferry Road
PM_without_Dev_DoMin]**

 **Network: N101 [PM -
Updated w Station St]**

Coronation St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Lane Use and Performance																
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.	
	Total	HV	Total	HV						Veh	Dist					
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%	
South: Peats Ferry Road																
Lane 1	735	2.4	659	2.4	1320 ¹	0.500	100	6.0	LOS A	11.0 ^{N4}	78.3 ^{N4}	Full	48	0.0	50.0	
Lane 2	723	30.9	64	30.5	505	0.127	100	8.7	LOS A	0.8	7.0	Short	25	0.0	NA	
Approach	806	5.0	723 ^{N1}	4.9		0.500		6.2	LOS A	11.0	78.3					
East: Coronation St																
Lane 1	186	0.6	186	0.6	343 ¹	0.543	100	49.7	LOS D	10.5	74.0	Short	15	0.0	NA	
Lane 2	83	0.0	83	0.0	90 ¹	0.921	100	90.8	LOS F	6.6	46.2	Full	500	0.0	0.0	
Approach	269	0.4	269	0.4		0.921		62.4	LOS E	10.5	74.0					
North: Peats Ferry Road																
Lane 1	57	16.7	57	16.7	971	0.059	100	15.6	LOS B	1.6	12.5	Short (P)	20	0.0	NA	
Lane 2	461	1.1	461	1.1	1080 ¹	0.427	100	13.4	LOS A	15.1	106.9	Full	500	0.0	0.0	
Lane 3	20	0.0	20	0.0	433	0.046	100	14.0	LOS A	0.5	3.6	Short	60	0.0	NA	
Approach	538	2.7	538	2.7		0.427		13.7	LOS A	15.1	106.9					
West: Aquatic Centre																
Lane 1	34	0.0	34	0.0	222	0.152	100	63.5	LOS E	2.1	14.6	Short	25	0.0	NA	
Lane 2	36	0.0	36	0.0	111	0.323	100	73.2	LOS F	2.4	17.1	Full	500	0.0	0.0	
Approach	69	0.0	69	0.0		0.323		68.5	LOS E	2.4	17.1					
Intersection	1683	3.3	1600 ^{N1}	3.5		0.921		20.9	LOS B	15.1	106.9					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

▽ Site: 2 [Future - Dural St / Peats Ferry Road
PM_without_Dev_DoMin]

Network: N101 [PM -
Updated w Station St]

Dural St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	682	5.9	598	6.0	1833	0.326	100	0.2	LOS A	3.4 ^{N5}	24.7 ^{N5}	Full	78	0.0	0.0
Approach	682	5.9	598 ^{N1}	6.0		0.326		0.2	NA	3.4	24.7				
North: Peats Ferry Road															
Lane 1	666	0.9	666	0.9	1366	0.488	100	0.0	LOS A	0.0	0.0	Full	48	-27.3 ^{N3}	0.0
Approach	666	0.9	666	0.9		0.488		0.0	NA	0.0	0.0				
West: Dural St															
Lane 1	174	0.0	174	0.0	427	0.407	100	7.5	LOS A	1.0	6.9	Full	500	-49.3 ^{N3}	0.0
Approach	174	0.0	174	0.0		0.407		7.5	LOS A	1.0	6.9				
Intersection	1522	3.0	1438 ^{N1}	3.2		0.488		1.0	NA	3.4	24.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

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Project: C:\Users\minck\Documents\2020\0420 Peats Ferry TIA\Memo SIDRAS\Peats Ferry Road - future do minimum without development - Memo.sip8

LANE SUMMARY

 Site: 4 [Future - Peats Ferry Road / Station Street PM without Dev]

 Network: N101 [PM - Updated w Station St]

Peats Ferry Road / Station Street

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	697	6.2	611	6.3	1501 ¹	0.407	100	1.1	LOS A	3.3	24.5	Full	27	0.0	0.0
Lane 2	68	1.5	60	1.6	667	0.090	100	4.7	LOS A	0.7	4.7	Short	13	0.0	NA
Approach	765	5.8	670 ^{N1}	5.9		0.407		1.4	LOS A	3.3	24.5				
North: Peats Ferry Road															
Lane 1	77	0.0	77	0.0	1515	0.051	100	6.7	LOS A	1.4	10.1	Short	28	0.0	NA
Lane 2	575	1.1	575	1.1	1232 ¹	0.466	100	4.5	LOS A	14.1	99.7	Full	78	-18.5 ^{N3}	27.3
Approach	652	1.0	652	1.0		0.466		4.8	LOS A	14.1	99.7				
Intersection	1417	3.6	1322 ^{N1}	3.8		0.466		3.1	LOS A	14.1	99.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

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LANE SUMMARY

 Site: 5 [Future - William St / Peats Ferry Road
PM_without_Dev_DoMin]

 Network: N101 [PM -
Updated w Station St]

William St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	133	0.0	114	0.0	1541	0.074	100	5.6	LOS A	1.9	13.3	Full	35	0.0	0.0
Lane 2	684	4.5	589	4.3	1206	0.488	100	16.6	LOS B	7.9 ^{N4}	57.1 ^{N4}	Full	35	0.0	50.0
Approach	817	3.7	703 ^{N1}	3.6		0.488		14.8	LOS B	7.9	57.1				
East: Bus Rail Interchange															
Lane 1	44	47.6	44	47.6	649	0.068	100	4.8	LOS A	0.5	4.9	Short	25	-35.5 ^{N7}	NA
Lane 2	1	0.0	1	0.0	82	0.013	100	70.9	LOS F	0.1	0.5	Full	30	0.0	0.0
Lane 3	24	52.2	24	52.2	71	0.342	100	78.1	LOS F	1.7	17.5	Full	30	0.0	0.0
Approach	69	48.5	69	48.5		0.342		31.4	LOS C	1.7	17.5				
North: Peats Ferry Road															
Lane 1	467	1.4	467	1.4	630 ¹	0.742	100	4.6	LOS A	5.4	38.1	Full	27	-35.5 ^{N7}	36.4
Lane 2	103	0.0	103	0.0	314	0.328	100	28.9	LOS C	4.5	31.5	Short	24	0.0	NA
Approach	571	1.1	571	1.1		0.742		9.0	LOS A	5.4	38.1				
West: William St															
Lane 1	55	0.0	55	0.0	499	0.110	100	44.2	LOS D	2.8	19.4	Short	20	0.0	NA
Lane 2	184	0.0	184	0.0	254 ¹	0.724	100	50.8	LOS D	10.7	74.7	Full	500	-35.5 ^{N7}	0.0
Approach	239	0.0	239	0.0		0.724		49.3	LOS D	10.7	74.7				
Intersection	1696	4.2	1582 ^{N1}	4.5		0.742		18.7	LOS B	10.7	74.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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Memo.sip8

LANE SUMMARY

▽ Site: 6 [Future - High St / Peats Ferry Road
PM_without_Dev_DoMin]

Network: N101 [PM -
Updated w Station St]

High St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: High St															
Lane 1	59	0.0	59	0.0	540	0.109	100	7.7	LOS A	0.5	3.2	Full	500	0.0	0.0
Lane 2	36	0.0	36	0.0	91	0.392	100	29.7	LOS C	0.7	5.1	Short	10	-50.0 ^{N3}	NA
Approach	95	0.0	95	0.0		0.392		16.0	LOS B	0.7	5.1				
East: Peats Ferry Road															
Lane 1	109	0.0	94	0.0	1857	0.050	100	2.9	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	385	4.0	329	3.9	1807	0.182	100	3.5	LOS A	0.0	0.0	Short	20	0.0	NA
Lane 3	385	4.0	329	3.9	1807	0.182	100	3.5	LOS A	15.2 ^{N5}	109.7 ^{N5}	Full	80	0.0	33.8 ^{N5}
Approach	879	3.5	752 ^{N1}	3.4		0.182		3.4	NA	15.2	109.7				
North: Peats Ferry Road															
Lane 1	643	4.1	643	4.1	1793	0.359	100	2.9	LOS A	6.9 ^{N5}	49.7 ^{N5}	Full	35	0.0	37.0 ^{N5}
Lane 2	51	0.0	51	0.0	481	0.105	100	6.0	LOS A	0.4	2.8	Short	27	0.0	NA
Approach	694	3.8	694	3.8		0.359		3.2	NA	6.9	49.7				
Intersection	1667	3.4	1540 ^{N1}	3.7		0.392		4.1	NA	15.2	109.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

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LANE SUMMARY

 Site: 7 [Future - George St / Peats Ferry Road / Pacific Hwy
PM_without_Dev_DoMin]

 Network: N101 [PM -
Updated w Station St]

George St / Peats Ferry Road / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance																
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.	
	Total veh/h	HV %	Total veh/h	HV %						veh/h	v/c					%
South: Pacific Hwy																
Lane 1	763	4.0	740	4.0	645 ¹	1.147	100	210.4	LOS F	14.7 ^{N4}	106.1 ^{N4}	Short	45	-34.0 ^{N7}	NA	
Lane 2	247	2.2	240	2.2	299 ¹	0.802	100	40.3	LOS C	12.0	85.5	Full	65	0.0	50.0 ⁸	
Lane 3	599	2.2	581	2.2	725	0.802	100	42.8	LOS D	14.9 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0	
Approach	1609	3.1	1562 ^{N1}	3.1		1.147		121.9	LOS F	14.9	106.1					
East: Parking																
Lane 1	184	0.0	184	0.0	261	0.705	100	67.9	LOS E	12.4	87.1	Full	500	0.0	0.0	
Lane 2	262	0.0	262	0.0	269	0.975	100	100.2	LOS F	23.1	161.4	Full	500	0.0	0.0	
Approach	446	0.0	446	0.0		0.975		86.9	LOS F	23.1	161.4					
North: George St																
Lane 1	337	5.1	337	5.1	321 ¹	1.049	100	141.0	LOS F	37.0	270.1	Short	70	0.0	NA	
Lane 2	215	5.8	215	5.8	205	1.049	100	147.3	LOS F	24.2	177.6	Full	500	-50.0 ^{N3}	0.0	
Lane 3	215	5.8	215	5.8	205	1.049	100	147.3	LOS F	24.2	177.6	Full	500	-50.0 ^{N3}	0.0	
Approach	766	5.5	766	5.5		1.049		144.5	LOS F	37.0	270.1					
West: Peats Ferry Road																
Lane 1	140	0.0	140	0.0	639	0.219	100	43.9	LOS D	8.0	55.7	Short	50	0.0	NA	
Lane 2	281	4.9	281	4.9	297 ¹	0.948	100	82.2	LOS F	17.9 ^{N4}	130.6 ^{N4}	Short	70	-50.0 ^{N3}	NA	
Lane 3	274	4.9	274	4.9	289 ¹	0.948	100	82.4	LOS F	17.9 ^{N4}	130.6 ^{N4}	Full	80	-50.0 ^{N3}	50.0 ⁸	
Approach	696	3.9	696	3.9		0.948		74.6	LOS F	17.9	130.6					
Intersection	3518	3.4	3470 ^{N1}	3.4		1.147		112.9	LOS F	37.0	270.1					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

LANE SUMMARY

 **Site: 8 [Future - Edgeworth David Ave / Pacific Hwy
PM_without_Dev_DoMin]**

 **Network: N101 [PM -
Updated w Station St]**

Edgeworth David Ave / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance																
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.	
	Total veh/h	HV %	Total veh/h	HV %						Veh	Dist m					h m
South: Pacific Hwy																
Lane 1	552	3.4	552	3.4	519	1.063	100	144.6	LOS F	68.2	491.3	Full	500	-50.0 ^{N3}		3.4
Lane 2	549	3.4	549	3.4	516	1.063	100	144.8	LOS F	67.9	489.0	Full	500	-50.0 ^{N3}		3.0
Lane 3	188	2.8	188	2.8	271	0.696	100	68.5	LOS E	12.5	89.3	Short	215	0.0		NA
Approach	1289	3.3	1289	3.3		1.063		133.6	LOS F	68.2	491.3					
East: Edgeworth David Ave																
Lane 1	319	3.3	319	3.3	933	0.342	100	26.7	LOS B	12.6	90.7	Full	500	0.0		0.0
Lane 2	257	2.2	257	2.2	256 ¹	1.006	100	128.6	LOS F	27.8	198.3	Full	500	-50.0 ^{N3}		0.0
Lane 3	257	2.2	257	2.2	256 ¹	1.006	100	128.6	LOS F	27.8	198.3	Short	51	-50.0 ^{N3}		NA
Approach	834	2.7	834	2.7		1.006		89.6	LOS F	27.8	198.3					
North: Pacific Hwy																
Lane 1	331	3.2	331	3.2	1458	0.227	100	7.5	LOS A	4.7	33.9	Full	65	0.0		0.0
Lane 2	1100	100.0	1100	100.0	465	0.023	100	26.9	LOS B	0.4	5.6	Short	50	0.0		NA
Lane 3	565	5.2	565	5.2	729 ¹	0.775	100	38.2	LOS C	14.5 ^{N4}	106.1 ^{N4}	Full	65	0.0		50.0
Lane 4	576	5.2	576	5.2	743	0.775	100	38.9	LOS C	14.5 ^{N4}	106.1 ^{N4}	Full	65	0.0		50.0
Approach	1482	5.4	1482	5.4		0.775		31.6	LOS C	14.5	106.1					
Intersection	3605	4.0	3605	4.0		1.063		81.5	LOS F	68.2	491.3					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

▽ Site: 9 [Future - Dural St / Frederick St PM_without_Dev_DoMin]

Dural St / Frederick St
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1	123	0.0	1239	0.099	100	3.6	LOS A	0.3	2.4	Full	500	0.0	0.0
Approach	123	0.0		0.099		3.6	LOS A	0.3	2.4				
East: Dural St													
Lane 1	32	0.0	1890	0.017	100	2.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	32	0.0		0.017		2.2	NA	0.0	0.0				
North: Quarry Rd													
Lane 1	17	0.0	1430	0.012	100	2.6	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	17	0.0		0.012		2.6	LOS A	0.0	0.3				
Intersection	172	0.0		0.099		3.3	NA	0.3	2.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

