Strathfield Triangle

Transport Assessment

Prepared for:

City of Canada Bay Council

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JMT Consulting

Document History

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1 Introduction

JMT Consulting has been engaged by the City of Canada Bay Council to prepare a transport assessment to support a revised planning framework for the Strathfield Triangle site. The objective of this assessment is to determine the potential traffic and transport impacts arising from the development of the site, as well as inform the broader public domain investigation for the site. The assessment considers the following items:

- existing transport conditions in and around the site, including:
    - footpaths and cycleways
    - public transport stops (particularly Strathfield Station which is in close walking distance to the site)
    - roads, including recent upgrades as part of the WestConnex project
- forecast modal share for future residents
- vehicle access arrangements from the broader road network
- pedestrian access in and around the site
- public transport accessibility including future improvements planned by the NSW Government
- cycling access including connections to the broader cycling network and bicycle parking rates
- proposed car parking rates for the various uses within the site with reference to relevant planning controls
- traffic impacts of the proposal including:
- extent of transport infrastructure works required to support the additional development uplift considered.

2 Existing Conditions

2.1 Location

The Strathfield Triangle is an 'island' bounded by major roads on two sides and a railway line on the third. Its extents are defined by Parramatta Road to the north, Leicester Avenue to the east and the T1 North Shore, Northern & Western Line rail corridor to the west. Cooper Street provides an internal road connection which links Parramatta Road with Leicester Avenue.

The northern areas feature high density residential that have been re-developed relatively recently. The remaining lands consist of low density dwellings and vacant land.

Strathfield train station is location to the south-east of the site, while Homebush Station is west of the site. Both stations are located just outside a 400m radius from the centre of the site, making them both accessible by walking.

The Strathfield Triangle study area and surrounding transport conditions are illustrated in Figure 1 below.

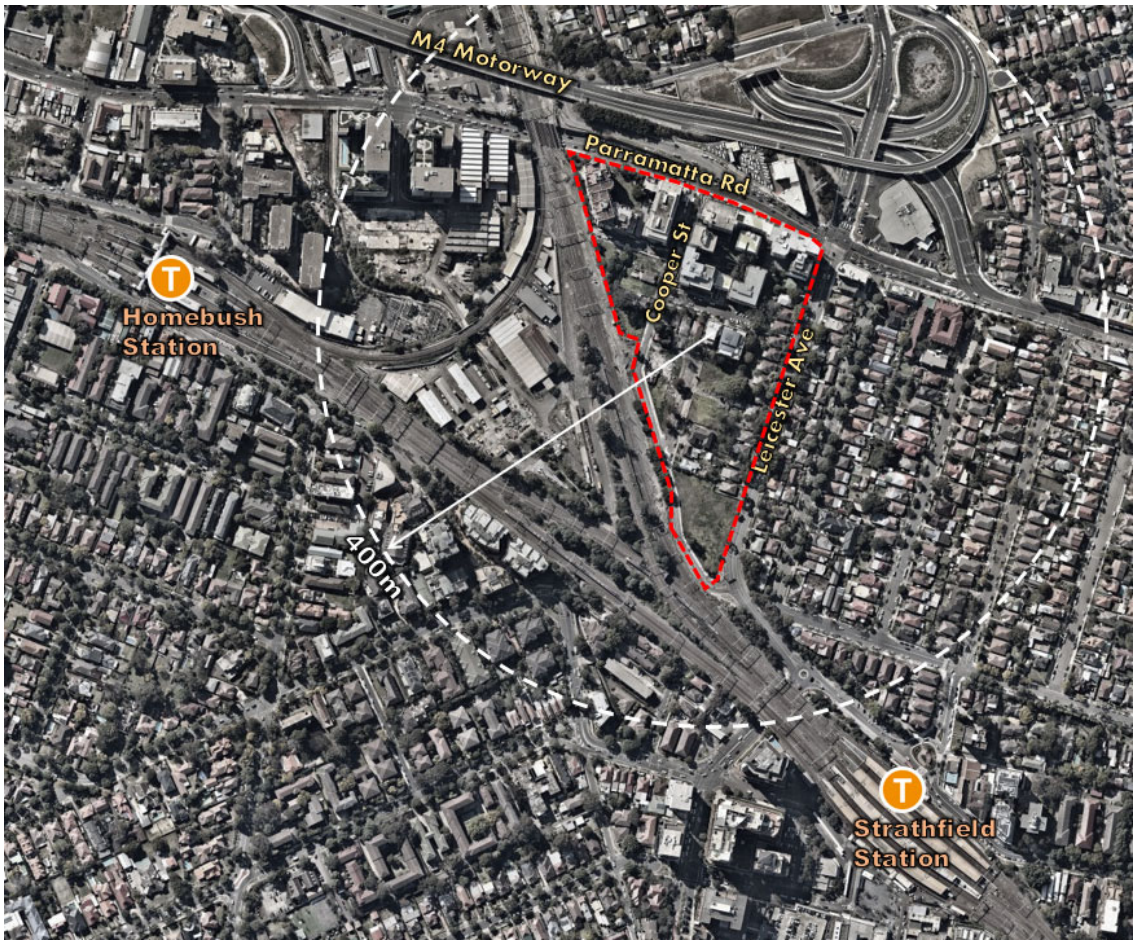


Figure 1 Site location

2.2 Travel patterns

2016 Journey to Work Census data has been analysed for existing residents of the Strathfield Triangle site[1]. This indicates that over 65% of all work related trips by existing residents are undertaken by public transport, with only 27% of trips made by private vehicle. This level of private vehicle usage is well below the average for the City of Canada Bay Council (49%) and the Greater Sydney area (53%). This reflects the close proximity of nearby public transport services to the Strathfield Triangle site.

The existing travel patterns of residents of Strathfield Triangle (as a means of travelling to work) is summarised in Figure 2.

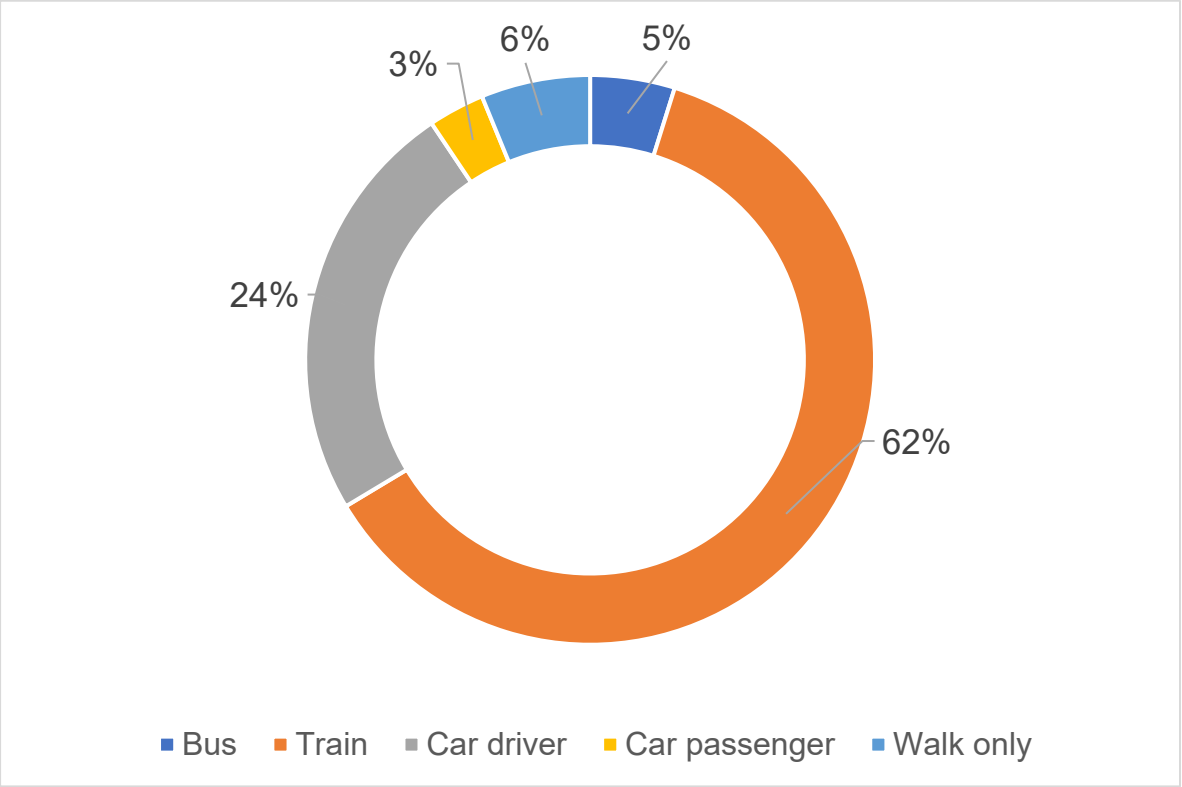


Figure 2 Existing journey to work mode share of residents within Strathfield Triangle

[1] Residents of SA1 12003157509 and SA1 12003157505 considered in the analysis, which comprise the entirety of the study area

2.3 Walking and cycling network

The pedestrian network servicing the study area is generally limited in nature given the nearby barriers of the railway corridor and major roads. Cooper Street (Figure 3) provides the main pedestrian route through the site and south towards Strathfield Station, with a footpath only provided on one side of the road for much of it's length.

Figure 3 Existing footpath – Cooper Street

A signalised pedestrian crossing is provided on all four approaches of the Parramatta Road / Leicester Avenue intersection at the north-eastern end of the site.

A key constraint is the lack of pedestrian crossing facilities at the Leicester Avenue / Cooper Street intersection (Figure 4) to provide direct pedestrian access to Strathfield Station. Instead pedestrian must wait for a gap in traffic to cross Leicester Avenue or travel via a more indirect route around Raw Square to access the station. This also impacts pedestrian access to bus stops on Leicester Avenue, where pedestrians are not afforded safe access across the busy road (Figure 5).

Figure 4 Leicester Avenue / Cooper Street intersection

Figure 5 Leicester Avenue bus stops

The cycling network in the vicinity of the site is generally incomplete and reliant on on-road cycle routes, as illustrated in Figure 6. A cycle route through the Strathfield Triangle site is planned in future which will connect Strathfield and North Strathfield train stations, as well as link with the existing Gipps Street / Queens Road cycle route.

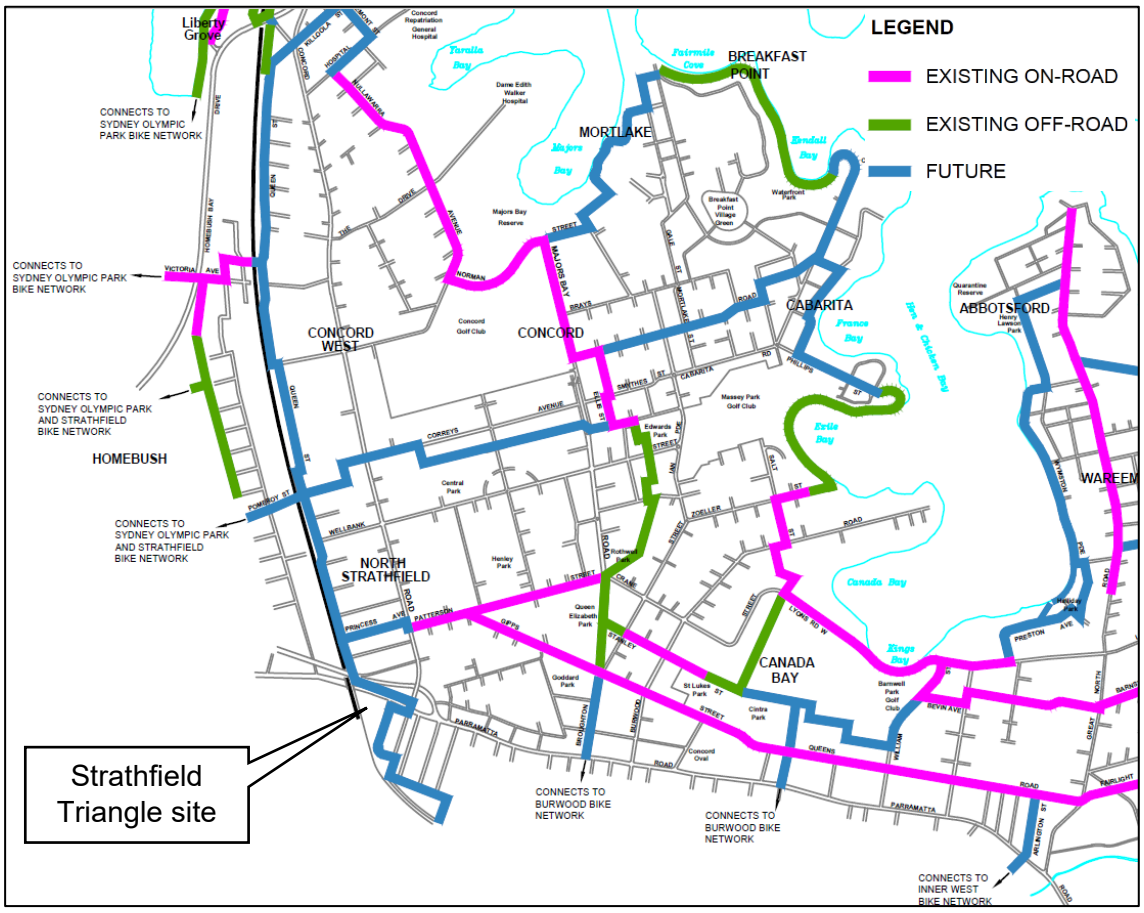


Figure 6 City of Canada Bay bicycle network

Source: City of Canada Bay Council

2.4 Public transport

Strathfield Triangle is well serviced by public transport. At its nearest point, the site is located approximately 300m northwest of Strathfield train station. The entire site is within a 10 minute walk of the train station which provides direct and frequent services to key employment centres such as the Sydney, Parramatta and North Sydney CBDs. The site is also within walking distance of Homebush train station, however this station provides less frequent services when compared to Strathfield.

