Newleaf Bonnyrigg Modified Concept Plan

Traffic and Parking Assessment

transportation planning, design and delivery

12S1004000 12/12/11

GTAconsultants

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Traffic and Parking Assessment

Issue: A 12/12/11

Client: Becton Property Group
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GTA Consultants Office: NSW

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By
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1. Introduction

1.1 Overview

Newleaf Bonnyrigg is a project to provide housing under a 30 year Public Private Partnership (PPP) arrangement and also provide a renewal of an existing social housing estate of some 81 hectares. Initially, the development proposed an increase in development intensity from 1,000 dwellings to 2,332 dwellings, including 833 social housing dwellings.

It is now understood that an amendment to the consent is sought which enables an increase to approximately 2,500 dwellings, representing a 7.2% increase in development intensity. The balance of private/ public housing is proposed remain at the approved 70:30 split.

As part of the previous development approval process, a Transport Management & Accessibility Plan (TMAP) was prepared by SKM[1] in 2008. The TMAP included a combination of Paramics microsimulation traffic modelling and SIDRA INTERSECTION modelling to assess the development's impact on the surrounding road network.

GTA Consultants was commissioned by Newleaf Communities to undertake a review and update of the previous traffic and transport studies in relation to the modified concept plan approval for Newleaf Bonnyrigg. Updated data and road network assessment included in this traffic assessment address the traffic and parking impacts associated with the proposed increase in development intensity. The updated traffic and parking assessment has been prepared to accompany the section 75W application to be submitted to the relevant road and approval authorities for approval.

GTA Consultants has undertaken a pragmatic approach to understanding the impact of the additional traffic increases rather than revisiting the complexities of the microsimulation model. Our approach has used the information contained within the TMAP (SKM, 2008) and evaluates the marginal impacts of the additional traffic in future year scenario with full development, using the previously prepared SIDRA models. Traffic impacts associated with the recommended mitigation measures have also been considered.

1.2 Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed additional development, including consideration of the following:

i future 2020 traffic and parking conditions surrounding the site
ii suitability of the proposed parking in terms of supply
iii the traffic generating characteristics of the proposed additional development
iv traffic assignment and distribution
v the traffic impact of the additional development proposal on the surrounding road network.

[1] Traffic and Transport Study for Bonnyrigg Living Communities, Transport Management and Accessibility Plan (TMAP), SKM, 28 October 2008

1.3 References

In preparing this report, reference has been made to the following:

- an inspection of the site and its surrounds
- SKM, "Traffic and Transport Study for Bonnyrigg Living Communities, Transport Management and Accessibility Plan (TMAP)", 28 October 2008
- SKM, "Bonnyrigg Traffic and Transport Study to the Urban Renewal Project, Paramics Modelling Report", 09 November 2007
- Fairfield City Council Development Control Plan (DCP) 28, Bonnyrigg Town Centre
- Fairfield City Council City Wide Development Control Plan (DCP) 2006 (Version 17)
- traffic and car parking surveys as referenced in the context of this report
- plans for the proposed Bonnyrigg Masterplan prepared by dKO Architecture, Drawing Number 01, Revision P, dated 29 November 2011
- other documents and data as referenced in this report.

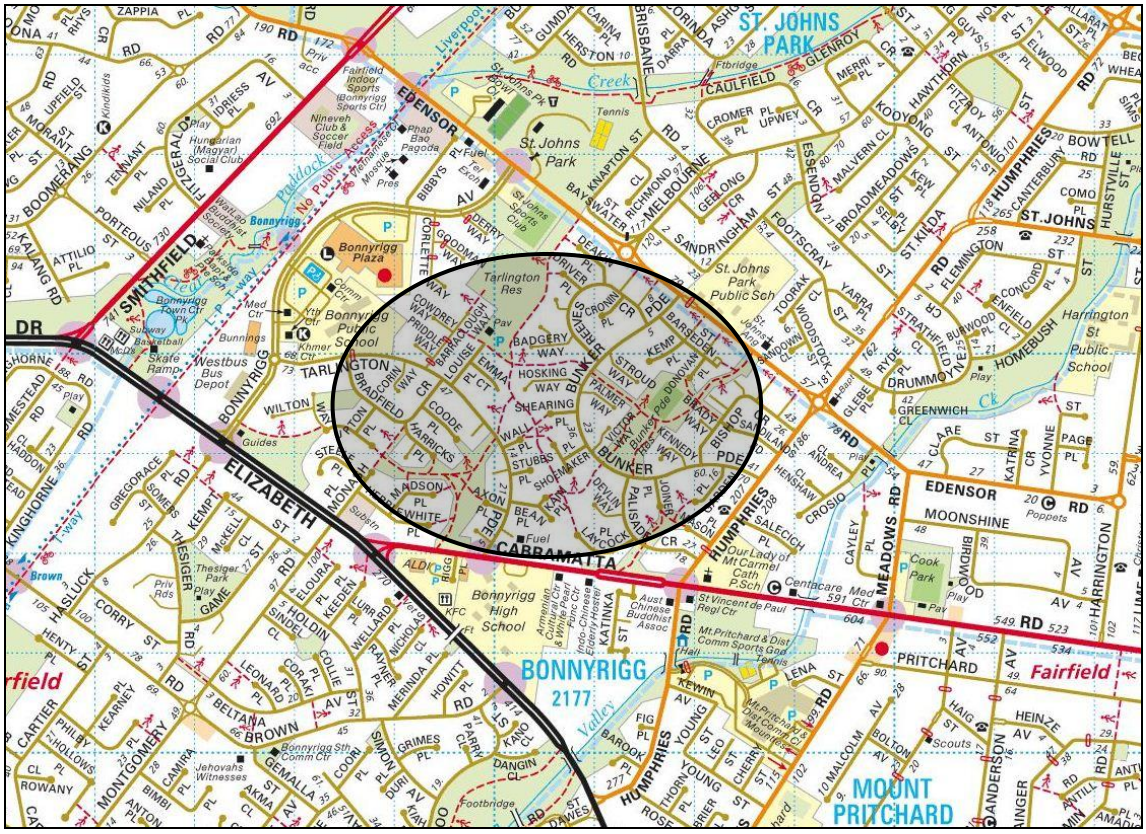
2. Existing Conditions

The subject site is located in the western Sydney suburb of Bonnyrigg. The area is bounded by Edensor Road to the north, Humphries Road to the east, Cabramatta Road West/ Elizabeth Drive to the south and Bonnyrigg Avenue to the west. The site is currently being developed as part of the early stage works associated with the Newleaf Bonnyrigg Masterplan and has a land use classification as residential.

The surrounding properties predominantly include residential uses with Bonnyrigg Plaza bounding the site to the west.

The location of the subject site and its surrounding environs is shown in Figure 2.1.

Figure 2.1: Subject Site and Its Environs



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2.1 Road Network

2.1.1 Adjoining Roads

Edensor Road

Edensor Road functions as a sub-arterial road and in the vicinity of the site is aligned in a north-east direction. It is a two-way road generally providing one traffic lane and one parking lane in each direction east of Bonnyrigg Avenue and two lanes in each direction west of Bonnyrigg Avenue. Edensor Road intersects with a number of local roads providing convenient access to the site.

Humphries Road

Humphries Road functions as a collector road and in the vicinity of the site is aligned in a north-east direction. It is a two-way road generally providing a divided carriageway with two traffic lanes in each direction. It is a two-way road providing two traffic lanes in each direction. Humphries Road intersects with a number of local roads including Bunker Parade along the eastern boundary of the site

Cabramatta Road West

Cabramatta Road West is an arterial road and in the vicinity of the site is aligned in an east-west direction. It is a two-way road providing two traffic lanes in each direction, linking with Elizabeth Drive at a signalised intersection adjacent to the southern boundary of the site.

Elizabeth Drive

Elizabeth Drive is an arterial road and in the vicinity of the site is aligned in an east-west direction. It is a two-way road providing a divided carriageway with two traffic lanes in each direction and additional storage lanes at major intersections. Elizabeth Drive is the main east-west arterial road through the area linking Liverpool CBD in the east with the M7 and The Northern Road in the west.

Bonnyrigg Avenue

Bonnyrigg Avenue is a sub-arterial road and in the vicinity of the site is aligned in a north-east direction. It is a two-way road generally providing a divided carriageway with two traffic lanes in each direction. Bonnyrigg Avenue is an important link in the immediate vicinity of the site and provides access to a number of retail (Bonnyrigg Plaza, Bunnings) and community facilities (Buddhist Temple, The Croatian Club).

2.1.2 Surrounding Intersections

The following major intersections currently exist in the vicinity of the site:

- Edensor Road/ Bonnyrigg Avenue (signalised)
- Edensor Road/ Humphries Road (roundabout)
- Cabramatta Road West/ Humphries Road (signalised)
- Elizabeth Drive/ Cabramatta Road West (signalised)
- Elizabeth Drive/ Bonnyrigg Avenue (signalised).

3. Approved Masterplan 2020 Traffic Assessment

3.1 Traffic Volumes

To ensure an accurate and consistent approach to the development assessment, traffic generation estimates have been sourced from the TMAP (SKM, 2008) which states that the rates have been estimated on the basis of the *Guide to Traffic Generating Developments* (RMS, 2002).

The forecast 2020 weekday AM and PM peak hour traffic volumes (SKM, 2008) are included in this report as Appendix A.

3.2 Intersection Operation

The operation of the key intersections within the study area have been assessed using SIDRA INTERSECTION[2], a computer based modelling package which calculates intersection performance.

The commonly used measure of intersection performance, as defined by the RMS, is vehicle delay. SIDRA INTERSECTION determines the average delay that vehicles encounter and provides a measure of the level of service.

Table 3.1 shows the criteria that SIDRA INTERSECTION adopts in assessing the level of service.

Table 3.1: SIDRA INTERSECTION Level of Service Criteria

Level of Service (LOS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Table 3.2 and Table 3.3 present a summary of the approved Bonnyrigg Masterplan future 2020 intersection operation, with full results presented in Appendix B of this report. These results have been reproduced from the TMAP (SKM, 2008) for comparison with the GTA updated assessment presented in Section 4 of this report.

[2] Program used under license from Akcelik & Associates Pty Ltd.

