67-75 Lords Road, Leichhardt

Traffic and Parking Impact Assessment

Prepared for:

Platino Properties

25 September 2018

The Transport Planning Partnership

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Client: Platino Properties

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Final	31/08/18	Aston Pei	Jessica Szeto	Ken Hollyoak	
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Executive Summary

This report has been prepared on behalf of Platino Properties to accompany a planning proposal, lodged with Inner West Council. The planning proposal seeks approval to rezone the site at 67-75 Lords Road, Leichhardt from IN2 Light Industrial Use to permit mixed use development. This report provides an assessment of the likely traffic implications arising from the proposed development to support the planning proposal.

Existing Transport Network Conditions

The proposed development site is located at 67-75 Lords Road, Leichhardt, and is centrally located between two key light rail stops, these being Marion and Taverners Hill light rail stops to the north and south respectively. Existing public transport facilities within the immediate vicinity of the site (e.g. bus, rail and light rail) currently operate well within their existing capacity during peak commuter times. In addition to this, at present, the key intersections in the vicinity of the site currently operate near or at capacity, particularly at the Marion Street-Foster Street intersection which operates at LoS E during peak commuter times.

Future Planned Transport Network

As part of the PRCUTS, the site falls within the Taverners Hills Precinct, which is envisaged to be become an urban village with strong green, water and active transport links with high amenity local neighbourhood centres. In particular, it has been identified that there is significant opportunity to focus on transit-oriented development with dense residential land use, active streetscapes and low parking rates across the Precinct in order to capitalise on existing public transport services.

In this regard, the proposal is considered consistent with the key objectives as set out in the PRCUTS. Notwithstanding this, based on the PRCUTS, it is understood that a Precinct wide traffic study is underway, which would consider the proposed land uses and densities, as well the future WestConnex conditions to identify any necessary road improvements and upgrades that will be required to be delivered as part of any proposed renewal in the Taverners Hill Precinct. We understand the report will be released by the end of 2018.

It is envisaged that the outcomes of this Precinct wide traffic study and consequential infrastructure and upgrade works will most likely assist improve the intersection and network performance surrounding the subject site, particularly at the already constrained Marion Street-Lords Road intersection.

Further to this, advice provided to Platino from TfNSW on 9 July 2018 regarding the potential uplift in light rail demand from the proposal, notes that "TfNSW constantly review the patronage for the inner west light rail services and would increase the services if required". As such, it is envisaged that adequate public transport connections and services would be provided to cater the proposal, plus other developments within the Taverners Hill Precinct. Further to this, as part of the PRCUTS, it is noted that investigations will be carried out to improve frequencies at the Lewisham rail station and Taverners Hill light rail stop to support growth in the Precinct.

As such, it is noted that such future rail/light rail capacity improvements would provide additional rail/light rail capacity to support and cater for the growth and demand in the Precinct.

Proposed Development

An indicative masterplan has been prepared by Platino Properties for traffic analysis purposes, with the following mix:

- 235 residential units
  - 15% x studio units (36 units)
  - 26% x 1-bedroom units (60 units)
  - 44% x 2-bedroom units (103 units)
  - 15% x 3-bedroom + units (36 units)
- 3,000m² commercial/employment uses.

Traffic

The proposed development is expected to generate a net reduction of vehicular trips during peak periods compared to its existing use.

The existing site is estimated to generate up to 209 trips, using RMS Guidelines, during peak periods based on the existing tenancies and use of the site. In addition to this, from traffic surveys carried out in 2013 (when the site was not fully occupied), the site was found to generate up to 105 trips during peak periods. More recent 2018 traffic surveys were also carried out at the site (which is not fully occupied), which recorded up to 80 trips during peak periods.

The proposed development itself is expected to generate 95 and 71 trips during the AM and PM Peak respectively. This equates to a net reduction of 114-138 trips during peak periods compared to the existing site (if fully occupied) or a reduction of 10 and 34 trips compared to its 2013 operation.

Green Travel Plan

The Transport Planning Partnership (TTPP) have prepared a Green Travel Plan (GTP) to accompany the proposed development (See Section 8.4 of this report and separate Green Travel Plan report). The green travel plan incorporates concepts to reduce reliance on cars, by facilitating a modal shift towards public transport usage as opposed to car usage, particularly for single-occupancy car trips.

It is noted that the subject site shares many characteristics with the Harold Park development:

- Proximity to a light rail station
- Proximity to bus routes

The proposed Green Travel Plan is similar to the one implemented at Harold Park. That plan has been successful in reducing reliance in motor vehicles as proven by traffic surveys undertaken in 2018 . These surveys demonstrate that the Harold Park development generates a maximum of around 0.12 vehicles per hour per unit compared to the RMS guideline of 0.19 vehicles per hour per unit. It is recommended that any development should incorporate the recommendations in the Travel Plan prepared by TTPP.

Consequently, in summary:

- The site is well located to capitalise on the existing and proposed public transport close the site
- The traffic impact of the proposal is likely to be less than or similar to that generated by the current site or significantly less than that which could be generated by the site in its current use.
- Furthermore, the proposed development would also generate less trucks than the permitted use.
- As a result, the safety of pedestrians, including school children will not be compromised.

1 Introduction

1.1 Background

This traffic and parking assessment report has been prepared by The Transport Planning Partnership (TTPP) on behalf of Platino Properties to accompany a planning proposal to be lodged with the Inner West Council (Council) seeking approval to construct a mixed-use development located at 67-75 Lords Road.

This planning proposal seeks approval to rezone the subject site from IN2 Light Industrial to permit mixed-use development. The proposal involves the construction of a mixed-use development, comprising 235 residential units and 3,000m^2 of commercial/employment floor space.

This report assesses the traffic implications associated with the proposed rezoning of the site.

The remainder of the report is set out as follows:

- Chapter 2 discusses the existing conditions including a description of the subject site
- Chapter 3 provides a brief description of the proposed development
- Chapter 5 assesses the proposed on-site parking provision and internal layout
- Chapter 6 examines the traffic generation of the proposed development
- Chapter 7 assesses the traffic implications arising from the development traffic
- Chapter 9 presents the conclusions of the assessment.

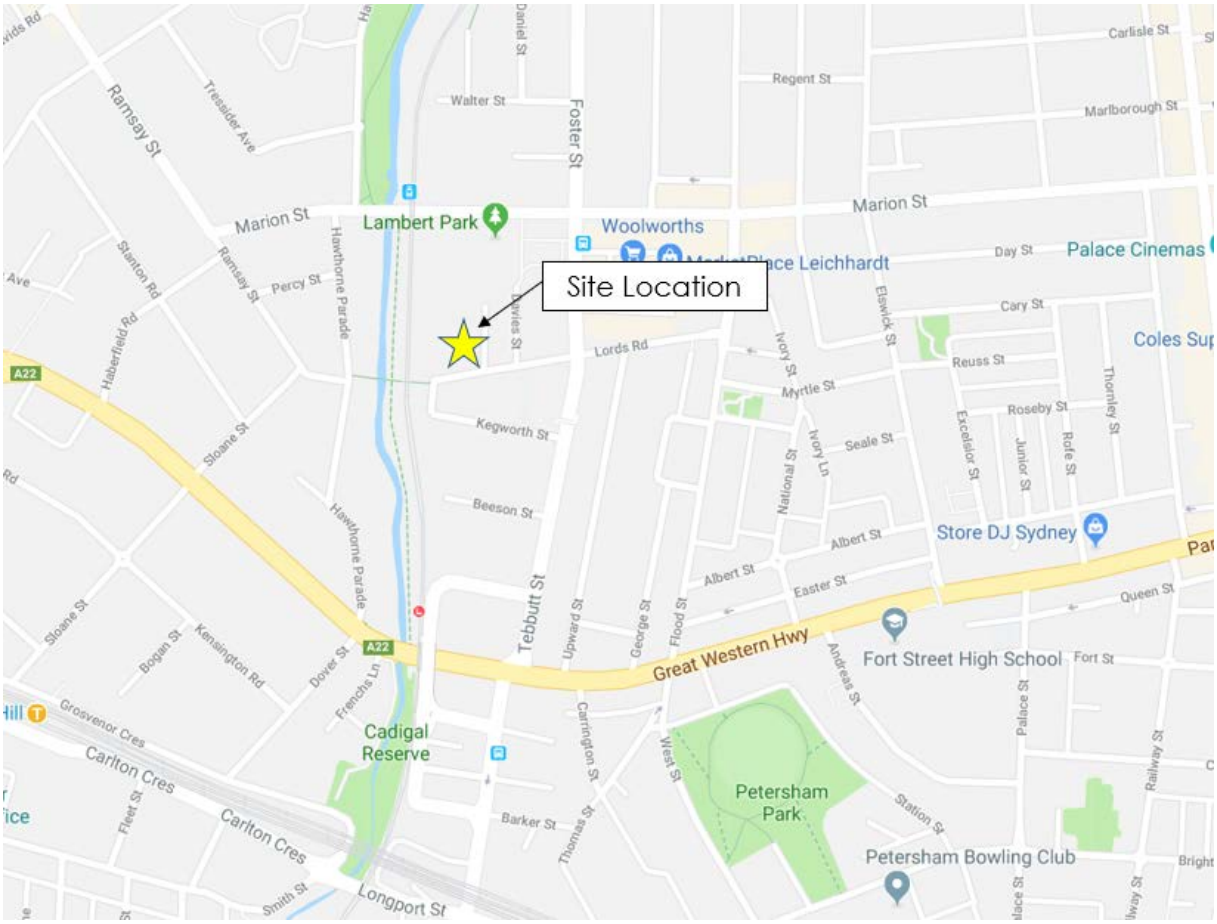
2 Existing Conditions

2.1 Site Description

The subject site is located at 67-75 Lords Road, Leichhardt, and falls within the local government area of the Inner West Council. The site is generally bound by Lords Road to the south, a laneway to the east, Lambert Park to the north and the light rail corridor to the west. Notably, the site is located directly south of the Marion light rail stop, which services the L1 Dulwich Hill Line.

The site locality is shown in Figure 2.1.

Figure 2.1: Site Locality



Source: Google Maps Australia (accessed 09/07/18)

At present, the site area is zoned as IN2 Light Industrial in accordance with the Leichhardt Local Environmental Plan (LEP) 2013 and is currently occupied by a number of industrial/warehouse, recreational and commercial tenancies, including a gymnasium, with a combined floor space of just under 10,000m^2. A summary of the existing tenancy breakdown is provided in Table 2.1.

Table 2.1: Existing Tenancy Breakdown

Use	Area (m²)
Gymnasium	1,234
Art School	369
Pottery classes	165
Kung Fu Classes	378
Offices	480
Factory	369
Stage Set Construction	1,905
Engineering	369
Aluminium framing storage	355
Warehouse	370
Warehouse	1,239
Cardboard Recycling	300
Display furniture & furnishings storage	369
Market food storage	300
Joinery	485
Joinery	369
Builders storage	185
Concrete sealing materials storage	369
Manufacturing	369
Total	**9,979**

In addition to this, vehicle access to the site is currently provided via two separate driveways on Lords Road to provide access to two separate car park areas, containing some 120 car spaces. An aerial photograph of the site is shown in Figure 2.2.

