Appendix H

Traffic impact assessment

Prepared for
BENEDICT INDUSTRIES

Traffic Impact Assessment

Planning Proposal
Benedict Sands; 146 Newbridge Road, Moorebank

Ref: 0264r01v5
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Appendix A: SIDRA Modelling Outputs

1 Introduction

1.1 Overview of Proposal

Ason Group has been commissioned by Benedict Industries to prepare a Traffic Impact Assessment (TIA) report to support a Planning Proposal for a mixed-use development (the Proposal) at 146 Newbridge Road, Moorebank (the Site). A Location and Site Plan is presented in **Figure 1**, which provides an appreciation of local context and existing, surrounding land uses.

The Site is currently zoned B6 - Enterprise Corridor under Council's Local Environmental Plan (LEP) with a Floor Space Ratio (FSR) of 0.75:1 and a Height of Buildings Control of 15 metres.

For the purpose of assessing the implications of the Proposal, a conceptual scheme consisting of residential apartments, Seniors Living, serviced apartments and non-residential land uses (the Concept Plan) has been developed. The Concept Plan forms the basis of our assessment of the relevant traffic and transport impacts that would result from the proposed development.

Figure 1: Location and Site Plan

1.2 Document References

In the preparation of this report, reference is made to the following documents:

- NSW Government, *Liverpool Local Environmental Plan 2008* (LLEP)
- Liverpool City council, *Liverpool Development Control Plan 2008* (LDCP)
- NSW Government, *Long Term Transport Master Plan*, December 2012, (LTTMP),
- TfNSW *Integrated Public Transport Service Planning Guidelines* (TfNSW Guideline),
- EMM, *Georges Cove Marina Transport Planning Assessment,* dated 28 July 2015

This TIA also references general access, traffic and parking guidelines, including:

- RMS, *Guide to Traffic Generating Developments* (RMS Guide).
- RMS, *Technical Direction TDT 2013/04a, Guide to Traffic Generating Developments – Updated Traffic Surveys* (RMS TDT/04a).
- Traffic Signal Design Section 2 – Warrants (RMS Traffic Signal Warrants)
- Australian Standards 2980 (AS2890)

1.3 Report Structure

This report is structured as follows:

- Section 2 provides a summary of the assessment objectives and the proposed development.
- Section 3 describes the Site, its location, local public transport and active transport facilities in the area and summarises the existing traffic conditions in the locality.
- Section 4 outlines the parking controls for the proposed development.
- Section 5 discusses access and the internal design.
- Section 6 discusses strategic context and previous studies related to the Proposal.
- Section 7 describes the traffic impacts of the proposed development including projected trip generation, forecasted network performance.
- Section 8 provides a conclusion and summary of the key traffic and transport issues and parking issues.

2 Assessment Objectives

2.1 Consultation with Authorities

Ason Group has undertaken consultation with Roads & Maritime Services (RMS) officers to assist in the preparation of this assessment. These discussions have defined the study area required to be considered as part of this Pre-Gateway submission as well as provided specific contextual advice regarding the following intersections:

- Newbridge Rd / Gov Macquarie Dr
- Newbridge Rd / Davy Robinson Dr

These discussions have also assisted in the identification of a suitable study area for this assessment as well as plans for access arrangements for the Site and surrounding developments.

2.2 Traffic Study Objectives

The objectives of this traffic study are to:

- Undertake preliminary assessment of existing traffic and transport conditions in the locality;
- Identify potential impacts of the proposed development; and
- Where possible, identify indicative mitigating measures to ameliorate the impacts of the development or areas that may require further consideration as part of the subsequent planning proposal studies.

2.3 Land Use Development Assumptions

For the purposes of this study, the indicative development yield outlined in Table 1 has been adopted to determine the likely traffic and transport impacts.

Table 1: Land Use Assumptions

Land Use	No. / Area
Apartments (& Seniors Living)	**162**
1 bed	46
2 bed	60
3 bed	56
Serviced Apartment/Terraces	**9**
1 bed	2
2 bed	7
Retail / Commercial	
Retail – Supermarket	1,599m^2 GLFA
Retail – Fast Trade	904m^2 GLFA
Retail – Specialty Shops	1,607m^2 GLFA
Commercial (Office)	1,156m^2 GLFA
Medical	695m^2 GLFA
Child Care Centre	798m^2 GLFA (86 children)
Gym	551m^2 GLFA

The above has been adopted for the purposes of the modelling exercise only and is but one of many development scenarios that could be possible for the Site. Planning Proposal approval does not provide approval for any specific development mix or lock a future developer into a development outcome. Non-residential uses could have flexible use and this level of detail with regard to specific uses and final yields will be assessed further as part of subsequent development applications.

3 Strategic Context

3.1 A Plan for Growing Sydney

A Plan for Growing Sydney sets a number of NSW Government's goals and outlines specific priorities within the various sub-regions throughout NSW. The Plan seeks to identify suitable locations for new services, homes and employment close to the existing and planned transport infrastructure serving the Enterprise Corridor connecting Liverpool and Bankstown and incorporating the Site. Accordingly, provision of increased residential and employment uses on the Site is considered complimentary to the goals of A Plan for Growing Sydney.

The Plan also seeks to improve transport connections between Liverpool and other centres, and prioritises the delivery of services to improve connections between jobs and housing.

3.2 Liverpool Development Control Plans

NSW Land and Environment Court proceedings (NSWLEC No 30141, 2013) approved an intersection design prepared by Cardno (2013) for the link road intersection on Brickmakers Drive. The proposed access to the Georges Cove Marina (the link road and its intersection with Brickmakers Road) will be physically identical to the access which has been approved by the NSW Land and Environment Court.

The new link road will be a shared access road which will carry traffic from a number of potential developments, including from 180 dwellings on adjacent land to the north (also part of lot 7 DP 1065574), where the future Mirvac residential development is planned. A development control plan (DCP) for the local road network (Part 2.10) has been prepared by Liverpool City Council. This shows the future local road network which will provide vehicular access for the marina and the Mirvac development site (**Figure 2**).

There has been extensive consultation with Liverpool City Council and the potential developers of other nearby sites, to determine the future design requirements for the link road and intersection at Brickmakers Drive.

Land south of the marina site, which is currently zoned for open space recreation, is proposed to be used for a concrete recycling facility. This concrete recycling facility, if constructed, would generate additional truck traffic which would generally be accommodated by additional ramp connections to be provided at the approved link road and Brickmakers Drive intersection. There is also a plant nursery (Flower Power) site to the north-east of the marina site and planned Mirvac development for which the vehicular access is currently from Newbridge Road. The nursery site also has the potential to be

developed for more intensive commercial, retail and/or residential land uses but the future extent of these uses and any traffic which may use the new link road for vehicular access, is not known currently.

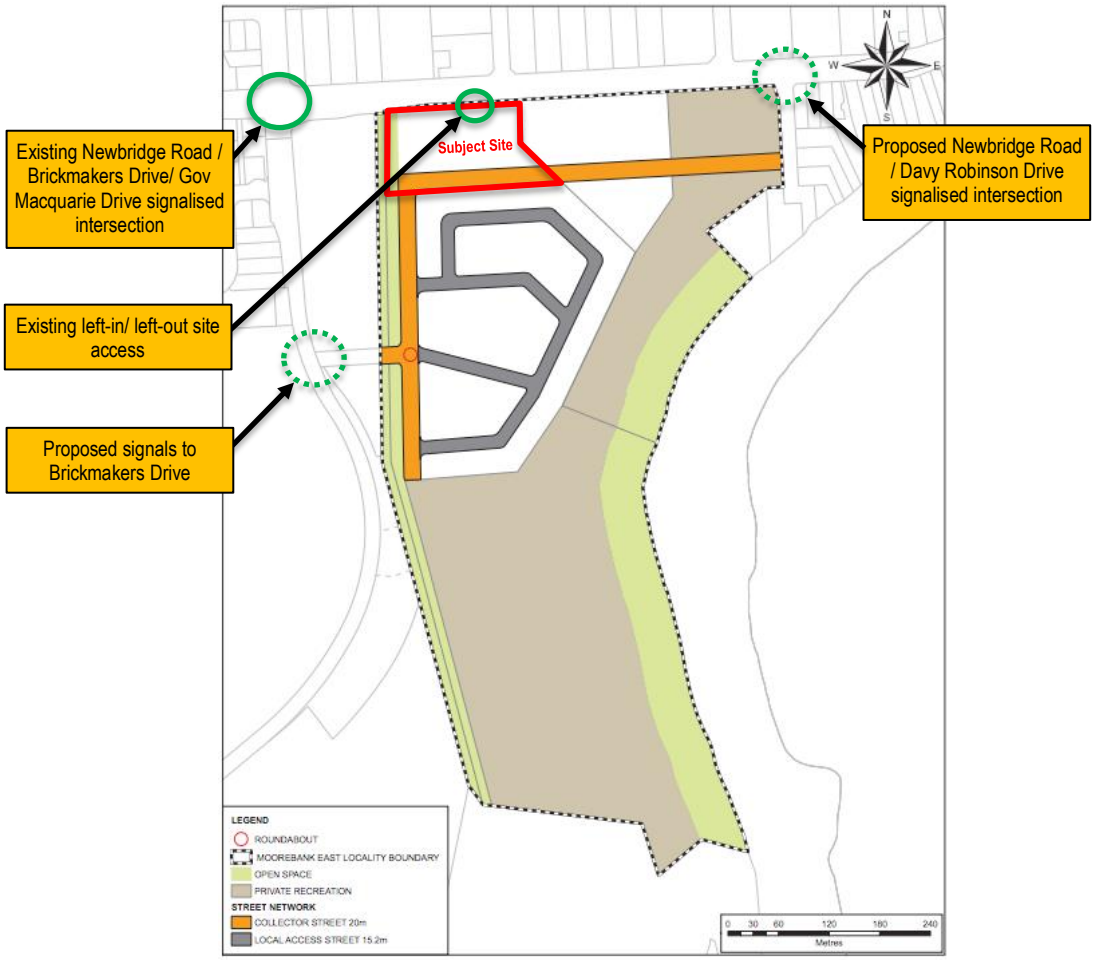

Figure 2: Future Street Network Image from Liverpool DCP

Based on advice from the Client, it is our understanding that the Council VPA for the adjoining Flower Power site embodies a condition that requires Flower Power to build a road as envisaged by the DCP. This road is to extend from the eastern boundary of the Benedict Sands site (the subject site) through the Flower Power site to Davy Robinson Drive where Flower Power must also construct a signalised intersection with Newbridge Road.

4 Parking Controls

4.1 Car Parking

Car parking provisions are considered a detailed matter and will therefore be assessed during subsequent Development Application submissions, as required.

Consideration of the peak times of activities associated with the various uses may be grounds to reduce the total parking provision on-site. Notwithstanding, it is reiterated that the future on-site parking provisions is a matter for a subsequent Development Application.

4.2 Servicing

A dedicated loading area is proposed at the north-east corner of the site. This dock area shall accommodate all on-site loading demands, including retail deliveries, waste collection and removalist vehicles.

5 Access and Internal Design

5.1 Site Access

Access to the site is proposed via:

- Left in only access from Newbridge Road for use by all vehicles. This access includes a 75 metre deceleration lane.
- Left-out only egress to Newbridge Road to be used only by trucks and commercial vehicles using the loading dock.
- 3 entry and 2 exit driveways to a new road traversing the southern site boundary. This includes 2 retail / commercial driveways and a dedicated residential access point.

Figure 3 indicates vehicular access to the site is to be provided via a driveway with a 75 metre deceleration lane on the Newbridge Road frontage in the vicinity of the existing access driveway and deceleration lane. It is noted that this proposed Newbridge Road access arrangement:

- Provides left-in access only by light vehicles and left in / left out for trucks utilising the loading dock via one-way internal circulation;
- Maximises separation of the egress movements from the Newbridge Rd / Brickmakers Dr / Gov Macquarie Dr intersection. This is located to assist in the safe egress of trucks onto Newbridge Road by heavy vehicles due to the driveway being positioned as far to the east as possible. It also provides the required visual splay to vehicles and pedestrians at the property boundary.
- Provides a direct site access to assist on-site retail uses to capture passing trade without the need for vehicles to re-circulate via Brickmakers Road. In this regard, the proposed arrangement is expected to reduce traffic volumes at the Newbridge Road / Brickmakers Drive intersection by 63 and 74 vehicles per hour in the AM and PM peaks, respectively, and will reduce travel times for those drivers.