The site is well serviced by bus links along Parramatta Road and Leicester Avenue. A bus stop is situated on Leicester Avenue on the eastern periphery of the Study Area. The bus routes servicing the site include:

- Route 458: Ryde to Burwood along Leicester Avenue.
- Route 525: Parramatta to Burwood via Sydney Olympic Park along Leicester Avenue and Parramatta Road.
- Route 526: Burwood to Rhodes Shopping Centre along Leicester Avenue and Parramatta Road.

In addition to these services, there are a number of additional bus routes that terminate at Strathfield train station, encouraging interchange between bus and rail services.

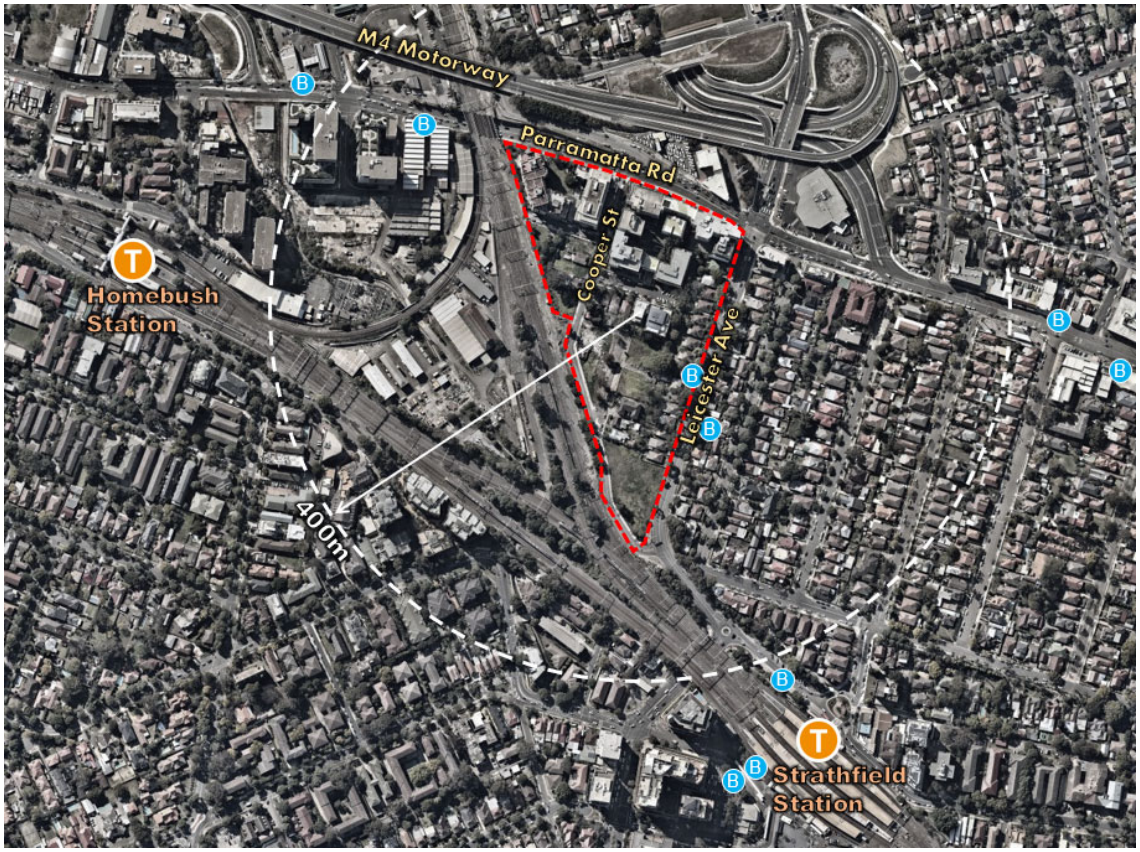


Figure 7 Existing public transport services

2.5 Road network

The road network serving the Strathfield Triangle site is shown in Figure 8. There are a number of high order roads forming part of the State Road network in close proximity to the site, including Parramatta Road, Leicester Avenue and the M4 Motorway. Access to the broader road network was recently improved following the opening of the M4 Motorway tunnel, with direct access to these tunnels provided via the Parramatta Road / Leicester Avenue intersection.

Cooper Street provides vehicle access into the site at two locations:

- Leicester Avenue to the south via an unsignalised (priority control) intersection, allowing turning movements from all directions; and
- Parramatta Road to the north where vehicle access is limited to left in / left out only

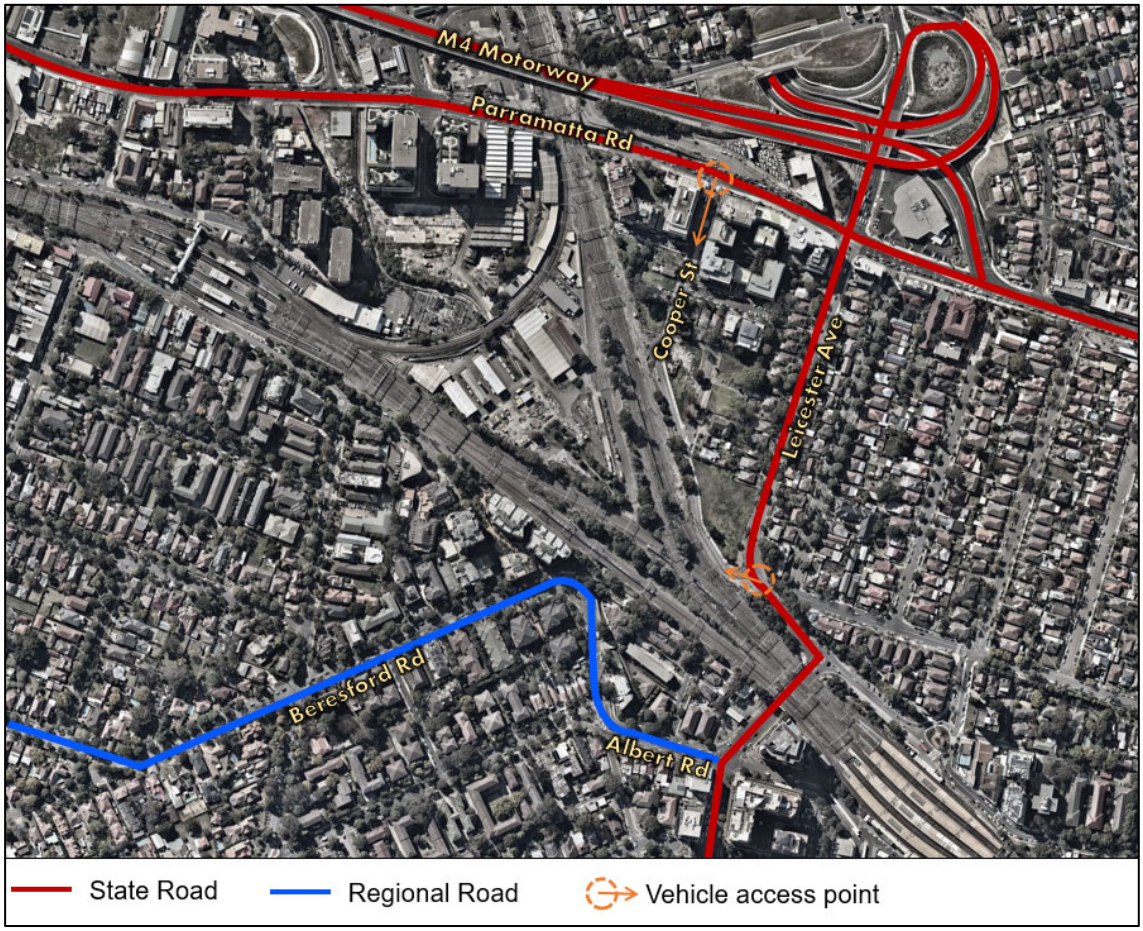


Figure 8 Existing road network

2.6 Traffic volumes

Traffic counts were undertaken at three key intersections in the vicinity of the site on Tuesday 22 October 2019. The identified peak hours were as follows:

- AM peak hour: 7.45am – 8.45am
- PM peak hour: 4.45pm – 5.45pm

The three key intersections were as follows:

- Parramatta Road / Leicester Avenue (traffic signals)
- Parramatta Road / Cooper Street (left in – left out)
- Leicester Avenue / Cooper Street (priority control intersection)

Traffic volumes through each of the intersections during these peak hour periods are illustrated in Figure 9 below. Full traffic count data is provided in Appendix A of this document.

Figure 9 Existing traffic volumes

2.7 Site traffic generation

A survey was undertaken at an existing multi-unit residential dwelling within the Strathfield Triangle site to understand the rate at which traffic is generated from an existing residential development. The survey was undertaken between 7.45am and 8.45am at 9 Hilts Road, which contains 71 residential dwellings and 89 car spaces.

The survey recorded a total of 12 vehicle movements in the peak hour, corresponding to a traffic generation rate of 0.17 vehicles / dwelling. This traffic generation rate is in line with the Sydney wide 'average' rate[2] for high density residential developments of 0.19 vehicles / dwelling in the AM peak hour.

[2] As defined in TDT 2013/04a

3 Transport Assessment

3.1 Access and circulation

The proposed access and circulation arrangements for the site are illustrated in Figure 10 below. Key features include:

- A new intersection at Cooper Street and Leicester Avenue that is controlled by traffic lights, with dedicated pedestrian crossing facilities. This will improve pedestrian safety and movement through to Strathfield railway station, as well as manage car movements into and out of the site.
- Retention of the existing left in - left out vehicle access point at the Parramatta Road / Cooper Street intersection
- Creation of a shared zone around a new central park
- Creation of a number of pedestrian/cyclist through site links, providing improved permeability between the site and Leicester Avenue.