Land uses surrounding the site predominately comprise low density residential, retail and light industrial on Lords Road, Foster Street and Tebbutt Street. Kegworth Public School is located 100m south-east of the site. However, as part of the Parramatta Road Corridor Urban Transformation Strategy 2016 (PRCUTS), it is envisaged that the area will be transformed over the next 30 years to provide increased housing, economic activity and social infrastructure, including 27,000 new homes and 50,000 new jobs.

Figure 2.2: Aerial Image of Existing Site

Source: Nearmap Australia (aerial image dated 17/07/18)

2.2 Abutting Road Network

2.2.1 Lords Road

Lords Road functions as a two-way local road, aligned in an east-west direction. It has a posted speed limit of 50km/h, with 40km/h school zone restrictions that apply during school hours. The road provides east-west connectivity between Flood Street and Kegworth Street. In addition to this, vehicle access to the site is currently provided off Lords Road via two driveways. Within the immediate vicinity of the site, unrestricted kerbside parking is generally provided on both sides of the road.

2.2.2 Foster Street

Foster Street is a two-way State road, generally aligned in a north-south direction. The street provides good connectivity to the wider arterial road network, including Parramatta Road and City West Link to the south and north ends respectively, via Darley Road and Tebbutt Street. Notably, at the intersection of Foster Street and Lords Road, no right-turn movements from Foster Street (north leg) into Lords Road (west leg) are permitted.

The street is generally configured with one lane in each direction with kerbside parallel parking on either side of the street. The speed limit is posted as 50km/h, with 40km/h school zone restrictions applicable during school hours within the immediate vicinity of Kegworth Public School.

2.2.3 Tebbutt Street

Tebbutt Street operates as a two-way State road that extends between Foster Street and Parramatta Road in a north-south alignment. The street is generally aligned with one lane in either direction, with kerbside car parking provided on either side of the street. Similar to Foster Street, the posted speed limit of 50km/h, with 40km/h school zone restrictions applicable during school hours. Notably, at the intersection of Tebbutt Street and Parramatta Road, left in and left out restrictions apply into and out of Tebbutt Street.

2.3 Public Transport Services

The site is well serviced by public transport services being located within the immediate vicinity to the Marion light rail stop and a number of bus routes in the area, including bus routes along Marion Street and Parramatta Road. Further to this, the site is located within an 800m radius catchment (or an 850m walking distance) from the Summer Hill railway station.

2.3.1 Train

Train services are provided at Summer Hill and Lewisham Stations which are located directly south-west and south-east of the site respectively. These railway stations service the T2 Inner West & Leppington line and T3 Bankstown line, which provide good connectivity to the Sydney City and Parramatta suburbs.

A summary of the existing train services and their associated frequencies during peak periods are provided in Table 2.2.

Table 2.2: Summary of Existing Train Services and Frequencies

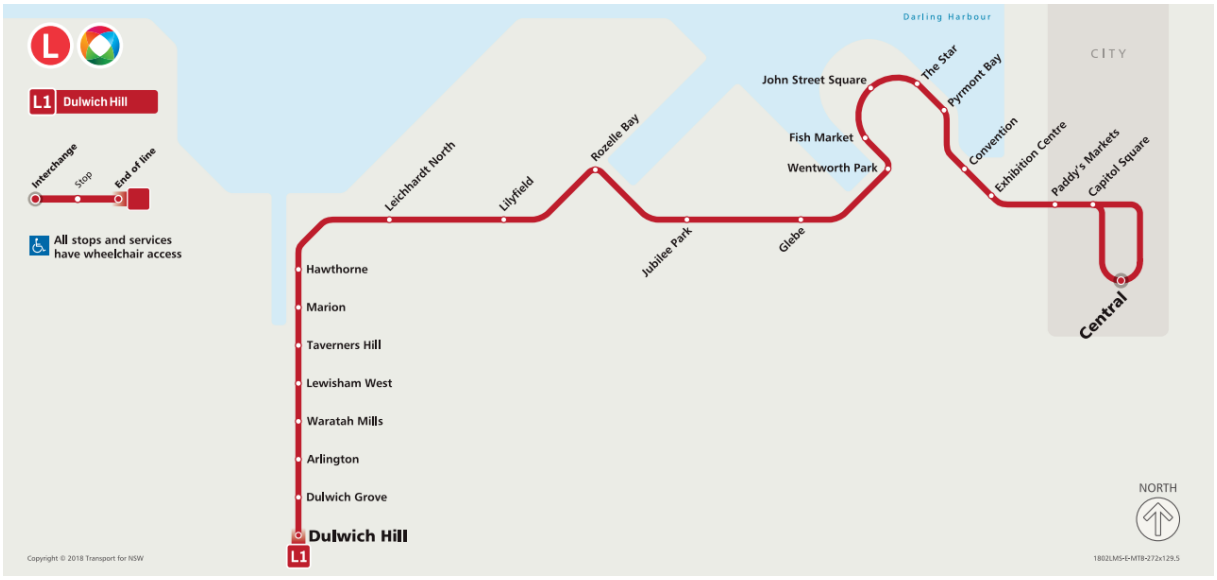
Rail Line	Route	AM Peak 7am-9am (no. of services)	PM Peak 4pm-6pm (no. of services)
T2 Inner West & Leppington	City Circle via Town Centre	18	8
	Paramatta	7	8
	Ashfield Only	1	-
	Leppington via Granville	-	9
T3 Bankstown	Liverpool via Regents Park	1	-

2.3.2 Light Rail

Light rail services operate from Marion Light Rail Station which is located 200m north of the site (approximately five-minute walk or one-minute bike ride). The L1 Dulwich Hill route provides connection between Dulwich Hill and Central via Rozelle Bay, Lilyfield, Leichhardt North, Marion and several other Inner West stations. Services are provided every 10-15 minutes between 6:00am and 11:00pm, Sunday to Thursday and until midnight on Friday and Saturday. Bicycles are permitted on the light rail where space is available.

A map of the L1 Dulwich Hill light rail route is shown in Figure 2.3.

Figure 2.3: L1 Dulwich Hill Light Rail Route



Source: Transport for NSW <https://transportnsw.info/documents/timetables/93-L1-Dulwich-Hill-Line-20170828.pdf> (accessed on 09/07/18)

In addition to this, the Taverners Hill light rail stop is located approximately 650m south of the site and also services the L1 Dulwich Hill line.

2.3.3 Bus Services

A number of bus stops are located within a 400m catchment radius of the site on Marion Street and Parramatta Road, which provide good public transport access to a myriad of destinations across Sydney.

A summary of the bus service frequencies and routes operating within the vicinity of the site is shown in Table 2.3.

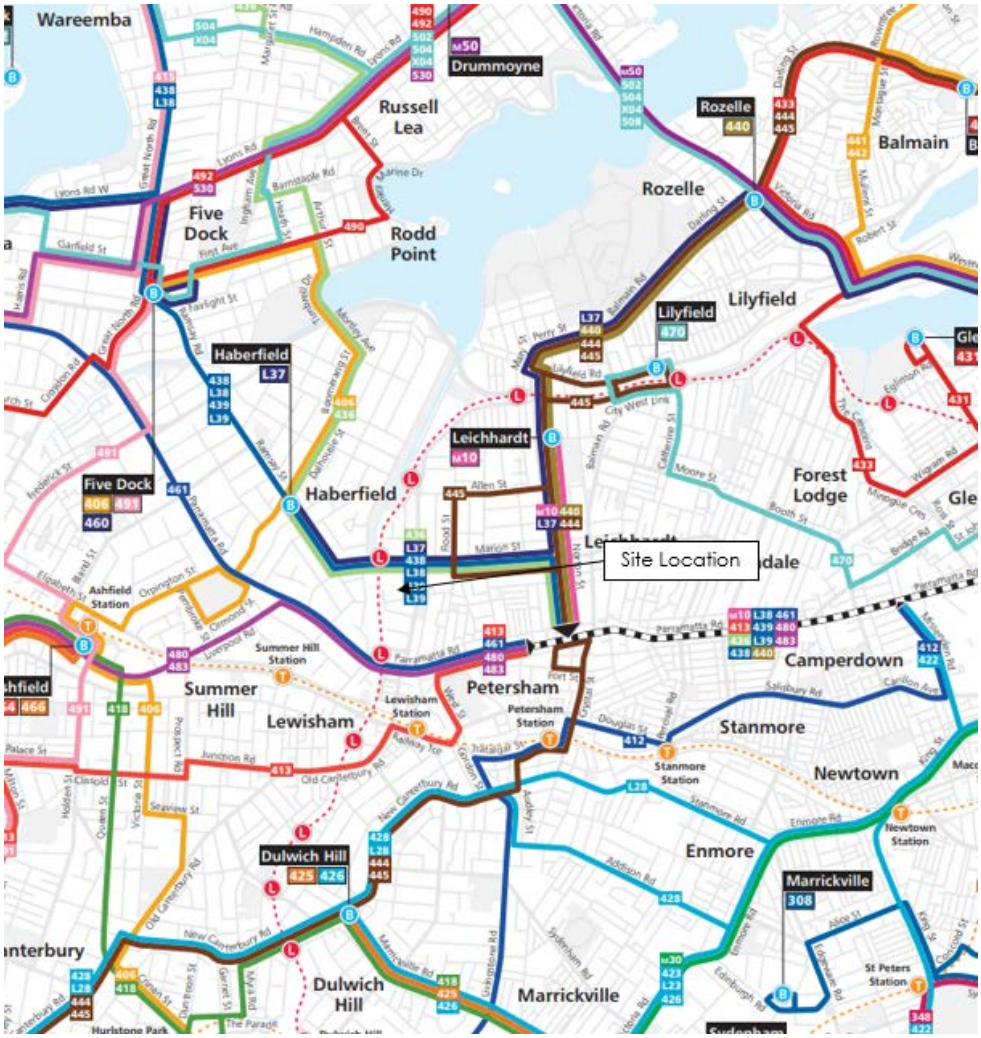
Table 2.3: Existing Bus Service Frequencies and Routes

ROUTE NO.	DESCRIPTION	AM WEEKDAY PEAK (07:00-09:00)	PM WEEKDAY PEAK (16:00-18:00)
370	Leichhardt to Coogee	< 30 minutes	< 15 minutes
413	Campsie to City via Ashbury	< 30 minutes	< 30 minutes
436, 438, 439, 440, L38 & L39	Five Dock and Rozelle to City via Leichhardt	<10 minutes	< 10 minutes
444 and 445	Campsie to Balmain East	< 20 minutes	< 15 minutes
461, 480 & 483	Burwood Strathfield to the Domain	< 10 minutes	< 10 minutes

Source: Parramatta Road Urban Transformation Precinct Transport Report (November 2016)

The existing bus service map surrounding the site is illustrated in Figure 2.4.