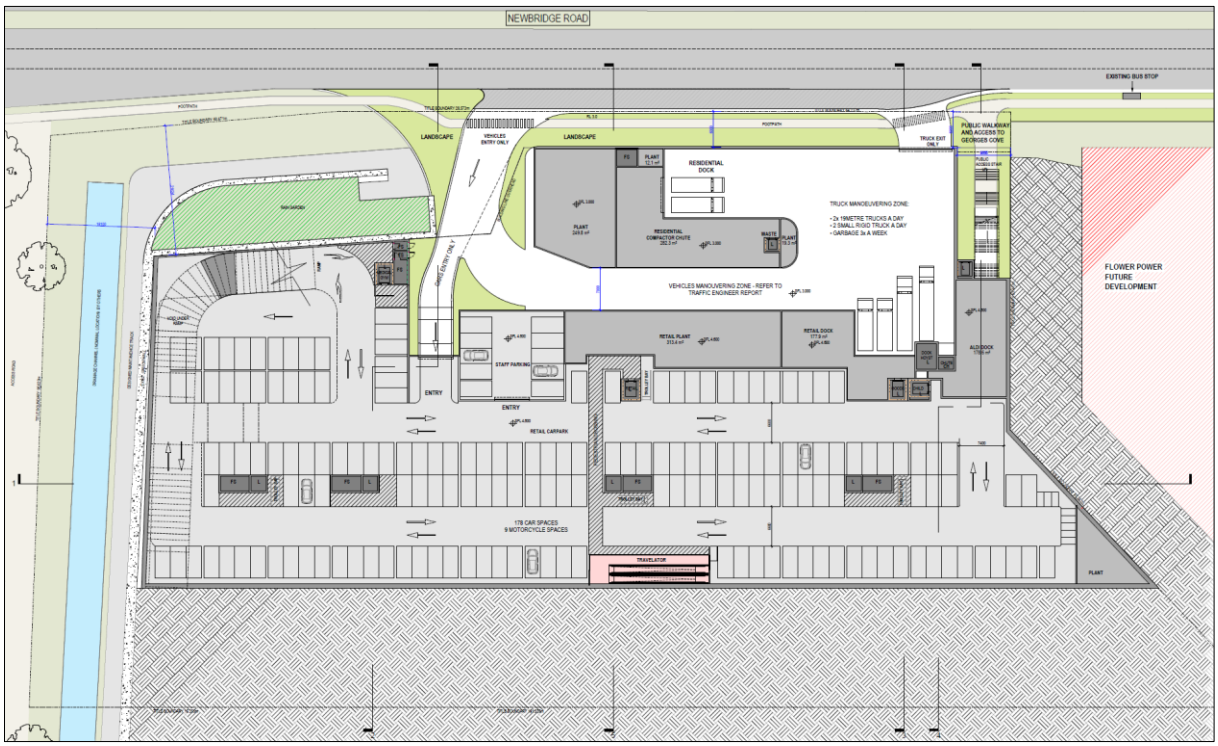

Figure 3: Concept Plan – Level 1 Retail Carpark & Dock

5.2 Internal Car Park Design

The parking layout has generally been designed having regard for AS2890, noting that servicing will generally occur from the loading dock.

There is surplus space within the basement for provision of other considerations such as bicycle and motorcycle parking. Accordingly, it is expected that a compliant basement design can readily be achieved as part of detailed Development Application documentation.

5.3 Design Summary

The Site is of sufficient area that all access driveway and internal design requirements (including parking and servicing) can be satisfactorily accommodated on-site and in accordance with relevant requirements of AS2890, RMS and the LDCP. At present the development is conceptual; however, the future development will be designed to ensure compliance with relevant Standards and Council controls.

6 Existing Traffic and Transport Conditions

6.1 Study Area

The Site is located 3.5 kilometres east of the Liverpool, 10 kilometres south of Parramatta CBD and 20 kilometres southwest of the Sydney CBD. It is bounded by Newbridge Road to the north, Brickmakers Drive to the west and the Flower Power and Pet Barn sites to the east. Newbridge Road is a key arterial road within the Liverpool Local Government Area (LGA).

Currently, the Site is used for extractive industry and concrete recycling operations. The proposed Georges Cove Marina to the south of the Site will incorporate wet and dry storage berths, clubhouse and bar, function centre with kiosk, cafe and restaurant uses, boat sales showroom and workshop area. Access to the marina carparks from Newbridge Road will be via Brickmakers Drive and an approved (Liverpool City Council DA-61/2014 and DA 1552/2006/B) link road which has not yet been constructed.

Land to the south of the marina site, which is currently zoned for open space recreation, is proposed to be used for a concrete recycling facility. This concrete recycling facility, if constructed, would generate additional truck traffic which would generally be accommodated by additional ramp connections to be provided at the approved link road and Brickmakers Drive intersection.

There is also a plant nursery (Flower Power) site to the north-east of the marina site for which the vehicular access is currently from Newbridge Road. The nursery site also has the potential to be developed for more intensive commercial, retail and/or residential land uses, but the future extent of these uses and any traffic which may use the new link road for vehicular access, is not known currently.

A Mirvac Georges Cove residential estate containing 180 dwellings is planned for land to the north of the marina and south of the subject site. The Mirvac development will not have any vehicular access to Newbridge Road and will use the future link road to Brickmakers Drive for vehicular traffic access.

On the land to the west of Brickmakers Drive, which was formerly a Boral quarry, a large residential estate (Georges Fair) containing 967 dwellings was completed in 2016 and the additional traffic using Brickmakers Drive from the New Brighton golf club, a new residential estate and golf course clubhouse to the south if the marina site has been captured in the surveys and included as background traffic growth in this assessment.

6.2 Road Hierarchy

The road hierarchy in the vicinity of the Site is shown in **Figure 4**. This figure shows that the Site is conveniently located with respect to the arterial and local road network serving the region. It is therefore able to effectively distribute traffic onto the wider road network, minimising traffic impacts on local roads.

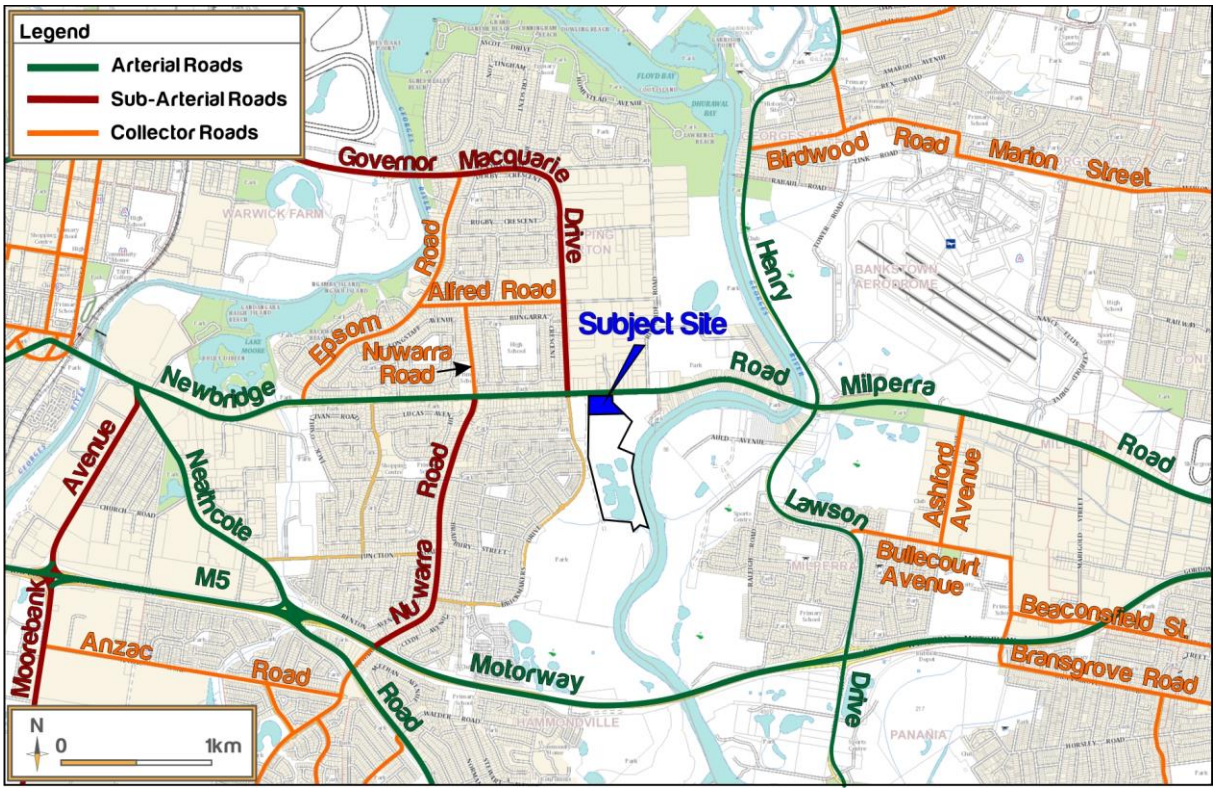

Figure 4: Surrounding Road Hierarchy

6.3 Public Transport

The Site lies within close proximity to public transport services, as shown in **Figure 5**. A summary of the existing public transport services is discussed further below.

6.3.1 Bus services

With regard to bus travel, the TfNSW Guideline states that bus services influence the travel mode choices of sites within 400 metres (approximately 5 minutes walk) of a bus stop. In this regard, the Site is accessible by a number of bus services operating along Newbridge Road. The details of each service that stops within 400 metres of the Site are presented in **Table 2** which details each route number, route description and service frequencies during the morning and evening peak periods.

Table 2: Bus Service Weekday Peak Frequencies

Route No.	Route Description	Service Operating Hours	Approximate Weekday Peak Service Frequency
M90	Metrobus Liverpool Station to Burwood Station via Bankstown	M-F: 5AM – 11PM Sat: 6AM – 12AM Sun: 7AM – 9PM	AM: 10 minutes PM: 10 minutes
902	Liverpool Station to Holsworthy Station	M-F: 5AM – 11PM Sat: 6AM – 12AM Sun: 7AM – 9PM	AM: 10 minutes PM: 10 minutes
903	Liverpool Station to Chipping Norton Station	M-F: 5AM – 11PM Sat: 6AM – 12AM Sun: 7AM – 9PM	AM: 10 minutes PM: 10 minutes

Having regard for the above services, the relative frequency of all services at Newbridge Road bus stops is a bus every 10 minutes during weekday peak periods.

6.3.2 Rail services

The TfNSW Guidelines states that train services influence the travel mode choices of areas within 800 metres distance (approximately 10 minutes walk) of a train station. Liverpool Railway Station is located approximately 3.5 kilometres to the west of the Site. Notwithstanding, regular bus connections are available to Liverpool Railway Station are accessible via Newbridge Road, as outlined above.

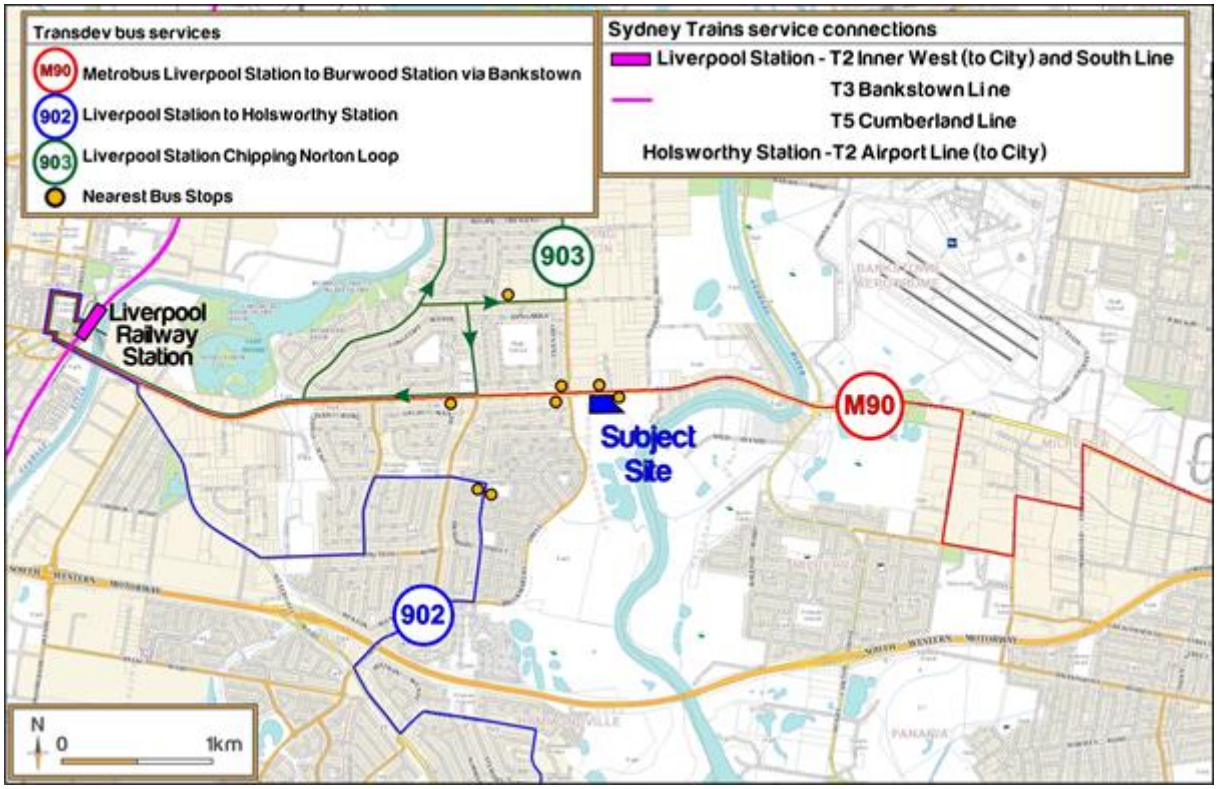

Figure 5: Public Transport Services

6.4 Bicycle Networks

The bicycle network in the vicinity of the Site is shown in **Figure 6**. A useful route along Newbridge Road to the east of the Site connects off-road paths to the west of Bankstown Airport with Georges Hall and Chipping Norton to the north east of the Site. An on-road route along Nuwarra Road, 700 metres to the west of the Site, also connects with off-road cycle paths to Liverpool CBD. These routes provide access to the wider walking and cycling network, including links to Liverpool Railway Station.

6.5 Pedestrian Connectivity

Key pedestrian desire lines in the vicinity of the Site primarily relate to connections with existing public transport infrastructure and nearby recreational spaces. In this regard, footpaths are provided on Newbridge Road and Brickmakers Drive providing connectivity to local bus stops, Moorebank High School and nearby playing fields.

Signalised pedestrian crossings are provided at the intersections of Newbridge Road with Gov Macquarie Drive and Brickmakers Drive, which provides connectivity to the north and west of the Site.