Table 3.2: Forecast 2020 Weekday AM Peak Hour Operating Conditions

Intersection	Control	2020 AM Peak With Development		2020 AM Peak With Dev. (Intersection Improvements)	
		Level of Service	Average Delay (sec)	Level of Service	Average Delay (sec)
Bonnyrigg Avenue / Elizabeth Drive	Signal	C	29.5		
Bonnyrigg Avenue / Edensor Road	Signal	A	19.3		
Smithfield Road / Edensor Road	Signal	F	76.6	C	34.3
Elizabeth Drive / Smithfield Road	Signal	B	25.6		
Elizabeth Drive / Brown Street	Signal	B	21.8		
Elizabeth Drive / Meadows Road	Signal	E	64.8	D	45.3
Cabramatta Road / Elizabeth Drive	Signal	A	15.9		
Cabramatta Road / Humphries Road	Signal	F	82.4	D	54.7
Cabramatta Road / Tarlington Parade	Signal	C	31.3		
Humphries Road / Edensor Road	Roundabout	D	53.1		
Bunker Parade / Edensor Road	Give Way	A	13.2		

Table 3.3: Forecast 2020 Weekday PM Peak Hour Operating Conditions

Intersection	Control	2020 PM Peak With Development		2020 PM Peak With Dev. (Intersection Improvements)	
		Level of Service	Average Delay (sec)	Level of Service	Average Delay (sec)
Bonnyrigg Avenue / Elizabeth Drive	Signal	B	19.5	-	-
Bonnyrigg Avenue / Edensor Road	Signal	B	23.1	-	-
Smithfield Road / Edensor Road	Signal	F	96.8	D	51.4
Elizabeth Drive / Smithfield Road	Signal	C	34.5	-	-
Elizabeth Drive / Brown Street	Signal	A	14.1	-	-
Elizabeth Drive / Meadows Road	Signal	D	47.6	D	45.8
Cabramatta Road / Elizabeth Drive	Signal	C	33.1	-	-
Cabramatta Road / Humphries Road	Signal	F	>200	D	54.5
Cabramatta Road / Tarlington Parade	Signal	B	25.6	-	-
Humphries Road / Edensor Road	Roundabout	B	18.6	-	-
Bunker Parade / Edensor Road	Give Way	B	26.5	-	-

On the basis of the above assessment, it is clear that a select number of intersections within the study area are forecast to experience notable queuing and delays during both the 2020 weekday AM and PM peak periods. These results have been modelled to reflect the outputs and subsequent discussion presented in the TMAP (SKM, 2008) to ensure the additional development modelling maintains a consistent and robust assessment.

3.3 Mitigating Measures and Intersection Works

The recommended mitigation works to address these operating conditions have been discussed in the TMAP (SKM, 2008) and include the following:

- Cabramatta Road/ Humphries Road – additional right turn lanes for all four approaches
- Smithfield Road/ Edensor Road – additional through lane on both legs of Edensor Road
- Elizabeth Drive/ Meadows Road – additional through lane on Elizabeth Drive north-west approach.

The SIDRA INTERSECTION results indicate that the proposed measures will be effective in improving the level of service at these locations.

4. Additional Development Traffic Assessment

4.1 Land Uses

Newleaf Bonnyrigg is a staged masterplan residential development with the redevelopment planned to occur over 13 years with a total of 18 stages. The expansion of the masterplan development proposal includes an increase in the development intensity from 2,332 dwellings to approximately 2,500 dwellings, an increase of 168 dwellings.

In order to present a conservative estimate with respect to traffic generation, a number of assumptions have been made while also referencing the TMAP (SKM, 2008) and include the following:

- additional development traffic assignment and distribution profiles is unchanged
- 70:30 private/ public development mix
- peak hour vehicle trip rates based on private detached dwellings (0.85 trips/ dwelling)
- 85% trip generation, 15% trip attraction during the AM peak
- 15% trip generation, 85% trip attraction during the PM peak
- 0% internal trip generation rate (i.e. all trips assumed to be external to the study area).

4.2 Traffic Generation

4.2.1 Design Rates

Traffic generation estimates for the proposed development have been sourced from the TMAP (SKM, 2008). Assuming the development mix to be detached dwellings, the generation rate is 0.85 vehicles/ dwelling.

Estimates of peak hour and daily traffic volumes resulting from the additional development are set out in Table 4.1.

Table 4.1: Additional Development 2020 Traffic Generation Estimates

Period	Vehicle Movements		
	In	Out	Total
AM Peak	21/hr	122/hr	143/hr
PM Peak	122/hr	21/hr	143/hr

Table 4.1 indicates that the site could potentially generate an additional 143 vehicle movements during the weekday AM and PM peak hours.

4.3 Traffic Impact

To understand the implications on the surrounding road network and effectively calculate intersection performance based on the proposed increase in development intensity, the operation of the key intersections within the study area have been re-assessed using SIDRA INTERSECTION[3].

[3] Program used under license from Akcelik & Associates Pty Ltd.

Based on the assumptions discussed above, the forecast increases in the 2020 weekday AM and PM peak hour traffic volumes are presented in Table 4.2 and Table 4.3 with full results presented in Appendix A of this report.

Table 4.2: Forecast Weekday AM 2020 Operating Conditions with Additional Dwellings

Intersection	Control	2020 AM Peak With Development + Additional Dwellings		2020 AM Peak With Dev. + Additional Dwellings (Intersection Improvements)	
		Level of Service	Average Delay (sec)	Level of Service	Average Delay (sec)
Bonnyrigg Avenue / Elizabeth Drive	Signal	C	31.1		
Bonnyrigg Avenue / Edensor Road	Signal	B	24.1		
Smithfield Road / Edensor Road	Signal	F	82.0	E	56.8
Elizabeth Drive / Smithfield Road	Signal	B	24.7		
Elizabeth Drive / Brown Street	Signal	B	21.5		
Elizabeth Drive / Meadows Road	Signal	F	83.0	D	55.5
Cabramatta Road / Elizabeth Drive	Signal	B	16.3		
Cabramatta Road / Humphries Road	Signal	F	119.3	C	39.8
Cabramatta Road / Tarlington Parade	Signal	C	32.1		
Humphries Road / Edensor Road	Roundabout	D	15.6		
Bunker Parade / Edensor Road	Give Way	A	3.0		

Table 4.3: Forecast Weekday PM 2020 Operating Conditions with Additional Dwellings

Intersection	Control	2020 PM Peak With Development + Additional Dwellings		2020 PM Peak With Development + Additional Dwellings (Intersection Improvements)	
		Level of Service	Average Delay (sec)	Level of Service	Average Delay (sec)
Bonnyrigg Avenue / Elizabeth Drive	Signal	B	20.4		
Bonnyrigg Avenue / Edensor Road	Signal	C	30.0		
Smithfield Road / Edensor Road	Signal	F	151.1	D	55.6
Elizabeth Drive / Smithfield Road	Signal	C	36.1		
Elizabeth Drive / Brown Street	Signal	A	14.5		
Elizabeth Drive / Meadows Road	Signal	D	55.5	D	54.6
Cabramatta Road / Elizabeth Drive	Signal	C	28.7		
Cabramatta Road / Humphries Road	Signal	F	385.0	E	59.5
Cabramatta Road / Tarlington Parade	Signal	B	26.0		
Humphries Road / Edensor Road	Roundabout	C	39.3		
Bunker Parade / Edensor Road	Give Way	A	9.7		

On the basis of the above assessment, it is clear that a select number of intersections within the study area will continue to experience notable queuing and delays during both the 2020 weekday AM and PM peak periods. The recommended mitigation works to address these operating conditions largely remain effective in improving the level of service at these locations. There is no requirement for additional mitigation works triggered by the additional development traffic.

It should however be noted that the Level of Service (LOS) at two of the study intersections move from LOS C/D to LOS E as a result of the additional development traffic; an average delay of 55 to 61 seconds. These locations include the signalised intersections of Smithfield Road/ Edensor Road during the AM peak period and Cabramatta Road/ Humphries Road during the PM peak period. Although it is generally understood that a LOS D represents a satisfactory level of service for a busy urban intersection, these study intersections remain within six seconds of this limit. It is likely that further operational adjustments to these intersections could reduce the impacts identified.

The unsatisfactory Level of Service at the intersection of Smithfield Road/ Edensor Road and Cabramatta Road/ Humphries Road is largely a result of delay for right turn movements. As discussed, this robust assessment has not taken into account trips internal to Newleaf Bonnyrigg in addition to future driver behaviour influenced by traffic conditions external to the site. Given this, it is reasonable to expect drivers to use alternative routes when exiting the site, mitigating the additional delays at these locations.

5. Car Parking

5.1 Background

In order to identify car parking rates that could be appropriately applied to Newleaf Bonnyrigg, the TMAP (SKM, 2008) prepared recommendations based on extensive parking surveys of comparable 'greenfield' residential developments within the Sydney Metropolitan area.

A review of the car parking requirement rates referencing a variety of sources is summarised in the following sections.

5.2 Fairfield LGA DCP Car Parking Requirement

The car parking provision requirements for different development types are set out in Fairfield Council's City Wide DCP 2006 and are summarised in Table 5.1.

Table 5.1: Fairfield City Wide DCP 2006 Parking Requirements

Car Parking Use	Detached Housing	Multi-Dwelling Housing
Resident Parking	1/dwelling	1/dwelling(1-2 bed) 2/dwelling (3+ bed) [1]
Visitor Parking	0.25/dwelling	0.25/dwelling

[1] Based on dwelling location being greater than 400m from a railway station or major bus station

5.3 SKM Car Parking Recommendation

The TMAP (SKM, 2008) provides recommendations for car parking rates based on comparable site surveys. The survey extent, together with the comparable site choice while also considering the strategic objectives of land use and transport planning justifies the proposed parking rates as summarised in Table 5.2.

Table 5.2: TMAP Proposed Parking Rates

Car Parking Use	Detached Housing	Medium Density	High Density
Resident Parking	2/dwelling	1/dwelling(1-2 bed) 1.5/dwelling (3+ bed)	0.6/apartment (1 bed) 0.9/apartment (2 bed) 1.4/apartment (3 bed)
Visitor Parking	on-street	on-street	0.2/apartment

In the developing these car parking rates the TMAP (SKM, 2008) reviewed the Fairfield City Wide DCP (2006) parking rates discussed above and suggested they be considered as inappropriate and unwarranted for incorporation into the master planned Newleaf Bonnyrigg development. It was concluded that application of the DCP rates would contribute to poor urban outcome, as they:

- encouraged the continued use of the private motor car as a primary means of transport
- discouraged the use of alternative forms of transport, such as public transport, cycling and walking
- created visual impacts of an over-supply of car parking[4]

[4] SKM, "Traffic and Transport Study for Bonnyrigg Living Communities, Transport Management and Accessibility Plan (TMAP)", 28 Oct 2008, p.71

As discussed, SKM completed on-street and off street car parking surveys as part of the TMAP (SKM, 2008) study in five locations considered to be of similar size, scale and intensity to the proposed development. The survey locations included the following:

- Malabar (area surrounding Bilga Crescent)
- Blacktown (Stanhope Gardens)
- Parramatta (Hunterford subdivision)
- Bonnyrigg (Tarlington Parade and Bunker Parade).

The surveys concluded that all comparable sites were approved to provide a shortfall in visitor parking supply yet maintain adequate on-street parking capacity to accommodate visitor parking demand. Parking supply exceeded demand at all survey locations.

5.4 Car Parking Rates DCP Comparison

To further understand the appropriate use of the car parking rates recommended in the TMAP (SKM, 2008), a comparison of Fairfield Council's Bonnyrigg Town Centre DCP (Table 5.3, incorporating the retail/ commercial area adjacent to the western boundary of the site) and neighbouring/ Sydney metropolitan Council DCP rates has been made.

Bonnyrigg Town Centre DCP

Table 5.3: Bonnyrigg Town Centre DCP Parking Rates

Car Parking Use	Detached Housing	Medium Density	High Density
Resident Parking	-	1/ apartment + 0.2/apartment (2 bed) + 0.5/apartment (3 bed)	0.6/apartment (1 bed) 0.9/apartment (2 bed) 1.4/apartment (3 bed)
Visitor Parking	-	0.2/apartment	0.2/apartment

Holroyd City Council DCP 2007

Holroyd City Council consists of suburbs providing a healthy mix of medium/ high density residential dwellings and detached residential dwellings. Council has updated the DCP car parking rates to allow for a simpler approach to development proposals as shown in Table 5.4.