Figure 2.4: Existing Bus Network Map



Basemap Source: Transit Systems, Inner West and Southern region network map

2.4 Pedestrian and Cycling Facilities

Well-established pedestrian and cycle facilities are provided within the vicinity of the site.

Sealed pedestrian paths are provided on both sides of Lords Road which provides convenient pedestrian access to properties along Lords Road and retail shops on Flood Street, including the Market Place Leichhardt shopping mall at the corner of Lords Road and Floor Street.

In the immediate vicinity of the site, signalised pedestrian crossings are provided on all legs at the Lords Road-Foster Street-Tebbutt Street intersection to provide a safe, dedicated crossing point. In addition to this, formalised pedestrian (zebra) crossings are provided across Lords Road and Flood Street, to provide pedestrians with priority near the Marker Place Leichardt shopping mall, as shown in Figure 2.5.

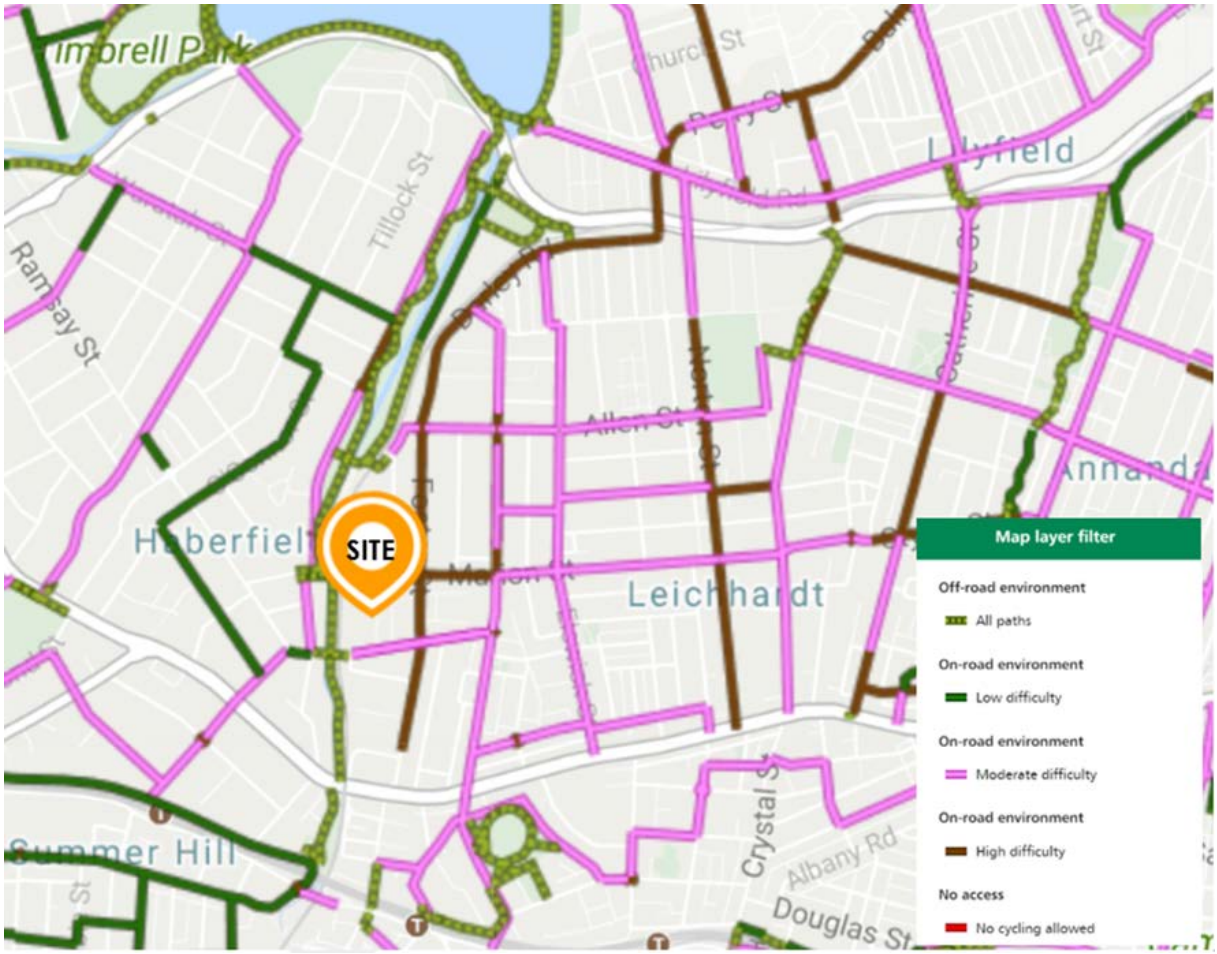
Figure 2.5: Existing Pedestrian (Zebra) Crossings

Source Google Maps Australia (Street View – dated Oct 2017)

Further to this, a well-established cycle network surrounds the site, with a number of on-road and off-road bicycle routes provided near the immediate vicinity of the site. These existing cycle routes provide good cycle connectivity to surrounding suburbs, including Marrickville/Newtown suburbs, which would take about 20 to 30 minutes from the site via bike.

The existing bicycle route map surrounding the site is presented in Figure 2.6.

Figure 2.6: Existing Bicycle Route Map



Source: Roads and Maritime Cycleway Finder (accessed on 09/07/18)

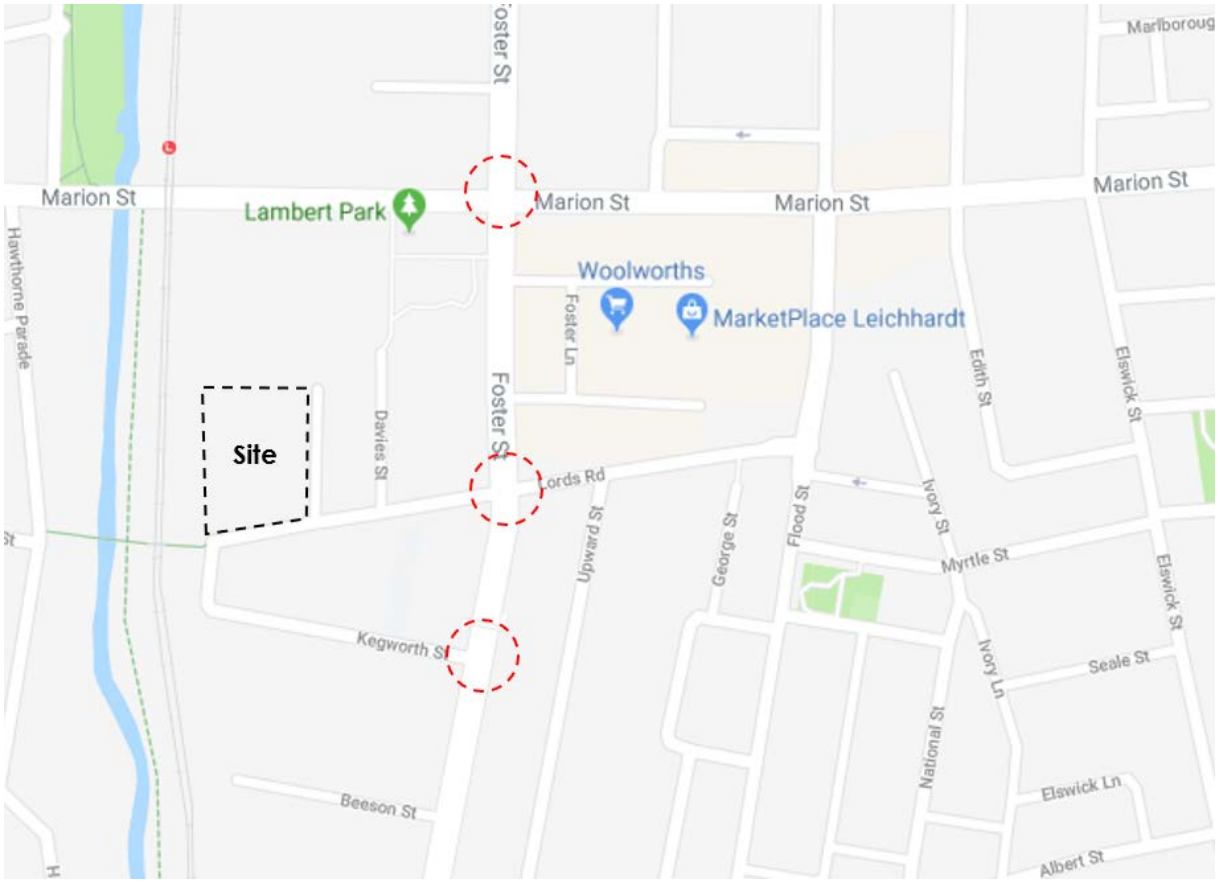
2.5 Traffic Volumes

Traffic surveys have been conducted at the following key nominated intersections:

- Foster Street-Marion Street (signalised intersection)
- Foster Street-Lords Road-Tebbutt Street (signalised intersection), and
- Tebbutt Street-Kegworth Street (priority intersection).

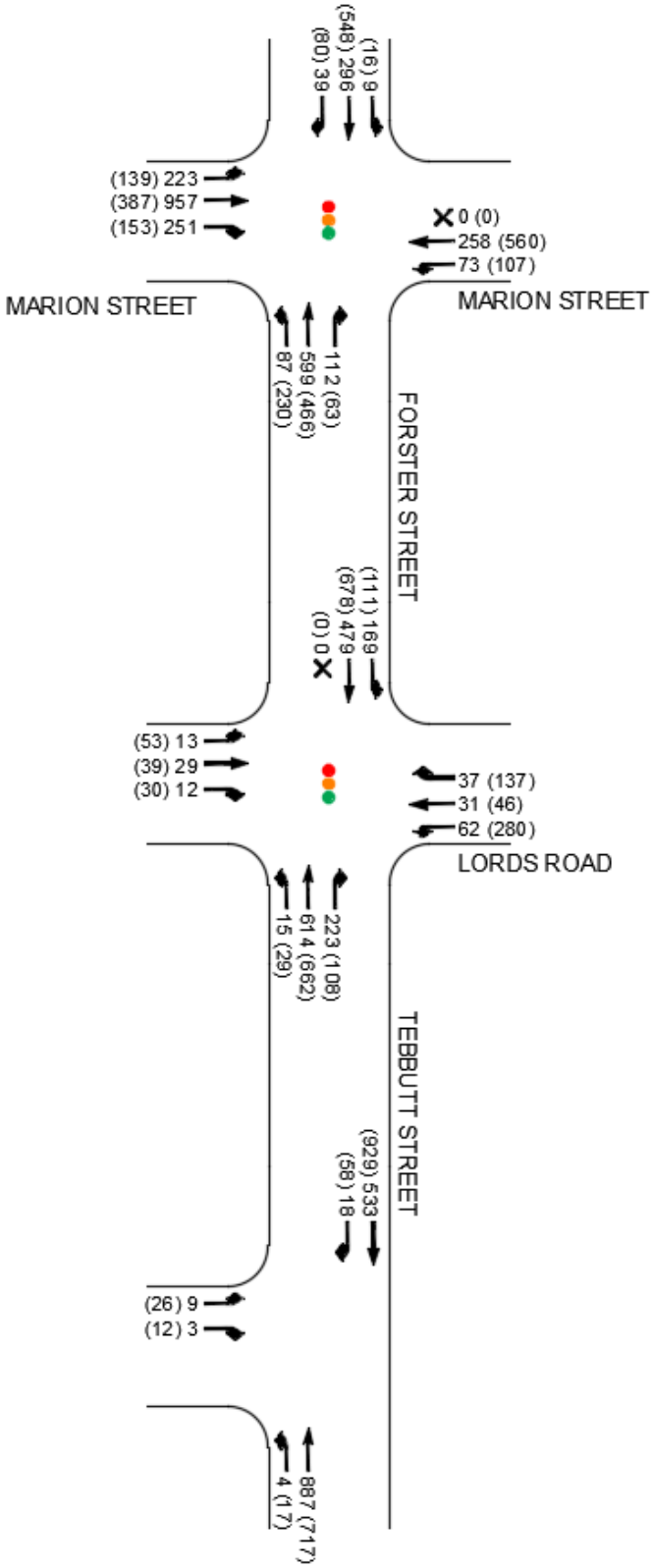
The nominated key intersections are outlined in red in Figure 2.7.