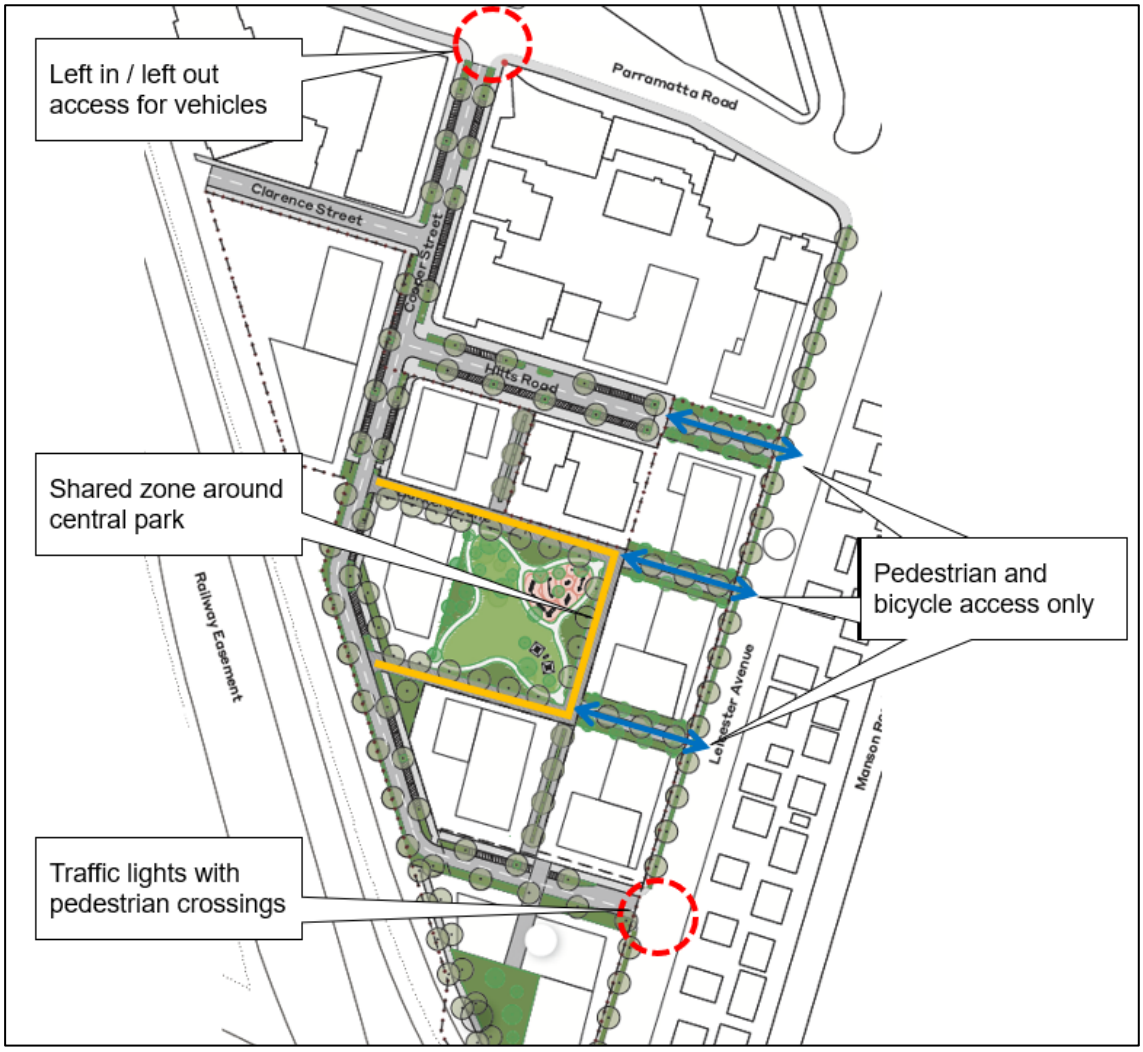


Figure 10 Proposed access and circulation

3.2 Pedestrian and cycling

The redevelopment of the Strathfield Triangle site provides a significant opportunity to enhance the walking and cycling network. The proposal includes the following key measures, also shown in Figure 11:

- Provision of dedicated pedestrian crossing facility at the new signalised Cooper Street / Leicester Avenue intersection. This will resolve the existing issue for pedestrians walking to Strathfield station where they must cross a four lane road (Leicester Avenue) without any crossing facility in place.
- Provision of a shared pathway on the eastern side of Cooper Street for pedestrians and cyclists
- A new footpath on the western side of Cooper Street adjacent to the railway corridor
- Pedestrian / cyclist through site links, providing improved permeability between the site and Leicester Avenue

Figure 11 Pedestrian and cyclist improvements

3.3 Public transport

As previously noted in Section 2.4, the site is well serviced by public transport – with bus and train services within close walking distance. In future public transport accessibility will be further enhanced as a result of the following measures:

- Dedicated pedestrian crossing facility at the Leicester Avenue / Cooper Street intersection which will provide the primary walking route to Strathfield Station
- Through site links between the site and Leicester Avenue, improving connections to the bus stops on Leicester Avenue
- Provision of a new metro station at North Strathfield as part of the Sydney Metro West project. Sydney Metro West is an underground metro railway that will link the Parramatta and Sydney CBDs by approximately 25 minutes. Although the future station is located just outside an 800m radius from the site (see Figure 12) , it will likely be used by many future residents as a means of travelling to key centres such as Parramatta, The Bays and the Sydney CBD.

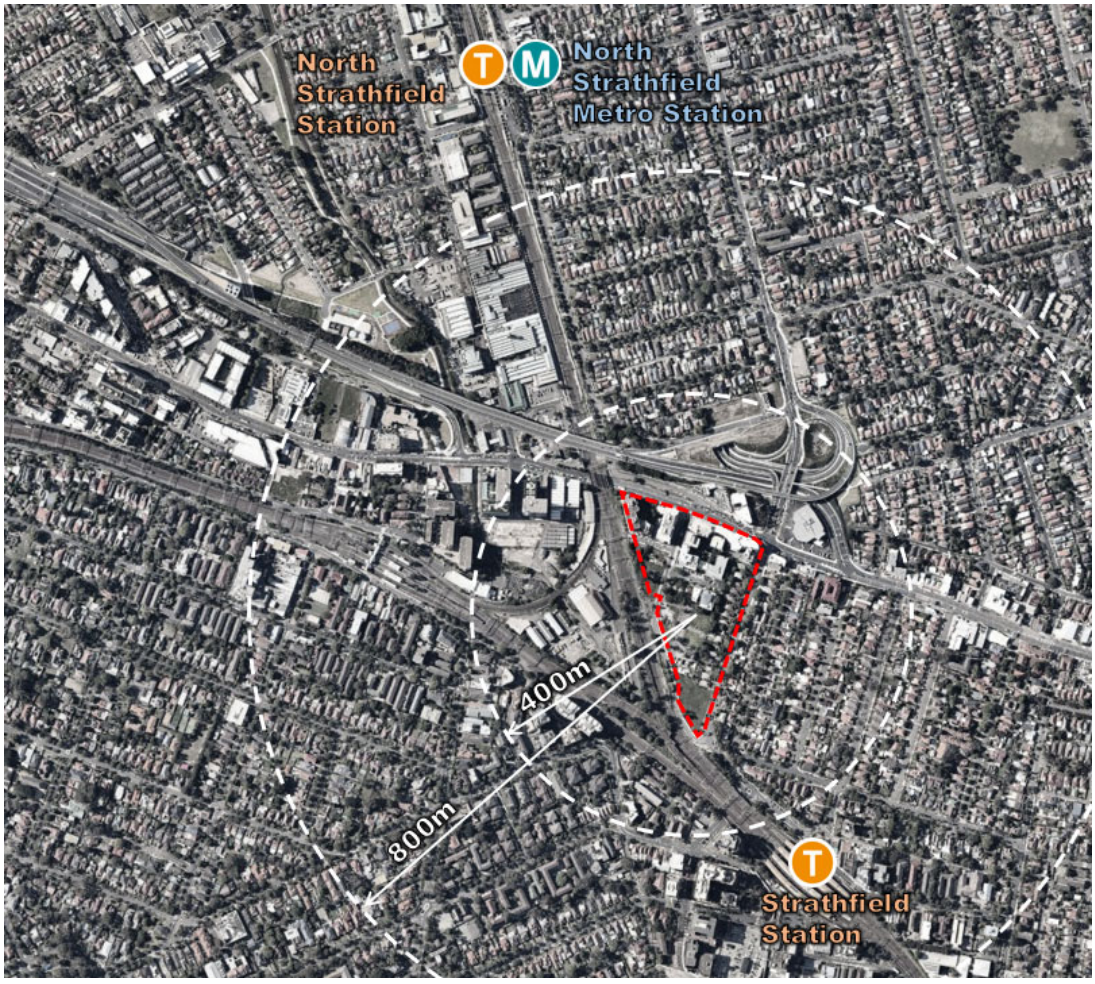


Figure 12 Future public transport provision

3.4 Street sections

The street hierarchy for site has been designed to provide clear and legible connections for all street users, particularly pedestrians and cyclists. Cooper Street has been designed with a 16m street section, which accommodates one lane of travel in each direction with adjacent parking lanes. This also provides the ability to include a 3.0m shared pedestrian / cycle path on the eastern side of the street, with a standard footpath on the western side.

Detailed street sections are provided in Appendix B of this document.

3.5 Mode share

There is expected to be a mode shift away from private vehicle towards public transport, walking and cycling for future residents of the Strathfield Triangle site for the following reasons:

- Improvement in accessibility to public transport services, for example dedicated pedestrian crossing at Leicester Avenue
- Enhancement of the walking and cycling network; and
- Reduced on-site car parking rates

The existing and future mode share for residents, travelling to/from work during the critical morning and evening peak periods, is summarised in Table 6. As a conservative approach, it has been assumed that 10% of existing car drivers will shift to other modes of transport. For the reasons outlined above, it is expected that a greater proportion of future residents will choose to travel by public transport or walk/cycle to work.

Table 1 Forecast modal share

Mode	Mode share	
	Existing	Future
Bus	4.8%	5.5%
Train / Metro	61.6%	64.1%
Car driver	24.2%	20.0%
Car passenger	3.2%	2.9%
Walk / Cycle	6.2%	7.5%

3.6 Trip generation

The total number of additional trips generated by the proposal can be estimated by utilising the following rates/assumptions:

- Average peak hour trip generation (all modes) rate for high density dwellings of 0.6 trips / dwelling[3];
- Forecast mode share of future residents as previously noted in Section 3.5; and
- Likely development yield within the site of 1,122 dwellings

As noted in Table 2, the site is predicted to generate an additional 674 trips during the peak weekday hours of 8am-9am and 5pm-6pm. Of these 674 trips, the majority will be by public transport – reflecting the current and future public transport provision in the area. Approximately 135 trips are forecast to be made by car.

Table 2 Overall trip generation

Mode	Number of peak hour trips
Bus	37
Train / Metro	432
Car driver	135
Car passenger	19
Walk / Cycle	51
Total	**674**

[3] As defined in TDT 2013/04a

3.7 Traffic impacts

3.7.1 Traffic generation

Future traffic generation from the Strathfield Triangle site has been forecast utilising the standard TfNSW traffic generation rates for high density residential developments, those being:

- AM peak hour: 0.19 vehicle trips / dwelling
- PM peak hour: 0.15 vehicle trips / dwelling

These rates yield higher traffic flows when compared to utilising the predicted modal share / trip generation assumptions (as noted in Section 3.6) or utilising the traffic generation rate observed from an existing residential building in the area (as noted in Section 2.7). Therefore the adopted traffic generation rates are considered conservative and represent a 'worst case' scenario.

The forecast additional traffic movements into and out of the Strathfield Triangle site are illustrated in Figure 13. As noted in the following section of this report, no right turn is permitted from Leicester Avenue into Cooper Street at the future signalised intersection.

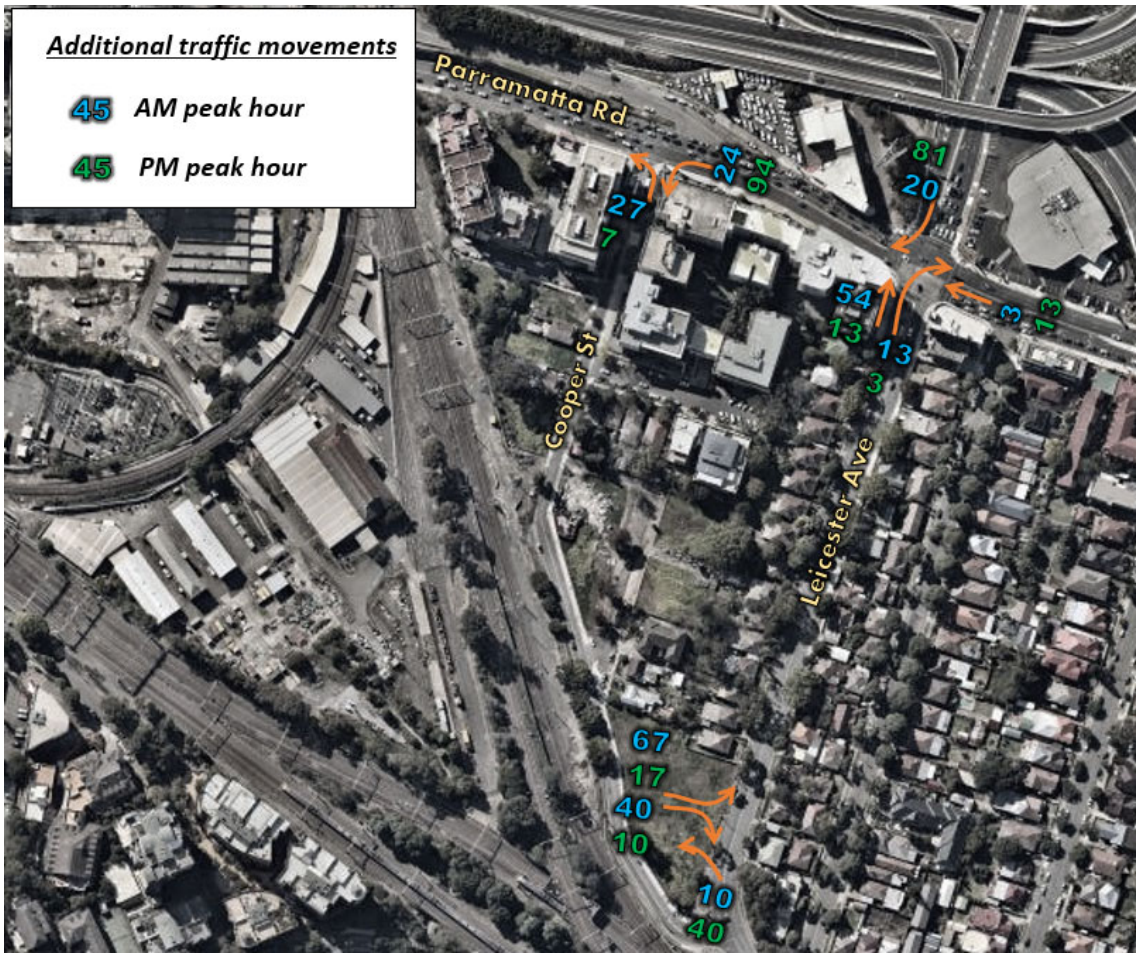


Figure 13 Additional traffic flows during peak hour periods

3.7.2 Intersection layout

The traffic modelling undertaken for this study has considered the future signalisation of the Leicester Avenue / Cooper Street intersection, consistent with previous planning studies undertaken for the area. The layout of this intersection is Figure 14, based off plans previously developed in conjunction with RMS (now Transport for NSW). It is important to note that no right turn from Leicester Avenue into Cooper Street has been allowed for in the design, which is reflected in the traffic modelling.