Table 5.4: Holroyd City Council DCP Parking Rates

Car Parking Use	Detached Housing	Medium Density	High Density
Resident Parking	2/dwelling	1/dwelling(1-2 bed) 2/dwelling (3+ bed)	1.2/apartment[2]
Visitor Parking	on-street	0.2/ apartment	as above

[2] minimum of 1 space per apartment, remaining to be visitor parking

RMS Guide to Traffic Generating Developments

The *Guide to Traffic Generating Developments* (RMS, 2002) contains parking provision requirements for various development types including residential uses as shown in Table 5.5.

Table 5.5: *Guide to Traffic Generating Developments* Parking Requirements

	Detached Housing	Medium Density	High Density
Resident Parking	1-2/dwelling	1/apartment + 0.2/apartment (2 bed) +0.5/apartment (3 bed)	0.6/apartment (1 bed) 0.9/apartment (2 bed) 1.4/apartment (3 bed)
Visitor Parking	on-street	1/5 apartments	1/5-7apartments

Other Considerations

Consideration for a number of additional factors affecting car parking rates is appropriate with respect to Newleaf Bonnyrigg and include the following:

- It is expected that on-street parking demand will be greater in the vicinity of the medium and high density development mix. The proposed Bonnyrigg Masterplan drawing prepared by dKO Architecture (01 Rev P) illustrates the distribution of development type, effectively minimising the likelihood of concentrated car parking demand.
- Managing car parking by means of supply remains an effective measure to support public transport mode share. This is particularly relevant for the western section of Newleaf Bonnyrigg in the vicinity of the Parramatta-Liverpool Transitway.

Recommendations

Based on the above review, it is recommended that the car parking rates proposed within the TMAP (SKM, 2008) as shown in Table 5.2 be adopted for use in the Newleaf Bonnyrigg Masterplan development. The proposed parking rates generally have a strong correlation with the references examined.

For larger high-density residential buildings with an open/ continuous basement layout, a rate of one visitor space for every five dwellings could result in a significant number of visitor parking spaces that would typically be either underutilised or abused by residents. While it is recommended that the TMAP (SKM, 2008) rate of one visitor space for every five dwellings be adopted, Council should consider reductions in visitor parking supply for specific high density residential buildings through the Development Application process.

With respect to differentiating between medium density and high density apartment supply, it is recommended that the definition from the *Guide to Traffic Generating Developments* (RMS, 2002) be used. The Guide defines medium density as 20 apartments or less and high density as greater than 20 apartments. It is considered appropriate that visitor parking is accommodated on-street for medium density apartments, with the rates discussed above applied for high density apartment off-street visitor parking. This should be applied irrespective of the proposed residential demographics.

6. Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

i The proposed additional development assessment includes 168 dwellings to total 2,500 dwellings following the full development of Newleaf Bonnyrigg in 2020.

ii The proposed additional development is expected to generate a further 143 vehicle movements in any peak hour adopting a conservative approach and assuming a detached dwelling development mix.

iii A select number of intersections within the study area are forecast to experience notable queuing and delays during both forecast 2020 weekday AM and PM peak periods.

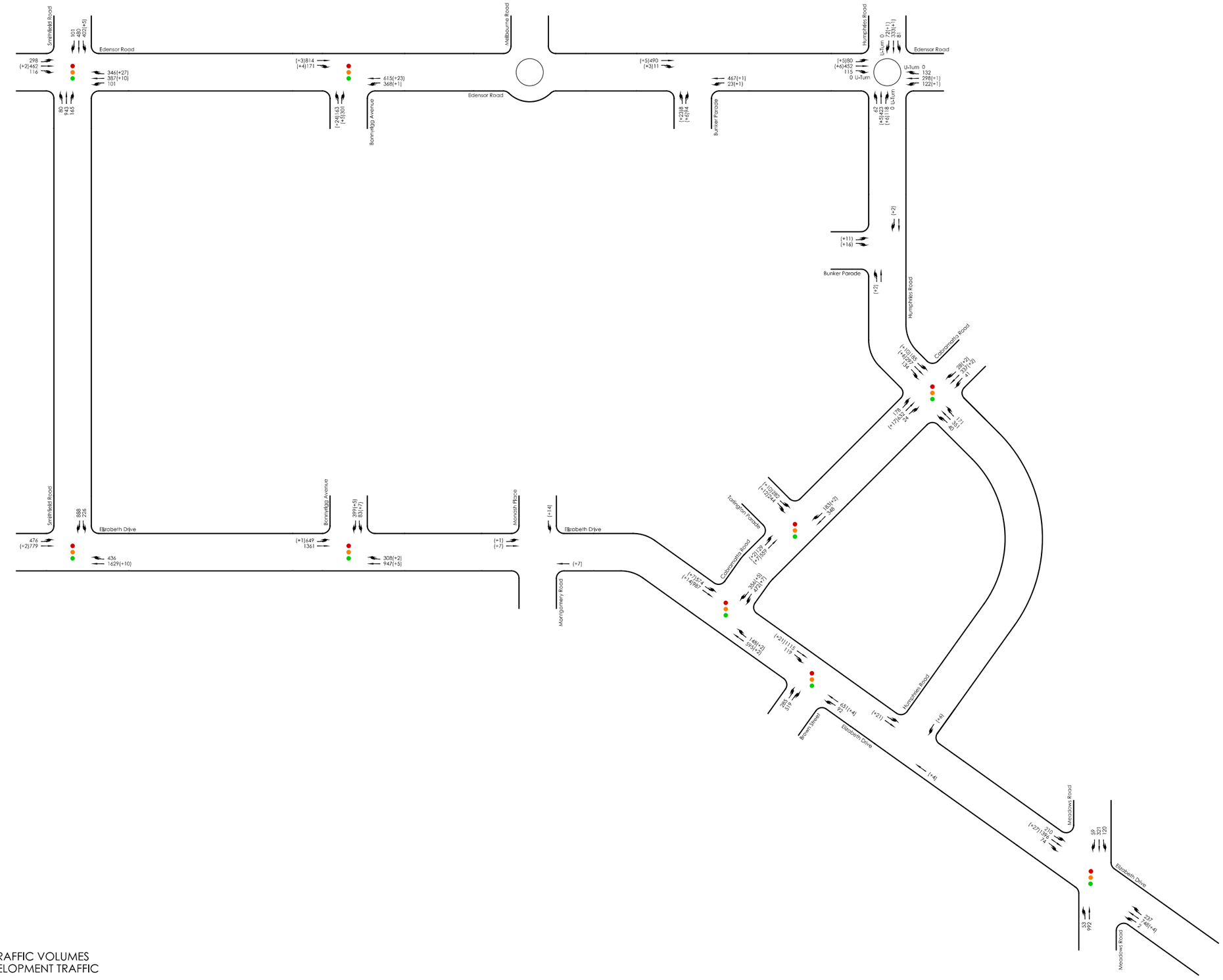
iv SIDRA INTERSECTION results indicate that the mitigation measures proposed in the TMAP (SKM, 2008) will be largely effective in improving the level of service at these locations.

v Based on comparable site surveys and neighbouring Council DCP's, the car parking rates recommended in the TMAP (SKM, 2008) are considered appropriate for use in Newleaf Bonnyrigg.

vi It is considered appropriate that visitor parking is accommodated on-street for medium density apartments. Reductions in off-street visitor parking supply for specific high density residential buildings should be considered through the Development Application process.

Appendix A

Forecast 2020 Traffic Volumes



Legend

1234 = FORECAST 2020 TRAFFIC VOLUMES
(+12)= ADDITIONAL DEVELOPMENT TRAFFIC

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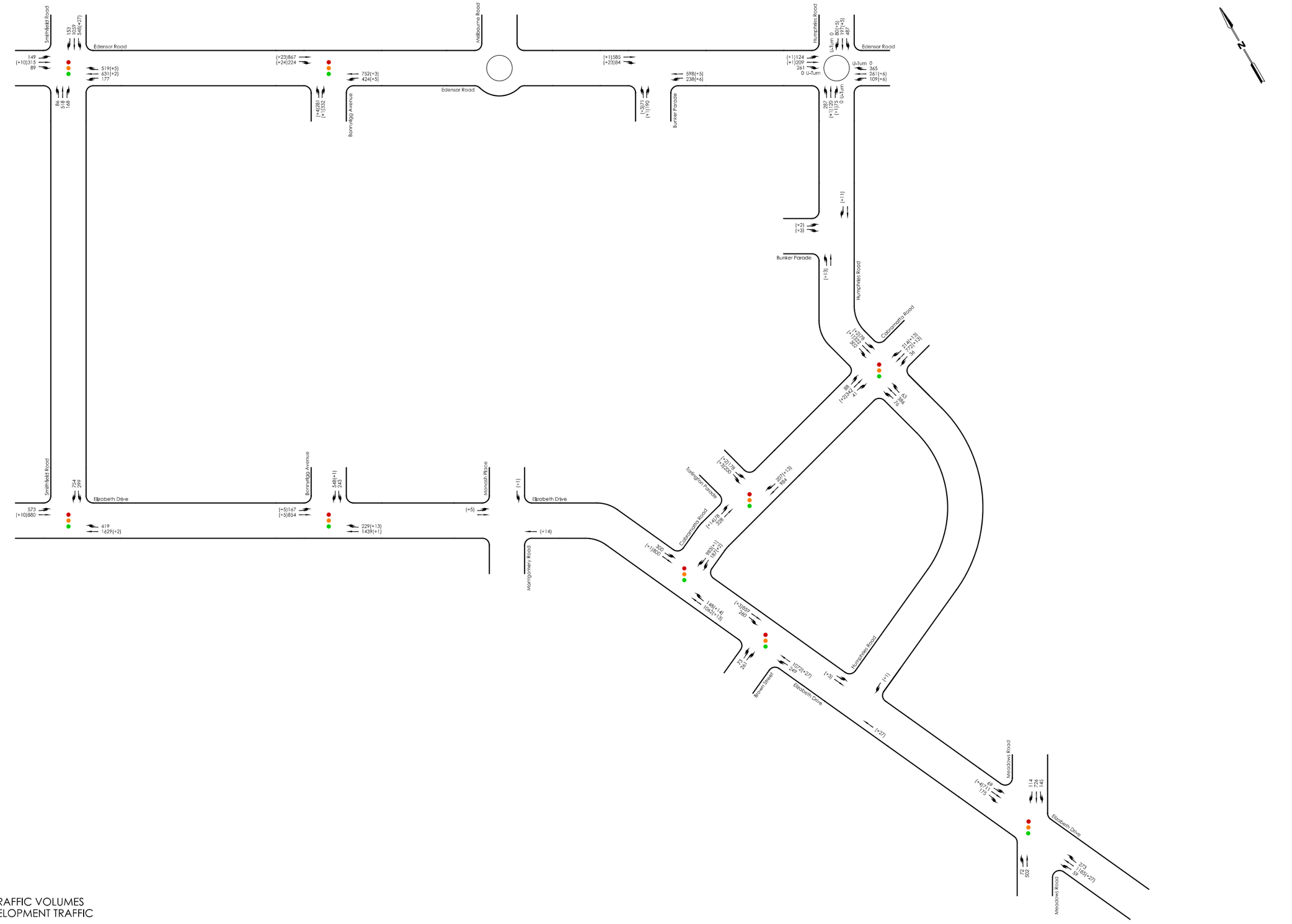
BECTON PROPERTY GROUP
NEWLEAF BONNYRIGG MASTERPLAN MODIFICATIONS
TURNING MOVEMENTS (AM PEAK HOUR)