Figure 2.7: Key Nominated Intersections



The peak hour traffic volumes at the key nominated intersections are shown in Figure 2.8.

Figure 2.8: Existing Peak Hour Traffic Volumes



3 Public Transport Capacity

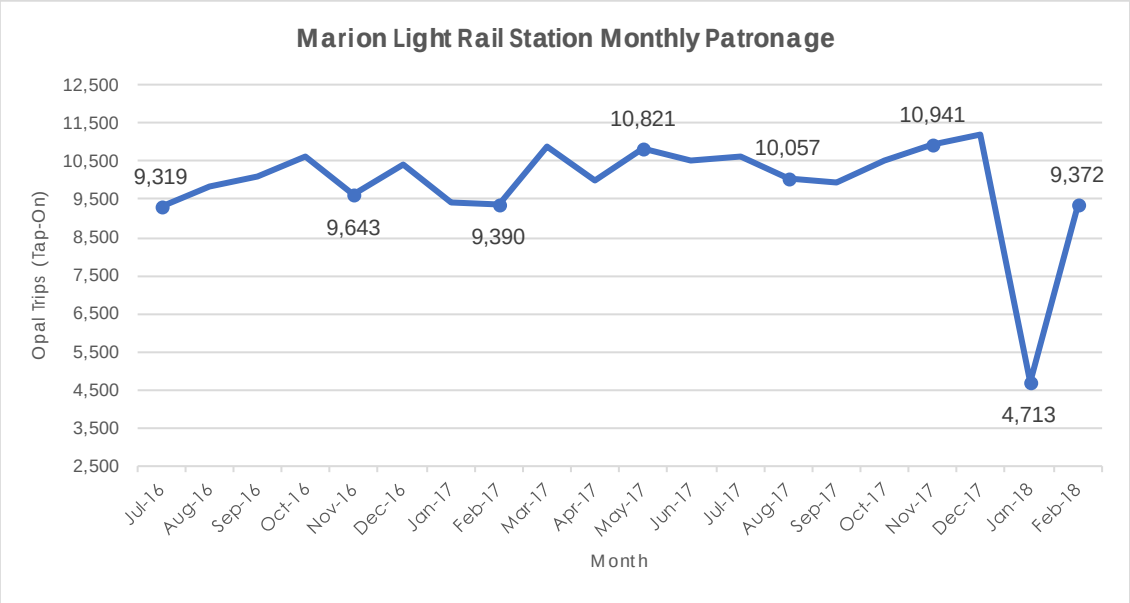
This section contains a review of historical data of existing occupancy figures on public transport facilities, including light rail, bus and ferry services, and household travel survey information obtained from Transport for NSW's Open Data website.

3.1 Light Rail Patronage

The Marion Light Rail station was opened in 2014 and provides good public transport connectivity between Dulwich Hill and Central. The Marion Light Rail station currently services some 10,000 patrons per month and is set to increase in the future based on future development in the area and the future connection to the CBD and South East Light Rail link.

A summary of the existing monthly patronage at the Marion Light Rail station is shown in Figure 3.1.

Figure 3.1: Marion Light Rail Monthly Patronage (July 2016 to February 2018)



Note. A significant portion of the Light Rail line was closed during the month of January to allow for construction work as part of the CBD and South East Light Rail project, resulting in lower number of trips in January.

3.2 Bus Patronage

Bus patronage surveys on Thursday, 24 November 2017 have been obtained to understand existing bus services, frequencies and capacity within the immediate vicinity of the site along the Marion Street corridor.

The bus patronage surveys have been derived from the following three main sources:

- PTIPS – Public Transport Information and Prioritisation System

- Opal
- Bus Fleet Capacity

A summary of the existing bus frequencies at the nearest bus stops located on Marion Street, near Lambert Park is summarised in Table 3.1.

Table 3.1: Summary of Bus Frequencies near the Site

Cordon	AM Period		PM Period	
	7am-8am	8am-9am	4pm-5pm	5pm-6pm
To City	7	12	8	7
From City	6	8	9	10

The above data excludes any other bus stops located on Parramatta Road, which service bus routes 461, 480 and 484 to the City The Domain and Central station suburbs.

Existing bus services along the Marion Road corridor can currently accommodate a total capacity of some 62-112 bus patrons (people) per bus. Based on the bus patronage surveys, existing bus loads within the immediate vicinity of the site currently operate below their capacity, generally with many seats available during peak times.

The bus patronage surveys provide the following bus capacity classifications:

- **MANY_SEATS_AVAILABLE**
  - If occupancy on the bus is less than 50% of the seating capacity (e.g. less than or equal 22 bus patrons)
- **FEW_SEATS_AVAILABLE**
  - If occupancy on the bus is more than 50% of the seating capacity (e.g. more than 22 bus patrons)
- **STANDING_ROOM_ONLY**
  - If occupancy on the bus is more than the seating capacity of the bus (e.g. more than 45 bus patrons)

With the above in mind, the existing bus loadings/capacities at the selected bus stops on Marion Street, near Lambert Park during the AM and PM peak periods are summarised in Figure 3.2 and Figure 3.3.

The following graphs show how many buses currently operate during the peak periods and their associated bus capacity classification.

Figure 3.2: Existing Peak Bus Capacities (Bus Stop 204080) – To City

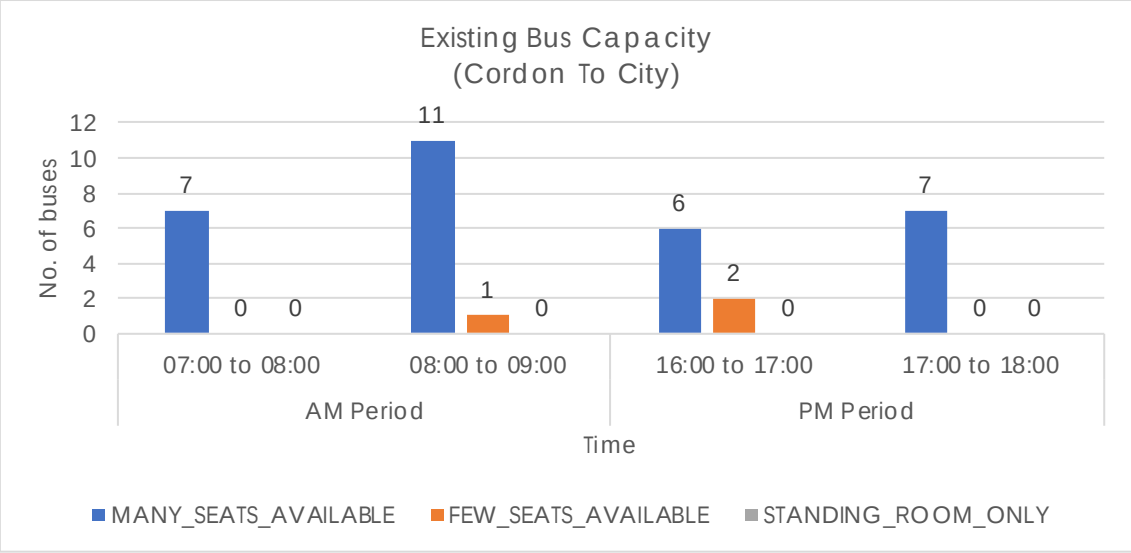
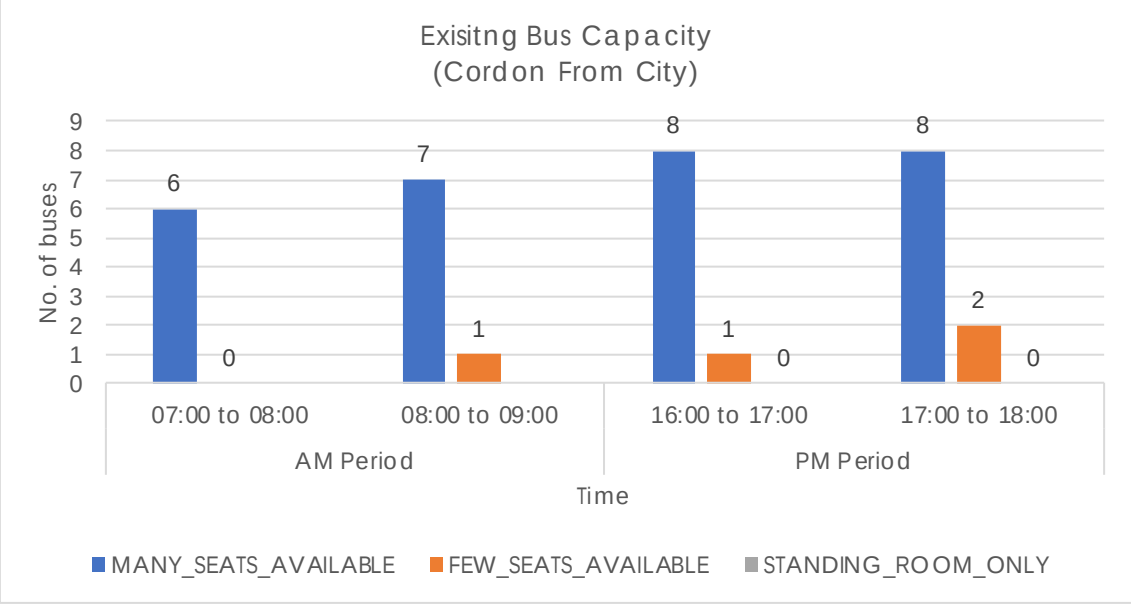


Figure 3.3: Existing Peak Bus Capacities (Bus Stop 204082) – From City



As such, the existing bus facilities within the immediate vicinity of the site currently operate well below its capacity, with spare capacity for any additional bus trips generated by the proposed development site (e.g. residents, visitors, staff etc.).