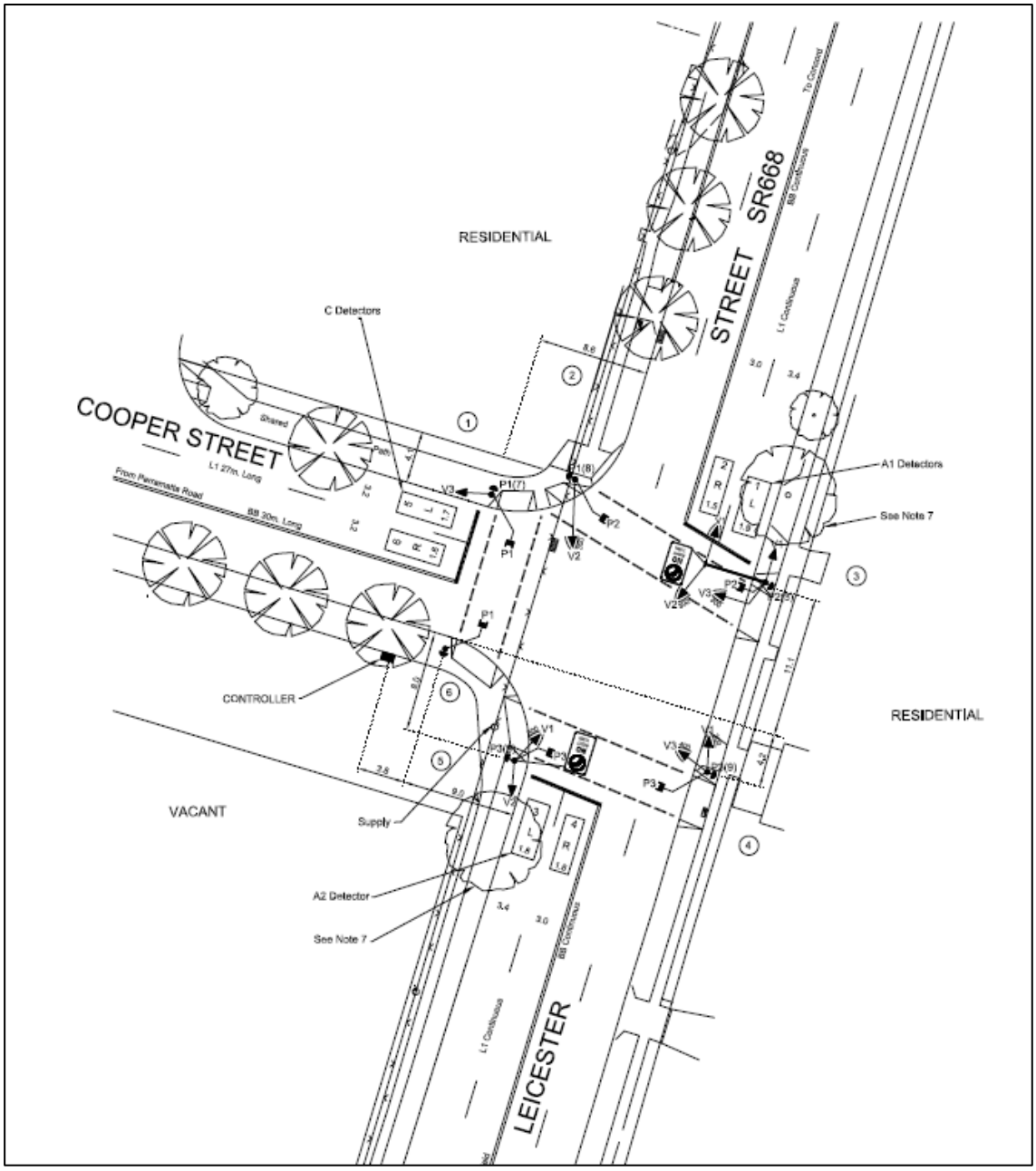


Figure 14 Leicester Avenue / Cooper Street intersection layout

3.7.3 Traffic modelling

Traffic modelling has been undertaken to consider the impacts of the development of Strathfield Triangle at the following intersections:

- Parramatta Road / Leicester Avenue (traffic signals)
- Parramatta Road / Cooper Street (left in – left out)
- Leicester Avenue / Cooper Street (future traffic signals)

The modelling parameters used to analyse the performance of the intersections are as follows:

Level of Service (LoS) - a measure that uses the average delay experienced by vehicles to categorically assign each approach and movement with a qualitative ordinal grade (A through F, with A being the best and F being the worst). RMS Traffic Modelling Guidelines indicate the average delay relating to each grade, this is outlined in Table 3.

Table 3 Level of service grades / description

Level of service grade	Average delay (seconds)	Description
A	Less than 14	Good operation
B	15 to 28	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity. At signals, incidents will cause excessive delays. Roundabouts require other control mode
F	Greater than 71	Unsatisfactory with excessive queuing

Degree of Saturation (DoS) - Another common measure of intersection performance is the degree of saturation, which provides an overall measure of the capability of the intersection to accommodate additional traffic. A DOS of 1.0 indicates that an intersection is operating at capacity.

The results of the traffic modelling are summarised in Table 4 below. Full analysis is provided as Appendix C of this document.

Table 4 Traffic modelling results

Peak Hour	Intersection	Existing traffic flows			Existing traffic with Strathfield Triangle development		
		AVD (sec)	DOS	LOS	AVD (sec)	DOS	LOS
AM peak hour	Leicester Avenue / Cooper Street	7	0.51	A	8	0.51	A
	Leicester Avenue / Parramatta Road	53	0.80	D	54	0.82	D
	Cooper Street / Parramatta Road	4	0.62	A	5	0.67	A
PM peak hour	Leicester Avenue / Cooper Street	6	0.46	A	7	0.46	A
	Leicester Avenue / Parramatta Road	58	0.90	E	61	0.92	E
	Cooper Street / Parramatta Road	2	0.36	A	3	0.38	A

AVD – Average vehicle delay DOS – Degree of Saturation LOS – Level of Service

The traffic modelling demonstrates that the increased traffic flows associated with the development of the Strathfield Triangle site will not result in adverse impacts on the surrounding road network. All intersections retain their existing level of service, with no additional measures required to accommodate future traffic demands.

The modelling also indicates that the future traffic signals at the Leicester Avenue / Cooper Street intersection will operate will at Level of Service A during both the AM and PM commuter peak hours. This is largely consistent with the findings of the traffic assessment previously undertaken for Strathfield Triangle[4] which concluded that the Leicester Avenue / Cooper Street intersection would perform at Level of Service A and B in the AM and PM peak hours respectively.

[4] Strathfield Triangle Traffic and Pedestrian Assessment – Transport & Urban Planning (February 2011)

3.8 Parking

3.8.1 Car parking

Car parking rates for future development within the Strathfield Triangle site will be consistent with those adopted for the Parramatta Road Corridor (Homebush precinct). These (maximum) car parking rates are summarised in Table 5 below.

Table 5 Car parking rates for development within Strathfield Triangle

Land Use		Maximum parking rate
Residential	Studio	0.3 spaces / dwelling
	1 bed	0.5 spaces / dwelling
	2 bed	0.9 spaces / dwelling
	3 bed	1.2 spaces / dwelling
	Visitor	0.1 spaces / dwelling
Commercial		1 space / 100m^2 GFA
Retail		1 space / 70m^2 GFA
Industrial		1 space / 120m^2 GFA

These parking rates are lower than those recommended in the previously adopted Strathfield Triangle DCP of 1 space per dwelling (on average). This reflects the improved public transport accessibility and the objective of minimising traffic impacts arising from future development of the site.

3.8.2 Bicycle parking

Similar to car parking, bicycle parking rates for development within Strathfield Triangle are to be in accordance with those adopted for the Parramatta Road Corridor, as summarised in Table 6. These bicycle parking rates reflect the objective of increasing cycling as a mode of access to and from the site.

Table 6 Bicycle parking rates for development within Strathfield Triangle

Land use	Bicycle parking rate	
	Resident / Employee	Visitor
Residential	1 space / dwelling	1 space / 10 dwellings
Commercial	1 space / 150m^2 GFA	1 space / 400m^2 GFA
Retail	1 space / 250m^2 GFA	2 spaces + 1 per 100m^2 GFA

Resident and employee bicycle parking should:

- Be located in a secure, enclosed area which is only accessible with devices such as keys, codes or swipe cards;
- Be compliant with 'Class B' spaces as set out in AS 2890.3 (2015);
- Utilise space efficient infrastructure (e.g. vertical racks).

Visitor bicycle parking should be:

- Located within the public domain in highly accessible, visible locations that provide good levels of passive surveillance;
- Provided through elements that are integrated within the landscape design and can serve multiple purposes (e.g. hostile vehicle management barriers);
- Provided throughout the site and not in a single location to maximise their potential usage, given cyclists will be arriving to the site via a number of different locations.

4 Summary

JMT Consulting has been engaged by the City of Canada Bay Council to prepare a transport assessment to support a revised planning framework for the Strathfield Triangle site. The assessment has considered the transport implications arising from the development of the site, including up to an additional 1,122 residential dwellings. Key findings of the assessment are as follows:

- The street hierarchy for site has been designed to provide clear and legible connections for all street users, particularly pedestrians and cyclists
- There is expected to be a mode shift away from private vehicle towards public transport, walking and cycling for future residents of the Strathfield Triangle site due to:
    - Improvement in accessibility to public transport services, for example dedicated pedestrian crossing at Leicester Avenue
    - Enhancement of the walking and cycling network; and
    - Reduced on-site car parking rates
- The site is predicted to generate an additional 674 trips during the peak weekday hours of 8am-9am and 5pm-6pm -the majority of which are forecast to be made by public transport
- Approximately 135 car trips are forecast to be generated by the site during the commuter peak hour periods
- Traffic modelling demonstrates that the increased traffic flows associated with the development of the Strathfield Triangle site will not result in adverse impacts on the surrounding road network
- Car parking rates for future development will be consistent with those adopted for the Parramatta Road Corridor (Homebush precinct). These (maximum) car parking rates will assist in reducing the traffic impacts associated with the development
- Bicycle parking for residents and visitors will be provided with all new developments on the site

In the above context, the traffic and transport impacts of the proposal are considered acceptable.

Appendix A: Traffic Count Data

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Parramatta Road and Cooper Street, Str

GPS -33.865881,151.092110

Date:	Tue 22/10/19
Weather:	Overcast
Suburban:	Strathfield
Customer:	JMT

North:	N/A
East:	Parramatta Road
South:	Cooper Street
West:	Parramatta Road

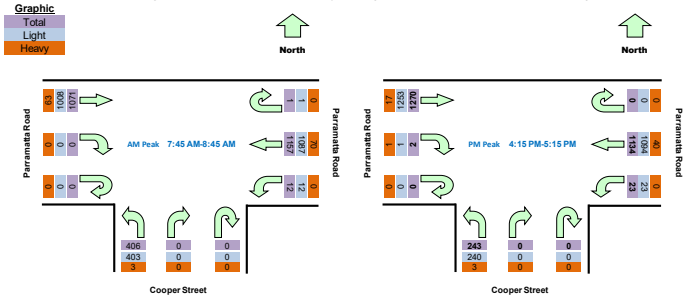
Survey Period	AM:	7:00 AM-9:00 AM
	PM:	4:00 PM-6:00 PM
Traffic Peak	AM:	7:45 AM-8:45 AM
	PM:	4:15 PM-5:15 PM

All Vehicles

Time		st Approach Parramatta Ro			outh Approach Cooper Stre			st Approach Parramatta Ro			Hourly Total	
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	Hour	Peak
7:00	7:15	0	233	2	0	0	89	0	0	249	2413	
7:15	7:30	0	261	4	0	0	63	0	0	278	2515	
7:30	7:45	0	252	1	0	0	94	0	0	255	2601	
7:45	8:00	0	261	6	0	0	98	0	0	267	2647	Peak
8:00	8:15	0	282	0	0	0	110	0	0	283	2599	
8:15	8:30	1	337	1	0	0	93	0	0	260		
8:30	8:45	0	277	5	0	0	105	0	0	261		
8:45	9:00	0	252	4	0	1	99	0	0	228		
16:00	16:15	1	285	7	0	0	50	0	0	262	2608	
16:15	16:30	0	272	6	0	0	58	0	1	364	2672	Peak
16:30	16:45	0	275	4	0	0	62	0	1	350	2655	
16:45	17:00	0	289	3	0	0	66	0	0	252	2632	
17:00	17:15	0	298	10	0	0	57	0	0	304	2608	
17:15	17:30	0	276	2	0	0	59	0	0	347		
17:30	17:45	0	321	8	0	0	58	0	0	282		
17:45	18:00	0	276	6	0	0	55	0	1	248		

Peak Time		st Approach Parramatta Ro			outh Approach Cooper Stre			st Approach Parramatta Ro			Peak
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	total
7:45	8:45	1	1157	12	0	0	406	0	0	1071	2647
16:15	17:15	0	1134	23	0	0	243	0	2	1270	2672

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.