DATE: 09.12.11
SCALE: NTS
DRAWING NO. 12S1004000-01-01-P2



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NEWLEAF BONNYRIGG MASTERPLAN MODIFICATIONS
TURNING MOVEMENTS (PM PEAK HOUR)

DATE: 09.12.11
SCALE: NTS
DRAWING NO. 12S1004000-01-02-P2

Appendix B

SIDRA INTERSECTION Results

MOVEMENT SUMMARY

Site: AM - Elizabeth / Bonnyrigg

Elizabeth Drive/ Bonnyrigg Avenue
2020 Post Development + Additional Dwellings
AM Peak Hour
Signals - Fixed Time Cycle Time = 100 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Elizabeth Dr (SE Appr)											
22	T	1002	5.6	0.398	2.5	LOS A	3.5	25.8	0.16	0.14	63.9
23	R	326	2.6	0.909	66.5	LOS E	19.2	137.2	1.00	1.00	21.5
Approach		1328	4.9	0.909	18.2	LOS B	19.2	137.2	0.36	0.35	44.2
North East: Bonnyrigg Ave (NE Appr)											
24	L	95	3.6	0.116	23.7	LOS B	2.6	18.8	0.60	0.74	28.2
26	R	425	7.4	0.755	51.2	LOS D	12.9	96.1	0.97	0.90	19.7
Approach		520	6.7	0.755	46.2	LOS D	12.9	96.1	0.91	0.87	20.8
North West: Elizabeth Dr (NW Appr)											
27	L	684	4.7	0.948	24.7	LOS B	18.0	131.2	1.00	0.90	27.9
28	T	1433	3.7	0.919	40.6	LOS C	38.9	280.8	0.98	1.04	20.8
Approach		2117	4.0	0.948	35.5	LOS C	38.9	280.8	0.98	0.99	22.6
All Vehicles		3965	4.7	0.948	31.1	LOS C	38.9	280.8	0.77	0.76	28.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P9	Across SE approach	2	37.8	LOS D	0.0	0.0	0.87	0.87
P11	Across NE approach	6	44.2	LOS E	0.0	0.0	0.94	0.94
All Pedestrians		8	42.6	LOS E			0.92	0.92

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

MOVEMENT SUMMARY

Site: PM - Elizabeth / Bonnyrigg

Elizabeth Drive/ Bonnyrigg Avenue
2020 Post Development + Additional Dwellings
PM Peak Hour
Signals - Fixed Time Cycle Time = 65 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Elizabeth Drive SE leg											
22	T	1516	2.1	0.753	10.5	LOS A	16.0	114.1	0.69	0.64	50.0
23	R	255	1.8	0.788	38.5	LOS C	8.3	58.6	1.00	0.99	31.1
Approach		1771	2.0	0.788	14.5	LOS A	16.0	114.1	0.73	0.69	46.2
North East: Bonnyrigg Ave											
24	L	256	1.2	0.291	20.2	LOS B	5.0	35.1	0.65	0.79	40.0
26	R	578	0.6	0.799	36.3	LOS C	14.4	101.2	0.94	0.94	31.3
Approach		834	0.8	0.799	31.4	LOS C	14.4	101.2	0.85	0.89	33.5
North West: Elizabeth Drive NW leg											
27	L	181	6.5	0.349	29.2	LOS C	4.2	30.7	0.75	0.79	35.8
28	T	904	2.7	0.697	20.0	LOS B	11.9	85.6	0.85	0.76	40.9
Approach		1085	3.3	0.697	21.6	LOS B	11.9	85.6	0.84	0.76	40.0
All Vehicles		3689	2.1	0.799	20.4	LOS B	16.0	114.1	0.79	0.76	40.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P9	Across SE approach	53	26.8	LOS C	0.1	0.1	0.91	0.91
P11	Across NE approach	53	26.8	LOS C	0.1	0.1	0.91	0.91
All Pedestrians		106	26.8	LOS C			0.91	0.91

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

MOVEMENT SUMMARY

Site: AM - Edensor/ Bonnyrigg

Edensor Road/ Bonnyrigg Avenue
2020 Post Development + Additional Dwellings
AM Peak Hour
Signals - Fixed Time Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Endensor Road SE leg											
21	L	388	1.5	0.751	34.6	LOS C	17.2	121.6	0.93	0.89	31.0
22	T	672	0.9	0.751	21.6	LOS B	18.3	129.0	0.85	0.77	35.5
Approach		1060	1.1	0.751	26.4	LOS B	18.3	129.0	0.88	0.82	33.7
North West: Edensor Road NW leg											
28	T	860	1.2	0.790	10.8	LOS A	21.4	151.6	0.66	0.62	44.1
29	R	184	2.3	0.656	40.9	LOS C	6.9	49.2	0.99	0.91	28.2
Approach		1044	1.4	0.790	16.1	LOS B	21.4	151.6	0.72	0.67	40.1
South West: Bonnyrigg Ave											
30	L	197	1.1	0.237	22.8	LOS B	4.7	33.4	0.65	0.78	36.9
32	R	322	0.8	0.775	43.5	LOS D	12.9	91.2	1.00	0.91	27.3
Approach		519	0.9	0.775	35.6	LOS C	12.9	91.2	0.87	0.86	30.3
All Vehicles		2623	1.2	0.790	24.1	LOS B	21.4	151.6	0.81	0.77	35.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P9	Across SE approach	53	25.6	LOS C	0.1	0.1	0.80	0.80
P13	Across NW approach	53	28.1	LOS C	0.1	0.1	0.84	0.84
P15	Across SW approach	53	21.0	LOS C	0.1	0.1	0.73	0.73
All Pedestrians		159	24.9	LOS C			0.79	0.79

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

MOVEMENT SUMMARY

Site: PM - Edensor/ Bonnyrigg

Edensor Road/ Bonnyrigg Avenue
2020 Post Development + Additional Dwellings
PM Peak Hour
Signals - Fixed Time Cycle Time = 100 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Endensor Road SE leg											
21	L	452	1.5	0.824	42.3	LOS C	27.2	192.7	0.96	0.93	28.0
22	T	795	0.9	0.824	28.1	LOS B	28.4	200.5	0.89	0.84	32.0
Approach		1246	1.1	0.824	33.2	LOS C	28.4	200.5	0.92	0.88	30.4
North West: Edensor Road NW leg											
28	T	937	1.2	0.807	9.8	LOS A	25.8	182.3	0.61	0.57	45.2
29	R	261	2.3	0.826	59.2	LOS E	13.1	93.4	1.00	1.08	22.8
Approach		1198	1.4	0.826	20.5	LOS B	25.8	182.3	0.70	0.68	37.2
South West: Bonnyrigg Ave											
30	L	300	1.1	0.354	26.8	LOS B	9.4	66.2	0.69	0.80	34.5
32	R	351	0.8	0.825	53.7	LOS D	18.1	127.2	1.00	0.93	24.2
Approach		651	0.9	0.825	41.3	LOS C	18.1	127.2	0.86	0.87	28.1
All Vehicles		3095	1.2	0.826	30.0	LOS C	28.4	200.5	0.82	0.80	32.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P9	Across SE approach	9	31.2	LOS D	0.0	0.0	0.79	0.79
P13	Across NW approach	1	33.6	LOS D	0.0	0.0	0.82	0.82
P15	Across SW approach	1	23.1	LOS C	0.0	0.0	0.68	0.68
All Pedestrians		11	30.7	LOS D			0.78	0.78

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

MOVEMENT SUMMARY

Site: AM - Edensor/ Smithfield

Edensor Road/ Smithfield Road
2020 Post Development + Additional Dwellings
AM Peak Hour
Signals - Fixed Time Cycle Time = 140 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Edensor Rd (SE)											
21	L	106	1.0	0.545	52.9	LOS D	16.9	120.1	0.90	0.84	15.6
22	T	477	2.1	0.545	51.6	LOS D	16.9	120.1	0.90	0.82	15.7
23	R	334	4.7	1.000[3]	70.6	LOS F	23.2	168.7	1.00	0.86	12.4
Approach		917	3.1	1.000	58.6	LOS E	23.2	168.7	0.94	0.84	14.3
North East: Smithfield Rd (NE)											
24	L	428	4.7	0.628	34.3	LOS C	18.7	136.2	0.77	0.95	31.3
25	T	505	4.6	0.628	36.1	LOS C	21.3	154.7	0.80	0.72	28.8
26	R	106	4.0	0.418	61.8	LOS E	6.5	46.7	0.93	0.78	22.3
Approach		1040	4.6	0.628	37.9	LOS C	21.3	154.7	0.80	0.82	28.9
West: Edensor Rd (W)											
10	L	314	2.1	1.029	133.3	LOS F	42.2	300.7	1.00	1.19	12.8
11	T	488	2.6	1.029	132.0	LOS F	42.2	300.7	1.00	1.22	12.9
12	R	122	2.5	0.625	75.9	LOS F	8.3	59.1	1.00	0.80	19.5
Approach		924	2.4	1.029	125.0	LOS F	42.2	300.7	1.00	1.15	13.5
South West: Smithfield Rd (SW)											
30	L	84	3.0	1.020	97.5	LOS F	42.9	306.9	1.00	1.17	17.0
31	T	993	2.6	1.020	99.7	LOS F	51.8	370.6	1.00	1.23	15.6
32	R	174	1.7	1.019	131.2	LOS F	16.9	119.8	1.00	1.13	13.0
Approach		1251	2.5	1.020	103.9	LOS F	51.8	370.6	1.00	1.21	15.3
All Vehicles		4132	3.1	1.029	82.0	LOS F	51.8	370.6	0.94	1.02	16.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P9	Across SE approach	10	38.6	LOS D	0.0	0.0	0.74	0.74
P11	Across NE approach	10	55.8	LOS E	0.0	0.0	0.89	0.89
P7	Across W approach	10	47.2	LOS E	0.0	0.0	0.82	0.82
P15	Across SW approach	10	55.8	LOS E	0.0	0.0	0.89	0.89
All Pedestrians		40	49.4	LOS E			0.84	0.84

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

MOVEMENT SUMMARY

Site: PM - Edensor/ Smithfield

Edensor Road/ Smithfield Road
2020 Post Development + Additional Dwellings
PM Peak Hour
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Edensor Rd (SE)											
21	L	186	1.1	1.155	229.8	LOS F	75.7	536.4	1.00	1.48	4.4
22	T	890	1.7	1.155	227.8	LOS F	75.7	536.4	1.00	1.47	4.5
23	R	327	1.8	1.000[3]	72.3	LOS F	23.0	163.2	1.00	0.86	12.2
Approach		1404	1.7	1.155	191.8	LOS F	75.7	536.4	1.00	1.33	5.2
North East: Smithfield Rd (NE)											
24	L	605	1.4	1.124	165.6	LOS F	108.8	777.7	1.00	1.41	10.9
25	T	1215	4.0	1.124	172.6	LOS F	108.8	777.7	1.00	1.54	10.2
26	R	153	2.9	1.074	167.4	LOS F	17.1	122.4	1.00	1.27	10.7
Approach		1974	3.1	1.124	170.1	LOS F	108.8	777.7	1.00	1.48	10.5
West: Edensor Rd (W)											
10	L	157	1.4	1.061	158.3	LOS F	29.1	207.0	1.00	1.26	11.2
11	T	342	2.3	1.061	157.2	LOS F	29.1	207.0	1.00	1.29	11.3
12	R	94	2.5	1.027	136.7	LOS F	9.1	65.2	1.00	1.12	12.7
Approach		593	2.1	1.061	154.2	LOS F	29.1	207.0	1.00	1.26	11.4
South West: Smithfield Rd (SW)											
30	L	91	1.2	0.356	29.4	LOS C	9.8	69.8	0.54	0.94	34.3
31	T	545	2.1	0.356	21.1	LOS B	10.5	74.5	0.53	0.49	36.6
32	R	177	3.7	0.622	68.6	LOS E	11.5	82.9	0.99	0.82	20.8
Approach		813	2.3	0.622	32.3	LOS C	11.5	82.9	0.63	0.61	31.2
All Vehicles		4783	2.4	1.155	151.1	LOS F	108.8	777.7	0.94	1.26	10.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P9	Across SE approach	10	33.6	LOS D	0.0	0.0	0.69	0.69
P11	Across NE approach	10	64.1	LOS F	0.0	0.0	0.96	0.96
P7	Across W approach	10	26.4	LOS C	0.0	0.0	0.61	0.61
P15	Across SW approach	10	64.1	LOS F	0.0	0.0	0.96	0.96
All Pedestrians		40	47.1	LOS E			0.81	0.81