3.3 Existing Modal Split

Recent 2016 Census data has been obtained to understand existing journey to work trips in the Leichhardt area. Based on this data, 77.5% of working residents travel outside of the area to work, with the majority of residents working in the Sydney CBD or within the Inner West local government area (outside of Leichhardt).

A summary of the existing modal splits in the Leichhardt area is shown in Table 3.2. As a benchmark, the modal splits in the Greater Sydney Region have also been presented in Table 3.2.

Table 3.2: Journey to Work Modal Splits (2016 Census)

Main Method of Travel	Proportion (%)	
	Leichhardt	Greater Sydney Region Benchmark
Train	12%	19%
Bus	22%	7%
Tram or Ferry	5%	0%
Car Driver	48%	62%
Car Passenger	3%	5%
Motorbike / Scooter	2%	1%
Bicycle	3%	1%
Walk	5%	5%
Total	**100%**	**100%**

Table 3.2 indicates that 39% of working residents travel to work via bus, train or tram, with 51% travelling by car (car driver and car passengers). Comparably, within the Greater Sydney region, a total of 67% of working residents travel to work by car.

Given the recent introduction of the new Marion Light Rail stop in 2014 and current journey to work trip patterns in the area, the site is considered to be well serviced by public transport facilities and shows the potential to generate a modal shift away from car modes to more sustainable transport.

As such, it is proposed to provide a green travel plan as part of the proposed development, with green travel plan initiatives intended to be provided prior to the occupation of the site. This is further detailed in Section 8

4 Proposed Development

4.1 Proposal Description

The proposed development involves the construction of a mixed-use development at 67-75 Lords Road, Leichhardt. As noted previously, this planning proposal seeks approval to rezone the site from IN2 Light Industrial to permit mixed-use development.

An indicative masterplan has been prepared by Platino Properties for traffic analysis purposes, with the following mix:

- 235 residential units
  - 15% x studio units (36 units)
  - 26% x 1-bedroom units (60 units)
  - 44% x 2-bedroom units (103 units)
  - 15% x 3-bedroom + units (36 units)
- 3,000m² commercial/employment uses.

Appropriate basement car parking would be provided within the site to facilitate the residential and commercial/employment uses. An assessment of the car parking requirements for the proposed development is provided in Section 5.

In addition to this, as part of the proposed development, there will be opportunities to create a shared space environment within the site, complemented by communal open space, to encourage a vibrant, cohesive environment and social interaction, as well as sustainable transport modes such as walking and cycling.

The proposed masterplan layout is shown in Figure 4.1.

Figure 4.1: Proposed Masterplan

Source: Stewart Hollenstein + Matthew Pullinger Architect

4.2 Community Consultation Outcomes

The Proponent has carried out extensive community consultation for this project to assist with the planning and preparation of the masterplan.

The key concerns identified from the community are as follows:

- increase of traffic resulting from the development on surrounding streets
- safety for children attending Kegworth Primary School
- loss of parking on surrounding streets
- increase in traffic on Davies Lane resulting from traffic passing through the development
- light rail is overcrowded and additional apartments will make things worse.

Based on this, a response to the key community concerns is provided in Table 4.1.

Table 4.1: Summary of Response to Community Concerns

Community Concerns	Response / How addressed
1. Increase of traffic resulting from the development on surrounding streets	The proposed development is expected to result in a modest level of vehicular traffic. In fact, the proposal is anticipated to generate less traffic than the existing use of the site when fully occupied. As such, the resultant traffic impact from the development on surrounding streets is considered negligible from a traffic perspective. The traffic generation estimates and arising impacts are further discussed in Section 6.
2. Safety for children attending Kegworth Primary School	The existing site is currently occupied by light industrial warehouse uses. The proposal will result in less heavy vehicle movements, which is considered desirable particularly given the site's proximity to the Kegworth Primary School. The Proponent will investigate and provide traffic calming measures along Lords Road as required based on further consultation with relevant stakeholders if deemed appropriate.
3. Loss of parking on surrounding streets	Adequate car parking will be provided within the site to cater for the anticipated parking demand of the proposal and consistent with Inner West PRCUTS policies.
4. Increase in traffic on Davies Lane resulting from traffic passing through the development	A shared space environment is proposed within the site to create an open communal area for residents and staff in the building. Minimal traffic is expected along the shared space as the vehicular access to the basement car park is proposed off Lords Road. As such, the resulting traffic expected on Davies Lane will be minimal.
5. Light rail is overcrowded and additional apartments will make things worse.	Advice provided to the Proponent from TfNSW notes that "TfNSW constantly review the patronage for the inner west light rail services and would increase the services if required". This advice is provided in Appendix A. As such, it is envisaged that additional services would be provided to cater for the demand as required. Notably, once the CBD and South East Light Rail is completed, it is envisaged that there may be additional light rail services along the L1 Dulwich Hill line to complement the surrounding light rail network.

5 Parking Assessment

5.1 Car Parking Requirement

The car parking requirements for the proposed development has been assessed with reference to the following three documents:

- Leichhardt Development Control Plan (DCP) 2013
- Roads and Maritime Services Traffic Generation Studies, and
- Parramatta Road Corridor Urban Transformation Strategy (PRCUTS) 2016.

The car parking assessment for the proposed development is detailed below.

5.1.1 Leichhardt DCP 2013

The car parking requirement for various development land uses is set out in Council's DCP. The DCP for the Inner West Local Government Area is yet to be published. Prior to council amalgamations in 2016, the proposed site was located in the Leichhardt Local Government Area. As such, the parking requirements for the site have been assessed against the Leichhardt DCP 2013.

The car parking requirements are set out within *Part C1.11 – Parking in* the DCP. A summary of the car parking requirements arising from the proposal is summarised in Table 5.1.

Table 5.1: Leichhardt DCP 2013 Car Parking Requirements

Land use		Size	DCP Parking Rates	DCP Parking Requirement
Residential	Studio	36	0 to 0.5 spaces per dwelling	0-18 spaces
	1-bed	60	0.333 to 0.5 spaces per dwelling	20-30 spaces
	2-bed	103	0.5 to 1 space per dwelling	52-103 spaces
	3-bed+	36	1 to 1.2 spaces per dwelling	36-43 spaces
	Visitors		0.09 to 0.125 spaces per dwelling	21-29 spaces
	Sub-Total	*235*	-	*129-223 spaces*
Commercial/ community use	-	3,000	Min: 1 space per 100m² of GFA; Max: 1 space per 80m² of GFA	30-38 spaces
Total				**159-261 spaces**

Table 5.1 indicates that the proposed development would require 159-261 car spaces to service the proposed uses, including 129-223 residential spaces and 30-38 commercial spaces. Further to this, car share spaces would also need to be considered and provided in accordance with Council's DCP requirements.

5.1.2 PRCUTS

The site falls within the Taverners Hill Precinct boundary as set out in the PRCUTS document. A summary of the car parking rates as set out in the PRCUTS for the proposed development is provided in Table 5.2.

Table 5.2: PRCUTS Development Parking Requirements

Land use		Size (units/m²)	PRCUTS Parking Rate	PRCUTS Parking Requirement
Residential	Studio	36	0 spaces per dwelling	0
	1-bed	60	0.3 space per dwelling	18
	2-bed	103	0.7 space per dwelling	72
	3-bed or more	36	1 space per dwelling	36
	Visitors		0 space per dwellings	0
	Sub-Total	*235*		*126*
Commercial		3,000	1 space per 150m²	20
Total				**146**

Table 5.2 indicates that the proposed development would require 146 car parking spaces using the above PRCUTS car parking rates.

5.1.3 Roads and Maritime Traffic Generation Studies

For the purpose of estimating the parking requirements arising from the proposed development, the following parking rates have been adopted using the Roads and Maritime Traffic Generation documents:

- residential (sub-metropolitan)
  - 0.6 spaces per 1-bedroom unit
  - 0.9 spaces per 2-bedroom unit
  - 1.4 spaces per 3-bedroom unit
  - 1 space per 5-units (visitor parking)
- commercial/community use:
  - 2.4[1] spaces per 100m²

Using the above metrics, the proposed development would require some 320 car parking spaces, with the following car parking breakdown:

- 201 residential spaces

[1] *This car parking rate is the average maximum parking demand derived from the Roads and Maritime's Trip Generation and Parking Generation Surveys (Office Blocks) Analysis report 2010.*

- 47 residential visitor spaces, and
- 72 commercial spaces.

TOTAL **320 Parking Spaces**

Notably, this car parking requirement is higher than that assessed using the above two approaches (i.e. Council's DCP and PRCUTS). TTPP notes that the future vision for the area will lead to higher levels of local employment, as well as better access to public transport infrastructure and facilities. As such, there may be an opportunity to reduce the car parking rates as set out using the Roads and Maritime rates.

In this regard, it is the intention to satisfy Council's DCP car parking rates for the proposal, which represents a less onerous car parking provision compared to the Roads and Maritime rates. Council's DCP car parking rates are also considered more appropriate to cater for anticipated market and demand of the proposed development uses (i.e. residential and commercial/employment uses).

5.1.4 Summary of Car Parking Assessment

Based on the above car parking assessment and parking codes/guidelines, a car parking provision of 146-320 spaces would be appropriate to serve the proposed development. At this stage, it is envisaged that some 270-310 [this should be 159-261 if we are providing as per DCP rates] car parking spaces could be accommodated within a basement car park, with access off Lords Road.

This car parking provision is considered satisfactory to serve the proposed development based on the above car parking assessment. Further to this, appropriate allocation for car share facilities, bicycle and motorcycle parking spaces would be provided in accordance with relevant parking codes/guidelines.

The car park and associated elements are proposed to be designed in accordance with the design requirements set out in the relevant Australian Standards for car parking facilities.

6 Traffic Generation

6.1 Existing Site Traffic Generation Potential

As indicated previously, the existing site is currently occupied by a number of industrial/warehouse, recreational and commercial tenancies, including a gymnasium, with a combined floor space of 10,000m^2.

Based on the existing use of the site, the existing traffic generation potential of the site has been estimated using the Roads and Maritime suggested traffic generation rates, as shown in Table 6.1

Table 6.1: Existing Site Peak Hour Traffic Generation Potential

Use	Tenancy Breakdown	Area (m^2)	Trip Generation Rate	Trip Generation Potential
Gym	Gymnasium	1,234	9 trips per 100m^2	111 trips
Office/ Community Space	Art School	369	1.69 trips per 100m^2	24 trips
	Pottery classes	165		
	Kung Fu Classes	378		
	Offices	480		
Light Industrial	Factory	369	1 trip per 100m^2	74 trips
	Stage Set Construction	1,905		
	Engineering	369		
	Aluminium framing storage	355		
	Warehouse	370		
	Warehouse	1,239		
	Cardboard Recycling	300		
	Display furniture & furnishings storage	369		
	Market food storage	300		
	Joinery	485		
	Joinery	369		
	Builders storage	185		
	Concrete sealing materials storage	369		
	Manufacturing	369		
Total		**9,979**	**-**	**209 trips**

Table 6.1 indicates that the existing site could generate up to 209 trips during peak periods based on the existing tenancies and use of the site.