Light Vehicles

Time		st Approach Parramatta Ro			outh Approach Cooper Stre			st Approach Parramatta Ro		
Period Start	Period End	U	WB	L	U	R	L	U	R	EB
7:00	7:15	0	215	2	0	0	89	0	0	232
7:15	7:30	0	246	4	0	0	63	0	0	250
7:30	7:45	0	231	1	0	0	92	0	0	240
7:45	8:00	0	246	6	0	0	98	0	0	245
8:00	8:15	0	262	0	0	0	107	0	0	269
8:15	8:30	1	321	1	0	0	93	0	0	249
8:30	8:45	0	258	5	0	0	105	0	0	245
8:45	9:00	0	230	4	0	1	99	0	0	212
16:00	16:15	1	275	7	0	0	50	0	0	255
16:15	16:30	0	263	6	0	0	56	0	0	361
16:30	16:45	0	258	4	0	0	62	0	1	343
16:45	17:00	0	280	3	0	0	65	0	0	247
17:00	17:15	0	293	10	0	0	57	0	0	302
17:15	17:30	0	267	2	0	0	58	0	0	346
17:30	17:45	0	310	8	0	0	57	0	0	279
17:45	18:00	0	267	6	0	0	55	0	1	246

Peak Time		st Approach Parramatta Ro			outh Approach Cooper Stre			st Approach Parramatta Ro			Peak
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	total
7:45	8:45	1	1087	12	0	0	403	0	0	1008	2511
16:15	17:15	0	1094	23	0	0	240	0	1	1253	2611

Heavy Vehicles

Time		st Approach Parramatta Ro			outh Approach Cooper Stre			st Approach Parramatta Ro		
Period Start	Period End	U	WB	L	U	R	L	U	R	EB
7:00	7:15	0	18	0	0	0	0	0	0	17
7:15	7:30	0	15	0	0	0	0	0	0	28
7:30	7:45	0	21	0	0	0	2	0	0	15
7:45	8:00	0	15	0	0	0	0	0	0	22
8:00	8:15	0	20	0	0	0	3	0	0	14
8:15	8:30	0	16	0	0	0	0	0	0	11
8:30	8:45	0	19	0	0	0	0	0	0	16
8:45	9:00	0	22	0	0	0	0	0	0	16
16:00	16:15	0	10	0	0	0	0	0	0	7
16:15	16:30	0	9	0	0	0	2	0	1	3
16:30	16:45	0	17	0	0	0	0	0	0	7
16:45	17:00	0	9	0	0	0	1	0	0	5
17:00	17:15	0	5	0	0	0	0	0	0	2
17:15	17:30	0	9	0	0	0	1	0	0	1
17:30	17:45	0	11	0	0	0	1	0	0	3
17:45	18:00	0	9	0	0	0	0	0	0	2

Peak Time		st Approach Parramatta Ro			outh Approach Cooper Stre			st Approach Parramatta Ro			Peak
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	total
7:45	8:45	0	70	0	0	0	3	0	0	63	136
16:15	17:15	0	40	0	0	0	3	0	1	17	61

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Cooper St and Leicester Ave, Strathfield

GPS *-33.869565, 151.092541*

Date:	Tue 22/10/19
Weather:	Overcast
Suburban:	Strathfield
Customer:	JMT

North:	Leicester Ave
East:	N/A
South:	Leicester Ave
West:	Cooper St

Survey Period	AM:	7:00 AM-9:00 AM
	PM:	4:00 PM-6:00 PM
Traffic Peak	AM:	7:45 AM-8:45 AM
	PM:	4:45 PM-5:45 PM

All Vehicles

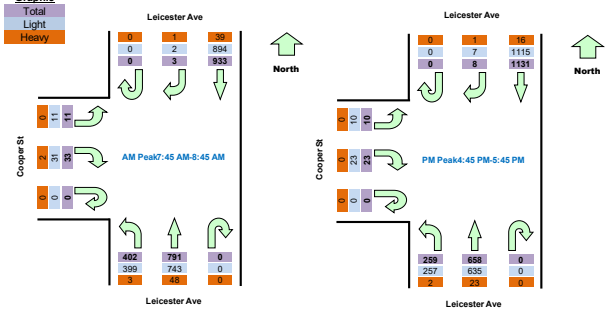
Time		orth Approach Leicester Av			outh Approach Leicester Av			West Approach Cooper St			Hourly Total	
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	Hour	Peak
7:00	7:15	0	2	184	0	183	81	0	2	3	1931	
7:15	7:30	0	2	189	0	156	73	0	4	3	2005	
7:30	7:45	0	0	229	0	175	83	0	8	6	2163	
7:45	8:00	0	0	236	0	181	119	0	9	3	2173	Peak
8:00	8:15	0	0	249	0	183	88	0	6	3	2094	
8:15	8:30	0	2	260	0	216	98	0	6	3		
8:30	8:45	0	1	188	0	211	97	0	12	2		
8:45	9:00	0	0	172	0	167	111	0	18	1		
16:00	16:15	0	1	267	0	128	75	0	2	0	2060	
16:15	16:30	0	2	315	0	170	70	0	8	1	2054	
16:30	16:45	0	3	288	0	151	62	0	7	3	2068	
16:45	17:00	0	1	262	0	166	70	0	3	5	2089	Peak
17:00	17:15	0	4	248	0	152	57	0	4	2	2053	
17:15	17:30	0	1	317	0	186	71	0	4	1		
17:30	17:45	0	2	304	0	154	61	0	12	2		
17:45	18:00	0	1	258	0	129	72	0	10	1		

Peak Time		orth Approach Leicester Av			outh Approach Leicester Av			West Approach Cooper St			Peak
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	total
7:45	8:45	0	3	933	0	791	402	0	33	11	2173
16:45	17:45	0	8	1131	0	658	259	0	23	10	2089

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy



Light Vehicles

Time		orth Approach Leicester Av			outh Approach Leicester Av			West Approach Cooper St		
Period Start	Period End	U	R	SB	U	NB	L	U	R	L
7:00	7:15	0	2	175	0	178	81	0	2	3
7:15	7:30	0	2	184	0	144	72	0	4	3
7:30	7:45	0	0	220	0	167	82	0	7	6
7:45	8:00	0	0	226	0	173	117	0	9	3
8:00	8:15	0	0	239	0	162	87	0	6	3
8:15	8:30	0	2	250	0	207	98	0	6	3
8:30	8:45	0	0	179	0	201	97	0	10	2
8:45	9:00	0	0	163	0	154	111	0	18	1
16:00	16:15	0	1	259	0	124	73	0	2	0
16:15	16:30	0	2	311	0	163	70	0	8	1
16:30	16:45	0	3	281	0	143	62	0	7	3
16:45	17:00	0	1	257	0	159	70	0	3	5
17:00	17:15	0	3	241	0	148	56	0	4	2
17:15	17:30	0	1	317	0	182	71	0	4	1
17:30	17:45	0	2	300	0	146	60	0	12	2
17:45	18:00	0	1	252	0	126	72	0	10	1

Peak Time		orth Approach Leicester Av			outh Approach Leicester Av			West Approach Cooper St			Peak
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	total
7:45	8:45	0	2	894	0	743	399	0	31	11	2080
16:45	17:45	0	7	1115	0	635	257	0	23	10	2047

Heavy Vehicles

Time		orth Approach Leicester Av			outh Approach Leicester Av			West Approach Cooper St		
Period Start	Period End	U	R	SB	U	NB	L	U	R	L
7:00	7:15	0	0	9	0	5	0	0	0	0
7:15	7:30	0	0	5	0	12	1	0	0	0
7:30	7:45	0	0	9	0	8	1	0	1	0
7:45	8:00	0	0	10	0	8	2	0	0	0
8:00	8:15	0	0	10	0	21	1	0	0	0
8:15	8:30	0	0	10	0	9	0	0	0	0
8:30	8:45	0	1	9	0	10	0	0	2	0
8:45	9:00	0	0	9	0	13	0	0	0	0
16:00	16:15	0	0	8	0	4	2	0	0	0
16:15	16:30	0	0	4	0	7	0	0	0	0
16:30	16:45	0	0	7	0	8	0	0	0	0
16:45	17:00	0	0	5	0	7	0	0	0	0
17:00	17:15	0	1	7	0	4	1	0	0	0
17:15	17:30	0	0	0	0	4	0	0	0	0
17:30	17:45	0	0	4	0	8	1	0	0	0
17:45	18:00	0	0	6	0	3	0	0	0	0

Peak Time		orth Approach Leicester Av			outh Approach Leicester Av			West Approach Cooper St			Peak
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	total
7:45	8:45	0	1	39	0	48	3	0	2	0	93
16:45	17:45	0	1	16	0	23	2	0	0	0	42

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY trafficsurvey.com.au

Intersection of Parramatta Road and Leicester Ave, Strathfield

GPS -33.866466, 151.093625

Date:	Tue 22/10/19
Weather:	Overcast
Suburban:	Strathfield
Customer:	JMT

North:	Leicester Ave
East:	Parramatta Road
South:	Leicester Ave
West:	Parramatta Road

Survey	AM:	7:00 AM-9:00 AM
Period	PM:	4:00 PM-6:00 PM
Traffic	AM:	7:45 AM-8:45 AM
Peak	PM:	4:45 PM-5:45 PM

All Vehicles

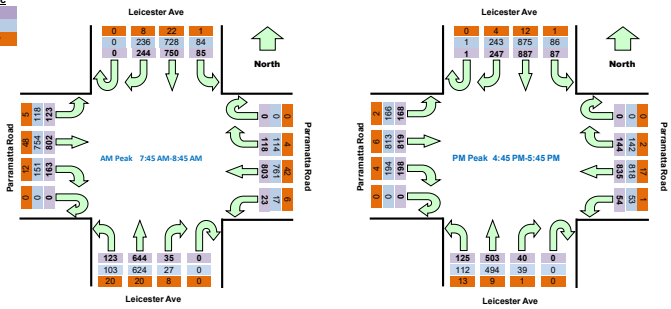
Time		North Approach Leicester Ave				East Approach Parramatta Road				South Approach Leicester Ave				West Approach Parramatta Road				Hourly Total	
Period Start	**Period End**	**U**	**R**	**SB**	**L**	**U**	**R**	**WB**	**L**	**U**	**R**	**NB**	**L**	**U**	**R**	**EB**	**L**	**Hour**	**Peak**
7:00	7:15	0	41	139	17	0	32	172	6	0	8	156	22	0	41	190	22	3545	
7:15	7:30	0	37	150	9	0	30	203	4	0	10	124	25	0	37	225	24	3683	
7:30	7:45	0	45	182	17	0	15	176	9	0	6	143	32	0	38	204	22	3876	
7:45	8:00	0	55	193	17	0	23	181	3	0	11	142	31	0	40	204	32	3913	Peak
8:00	8:15	0	49	204	22	0	28	203	4	0	5	151	30	0	41	221	26	3781	
8:15	8:30	0	73	217	22	0	31	235	7	0	11	177	31	0	38	205	24		
8:30	8:45	0	67	136	24	0	36	184	9	0	8	174	31	0	44	172	41		
8:45	9:00	0	64	136	18	0	28	166	6	0	4	138	26	1	30	155	28		
16:00	16:15	0	52	195	29	0	34	219	10	0	4	102	22	0	63	162	43	4008	
16:15	16:30	0	59	251	17	0	39	182	12	0	8	126	37	0	54	271	25	4092	
16:30	16:45	0	46	200	24	0	31	211	10	0	11	121	22	0	81	241	38	4094	
16:45	17:00	0	54	207	25	0	32	205	14	0	7	131	33	0	42	175	31	4108	Peak
17:00	17:15	0	57	186	22	0	47	225	16	0	13	115	26	0	50	209	53	4049	
17:15	17:30	1	69	261	23	0	35	167	10	0	11	134	42	0	47	245	38		
17:30	17:45	0	67	233	17	0	30	238	14	0	9	123	24	0	59	190	46		
17:45	18:00	0	51	198	14	0	24	208	12	0	8	99	23	0	49	163	48		