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

MOVEMENT SUMMARY

Site: AM - Elizabeth/ Smithfield

Elizabeth Drive/ Smithfield Road
2020 Post Development + Additional Dwellings
AM Peak Hour
Signals - Fixed Time Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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
East: Elizabeth Drive E leg											
5	T	1725	2.2	0.798	11.2	LOS A	22.0	157.2	0.67	0.64	43.7
6	R	459	1.2	0.831	32.7	LOS C	5.8	40.7	1.00	0.93	31.7
Approach		2184	2.0	0.831	15.7	LOS B	22.0	157.2	0.74	0.70	40.4
North: Smithfield Road											
7	L	238	3.1	0.599	11.6	LOS A	3.0	21.5	0.42	0.70	45.6
9	R	935	2.3	0.889	49.6	LOS D	21.7	155.0	1.00	1.02	25.5
Approach		1173	2.4	0.889	41.9	LOS C	21.7	155.0	0.88	0.96	28.0
West: Elizabeth Drive W leg											
10	L	501	0.3	0.351	8.0	LOS A	1.0	7.0	0.08	0.62	49.2
11	T	822	2.9	0.818	34.1	LOS C	16.1	115.7	0.97	0.92	29.5
Approach		1323	1.9	0.818	24.2	LOS B	16.1	115.7	0.63	0.81	34.9
All Vehicles		4680	2.1	0.889	24.7	LOS B	22.0	157.2	0.75	0.80	35.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across E approach	1	33.3	LOS D	0.0	0.0	0.91	0.91
P5	Across N approach	1	31.5	LOS D	0.0	0.0	0.89	0.89
All Pedestrians		2	32.4	LOS D			0.90	0.90

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

MOVEMENT SUMMARY

Site: PM - Elizabeth/ Smithfield

Elizabeth Drive/ Smithfield Road
2020 Post Development + Additional Dwellings
PM Peak Hour
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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
East: Elizabeth Dr (East Appr)											
5	T	1717	2.2	0.819	20.5	LOS B	39.1	278.9	0.74	0.71	40.6
6	R	441	2.0	0.749	71.6	LOS F	14.6	96.9	0.99	0.85	21.1
Approach		2158	2.2	0.819	31.0	LOS C	39.1	278.9	0.79	0.74	34.1
North: Smithfield Rd (North Appr)											
7	L	315	3.9	0.818	49.9	LOS D	32.9	229.5	0.96	0.96	26.5
9	R	794	2.2	0.818	52.7	LOS D	34.7	230.8	0.97	0.92	25.7
Approach		1108	2.7	0.818	51.9	LOS D	34.7	230.8	0.97	0.93	25.9
West: Elizabeth Dr (West Appr)											
10	L	603	2.3	0.417	11.6	LOS A	9.7	68.9	0.32	0.72	50.2
11	T	937	3.2	0.736	45.0	LOS D	28.3	203.4	0.95	0.84	27.7
Approach		1540	2.8	0.736	31.9	LOS C	28.3	203.4	0.70	0.79	33.7
All Vehicles		4806	2.5	0.819	36.1	LOS C	39.1	278.9	0.80	0.80	31.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across E approach	2	35.0	LOS D	0.0	0.0	0.71	0.71
P5	Across N approach	2	37.2	LOS D	0.0	0.0	0.73	0.73
All Pedestrians		4	36.1	LOS D			0.72	0.72

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

MOVEMENT SUMMARY

Site: AM - Elizabeth/ Brown

Elizabeth Drive/ Brown Road
2020 Post Development + Additional Dwellings
AM Peak Hour
Signals - Fixed Time Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Elizabeth Drive SE leg											
21	L	97	2.0	0.439	20.7	LOS B	7.4	52.6	0.55	0.93	39.5
22	T	689	1.3	0.439	12.7	LOS A	8.1	57.0	0.56	0.49	42.6
Approach		786	1.4	0.439	13.6	LOS A	8.1	57.0	0.55	0.55	42.2
North West: Elizabeth Drive NW leg											
28	T	1176	1.6	0.497	5.0	LOS A	7.0	50.0	0.33	0.30	51.3
29	R	125	0.5	0.375	22.9	LOS B	3.4	23.6	0.76	0.80	36.8
Approach		1301	1.5	0.497	6.7	LOS A	7.0	50.0	0.37	0.35	49.4
South West: Brown Road											
30	L	300	4.8	0.892	50.8	LOS D	21.4	154.0	1.00	1.01	25.1
32	R	546	0.8	0.892	51.9	LOS D	21.4	154.0	1.00	1.01	24.7
Approach		846	2.3	0.892	51.5	LOS D	21.4	154.0	1.00	1.01	24.8
All Vehicles		2934	1.7	0.892	21.5	LOS B	21.4	154.0	0.60	0.59	37.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P15	Across SW approach	1	15.6	LOS B	0.0	0.0	0.63	0.63
All Pedestrians		1	15.6	LOS B			0.63	0.63

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

MOVEMENT SUMMARY

Site: PM - Elizabeth/ Brown

Elizabeth Drive/ Brown Road
2020 Post Development + Additional Dwellings
PM Peak Hour
Signals - Fixed Time Cycle Time = 90 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Elizabeth Drive SE leg											
21	L	262	2.0	0.612	14.7	LOS B	10.3	73.0	0.38	0.93	43.6
22	T	1157	1.3	0.612	6.8	LOS A	12.1	85.7	0.41	0.38	48.7
Approach		1419	1.4	0.612	8.2	LOS A	12.1	85.7	0.40	0.48	47.7
North West: Elizabeth Drive NW leg											
28	T	907	1.6	0.307	0.8	LOS A	1.4	9.8	0.08	0.07	58.2
29	R	274	0.5	0.704	30.3	LOS C	11.6	81.3	0.99	0.95	32.7
Approach		1181	1.3	0.704	7.7	LOS A	11.6	81.3	0.29	0.27	49.3
South West: Brown Road											
30	L	77	4.8	0.890	62.5	LOS E	9.7	69.7	1.00	1.01	22.1
32	R	275	0.8	0.890	62.6	LOS E	9.7	69.7	1.00	1.01	22.0
Approach		352	1.7	0.890	62.6	LOS E	9.7	69.7	1.00	1.01	22.0
All Vehicles		2952	1.4	0.890	14.5	LOS A	12.1	85.7	0.43	0.46	42.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P15	Across SW approach	1	10.3	LOS B	0.0	0.0	0.48	0.48
All Pedestrians		1	10.3	LOS B			0.48	0.48

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

MOVEMENT SUMMARY

Site: AM - Elizabeth/ Meadows

Elizabeth Drive/ Meadows Road
2020 Post Development + Additional Dwellings
AM Peak Hour
Signals - Fixed Time Cycle Time = 140 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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: Meadows Rd (S)											
1	L	56	5.8	0.947	83.7	LOS F	46.2	336.8	1.00	1.12	18.7
2	T	1044	4.8	0.947	76.4	LOS F	46.2	336.8	1.00	1.12	18.7
Approach		1100	4.9	0.947	76.8	LOS F	46.2	336.8	1.00	1.12	18.7
South East: Elizabeth Drive (SE)											
21	L	2	15.4	0.508	35.7	LOS C	16.3	123.3	0.64	1.00	31.9
22	T	809	9.6	0.508	26.1	LOS B	16.4	124.0	0.64	0.56	33.7
23	R	232	5.4	1.009	123.1	LOS F	22.3	163.1	1.00	1.21	13.7
Approach		1043	8.6	1.009	47.6	LOS D	22.3	163.1	0.72	0.71	25.4
North: Meadows Road (N)											
7	L	126	0.8	0.781	55.1	LOS D	29.2	207.5	0.97	0.89	24.5
8	T	338	1.9	0.781	48.0	LOS D	29.2	207.5	0.97	0.88	24.5
9	R	62	7.4	1.125	210.7	LOS F	7.7	57.3	1.00	1.14	8.9
Approach		526	2.3	1.125	68.9	LOS E	29.2	207.5	0.98	0.91	20.3
North West: Elizabeth Drive (NW)											
27	L	221	3.3	1.046	123.3	LOS F	91.3	654.1	1.00	1.31	14.1
28	T	1498	2.5	1.046	111.9	LOS F	91.6	654.7	1.00	1.33	14.3
29	R	78	2.7	0.336	67.2	LOS E	4.9	35.4	0.95	0.77	21.1
Approach		1797	2.6	1.046	111.3	LOS F	91.6	654.7	1.00	1.31	14.5
All Vehicles		4466	4.5	1.125	83.0	LOS F	91.6	654.7	0.93	1.07	17.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P2	Across S approach	0	0.0	X	0.0	0.0	0.00	0.00
P10	Across SE approach	0	0.0	X	0.0	0.0	0.00	0.00
P14	Across NW approach	0	0.0	X	0.0	0.0	0.00	0.00
All Pedestrians		0	0.0	NA			0.00	0.00

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

MOVEMENT SUMMARY

Site: PM - Elizabeth/ Meadows

Elizabeth Drive/ Meadows Road
2020 Post Development + Additional Dwellings
PM Peak Hour
Signals - Fixed Time Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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: Meadows Rd (S)											
1	L	76	0.0	0.431	36.9	LOS C	13.1	94.3	0.80	0.84	30.6
2	T	528	3.8	0.431	30.3	LOS C	13.2	95.1	0.80	0.69	31.3
Approach		604	3.3	0.431	31.1	LOS C	13.2	95.1	0.80	0.71	31.2
South East: Elizabeth Drive (SE)											
21	L	62	12.2	0.943	65.7	LOS E	46.0	335.3	1.00	1.09	22.5
22	T	1276	4.0	0.943	55.6	LOS D	46.1	335.3	1.00	1.09	22.8
23	R	287	4.0	0.868	43.0	LOS D	11.7	84.6	1.00	0.96	27.5
Approach		1625	4.3	0.943	53.7	LOS D	46.1	335.3	1.00	1.07	23.5
North: Meadows Rd (N)											
7	L	153	0.7	0.938	68.0	LOS E	48.7	342.7	1.00	1.10	21.4
8	T	764	0.7	0.938	64.9	LOS E	48.7	342.7	1.00	1.12	20.6
9	R	120	7.5	0.938	83.0	LOS F	27.3	196.1	1.00	1.16	18.9
Approach		1037	1.5	0.938	67.4	LOS E	48.7	342.7	1.00	1.12	20.5
North West: Elizabeth Drive (NW)											
27	L	73	5.0	0.872	63.6	LOS E	25.2	180.2	1.00	0.99	22.8
28	T	753	2.0	0.872	54.1	LOS D	25.3	180.2	1.00	0.98	23.1
29	R	184	2.9	0.944	85.7	LOS F	13.4	95.8	1.00	1.10	17.9
Approach		1009	2.4	0.944	60.5	LOS E	25.3	180.2	1.00	1.00	21.9
All Vehicles		4276	3.0	0.944	55.5	LOS D	48.7	342.7	0.97	1.01	23.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P2	Across S approach	0	0.0	X	0.0	0.0	0.00	0.00
P10	Across SE approach	0	0.0	X	0.0	0.0	0.00	0.00
P14	Across NW approach	0	0.0	X	0.0	0.0	0.00	0.00
All Pedestrians		0	0.0	NA			0.00	0.00