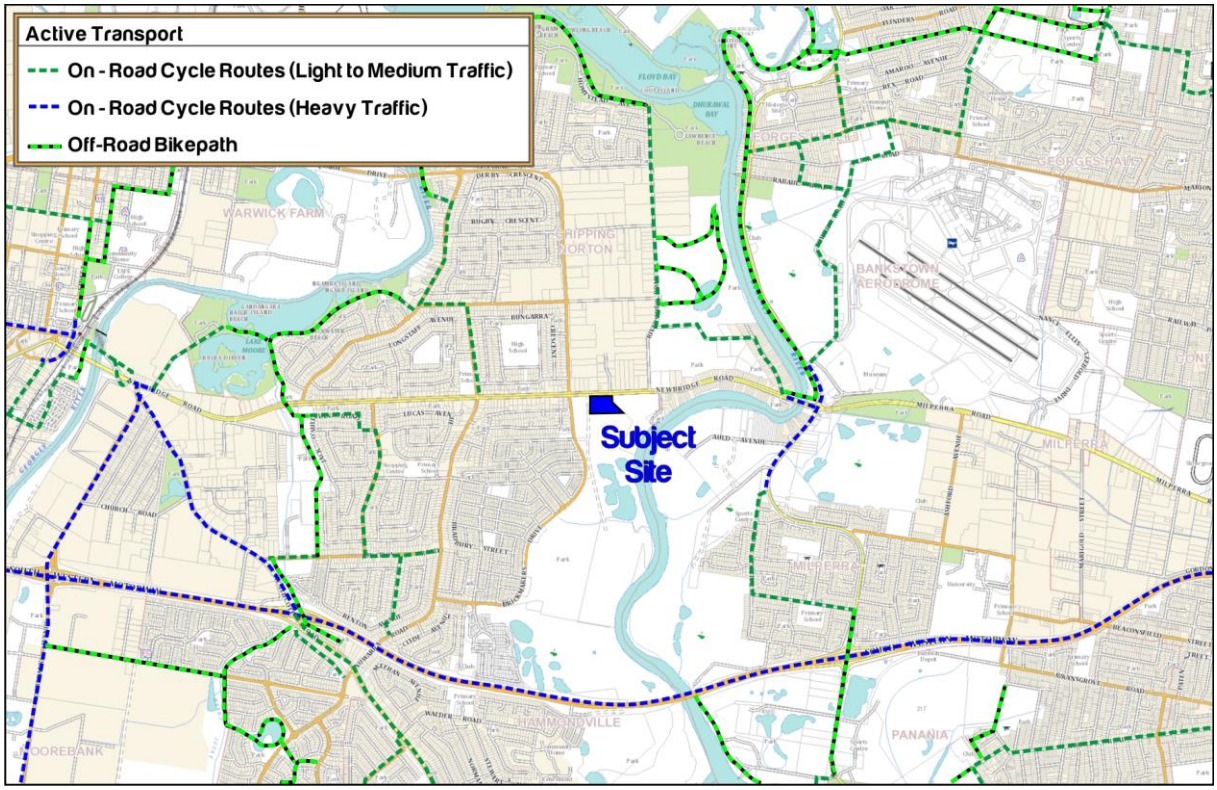

Figure 6: Pedestrian and Cycle Connectivity

6.6 Journey to Work Data Analysis

The existing travel patterns of residents and workers within the surrounding locality was surveyed within the 2011 Census and presented in the Journey to Work (JTW) data provided by the Bureau of Transport Statistics. A summary of key travel modes for both residents and workers within the locality (Travel Zone 3817) is presented in **Figure 7** and **Table 3** below.

Figure 7: Journey to Work Travel Zones

Table 3: Travel Zone 3817 JTW Mode Share

Travel Mode	Mode Share of Residents	Mode Share of Employees
Vehicle driver	76%	81%
Train	13%	1%
Vehicle passenger	4%	9%
Mode not stated	3%	3%
Bus	2%	1%
Walked only	2%	4%
Other Mode	1%	1%

6.7 Existing Traffic Volumes

In order to establish a base case of existing conditions, surveys were undertaken at the following intersections during a typical weekday morning and evening peak periods:

- Newbridge Road / Brickmakers Drive / Gov Macquarie Drive
- Newbridge Road / Davy Robinson Drive
- Newbridge Road and the existing site access driveway

The results of these surveys are presented in **Figure 8** and **Figure 9** below:

Figure 8: Network Traffic Volumes – Existing (2016) AM Peak

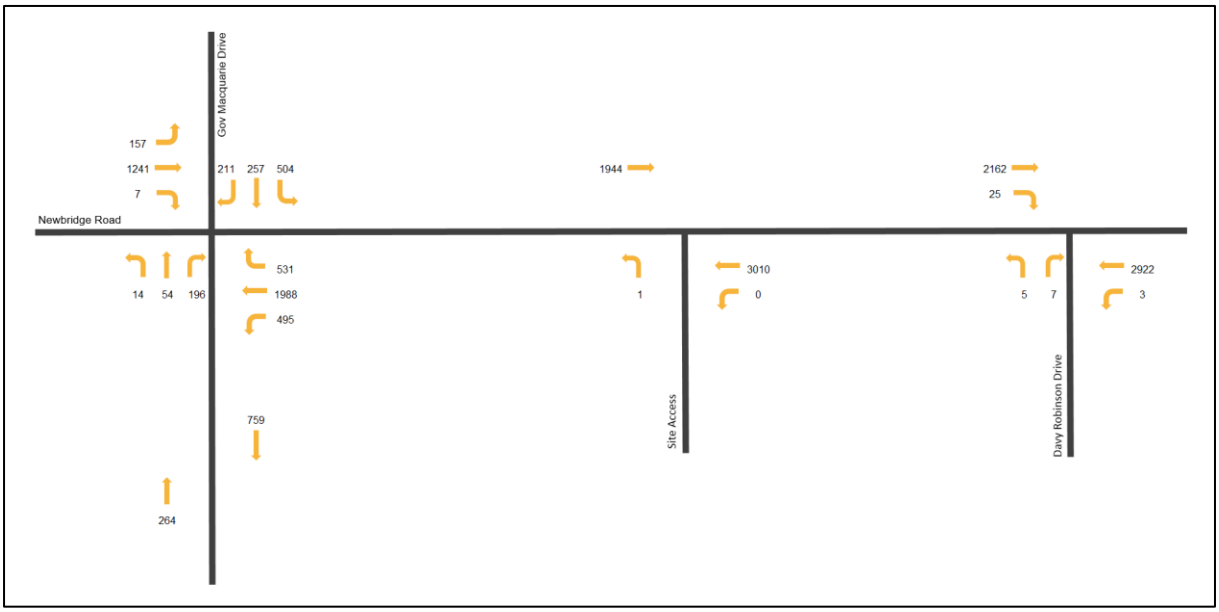

Figure 9: Network Traffic Volumes – Existing (2016) PM Peak

6.8 Road Network Performance

The performance of the key intersections has been analysed using the SIDRA Network modelling software. SIDRA modelling outputs a range of performance measures, in particular:

- *Degree of Saturation (DOS)* – The DOS is defined as the ratio of demand (arrival) flow to capacity. The DOS is used to measure the performance of intersections where a value of 1.0 represents an intersection at theoretical capacity, above 1.0 represent over-saturated conditions (demand flows exceed capacity) and degrees of saturation below 1.0 represent under-saturated conditions (demand flows are below capacity). As the performance of an intersection approaches DOS of 1.0, queue lengths and delays increase rapidly. It is usual to attempt to keep DOS to less than 0.9, with satisfactory intersection operation generally achieved with a DOS below 0.8.
- *Average Vehicle Delay (AVD)* – Delay represents the difference between interrupted and uninterrupted travel times through an intersection and is measured in seconds per vehicle. Delays include queued vehicles accelerating and decelerating from/to the intersection stop lines, as well as general delays to all vehicles travelling through the intersection. The AVD (or average delay per vehicle in seconds) for intersections also provides a measure of the operational performance of an intersection and is used to determine an intersection's Level of Service (see below). For signalised intersections, the AVD reported relates to the average of all vehicle movements through the intersection. For priority (Give Way, Stop & Roundabout controlled) intersections, the AVD reported is that for the movement with the highest AVD.

- *Level of Service (LOS)* – This is a comparative measure that provides an indication of the operating performance, based on AVD. For signalised and roundabout intersections, LOS is based on the average delay to all vehicles, while at priority controlled intersections LOS is based on the worst approach delay.

Table 4: RMS Guide Intersection Assessment Criteria

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

A summary of the performance of key intersections is shown in **Table 5**.

Table 5: Existing (2016) Intersection Performance

Intersection	Period	Degree of Saturation (DOS)	Average Vehicle Delay (AVD)	Level of Service (LOS)
Newbridge Rd / Brickmakers Dr / Gov Macquarie Dr	AM	0.904	52.5	D
	PM	0.900	36.3	C
Newbridge Rd / Davy Robinson Dr	AM	1.000	>70	F
	PM	1.167	>70	F
Newbridge Rd / Site Access	AM	0.003	8.5	A
	PM	0.003	15.8	B

The results, as shown in the table above, demonstrate that the existing intersection of Newbridge Road / Davy Robinson Drive fails during both peak periods, with excessive delays to both right turn movements. These delays are experienced by only a small number of vehicles under existing conditions. However, increased development to the south of Newbridge Road would be expected to increase traffic volumes and therefore require further consideration of the arrangements at this intersection. Presumably, traffic signals will be provided, subject to development traffic satisfying relevant RMS warrants. Alternatively, RMS may seek to restrict movements to left-in, left-out only.

7 Traffic Assessment

7.1 Development Traffic Generation

Traffic generation rates adopted for the purpose of this analysis are generally derived from the RMS *Guide to Traffic Generating Developments* (RMS Guide) with peak hour traffic generation for high density residential flat building rates in Metropolitan Sub-Regional Centres as follows:

Peak Hour Vehicle Trips = 0.29 trips per unit.

The above rate has also been conservatively adopted for the purposes of serviced apartment and Seniors Living units.

The retail trip generation was calculated in accordance with the methodology and formulas specified in section 3.6.1 of the RMS Guide.

It is also assumed that traffic generation rates for the supermarket and speciality retail are approximately 33% of peak evening traffic generation rates.

Retail traffic generation rates during the evening peak have been reduced by 25% to account for multi-purpose (where more than one shop is visited) and linked trips (passing trade) in accordance with Section 3.6.1 of the RMS Guide for a shopping centre with less than 10,000m^2 GLFA.

Relevant directional split for the various uses as follows:

- Residential 20% in | 80% out in the AM peak 80% in | 20% out in the PM peak
- Retail 70% in | 30% out in the AM peak 50% in | 50% out in the PM peak

For the purposes of this analysis, we have assumed the development yield from **Table 1**.

Having regard for the above, the development is expected to generate the following morning and evening peak hourly traffic volumes:

- AM peak 340 veh/hr (196 in, 144 out)
- PM peak 433 veh/hr (231 in, 202 out)

Notwithstanding, the following morning and evening peak hourly traffic volumes have been adopted for modelling purposes outlined in the following sections:

- AM peak 358 veh/hr (208 in, 150 out)
- PM peak 460 veh/hr (245 in, 214 out)

It is evident that these modelled volumes are moderately higher than that outlined above as a result of the indicative yield.

7.2 Traffic Distribution

With regard to the local road network, a number of origin-destination zones have been adopted to account for distribution of traffic onto the wider road network.

The trips have been distributed onto the surrounding road network based generally on the travel patterns evident from the existing traffic flows on the network, combined with a review of Journey to Work census data for residents and workers in the surrounding area. Future scenarios are based on a cumulative precinct assessment from assumptions made in traffic studies for the proposed Marina development, Mirvac residential development, New Brighton Golf Club, and the recycling plant.

These trips were distributed onto the surrounding road network differently for each option under consideration, as demonstrated below. This assumes development traffic will be distributed as follows:

- 15% to/from the north (Gov. Macquarie Drive)
- 30% to/from the east (Newbridge Road)
- 15% to/from the south (Brickmakers Drive)
- 40% to/from the west (Newbridge Road)

Application of this distribution results in the following future traffic volumes.