Peak Time		North Approach Leicester Ave				East Approach Parramatta Road				South Approach Leicester Ave				West Approach Parramatta Road				Peak
Period Start	**Period End**	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	**total**
7:45	8:45	0	244	750	85	0	118	803	23	0	35	644	123	0	163	802	123	3913
16:45	17:45	1	247	887	87	0	144	835	54	0	40	503	125	0	198	819	168	4108

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy



Light Vehicles

Time		North Approach Leicester Ave				East Approach Parramatta Road				South Approach Leicester Ave				West Approach Parramatta Road			
Period Start	**Period End**	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
7:00	7:15	0	38	132	16	0	31	158	6	0	8	152	21	0	39	174	22
7:15	7:30	0	36	146	8	0	27	193	3	0	10	116	21	0	37	198	20
7:30	7:45	0	41	176	17	0	13	162	8	0	5	139	29	0	36	190	22
7:45	8:00	0	53	188	17	0	23	172	3	0	9	140	27	0	35	192	30
8:00	8:15	0	48	197	21	0	27	194	1	0	3	142	20	0	41	206	26
8:15	8:30	0	69	211	22	0	30	224	5	0	10	170	30	0	36	199	22
8:30	8:45	0	66	132	24	0	34	171	8	0	5	172	26	0	39	157	40
8:45	9:00	0	61	131	17	0	27	151	6	0	3	130	22	1	26	141	28
16:00	16:15	0	51	193	29	0	33	212	9	0	4	100	20	0	58	161	43
16:15	16:30	0	55	247	17	0	37	181	12	0	7	124	33	0	54	268	25
16:30	16:45	0	45	198	22	0	31	198	9	0	9	118	19	0	77	233	38
16:45	17:00	0	54	204	25	0	32	199	13	0	6	128	30	0	41	174	30
17:00	17:15	0	57	179	22	0	46	223	16	0	13	114	23	0	49	206	52
17:15	17:30	1	67	261	23	0	35	163	10	0	11	133	39	0	47	245	38
17:30	17:45	0	65	231	16	0	29	233	14	0	9	119	20	0	57	188	46
17:45	18:00	0	51	195	14	0	24	200	10	0	8	97	22	0	48	162	48

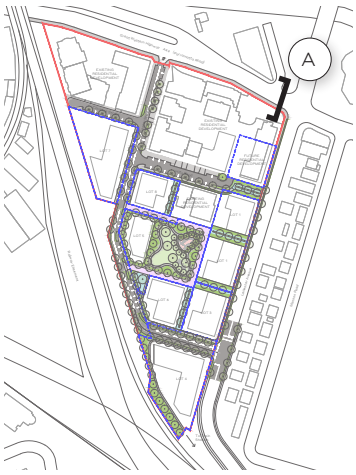
Peak Time		North Approach Leicester Ave				East Approach Parramatta Road				South Approach Leicester Ave				West Approach Parramatta Road				Peak
Period Start	**Period End**	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	**total**
7:45	8:45	0	236	728	84	0	114	761	17	0	27	624	103	0	151	754	118	3717
16:45	17:45	1	243	875	86	0	142	818	53	0	39	494	112	0	194	813	166	4036

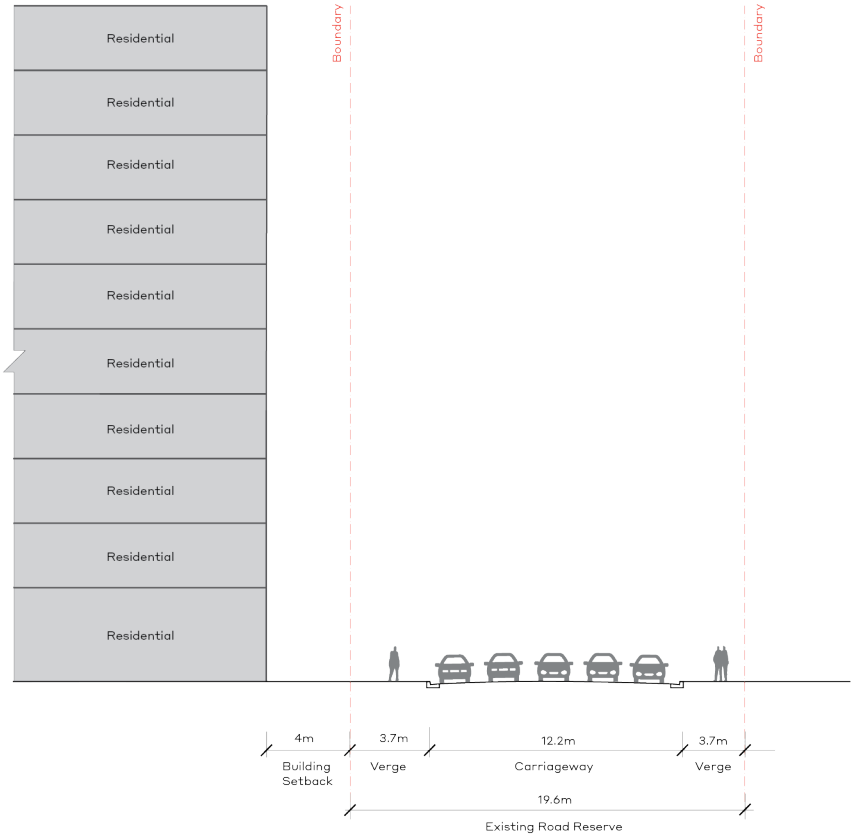
Heavy Vehicles

Time		North Approach Leicester Ave				East Approach Parramatta Road				South Approach Leicester Ave				West Approach Parramatta Road			
Period Start	**Period End**	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
7:00	7:15	0	3	7	1	0	1	14	0	0	0	4	1	0	2	16	0
7:15	7:30	0	1	4	1	0	3	10	1	0	0	8	4	0	0	27	4
7:30	7:45	0	4	6	0	0	2	14	1	0	1	4	3	0	2	14	0
7:45	8:00	0	2	5	0	0	0	9	0	0	2	2	4	0	5	12	2
8:00	8:15	0	1	7	1	0	1	9	3	0	2	9	10	0	0	15	0
8:15	8:30	0	4	6	0	0	1	11	2	0	1	7	1	0	2	6	2
8:30	8:45	0	1	4	0	0	2	13	1	0	3	2	5	0	5	15	1
8:45	9:00	0	3	5	1	0	1	15	0	0	1	8	4	0	4	14	0
16:00	16:15	0	1	2	0	0	1	7	1	0	0	2	2	0	5	1	0
16:15	16:30	0	4	4	0	0	2	1	0	0	1	2	4	0	0	3	0
16:30	16:45	0	1	2	2	0	0	13	1	0	2	3	3	0	4	8	0
16:45	17:00	0	0	3	0	0	0	6	1	0	1	3	3	0	1	1	1
17:00	17:15	0	0	7	0	0	1	2	0	0	0	1	3	0	1	3	1
17:15	17:30	0	2	0	0	0	0	4	0	0	0	1	3	0	0	0	0
17:30	17:45	0	2	2	1	0	1	5	0	0	0	4	4	0	2	2	0
17:45	18:00	0	0	3	0	0	0	8	2	0	0	2	1	0	1	1	0

Peak Time		North Approach Leicester Ave				East Approach Parramatta Road				South Approach Leicester Ave				West Approach Parramatta Road				Peak
Period Start	**Period End**	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	**total**
7:45	8:45	0	8	22	1	0	4	42	6	0	8	20	20	0	12	48	5	196
16:45	17:45	0	4	12	1	0	2	17	1	0	1	9	13	0	4	6	2	72