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

MOVEMENT SUMMARY

Site: AM - Elizabeth/ Cabramatta

Elizabeth Drive/ Cabramatta Road
2020 Post Development + Additional Dwellings
AM Peak Hour
Signals - Fixed Time Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Elizabeth Drive SE leg											
22	T	628	1.3	0.271	4.7	LOS A	3.1	22.0	0.27	0.23	51.9
23	R	158	3.7	0.872	57.2	LOS E	7.2	52.1	1.00	1.00	23.5
Approach		786	1.8	0.872	15.2	LOS B	7.2	52.1	0.42	0.39	41.7
East: Cabramatta Road E leg											
4	L	504	2.9	0.500	9.8	LOS A	2.1	15.1	0.30	0.70	47.2
6	R	380	2.2	0.554	40.0	LOS C	7.0	49.7	0.96	0.81	28.5
Approach		884	2.6	0.554	22.8	LOS B	7.0	49.7	0.58	0.75	37.0
North West: Elizabeth Drive NW leg											
27	L	612	2.3	0.335	7.2	X	X	X	X	0.60	50.2
28	T	1054	2.1	0.644	17.1	LOS B	14.1	100.6	0.73	0.65	38.9
Approach		1665	2.2	0.644	13.5	LOS A	14.1	100.6	0.46	0.63	42.4
All Vehicles		3336	2.2	0.872	16.3	LOS B	14.1	100.6	0.48	0.60	40.7

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P9	Across SE approach	8	34.2	LOS D	0.0	0.0	0.93	0.93
P3	Across E approach	11	21.0	LOS C	0.0	0.0	0.73	0.73
P13	Across NW approach	7	32.4	LOS D	0.0	0.0	0.90	0.90
All Pedestrians		26	28.1	LOS C			0.83	0.83

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

MOVEMENT SUMMARY

Site: PM - Elizabeth/ Cabramatta

Elizabeth Drive/ Cabramatta Road
2020 Post Development + Additional Dwellings
PM Peak Hour
Signals - Fixed Time Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Elizabeth Dr (SE Appr)											
22	T	1132	1.7	0.662	15.6	LOS B	14.7	104.6	0.71	0.63	40.7
23	R	171	3.0	0.847	54.8	LOS D	7.6	54.6	1.00	0.98	24.2
Approach		1302	1.9	0.847	20.7	LOS B	14.7	104.6	0.75	0.68	37.5
East: Cabramatta Rd (East Appr)											
4	L	199	2.6	0.444	12.9	LOS A	2.5	17.9	0.42	0.71	44.6
6	R	1036	2.4	0.858	42.4	LOS C	22.5	160.8	1.00	0.99	27.7
Approach		1235	2.4	0.858	37.6	LOS C	22.5	160.8	0.91	0.94	29.5
North West: Elizabeth Dr (NW Appr)											
27	L	316	2.4	0.176	6.9	X	X	X	X	0.58	50.5
28	T	843	2.6	0.851	36.2	LOS C	17.3	123.9	0.99	0.97	28.7
Approach		1159	2.5	0.851	28.3	LOS B	17.3	123.9	0.72	0.87	32.5
All Vehicles		3696	2.3	0.858	28.7	LOS C	22.5	160.8	0.79	0.83	33.0

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P9	Across SE approach	9	20.3	LOS C	0.0	0.0	0.71	0.71
P3	Across E approach	4	28.1	LOS C	0.0	0.0	0.84	0.84
P13	Across NW approach	2	18.2	LOS B	0.0	0.0	0.68	0.68
All Pedestrians		15	22.1	LOS C			0.74	0.74

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

MOVEMENT SUMMARY

Site: AM - Cabramatta/ Humphries

Cabramatta Road/ Humphries Road
2020 Post Development + Additional Dwellings
AM Peak Hour
Signals - Fixed Time Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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: Humphries Road South											
1	L	42	2.5	0.984	37.8	LOS C	4.6	32.6	0.99	0.80	27.5
2	T	369	0.9	1.094	132.9	LOS F	51.1	361.9	1.00	1.31	12.4
3	R	180	1.8	1.094	173.5	LOS F	51.1	361.9	1.00	1.43	10.0
Approach		592	1.3	1.094	138.5	LOS F	51.1	361.9	1.00	1.31	12.0
East: Cabramatta Rd East											
4	L	43	0.0	0.776	54.5	LOS D	21.2	153.8	0.99	0.91	24.2
5	T	357	4.9	0.776	48.8	LOS D	21.2	153.8	0.99	0.90	24.4
6	R	32	0.0	0.776	78.5	LOS F	3.8	27.1	1.00	0.85	19.4
Approach		432	4.1	0.776	51.5	LOS D	21.2	153.8	0.99	0.90	23.9
North East: Humphries Road North											
24	L	205	0.9	0.960	40.7	LOS C	11.6	81.6	0.96	0.86	28.6
25	T	321	1.0	1.066	114.8	LOS F	37.3	267.8	0.99	1.17	13.8
26	R	141	6.0	1.066	152.6	LOS F	37.3	267.8	1.00	1.32	11.5
Approach		667	2.0	1.066	100.0	LOS F	37.3	267.8	0.98	1.11	15.7
West: Cabramatta Road West											
10	L	187	3.4	1.079	158.8	LOS F	54.5	393.1	1.00	1.52	11.3
11	T	683	3.7	1.079	152.2	LOS F	54.5	393.1	1.00	1.52	11.3
12	R	25	0.0	1.079	160.7	LOS F	41.0	295.4	1.00	1.52	10.8
Approach		896	3.5	1.079	153.8	LOS F	54.5	393.1	1.00	1.52	11.3
All Vehicles		2586	2.7	1.094	119.3	LOS F	54.5	393.1	0.99	1.26	13.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	50	54.2	LOS E	0.2	0.2	0.95	0.95
P3	Across E approach	50	54.2	LOS E	0.2	0.2	0.95	0.95
P11	Across NE approach	50	54.2	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		150	54.2	LOS E			0.95	0.95

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

MOVEMENT SUMMARY

Site: PM - Cabramatta/ Humphries

Cabramatta Road/ Humphries Road
2020 Post Development + Additional Dwellings
PM Peak Hour
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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: Humphries Rd (S)											
1	L	80	3.9	0.788	51.0	LOS D	4.5	32.6	0.77	0.91	23.4
2	T	406	0.0	0.875	58.9	LOS E	29.3	205.0	0.99	0.98	22.8
3	R	66	0.0	0.875	60.7	LOS E	29.3	205.0	1.00	0.99	22.0
Approach		553	0.6	0.875	58.0	LOS E	29.3	205.0	0.96	0.97	22.8
East: Cabramatta Rd (E)											
4	L	38	0.0	1.399	425.5	LOS F	158.5	1125.3	1.00	2.68	4.5
5	T	826	1.7	1.399	418.0	LOS F	158.5	1125.3	1.00	2.68	4.8
6	R	239	1.1	2.095	1072.8	LOS F	67.1	474.4	1.00	2.37	2.0
Approach		1103	1.5	2.095	560.1	LOS F	158.5	1125.3	1.00	2.61	3.6
North East: Humphries Rd (N)											
24	L	84	0.0	0.900	49.9	LOS D	15.1	106.1	0.88	0.90	25.6
25	T	340	0.3	2.002	371.9	LOS F	117.8	837.2	0.92	1.50	5.3
26	R	318	2.3	2.002	983.4	LOS F	117.8	837.2	1.00	2.67	2.1
Approach		742	1.1	2.002	597.3	LOS F	117.8	837.2	0.95	1.93	3.4
West: Cabramatta Rd (W)											
10	L	93	3.4	0.744	45.8	LOS D	22.4	159.9	0.91	0.88	27.5
11	T	362	1.8	0.744	38.6	LOS C	22.4	159.9	0.91	0.80	27.6
12	R	43	0.0	0.744	77.1	LOS F	3.2	22.3	1.00	0.82	18.6
Approach		498	1.9	0.744	43.3	LOS D	22.4	159.9	0.92	0.82	26.5
All Vehicles		2896	1.3	2.095	385.0	LOS F	158.5	1125.3	0.97	1.82	5.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	10	54.2	LOS E	0.0	0.0	0.95	0.95
P3	Across E approach	10	54.2	LOS E	0.0	0.0	0.95	0.95
P11	Across NE approach	20	54.2	LOS E	0.1	0.1	0.95	0.95
All Pedestrians		40	54.2	LOS E			0.95	0.95

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

MOVEMENT SUMMARY

Site: AM - Cabramatta / Tarlington

Cabramatta Road/ Tarlington Parade
2020 Post Development + Additional Dwellings
AM Peak Hour
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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
East: Cabramatta Rd (E Appr)											
5	T	366	5.2	0.307	4.9	LOS A	4.4	32.5	0.20	0.17	52.0
6	R	195	5.7	0.551	63.4	LOS E	12.1	88.7	0.95	0.82	21.1
Approach		561	5.4	0.551	25.2	LOS B	12.1	88.7	0.46	0.40	34.9
North East: Tarlington Pde (NE Appr)											
24	L	307	2.9	0.338	29.9	LOS C	12.3	88.0	0.64	0.80	30.3
26	R	269	0.0	0.558	54.2	LOS D	15.9	111.2	0.92	0.83	22.5
Approach		577	1.5	0.558	41.2	LOS C	15.9	111.2	0.77	0.81	26.1
West: Cabramatta Rd (W Appr)											
10	L	138	2.8	0.396	33.8	LOS C	11.4	82.0	0.67	0.88	24.4
11	T	596	4.2	0.566	29.2	LOS C	19.3	139.7	0.70	0.62	25.9
Approach		734	3.9	0.566	30.1	LOS C	19.3	139.7	0.69	0.67	25.6
All Vehicles		1872	3.6	0.566	32.1	LOS C	19.3	139.7	0.65	0.63	28.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across E approach	21	41.7	LOS E	0.1	0.1	0.77	0.77
P11	Across NE approach	2	28.3	LOS C	0.0	0.0	0.64	0.64
All Pedestrians		23	40.5	LOS E			0.76	0.76