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LANE SUMMARY

 **Site: 10 [Future - William St / Frederick St PM_without_Dev_DoMin]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1 ^d	156	0.0	1242	0.125	100	4.2	LOS A	0.6	4.5	Full	500	0.0	0.0
Approach	156	0.0		0.125		4.2	LOS A	0.6	4.5				
East: William St													
Lane 1 ^d	136	0.0	1319	0.103	100	3.2	LOS A	0.5	3.6	Full	500	0.0	0.0
Approach	136	0.0		0.103		3.2	LOS A	0.5	3.6				
North: Frederick St													
Lane 1 ^d	40	0.0	1162	0.034	100	3.4	LOS A	0.2	1.1	Full	500	0.0	0.0
Approach	40	0.0		0.034		3.4	LOS A	0.2	1.1				
West: William St													
Lane 1 ^d	91	0.0	1132	0.080	100	4.0	LOS A	0.4	2.8	Full	500	0.0	0.0
Approach	91	0.0		0.080		4.0	LOS A	0.4	2.8				
Intersection	422	0.0		0.125		3.7	LOS A	0.6	4.5				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

^d Dominant lane on roundabout approach

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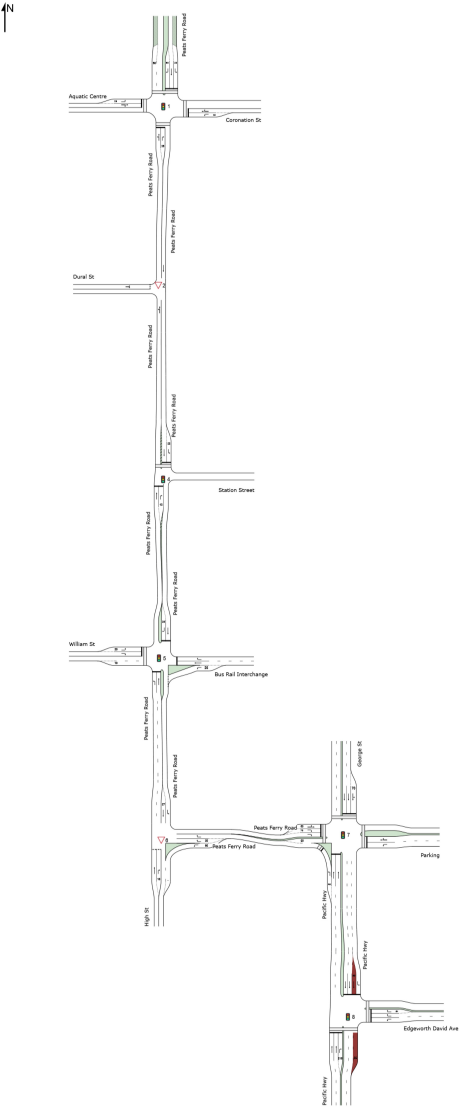
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Project: C:\Users\minck\Documents\2020\0420 Peats Ferry TIA\Memo SIDRAS\Peats Ferry Road - future do minimum without development - Memo.sip8

NETWORK LAYOUT

Network: 1 [AM]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	CCG ID	Site Name
1	NA	Future - Coronation St / Peats Ferry Road AM_with_Dev_DoMin
2	NA	Future - Dural St / Peats Ferry Road AM_with_Dev_DoMin
5	NA	Future - William St / Peats Ferry Road AM_with_Dev_DoMin
6	NA	Future - High St / Peats Ferry Road AM_with_Dev_DoMin
7	CCG2	Future - George St / Peats Ferry Road / Pacific Hwy AM_with_Dev_DoMin
8	CCG2	Future - Edgeworth David Ave / Pacific Hwy AM_with_Dev_DoMin
4	NA	Future - Peats Ferry Road / Station Street AM_with_Dev_DoMin

LANE SUMMARY

 Site: 1 [Future - Coronation St / Peats Ferry Road
AM_with_Dev_DoMin]

 Network: 1 [AM - Updated]

Coronation St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	505	4.8	499	4.8	1154 ¹	0.432	100	5.5	LOS A	10.7	77.9	Full	48	0.0	49.5
Lane 2	118	17.0	116	17.0	427	0.272	100	11.0	LOS A	1.6	12.9	Short	25	0.0	NA
Approach	623	7.1	615 ^{N1}	7.1		0.432		6.5	LOS A	10.7	77.9				
East: Coronation St															
Lane 1	160	1.3	160	1.3	337 ¹	0.475	100	44.4	LOS D	7.8	55.5	Short	15	0.0	NA
Lane 2	74	0.0	74	0.0	141 ¹	0.521	100	59.3	LOS E	4.2	29.4	Full	73	0.0	0.0
Approach	234	0.9	234	0.9		0.521		49.1	LOS D	7.8	55.5				
North: Peats Ferry Road															
Lane 1	76	13.9	76	13.9	1002	0.076	100	13.6	LOS A	1.8	13.9	Short (P)	20	0.0	NA
Lane 2	612	1.5	612	1.5	1077 ¹	0.568	100	12.6	LOS A	19.1	135.5	Full	500	0.0	0.0
Lane 3	41	0.0	41	0.0	544	0.076	100	12.5	LOS A	0.9	6.4	Short	60	0.0	NA
Approach	728	2.7	728	2.7		0.568		12.7	LOS A	19.1	135.5				
West: Aquatic Centre															
Lane 1	23	4.5	23	4.5	192	0.121	100	56.7	LOS E	1.3	9.1	Short	25	0.0	NA
Lane 2	23	0.0	23	0.0	117	0.198	100	62.2	LOS E	1.3	9.4	Full	90	0.0	0.0
Approach	46	2.3	46	2.3		0.198		59.5	LOS E	1.3	9.4				
Intersection	1632	4.1	1623 ^{N1}	4.2		0.568		17.0	LOS B	19.1	135.5				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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LANE SUMMARY

Site: 2 [Future - Dural St / Peats Ferry Road
AM_with_Dev_DoMin]

Network: 1 [AM - Updated]

Dural St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist m				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec					m	%	%
South: Peats Ferry Road															
Lane 1	538	8.8	529	8.8	948	0.558	100	0.3	LOS A	0.0	0.0	Full	78	-47.3 ^{N3}	0.0
Approach	538	8.8	529 ^{N1}	8.8		0.558		0.3	NA	0.0	0.0				
North: Peats Ferry Road															
Lane 1	779	1.4	779	1.4	1712	0.455	100	0.0	LOS A	0.0	0.0	Full	48	-8.7 ^{N3}	0.0
Approach	779	1.4	779	1.4		0.455		0.0	NA	0.0	0.0				
West: Dural St															
Lane 1	167	0.6	167	0.6	408	0.411	100	8.1	LOS A	1.0	7.2	Full	500	-46.3 ^{N3}	0.0
Approach	167	0.6	167	0.6		0.411		8.1	LOS A	1.0	7.2				
Intersection	1484	4.0	1476 ^{N1}	4.0		0.558		1.0	NA	1.0	7.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

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LANE SUMMARY

 Site: 4 [Future - Peats Ferry Road / Station Street
AM_with_Dev_DoMin]

 Network: 1 [AM - Updated]

Peats Ferry Road / Station Street

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	542	8.5	531	8.6	1493	0.356	100	0.8	LOS A	1.8	13.6	Full	27	0.0	0.0
Lane 2	81	0.0	79	0.0	606	0.131	100	4.4	LOS A	0.7	5.2	Short	13	0.0	NA
Approach	623	7.4	610 ^{N1}	7.5		0.356		1.2	LOS A	1.8	13.6				
North: Peats Ferry Road															
Lane 1	98	0.0	98	0.0	1478	0.066	100	5.8	LOS A	1.1	7.9	Short	28	0.0	NA
Lane 2	679	1.7	679	1.7	923 ¹	0.736	100	3.6	LOS A	11.4	81.2	Full	78	-37.4 ^{N3}	8.7
Approach	777	1.5	777	1.5		0.736		3.8	LOS A	11.4	81.2				
Intersection	1400	4.1	1387 ^{N1}	4.2		0.736		2.7	LOS A	11.4	81.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

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LANE SUMMARY

 Site: 5 [Future - William St / Peats Ferry Road
AM_with_Dev_DoMin]

 Network: 1 [AM - Updated]

William St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	91	1.2	88	1.2	1496	0.059	100	5.6	LOS A	1.3	9.3	Full	35	0.0	0.0
Lane 2	583	6.0	568	6.0	1239	0.459	100	13.7	LOS A	7.8 ^{N4}	57.1 ^{N4}	Full	35	0.0	50.0
Approach	674	5.3	656 ^{N1}	5.3		0.459		12.6	LOS A	7.8	57.1				
East: Bus Rail Interchange															
Lane 1	4946.8	49	46.8	848	0.058	100	4.6	LOS A	0.5	4.8	Short	25	-16.2 ^{N7}		NA
Lane 2	1	0.0	1	0.0	96	0.011	100	59.9	LOS E	0.1	0.4	Full	30	0.0	0.0
Lane 3	1864.7	18	64.7	81	0.222	100	66.1	LOS E	1.1	11.8	Full	30	0.0		0.0
Approach	6850.8	68	50.8		0.222			21.5	LOS B	1.1	11.8				
North: Peats Ferry Road															
Lane 1	526	1.8	526	1.8	915 ¹	0.575	100	3.8	LOS A	5.4	38.5	Full	27	-16.2 ^{N7}	37.4
Lane 2	156	0.0	156	0.0	354	0.440	100	23.3	LOS B	5.2	36.2	Short	24	0.0	NA
Approach	682	1.4	682	1.4		0.575		8.3	LOS A	5.4	38.5				
West: William St															
Lane 1	26	4.0	26	4.0	417	0.063	100	41.7	LOS C	1.2	8.6	Short	20	0.0	NA
Lane 2	162	1.3	162	1.3	276 ¹	0.587	100	46.6	LOS D	8.2	58.3	Full	500	-16.2 ^{N7}	0.0
Approach	188	1.7	188	1.7		0.587		45.9	LOS D	8.2	58.3				
Intersection	1613	5.2	1595 ^{N1}	5.2		0.587		15.1	LOS B	8.2	58.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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LANE SUMMARY

Site: 6 [Future - High St / Peats Ferry Road
AM_with_Dev_DoMin]

Network: 1 [AM - Updated]

High St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: High St															
Lane 1	32	0.0	32	0.0	577	0.055	100	6.9	LOS A	0.2	1.6	Full	500	0.0	0.0
Lane 2	28	0.0	28	0.0	91	0.312	100	28.0	LOS B	0.6	4.0	Short	10	-48.7 ^{N3}	NA
Approach	60	0.0	60	0.0		0.312		16.9	LOS B	0.6	4.0				
East: Peats Ferry Road															
Lane 1	46	0.0	45	0.0	1857	0.024	100	2.9	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	319	5.8	311	5.8	1784	0.174	100	3.5	LOS A	0.0	0.0	Short	20	0.0	NA
Lane 3	319	5.8	311	5.8	1784	0.174	100	3.5	LOS A	13.0 ^{N5}	95.2 ^{N5}	Full	80	0.0	20.8 ^{N5}
Approach	684	5.4	666 ^{N1}	5.4		0.174		3.5	NA	13.0	95.2				
North: Peats Ferry Road															
Lane 1	685	5.2	685	5.2	913	0.750	100	3.0	LOS A	0.0	0.0	Full	35	-48.7 ^{N3}	0.0
Lane 2	53	0.0	53	0.0	504	0.104	100	5.5	LOS A	0.4	2.8	Short	27	0.0	NA
Approach	738	4.9	738	4.9		0.750		3.2	NA	0.4	2.8				
Intersection	1482	4.9	1464 ^{N1}	5.0		0.750		3.9	NA	13.0	95.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

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LANE SUMMARY

 Site: 7 [Future - George St / Peats Ferry Road / Pacific Hwy
AM_with_Dev_DoMin]

 Network: 1 [AM - Updated]

George St / Peats Ferry Road / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance															
	Demand		Arrival		Flows Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Pacific Hwy															
Lane 1	678	5.3	678	5.3	660 ¹	1.027	100	114.9	LOS F	14.5 ^{N4}	106.1 ^{N4}	Short	45	-21.6 ^{N7}	NA
Lane 2	359	6.8	359	6.8	816	0.440	100	18.2	LOS B	10.4	77.0	Full	65	0.0	50.0 ⁸
Lane 3	369	6.8	369	6.8	838	0.440	100	18.2	LOS B	10.7	78.9	Full	65	0.0	22.6
Approach	1406	6.1	1406	6.1		1.027		64.8	LOS E	14.5	106.1				
East: Parking															
Lane 1	20	0.0	20	0.0	96	0.208	100	65.9	LOS E	1.2	8.3	Full	500	0.0	0.0
Lane 2	27	0.0	27	0.0	99	0.277	100	65.1	LOS E	1.6	11.5	Full	500	0.0	0.0
Approach	47	0.0	47	0.0		0.277		65.4	LOS E	1.6	11.5				
North: George St															
Lane 1	398	4.5	398	4.5	392 ¹	1.015	100	110.0	LOS F	36.6	266.4	Short	70	0.0	NA
Lane 2	265	6.1	265	6.1	261	1.015	100	115.5	LOS F	25.2	185.4	Full	500	-50.0 ^{N3}	0.0
Lane 3	265	6.1	265	6.1	261	1.015	100	115.5	LOS F	25.2	185.4	Full	500	-50.0 ^{N3}	0.0
Approach	928	5.4	928	5.4		1.015		113.2	LOS F	36.6	266.4				
West: Peats Ferry Road															
Lane 1	166	0.0	166	0.0	636	0.261	100	35.9	LOS C	7.6	53.5	Short	50	0.0	NA
Lane 2	267	6.3	267	6.3	295 ¹	0.904	100	58.3	LOS E	16.3	120.5	Short	70	-50.0 ^{N3}	NA
Lane 3	285	6.3	285	6.3	315	0.904	100	57.8	LOS E	17.5	128.7	Full	80	-50.0 ^{N3}	48.7
Approach	718	4.8	718	4.8		0.904		52.9	LOS D	17.5	128.7				
Intersection	3100	5.5	3100	5.5		1.027		76.6	LOS F	36.6	266.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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LANE SUMMARY

 Site: 8 [Future - Edgeworth David Ave / Pacific Hwy
AM_with_Dev_DoMin]

 Network: 1 [AM - Updated]