Further to this, traffic surveys were carried out in 2013 to record the existing site traffic generation as part of Varga's traffic and parking assessment report dated 15 May 2014 to support the initial planning proposal rezoning application for the site. Based on these surveys, the site (which was not fully occupied at the time of the surveys) generated up to 105 trips during peak periods, as shown in Figure 6.1 and Figure 6.2.

More recently, TTPP commissioned traffic surveys at the existing site access points to record the existing traffic generation of the site between 20 August and 19 August 2018. Based on these traffic surveys, 30 trips (AM Network Peak) 67 trips (AM Site peak) and 110 trips (PM Peak) were recorded to/from the site. This is generally consistent with the traffic generation surveys carried out in 2013 by Varga. Although, it is noted that existing site is still not fully occupied and so, the existing traffic generation potential of the site could be much higher – i.e. up to 209 trips as per above traffic generation estimates.

A summary of the existing 2018 traffic generation of the site is provided in Figure 6.3. It is notable that the peak hour traffic movements at the busiest time of day currently do not coincide with the school drop off and pick up times.

Figure 6.1: Western Site Access Count

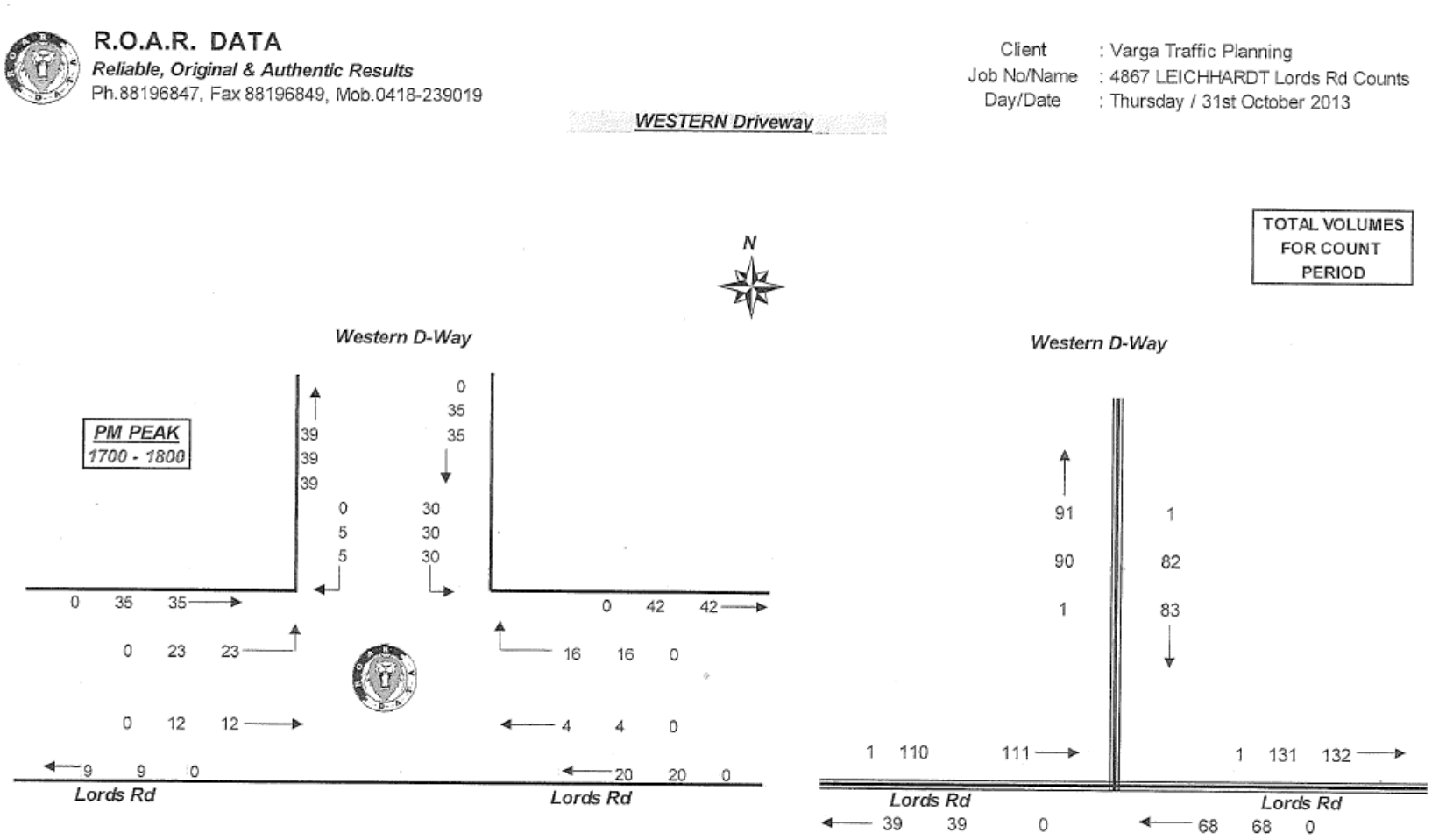


Figure 6.2: Eastern Site Access Count

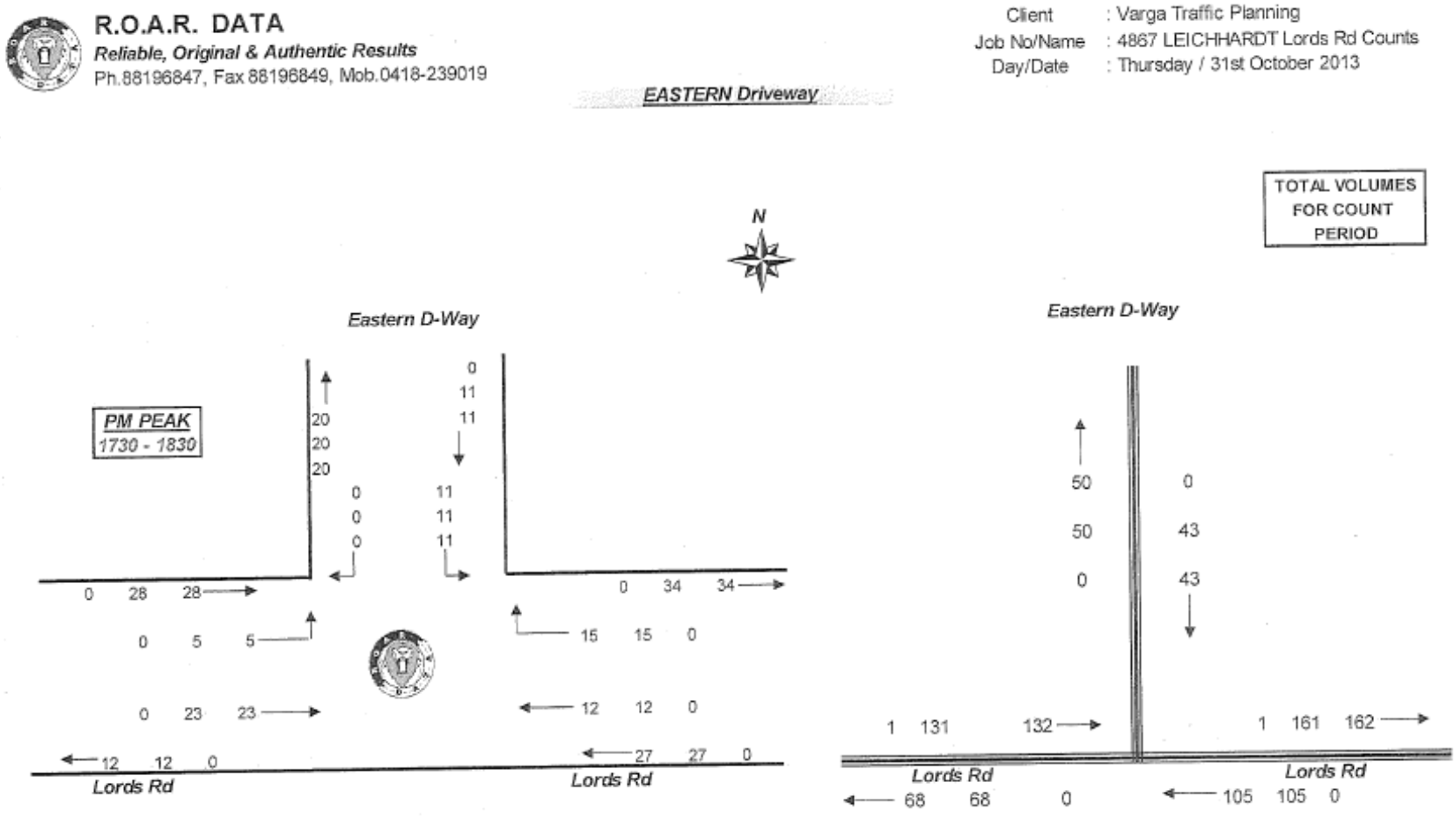
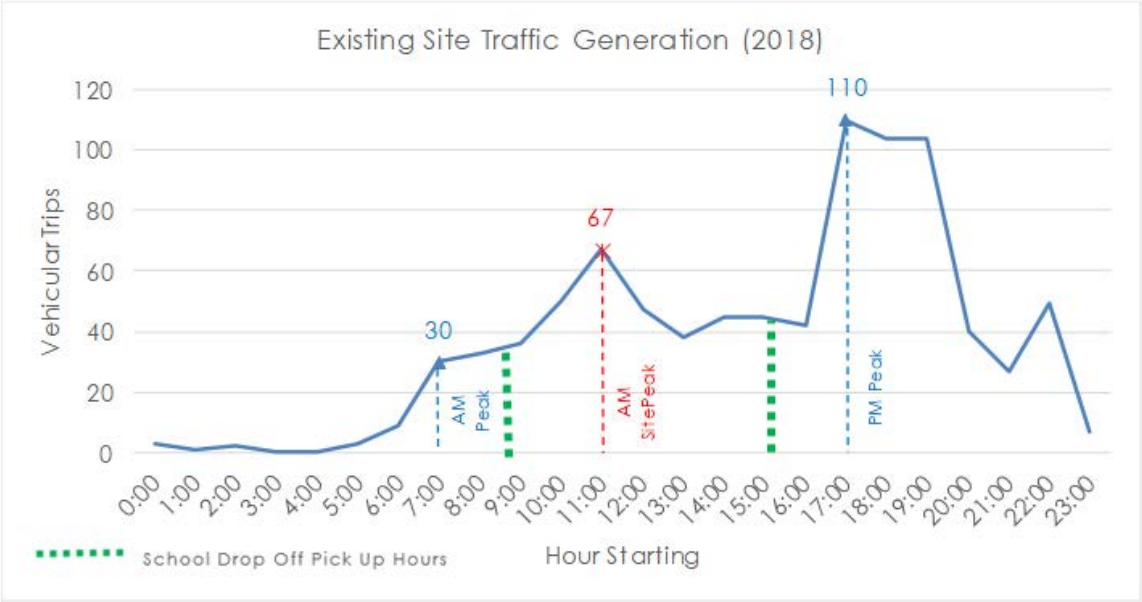


Figure 6.3: 2018 Existing Site Traffic Generation Profile



6.2 Proposed Development Site Traffic Generation Potential

The indicative masterplan for the proposed development is as follows:

- 235 residential units
  - 15% x studio units (36 units)
  - 26% x 1-bedroom units (60 units)
  - 44% x 2-bedroom units (103 units)
  - 15% x 3-bedroom + units (36 units)
- 3,000m² commercial/community use (2,500m² commercial and 500m² community use).