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

MOVEMENT SUMMARY

Site: PM - Cabramatta / Tarlington

Cabramatta Road/ Tarlington Parade
2020 Post Development + Additional Dwellings
PM Peak Hour
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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
East: Cabramatta Rd (E Appr)											
5	T	1036	2.1	0.598	8.7	LOS A	22.6	161.0	0.27	0.25	46.9
6	R	232	2.3	0.598	39.7	LOS C	22.6	161.0	0.77	0.90	28.5
Approach		1267	2.1	0.598	14.4	LOS A	22.6	161.0	0.36	0.36	42.1
North East: Tarlington Pde (NE Appr)											
24	L	189	1.7	0.161	18.2	LOS B	4.9	35.0	0.42	0.74	36.1
26	R	214	1.3	0.590	61.6	LOS E	13.4	94.6	0.96	0.83	20.9
Approach		403	1.5	0.590	41.2	LOS C	13.4	94.6	0.71	0.79	26.1
West: Cabramatta Rd (W Appr)											
10	L	204	8.7	0.424	34.5	LOS C	9.9	73.9	0.80	0.83	23.7
11	T	345	2.4	0.606	46.0	LOS D	17.1	122.2	0.87	0.75	19.8
Approach		549	4.7	0.606	41.7	LOS C	17.1	122.2	0.84	0.78	21.0
All Vehicles		2220	2.7	0.606	26.0	LOS B	22.6	161.0	0.54	0.54	32.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across E approach	9	48.9	LOS E	0.0	0.0	0.84	0.84
P11	Across NE approach	2	42.4	LOS E	0.0	0.0	0.78	0.78
All Pedestrians		11	47.7	LOS E			0.83	0.83

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

MOVEMENT SUMMARY

Site: AM - Edensor/ Humphries

Edensor Road/ Humphries Road
2020 Post Development + Additional Dwellings
AM Peak Hour
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Edensor Road SE leg											
21	L	129	0.9	0.702	15.1	LOS B	8.5	60.9	0.95	1.04	43.0
22	T	315	3.0	0.702	13.6	LOS A	8.5	60.9	0.95	1.03	43.2
23	R	139	3.0	0.702	19.5	LOS B	8.5	60.9	0.95	1.05	40.7
Approach		583	2.5	0.702	15.3	LOS B	8.5	60.9	0.95	1.04	42.5
North East: Humphries Road NE leg											
24	L	85	1.6	0.738	16.2	LOS B	8.7	61.7	0.99	1.17	41.5
25	T	352	1.7	0.738	16.1	LOS B	8.7	61.7	0.99	1.17	41.5
26	R	77	3.0	0.738	22.1	LOS B	8.7	61.7	0.99	1.17	39.3
Approach		514	1.9	0.738	17.0	LOS B	8.7	61.7	0.99	1.17	41.1
North West: Edensor Road NW leg											
27	L	89	1.8	1.053	143.0	LOS F	72.3	510.3	1.00	3.67	12.2
28	T	482	1.0	1.053	142.0	LOS F	72.3	510.3	1.00	3.67	12.3
29	R	121	0.8	1.053	148.8	LOS F	72.3	510.3	1.00	3.67	12.6
Approach		693	1.0	1.053	143.3	LOS F	72.3	510.3	1.00	3.67	12.3
South West: Humphries Road SW leg											
30	L	65	3.0	0.803	15.1	LOS B	11.2	80.9	0.98	1.13	42.8
31	T	482	3.5	0.803	14.2	LOS A	11.2	80.9	0.98	1.13	42.9
32	R	131	2.7	0.803	21.0	LOS B	11.2	80.9	0.98	1.14	40.4
Approach		678	3.3	0.803	15.6	LOS B	11.2	80.9	0.98	1.13	42.3
All Vehicles		2467	2.2	1.053	51.7	LOS D	72.3	510.3	0.98	1.83	25.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: PM - Edensor/ Humphries

Edensor Road/ Humphries Road
2020 Post Development + Additional Dwellings
PM Peak Hour
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Edensor Road SE leg											
21	L	111	0.9	0.918	32.5	LOS C	24.1	172.7	1.00	1.57	31.9
22	T	281	3.0	0.918	30.9	LOS C	24.1	172.7	1.00	1.57	32.1
23	R	384	3.0	0.918	36.8	LOS C	24.1	172.7	1.00	1.57	31.1
Approach		776	2.7	0.918	34.1	LOS C	24.1	172.7	1.00	1.57	31.6
North East: Humphries Road NE leg											
24	L	513	1.6	1.007	71.9	LOS F	50.8	361.2	1.00	2.57	20.2
25	T	213	1.7	1.007	71.8	LOS F	50.8	361.2	1.00	2.57	20.2
26	R	89	3.0	1.007	77.8	LOS F	50.8	361.2	1.00	2.56	20.3
Approach		815	1.7	1.007	72.5	LOS F	50.8	361.2	1.00	2.57	20.2
North West: Edensor Road NW leg											
27	L	132	1.8	0.769	15.0	LOS B	9.8	68.9	0.95	1.12	42.2
28	T	221	1.0	0.769	14.0	LOS A	9.8	68.9	0.95	1.12	42.3
29	R	275	0.8	0.769	20.9	LOS B	9.8	68.9	0.95	1.14	39.9
Approach		627	1.0	0.769	17.2	LOS B	9.8	68.9	0.95	1.13	41.1
South West: Humphries Road SW leg											
30	L	302	3.0	0.797	20.4	LOS B	10.7	76.6	1.00	1.25	38.5
31	T	127	3.5	0.797	19.4	LOS B	10.7	76.6	1.00	1.25	38.6
32	R	80	2.7	0.797	26.3	LOS B	10.7	76.6	1.00	1.25	36.9
Approach		509	3.1	0.797	21.1	LOS B	10.7	76.6	1.00	1.25	38.3
All Vehicles		2727	2.1	1.007	39.3	LOS C	50.8	361.2	0.99	1.70	29.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: AM - Edensor/ Bunker

Edensor Road/ Bunker Parade
2020 Post Development + Additional Dwellings
AM Peak Hour
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Edensor Road SE leg											
21	L	25	3.0	0.268	7.5	LOS A	0.0	0.0	0.00	1.14	48.6
22	T	493	1.2	0.268	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		518	1.3	0.268	0.4	NA	0.0	0.0	0.00	0.06	59.4
North West: Edensor Road NW leg											
28	T	521	0.3	0.281	2.8	LOS A	2.7	18.9	0.65	0.00	49.2
29	R	15	3.6	0.281	10.5	LOS A	2.7	18.9	0.65	1.00	48.9
Approach		536	0.4	0.281	3.0	NA	2.7	18.9	0.65	0.03	49.2
South West: Bunker Parade											
30	L	33	2.8	0.051	10.6	LOS A	0.2	1.2	0.50	0.75	41.1
32	R	105	3.0	0.180	13.6	LOS A	0.7	5.1	0.72	0.91	38.8
Approach		138	3.0	0.180	12.9	LOS A	0.7	5.1	0.67	0.87	39.3
All Vehicles		1192	1.1	0.281	3.0	NA	2.7	18.9	0.37	0.14	51.5

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

MOVEMENT SUMMARY

Site: PM - Edensor/ Bunker

Edensor Road/ Bunker Parade
2020 Post Development + Additional Dwellings
PM Peak Hour
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Edensor Road SE leg											
21	L	257	3.0	0.469	7.5	LOS A	0.0	0.0	0.00	0.94	48.6
22	T	635	1.2	0.469	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		892	1.7	0.469	2.2	NA	0.0	0.0	0.00	0.27	56.3
North West: Edensor Road NW leg											
28	T	617	0.3	0.484	10.3	LOS A	7.9	55.9	1.00	0.00	42.7
29	R	114	3.6	0.484	18.0	LOS B	7.9	55.9	1.00	1.17	42.3
Approach		731	0.8	0.484	11.5	NA	7.9	55.9	1.00	0.18	42.7
South West: Bunker Parade											
30	L	78	2.8	0.191	14.9	LOS B	0.6	4.6	0.71	0.90	38.0
32	R	201	3.0	0.702	34.9	LOS C	3.8	27.5	0.95	1.24	28.1
Approach		279	2.9	0.702	29.3	LOS C	3.8	27.5	0.88	1.14	30.3
All Vehicles		1901	1.6	0.702	9.7	NA	7.9	55.9	0.51	0.36	45.1

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

MOVEMENT SUMMARY

Site: AM - Edensor/ Smithfield

Edensor Road/ Smithfield Road
2020 Post Development + Additional Dwellings
Upgraded Intersection
AM Peak Hour
Signals - Fixed Time Cycle Time = 130 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Edensor Rd (SE)											
21	L	106	1.0	0.389	49.2	LOS D	10.2	72.1	0.86	0.82	16.5
22	T	468	2.1	0.389	48.3	LOS D	10.2	72.1	0.87	0.78	16.5
23	R	342	4.7	1.032	132.3	LOS F	33.6	244.3	1.00	1.19	7.4
Approach		917	3.1	1.032	79.8	LOS F	33.6	244.3	0.92	0.94	11.3
North East: Smithfield Rd (NE)											
24	L	428	4.7	0.540	10.4	LOS A	6.0	43.9	0.30	0.68	46.8
25	T	505	4.6	0.361	29.4	LOS C	9.8	71.3	0.66	0.56	32.0
26	R	106	4.0	0.415	56.6	LOS E	6.0	43.2	0.92	0.77	23.5
Approach		1040	4.6	0.540	24.4	LOS B	9.8	71.3	0.54	0.63	35.4
West: Edensor Rd (W)											
10	L	314	2.1	0.485	41.7	LOS C	15.4	109.9	0.83	0.81	27.9
11	T	488	2.6	0.753	64.1	LOS E	15.4	110.3	1.00	0.88	21.7
12	R	122	2.5	0.669	73.1	LOS F	7.9	56.1	1.00	0.82	20.1
Approach		924	2.4	0.753	57.7	LOS E	15.4	110.3	0.94	0.85	23.2
South West: Smithfield Rd (SW)											
30	L	84	3.0	0.061	10.1	LOS A	0.7	4.9	0.19	0.67	47.3
31	T	993	2.6	0.909	60.0	LOS E	34.2	244.4	1.00	1.03	21.9
32	R	174	1.7	1.025	129.3	LOS F	16.2	115.0	1.00	1.18	13.2
Approach		1251	2.5	1.025	66.2	LOS E	34.2	244.4	0.95	1.02	20.7
All Vehicles		4132	3.1	1.032	56.8	LOS E	34.2	244.4	0.84	0.87	21.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P9	Across SE approach	10	36.9	LOS D	0.0	0.0	0.75	0.75
P11	Across NE approach	10	59.1	LOS E	0.0	0.0	0.95	0.95
P7	Across W approach	10	47.4	LOS E	0.0	0.0	0.85	0.85
P15	Across SW approach	10	56.3	LOS E	0.0	0.0	0.93	0.93
All Pedestrians		40	49.9	LOS E			0.87	0.87