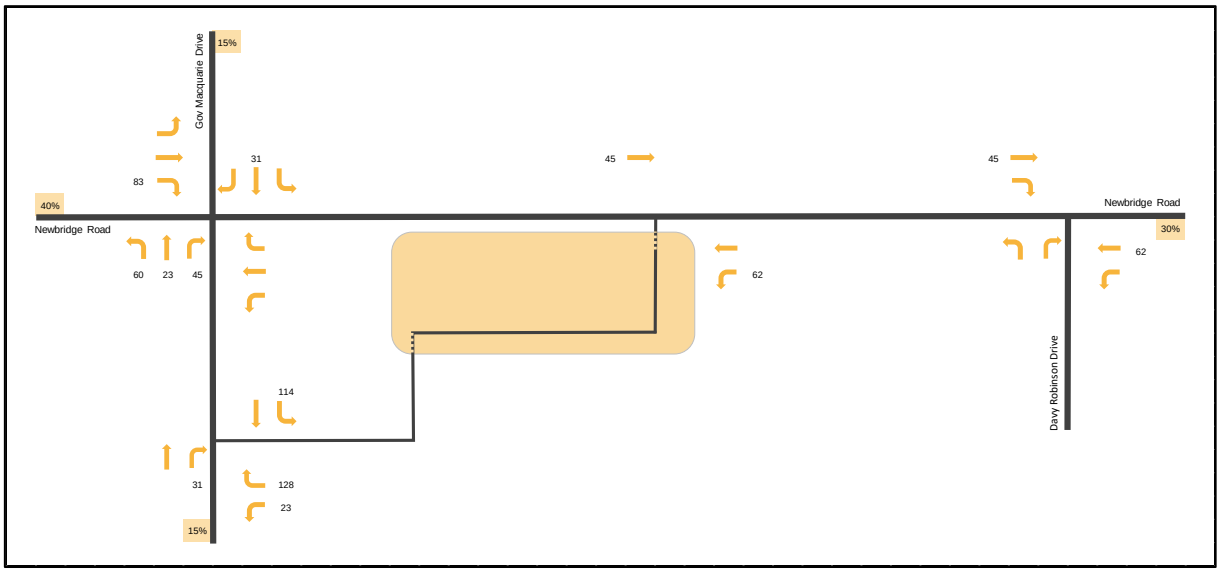

Figure 10: Development AM Peak

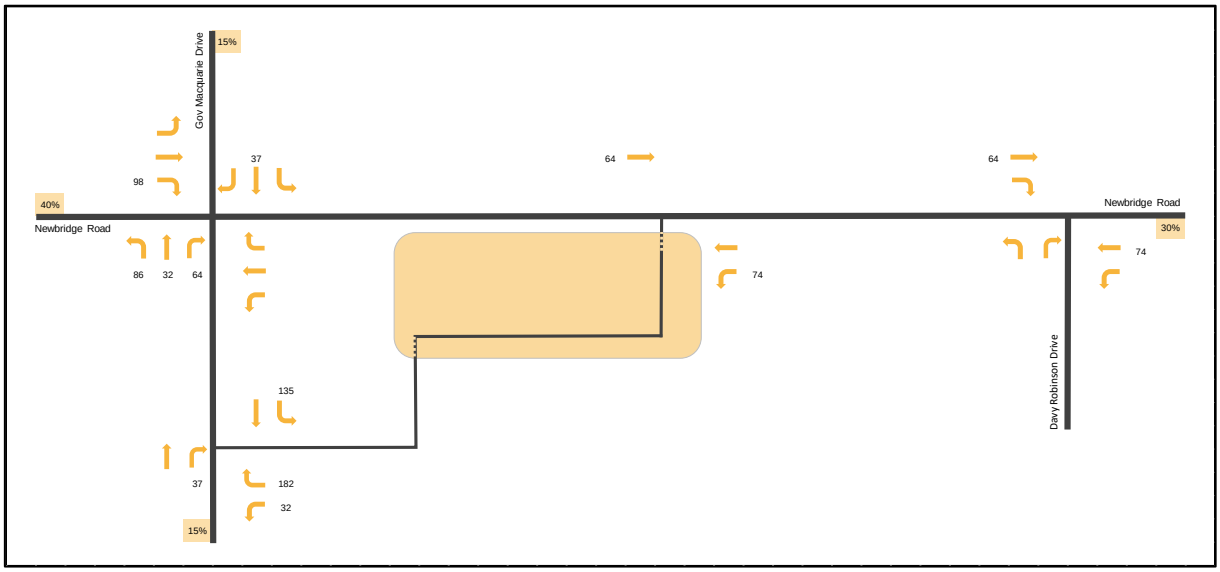

Figure 11: Development PM Peak

7.3 Future Baseline

In order to accurately represent the future traffic demands of the precinct, Georges Fair (containing 967 dwellings), New Brighton golf club and residential estate, and the marina site have been captured in the surveys and included as background traffic growth in this assessment. This includes 190 dwellings on the Mirvac Georges Cove site, as documented as part of the previous EMM traffic studies for that development. The future volumes based on these assumptions is shown below.

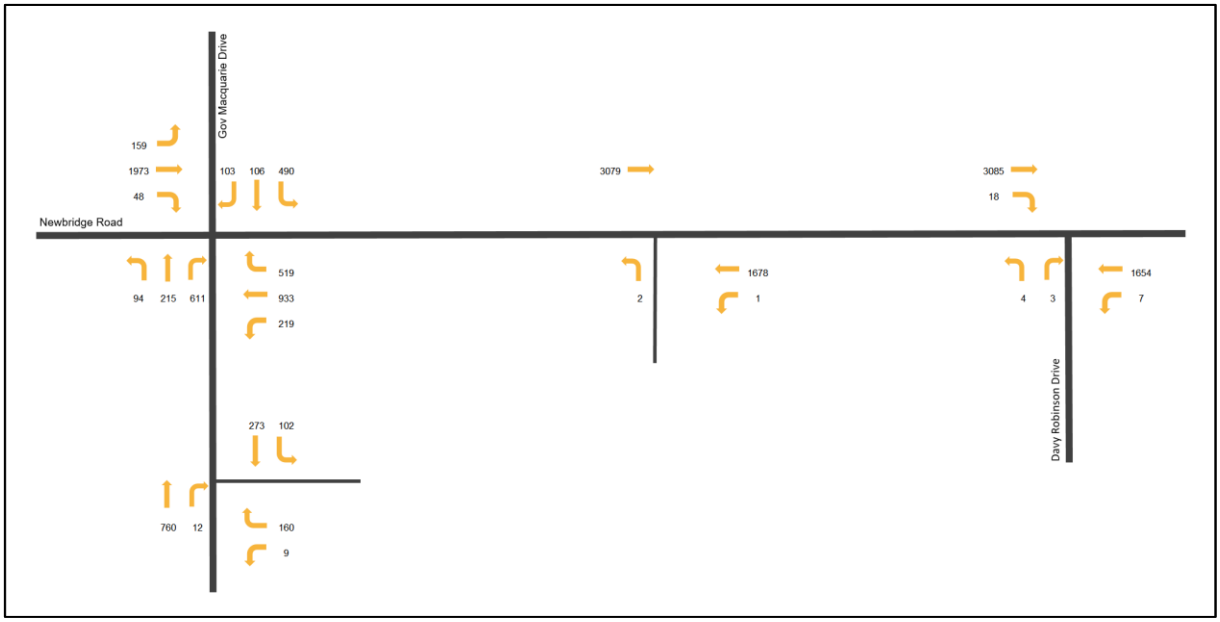

Figure 12: Future Baseline AM Peak

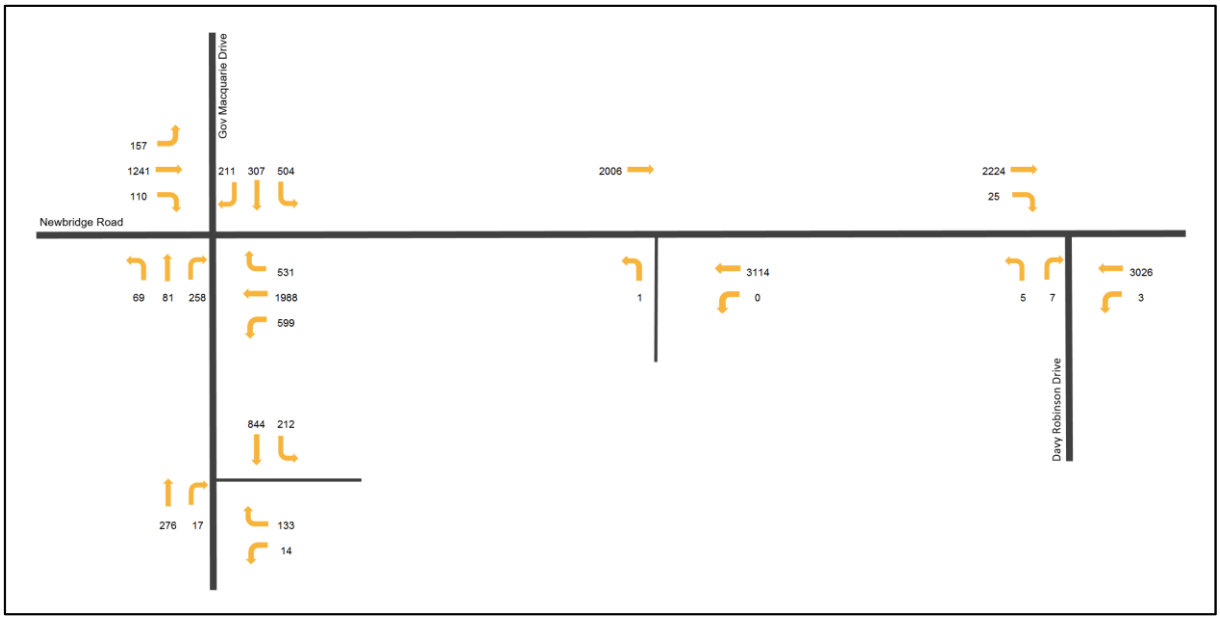

Figure 13: Future Baseline PM Peak

The results of the SIDRA analysis are summarised in **Table 6**.

Table 6: Future Baseline Intersection Performance

Intersection	Period	Degree of Saturation (DOS)	Average Vehicle Delay (AVD)	Level of Service (LOS)
Newbridge Rd / Brickmakers Dr / Gov Macquarie Dr	AM	0.954	62.4	E
	PM	0.922	49.6	D
Newbridge Rd / Davy Robinson Dr	AM	1.000	>70	F
	PM	3.669	>70	F
Newbridge Rd / Site Access	AM	0.296	8.6	A
	PM	0.550	16.9	B
Site Access / Brickmakers Dr	AM	0.803	15.5	B
	PM	0.802	16.6	B

The results, as shown in the table above, demonstrate that the Newbridge Rd / Brickmakers Dr / Gov Macquarie Dr intersection will operate at capacity in the AM peak, whilst the other intersections have spare capacity to accommodate future growth in traffic volumes.

7.4 Future + Development (Option 1)

The proposed development traffic from section 7.2 was then added to the future baseline that included the surrounding developments to analyse the effect that the ultimate future scenario would have on the network. This option assumed left in from Newbridge Road by cars and trucks, but left out only by heavy vehicle using the loading dock. No DCP road connection to Davy Robinson Drive was assumed.

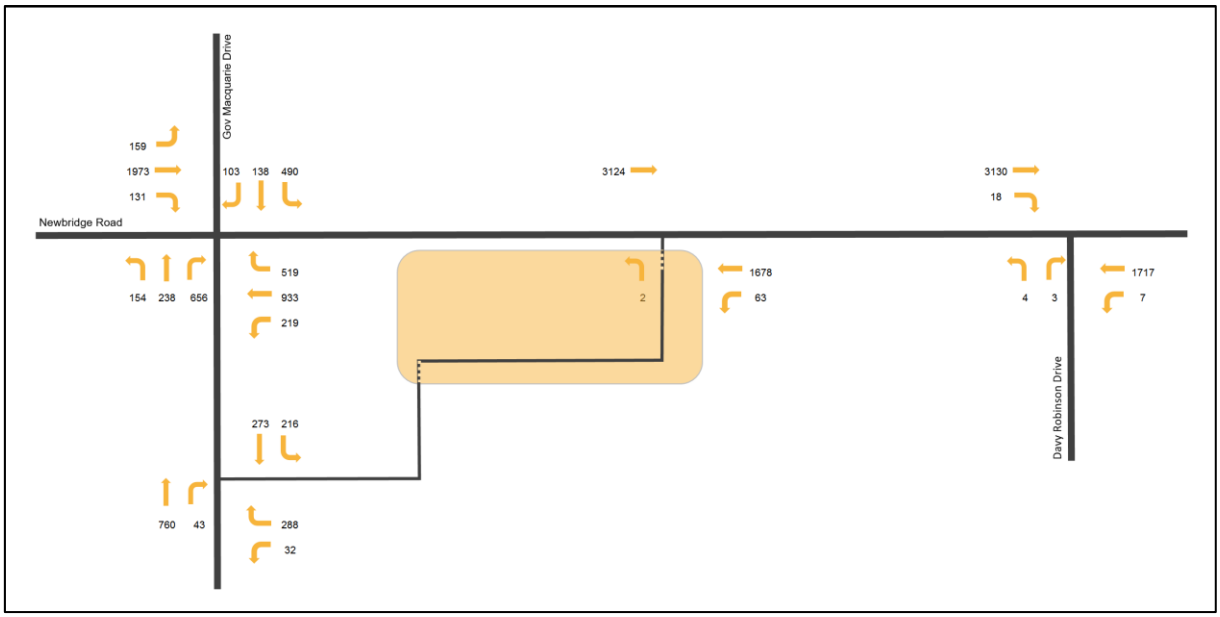

Figure 14: Future + Development (Option 1) AM Peak

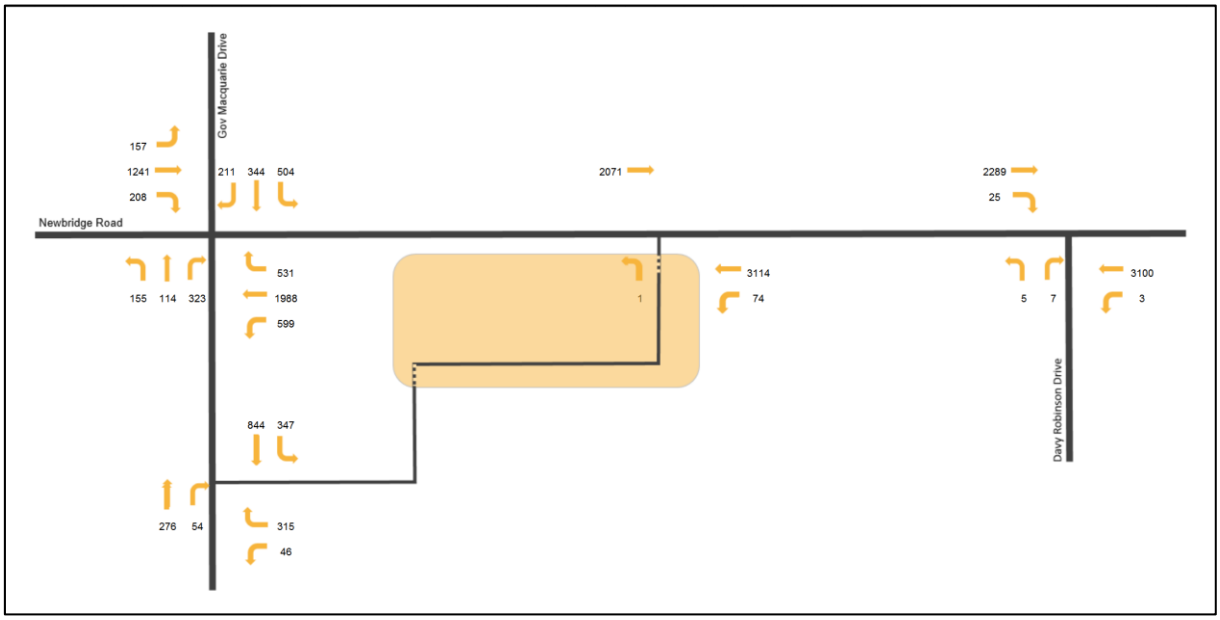

Figure 15: Future + Development (Option 1) PM Peak

The results of the SIDRA analysis are summarised in **Table 7**.