Edgeworth David Ave / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %	Total veh/h	HV %						Veh	Dist m				
South: Pacific Hwy															
Lane 1	417	6.9	417	6.9	500	0.833	100	28.1	LOS B	17.9	132.3	Full	500	-50.0 ^{N3}	0.0
Lane 2	642	6.9	642	6.9	770	0.833	100	25.8	LOS B	29.0	215.2	Full	500	-22.6 ^{N3}	0.0
Lane 3	286	7.0	286	7.0	278	1.029	100	96.6	LOS F	26.1	193.9	Short	215	0.0	NA
Approach	1345	6.9	1345	6.9		1.029		41.6	LOS C	29.0	215.2				
East: Edgeworth David Ave															
Lane 1	251	8.0	251	8.0	908	0.276	100	23.0	LOS B	8.1	60.9	Full	500	0.0	0.0
Lane 2	128	3.9	128	3.9	319	0.401	100	34.0	LOS C	5.1	37.0	Full	500	-50.0 ^{N3}	0.0
Lane 3	198	3.9	198	3.9	493	0.401	100	35.4	LOS C	8.3	60.0	Short	51	-22.6 ^{N3}	NA
Approach	576	5.7	576	5.7		0.401		29.7	LOS C	8.3	60.9				
North: Pacific Hwy															
Lane 1	286	7.0	280	7.0	1393	0.201	100	7.5	LOS A	3.2	23.5	Full	65	0.0	0.0
Lane 2	910	100.0	910	100.0	446	0.021	100	24.5	LOS B	0.3	4.4	Short	50	0.0	NA
Lane 3	557	6.0	544	6.0	708	0.769	100	35.3	LOS C	14.4 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0
Lane 4	557	6.0	544	6.0	708	0.769	100	35.3	LOS C	14.4 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0
Approach	1409	6.8	1378 ^{N1}	6.8		0.769		29.6	LOS C	14.4	106.1				
Intersection	3331	6.6	3299 ^{N1}	6.7		1.029		34.5	LOS C	29.0	215.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

▽ Site: 9 [Future - Dural St / Frederick St AM_with_Dev_DoMin]

Dural St / Frederick St
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1	191	0.0	1215	0.157	100	3.7	LOS A	0.6	4.1	Full	500	0.0	0.0
Approach	191	0.0		0.157		3.7	LOS A	0.6	4.1				
East: Dural St													
Lane 1	77	1.4	1857	0.041	100	2.8	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	77	1.4		0.041		2.8	NA	0.0	0.0				
North: Quarry Rd													
Lane 1	19	11.1	1230	0.015	100	3.4	LOS A	0.1	0.4	Full	500	0.0	0.0
Approach	19	11.1		0.015		3.4	LOS A	0.1	0.4				
Intersection	286	1.1		0.157		3.5	NA	0.6	4.1				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

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LANE SUMMARY

 **Site: 10 [Future - William St / Frederick St AM_with_Dev_DoMin]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1 ^d	207	0.0	1206	0.172	100	4.4	LOS A	0.9	6.5	Full	500	0.0	0.0
Approach	207	0.0		0.172		4.4	LOS A	0.9	6.5				
East: William St													
Lane 1 ^d	164	0.0	1279	0.128	100	4.2	LOS A	0.7	4.7	Full	500	0.0	0.0
Approach	164	0.0		0.128		4.2	LOS A	0.7	4.7				
North: Frederick St													
Lane 1 ^d	86	1.2	1110	0.078	100	3.5	LOS A	0.4	2.7	Full	500	0.0	0.0
Approach	86	1.2		0.078		3.5	LOS A	0.4	2.7				
West: William St													
Lane 1 ^d	96	2.2	1024	0.094	100	4.5	LOS A	0.5	3.4	Full	500	0.0	0.0
Approach	96	2.2		0.094		4.5	LOS A	0.5	3.4				
Intersection	554	0.6		0.172		4.2	LOS A	0.9	6.5				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

^d Dominant lane on roundabout approach

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LANE SUMMARY

 Site: 1 [Future - Coronation St / Peats Ferry Road
PM_with_Dev_DoMin]

 Network: N101 [PM -
Updated]

Coronation St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	792	2.3	727	2.2	1300 ¹	0.559	100	6.8	LOS A	11.0 ^{N4}	78.3 ^{N4}	Full	48	0.0	50.0
Lane 2	77	28.8	70	28.2	457	0.153	100	9.9	LOS A	0.9	8.1	Short	25	0.0	NA
Approach	868	4.6	797 ^{N1}	4.5		0.559		7.0	LOS A	11.0	78.3				
East: Coronation St															
Lane 1	201	0.5	201	0.5	341 ¹	0.590	100	49.2	LOS D	11.3	79.8	Short	15	-5.9 ^{N7}	NA
Lane 2	83	0.0	83	0.0	99 ¹	0.843	100	77.8	LOS F	6.0	42.2	Full	500	0.0	0.0
Approach	284	0.4	284	0.4		0.843		57.6	LOS E	11.3	79.8				
North: Peats Ferry Road															
Lane 1	57	16.7	57	16.7	959	0.059	100	16.1	LOS B	1.6	12.7	Short (P)	20	0.0	NA
Lane 2	519	1.0	519	1.0	1014 ¹	0.512	100	14.6	LOS B	18.1	127.7	Full	500	-5.9 ^{N7}	0.0
Lane 3	20	0.0	20	0.0	384	0.052	100	15.0	LOS B	0.5	3.8	Short	60	0.0	NA
Approach	596	2.5	596	2.5		0.512		14.7	LOS B	18.1	127.7				
West: Aquatic Centre															
Lane 1	34	0.0	34	0.0	235	0.143	100	62.4	LOS E	2.1	14.5	Short	25	0.0	NA
Lane 2	36	0.0	36	0.0	114	0.315	100	71.8	LOS F	2.4	16.9	Full	500	-5.6 ^{N7}	0.0
Approach	69	0.0	69	0.0		0.315		67.3	LOS E	2.4	16.9				
Intersection	1818	3.1	1746 ^{N1}	3.2		0.843		20.3	LOS B	18.1	127.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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LANE SUMMARY

▽ Site: 2 [Future - Dural St / Peats Ferry Road
PM_with_Dev_DoMin]

Network: N101 [PM -
Updated]

Dural St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	726	5.5	613	5.5	1833	0.334	100	0.4	LOS A	5.1 ^{N5}	37.2 ^{N5}	Full	78	0.0	0.0
Approach	726	5.5	613 ^{N1}	5.5		0.334		0.4	NA	5.1	37.2				
North: Peats Ferry Road															
Lane 1	739	0.9	739	0.9	1880	0.393	100	0.0	LOS A	0.6 ^{N5}	4.4 ^{N5}	Full	48	0.0	5.9 ^{N5}
Approach	739	0.9	739	0.9		0.393		0.0	NA	0.6	4.4				
West: Dural St															
Lane 1	261	0.0	261	0.0	371	0.704	100	12.7	LOS A	2.5	17.5	Full	500	-50.0 ^{N3}	0.0
Approach	261	0.0	261	0.0		0.704		12.7	LOS A	2.5	17.5				
Intersection	1726	2.7	1613 ^{N1}	2.9		0.704		2.2	NA	5.1	37.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

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LANE SUMMARY

 Site: 4 [Future - Peats Ferry Road / Station Street
PM_Dev_DoMin]

 Network: N101 [PM -
Updated]

Peats Ferry Road / Station Street

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	741	5.8	664	5.9	1468 ¹	0.452	100	1.1	LOS A	3.5	25.8	Full	27	0.0	1.0
Lane 2	68	1.5	61	1.5	596	0.103	100	5.1	LOS A	0.8	5.4	Short	13	0.0	NA
Approach	809	5.5	725 ^{N1}	5.5		0.452		1.4	LOS A	3.5	25.8				
North: Peats Ferry Road															
Lane 1	82	0.0	82	0.0	1515	0.054	100	6.5	LOS A	1.4	10.0	Short	28	0.0	NA
Lane 2	666	0.9	666	0.9	793 ¹	0.840	100	10.7	LOS A	18.0 ^{N4}	127.3 ^{N4}	Full	78	-48.3 ^{N3}	50.0
Approach	748	0.8	748	0.8		0.840		10.2	LOS A	18.0	127.3				
Intersection	1558	3.2	1473 ^{N1}	3.4		0.840		5.9	LOS A	18.0	127.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

 Site: 5 [Future - William St / Peats Ferry Road
PM_with_Dev_DoMin]

 Network: N101 [PM -
Updated]

William St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	133	0.0	111	0.0	1541	0.072	100	5.6	LOS A	1.8	12.8	Full	35	0.0	0.0
Lane 2	728	4.2	606	3.9	1250	0.484	100	13.8	LOS A	7.9 ^{N4}	57.1 ^{N4}	Full	35	-1.0 ^{N3}	50.0
Approach	861	3.5	716 ^{N1}	3.3		0.484		12.5	LOS A	7.9	57.1				
East: Bus Rail Interchange															
Lane 1	44	47.6	44	47.6	840	0.053	100	5.0	LOS A	0.5	5.1	Short	25	-16.3 ^{N7}	NA
Lane 2	1	0.0	1	0.0	82	0.013	100	70.9	LOS F	0.1	0.5	Full	30	0.0	0.0
Lane 3	24	52.2	24	52.2	70	0.345	100	78.1	LOS F	1.7	17.5	Full	30	-1.0 ^{N3}	0.0
Approach	69	48.5	69	48.5		0.345		31.5	LOS C	1.7	17.5				
North: Peats Ferry Road															
Lane 1	486	1.3	486	1.3	1098	0.443	100	3.5	LOS A	4.6	32.5	Full	27	-16.3 ^{N7}	48.3 ⁸
Lane 2	176	0.0	176	0.0	289 ¹	0.608	100	22.5	LOS B	6.2	43.3	Short	24	0.0	NA
Approach	662	1.0	662	1.0		0.608		8.5	LOS A	6.2	43.3				
West: William St															
Lane 1	55	0.0	55	0.0	442	0.124	100	47.6	LOS D	2.9	20.3	Short	20	-1.0 ^{N3}	NA
Lane 2	204	0.0	204	0.0	284 ¹	0.718	100	54.6	LOS D	12.4	86.6	Full	500	-16.3 ^{N7}	0.0
Approach	259	0.0	259	0.0		0.718		53.1	LOS D	12.4	86.6				
Intersection	1852	3.8	1707 ^{N1}	4.1		0.718		17.9	LOS B	12.4	86.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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LANE SUMMARY

▽ Site: 6 [Future - High St / Peats Ferry Road
PM_with_Dev_DoMin]

Network: N101 [PM -
Updated]

High St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: High St															
Lane 1	59	0.0	59	0.0	505	0.117	100	8.4	LOS A	0.5	3.4	Full	500	0.0	0.0
Lane 2	36	0.0	36	0.0	79	0.451	100	36.4	LOS C	0.8	5.8	Short	10	-50.0 ^{N3}	NA
Approach	95	0.0	95	0.0		0.451		18.9	LOS B	0.8	5.8				
East: Peats Ferry Road															
Lane 1	109	0.0	96	0.0	1857	0.052	100	2.9	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	407	3.8	357	3.7	1810	0.197	100	3.5	LOS A	0.0	0.0	Short	20	0.0	NA
Lane 3	407	3.8	357	3.7	1810	0.197	100	3.5	LOS A	15.5 ^{N5}	111.6 ^{N5}	Full	80	0.0	35.4 ^{N5}
Approach	923	3.3	810 ^{N1}	3.2		0.197		3.4	NA	15.5	111.6				
North: Peats Ferry Road															
Lane 1	682	3.9	682	3.9	1795	0.380	100	3.0	LOS A	5.6 ^{N5}	40.3 ^{N5}	Full	35	0.0	17.8 ^{N5}
Lane 2	51	0.0	51	0.0	447	0.113	100	6.8	LOS A	0.4	2.9	Short	27	0.0	NA
Approach	733	3.6	733	3.6		0.380		3.2	NA	5.6	40.3				
Intersection	1751	3.2	1637 ^{N1}	3.5		0.451		4.2	NA	15.5	111.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

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LANE SUMMARY

 Site: 7 [Future - George St / Peats Ferry Road / Pacific Hwy
PM_with_Dev_DoMin]

 Network: N101 [PM - Updated]

George St / Peats Ferry Road / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance															
	Demand		Arrival		Flows Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Lengt h	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %						Veh	Dist m				
South: Pacific Hwy															
Lane 1	805	3.8	737	3.7	602 ¹	1.226	100	278.9	LOS F	14.7 ^{N4}	106.1 ^{N4}	Short	45	-45.3 ^{N7}	NA
Lane 2	343	2.2	315	2.2	467	0.674	100	37.8	LOS C	14.9 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0 ⁸
Lane 3	503	2.2	461	2.2	683	0.674	100	41.3	LOS C	14.9 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0
Approach	1652	3.0	1513 ^{N1}	3.0		1.226		156.4	LOS F	14.9	106.1				
East: Parking															
Lane 1	184	0.0	184	0.0	275	0.670	100	66.1	LOS E	12.2	85.5	Full	500	0.0	0.0
Lane 2	263	0.0	263	0.0	283	0.930	100	85.0	LOS F	21.2	148.3	Full	500	0.0	0.0
Approach	447	0.0	447	0.0		0.930		77.3	LOS F	21.2	148.3				
North: George St															
Lane 1	346	5.1	346	5.1	304 ¹	1.136	100	204.3	LOS F	45.9	335.5	Short	70	0.0	NA
Lane 2	210	5.8	210	5.8	185	1.136	100	209.6	LOS F	28.3	208.1	Full	500	-50.0 ^{N3}	0.0
Lane 3	210	5.8	210	5.8	185	1.136	100	209.6	LOS F	28.3	208.1	Full	500	-50.0 ^{N3}	0.0
Approach	766	5.5	766	5.5		1.136		207.2	LOS F	45.9	335.5				
West: Peats Ferry Road															
Lane 1	162	0.0	162	0.0	665	0.244	100	37.9	LOS C	7.7	53.8	Short	50	0.0	NA
Lane 2	285	4.8	285	4.8	303 ¹	0.942	100	80.7	LOS F	17.9 ^{N4}	130.6 ^{N4}	Short	70	-50.0 ^{N3}	NA
Lane 3	286	4.8	286	4.8	304 ¹	0.942	100	80.6	LOS F	17.9 ^{N4}	130.6 ^{N4}	Full	80	-50.0 ^{N3}	50.0
Approach	734	3.7	734	3.7		0.942		71.2	LOS F	17.9	130.6				
Intersection	3599	3.3	3460 ^{N1}	3.4		1.226		139.4	LOS F	45.9	335.5				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

LANE SUMMARY

 Site: 8 [Future - Edgeworth David Ave / Pacific Hwy
PM_with_Dev_DoMin]

 Network: N101 [PM -
Updated]