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

MOVEMENT SUMMARY

Site: PM - Edensor/ Smithfield

Edensor Road/ Smithfield Road
2020 Post Development + Additional Dwellings
Upgraded Intersection
PM Peak Hour
Signals - Fixed Time Cycle Time = 140 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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 East: Edensor Rd (SE)											
21	L	186	1.1	0.767	61.8	LOS E	23.5	166.1	0.99	0.88	13.9
22	T	863	1.7	0.767	60.8	LOS E	23.5	166.1	0.99	0.88	13.9
23	R	355	1.8	1.005	119.9	LOS F	34.3	244.0	1.00	1.12	8.0
Approach		1404	1.7	1.005	75.9	LOS F	34.3	244.0	0.99	0.94	11.7
North East: Smithfield Rd (NE)											
24	L	605	1.4	0.657	10.1	LOS A	7.9	56.2	0.33	0.69	47.0
25	T	1199	4.0	0.904	54.5	LOS D	42.6	308.2	1.00	1.00	23.1
26	R	169	2.9	1.002	119.1	LOS F	15.8	113.2	1.00	1.17	14.1
Approach		1974	3.1	1.002	46.4	LOS D	42.6	308.2	0.79	0.92	25.7
West: Edensor Rd (W)											
10	L	145	1.4	0.316	52.5	LOS D	8.1	57.1	0.86	0.78	24.5
11	T	342	2.3	0.779	75.6	LOS F	12.1	86.3	1.00	0.89	19.5
12	R	94	2.5	0.719	82.7	LOS F	6.7	47.9	1.00	0.84	18.5
Approach		581	2.1	0.779	71.0	LOS F	12.1	86.3	0.97	0.86	20.4
South West: Smithfield Rd (SW)											
30	L	91	1.2	0.068	12.4	LOS A	1.4	9.7	0.28	0.68	45.1
31	T	545	2.1	0.331	24.3	LOS B	9.7	69.0	0.56	0.48	34.8
32	R	177	3.7	0.570	66.2	LOS E	11.2	81.2	0.97	0.82	21.3
Approach		813	2.3	0.570	32.1	LOS C	11.2	81.2	0.62	0.58	31.3
All Vehicles		4772	2.4	1.005	55.6	LOS D	42.6	308.2	0.84	0.86	21.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P9	Across SE approach	10	36.4	LOS D	0.0	0.0	0.72	0.72
P11	Across NE approach	10	64.1	LOS F	0.0	0.0	0.96	0.96
P7	Across W approach	10	28.9	LOS C	0.0	0.0	0.64	0.64
P15	Across SW approach	10	64.1	LOS F	0.0	0.0	0.96	0.96
All Pedestrians		40	48.4	LOS E			0.82	0.82

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

MOVEMENT SUMMARY

Site: AM - Elizabeth/ Meadows

Elizabeth Drive/ Meadows Road
2020 Post Development + Additional Dwellings
Upgraded Intersection
AM Peak Hour
Signals - Fixed Time Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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: Meadows Rd (S)											
1	L	56	5.8	0.895	60.8	LOS E	35.9	262.0	1.00	1.04	23.2
2	T	1044	4.8	0.895	53.9	LOS D	35.9	262.0	1.00	1.04	23.2
Approach		1100	4.9	0.895	54.2	LOS D	35.9	262.0	1.00	1.04	23.2
South East: Elizabeth Drive (SE)											
21	L	2	15.4	0.564	38.1	LOS C	15.9	120.4	0.74	0.96	31.0
22	T	792	9.6	0.564	28.4	LOS B	15.9	120.4	0.74	0.64	32.4
23	R	249	5.4	0.985	99.4	LOS F	20.1	147.0	1.00	1.21	16.1
Approach		1043	8.6	0.985	45.4	LOS D	20.1	147.0	0.80	0.78	26.1
North: Meadows Road (N)											
7	L	126	0.8	0.737	44.9	LOS D	24.0	170.5	0.95	0.87	27.6
8	T	338	1.9	0.737	38.1	LOS C	24.0	170.5	0.95	0.83	27.7
9	R	62	7.4	0.886	84.0	LOS F	4.2	31.5	1.00	0.94	18.3
Approach		526	2.3	0.886	45.1	LOS D	24.0	170.5	0.95	0.86	26.1
North West: Elizabeth Drive (NW)											
27	L	221	3.3	0.978	80.6	LOS F	55.0	393.9	1.00	1.16	19.3
28	T	1498	2.5	0.978	63.4	LOS E	55.0	393.9	0.99	1.10	21.0
29	R	78	2.7	0.305	57.0	LOS E	4.2	29.9	0.94	0.76	23.4
Approach		1797	2.6	0.978	65.2	LOS E	55.0	393.9	0.99	1.09	20.9
All Vehicles		4466	4.5	0.985	55.5	LOS D	55.0	393.9	0.94	0.98	23.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P2	Across S approach	0	0.0	X	0.0	0.0	0.00	0.00
P10	Across SE approach	0	0.0	X	0.0	0.0	0.00	0.00
P14	Across NW approach	0	0.0	X	0.0	0.0	0.00	0.00
All Pedestrians		0	0.0	NA			0.00	0.00

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

MOVEMENT SUMMARY

Site: PM - Elizabeth/ Meadows

Elizabeth Drive/ Meadows Road
2020 Post Development + Additional Dwellings
Upgraded Intersection
PM Peak Hour
Signals - Fixed Time Cycle Time = 110 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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: Meadows Rd (S)											
1	L	76	0.0	0.434	34.5	LOS C	12.1	87.1	0.80	0.83	31.6
2	T	528	3.8	0.434	28.1	LOS B	12.2	87.8	0.80	0.69	32.3
Approach		604	3.3	0.434	28.9	LOS C	12.2	87.8	0.80	0.71	32.2
South East: Elizabeth Drive (SE)											
21	L	62	12.2	0.973	74.8	LOS F	47.5	346.0	1.00	1.19	20.6
22	T	1276	4.0	0.973	64.7	LOS E	47.6	346.0	1.00	1.19	20.8
23	R	287	4.0	0.834	37.1	LOS C	10.5	75.7	1.00	0.93	29.8
Approach		1625	4.3	0.973	60.2	LOS E	47.6	346.0	1.00	1.14	22.0
North: Meadows Rd (N)											
7	L	153	0.7	0.940	65.2	LOS E	45.5	320.4	1.00	1.13	22.0
8	T	764	0.7	0.940	62.0	LOS E	45.5	320.4	1.00	1.14	21.2
9	R	120	7.5	0.940	79.0	LOS F	25.7	184.6	1.00	1.17	19.6
Approach		1037	1.5	0.940	64.4	LOS E	45.5	320.4	1.00	1.14	21.1
North West: Elizabeth Drive (NW)											
27	L	73	5.0	0.742	53.7	LOS D	15.9	114.2	0.96	0.89	25.3
28	T	753	2.0	0.742	43.7	LOS D	16.1	114.3	0.93	0.82	26.1
29	R	184	2.9	0.937	78.7	LOS F	12.2	87.8	1.00	1.10	19.0
Approach		1009	2.4	0.937	50.8	LOS D	16.1	114.3	0.95	0.88	24.3
All Vehicles		4276	3.0	0.973	54.6	LOS D	47.6	346.0	0.96	1.02	23.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P2	Across S approach	0	0.0	X	0.0	0.0	0.00	0.00
P10	Across SE approach	0	0.0	X	0.0	0.0	0.00	0.00
P14	Across NW approach	0	0.0	X	0.0	0.0	0.00	0.00
All Pedestrians		0	0.0	NA			0.00	0.00

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

MOVEMENT SUMMARY

Site: AM - Cabramatta/ Humphries

Cabramatta Road/ Humphries Road
2020 Post Development + Additional Dwellings
Upgraded Intersection
AM Peak Hour
Signals - Fixed Time Cycle Time = 90 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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: Humphries Road South											
1	L	42	2.5	0.383	23.8	LOS B	1.7	11.8	0.63	0.73	33.1
2	T	369	0.9	0.425	24.1	LOS B	10.7	75.8	0.74	0.75	32.7
3	R	180	1.8	0.664	39.3	LOS C	7.5	53.0	0.92	0.86	27.9
Approach		592	1.3	0.664	28.7	LOS C	10.7	75.8	0.79	0.78	31.2
East: Cabramatta Rd East											
4	L	43	0.0	0.420	38.0	LOS C	7.4	53.7	0.88	0.85	29.6
5	T	357	4.9	0.420	30.5	LOS C	7.5	54.3	0.88	0.73	31.0
6	R	32	0.0	0.359	59.1	LOS E	1.5	10.4	1.00	0.70	23.0
Approach		432	4.1	0.420	33.4	LOS C	7.5	54.3	0.89	0.74	30.1
North East: Humphries Road North											
24	L	205	0.9	0.476	27.8	LOS B	6.0	42.3	0.70	0.79	34.2
25	T	319	1.0	0.390	25.1	LOS B	9.7	68.2	0.74	0.77	34.4
26	R	141	6.0	0.934	73.1	LOS F	8.3	61.1	1.00	1.13	19.9
Approach		665	2.0	0.934	36.1	LOS C	9.7	68.2	0.78	0.85	29.7
West: Cabramatta Road West											
10	L	187	3.4	0.915	59.2	LOS E	23.1	167.0	1.00	1.13	23.3
11	T	683	3.7	0.915	51.5	LOS D	24.1	174.0	1.00	1.12	23.7
12	R	25	0.0	0.132	43.3	LOS D	1.0	6.9	0.88	0.73	26.5
Approach		896	3.5	0.915	52.9	LOS D	24.1	174.0	1.00	1.11	23.7
All Vehicles		2584	2.7	0.934	39.8	LOS C	24.1	174.0	0.88	0.91	27.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	50	39.2	LOS D	0.1	0.1	0.93	0.93
P3	Across E approach	50	39.2	LOS D	0.1	0.1	0.93	0.93
P11	Across NE approach	50	39.2	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		150	39.2	LOS D			0.93	0.93

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

MOVEMENT SUMMARY

Site: PM - Cabramatta/ Humphries

Cabramatta Road/ Humphries Road
2020 Post Development + Additional Dwellings
Upgraded Intersection
PM Peak Hour
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow 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: Humphries Rd (S)											
1	L	80	3.9	0.729	45.8	LOS D	3.8	27.2	0.73	0.85	24.7
2	T	406	0.0	0.625	41.8	LOS C	20.0	139.9	0.90	0.83	27.9
3	R	66	0.0	0.307	50.4	LOS D	3.3	23.4	0.87	0.78	24.2
Approach		553	0.6	0.729	43.4	LOS D	20.0	139.9	0.87	0.83	26.9
East: Cabramatta Rd (E)											
4	L	38	0.0	0.634	39.7	LOS C	19.0	135.0	0.81	0.92	29.0
5	T	826	1.7	0.634	32.2	LOS C	19.0	135.0	0.81	0.71	30.5
6	R	239	1.1	1.093	185.1	LOS F	28.3	199.9	1.00	1.34	9.9
Approach		1103	1.5	1.093	65.6	LOS E	28.3	199.9	0.85	0.85	21.0
North East: Humphries Rd (N)											
24	L	84	0.0	0.532	41.0	LOS C	7.3	50.9	0.79	0.81	28.5
25	T	459	0.3	0.591	41.5	LOS C	18.2	128.6	0.87	0.82	27.9
26	R	199	2.3	1.104	186.9	LOS F	22.9	163.2	1.00	1.42	9.7
Approach		742	1.1	1.104	80.5	LOS F	22.9	163.2	0.89	0.98	18.6
West: Cabramatta Rd (W)											
10	L	93	3.4	0.337	36.3	LOS C	8.6	61.5	0.71	0.82	30.7
11	T	362	1.8	0.337	28.4	LOS B	8.6	61.5	0.68	0.57	32.3
12	R	43	0.0	0.418	58.7	LOS E	2.4	17.1	0.93	0.78	22.1
Approach		498	1.9	0.418	32.5	LOS C	8.6	61.5	0.71	0.64	30.8
All Vehicles		2896	1.3	1.104	59.5	LOS E	28.3	199.9	0.84	0.84	22.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	10	54.2	LOS E	0.0	0.0	0.95	0.95
P3	Across E approach	10	54.2	LOS E	0.0	0.0	0.95	0.95
P11	Across NE approach	20	54.2	LOS E	0.1	0.1	0.95	0.95
All Pedestrians		40	54.2	LOS E			0.95	0.95

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

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