Table 7: Future + Development (Option 1) Intersection Performance

Intersection	Period	Degree of Saturation (DOS)	Average Vehicle Delay (AVD)	Level of Service (LOS)
Newbridge Rd / Brickmakers Dr / Gov Macquarie Dr	AM	0.957	72.6	F
	PM	1.024	93.9	F
Newbridge Rd / Davy Robinson Dr	AM	1.000	>70	F
	PM	3.861	>70	F
Newbridge Rd / Site Access	AM	0.296	8.6	A
	PM	0.550	16.9	B
Site Access / Brickmakers Dr	AM	0.867	23.5	B
	PM	0.894	42.5	C

The results, as shown in the table above, demonstrate that the Newbridge Rd / Brickmakers Dr / Gov Macquarie Dr intersection will operate at capacity in both peak periods, whilst the other intersections have spare capacity to accommodate future growth in traffic volumes.

7.5 Future + Development (Option 2)

As discussed in Section 6.8 of this report, the existing intersection of Newbridge Road with Davy Robinson Drive fails during both peak periods, with excessive delays to both right turn movements. Section 2.3 of RMS's Traffic Signal Design Guide specifies that a signalised intersection may be considered if, for each of four one-hour periods of an average day:

- the major road flow exceeds 900 vehicles/hour in each direction; and
- the minor road flow exceeds 100 vehicles/hour in one direction; and
- the speed of traffic on the major road or limited sight distance from the minor road causes undue delay or hazard to the minor road vehicles; and
- there is no other nearby traffic signal site easily accessible to the minor road vehicles.

Based on the projected increase in the volume of traffic at the Newbridge Road / Davy Robinson Drive intersection in addition to the future local road network providing vehicular access for the marina and the Mirvac development site, the above warrant will be met. Consequently, a scenario with this option has been modelled. This option generally assumes a similar site access arrangement to Option 1 with the difference being the DCP road connection to Davy Robinson Drive being available which includes a new signalised intersection at Newbridge Road / Davy Robinson Drive. The modelled traffic volumes for this Option are shown below.

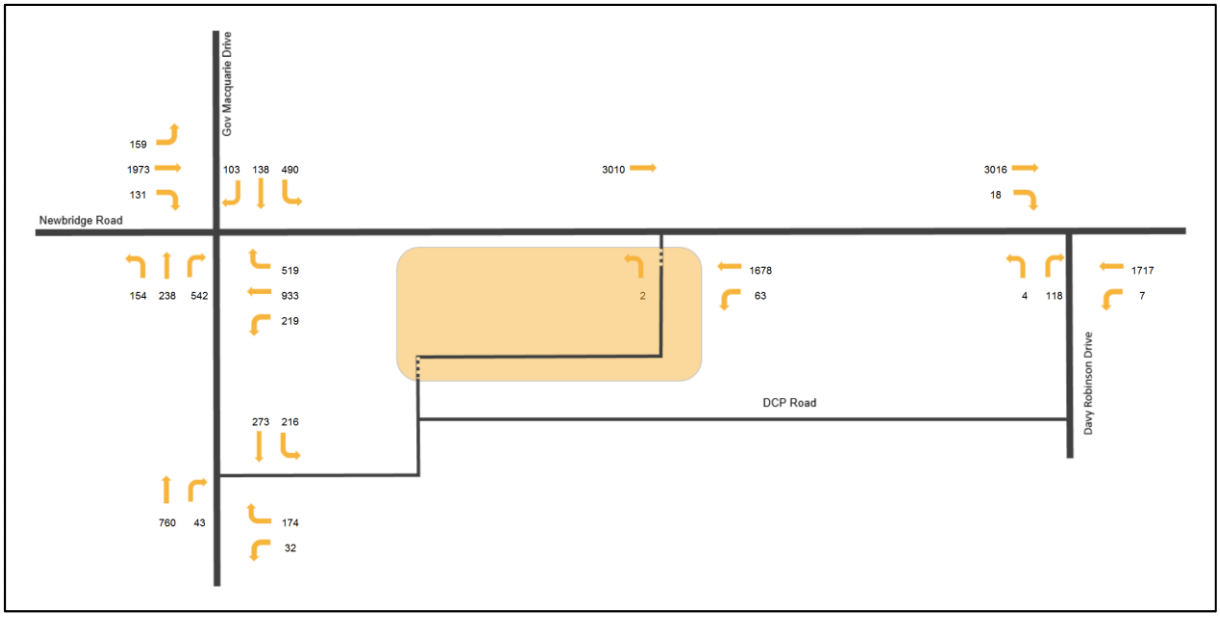

Figure 16: Future + Development (Option 2) AM Peak

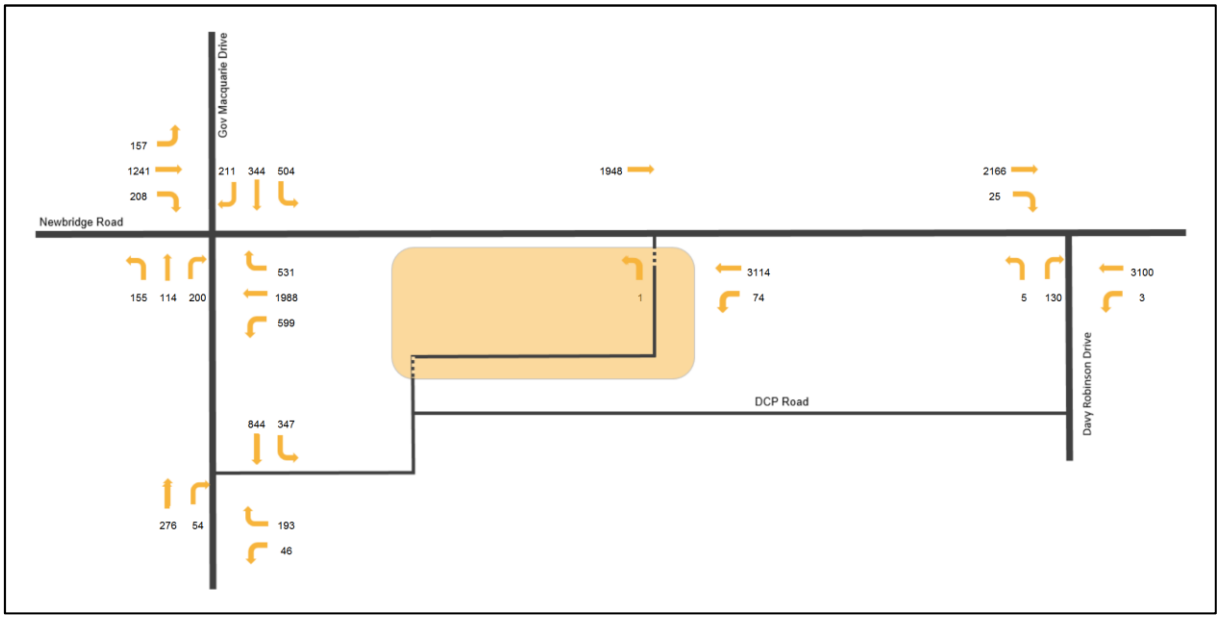

Figure 17: Future + Development (Option 2) PM Peak

The results of the SIDRA analysis are summarised in **Table 8**.

Table 8: Future + Development (Option 2) Intersection Performance

Intersection	Period	Degree of Saturation (DOS)	Average Vehicle Delay (AVD)	Level of Service (LOS)
Newbridge Rd / Brickmakers Dr / Gov Macquarie Dr	AM	0.957	70.2	E
	PM	0.994	66.0	E
Newbridge Rd / Davy Robinson Dr	AM	0.889	22.2	B
	PM	0.886	19.5	B
Newbridge Rd / Site Access	AM	0.296	8.6	A
	PM	0.550	16.9	B
Site Access / Brickmakers Dr	AM	0.809	17.4	B
	PM	0.894	26.5	B

The results, as shown in the table above, demonstrate that this scenario improves the Level of Service at the Newbridge Rd / Brickmakers Dr / Gov Macquarie Dr intersection which will operate at capacity. Other intersections continue to operate with acceptable delays, with a Level of Service B during both peak periods. Accordingly, these intersections have spare capacity to accommodate future growth in traffic volumes.

Further improvements in Level of Service may also be possible with alterations to future signal phase timings based on actual traffic flows. It is expected that the Level of Service at Newbridge Rd / Brickmakers Dr will be subject to ongoing review as development proceeds along the Newbridge Road corridor more generally.

8 Summary and Conclusion

The key findings of this Traffic Impact Assessment are:

- Ason Group has been commissioned by Benedict Industries to prepare a Traffic Impact Assessment report to support a Pre-Gateway submission. It encompasses:
  - An assessment of existing traffic and transport conditions in the locality
  - Identification of potential impacts of the proposed development
  - Where possible, identify indicative mitigating measures to ameliorate the impacts of the development or areas that may require further consideration as part of the subsequent planning proposal investigations.
- The Site is of sufficient area that all access driveway and internal design requirements (including parking and servicing) can be satisfactorily accommodated on-site and in accordance with relevant requirements of AS2890, RMS and the LDCP.
- Application of the adopted traffic generation rates results in a nominal peak hourly traffic generation of approximately 340 veh/hr in the AM peak (196 in, 144 out) and 433 veh/hr in the PM peak (231 in, 202 out).
- The surrounding road network during the morning and evening peak periods has been assessed under an existing, future baseline (incorporating future surrounding developments) and a future baseline plus development scenarios.
- Currently, the network generally operates within capacity with some intersections nearing capacity. The intersection of Newbridge Road / Davy Robinson Drive is failing during both peak periods, with excessive delays to both right turn movements. These delays are experienced by only a small number of vehicles under existing conditions.
- The analysis results demonstrate that the Newbridge Rd / Brickmakers Dr / Gov Macquarie Dr intersection will fail in both peak periods (Option 1) without signalisation of the Newbridge Rd / Davy Robinson Dr intersection and the proposed LDCP network changes, whilst the other intersections have spare capacity to accommodate future growth in traffic volumes.
- Analysis further demonstrates that a future scenario (Option 2) incorporating signals at the Newbridge Rd / Davy Robinson Dr intersection and the proposed LDCP network changes improves the level of service at the Newbridge Rd / Brickmakers Dr / Gov Macquarie Dr intersection as can be seen in **Table 9** below.

In summary, the traffic impacts of the development are considered supportable.

Table 9: Option Performance Comparison

		FUTURE BASELINE		OPTION 1		OPTION 2	
Intersection	**Period**	**Average Vehicle Delay (AVD)**	**Level of Service (LOS)**	**Average Vehicle Delay (AVD)**	**Level of Service (LOS)**	**Average Vehicle Delay (AVD)**	**Level of Service (LOS)**
Newbridge Rd / Brickmakers Dr / Gov Macquarie Dr	AM	62.4	E	72.6	F	70.2	E
	PM	49.6	D	93.9	F	66.0	E
Newbridge Rd / Davy Robinson Dr	AM	>70	F	>70	F	22.2	B
	PM	>70	F	>70	F	19.5	B
Newbridge Rd / Site Access	AM	8.6	A	8.6	A	8.6	A
	PM	16.9	B	16.9	B	16.9	B
Site Access / Brickmakers Dr	AM	15.5	B	23.5	B	17.4	B
	PM	16.6	B	42.5	C	26.5	B

Appendix A

LANE SUMMARY

Site: 101 [GMD/Newbridge AM Existing]

Newbridge Road / Gov Macquarie Drive / Brickmakers Drive
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	186	5.0	302	0.615	100	63.4	LOS E	12.8	93.4	Short	120	0.0	NA
Lane 2	264	5.0	299	0.883	100	82.9	LOS F	21.4	156.4	Short	140	0.0	NA
Lane 3	264	5.0	299	0.883	100	82.9	LOS F	21.4	156.4	Full	500	0.0	0.0
Approach	714	5.0		0.883		77.8	LOS F	21.4	156.4				
East: Newbridge Road													
Lane 1	172	5.0	1570	0.110	100	7.4	LOS A	1.1	8.4	Short	70	0.0	NA
Lane 2	311	5.0	1032	0.301	100	19.4	LOS B	12.1	88.0	Full	500	0.0	0.0
Lane 3	311	5.0	1032	0.301	100	19.4	LOS B	12.1	88.0	Full	500	0.0	0.0
Lane 4	311	5.0	1032	0.301	100	19.4	LOS B	12.1	88.0	Full	500	0.0	0.0
Lane 5	260	5.0	287	0.904	100	89.7	LOS F	21.8	158.9	Short	95	0.0	NA
Lane 6	260	5.0	287	0.904	100	89.7	LOS F	21.8	158.9	Short	80	0.0	NA
Approach	1624	5.0		0.904		40.6	LOS C	21.8	158.9				
North: Gov Macquarie Drive													
Lane 1	245	5.0	514	0.477	100	52.9	LOS D	14.7	107.6	Short	125	0.0	NA
Lane 2	245	5.0	514	0.477	100	52.9	LOS D	14.7	107.6	Full	500	0.0	0.0
Lane 3	83	5.0	164	0.507	100	74.1	LOS F	6.0	43.8	Short	145	0.0	NA
Lane 4	103	5.0	167	0.615	100	78.7	LOS F	7.5	54.9	Short	75	0.0	NA
Approach	676	5.0		0.615		59.5	LOS E	14.7	107.6				
West: Newbridge Road													
Lane 1	711	5.0	803	0.885	100	51.5	LOS D	52.3	382.0	Full	500	0.0	0.0
Lane 2	713	5.0	806	0.885	100	50.4	LOS D	52.5	383.1	Full	500	0.0	0.0
Lane 3	708	5.0	800 [1]	0.885	100	50.4	LOS D	52.0	379.6	Full	500	0.0	0.0
Lane 4	6	5.0	72	0.084	100	85.0	LOS F	0.4	3.2	Short	60	0.0	NA
Approach	2138	5.0		0.885		50.8	LOS D	52.5	383.1				
Intersection	5152	5.0		0.904		52.5	LOS D	52.5	383.1				

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.
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.