Edgeworth David Ave / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance															
	Demand		Arrival		Flows Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Lengt h	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %						Veh	Dist m				
South: Pacific Hwy															
Lane 1	555	3.4	555	3.4	506	1.098	100	170.9	LOS F	73.6	530.6	Full	500	-50.0 ^{N3}	10.4
Lane 2	552	3.4	552	3.4	503	1.098	100	171.1	LOS F	73.3	528.0	Full	500	-50.0 ^{N3}	9.9
Lane 3	188	2.8	188	2.8	272	0.694	100	68.4	LOS E	12.4	89.0	Short	215	0.0	NA
Approach	1296	3.3	1296	3.3		1.098		156.1	LOS F	73.6	530.6				
East: Edgeworth David Ave															
Lane 1	319	3.3	319	3.3	959	0.333	100	25.5	LOS B	12.2	87.9	Full	500	0.0	0.0
Lane 2	257	2.2	257	2.2	269 ¹	0.958	100	89.5	LOS F	20.2	144.5	Full	500	-50.0 ^{N3}	0.0
Lane 3	257	2.2	257	2.2	269 ¹	0.958	100	89.5	LOS F	20.2	144.5	Short	51	-50.0 ^{N3}	NA
Approach	834	2.7	834	2.7		0.958		65.0	LOS E	20.2	144.5				
North: Pacific Hwy															
Lane 1	339	3.1	319	3.1	1459	0.219	100	7.3	LOS A	4.2	30.1	Full	65	0.0	0.0
Lane 2	1100	0	1100	0	449	0.023	100	28.2	LOS B	0.4	5.7	Short	50	0.0	NA
Lane 3	569	5.1	536	5.1	703 ¹	0.762	100	39.6	LOS C	14.5 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0
Lane 4	580	5.1	546	5.1	717	0.762	100	43.2	LOS D	14.5 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0
Approach	1498	5.3	1411 ^{N1}	5.3		0.762		33.6	LOS C	14.5	106.1				
Intersection	3627	4.0	3541 ^{N1}	4.1		1.098		85.8	LOS F	73.6	530.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

▽ Site: 9 [Future - Dural St / Frederick St PM_with_Dev_DoMin]

Dural St / Frederick St
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1	222	0.0	1194	0.186	100	3.8	LOS A	0.7	4.9	Full	500	0.0	0.0
Approach	222	0.0		0.186		3.8	LOS A	0.7	4.9				
East: Dural St													
Lane 1	87	0.0	1869	0.047	100	3.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	87	0.0		0.047		3.0	NA	0.0	0.0				
North: Quarry Rd													
Lane 1	18	0.0	1383	0.013	100	2.7	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	18	0.0		0.013		2.7	LOS A	0.0	0.3				
Intersection	327	0.0		0.186		3.5	NA	0.7	4.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

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LANE SUMMARY

 Site: 10 [Future - William St / Frederick St PM_with_Dev_DoMin]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1 ^d	179	0.0	1129	0.158	100	4.4	LOS A	0.8	5.9	Full	500	0.0	0.0
Approach	179	0.0		0.158		4.4	LOS A	0.8	5.9				
East: William St													
Lane 1 ^d	208	0.0	1271	0.164	100	4.2	LOS A	0.9	6.2	Full	500	0.0	0.0
Approach	208	0.0		0.164		4.2	LOS A	0.9	6.2				
North: Frederick St													
Lane 1 ^d	94	0.0	1161	0.081	100	3.4	LOS A	0.4	2.8	Full	500	0.0	0.0
Approach	94	0.0		0.081		3.4	LOS A	0.4	2.8				
West: William St													
Lane 1 ^d	92	0.0	1046	0.088	100	4.5	LOS A	0.4	3.1	Full	500	0.0	0.0
Approach	92	0.0		0.088		4.5	LOS A	0.4	3.1				
Intersection	573	0.0		0.164		4.2	LOS A	0.9	6.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

^d Dominant lane on roundabout approach

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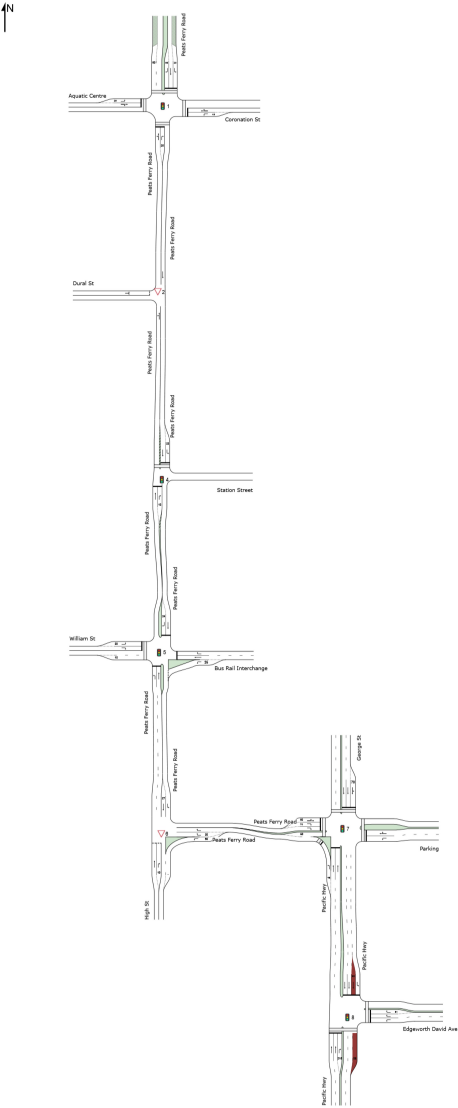
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NETWORK LAYOUT

📍📍 Network: N101 [AM - Added Station Street]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	CCG ID	Site Name
🚦 1	NA	2031 - Coronation St / Peats Ferry Road AM_without Dev_DoMin
🚦 2	NA	2031 - Dural St / Peats Ferry Road AM_without Dev_DoMin
🚦 5	NA	2031 - William St / Peats Ferry Road AM_without Dev_DoMin
🚦 6	NA	2031 - High St / Peats Ferry Road AM_without Dev_DoMin
🚦 7	CCG2	2031 - George St / Peats Ferry Road / Pacific Hwy AM_without Dev_DoMin
🚦 8	CCG2	2031 - Edgeworth David Ave / Pacific Hwy AM_without Dev_DoMin
🚦 4	NA	2031 - Peats Ferry Road / Station Street_without_dev

LANE SUMMARY

 Site: 1 [2031 - Coronation St / Peats Ferry Road AM_without Dev_DoMin]

 Network: N101 [AM - Added Station Street]

Coronation St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %						veh/h	v/c				
South: Peats Ferry Road															
Lane 1	583	5.2	476	5.1	1105 ¹	0.431	100	5.9	LOS A	9.4	68.4	Full	48	0.0	37.4
Lane 2	142	17.8	116	17.5	322	0.359	100	15.3	LOS B	2.6	21.3	Short	25	0.0	NA
Approach	725	7.7	591 ^{N1}	7.6		0.431		7.7	LOS A	9.4	68.4				
East: Coronation St															
Lane 1	199	1.6	199	1.6	315 ¹	0.631	100	44.5	LOS D	9.9	70.1	Short	15	-5.9 ^{N7}	NA
Lane 2	94	0.0	94	0.0	101 ¹	0.932	100	82.7	LOS F	6.6	46.3	Full	73	0.0	1.4 ⁸
Approach	293	1.1	293	1.1		0.932		56.8	LOS E	9.9	70.1				
North: Peats Ferry Road															
Lane 1	97	14.1	97	14.1	987	0.098	100	14.2	LOS A	2.4	18.5	Short (P)	20	0.0	NA
Lane 2	724	1.7	724	1.7	987 ¹	0.734	100	14.5	LOS B	25.4	180.7		Full	500	-5.9 ^{N7}
Lane 3	53	0.0	53	0.0	552	0.095	100	13.0	LOS A	1.2	8.6	Short	60	0.0	NA
Approach	874	3.0	874	3.0		0.734		14.4	LOS A	25.4	180.7				
West: Aquatic Centre															
Lane 1	29	3.6	29	3.6	238	0.124	100	53.6	LOS D	1.5	11.2	Short	25	0.0	NA
Lane 2	31	0.0	31	0.0	116	0.263	100	62.4	LOS E	1.8	12.4	Full	90	-5.3 ^{N7}	0.0
Approach	60	1.8	60	1.8		0.263		58.1	LOS E	1.8	12.4				
Intersection	1952	4.4	1818 ^{N1}	4.7		0.932		20.5	LOS B	25.4	180.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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LANE SUMMARY

Site: 2 [2031 - Dural St / Peats Ferry Road AM_without Dev_DoMin]

Network: N101 [AM - Added Station Street]

Dural St / Peats Ferry Road

Site Category: (None)

Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	869	6.9	697	7.0	1156	0.603	100	0.1	LOS A	0.0	0.0	Full	78	-36.6 ^{N3}	0.0
Approach	869	6.9	697 ^{N1}	7.0		0.603		0.1	NA	0.0	0.0				
North: Peats Ferry Road															
Lane 1	932	1.5	932	1.5	1872	0.498	100	0.0	LOS A	5.2 ^{N5}	37.0 ^{N5}	Full	48	0.0	5.9 ^{N5}
Approach	932	1.5	932	1.5		0.498		0.0	NA	5.2	37.0				
West: Dural St															
Lane 1	120	0.9	120	0.9	437	0.274	100	7.9	LOS A	0.7	4.9	Full	500	-37.9 ^{N3}	0.0
Approach	120	0.9	120	0.9		0.274		7.9	LOS A	0.7	4.9				
Intersection	1921	3.9	1748 ^{N1}	4.3		0.603		0.6	NA	5.2	37.0				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

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LANE SUMMARY

 Site: 4 [2031 - Peats Ferry Road / Station Street_without_dev]  Network: N101 [AM - Added Station Street]

Peats Ferry Road / Station Street

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Lane Use and Performance																
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.	
	Total	HV	Total	HV						Veh	Dist					
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%	
South: Peats Ferry Road																
Lane 1	652	7.1	479	7.3	1073 ¹	0.446	100	8.6	LOS A	5.9 ^{N4}	44.1 ^{N4}	Full	27	0.0	50.0	
Lane 2	104	0.0	76	0.0	111 ¹	0.691	100	46.0	LOS D	4.1	28.5	Short	13	0.0	NA	
Approach	756	6.1	555 ^{N1}	6.3		0.691		13.8	LOS A	5.9	44.1					
North: Peats Ferry Road																
Lane 1	122	0.0	122	0.0	1204	0.101	100	11.3	LOS A	2.2	15.6	Short	28	0.0	NA	
Lane 2	778	1.5	778	1.5	1139 ¹	0.683	100	12.3	LOS A	18.0 ^{N4}	127.3 ^{N4}	Full	78	0.0	50.0	
Approach	900	1.3	900	1.3		0.683		12.2	LOS A	18.0	127.3					
Intersection	1656	3.5	1455 ^{N1}	4.0		0.691		12.8	LOS A	18.0	127.3					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

 Site: 5 [2031 - William St / Peats Ferry Road AM_without Dev_DoMin]

 Network: N101 [AM - Added Station Street]

William St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	116	0.9	83	0.8	1257	0.066	100	10.8	LOS A	2.1	14.5	Full	35	0.0	0.0
Lane 2	717	6.2	511	5.7	667	0.767	100	10.9	LOS A	7.8 ^{N4}	57.1 ^{N4}	Full	35	-50.0 ^{N3}	50.0
Approach	833	5.4	594 ^{N1}	5.1		0.767		10.9	LOS A	7.8	57.1				
East: Bus Rail Interchange															
Lane 1	6346.7		63	46.7	438	0.144	100	4.6	LOS A	0.7	6.4	Short	25	-16.3 ^{N7}	NA
Lane 2	1	0.0	1	0.0	352	0.003	100	42.2	LOS C	0.0	0.3	Full	30	0.0	0.0
Lane 3	2363.6		23	63.6	100	0.232	100	48.8	LOS D	1.2	12.7	Full	30	-50.0 ^{N3}	0.0
Approach	8750.6		87	50.6		0.232		16.8	LOS B	1.2	12.7				
North: Peats Ferry Road															
Lane 1	653	1.9	653	1.9	1167	0.559	100	0.6	LOS A	1.4	9.8	Full	27	-16.3 ^{N7}	0.0
Lane 2	134	0.0	134	0.0	449	0.298	100	11.7	LOS A	2.4	16.9	Short	24	0.0	NA
Approach	786	1.6	786	1.6		0.559		2.5	LOS A	2.4	16.9				
West: William St															
Lane 1	34	3.1	34	3.1	165	0.204	100	47.5	LOS D	1.6	11.8	Short	20	-50.0 ^{N3}	NA
Lane 2	185	1.7	185	1.7	207 ¹	0.893	100	70.0	LOS E	12.3	87.4	Full	500	-16.3 ^{N7}	0.0
Approach	219	1.9	219	1.9		0.893		66.5	LOS E	12.3	87.4				
Intersection	1925	5.5	1687 ^{N1}	6.3		0.893		14.5	LOS B	12.3	87.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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Memo.sip8

LANE SUMMARY

Site: 6 [2031 - High St / Peats Ferry Road AM_without Dev_DoMin]

Network: N101 [AM - Added Station Street]

High St / Peats Ferry Road

Site Category: (None)

Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: High St															
Lane 1	40	0.0	40	0.0	583	0.069	100	6.8	LOS A	0.3	2.0	Full	500	0.0	0.0
Lane 2	37	0.0	37	0.0	56	0.652	100	65.3	LOS E	1.2	8.6	Short	10	-50.0 ^{N3}	NA
Approach	77	0.0	77	0.0		0.652		34.9	LOS C	1.2	8.6				
East: Peats Ferry Road															
Lane 1	59	0.0	41	0.0	1857	0.022	100	2.9	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	394	6.0	274	5.7	1784	0.154	100	3.5	LOS A	0.0	0.0	Short	20	0.0	NA
Lane 3	394	6.0	274	5.7	1784	0.154	100	3.5	LOS A	8.6 ^{N5}	63.1 ^{N5}	Full	80	0.0	0.0
Approach	846	5.6	590 ^{N1}	5.3		0.154		3.5	NA	8.6	63.1				
North: Peats Ferry Road															
Lane 1	834	5.6	834	5.6	1776	0.469	100	3.0	LOS A	2.4 ^{N5}	17.8 ^{N5}	Full	35	0.0	16.3 ^{N5}
Lane 2	67	0.0	67	0.0	512	0.132	100	5.4	LOS A	0.5	3.6	Short	27	0.0	NA
Approach	901	5.1	901	5.1		0.469		3.1	NA	2.4	17.8				
Intersection	1824	5.1	1567 ^{N1}	6.0		0.652		4.8	NA	8.6	63.1				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

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LANE SUMMARY

 Site: 7 [2031 - George St / Peats Ferry Road / Pacific Hwy
AM_without Dev_DoMin]

 Network: N101 [AM - Added
Station Street]