The proposed community use is expected to cater for the local community, including residents and staff from the proposed development site and neighbouring properties. As such, patronage to/from the community use are expected to be predominately walk-in trips, such that a modest level of vehicular traffic would be expected.

However, for the purpose of assessing the traffic generation potential of the community use, the Roads and Maritime suggested traffic generation rates for commercial use has been adopted.

The following traffic generation rates have been adopted:

- residential: 0.19 trips per unit (AM Peak); 0.15 trips per unit (PM Peak)
- commercia/community use: 1.69 trips per 100m² (AM Peak); 1.2 trips per 100m² (PM Peak)

Using the above metric, the proposed development could be expected to generate 95 and 71 trips during the AM and PM Peak respectively.

Notably, as indicated previously, the existing site could generate up to 209 trips during the peak periods based on the existing tenancies and use of the site. Therefore, the proposed development is expected to result in a net reduction of vehicle trips following the completion of the proposed development.

Further to this, it is expected that the proposed development would result in less heavy vehicle movements compared to the existing scenario, which is currently occupied by light industrial/commercial tenancies. As such, from a traffic perspective, the proposed development could not be expected to result in any adverse traffic implications onto the surrounding road network, with consideration to the existing use and traffic generation potential of the site.

However, for the purpose of this traffic assessment, TTPP has conducted a conservative traffic assessment with the existing development traffic based on 2018 traffic surveys (where the site is not fully occupied) deducted from the proposed development traffic.

Under this assessment, the proposed development is expected to result in a net increase of 65 trips in the AM Peak and net reduction of 39 trips in the PM Peak, as shown in Table 6.2. It is pertinent to note that the proposed development is actually expected to result in a net reduction of trips compared to the existing use when fully occupied and as such, this traffic assessment is considered conservative.

Table 6.2: Net Proposed Development Traffic Estimates

Scenario	AM Peak (7am-8am)	PM Peak (5pm-6pm)
2018 Existing Site Traffic Generation	30 vph	110 vph
Proposed Development Traffic	95 vph	71 vph
Net Development Traffic	**65 vph**	**-39 vph**

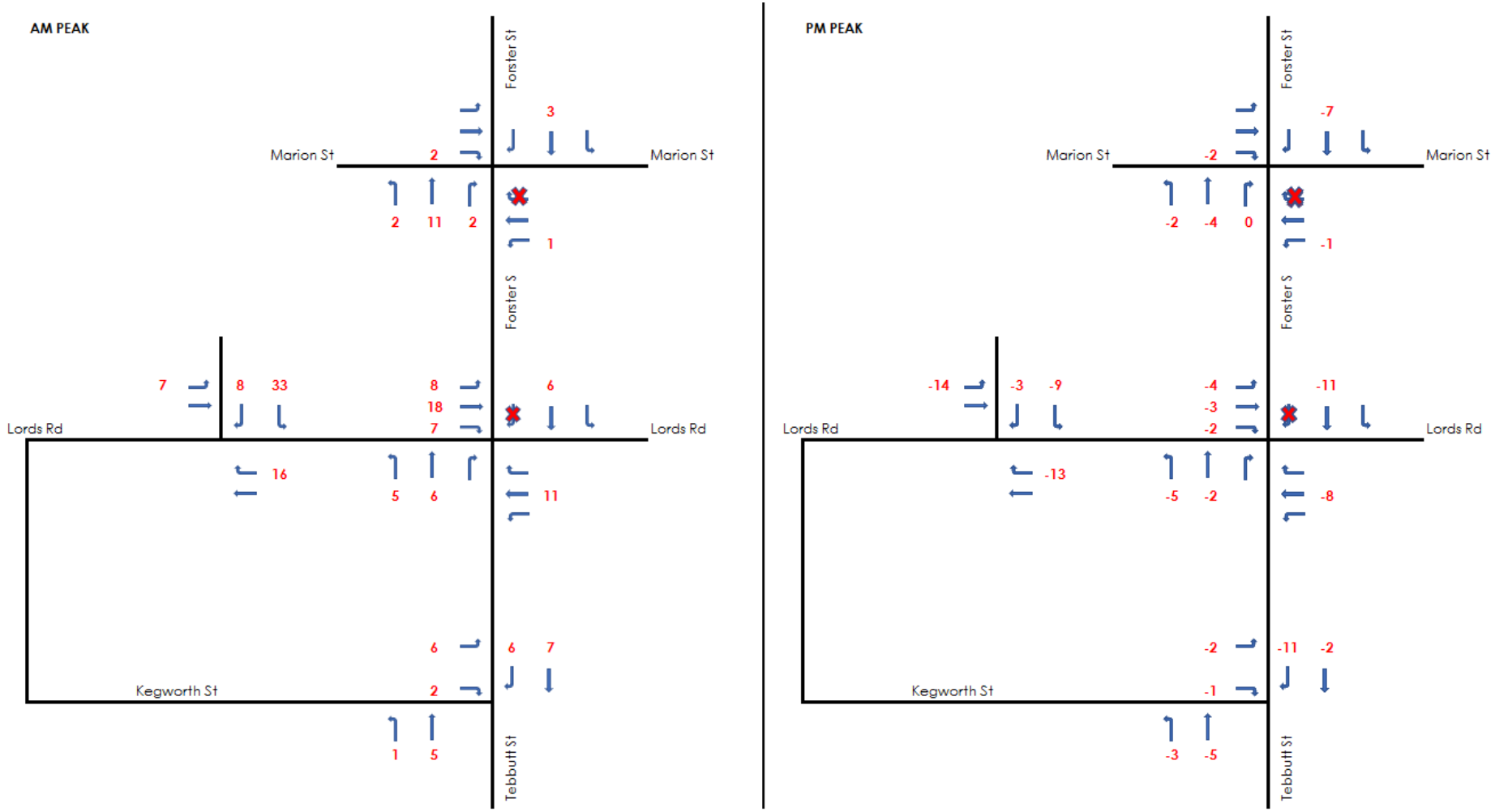
N.B. The AM and PM Peaks have been assessed against the road network peak times based on 2018 traffic surveys. The site's existing AM peak occurs outside of the network peak hours

Notwithstanding this, the following proportions of inbound and outbound trips have been assumed:

- residential: 20% inbound / 80% outbound (AM Peak); 80% inbound / 20% outbound (PM Peak)
- commercial/community use: 80% inbound / 20% outbound (AM Peak); 20% inbound / 80% outbound (PM Peak)

A summary of the development traffic onto the key nominated intersections is shown in Figure 6.4. The full traffic flow diagrams for each scenario are provided in Appendix B.

Figure 6.4: Development Traffic Only



7 Intersection Capacity Analysis

7.1 Overview

Intersection capacity analysis has been conducted on the key nominated intersection (i.e. Marion Road-Foster Street, Foster Street-Lords Road and Tebbutt Street-Kegworth Street intersections) as shown in Figure 2.7 to assess the traffic implications arising from the proposal. Four traffic scenarios have been assessed and are detailed as follows:

- Scenario 1 (S1) – existing base case conditions as presented in Figure 2.8
- Scenario 2 (S3) – S1 above plus the net additional development traffic associated with the proposal (assumes no background growth)
- Scenario 3 (S3) – S1 above plus a 10-year growth factor based on 2026 STM 10-year traffic growth predictions in the area obtained from Roads and Maritime[2], and
- Scenario 4 (S4) – S3 above plus the net additional development traffic associated with the proposal (future case with development).

7.2 Intersection Modelling Criteria

Network intersection capacity analysis has been conducted using SIDRA Intersection 8 modelling software to ascertain the intersection performance at the key nominated intersections surrounding the site.

Roads and Maritime uses the performance measure level of service to define how efficient an intersection is operating under given prevailing traffic conditions. Level of service is directly related to the delays experienced by traffic travelling the intersection. Level of service ranges from LoS A to LoS F. LoS A indicates the intersection is operating with spare capacity, while LoS F indicates the intersection is operating above capacity. LoS D is the long term desirable level of service.

Table 7.1 shows the criteria that SIDRA Intersection adopts in assessing the level of service.

[2] *The 2026 STM 10-year traffic growth predictions in the area obtained from Roads and Maritimes includes the Bay Precinct Urban Renewal, Parramatta Urban Renewal and Stages 2 and 3 of the WestConnex project.*

Table 7.1: Level of Service Criteria for Intersection Operation

Level of Service	Average Delay (seconds per vehicle)	Traffic Signals, Roundabout	Give Way and Stop Signs
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	operating near capacity	near capacity and 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 71	unsatisfactory with excessive queuing	unsatisfactory with excessive queuing; requires other control mode

Source: Roads and Maritime Guide to Traffic Generating Developments, 2002

7.3 Network Intersection Capacity Analysis

The modelling results for the above listed three scenarios are presented in Table 7.2 and Table 7.3 for the morning and evening peak periods, respectively. The full movement summaries are provided in Appendix C.

Table 7.2: AM Peak Analysis Results (7am-8am)

Intersection	Scenario 1 2018 No Dev		Scenario 2 2018 With Dev		Scenario 3 2028 No Dev		Scenario 4 2028 With Dev	
	Ave. Delay (s)	LOS	Ave. Delay (s)	LOS	Ave. Delay (s)	LOS	Ave. Delay (s)	LOS
Marion St-Foster St	58	E	64	E	95	F	101	F
Foster St-Lords Rd-Tebbutt St	39	C	40	C	43	D	43	D
Tebbutt Street-Kegworth Street	30	C	30	C	32	C	34	C

Table 7.3: PM Peak Analysis Results (5pm-7pm)

Intersection	Scenario 1 2018 No Dev		Scenario 2 2018 With Dev		Scenario 3 2028 No Dev		Scenario 4 2028 With Dev	
	Ave. Delay (s)	LOS	Ave. Delay (s)	LOS	Ave. Delay (s)	LOS	Ave. Delay (s)	LOS
Marion St-Foster St	55	D	55	D	74	F	72	F
Foster St-Lords Rd-Tebbutt St	44	D	43	D	52	D	38	C
Tebbutt Street-Kegworth Street	32	C	31	C	36	C	35	C

Under the above traffic assessment, the proposed development is expected to result in a slight increase in the delays experienced at the key nominated intersections in the area during the morning peak. However, in the evening peak, the intersections are expected to operate better in the future scenario. Notwithstanding this, the proposed development is not expected to change the level of service in the existing base year (2018) or the future 10-year horizon (2028) scenario.