LANE SUMMARY

Site: 101 [GMD/Newbridge AM Future Baseline]

Newbridge Road / Gov Macquarie Drive / Brickmakers Drive
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	309	5.0	370	0.836	100	66.0	LOS E	22.0	160.6	Short	120	0.0	NA
Lane 2	306	5.0	320	0.954	100	98.8	LOS F	27.2	198.7	Short	140	0.0	NA
Lane 3	306	5.0	320	0.954	100	98.8	LOS F	27.2	198.7	Full	500	0.0	0.0
Approach	920	5.0		0.954		87.8	LOS F	27.2	198.7				
East: Newbridge Road													
Lane 1	219	5.0	1496	0.146	100	8.1	LOS A	2.1	15.6	Short	70	0.0	NA
Lane 2	311	5.0	917	0.339	100	23.4	LOS B	12.8	93.7	Full	500	0.0	0.0
Lane 3	311	5.0	917	0.339	100	23.4	LOS B	12.8	93.7	Full	500	0.0	0.0
Lane 4	311	5.0	917	0.339	100	23.4	LOS B	12.8	93.7	Full	500	0.0	0.0
Lane 5	260	5.0	282	0.921	100	89.4	LOS F	21.1	154.4	Short	95	0.0	NA
Lane 6	260	5.0	282	0.921	100	89.4	LOS F	21.1	154.4	Short	80	0.0	NA
Approach	1671	5.0		0.921		41.9	LOS C	21.1	154.4				
North: Gov Macquarie Drive													
Lane 1	245	5.0	512	0.478	100	50.0	LOS D	13.8	100.8	Short	125	0.0	NA
Lane 2	245	5.0	512	0.478	100	50.0	LOS D	13.8	100.8	Full	500	0.0	0.0
Lane 3	106	5.0	162	0.655	100	71.4	LOS F	7.4	53.7	Short	145	0.0	NA
Lane 4	103	5.0	128	0.804	100	82.1	LOS F	7.6	55.4	Short	75	0.0	NA
Approach	699	5.0		0.804		58.0	LOS E	13.8	100.8				
West: Newbridge Road													
Lane 1	722	5.0	767	0.940	100	69.6	LOS E	60.7	443.0	Full	500	0.0	0.0
Lane 2	723	5.0	769	0.940	100	68.3	LOS E	60.6	442.7	Full	500	0.0	0.0
Lane 3	687	5.0	731 [1]	0.940	100	68.5	LOS E	56.9	415.1	Full	500	0.0	0.0
Lane 4	48	5.0	141	0.341	100	74.9	LOS F	3.2	23.6	Short	60	0.0	NA
Approach	2180	5.0		0.940		68.9	LOS E	60.7	443.0				
Intersection	5470	5.0		0.954		62.4	LOS E	60.7	443.0				

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.
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.

LANE SUMMARY

Site: 101 [GMD/Newbridge AM Future+Development Option 1]

Newbridge Road / Gov Macquarie Drive / Brickmakers Drive
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	392	5.0	410	0.956	100	98.4	LOS F	37.3	272.6	Short	120	0.0	NA
Lane 2	328	5.0	347	0.946	100	98.7	LOS F	30.3	220.9	Short	140	0.0	NA
Lane 3	328	5.0	347	0.946	100	98.7	LOS F	30.3	220.9	Full	500	0.0	0.0
Approach	1048	5.0		0.956		98.6	LOS F	37.3	272.6				
East: Newbridge Road													
Lane 1	219	5.0	1386	0.158	100	9.7	LOS A	3.3	24.1	Short	70	0.0	NA
Lane 2	311	5.0	781	0.398	100	32.7	LOS C	15.7	114.8	Full	500	0.0	0.0
Lane 3	311	5.0	781	0.398	100	32.7	LOS C	15.7	114.8	Full	500	0.0	0.0
Lane 4	311	5.0	781	0.398	100	32.7	LOS C	15.7	114.8	Full	500	0.0	0.0
Lane 5	260	5.0	275	0.944	100	102.3	LOS F	23.6	172.6	Short	95	0.0	NA
Lane 6	260	5.0	275	0.944	100	102.3	LOS F	23.6	172.6	Short	80	0.0	NA
Approach	1671	5.0		0.944		51.3	LOS D	23.6	172.6				
North: Gov Macquarie Drive													
Lane 1	245	5.0	490	0.500	100	54.8	LOS D	15.0	109.8	Short	125	0.0	NA
Lane 2	245	5.0	490	0.500	100	54.8	LOS D	15.0	109.8	Full	500	0.0	0.0
Lane 3	138	5.0	151	0.913	100	91.8	LOS F	11.7	85.1	Short	145	0.0	NA
Lane 4	103	5.0	108	0.957	100	110.1	LOS F	9.4	68.5	Short	75	0.0	NA
Approach	731	5.0		0.957		69.6	LOS E	15.0	109.8				
West: Newbridge Road													
Lane 1	742	5.0	778	0.953	100	78.4	LOS F	68.8	502.3	Full	580	0.0	0.0
Lane 2	744	5.0	781	0.953	100	77.0	LOS F	68.8	502.2	Full	580	0.0	0.0
Lane 3	646	5.0	678 [1]	0.953	100	78.0	LOS F	57.9	422.4	Full	580	0.0	0.0
Lane 4	131	5.0	275	0.476	100	69.9	LOS E	8.9	64.8	Short	60	0.0	NA
Approach	2263	5.0		0.953		77.3	LOS F	68.8	502.3				
Intersection	5713	5.0		0.957		72.6	LOS F	68.8	502.3				

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.
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.

LANE SUMMARY

Site: 101 [GMD/Newbridge AM Future+Development Option 2]

Newbridge Road / Gov Macquarie Drive / Brickmakers Drive
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	392	5.0	410	0.956	100	98.4	LOS F	37.3	272.6	Short	120	0.0	NA
Lane 2	271	5.0	299	0.907	100	87.5	LOS F	22.8	166.6	Short	140	0.0	NA
Lane 3	271	5.0	299	0.907	100	87.5	LOS F	22.8	166.6	Full	500	0.0	0.0
Approach	934	5.0		0.956		92.1	LOS F	37.3	272.6				
East: Newbridge Road													
Lane 1	219	5.0	1380	0.159	100	9.6	LOS A	3.3	23.9	Short	70	0.0	NA
Lane 2	311	5.0	781	0.398	100	32.7	LOS C	15.7	114.8	Full	500	0.0	0.0
Lane 3	311	5.0	781	0.398	100	32.7	LOS C	15.7	114.8	Full	500	0.0	0.0
Lane 4	311	5.0	781	0.398	100	32.7	LOS C	15.7	114.8	Full	500	0.0	0.0
Lane 5	260	5.0	275	0.944	100	102.3	LOS F	23.6	172.6	Short	95	0.0	NA
Lane 6	260	5.0	275	0.944	100	102.3	LOS F	23.6	172.6	Short	80	0.0	NA
Approach	1671	5.0		0.944		51.3	LOS D	23.6	172.6				
North: Gov Macquarie Drive													
Lane 1	245	5.0	538	0.455	100	51.1	LOS D	14.4	105.4	Short	125	0.0	NA
Lane 2	245	5.0	538	0.455	100	51.1	LOS D	14.4	105.4	Full	500	0.0	0.0
Lane 3	138	5.0	201	0.685	100	73.6	LOS F	10.1	73.8	Short	145	0.0	NA
Lane 4	103	5.0	108	0.957	100	110.1	LOS F	9.4	68.5	Short	75	0.0	NA
Approach	731	5.0		0.957		63.7	LOS E	14.4	105.4				
West: Newbridge Road													
Lane 1	742	5.0	778	0.953	100	78.4	LOS F	68.8	502.2	Full	580	0.0	0.0
Lane 2	744	5.0	781	0.953	100	77.0	LOS F	68.8	502.2	Full	580	0.0	0.0
Lane 3	646	5.0	678 [1]	0.953	100	78.0	LOS F	57.9	422.4	Full	580	0.0	0.0
Lane 4	131	5.0	275	0.476	100	69.9	LOS E	8.9	64.8	Short	60	0.0	NA
Approach	2263	5.0		0.953		77.3	LOS F	68.8	502.2				
Intersection	5599	5.0		0.957		70.2	LOS E	68.8	502.2				

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.
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.

LANE SUMMARY

Site: 101 [GMD/Newbridge PM Existing]

Newbridge Road / Gov Macquarie Drive / Brickmakers Drive
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	68	5.0	156	0.437	100	45.5	LOS D	3.0	22.0	Short	120	0.0	NA
Lane 2	98	5.0	120	0.820	100	56.8	LOS E	4.9	35.5	Short	140	0.0	NA
Lane 3	98	5.0	120	0.820	100	56.8	LOS E	4.9	35.5	Full	500	0.0	0.0
Approach	264	5.0		0.820		53.9	LOS D	4.9	35.5				
East: Newbridge Road													
Lane 1	495	5.0	1326	0.373	100	9.7	LOS A	6.2	45.4	Short	70	0.0	NA
Lane 2	562	5.0	624 [1]	0.900	100	39.9	LOS C	27.2	198.4	Full	500	0.0	0.0
Lane 3	755	5.0	839	0.900	100	39.1	LOS C	39.0	284.4	Full	500	0.0	0.0
Lane 4	671	5.0	746 [1]	0.900	100	39.1	LOS C	33.4	244.2	Full	500	0.0	0.0
Lane 5	266	5.0	339	0.784	100	48.7	LOS D	12.2	89.0	Short	95	0.0	NA
Lane 6	266	5.0	339	0.784	100	48.7	LOS D	12.2	89.0	Short	80	0.0	NA
Approach	3014	5.0		0.900		36.1	LOS C	39.0	284.4				
North: Gov Macquarie Drive													
Lane 1	252	5.0	737	0.342	100	25.1	LOS B	7.6	55.4	Short	125	0.0	NA
Lane 2	252	5.0	737	0.342	100	25.1	LOS B	7.6	55.4	Full	500	0.0	0.0
Lane 3	257	5.0	294	0.875	100	51.8	LOS D	13.0	95.2	Short	145	0.0	NA
Lane 4	211	5.0	259	0.815	100	52.3	LOS D	10.1	73.8	Short	75	0.0	NA
Approach	972	5.0		0.875		38.1	LOS C	13.0	95.2				
West: Newbridge Road													
Lane 1	472	5.0	618	0.764	100	32.7	LOS C	19.5	142.3	Full	500	0.0	0.0
Lane 2	465	5.0	609	0.764	100	31.8	LOS C	19.4	141.4	Full	500	0.0	0.0
Lane 3	461	5.0	604 [1]	0.764	100	31.7	LOS C	19.2	140.1	Full	500	0.0	0.0
Lane 4	7	5.0	120	0.059	100	51.2	LOS D	0.3	2.2	Short	60	0.0	NA
Approach	1405	5.0		0.764		32.2	LOS C	19.5	142.3				
Intersection	5655	5.0		0.900		36.3	LOS C	39.0	284.4				

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.
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.

LANE SUMMARY

Site: 101 [GMD/Newbridge PM Future Baseline]

Newbridge Road / Gov Macquarie Drive / Brickmakers Drive
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	150	5.0	206	0.727	100	70.3	LOS E	10.4	76.1	Short	120	0.0	NA
Lane 2	129	5.0	154	0.839	100	81.3	LOS F	9.6	70.1	Short	140	0.0	NA
Lane 3	129	5.0	154	0.839	100	81.3	LOS F	9.6	70.1	Full	500	0.0	0.0
Approach	408	5.0		0.839		77.2	LOS F	10.4	76.1				
East: Newbridge Road													
Lane 1	599	5.0	1262	0.475	100	15.2	LOS B	15.1	110.5	Short	70	0.0	NA
Lane 2	494	5.0	543 [1]	0.911	100	53.7	LOS D	33.1	241.3	Full	500	0.0	0.0
Lane 3	823	5.0	904	0.911	100	49.5	LOS D	60.4	440.8	Full	500	0.0	0.0
Lane 4	671	5.0	736 [1]	0.911	100	50.0	LOS D	46.3	337.7	Full	500	0.0	0.0
Lane 5	266	5.0	359	0.740	100	65.3	LOS E	17.6	128.2	Short	95	0.0	NA
Lane 6	266	5.0	359	0.740	100	65.3	LOS E	17.6	128.2	Short	80	0.0	NA
Approach	3118	5.0		0.911		46.4	LOS D	60.4	440.8				
North: Gov Macquarie Drive													
Lane 1	252	5.0	781	0.323	100	33.1	LOS C	11.1	81.2	Short	125	0.0	NA
Lane 2	252	5.0	781	0.323	100	33.1	LOS C	11.1	81.2	Full	500	0.0	0.0
Lane 3	307	5.0	333 [1]	0.922	100	81.2	LOS F	24.8	180.9	Short	145	0.0	NA
Lane 4	211	5.0	320	0.659	100	64.1	LOS E	13.6	99.3	Short	75	0.0	NA
Approach	1022	5.0		0.922		53.9	LOS D	24.8	180.9				
West: Newbridge Road													
Lane 1	491	5.0	662	0.741	100	44.1	LOS D	29.1	212.4	Full	500	0.0	0.0
Lane 2	490	5.0	661	0.741	100	42.7	LOS D	29.2	212.9	Full	500	0.0	0.0
Lane 3	418	5.0	563 [1]	0.741	100	40.5	LOS C	23.6	172.4	Full	500	0.0	0.0
Lane 4	110	5.0	128	0.859	100	86.3	LOS F	8.3	60.8	Short	60	0.0	NA
Approach	1508	5.0		0.859		45.7	LOS D	29.2	212.9				
Intersection	6056	5.0		0.922		49.6	LOS D	60.4	440.8				

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.
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.