George St / Peats Ferry Road / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance																
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.	
	Total veh/h	HV %	Total veh/h	HV %						veh/h	v/c					%
South: Pacific Hwy																
Lane 1	839	5.5	581	5.2	878 ¹	0.661	100	18.6	LOS B	14.5 ^{N4}	106.1 ^{N4}	Short	45	0.0	NA	
Lane 2	403	6.8	279	6.4	482	0.578	100	29.8	LOS C	10.7	79.1	Full	65	0.0	50.0 ⁸	
Lane 3	529	6.8	366	6.4	634	0.578	100	31.5	LOS C	14.4 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0	
Approach	1772	6.2	1226 ^{N1}	5.9		0.661		25.0	LOS B	14.5	106.1					
East: Parking																
Lane 1	25	0.0	25	0.0	96	0.263	100	66.2	LOS E	1.5	10.6	Full	500	0.0	0.0	
Lane 2	35	0.0	35	0.0	99	0.352	100	65.6	LOS E	2.1	14.7	Full	500	0.0	0.0	
Approach	60	0.0	60	0.0		0.352		65.9	LOS E	2.1	14.7					
North: George St																
Lane 1	536	4.6	536	4.6	354 ¹	1.513	100	516.2	LOS F	110.4	803.1	Short	70	0.0	NA	
Lane 2	326	6.1	326	6.1	215	1.513	100	518.8	LOS F	67.4	496.8	Full	500	-50.0 ^{N3}	48.5 ⁸	
Lane 3	326	6.1	326	6.1	215	1.513	100	518.8	LOS F	67.4	496.8	Full	500	-50.0 ^{N3}	4.4	
Approach	1187	5.4	1187	5.4		1.513		517.7	LOS F	110.4	803.1					
West: Peats Ferry Road																
Lane 1	188	0.0	188	0.0	841	0.224	100	25.4	LOS B	6.2	43.7	Short	50	0.0	NA	
Lane 2	335	6.5	335	6.5	365 ¹	0.919	100	60.9	LOS E	17.7 ^{N4}	130.6 ^{N4}	Short	70	-50.0 ^{N3}	NA	
Lane 3	350	6.5	350	6.5	381	0.919	100	60.3	LOS E	17.7 ^{N4}	130.6 ^{N4}	Full	80	-50.0 ^{N3}	50.0	
Approach	874	5.1	874	5.1		0.919		53.0	LOS D	17.7	130.6					
Intersection	3893	5.6	3347 ^{N1}	6.5		1.513		207.8	LOS F	110.4	803.1					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

 Site: 8 [2031 - Edgeworth David Ave / Pacific Hwy AM_without Dev_DoMin]  Network: N101 [AM - Added Station Street]

Edgeworth David Ave / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance																
	Demand		Arrival		Flows	Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV							Veh	Dist				
	veh/h	%	veh/h	%												
South: Pacific Hwy																
Lane 1	674	6.9	674	6.9	400	1.684	100	672.3	LOS F	160.0	1186.0	Full	500	-50.0 ^{N3}		86.0
Lane 2	670	6.9	670	6.9	398	1.684	100	672.4	LOS F	159.2	1179.9	Full	500	-50.0 ^{N3}		85.5
Lane 3	366	6.9	366	6.9	154	2.383	100	1274.0	LOS F	109.1	809.1	Short	215	0.0		NA
Approach	1711	6.9	1711	6.9		2.383		801.2	LOS F	160.0	1186.0					
East: Edgeworth David Ave																
Lane 1	320	7.9	320	7.9	996	0.321	100	20.2	LOS B	9.8	73.0	Full	500	0.0		0.0
Lane 2	208	3.8	208	3.8	415	0.501	100	26.1	LOS B	7.2	52.4	Full	500	-50.0 ^{N3}		0.0
Lane 3	208	3.8	208	3.8	415	0.501	100	26.1	LOS B	7.2	52.4	Short	51	-50.0 ^{N3}		NA
Approach	736	5.6	736	5.6		0.501		23.6	LOS B	9.8	73.0					
North: Pacific Hwy																
Lane 1	354	7.1	283	7.2	1494	0.189	100	6.8	LOS A	4.1	30.6	Full	65	0.0		0.0
Lane 2	910.0		910.0		388	0.024	100	28.7	LOS C	0.4	4.8	Short	50	0.0		NA
Lane 3	715	6.0	572	6.0	616	0.929	100	62.0	LOS E	14.4 ^{N4}	106.1 ^{N4}	Full	65	0.0		50.0
Lane 4	715	6.0	572	6.0	616	0.929	100	62.3	LOS E	14.4 ^{N4}	106.1 ^{N4}	Full	65	0.0		50.0
Approach	1794	6.7	1437 ^{N1}	6.8		0.929		51.0	LOS D	14.4	106.1					
Intersection	4240	6.6	3884 ^{N1}	7.2		2.383		376.2	LOS F	160.0	1186.0					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

▽ Site: 9 [2031 - Dural St / Frederick St AM_without Dev_DoMin]

Dural St / Frederick St
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1	129	0.0	1261	0.103	100	3.6	LOS A	0.4	2.6	Full	500	0.0	0.0
Approach	129	0.0		0.103		3.6	LOS A	0.4	2.6				
East: Dural St													
Lane 1	40	2.6	1862	0.021	100	2.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	40	2.6		0.021		2.1	NA	0.0	0.0				
North: Quarry Rd													
Lane 1	22	9.5	1234	0.018	100	3.4	LOS A	0.1	0.5	Full	500	0.0	0.0
Approach	22	9.5		0.018		3.4	LOS A	0.1	0.5				
Intersection	192	1.6		0.103		3.3	NA	0.4	2.6				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

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LANE SUMMARY

 **Site: 10 [2031 - William St / Frederick St AM_without Dev_DoMin]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1 ^d	220	0.0	1280	0.172	100	4.5	LOS A	0.9	6.5	Full	500	0.0	0.0
Approach	220	0.0		0.172		4.5	LOS A	0.9	6.5				
East: William St													
Lane 1 ^d	143	0.0	1303	0.110	100	3.4	LOS A	0.6	4.0	Full	500	0.0	0.0
Approach	143	0.0		0.110		3.4	LOS A	0.6	4.0				
North: Frederick St													
Lane 1 ^d	54	2.0	1062	0.051	100	3.7	LOS A	0.2	1.7	Full	500	0.0	0.0
Approach	54	2.0		0.051		3.7	LOS A	0.2	1.7				
West: William St													
Lane 1 ^d	121	2.6	1053	0.115	100	4.3	LOS A	0.6	4.2	Full	500	0.0	0.0
Approach	121	2.6		0.115		4.3	LOS A	0.6	4.2				
Intersection	538	0.8		0.172		4.1	LOS A	0.9	6.5				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

^d Dominant lane on roundabout approach

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LANE SUMMARY

 Site: 1 [2031 - Coronation St / Peats Ferry Road PM_without Dev_DoMin]

 Network: N101 [PM - Added Station Street]

Coronation St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	941	2.5	658	2.6	1354 ¹	0.486	100	4.4	LOS A	11.0 ^{N4}	78.3 ^{N4}	Full	48	0.0	50.0
Lane 2	913	0.2	64	31.1	223	0.287	100	35.9	LOS C	3.0	26.8	Short	25	0.0	NA
Approach	1032	4.9	722 ^{N1}	5.1		0.486		7.2	LOS A	11.0	78.3				
East: Coronation St															
Lane 1	238	0.4	238	0.4	143 ¹	1.663	100	662.9	LOS F	57.7	405.7	Short	15	-49.1 ^{N7}	NA
Lane 2	107	0.0	107	0.0	63 ¹	1.693	100	681.7	LOS F	26.1	182.6	Full	500	0.0	0.0
Approach	345	0.3	345	0.3		1.693		668.7	LOS F	57.7	405.7				
North: Peats Ferry Road															
Lane 1	74	17.1	74	17.1	1094	0.067	100	11.4	LOS A	1.6	13.2	Short (P)	20	0.0	NA
Lane 2	589	1.1	589	1.1	639 ¹	0.923	100	49.1	LOS D	43.8	309.6		Full	500	-49.1 ^{N7}
Lane 3	25	0.0	25	0.0	481	0.053	100	10.1	LOS A	0.5	3.6	Short	60	0.0	NA
Approach	688	2.8	688	2.8		0.923		43.6	LOS D	43.8	309.6				
West: Aquatic Centre															
Lane 1	43	0.0	43	0.0	183	0.236	100	67.5	LOS E	2.8	19.5	Short	25	0.0	NA
Lane 2	46	0.0	46	0.0	29	1.594	100	598.3	LOS F	10.8	75.9	Full	500	-47.3 ^{N7}	0.0
Approach	89	0.0	89	0.0		1.594		342.3	LOS F	10.8	75.9				
Intersection	2155	3.3	1845 ^{N1}	3.8		1.693		160.8	LOS F	57.7	405.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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LANE SUMMARY

Site: 2 [2031 - Dural St / Peats Ferry Road PM_without Dev_DoMin]

Network: N101 [PM - Added Station Street]

Dural St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	871	5.7	540	6.6	1826	0.296	100	0.2	LOS A	0.0 ^{N5}	0.3 ^{N5}	Full	78	0.0	0.0
Approach	871	5.7	540 ^{N1}	6.6		0.296		0.2	NA	0.0	0.3				
North: Peats Ferry Road															
Lane 1	854	1.0	747	1.1	1877	0.398	100	0.0	LOS A	10.6 ^{N5}	74.8 ^{N5}	Full	48	0.0	45.7 ^{N5}
Approach	854	1.0	747 ^{N1}	1.1		0.398		0.0	NA	10.6	74.8				
West: Dural St															
Lane 1	222	0.0	222	0.0	449	0.495	100	7.8	LOS A	1.4	9.6	Full	500	-50.0 ^{N3}	0.0
Approach	222	0.0	222	0.0		0.495		7.8	LOS A	1.4	9.6				
Intersection	1946	3.0	1509 ^{N1}	3.8		0.495		1.2	NA	10.6	74.8				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

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Organisation: JACOBS GROUP (AUSTRALIA) PTY LTD - (AUSTRALIA) | Processed: Tuesday, 5 May 2020 10:25:18 AM

Project: C:\Users\minck\Documents\2020\0420 Peats Ferry TIA\From SERVER\Peats Ferry Road - 2031 do minimum without development - Memo -v3.sip8

LANE SUMMARY

 Site: 4 [2031 - Peats Ferry Road / Station Street PM_without Dev_DoMin]

 Network: N101 [PM - Added Station Street]

Peats Ferry Road / Station Street

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Lane Use and Performance																
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.	
	Total	HV	Total	HV						Veh	Dist m					
	veh/h	%	veh/h	%												veh/h
South: Peats Ferry Road																
Lane 1	880	4.9	538	5.4	1425 ¹	0.377	100	1.4	LOS A	3.6	26.1	Full	27	0.0	7.3 ⁸	
Lane 2	87	1.2	53	1.3	61 ¹	0.871	100	80.2	LOS F	3.9	27.7	Short	13	0.0	NA	
Approach	967	4.6	591 ^{N1}	5.0		0.871		8.5	LOS A	3.9	27.7					
North: Peats Ferry Road																
Lane 1	98	0.0	86	0.0	1476	0.058	100	5.8	LOS A	1.0	6.8	Short	28	0.0	NA	
Lane 2	734	0.9	644	0.9	748 ¹	0.861	100	18.5	LOS B	18.0 ^{N4}	127.3 ^{N4}	Full	78	-50.0 ^{N3}	50.0	
Approach	832	0.8	730 ^{N1}	0.8		0.861		17.0	LOS B	18.0	127.3					
Intersection	1799	2.8	1320 ^{N1}	3.8		0.871		13.2	LOS A	18.0	127.3					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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Project: C:\Users\minck\Documents\2020\0420 Peats Ferry TIA\From SERVER\Peats Ferry Road - 2031 do minimum without development - Memo -v3.sip8

LANE SUMMARY

 Site: 5 [2031 - William St / Peats Ferry Road PM_without Dev_DoMin]

 Network: N101 [PM - Added Station Street]

William St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec					m	%	%
South: Peats Ferry Road															
Lane 1	169	0.0	94	0.0	1541	0.061	100	5.5	LOS A	1.5	10.3	Full	35	0.0	0.0
Lane 2	876	4.4	487	4.2	1020	0.477	100	23.8	LOS B	7.9 ^{N4}	57.1 ^{N4}	Full	35	-7.3 ^{N3}	50.0
Approach	1045	3.7	582 ^{N1}	3.5		0.477		20.8	LOS B	7.9	57.1				
East: Bus Rail Interchange															
Lane 1	5748.1		57	48.1	80	0.713	100	73.7	LOS F	4.2	41.1	Short	25	-50.0 ^{N7}	NA
Lane 2	1	0.0	1	0.0	82	0.013	100	70.9	LOS F	0.1	0.5	Full	30	0.0	33.6 ⁸
Lane 3	3151.7		31	51.7	65	0.467	100	79.3	LOS F	2.2	22.4	Full	30	-7.3 ^{N3}	0.0
Approach	8848.8		88	48.8		0.713		75.6	LOS F	4.2	41.1				
North: Peats Ferry Road															
Lane 1	599	1.4	527	1.5	472 ¹	1.116	100	166.0	LOS F	6.2 ^{N4}	44.1 ^{N4}	Full	27	-50.0 ^{N7}	50.0
Lane 2	132	0.0	116	0.0	314	0.368	100	33.0	LOS C	4.7	33.2	Short	24	0.0	NA
Approach	731	1.2	642 ^{N1}	1.3		1.116		142.1	LOS F	6.2	44.1				
West: William St															
Lane 1	71	0.0	71	0.0	560	0.126	100	38.4	LOS C	3.3	23.3	Short	20	-7.3 ^{N3}	NA
Lane 2	236	0.0	236	0.0	245 ¹	0.962	100	96.4	LOS F	21.3	149.4	Full	500	-50.0 ^{N7}	0.0
Approach	306	0.0	306	0.0		0.962		83.0	LOS F	21.3	149.4				
Intersection	2171	4.2	1619 ^{N1}	5.6		1.116		83.7	LOS F	21.3	149.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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Organisation: JACOBS GROUP (AUSTRALIA) PTY LTD - (AUSTRALIA) | Processed: Tuesday, 5 May 2020 10:25:18 AM

Project: C:\Users\minck\Documents\2020\0420 Peats Ferry TIA\From SERVER\Peats Ferry Road - 2031 do minimum without development - Memo -v3.sip8

LANE SUMMARY

Site: 6 [2031 - High St / Peats Ferry Road PM_without Dev_DoMin]

Network: N101 [PM - Added Station Street]

High St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: High St															
Lane 1	76	0.0	76	0.0	650	0.117	100	6.1	LOS A	0.5	3.6	Full	500	0.0	0.0
Lane 2	46	0.0	46	0.0	121	0.382	100	23.0	LOS B	0.8	5.4	Short	10	-50.0 ^{N3}	NA
Approach	122	0.0	122	0.0		0.382		12.6	LOS A	0.8	5.4				
East: Peats Ferry Road															
Lane 1	140	0.0	72	0.0	1857	0.039	100	2.9	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	493	4.0	252	4.0	1806	0.140	100	3.5	LOS A	0.0	0.0	Short	20	0.0	NA
Lane 3	493	4.0	252	4.0	1806	0.140	100	3.5	LOS A	16.4 ^{N5}	119.0 ^{N5}	Full	80	0.0	41.4 ^{N5}
Approach	1125	3.5	577 ^{N1}	3.5		0.140		3.4	NA	16.4	119.0				
North: Peats Ferry Road															
Lane 1	823	4.1	704	4.6	1781	0.395	100	3.0	LOS A	7.8 ^{N6}	57.1 ^{N6}	Full	35	0.0	50.0 ^{N6}
Lane 2	64	0.0	55	0.0	584	0.094	100	4.1	LOS A	0.3	2.4	Short	27	0.0	NA
Approach	887	3.8	759 ^{N1}	4.3		0.395		3.0	NA	7.8	57.1				
Intersection	2135	3.4	1458 ^{N1}	5.0		0.395		4.0	NA	16.4	119.0				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

^{N6} Continuous Lane results determined by Back of Queue values of downstream lanes but average back of queue has been restricted to the available queue storage space.