Appendix B: Street Sections





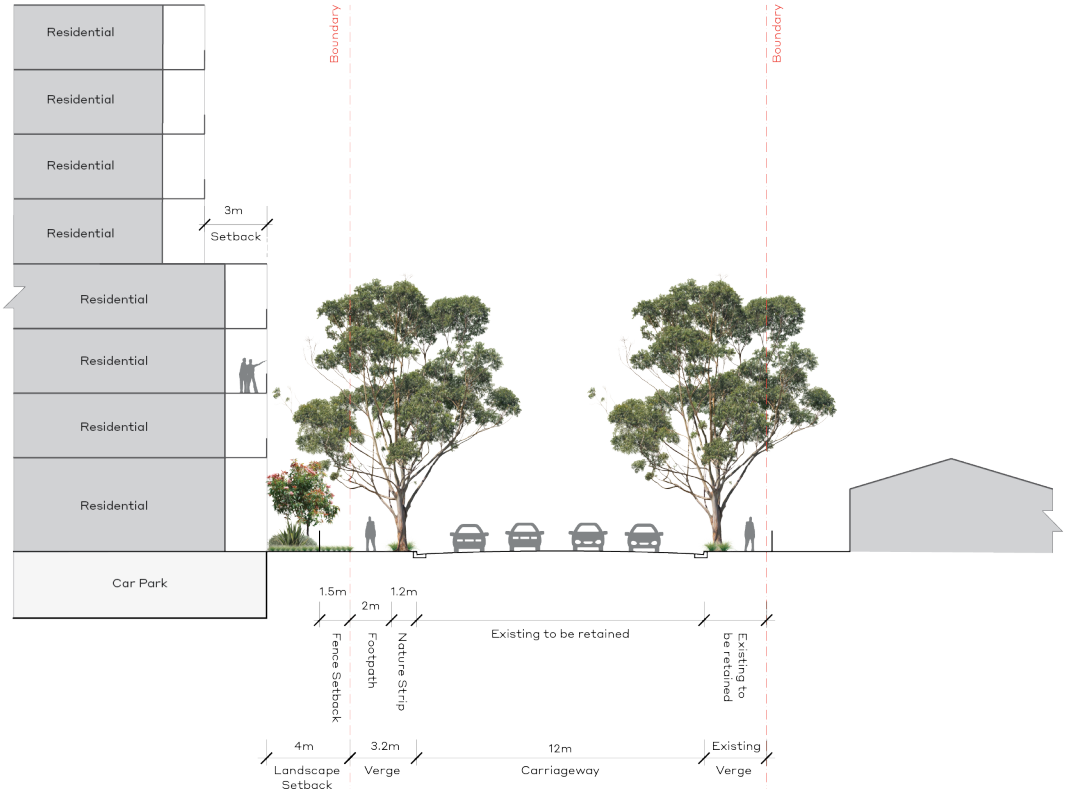
1.1 Section A

Parramatta Road - Indicative Section

Road Type: Transport Corridor

NOT TO SCALE

0 2.5 5 10m



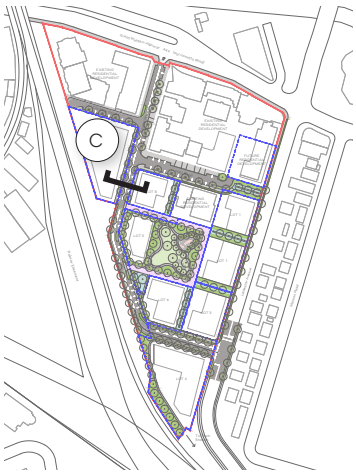
1.2 Section B

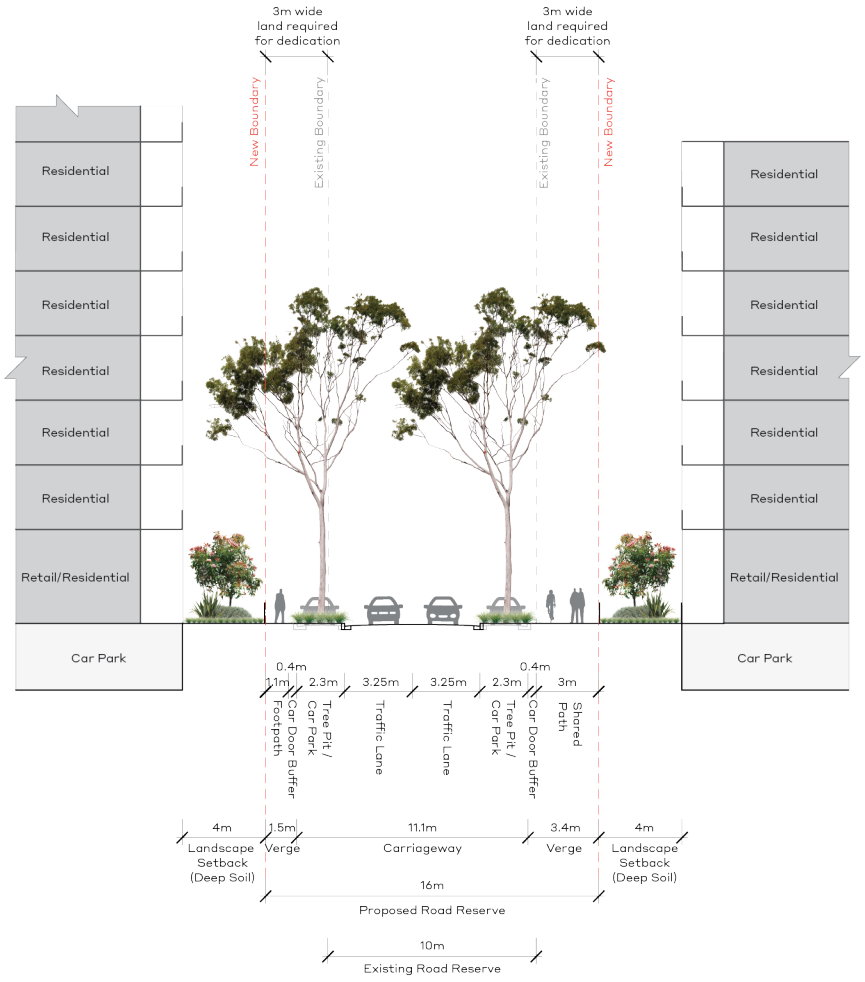
Leicester Avenue - Indicative Section

Road Type: Arterial Road

NOT TO SCALE

0 2.5 5 10m





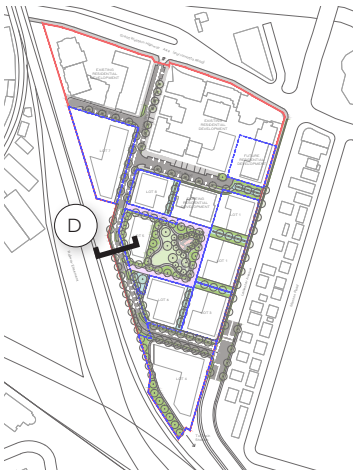
1.3 Section C

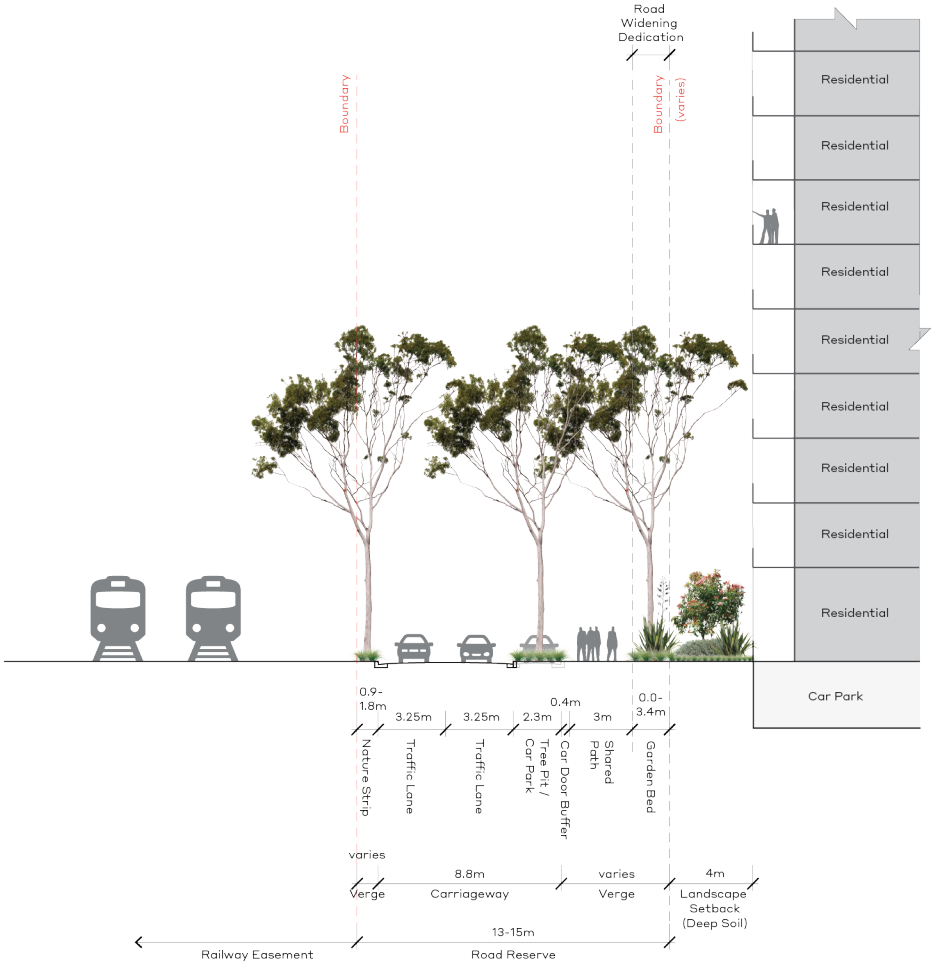
Cooper Street (North) - Indicative Section

Road Type: Main Road

NOT TO SCALE

0 2.5 5 10m





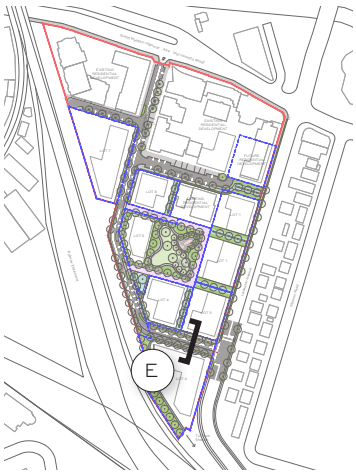
1.4 Section D

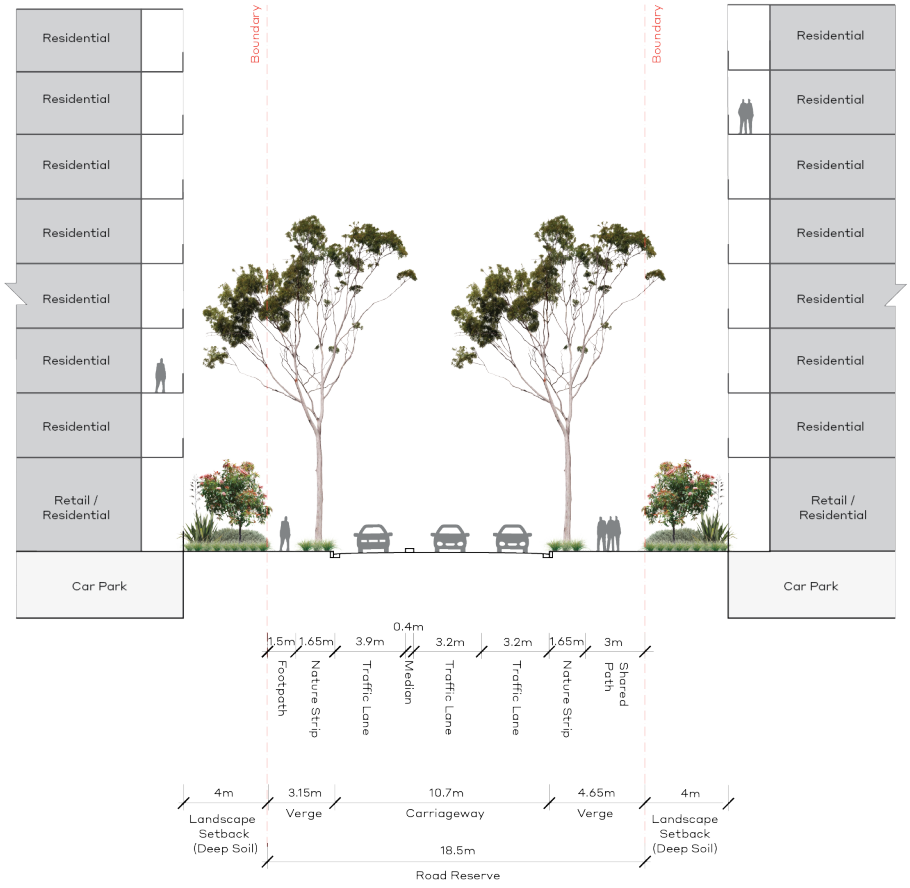
Cooper Street (Central) - Indicative Section