LANE SUMMARY

Site: 101 [GMD/Newbridge PM Future+Development Option 1]

Newbridge Road / Gov Macquarie Drive / Brickmakers Drive
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	269	5.0	326	0.826	100	72.7	LOS F	20.4	148.8	Short	120	0.0	NA
Lane 2	162	5.0	167	0.965	100	112.7	LOS F	15.3	111.6	Short	140	0.0	NA
Lane 3	162	5.0	167	0.965	100	112.7	LOS F	15.3	111.6	Full	500	0.0	0.0
Approach	592	5.0		0.965		94.5	LOS F	20.4	148.8				
East: Newbridge Road													
Lane 1	599	5.0	1075	0.557	100	26.3	LOS B	19.8	144.4	Short	70	0.0	NA
Lane 2	532	5.0	520 [1]	1.024	100	160.6	LOS F	71.0	518.1	Full	500	0.0	8.2
Lane 3	799	5.0	781	1.024	100	146.6	LOS F	101.4	739.9	Full	500	0.0	40.8
Lane 4	656	5.0	641 [1]	1.024	100	153.5	LOS F	85.4	623.3	Full	500	0.0	25.0
Lane 5	266	5.0	347	0.766	100	71.1	LOS F	19.1	139.4	Short	95	0.0	NA
Lane 6	266	5.0	347	0.766	100	71.1	LOS F	19.1	139.4	Short	80	0.0	NA
Approach	3118	5.0		1.024		114.5	LOS F	101.4	739.9				
North: Gov Macquarie Drive													
Lane 1	252	5.0	801	0.315	100	33.8	LOS C	11.7	85.1	Short	125	0.0	NA
Lane 2	252	5.0	801	0.315	100	33.8	LOS C	11.7	85.1	Full	500	0.0	0.0
Lane 3	344	5.0	342 [1]	1.007	100	144.8	LOS F	40.2	293.4	Short	145	0.0	NA
Lane 4	211	5.0	263	0.802	100	77.8	LOS F	15.9	116.4	Short	75	0.0	NA
Approach	1059	5.0		1.007		78.6	LOS F	40.2	293.4				
West: Newbridge Road													
Lane 1	509	5.0	642	0.793	100	50.1	LOS D	33.8	246.6	Full	500	0.0	0.0
Lane 2	509	5.0	642	0.793	100	48.7	LOS D	33.8	247.1	Full	500	0.0	0.0
Lane 3	380	5.0	479 [1]	0.793	100	46.8	LOS D	23.8	174.1	Full	500	0.0	0.0
Lane 4	208	5.0	204 [1]	1.021	100	165.1	LOS F	24.7	180.4	Short	60	0.0	NA
Approach	1606	5.0		1.021		63.8	LOS E	33.8	247.1				
Intersection	6375	5.0		1.024		93.9	LOS F	101.4	739.9				

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.
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.

LANE SUMMARY

Site: 101 [GMD/Newbridge PM Future+Development Option 2]

Newbridge Road / Gov Macquarie Drive / Brickmakers Drive
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	269	5.0	285	0.944	100	83.4	LOS F	20.4	148.6	Short	120	0.0	NA
Lane 2	100	5.0	105	0.956	100	91.2	LOS F	7.5	54.6	Short	140	0.0	NA
Lane 3	100	5.0	105	0.956	100	91.2	LOS F	7.5	54.6	Full	500	0.0	0.0
Approach	469	5.0		0.956		86.7	LOS F	20.4	148.6				
East: Newbridge Road													
Lane 1	599	5.0	1111	0.539	100	19.9	LOS B	15.7	114.6	Short	70	0.0	NA
Lane 2	531	5.0	541 [1]	0.982	100	95.3	LOS F	45.5	332.1	Full	500	0.0	0.0
Lane 3	788	5.0	803	0.982	100	89.8	LOS F	71.5	521.6	Full	500	0.0	8.8
Lane 4	669	5.0	681 [1]	0.982	100	91.5	LOS F	58.6	427.8	Full	500	0.0	0.0
Lane 5	266	5.0	344	0.772	100	59.9	LOS E	15.7	114.4	Short	95	0.0	NA
Lane 6	266	5.0	344	0.772	100	59.9	LOS E	15.7	114.4	Short	80	0.0	NA
Approach	3118	5.0		0.982		72.6	LOS F	71.5	521.6				
North: Gov Macquarie Drive													
Lane 1	252	5.0	792	0.318	100	28.8	LOS C	9.5	69.2	Short	125	0.0	NA
Lane 2	252	5.0	792	0.318	100	28.8	LOS C	9.5	69.2	Full	500	0.0	0.0
Lane 3	344	5.0	350 [1]	0.982	100	102.6	LOS F	30.0	218.8	Short	145	0.0	NA
Lane 4	211	5.0	224	0.941	100	86.5	LOS F	15.7	114.5	Short	75	0.0	NA
Approach	1059	5.0		0.982		64.3	LOS E	30.0	218.8				
West: Newbridge Road													
Lane 1	505	5.0	664	0.761	100	39.1	LOS C	26.4	192.4	Full	500	0.0	0.0
Lane 2	503	5.0	661	0.761	100	37.8	LOS C	26.4	192.4	Full	500	0.0	0.0
Lane 3	390	5.0	512 [1]	0.761	100	36.3	LOS C	19.3	141.1	Full	500	0.0	0.0
Lane 4	208	5.0	209	0.994	100	119.6	LOS F	18.6	136.0	Short	60	0.0	NA
Approach	1606	5.0		0.994		48.4	LOS D	26.4	192.4				
Intersection	6252	5.0		0.994		66.0	LOS E	71.5	521.6				

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.
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.

MOVEMENT SUMMARY

Site: 101 [Davy/Newbridge AM Existing]

Newbridge Road / Davy Robinson Dr
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Davy Robinson Drive											
1	L2	4	5.0	0.006	8.4	LOS A	0.0	0.1	0.49	0.63	51.3
3	R2	3	5.0	1.000	1704.6	LOS F	2.1	15.1	1.00	1.05	2.1
Approach		7	5.0	1.000	735.4	LOS F	2.1	15.1	0.71	0.81	4.6
East: Newbridge Road											
4	L2	7	5.0	0.285	5.6	LOS A	0.0	0.0	0.00	0.01	58.0
5	T1	1607	5.0	0.285	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		1614	5.0	0.285	0.1	NA	0.0	0.0	0.00	0.00	59.9
West: Newbridge Road											
11	T1	3002	5.0	0.530	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
12	R2	16	5.0	0.248	50.8	LOS D	0.6	4.7	0.94	0.99	30.6
12u	U	2	0.0	0.248	107.2	LOS F	0.6	4.7	0.94	0.99	30.6
Approach		3020	5.0	0.530	0.4	NA	0.6	4.7	0.01	0.01	59.5
All Vehicles		4641	5.0	1.000	1.4	NA	2.1	15.1	0.00	0.01	58.6

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

LANE SUMMARY

▽Site: 101 [Davy/Newbridge AM Future Baseline]

Newbridge Road / Davy Robinson Dr
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows Total veh/h	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: Davy Robinson Drive													
Lane 1	4	5.0	689	0.006	100	8.6	LOS A	0.0	0.1	Short	12	0.0	NA
Lane 2	3	5.0	3	1.000 [4]	100	1690.8	LOS F	2.0	14.9	Full	500	0.0	0.0
Approach	7	5.0		1.000		729.5	LOS F	2.0	14.9				
East: Newbridge Road													
Lane 1	553	5.0	1887	0.293	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	554	5.0	1889	0.293	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	554	5.0	1889	0.293	100	0.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	1661	5.0		0.293		0.1	NA	0.0	0.0				
West: Newbridge Road													
Lane 1	1028	5.0	1889	0.544	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	1028	5.0	1889	0.544	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 3	1028	5.0	1889	0.544	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 4	18	4.4	65	0.275	100	63.9	LOS E	0.7	5.2	Short	80	0.0	NA
Approach	3103	5.0		0.544		0.5	NA	0.7	5.2				
Intersection	4771	5.0		1.000		1.4	NA	2.0	14.9				

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.

4 x = 1.00 due to minimum capacity

MOVEMENT SUMMARY

Site: 101 [Davy/Newbridge AM Future+Development Option 1]

Newbridge Road / Davy Robinson Dr
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Davy Robinson Drive											
1	L2	4	5.0	0.006	8.7	LOS A	0.0	0.1	0.51	0.64	51.1
3	R2	3	5.0	1.000	1680.1	LOS F	2.0	14.9	1.00	1.05	2.1
Approach		7	5.0	1.000	725.0	LOS F	2.0	14.9	0.72	0.82	4.6
East: Newbridge Road											
4	L2	7	5.0	0.304	5.6	LOS A	0.0	0.0	0.00	0.01	58.0
5	T1	1717	5.0	0.304	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		1724	5.0	0.304	0.1	NA	0.0	0.0	0.00	0.00	59.9
West: Newbridge Road											
11	T1	3130	5.0	0.552	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
12	R2	16	5.0	0.317	66.5	LOS E	0.8	5.9	0.96	1.00	26.6
12u	U	2	0.0	0.317	143.4	LOS F	0.8	5.9	0.96	1.00	26.6
Approach		3148	5.0	0.552	0.5	NA	0.8	5.9	0.01	0.01	59.4
All Vehicles		4879	5.0	1.000	1.4	NA	2.0	14.9	0.00	0.01	58.6

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

LANE SUMMARY

Site: 101v [Davy/Newbridge AM Future+Development Option 2]

New Site
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	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: Davy Robinson Drive													
Lane 1	4	5.0	287	0.014	100	25.2	LOS B	0.1	0.6	Short	12	0.0	NA
Lane 2	118	5.0	287	0.411	100	27.4	LOS B	2.8	20.2	Full	500	0.0	0.0
Approach	122	5.0		0.411		27.3	LOS B	2.8	20.2				
East: Newbridge Road													
Lane 1	576	5.0	680	0.847	100	22.9	LOS B	16.3	119.2	Full	500	0.0	0.0
Lane 2	576	5.0	680	0.847	100	23.1	LOS B	16.3	118.7	Full	500	0.0	0.0
Lane 3	576	5.0	680	0.847	100	23.1	LOS B	16.3	118.7	Full	500	0.0	0.0
Approach	1727	5.0		0.847		23.1	LOS B	16.3	119.2				
West: Newbridge Road													
Lane 1	1007	5.0	1133	0.889	100	21.5	LOS B	30.6	223.5	Full	500	0.0	0.0
Lane 2	1007	5.0	1133	0.889	100	21.5	LOS B	30.6	223.5	Full	500	0.0	0.0
Lane 3	1002	5.0	1127 [1]	0.889	100	21.5	LOS B	30.3	221.5	Full	500	0.0	0.0
Lane 4	18	5.0	215	0.084	100	28.0	LOS B	0.4	3.0	Short	80	0.0	NA
Approach	3034	5.0		0.889		21.6	LOS B	30.6	223.5				
Intersection	4883	5.0		0.889		22.2	LOS B	30.6	223.5				

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.
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.

MOVEMENT SUMMARY

Site: 101 [Davy/Newbridge PM Existing]

Newbridge Road / Davy Robinson Dr
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Davy Robinson Drive											
1	L2	5	5.0	0.013	13.7	LOS A	0.0	0.3	0.71	0.79	47.8
3	R2	7	5.0	1.167	1189.9	LOS F	3.7	27.1	1.00	1.17	2.8
Approach		12	5.0	1.167	699.8	LOS F	3.7	27.1	0.88	1.01	4.6
East: Newbridge Road											
4	L2	3	5.0	0.516	5.7	LOS A	0.0	0.0	0.00	0.00	57.9
5	T1	2922	5.0	0.516	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Approach		2925	5.0	0.516	0.1	NA	0.0	0.0	0.00	0.00	59.8
West: Newbridge Road											
11	T1	2162	5.0	0.569	1.5	LOS A	3.7	26.7	0.01	0.00	58.6
12	R2	9	5.0	3.454	4705.8	LOS F	29.3	208.5	1.00	1.70	0.7
12u	U	16	0.0	3.454	4769.9	LOS F	29.3	208.5	1.00	1.70	0.7
Approach		2187	5.0	3.454	55.7	NA	29.3	208.5	0.02	0.02	30.4
All Vehicles		5124	5.0	3.454	25.5	NA	29.3	208.5	0.01	0.01	41.5

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

MOVEMENT SUMMARY

Site: 101 [Davy/Newbridge PM Future Baseline]

Newbridge Road / Davy Robinson Dr
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Davy Robinson Drive											
1	L2	5	5.0	0.014	14.4	LOS A	0.0	0.3	0.72	0.80	47.3
3	R2	7	5.0	1.167	1145.0	LOS F	3.6	26.3	1.00	1.17	2.9
Approach		12	5.0	1.167	673.9	LOS F	3.6	26.3	0.89	1.02	4.7
East: Newbridge Road											
4	L2	3	5.0	0.535	5.7	LOS A	0.0	0.0	0.00	0.00	57.9
5	T1	3026	5.0	0.535	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Approach		3029	5.0	0.535	0.1	NA	0.0	0.0	0.00	0.00	59.8
West: Newbridge Road											
11	T1	2224	5.0	0.586	1.6	LOS A	3.7	26.9	0.01	0.00	58.5
12	R2	9	5.0	3.669	5109.0	LOS F	30.2	214.7	1.00	1.68	0.7
12u	U	16	0.0	3.669	5148.0	LOS F	30.2	214.7	1.00	1.68	0.7
Approach		2249	5.0	3.669	58.6	NA	30.2	214.7	0.02	0.02	29.7
All Vehicles		5290	5.0	3.669	26.5	NA	30.2	214.7	0.01	0.01	41.0

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

MOVEMENT SUMMARY

Site: 101 [Davy/Newbridge PM Future+Development Option 1]