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Project: C:\Users\minck\Documents\2020\0420 Peats Ferry TIA\From SERVER\Peats Ferry Road - 2031 do minimum without development - Memo -v3.sip8

LANE SUMMARY

 Site: 7 [2031 - George St / Peats Ferry Road / Pacific Hwy
PM_without Dev_DoMin]

 Network: N101 [PM - Added
Station Street]

George St / Peats Ferry Road / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance																
	Demand		Arrival		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.	
	Flows		Flows													
	Total	HV	Total	HV						Veh	Dist					
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%	
South: Pacific Hwy																
Lane 1	977	4.0	741	4.0	478 ¹	1.551	100	568.5	LOS F	14.7 ^{N4}	106.1 ^{N4}	Short	42	-44.5 ^{N7}	NA	
Lane 2	431	2.2	327	2.2	590	0.554	100	25.9	LOS B	12.8	91.0	Full	65	0.0	50.0 ⁸	
Lane 3	652	2.2	494	2.2	892	0.554	100	28.9	LOS C	14.9 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0	
Approach	2060	3.1	1562 ^{N1}	3.1		1.551		284.1	LOS F	14.9	106.1					
East: Parking																
Lane 1	236	0.0	236	0.0	137	1.715	100	699.8	LOS F	57.8	404.9	Full	500	0.0	0.0	
Lane 2	336	0.0	336	0.0	141	2.374	100	1280.9	LOS F	104.3	730.2	Full	500	0.0	39.6	
Approach	572	0.0	572	0.0		2.374		1041.2	LOS F	104.3	730.2					
North: George St																
Lane 1	404	5.0	404	5.0	451 ¹	0.896	100	58.1	LOS E	27.7	201.9	Short	70	0.0	NA	
Lane 2	281	5.8	281	5.8	313 ¹	0.896	100	69.6	LOS E	22.7	166.8	Full	500	-50.0 ^{N3}	0.0	
Lane 3	296	5.8	296	5.8	330	0.896	100	69.8	LOS E	24.2	178.2	Full	500	-50.0 ^{N3}	0.0	
Approach	981	5.5	981	5.5		0.896		64.9	LOS E	27.7	201.9					
West: Peats Ferry Road																
Lane 1	180	0.0	155	0.0	599	0.259	100	41.6	LOS C	8.0	55.8	Short	50	0.0	NA	
Lane 2	355	4.9	309	5.4	274 ¹	1.127	100	209.6	LOS F	17.8 ^{N4}	130.6 ^{N4}	Short	70	-50.0 ^{N3}	NA	
Lane 3	356	4.9	309	5.4	274 ¹	1.127	100	209.5	LOS F	17.8 ^{N4}	130.6 ^{N4}	Full	80	-50.0 ^{N3}	50.0 ⁸	
Approach	892	3.9	773 ^{N1}	4.3		1.127		175.8	LOS F	17.8	130.6					
Intersection	4504	3.4	3888 ^{N1}	3.9		2.374		318.6	LOS F	104.3	730.2					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

LANE SUMMARY

 Site: 8 [2031- Edgeworth David Ave / Pacific Hwy PM_without Dev_DoMin]  Network: N101 [PM - Added Station Street]

Edgeworth David Ave / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance																
	Demand		Arrival		Flows	Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV							Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec				m		m	%	%
South: Pacific Hwy																
Lane 1	707	3.4	707	3.4	539	1.310	100	347.2	LOS F	132.5	954.6	Full	500	-50.0 ^{N3}		64.9
Lane 2	703	3.4	703	3.4	536	1.310	100	347.3	LOS F	131.8	949.8	Full	500	-50.0 ^{N3}		64.4
Lane 3	241	2.6	241	2.6	187	1.290	100	321.6	LOS F	42.1	301.6	Short	215	0.0		NA
Approach	1651	3.3	1651	3.3		1.310		343.5	LOS F	132.5	954.6					
East: Edgeworth David Ave																
Lane 1	408	3.4	408	3.4	803	0.508	100	35.4	LOS C	19.8	142.5	Full	500	0.0		0.0
Lane 2	329	2.2	329	2.2	246 ¹	1.338	100	385.6	LOS F	62.7	447.2	Full	500	-50.0 ^{N3}		0.0
Lane 3	329	2.2	329	2.2	246 ¹	1.338	100	385.6	LOS F	62.7	447.2	Short	51	-50.0 ^{N3}		NA
Approach	1067	2.7	1067	2.7		1.338		251.6	LOS F	62.7	447.2					
North: Pacific Hwy																
Lane 1	423	3.2	364	3.5	1545	0.236	100	5.4	LOS A	1.8	12.7	Full	65	0.0		0.0
Lane 2	1100	100.0	1100	100.0	548	0.019	100	20.8	LOS B	0.4	4.9	Short	50	0.0		NA
Lane 3	731	5.1	631	5.6	859 ¹	0.734	100	28.4	LOS B	14.5 ^{N4}	106.1 ^{N4}	Full	65	0.0		50.0
Lane 4	743	5.1	641	5.6	873	0.734	100	31.8	LOS C	14.5 ^{N4}	106.1 ^{N4}	Full	65	0.0		50.0
Approach	1908	5.2	1647 ^{N1}	5.8		0.734		24.6	LOS B	14.5	106.1					
Intersection	4626	4.0	4365 ^{N1}	4.2		1.338		200.7	LOS F	132.5	954.6					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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Project: C:\Users\minck\Documents\2020\0420 Peats Ferry TIA\From SERVER\Peats Ferry Road - 2031 do minimum without development - Memo -v3.sip8

LANE SUMMARY

▽ Site: 9 [2031- Dural St / Frederick St PM_without Dev_DoMin]

Dural St / Frederick St
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1	157	0.0	1228	0.128	100	3.7	LOS A	0.5	3.2	Full	500	0.0	0.0
Approach	157	0.0		0.128		3.7	LOS A	0.5	3.2				
East: Dural St													
Lane 1	40	0.0	1890	0.021	100	2.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	40	0.0		0.021		2.2	NA	0.0	0.0				
North: Quarry Rd													
Lane 1	21	0.0	1413	0.015	100	2.6	LOS A	0.1	0.4	Full	500	0.0	0.0
Approach	21	0.0		0.015		2.6	LOS A	0.1	0.4				
Intersection	218	0.0		0.128		3.3	NA	0.5	3.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

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Organisation: JACOBS GROUP (AUSTRALIA) PTY LTD - (AUSTRALIA) | Processed: Sunday, 8 December 2019 1:21:11 PM

Project: C:\Users\minck\Documents\2020\0420 Peats Ferry TIA\Memo SIDRAS\Peats Ferry Road - 2031 do minimum without development - Memo.sip8

LANE SUMMARY

 **Site: 10 [2031 - William St / Frederick St PM_without Dev_DoMin]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1 ^d	200	0.0	1215	0.165	100	4.3	LOS A	0.9	6.2	Full	500	0.0	0.0
Approach	200	0.0		0.165		4.3	LOS A	0.9	6.2				
East: William St													
Lane 1 ^d	175	0.0	1305	0.134	100	3.2	LOS A	0.7	4.9	Full	500	0.0	0.0
Approach	175	0.0		0.134		3.2	LOS A	0.7	4.9				
North: Frederick St													
Lane 1 ^d	51	0.0	1126	0.045	100	3.6	LOS A	0.2	1.5	Full	500	0.0	0.0
Approach	51	0.0		0.045		3.6	LOS A	0.2	1.5				
West: William St													
Lane 1 ^d	116	0.0	1088	0.106	100	4.2	LOS A	0.5	3.8	Full	500	0.0	0.0
Approach	116	0.0		0.106		4.2	LOS A	0.5	3.8				
Intersection	541	0.0		0.165		3.9	LOS A	0.9	6.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

^d Dominant lane on roundabout approach

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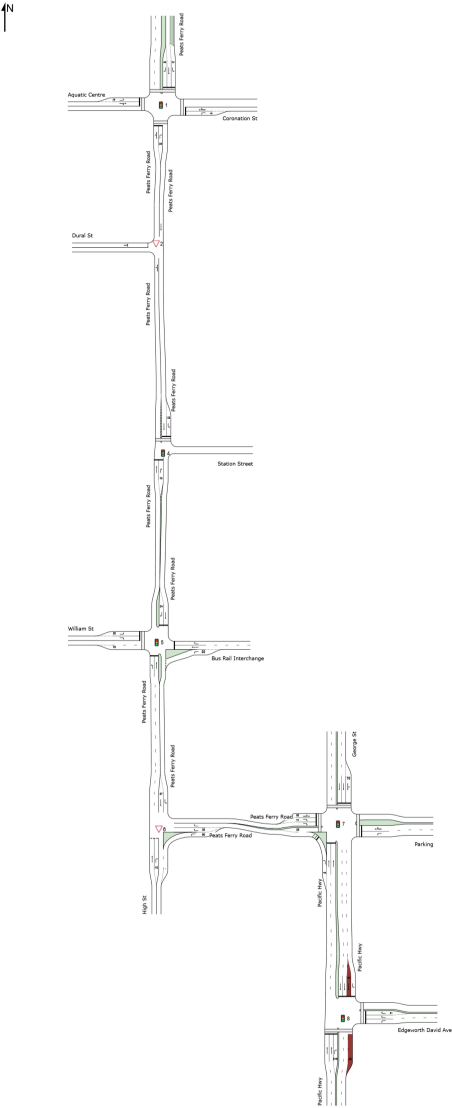
Organisation: JACOBS GROUP (AUSTRALIA) PTY LTD - (AUSTRALIA) | Processed: Sunday, 8 December 2019 1:21:13 PM

Project: C:\Users\minck\Documents\2020\0420 Peats Ferry TIA\Memo SIDRAS\Peats Ferry Road - 2031 do minimum without development - Memo.sip8

NETWORK LAYOUT

Network: N101 [AM]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	CCG ID	Site Name
1	NA	2031 - Coronation St / Peats Ferry Road AM_with_Dev_DoMin
2	NA	2031 - Dural St / Peats Ferry Road AM_with_Dev_DoMin
5	NA	2031 - William St / Peats Ferry Road AM_with_Dev_DoMin
6	NA	2031 - High St / Peats Ferry Road AM_with_Dev_DoMin
7	CCG2	2031 - George St / Peats Ferry Road / Pacific Hwy AM_with_Dev_DoMin
8	CCG2	2031 - Edgeworth David Ave / Pacific Hwy AM_with_Dev_DoMin
4	NA	Peats Ferry Road / Station Street - 2017 AM - Future - Import - Import - Import

LANE SUMMARY

 Site: 1 [2031 - Coronation St / Peats Ferry Road
AM_with_Dev_DoMin]

 Network: N101 [AM]

Coronation St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %						veh/h	v/c				
South: Peats Ferry Road															
Lane 1	633	4.8	527	4.9	1151 ¹	0.458	100	5.0	LOS A	9.8	71.4	Full	48	0.0	41.4
Lane 2	148	17.0	124	17.3	144	0.864	100	56.7	LOS E	6.3	50.3	Short	25	0.0	NA
Approach	781	7.1	651 ^{N1}	7.3		0.864		14.9	LOS B	9.8	71.4				
East: Coronation St															
Lane 1	204	1.5	204	1.5	160 ¹	1.275	100	318.2	LOS F	32.5	230.6	Short	15	-50.0 ^{N7}	NA
Lane 2	94	0.0	94	0.0	88 ¹	1.065	100	152.4	LOS F	9.6	67.3	Full	73	0.0	100.0 ⁸
Approach	298	1.1	298	1.1		1.275		266.1	LOS F	32.5	230.6				
North: Peats Ferry Road															
Lane 1	97	14.1	97	14.1	1055	0.092	100	12.1	LOS A	2.1	16.5	Short (P)	20	0.0	NA
Lane 2	769	1.6	769	1.6	590 ¹	1.303	100	333.8	LOS F	134.7	956.4	Full	500	-50.0 ^{N7}	65.1
Lane 3	53	0.0	53	0.0	549	0.096	100	11.0	LOS A	1.1	7.6	Short	60	0.0	NA
Approach	919	2.9	919	2.9		1.303		281.4	LOS F	134.7	956.4				
West: Aquatic Centre															
Lane 1	29	3.6	29	3.6	193	0.153	100	57.0	LOS E	1.6	11.6	Short	25	0.0	NA
Lane 2	31	0.0	31	0.0	87	0.352	100	56.5	LOS E	1.7	11.7	Full	90	-47.3 ^{N7}	0.0
Approach	60	1.8	60	1.8		0.352		56.8	LOS E	1.7	11.7				
Intersection	2058	4.2	1928 ^{N1}	4.5		1.303		182.0	LOS F	134.7	956.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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LANE SUMMARY

▽ Site: 2 [2031 - Dural St / Peats Ferry Road
AM_with_Dev_DoMin]

Network: N101 [AM]

Dural St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	681	8.8	505	9.7	1083	0.466	100	0.3	LOS A	0.0	0.0	Full	78	-39.5 ^{N3}	0.0
Approach	681	8.8	505 ^{N1}	9.7		0.466		0.3	NA	0.0	0.0				
North: Peats Ferry Road															
Lane 1	983	1.4	822	1.4	1873	0.439	100	0.0	LOS A	11.1 ^{N6}	78.3 ^{N6}	Full	48	0.0	50.0 ^{N6}
Approach	983	1.4	822 ^{N1}	1.4		0.439		0.0	NA	11.1	78.3				
West: Dural St															
Lane 1	194	0.5	194	0.5	461	0.420	100	7.9	LOS A	1.2	8.3	Full	500	-42.5 ^{N3}	0.0
Approach	194	0.5	194	0.5		0.420		7.9	LOS A	1.2	8.3				
Intersection	1858	4.0	1520 ^{N1}	4.9		0.466		1.1	NA	11.1	78.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N6} Continuous Lane results determined by Back of Queue values of downstream lanes but average back of queue has been restricted to the available queue storage space.