Road Type: Main Road

NOT TO SCALE

0 2.5 5 10m





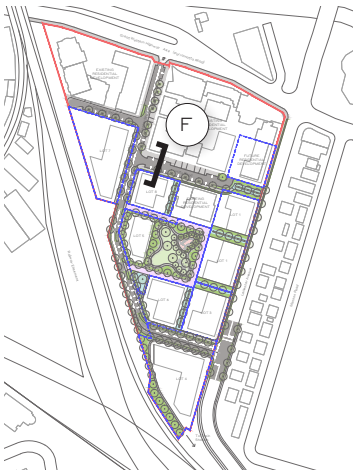
1.5 Section E

Cooper Street (South) - Indicative Section

Road Type: Main Road

NOT TO SCALE

0 2.5 5 10m



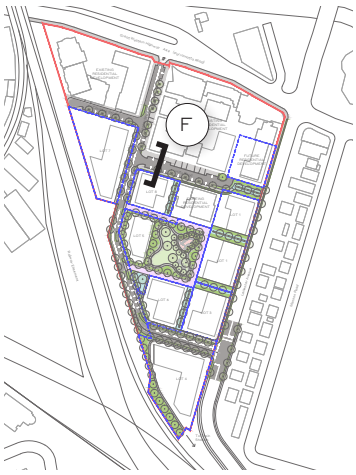
1.6 Section F

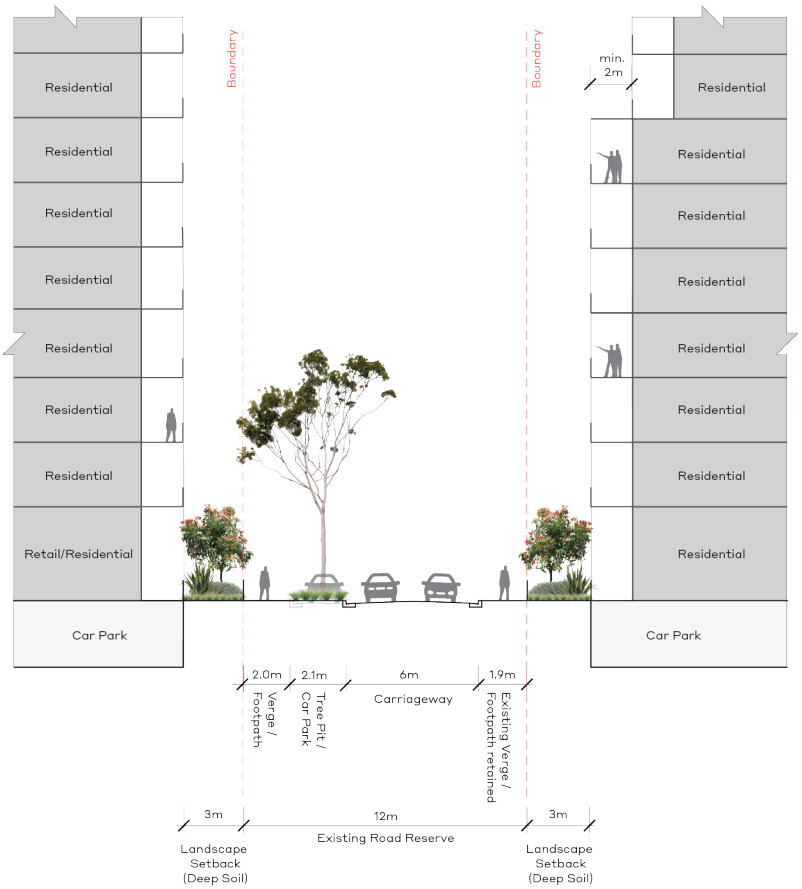
Hilts Road - Indicative Section

Road Type: Local Street

NOT TO SCALE

0 2.5 5 10m





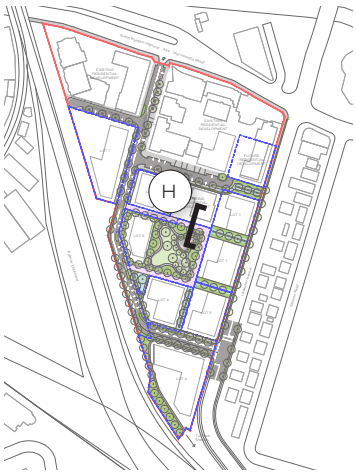
1.7 Section G

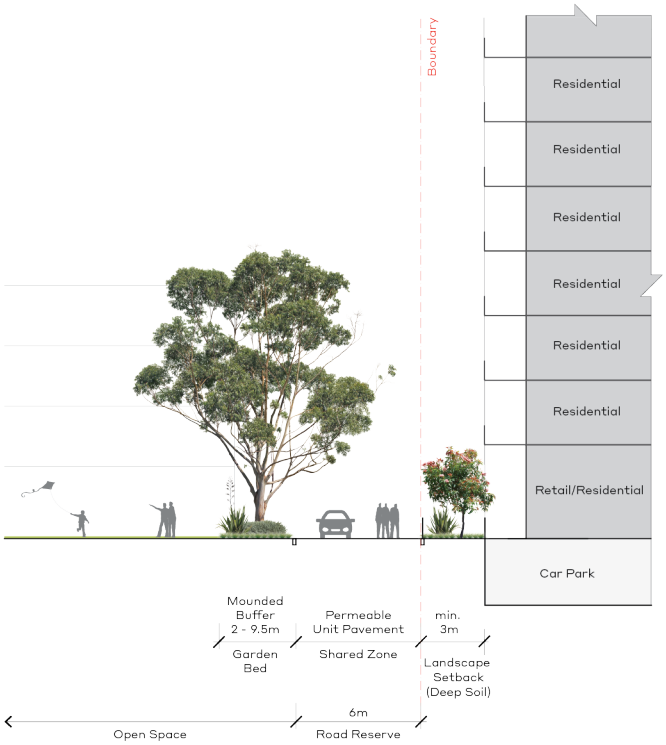
Clarence Street - Indicative Section

Road Type: Local Street

NOT TO SCALE

0 2.5 5 10m





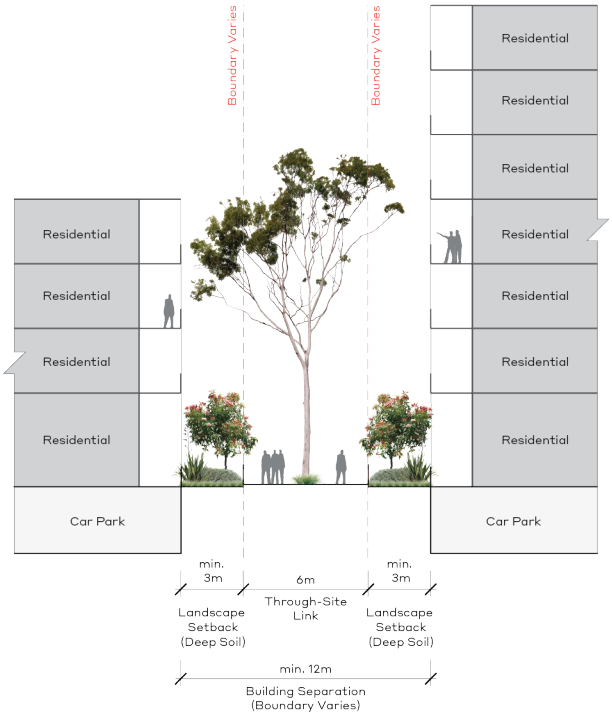
1.8 Section H

Bakers Lane - Indicative Section

Road Type: Shared Zone

NOT TO SCALE

0 2.5 5 10m



1.9 Section I

Through-Site Link - Indicative Section

Road Type: Laneway

NOT TO SCALE

0 2.5 5 10m

Appendix C: Traffic Modelling Outputs

MOVEMENT SUMMARY

Site: 103 [PM - w Strathfield Triangle]

Cooper Street / Parramatta Road
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cooper Street												
1	L2	266	1.2	0.377	13.2	LOS A	1.9	13.8	0.64	1.06	0.83	49.0
Approach		266	1.2	0.377	13.2	LOS A	1.9	13.8	0.64	1.06	0.83	49.0
East: Parramatta Road (E)												
4	L2	116	0.0	0.062	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	1194	3.5	0.313	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1309	3.2	0.313	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.3
All Vehicles		1576	2.9	0.377	2.7	NA	1.9	13.8	0.11	0.22	0.14	57.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
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 [AM]

Parramatta Rd / Leicester Ave
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Leicester Ave (S)												
1	L2	129	16.3	0.769	55.6	LOS E	26.0	193.5	0.98	0.88	1.00	31.9
2	T1	678	3.1	0.769	49.8	LOS D	26.0	193.5	0.97	0.87	1.00	33.0
3	R2	37	22.9	0.248	71.5	LOS E	2.4	20.3	0.97	0.74	0.97	27.3
Approach		844	6.0	0.769	51.6	LOS D	26.0	193.5	0.97	0.86	1.00	32.5
East: Parramatta Road (E)												
4	L2	24	26.1	0.738	49.1	LOS D	25.5	188.3	0.93	0.82	0.93	34.1
5	T1	845	5.2	0.738	43.7	LOS D	26.0	190.2	0.93	0.82	0.93	35.0
6	R2	124	3.4	0.282	67.0	LOS E	3.9	28.3	0.95	0.76	0.95	28.5
Approach		994	5.5	0.738	46.7	LOS D	26.0	190.2	0.94	0.81	0.94	34.0
North: Concord Road												
7	L2	89	1.2	0.802	57.4	LOS E	28.8	206.2	0.99	0.91	1.04	31.7
8	T1	789	2.9	0.802	52.2	LOS D	28.8	206.2	0.99	0.91	1.04	32.3
9	R2	257	3.3	0.762	77.6	LOS E	9.2	66.0	1.00	0.86	1.15	26.1
Approach		1136	2.9	0.802	58.4	LOS E	28.8	206.4	0.99	0.90	1.07	30.6
West: Parramatta Road (W)												
10	L2	140	11.3	0.802	53.2	LOS D	31.3	233.0	0.98	0.90	1.01	32.6
11	T1	844	6.0	0.802	47.8	LOS D	31.6	232.4	0.98	0.90	1.01	33.5
12	R2	172	7.4	0.801	76.2	LOS E	12.3	91.6	1.00	0.89	1.17	26.4
Approach		1156	6.8	0.802	52.7	LOS D	31.6	233.0	0.98	0.89	1.04	32.1
All Vehicles		4129	5.3	0.802	52.6	LOS D	31.6	233.0	0.97	0.87	1.01	32.2

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P2	East Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P3	North Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P4	West Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		211	64.3	LOS F			0.96	0.96

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

MOVEMENT SUMMARY

Site: 101 [AM - w Strathfield Triangle]

Parramatta Rd / Leicester Ave
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Leicester Ave (S)												
1	L2	129	16.3	0.809	57.6	LOS E	29.2	216.0	0.99	0.91	1.05	31.4
2	T1	735	2.9	0.809	51.7	LOS D	29.2	216.0	0.98	0.90	1.04	32.4
3	R2	54	15.7	0.346	72.2	LOS E	3.6	28.3	0.98	0.75	0.98	27.2
Approach		918	5.5	0.809	53.8	LOS D	29.2	216.0	0.98	0.90	1.04	31.9
East: Parramatta Road (E)												
4	L2	24	26.1	0.773	51.5	LOS D	26.7	197.4	0.95	0.85	0.97	33.4
5	T1	849	5.2	0.773	45.9	LOS D	26.7	197.4	0.95	0.85	0.97	34.3
6	R2	124	3.4	0.282	67.0	LOS E	3.9	28.3	0.95	0.76	0.95	28.5
Approach		998	5.5	0.773	48.7	LOS D	26.7	197.4	0.95	0.84	0.97	33.4
North: Concord Road												
7	L2	92	1.1	0.785	55.4	LOS E	28.2	201.8	0.98	0.89	1.01	32.3
8	T1	789	2.9	0.785	50.2	LOS D	28.2	201.8	0.98	0.89	1.02	32.9
9	R2	277	3.0	0.820	80.2	LOS F	10.1	72.8	1.00	0.90	1.23	25.7
Approach		1158	2.8	0.820	57.8	LOS E	28.2	202.2	0.99	0.89	1.07	30.8
West: Parramatta Road (W)												
10	L2	140	11.3	0.819	55.5	LOS E	32.2	239.5	0.99	0.92	1.04	32.0
11	T1	844	6.0	0.819	50.1	LOS D	32.4	238.7	0.99	0.92	1.05	32.8
12	R2	172	7.4	0.801	76.2	LOS E	12.3	91.6	1.00	0.89	1.17	26.4
Approach		1156	6.8	0.819	54.6	LOS D	32.4	239.5	0.99	0.91	1.06	31.6
All Vehicles		4229	5.1	0.820	53.9	LOS D	32.4	239.5	0.98	0.89	1.04	31.8

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P2	East Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P3	North Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P4	West Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		211	64.3	LOS F			0.96	0.96

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

MOVEMENT SUMMARY

Site: 101 [PM]

Parramatta Rd / Leicester Ave
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Leicester Ave (S)												
1	L2	132	10.4	0.519	43.6	LOS D	18.0	131.6	0.84	0.77	0.84	35.5
2	T1	529	1.8	0.519	38.4	LOS D	18.0	131.6	0.84	0.74	0.84	36.6
3	R2	42	2.5	0.538	81.7	LOS F	3.0	21.7	1.00	0.74	1.03	25.5
Approach		703	3.4	0.538	42.0	LOS D	18.0	131.6	0.85	0.75	0.85	35.5
East: Parramatta Road (E)												
4	L2	57	1.9	0.890	64.7	LOS E	33.5	238.5	0.97	0.99	1.15	29.9
5	T1	879	2.0	0.890	59.3	LOS E	33.5	238.5	0.97	1.00	1.15	30.4
6	R2	152	1.4	0.321	66.4	LOS E	4.8	33.9	0.95	0.77	0.95	28.6
Approach		1087	1.9	0.890	60.6	LOS E	33.5	238.5	0.97	0.96	1.12	30.1
North: Concord Road												
7	L2	260	1.6	0.897	63.3	LOS E	44.2	313.0	1.00	0.99	1.15	29.8
8	T1	934	1.4	0.897	58.3	LOS E	44.2	313.0	1.00	1.01	1.15	30.6
9	R2	92	1.1	0.580	82.0	LOS F	3.3	23.4	1.00	0.76	1.06	25.4
Approach		1285	1.4	0.897	61.0	LOS E	44.2	313.0	1.00	0.99	1.15	30.0
West: Parramatta Road (W)												
10	L2	179	1.2	0.857	59.4	LOS E	36.3	255.9	1.00	0.96	1.10	31.0
11	T1	868	0.7	0.857	54.4	LOS D	36.3	255.9	1.00	0.96	1.10	31.6
12	R2	213	2.0	0.903	85.1	LOS F	16.6	117.9	1.00	0.97	1.34	24.8
Approach		1260	1.0	0.903	60.3	LOS E	36.3	255.9	1.00	0.96	1.14	30.1
All Vehicles		4336	1.7	0.903	57.6	LOS E	44.2	313.0	0.97	0.94	1.09	30.8

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P2	East Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P3	North Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P4	West Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		211	64.3	LOS F			0.96	0.96

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

MOVEMENT SUMMARY

Site: 101 [PM - w Strathfield Triangle]

Parramatta Rd / Leicester Ave
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Leicester Ave (S)												
1	L2	132	10.4	0.549	44.8	LOS D	19.0	139.0	0.86	0.78	0.86	35.2
2	T1	545	1.7	0.549	39.5	LOS D	19.0	139.0	0.86	0.75	0.86	36.3
3	R2	45	2.3	0.496	79.9	LOS E	3.2	22.9	1.00	0.74	1.00	25.8
Approach		722	3.4	0.549	43.0	LOS D	19.0	139.0	0.87	0.76	0.87	35.2
East: Parramatta Road (E)												
4	L2	57	1.9	0.902	67.3	LOS E	34.5	245.5	0.97	1.01	1.18	29.3
5	T1	884	2.0	0.902	61.9	LOS E	34.5	245.5	0.97	1.02	1.18	29.8
6	R2	152	1.4	0.321	66.4	LOS E	4.8	33.9	0.95	0.77	0.95	28.6
Approach		1093	1.9	0.902	62.8	LOS E	34.5	245.5	0.97	0.98	1.15	29.6
North: Concord Road												
7	L2	269	1.6	0.923	70.4	LOS E	47.4	335.6	1.00	1.03	1.21	28.2
8	T1	934	1.4	0.923	65.3	LOS E	47.4	335.6	1.00	1.05	1.21	28.9
9	R2	158	0.7	0.854	87.0	LOS F	6.0	42.3	1.00	0.92	1.38	24.5
Approach		1361	1.3	0.923	68.8	LOS E	47.4	335.6	1.00	1.03	1.23	28.2
West: Parramatta Road (W)												
10	L2	179	1.2	0.857	59.4	LOS E	36.3	255.9	1.00	0.96	1.10	31.0
11	T1	868	0.7	0.857	54.4	LOS D	36.3	255.9	1.00	0.96	1.10	31.6
12	R2	213	2.0	0.903	85.1	LOS F	16.6	117.9	1.00	0.97	1.34	24.8
Approach		1260	1.0	0.903	60.3	LOS E	36.3	255.9	1.00	0.96	1.14	30.1
All Vehicles		4436	1.7	0.923	60.7	LOS E	47.4	335.6	0.97	0.96	1.13	30.1

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P2	East Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P3	North Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P4	West Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		211	64.3	LOS F			0.96	0.96

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.