Newbridge Road / Davy Robinson Dr
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Davy Robinson Drive											
1	L2	5	5.0	0.014	14.9	LOS B	0.0	0.4	0.74	0.82	47.0
3	R2	7	5.0	1.167	1073.6	LOS F	3.4	25.0	1.00	1.18	3.1
Approach		12	5.0	1.167	632.5	LOS F	3.4	25.0	0.89	1.03	5.0
East: Newbridge Road											
4	L2	3	5.0	0.548	5.7	LOS A	0.0	0.0	0.00	0.00	57.9
5	T1	3100	5.0	0.548	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Approach		3103	5.0	0.548	0.1	NA	0.0	0.0	0.00	0.00	59.8
West: Newbridge Road											
11	T1	2289	5.0	0.603	1.7	LOS A	3.7	27.3	0.01	0.00	58.4
12	R2	9	5.0	3.861	5470.1	LOS F	30.9	220.0	1.00	1.66	0.6
12u	U	16	0.0	3.861	5489.8	LOS F	30.9	220.0	1.00	1.66	0.6
Approach		2314	5.0	3.861	60.9	NA	30.9	220.0	0.02	0.02	29.1
All Vehicles		5429	5.0	3.861	27.4	NA	30.9	220.0	0.01	0.01	40.6

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

LANE SUMMARY

Site: 101v [Davy/Newbridge PM Future+Development Option 2]

New Site
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	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: Davy Robinson Drive													
Lane 1	5	5.0	293	0.017	100	47.0	LOS D	0.2	1.6	Short	12	0.0	NA
Lane 2	130	5.0	287 [1]	0.452	100	51.4	LOS D	6.4	47.1	Full	500	0.0	0.0
Approach	135	5.0		0.452		51.2	LOS D	6.4	47.1				
East: Newbridge Road													
Lane 1	1034	5.0	1167	0.886	100	26.2	LOS B	53.0	387.0	Full	500	0.0	0.0
Lane 2	1034	5.0	1168	0.886	100	26.7	LOS B	53.2	388.3	Full	500	0.0	0.0
Lane 3	1034	5.0	1168	0.886	100	26.7	LOS B	53.2	388.3	Full	500	0.0	0.0
Approach	3103	5.0		0.886		26.5	LOS B	53.2	388.3				
West: Newbridge Road													
Lane 1	722	5.0	1374	0.526	100	7.0	LOS A	16.8	122.5	Full	500	0.0	0.0
Lane 2	722	5.0	1374	0.526	100	7.0	LOS A	16.8	122.5	Full	500	0.0	0.0
Lane 3	722	5.0	1374	0.526	100	7.0	LOS A	16.8	122.5	Full	500	0.0	0.0
Lane 4	25	5.0	98	0.256	100	63.0	LOS E	1.4	10.0	Short	80	0.0	NA
Approach	2191	5.0		0.526		7.6	LOS A	16.8	122.5				
Intersection	5429	5.0		0.886		19.5	LOS B	53.2	388.3				

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.
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.

MOVEMENT SUMMARY

Site: 101 [Access/Newbridge AM Existing]

Newbridge Road / Site Access Intersection
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access											
1	L2	2	5.0	0.003	8.5	LOS A	0.0	0.1	0.50	0.61	51.2
Approach		2	5.0	0.003	8.5	LOS A	0.0	0.1	0.50	0.61	51.2
East: Newbridge Road											
4	L2	1	5.0	0.001	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
5	T1	1631	5.0	0.288	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		1632	5.0	0.288	0.0	NA	0.0	0.0	0.00	0.00	59.9
All Vehicles		1634	5.0	0.288	0.0	NA	0.0	0.1	0.00	0.00	59.9

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

MOVEMENT SUMMARY

Site: 101 [Access/Newbridge AM Future Baseline]

Newbridge Road / Site Access Intersection
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access											
1	L2	2	5.0	0.003	8.6	LOS A	0.0	0.1	0.50	0.62	51.2
Approach		2	5.0	0.003	8.6	LOS A	0.0	0.1	0.50	0.62	51.2
East: Newbridge Road											
4	L2	1	5.0	0.001	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
5	T1	1678	5.0	0.296	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		1679	5.0	0.296	0.0	NA	0.0	0.0	0.00	0.00	59.9
All Vehicles		1681	5.0	0.296	0.0	NA	0.0	0.1	0.00	0.00	59.9

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

MOVEMENT SUMMARY

Site: 101 [Access/Newbridge AM Future+Development Option 1&2]

Newbridge Road / Site Access Intersection
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access											
1	L2	2	5.0	0.003	8.6	LOS A	0.0	0.1	0.50	0.62	51.2
Approach		2	5.0	0.003	8.6	LOS A	0.0	0.1	0.50	0.62	51.2
East: Newbridge Road											
4	L2	63	5.0	0.035	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
5	T1	1678	5.0	0.296	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		1741	5.0	0.296	0.2	NA	0.0	0.0	0.00	0.02	59.7
All Vehicles		1743	5.0	0.296	0.2	NA	0.0	0.1	0.00	0.02	59.7

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

MOVEMENT SUMMARY

Site: 101 [Access/Newbridge PM Existing]

Newbridge Road / Site Access Intersection
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access											
1	L2	1	5.0	0.003	15.8	LOS B	0.0	0.1	0.78	0.78	46.5
Approach		1	5.0	0.003	15.8	LOS B	0.0	0.1	0.78	0.78	46.5
East: Newbridge Road											
4	L2	1	5.0	0.001	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
5	T1	3010	5.0	0.531	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Approach		3011	5.0	0.531	0.1	NA	0.0	0.0	0.00	0.00	59.8
All Vehicles		3012	5.0	0.531	0.1	NA	0.0	0.1	0.00	0.00	59.8

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

MOVEMENT SUMMARY

Site: 101 [Access/Newbridge PM Future Baseline]

Newbridge Road / Site Access Intersection
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access											
1	L2	1	5.0	0.004	16.9	LOS B	0.0	0.1	0.80	0.80	45.9
Approach		1	5.0	0.004	16.9	LOS B	0.0	0.1	0.80	0.80	45.9
East: Newbridge Road											
4	L2	1	5.0	0.001	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
5	T1	3114	5.0	0.550	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Approach		3115	5.0	0.550	0.1	NA	0.0	0.0	0.00	0.00	59.8
All Vehicles		3116	5.0	0.550	0.1	NA	0.0	0.1	0.00	0.00	59.8

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

MOVEMENT SUMMARY

Site: 101 [Access/Newbridge PM Future + Development Option 1&2]

Newbridge Road / Site Access Intersection
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access											
1	L2	1	5.0	0.004	16.9	LOS B	0.0	0.1	0.80	0.80	45.9
Approach		1	5.0	0.004	16.9	LOS B	0.0	0.1	0.80	0.80	45.9
East: Newbridge Road											
4	L2	74	5.0	0.041	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
5	T1	3114	5.0	0.550	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Approach		3188	5.0	0.550	0.2	NA	0.0	0.0	0.00	0.01	59.6
All Vehicles		3189	5.0	0.550	0.2	NA	0.0	0.1	0.00	0.01	59.6

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

LANE SUMMARY

Site: 101v [Access/Brickmakers AM Future Baseline]

Brickmakers Drive / New Access Road Intersection
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	772	5.0	1156	0.668	100	6.8	LOS A	11.1	80.8	Full	500	0.0	0.0
Approach	772	5.0		0.668		6.8	LOS A	11.1	80.8				
East: New Access Road													
Lane 1	9	5.0	1040	0.009	1 [5]	10.3	LOS A	0.1	0.7	Short	60	0.0	NA
Lane 2	160	5.0	215	0.744	100	32.5	LOS C	4.3	31.7	Full	500	0.0	0.0
Approach	169	5.0		0.744		31.3	LOS C	4.3	31.7				
North: Brickmakers Drive													
Lane 1	102	5.0	323	0.316	100	26.0	LOS B	2.3	16.8	Full	500	0.0	0.0
Lane 2	273	5.0	340	0.803	100	26.1	LOS B	7.5	54.8	Full	500	0.0	0.0
Approach	375	5.0		0.803		26.1	LOS B	7.5	54.8				
Intersection	1316	5.0		0.803		15.5	LOS B	11.1	80.8				

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.
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.

5 Lane under-utilisation found by the program

LANE SUMMARY

Site: 101v [Access/Brickmakers AM Future+Development Option 1]

Brickmakers Drive / New Access Road Intersection
Signals - Fixed Time Isolated Cycle Time = 60 seconds (Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	803	5.0	1051	0.764	100	13.0	LOS A	15.7	114.4	Full	500	0.0	0.0
Approach	803	5.0		0.764		13.0	LOS A	15.7	114.4				
East: New Access Road													
Lane 1	32	5.0	1136	0.028	4 [5]	10.0	LOS A	0.3	2.5	Short	60	0.0	NA
Lane 2	288	5.0	359	0.803	100	35.5	LOS C	9.3	68.0	Full	500	0.0	0.0
Approach	320	5.0		0.803		32.9	LOS C	9.3	68.0				
North: Brickmakers Drive													
Lane 1	216	5.0	299	0.723	100	34.4	LOS C	6.7	48.6	Full	500	0.0	0.0
Lane 2	273	5.0	315	0.867	100	35.0	LOS C	9.6	69.9	Full	500	0.0	0.0
Approach	489	5.0		0.867		34.7	LOS C	9.6	69.9				
Intersection	1612	5.0		0.867		23.5	LOS B	15.7	114.4				

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.
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.

5 Lane under-utilisation found by the program

LANE SUMMARY

Site: 101v [Access/Brickmakers AM Future+Development Option 2]

Brickmakers Drive / New Access Road Intersection
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	803	5.0	1122	0.716	100	8.1	LOS A	12.0	87.3	Full	500	0.0	0.0
Approach	803	5.0		0.716		8.1	LOS A	12.0	87.3				
East: New Access Road													
Lane 1	32	5.0	1040	0.031	4 [5]	10.4	LOS A	0.3	2.4	Short	60	0.0	NA
Lane 2	174	5.0	215	0.809	100	34.2	LOS C	4.9	35.9	Full	500	0.0	0.0
Approach	206	5.0		0.809		30.5	LOS C	4.9	35.9				
North: Brickmakers Drive													
Lane 1	216	5.0	323	0.669	100	28.5	LOS C	5.4	39.6	Full	500	0.0	0.0
Lane 2	273	5.0	340	0.803	100	26.1	LOS B	7.5	54.8	Full	500	0.0	0.0
Approach	489	5.0		0.803		27.2	LOS B	7.5	54.8				
Intersection	1498	5.0		0.809		17.4	LOS B	12.0	87.3				

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.
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.

5 Lane under-utilisation found by the program

LANE SUMMARY

Site: 101v [Access/Brickmakers PM Future Baseline]

Brickmakers Drive / New Access Road Intersection
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	293	5.0	1063	0.276	100	7.1	LOS A	4.7	34.1	Full	500	0.0	0.0
Approach	293	5.0		0.276		7.1	LOS A	4.7	34.1				
East: New Access Road													
Lane 1	14	5.0	487	0.029	4 [5]	25.8	LOS B	0.4	2.6	Short	60	0.0	NA
Lane 2	133	5.0	179	0.742	100	43.1	LOS D	5.0	36.2	Full	500	0.0	0.0
Approach	147	5.0		0.742		41.4	LOS C	5.0	36.2				
North: Brickmakers Drive													
Lane 1	212	5.0	999	0.212	100	14.0	LOS A	3.6	26.5	Full	500	0.0	0.0
Lane 2	844	5.0	1052	0.802	100	16.3	LOS B	25.3	184.9	Full	500	0.0	0.0
Approach	1056	5.0		0.802		15.8	LOS B	25.3	184.9				
Intersection	1496	5.0		0.802		16.6	LOS B	25.3	184.9				

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.
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.

5 Lane under-utilisation found by the program

LANE SUMMARY

Site: 101v [Access/Brickmakers PM Future+Development Option 1]

Brickmakers Drive / New Access Road Intersection
Signals - Fixed Time Isolated Cycle Time = 130 seconds (Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	330	5.0	612	0.539	100	36.6	LOS C	17.1	125.1	Full	500	0.0	0.0
Approach	330	5.0		0.539		36.6	LOS C	17.1	125.1				
East: New Access Road													
Lane 1	46	5.0	731	0.063	7 [5]	30.3	LOS C	1.7	12.7	Short	60	0.0	NA
Lane 2	315	5.0	358 [1]	0.879	100	71.1	LOS F	22.2	161.8	Full	500	0.0	0.0
Approach	361	5.0		0.879		65.9	LOS E	22.2	161.8				
North: Brickmakers Drive													
Lane 1	347	5.0	897	0.387	100	27.0	LOS B	13.4	98.1	Full	500	0.0	0.0
Lane 2	844	5.0	944	0.894	100	41.1	LOS C	54.8	399.8	Full	500	0.0	0.0
Approach	1191	5.0		0.894		37.0	LOS C	54.8	399.8				
Intersection	1882	5.0		0.894		42.5	LOS C	54.8	399.8				

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.
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.
[5] Lane under-utilisation found by the program

LANE SUMMARY

Site: 101v [Access/Brickmakers PM Future+Development Option 2]

Brickmakers Drive / New Access Road Intersection
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	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: Brickmakers Drive													
Lane 1	330	5.0	707	0.467	100	16.3	LOS B	8.2	60.0	Full	500	0.0	0.0
Approach	330	5.0		0.467		16.3	LOS B	8.2	60.0				
East: New Access Road													
Lane 1	46	5.0	589	0.078	9 [5]	23.1	LOS B	1.1	7.9	Short	60	0.0	NA
Lane 2	193	5.0	231	0.837	100	45.0	LOS D	7.6	55.1	Full	500	0.0	0.0
Approach	239	5.0		0.837		40.8	LOS C	7.6	55.1				
North: Brickmakers Drive													
Lane 1	347	5.0	897	0.387	100	17.3	LOS B	7.4	53.9	Full	500	0.0	0.0
Lane 2	844	5.0	944	0.894	100	30.2	LOS C	34.7	253.0	Full	500	0.0	0.0
Approach	1191	5.0		0.894		26.5	LOS B	34.7	253.0				
Intersection	1760	5.0		0.894		26.5	LOS B	34.7	253.0				

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.
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.

5 Lane under-utilisation found by the program