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Organisation: JACOBS GROUP (AUSTRALIA) PTY LTD - (AUSTRALIA) | Processed: Thursday, 23 April 2020 9:23:25 AM

Project: C:\Users\minck\Documents\2020\0420 Peats Ferry TIA\Memo SIDRAS\Peats Ferry Road - 2031 do minimum with development - Memo.sip8

LANE SUMMARY

 Site: 4 [2031 - Peats Ferry Road / Station Street
AM_with_Dev_DoMin]

 Network: N101 [AM]

Peats Ferry Road / Station Street

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	675	6.9	480	7.1	1491	0.322	100	1.0	LOS A	2.0	14.7	Full	27	0.0	48.0 ⁸
Lane 2	104	0.0	74	0.0	73 ¹	1.010	100	108.4	LOS F	6.2	43.1	Short	13	0.0	NA
Approach	779	5.9	554 ^{N1}	6.2		1.010		15.3	LOS B	6.2	43.1				
North: Peats Ferry Road															
Lane 1	125	0.0	107	0.0	1463	0.073	100	5.8	LOS A	1.0	7.1	Short	28	0.0	NA
Lane 2	846	1.4	723	1.4	730 ¹	0.990	100	69.5	LOS E	18.0 ^{N4}	127.3 ^{N4}	Full	78	-50.0 ^{N3}	50.0
Approach	972	1.2	830 ^{N1}	1.2		0.990		61.2	LOS E	18.0	127.3				
Intersection	1751	3.3	1383 ^{N1}	4.2		1.010		42.9	LOS D	18.0	127.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

 Site: 5 [2031 - William St / Peats Ferry Road
AM_with_Dev_DoMin]

 Network: N101 [AM]

William St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	116	0.9	78	0.8	1499	0.052	100	5.6	LOS A	1.1	8.0	Full	35	0.0	0.0
Lane 2	740	6.0	494	5.6	605	0.816	100	21.8	LOS B	7.8 ^{N4}	57.1 ^{N4}	Full	35	-48.0 ^{N3}	50.0
Approach	856	5.3	571 ^{N1}	4.9		0.816		19.6	LOS B	7.8	57.1				
East: Bus Rail Interchange															
Lane 1	6346.7	63	46.7	756	0.084	100	6.9	LOS A	1.0	9.4	Short	25	-16.3 ^{N7}		NA
Lane 2	1	0.0	1	0.0	96	0.011	100	59.9	LOS E	0.1	0.4	Full	30	0.0	0.0
Lane 3	2363.6	23	63.6	42	0.552	100	67.0	LOS E	1.4	15.3	Full	30	-48.0 ^{N3}		0.0
Approach	8750.6	87	50.6		0.552		23.5	LOS B	1.4	15.3					
North: Peats Ferry Road															
Lane 1	669	1.9	572	1.9	695 ¹	0.823	100	14.5	LOS A	6.2 ^{N4}	44.1 ^{N4}	Full	27	-16.3 ^{N7}	50.0
Lane 2	185	0.0	158	0.0	372	0.425	100	24.9	LOS B	5.4	37.7	Short	24	0.0	NA
Approach	855	1.5	730 ^{N1}	1.5		0.823		16.7	LOS B	6.2	44.1				
West: William St															
Lane 1	34	3.1	34	3.1	257	0.131	100	37.7	LOS C	1.4	10.4	Short	20	-48.0 ^{N3}	NA
Lane 2	203	1.6	203	1.6	317 ¹	0.641	100	42.6	LOS D	9.9	70.3	Full	500	-16.3 ^{N7}	0.0
Approach	237	1.8	237	1.8		0.641		41.9	LOS C	9.9	70.3				
Intersection	2035	5.2	1626 ^{N1}	6.5		0.823		21.8	LOS B	9.9	70.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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Memo.sip8

LANE SUMMARY

Site: 6 [2031 - High St / Peats Ferry Road
AM_with_Dev_DoMin]

Network: N101 [AM]

High St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: High St															
Lane 1	40	0.0	40	0.0	653	0.061	100	5.9	LOS A	0.3	1.9	Full	500	0.0	0.0
Lane 2	37	0.0	37	0.0	90	0.409	100	30.9	LOS C	0.8	5.4	Short	10	-50.0 ^{N3}	NA
Approach	77	0.0	77	0.0		0.409		17.9	LOS B	0.8	5.4				
East: Peats Ferry Road															
Lane 1	59	0.0	38	0.0	1857	0.020	100	2.9	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	405	5.8	258	5.6	1785	0.145	100	3.5	LOS A	0.0	0.0	Short	20	0.0	NA
Lane 3	405	5.8	258	5.6	1785	0.145	100	3.5	LOS A	13.2 ^{N5}	96.9 ^{N5}	Full	80	0.0	22.4 ^{N5}
Approach	869	5.4	554 ^{N1}	5.3		0.145		3.5	NA	13.2	96.9				
North: Peats Ferry Road															
Lane 1	868	5.3	767	5.8	1767	0.434	100	3.0	LOS A	1.5 ^{N5}	10.7 ^{N5}	Full	35	0.0	16.3 ^{N5}
Lane 2	67	0.0	59	0.0	578	0.103	100	4.2	LOS A	0.4	2.7	Short	27	0.0	NA
Approach	936	4.9	827 ^{N1}	5.4		0.434		3.0	NA	1.5	10.7				
Intersection	1882	5.0	1457 ^{N1}	6.4		0.434		4.0	NA	13.2	96.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

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LANE SUMMARY

 Site: 7 [2031 - George St / Peats Ferry Road / Pacific Hwy
AM_with_Dev_DoMin]

 Network: N101 [AM]

George St / Peats Ferry Road / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance																
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.	
	Total	HV	Total	HV						Veh	Dist					m
	veh/h	%	veh/h	%	veh/h	v/c	%	sec					m	%	%	
South: Pacific Hwy																
Lane 1	861	5.4	632	5.1	598 ¹	1.057	100	131.4	LOS F	14.5 ^{N4}	106.1 ^{N4}	Short	45	-31.5 ^{N7}	NA	
Lane 2	284	6.8	208	6.5	318 ¹	0.654	100	24.4	LOS B	6.8	50.3	Full	65	0.0	50.0 ⁸	
Lane 3	649	6.8	476	6.5	729	0.654	100	28.8	LOS C	14.4 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0	
Approach	1794	6.1	1316 ^{N1}	5.8		1.057		77.4	LOS F	14.5	106.1					
East: Parking																
Lane 1	25	0.0	25	0.0	96	0.263	100	66.2	LOS E	1.5	10.6	Full	500	0.0	0.0	
Lane 2	35	0.0	35	0.0	99	0.352	100	65.6	LOS E	2.1	14.7	Full	500	0.0	0.0	
Approach	60	0.0	60	0.0		0.352		65.9	LOS E	2.1	14.7					
North: George St																
Lane 1	508	4.5	508	4.5	391 ¹	1.298	100	330.4	LOS F	83.8	608.7	Short	70	0.0	NA	
Lane 2	340	6.1	340	6.1	262	1.298	100	333.3	LOS F	56.4	415.3	Full	500	-50.0 ^{N3}	22.9 ⁸	
Lane 3	340	6.1	340	6.1	262	1.298	100	333.3	LOS F	56.4	415.3	Full	500	-50.0 ^{N3}	0.0	
Approach	1187	5.4	1187	5.4		1.298		332.1	LOS F	83.8	608.7					
West: Peats Ferry Road																
Lane 1	207	0.0	185	0.0	746	0.248	100	29.6	LOS C	7.4	51.9	Short	50	0.0	NA	
Lane 2	356	6.3	319	6.8	336 ¹	0.949	100	75.0	LOS F	17.6 ^{N4}	130.6 ^{N4}	Short	70	-50.0 ^{N3}	NA	
Lane 3	346	6.3	310	6.8	326 ¹	0.949	100	75.4	LOS F	17.6 ^{N4}	130.6 ^{N4}	Full	80	-50.0 ^{N3}	50.0 ⁸	
Approach	908	4.9	813 ^{N1}	5.2		0.949		64.8	LOS E	17.6	130.6					
Intersection	3949	5.5	3377 ^{N1}	6.5		1.298		163.7	LOS F	83.8	608.7					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

LANE SUMMARY

 Site: 8 [2031 - Edgeworth David Ave / Pacific Hwy
AM_with_Dev_DoMin]

 Network: N101 [AM]

Edgeworth David Ave / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance																
	Demand		Arrival		Flows	Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV							Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec				m		m	%	%
South: Pacific Hwy																
Lane 1	678	6.8	678	6.8	446	1.519	100	525.3	LOS F	144.5	1071.0	Full	500	-50.0 ^{N3}		76.0
Lane 2	675	6.8	675	6.8	444	1.519	100	525.4	LOS F	143.8	1065.5	Full	500	-50.0 ^{N3}		75.5
Lane 3	366	6.9	366	6.9	166	2.202	100	1119.3	LOS F	104.9	777.5	Short	215	0.0		NA
Approach	1719	6.9	1719	6.9		2.202		651.9	LOS F	144.5	1071.0					
East: Edgeworth David Ave																
Lane 1	320	7.9	320	7.9	908	0.352	100	23.8	LOS B	10.9	81.6	Full	500	0.0		0.0
Lane 2	208	3.8	208	3.8	371	0.561	100	30.2	LOS C	8.0	57.5	Full	500	-50.0 ^{N3}		0.0
Lane 3	208	3.8	208	3.8	371	0.561	100	30.2	LOS C	8.0	57.5	Short	51	-50.0 ^{N3}		NA
Approach	736	5.6	736	5.6		0.561		27.5	LOS B	10.9	81.6					
North: Pacific Hwy																
Lane 1	363	7.0	295	7.2	1494	0.198	100	6.2	LOS A	3.0	22.6	Full	65	0.0		0.0
Lane 2	13	100.0	13	100.0	446	0.028	100	24.6	LOS B	0.5	5.9	Short	50	0.0		NA
Lane 3	712	6.0	579	6.2	707	0.819	100	39.1	LOS C	14.4 ^{N4}	106.1 ^{N4}	Full	65	0.0		50.0
Lane 4	712	6.0	579	6.2	707	0.819	100	39.1	LOS C	14.4 ^{N4}	106.1 ^{N4}	Full	65	0.0		50.0
Approach	1800	6.8	1467 ^{N1}	7.2		0.819		32.3	LOS C	14.4	106.1					
Intersection	4255	6.6	3921 ^{N1}	7.2		2.202		303.0	LOS F	144.5	1071.0					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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Memo.sip8

LANE SUMMARY

▽ Site: 9 [2031 - Dural St / Frederick St AM_with_Dev_DoMin]

Dural St / Frederick St
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1	219	0.0	1212	0.181	100	3.8	LOS A	0.7	4.8	Full	500	0.0	0.0
Approach	219	0.0		0.181		3.8	LOS A	0.7	4.8				
East: Dural St													
Lane 1	85	1.2	1860	0.046	100	2.7	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	85	1.2		0.046		2.7	NA	0.0	0.0				
North: Quarry Rd													
Lane 1	23	9.1	1225	0.019	100	3.4	LOS A	0.1	0.5	Full	500	0.0	0.0
Approach	23	9.1		0.019		3.4	LOS A	0.1	0.5				
Intersection	327	1.0		0.181		3.5	NA	0.7	4.8				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

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LANE SUMMARY

 **Site: 10 [2031 - William St / Frederick St AM_with_Dev_DoMin]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1 ^d	255	0.0	1194	0.213	100	4.6	LOS A	1.2	8.4	Full	500	0.0	0.0
Approach	255	0.0		0.213		4.6	LOS A	1.2	8.4				
East: William St													
Lane 1 ^d	195	0.0	1267	0.154	100	4.1	LOS A	0.8	5.9	Full	500	0.0	0.0
Approach	195	0.0		0.154		4.1	LOS A	0.8	5.9				
North: Frederick St													
Lane 1 ^d	98	1.1	1066	0.092	100	3.8	LOS A	0.5	3.3	Full	500	0.0	0.0
Approach	98	1.1		0.092		3.8	LOS A	0.5	3.3				
West: William St													
Lane 1 ^d	123	2.6	982	0.125	100	4.8	LOS A	0.7	4.7	Full	500	0.0	0.0
Approach	123	2.6		0.125		4.8	LOS A	0.7	4.7				
Intersection	671	0.6		0.213		4.4	LOS A	1.2	8.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

^d Dominant lane on roundabout approach

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LANE SUMMARY

 Site: 1 [2031 - Coronation St / Peats Ferry Road
PM_with_Dev_DoMin]

 Network: N101 [PM]

Coronation St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Lane Use and Performance																
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.	
	Total	HV	Total	HV						Veh	Dist					
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%	
South: Peats Ferry Road																
Lane 1	998	2.3	678	2.3	1358 ¹	0.499	100	4.9	LOS A	11.0 ^{N4}	78.3 ^{N4}	Full	48	0.0	50.0	
Lane 2	97	28.3	66	28.4	117	0.565	100	53.0	LOS D	3.8	32.9	Short	25	0.0	NA	
Approach	1095	4.6	743 ^{N1}	4.7		0.565		9.2	LOS A	11.0	78.3					
East: Coronation St																
Lane 1	253	0.4	253	0.4	141 ¹	1.795	100	778.4	LOS F	65.1	457.2	Short	15	-50.0 ^{N7}	NA	
Lane 2	107	0.0	107	0.0	77 ¹	1.386	100	420.2	LOS F	20.6	144.1	Full	500	0.0	0.0	
Approach	360	0.3	360	0.3		1.795		671.6	LOS F	65.1	457.2					
North: Peats Ferry Road																
Lane 1	74	17.1	74	17.1	1094	0.067	100	11.4	LOS A	1.6	13.2	Short (P)	20	0.0	NA	
Lane 2	648	1.0	648	1.0	631 ¹	1.028	100	112.8	LOS F	75.5	532.7		Full	500	-50.0 ^{N7}	10.7
Lane 3	25	0.0	25	0.0	452	0.056	100	11.1	LOS A	0.6	3.9		Short	60	0.0	NA
Approach	747	2.5	747	2.5		1.028		99.4	LOS F	75.5	532.7					
West: Aquatic Centre																
Lane 1	43	0.0	43	0.0	183	0.236	100	67.5	LOS E	2.8	19.5	Short	25	0.0	NA	
Lane 2	46	0.0	46	0.0	69	0.674	100	71.7	LOS F	3.2	22.2	Full	500	-48.2 ^{N7}	0.0	
Approach	89	0.0	89	0.0		0.674		69.6	LOS E	3.2	22.2					
Intersection	2292	3.1	1940 ^{N1}	3.6		1.795		169.6	LOS F	75.5	532.7					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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LANE SUMMARY

Site: 2 [2031 - Dural St / Peats Ferry Road
PM_with_Dev_DoMin]

Network: N101 [PM]

Dural St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	915	5.4	523	6.4	1824	0.287	100	0.4	LOS A	2.1 ^{N5}	15.5 ^{N5}	Full	78	0.0	0.0
Approach	915	5.4	523 ^{N1}	6.4		0.287		0.4	NA	2.1	15.5				
North: Peats Ferry Road															
Lane 1	926	0.9	800	1.0	1878	0.426	100	0.0	LOS A	11.1 ^{N6}	78.3 ^{N6}	Full	48	0.0	50.0 ^{N6}
Approach	926	0.9	800 ^{N1}	1.0		0.426		0.0	NA	11.1	78.3				
West: Dural St															
Lane 1	309	0.0	309	0.0	417	0.742	100	12.6	LOS A	3.2	22.4	Full	500	-50.0 ^{N3}	0.0
Approach	309	0.0	309	0.0		0.742		12.6	LOS A	3.2	22.4				
Intersection	2151	2.7	1632 ^{N1}	3.5		0.742		2.5	NA	11.1	78.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

^{N6} Continuous Lane results determined by Back of Queue values of downstream lanes but average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

 Site: 4 [2031 - Peats Ferry Road / Station Street
PM_with_Dev_DoMin]

 Network: N101 [PM]

Peats Ferry Road / Station Street

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec					m	%	%
South: Peats Ferry Road															
Lane 1	924	4.7	526	5.2	1433 ¹	0.367	100	1.4	LOS A	3.5	25.8	Full	27	0.0	1.1
Lane 2	87	1.2	50	1.3	57 ¹	0.871	100	81.2	LOS F	3.6	25.8	Short	13	0.0	NA
Approach	1012	4.4	576 ^{N1}	4.9		0.871		8.3	LOS A	3.6	25.8				
North: Peats Ferry Road															
Lane 1	104	0.0	91	0.0	1515	0.060	100	5.5	LOS A	1.0	6.9	Short	28	0.0	NA
Lane 2	825	0.8	717	0.8	766 ¹	0.936	100	39.2	LOS C	18.1 ^{N4}	127.3 ^{N4}	Full	78	-50.0 ^{N3}	50.0
Approach	929	0.7	808 ^{N1}	0.7		0.936		35.5	LOS C	18.1	127.3				
Intersection	1941	2.6	1384 ^{N1}	3.7		0.936		24.1	LOS B	18.1	127.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

 Site: 5 [2031 - William St / Peats Ferry Road
PM_with_Dev_DoMin]

 Network: N101 [PM]

William St / Peats Ferry Road

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Peats Ferry Road															
Lane 1	169	0.0	89	0.0	1541	0.058	100	5.5	LOS A	1.4	9.8	Full	35	0.0	0.0
Lane 2	920	4.2	484	3.9	1090	0.444	100	24.2	LOS B	7.9 ^{N4}	57.1 ^{N4}	Full	35	-1.1 ^{N3}	50.0
Approach	1089	3.6	573 ^{N1}	3.3		0.444		21.3	LOS B	7.9	57.1				
East: Bus Rail Interchange															
Lane 1	5748.1	57	48.1	71	0.799	100	70.5	LOS F	3.9	38.5	Short	25	-50.0 ^{N7}		NA
Lane 2	1	0.0	1	0.0	82	0.013	100	70.9	LOS F	0.1	0.5	Full	30	0.0	27.8 ⁸
Lane 3	3151.7	31	51.7	70	0.437	100	78.7	LOS F	2.2	22.2	Full	30	-1.1 ^{N3}		0.0
Approach	8848.8	88	48.8		0.799		73.3	LOS F	3.9	38.5					
North: Peats Ferry Road															
Lane 1	617	1.4	537	1.5	436 ¹	1.231	100	267.0	LOS F	6.2 ^{N4}	44.1 ^{N4}	Full	27	-50.0 ^{N7}	50.0 ⁸
Lane 2	205	0.0	178	0.0	155 ¹	1.149	100	222.4	LOS F	6.3 ^{N4}	44.1 ^{N4}	Short	24	0.0	NA
Approach	822	1.0	715 ^{N1}	1.1		1.231		255.9	LOS F	6.3	44.1				
West: William St															
Lane 1	71	0.0	71	0.0	598	0.118	100	38.2	LOS C	3.3	23.2	Short	20	-1.1 ^{N3}	NA
Lane 2	256	0.0	256	0.0	248 ¹	1.033	100	129.8	LOS F	26.9	188.3	Full	500	-50.0 ^{N7}	0.0
Approach	326	0.0	326	0.0		1.033		110.0	LOS F	26.9	188.3				
Intersection	2326	3.9	1703 ^{N1}	5.3		1.231		139.5	LOS F	26.9	188.3				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

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LANE SUMMARY

Site: 6 [2031 - High St / Peats Ferry Road
PM_with_Dev_DoMin]

Network: N101 [PM]

High St / Peats Ferry Road
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance															
	Demand		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV	Total	HV						Veh	Dist				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: High St															
Lane 1	76	0.0	76	0.0	648	0.117	100	6.2	LOS A	0.5	3.6	Full	500	0.0	0.0
Lane 2	46	0.0	46	0.0	124	0.372	100	22.2	LOS B	0.8	5.3	Short	10	-50.0 ^{N3}	NA
Approach	122	0.0	122	0.0		0.372		12.2	LOS A	0.8	5.3				
East: Peats Ferry Road															
Lane 1	140	0.0	69	0.0	1857	0.037	100	2.9	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	514	3.8	254	3.8	1809	0.141	100	3.5	LOS A	0.0	0.0	Short	20	0.0	NA
Lane 3	514	3.8	254	3.8	1809	0.141	100	3.5	LOS A	16.5 ^{N5}	119.1 ^{N5}	Full	80	0.0	41.4 ^{N5}
Approach	1168	3.3	578 ^{N1}	3.3		0.141		3.4	NA	16.5	119.1				
North: Peats Ferry Road															
Lane 1	862	3.9	686	4.6	1781	0.385	100	3.0	LOS A	7.8 ^{N6}	57.1 ^{N6}	Full	35	0.0	50.0 ^{N6}
Lane 2	64	0.0	51	0.0	582	0.087	100	4.1	LOS A	0.3	2.2	Short	27	0.0	NA
Approach	926	3.6	737 ^{N1}	4.3		0.385		3.0	NA	7.8	57.1				
Intersection	2217	3.3	1437 ^{N1}	5.1		0.385		4.0	NA	16.5	119.1				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N5} Continuous Lane results determined by Back of Queue values of downstream lanes.

^{N6} Continuous Lane results determined by Back of Queue values of downstream lanes but average back of queue has been restricted to the available queue storage space.

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Project: C:\Users\minck\Documents\2020\0420 Peats Ferry TIA\Memo SIDRAS\Peats Ferry Road - 2031 do minimum with development - Memo.sip8

LANE SUMMARY

 Site: 7 [2031 - George St / Peats Ferry Road / Pacific Hwy
PM_with_Dev_DoMin]

 Network: N101 [PM]

George St / Peats Ferry Road / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %						Veh	Dist m				
South: Pacific Hwy															
Lane 1	1019	3.8	774	3.8	512 ¹	1.512	100	532.0	LOS F	14.7 ^{N4}	106.1 ^{N4}	Short	45	-40.2 ^{N7}	NA
Lane 2	434	2.2	329	2.2	596	0.553	100	26.1	LOS B	12.9	92.2	Full	65	0.0	50.0 ⁸
Lane 3	650	2.2	494	2.2	892	0.553	100	28.9	LOS C	14.9 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0
Approach	2102	3.0	1597 ^{N1}	3.0		1.512		272.2	LOS F	14.9	106.1				
East: Parking															
Lane 1	236	0.0	236	0.0	137	1.715	100	699.8	LOS F	57.8	404.9	Full	500	0.0	0.0
Lane 2	337	0.0	337	0.0	141	2.381	100	1287.3	LOS F	104.8	733.7	Full	500	0.0	40.1
Approach	573	0.0	573	0.0		2.381		1045.4	LOS F	104.8	733.7				
North: George St															
Lane 1	404	5.0	404	5.0	451 ¹	0.897	100	58.2	LOS E	27.7	201.9	Short	70	0.0	NA
Lane 2	281	5.8	281	5.8	313 ¹	0.897	100	60.4	LOS E	19.0	139.9	Full	500	-50.0 ^{N3}	0.0
Lane 3	296	5.8	296	5.8	330	0.897	100	59.9	LOS E	20.1	147.5	Full	500	-50.0 ^{N3}	0.0
Approach	981	5.5	981	5.5		0.897		59.3	LOS E	27.7	201.9				
West: Peats Ferry Road															
Lane 1	202	0.0	163	0.0	598	0.272	100	41.8	LOS C	8.4	58.9	Short	50	0.0	NA
Lane 2	363	4.8	295	5.6	273 ¹	1.077	100	171.6	LOS F	17.8 ^{N4}	130.6 ^{N4}	Short	70	-50.0 ^{N3}	NA
Lane 3	364	4.8	295	5.6	274 ¹	1.077	100	171.5	LOS F	17.8 ^{N4}	130.6 ^{N4}	Full	80	-50.0 ^{N3}	50.0 ⁸
Approach	928	3.7	753 ^{N1}	4.4		1.077		143.5	LOS F	17.8	130.6				
Intersection	4584	3.3	3904 ^{N1}	3.9		2.381		307.3	LOS F	104.8	733.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

LANE SUMMARY

 Site: 8 [2031- Edgeworth David Ave / Pacific Hwy
PM_with_Dev_DoMin]

 Network: N101 [PM]

Edgeworth David Ave / Pacific Hwy

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Common Control Group: CCG2 [TCS736]

Lane Use and Performance																
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.	
	Total	HV	Total	HV						Veh	Dist					
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%	
South: Pacific Hwy																
Lane 1	709	3.4	709	3.4	539	1.315	100	350.7	LOS F	132.4	954.3	Full	500	-50.0 ^{N3}	64.8	
Lane 2	706	3.4	706	3.4	537	1.315	100	350.8	LOS F	131.8	949.5	Full	500	-50.0 ^{N3}	64.4	
Lane 3	241	2.6	241	2.6	188	1.282	100	315.3	LOS F	41.8	299.0	Short	215	0.0	NA	
Approach	1656	3.3	1656	3.3		1.315		345.6	LOS F	132.4	954.3					
East: Edgeworth David Ave																
Lane 1	408	3.4	408	3.4	803	0.508	100	35.4	LOS C	19.8	142.5	Full	500	0.0	0.0	
Lane 2	329	2.2	329	2.2	246 ¹	1.338	100	384.4	LOS F	62.0	442.0	Full	500	-50.0 ^{N3}	0.0	
Lane 3	329	2.2	329	2.2	246 ¹	1.338	100	384.4	LOS F	62.0	442.0	Short	51	-50.0 ^{N3}	NA	
Approach	1067	2.7	1067	2.7		1.338		250.9	LOS F	62.0	442.0					
North: Pacific Hwy																
Lane 1	432	3.2	368	3.5	1545	0.238	100	5.4	LOS A	1.8	12.8	Full	65	0.0	0.0	
Lane 2	14 ^{100.0}		14 ^{100.0}		548	0.025	100	20.9	LOS B	0.5	6.4	Short	50	0.0	NA	
Lane 3	726	5.2	621	5.8	854 ¹	0.727	100	28.4	LOS B	14.4 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0	
Lane 4	742	5.2	634	5.8	872	0.727	100	31.6	LOS C	14.4 ^{N4}	106.1 ^{N4}	Full	65	0.0	50.0	
Approach	1914	5.4	1637 ^{N1}	6.0		0.727		24.4	LOS B	14.4	106.1					
Intersection	4637	4.0	4360 ^{N1}	4.3		1.338		201.8	LOS F	132.4	954.3					

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

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LANE SUMMARY

▽ Site: 9 [2031- Dural St / Frederick St PM_with_Dev_DoMin]

Dural St / Frederick St
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1	256	0.0	1185	0.216	100	3.8	LOS A	0.8	5.9	Full	500	0.0	0.0
Approach	256	0.0		0.216		3.8	LOS A	0.8	5.9				
East: Dural St													
Lane 1	96	0.0	1871	0.051	100	2.9	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	96	0.0		0.051		2.9	NA	0.0	0.0				
North: Quarry Rd													
Lane 1	23	0.0	1368	0.017	100	2.7	LOS A	0.1	0.4	Full	500	0.0	0.0
Approach	23	0.0		0.017		2.7	LOS A	0.1	0.4				
Intersection	375	0.0		0.216		3.5	NA	0.8	5.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

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.

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LANE SUMMARY

 **Site: 10 [2031 - William St / Frederick St PM_with_Dev_DoMin]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Frederick St													
Lane 1 ^d	223	0.0	1109	0.201	100	4.7	LOS A	1.1	7.9	Full	500	0.0	0.0
Approach	223	0.0		0.201		4.7	LOS A	1.1	7.9				
East: William St													
Lane 1 ^d	247	0.0	1258	0.197	100	4.2	LOS A	1.1	7.7	Full	500	0.0	0.0
Approach	247	0.0		0.197		4.2	LOS A	1.1	7.7				
North: Frederick St													
Lane 1 ^d	104	0.0	1125	0.093	100	3.6	LOS A	0.5	3.3	Full	500	0.0	0.0
Approach	104	0.0		0.093		3.6	LOS A	0.5	3.3				
West: William St													
Lane 1 ^d	117	0.0	1007	0.116	100	4.8	LOS A	0.6	4.3	Full	500	0.0	0.0
Approach	117	0.0		0.116		4.8	LOS A	0.6	4.3				
Intersection	692	0.0		0.201		4.4	LOS A	1.1	7.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

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.

^d Dominant lane on roundabout approach

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