In Year 2028, the Marion Street-Foster Street intersection is expected to operate at LoS F, even without the proposed development traffic.

It is pertinent to note that this poor level of intersection is not driven by the proposed development traffic, but rather future background growth in the area alone. As such, intersection improvement works would need to be considered to improve this intersection to address the future traffic deficiencies, irrespective of the proposed development. This work is considered to be well outside the reasonable scope of this study for a single standalone private development.

On this basis, it is concluded that the proposed development is not expected to compromise the existing and future base intersection performance at the key nominated intersections compared to the modelling scenarios without the development (i.e. Scenario 1 and 3).

Further to this, the proposal is expected to improve the overall intersection performance during the evening peak, which is clearly beneficial in terms of its traffic implications on the surrounding road network.

As such, the proposed development is not expected to compromise the future intersection operation within the immediate vicinity of the site, nor result in any significant detriment on the surrounding road network, particularly with consideration to the existing use on the site.

7.4 Future Road Network Upgrades/Works

Based on the PRCUTS, it is understood that a Precinct wide traffic study would be undertaken prior to any rezoning commencing, which would consider the proposed land uses and densities, as well the future WestConnex conditions to identify any necessary road improvements and upgrades that will be required to be delivered as part of any proposed renewal in the Taverners Hill Precinct.

It is envisaged that the outcomes of this Precinct wide traffic study and consequential infrastructure and upgrade works will most likely assist improve the intersection and network performance surrounding the subject site. However, that being said, as indicated above, the proposed development itself is not expected to change the overall level of service at key nominated intersections in the area.

Although, this traffic assessment is quite conservative as the proposed development is projected to result in a net decrease in the total site traffic generation compared to the existing use of the site.

Notwithstanding this, in order to reduce the traffic impact associated with the proposed development in the short-term, a green travel plan is proposed to be implemented to assist manage travel patterns to/from the site, whilst also minimising car trips (particularly single-occupancy car trips). This is further discussed in Section 8.

8 Green Travel Plan

8.1 Overview

The key role of a Green Travel Plan (GTP) is to bring about better transport arrangements to manage travel demands, particularly promoting more sustainable modes of travel, modes which have a low environmental impact such as walking, cycling, public transport and better management of car use.

As part of a GTP, a number of policies and procedures would be put in place at a site to encourage transport choice to and within the site, namely public transport, walking and cycling. These measures would effectively assist in managing the use of private vehicle trips and parking within the area to reduce congestion and cumulative impacts of vehicle emissions upon air quality.

This section provides a framework for the implementation of such a travel plan. The full document is contained at Appendix D.

8.2 Transport Plan Framework

The transport sector is a large contributor of Australia's energy-related greenhouse gas emissions through fossil fuels such as petrol, oil, diesel and gas. Whilst transport is a necessary part of life, the effects could be managed through the implementation of a travel plan.

A GTP is a package of coordinated strategies and measures to promote and encourage sustainable travel, such as walking, cycling and public transport etc. Such plans aim to influence the way people move to/from a business, residential complex or any other organisation to deliver better environmental outcomes and a range of travel choices, whilst also reducing the reliance on private car usage, particularly single occupancy car trips.

The planning of the new development would need to accommodate innovative ideas to better manage the transport demand of the project. It would be necessary to introduce new measures to ensure that trips generated by the proposed development are not solely private car based, particularly single occupancy trips.

8.3 Types of Travel Plans

There are two distinct types of travel plan, these being:

1. To change the travel behaviour at an existing site (i.e. reduction of car use, especially if only used by one person). Such plans would be implemented at large administrational buildings (e.g. hospital or government buildings). This would aim to achieve a modal shift when compared against a stated benchmark. This would include monitoring the plan over a period after opening with more measures introduced if stated objectives were not achieved.
2. To influence the travel behaviour of a site prior to it being occupied. This can include such measures as locating the site next to a railway or light rail station, reducing on-site parking (especially for commercial buildings). Providing information and ensuring the development ties in with the sustainable active travel initiatives outside of the site. This travel plan would aim to achieve a lower car driver mode upon occupation compared with comparable sites. Whilst monitoring and management post occupation might be appropriate if the development is an office building, if it is a residential building there is little scope for a developer to influence travel behaviour post occupation.

The subject site therefore falls into the latter category where the majority of green travel initiatives are provided prior to occupation of the site.

8.4 Green Travel Plan Initiatives

A green travel plan is proposed to be implemented as part of any development approval for the site, with green travel plan initiatives intended to be provided prior to the occupation of the site. These green travel plan initiatives would promote the use of more sustainable modes of travel (i.e. walking, cycling, car share and public transport) and subsequently, reduce vehicle trips to/from the area. Such measures would include (but not limited to):

- Appointment of a Travel Plan Co-ordinator to ensure the ongoing monitoring and evaluation of the plan.
- provision of reduced car parking within the site to limit availability of car parking spaces to reduce car ownership
- creation of high quality pedestrian/shared environments and cycling facilities to encourage cycling and walking
- provide car sharing facilities and promote the availability of such car sharing pods to reduce private car ownership
- provide free opal cards to all residents upon occupation with pre-loaded credit so that travel patterns can be influenced from Day 1
- provision of public transport noticeboards to notify all residents/occupants of the alternate transport options available and a transport access guide for all new occupants

- provision of high quality telecommunication points to reduce the need for travel off-site
- a half yearly newsletter for every resident after occupation to outline the latest news on sustainable travel initiatives in the area.

In fact, such green travel plan initiatives (e.g. provided residents/occupants pre-loaded Opal cards from Day 1 and a welcome pack with public transport information) have been put in place in other similar developments, including Mirvac's Harold Park development, which has resulted in car traffic generation rates being some 50% lower than predicted in the original traffic impact assessment. This is further discussed in Section 8.5.

This site is considered comparable with the Harold Park site due to its proximity to high frequency public transport facilities. The site is located approximately 200m south from the Marion light rail stop, whilst the Harold Park site is located about 400m south from the Jubilee Park light rail stop. Both light rail stops (Marion and Jubilee) services the L1 Dulwich Hill line.

Following the occupation of the Harold Park site with the green travel initiatives in place, the peak hour traffic generation per unit was recorded as being 0.1-0.12 trips per unit based on surveys conducted 3-month post occupation in 2015 and recent surveys conducted this year (2018).

Thus, it is envisaged that the implementation of a green travel plan could reduce trips generated by the development, particularly to target residents and staff within the proposed development site.

8.5 Case Study – Harold Park Green Travel Plan

In 2011, Ken Hollyoak, whilst at Halcrow, was commissioned by Mirvac to complete the transport assessment for the Harold Park Masterplan comprising 1,250 residential apartments, 7,300m^2 of retail floor area and 3,850m^2 of commercial floor area.

As part of the proposed Harold Park Masterplan, a Green Travel Plan was prepared to encourage and promote the future use of transport by residents in a sustainable and environmentally friendly manner. In fact, the following Green Travel Plan initiatives were implemented as part of the proposed development:

- compliance with the stringent parking controls applicable to the site
- creation of street networks and associated cycleways, footpaths and links to encourage cycling and walking
- provision of a Transport Access Guide (TAG) given to every new occupant of the dwelling
- public transport noticeboards within the development to notify all residents and visitors of the alternate transport options available
- provision of free yearly GoOccasional, car share membership for the initial occupation of dwellings to allow two drivers registered per membership

- provision of free weekly light rail and travel ten bus tickets for the initial occupation (N.B. this was updated to pre-loaded Opal cards for Precincts completed post-2015)
- provision of high quality telecommunication points
- provision of bicycle parking spaces for both residents and visitors in accordance with City of Sydney requirements.
- a half yearly newsletter for every household after occupation to outline the latest news on sustainable travel initiatives in the area.

The above listed measures were in place from 'Day One' to establish better transport habits at the start of occupation.

Following this, Ken Hollyoak was appointed as the Travel Plan Co-Ordinator for the Harold Park to develop, implement and monitor the effectiveness of the GTP. Surveys have since been conducted to understand the effectiveness of the Green Travel Plan initiatives.

A summary of the survey data is shown in Table 8.1.

Table 8.1: Summary of Harold Park Post-Occupation Surveys

	Initial Traffic Assessment Report Estimate (2011)	Roads and Maritime Guide TDT2013/04a	3-month Post-Occupation Survey (2015)	Latest Post-Occupation Survey (2018)
Trip Rate	0.29 trips per unit	0.19 trips per unit	0.10 trips per unit	0.12 trips per unit

Table 8.1 indicates that the Harold Park site generates a peak traffic generation rate of 0.12 trips per unit based recent post-occupation surveys. Comparably, this is more than 50% less than what was initially envisaged for the site and 40% less than current suggested traffic generation rates in the Roads and Maritime latest technical direction for Guide to Traffic Generating Developments.

Taking the above into consideration, TTPP notes that there is strong supporting evidence to suggest the effectiveness of Green Travel Plan initiatives to reduce vehicle trips from a development site. However, that being said, it should be noted that the Harold Park site is supported by high frequency public transport facilities and located near key employment areas. On this basis, a site's proximity to public transport facilities and key employment areas/attractions is considered a critical component to assess the effectiveness of Green Travel Plan initiatives.

The subject site benefits from good public transport facilities and a range of land uses within the vicinity of the site The proposed development complements the existing character and future vision for the area. In this regard, the implementation of green travel plan initiatives is expected to result in a similar reduced traffic generation rate compared to the Harold Park development. Consequently, a reduction of vehicle trips would further improve intersection performances of the intersections discussed in Section 7.

9 Conclusions

This report examines the traffic and parking implications of the proposed development at 67-75 Lords Road, Leichhardt. The key findings of this report are presented below.

- The planning proposal seeks to rezone the site from IN2 Light Industrial to permit mixed-use development.
- At this stage, the proposed mixed-use development is envisaged to comprise 235 residential units and 3,000m^2 commercial/community use.
- The proposed car parking provision would be provided in accordance with the relevant parking controls/guidelines, with appropriate allocation provided for bicycle and motorcycle spaces.
- The proposal is expected to generate less traffic than the existing traffic generation potential of the site.
- The existing traffic generation potential of the site is estimated to generate up to 206 trips during peak periods. The proposal is estimated to generate 95 and 71 trips during the AM and PM Peak respectively. This equates to a net decrease of 110-135 trips during peak periods compared to the existing use of the site when fully occupied.
- The proposed development is not expected to change the overall level of service in the future case (without development) scenario at key nominated intersections within the vicinity.
- However, traffic modelling indicates that the Marion Street-Foster Street intersection is forecasted to function above its operational capacity at LoS F in the future, irrespective of the development traffic arising from the proposed site.
- It is pertinent to note that this poor level of intersection at the Marion Street-Foster Street intersection is not driven by the proposed development traffic, but rather future background growth in the area alone.
- As part of PRCUTS, is understood that a Precinct wide traffic study would be undertaken to consider the proposed land uses and densities, as well the future WestConnex conditions to identify any necessary road improvements and upgrades that will be required to be delivered as part of any proposed renewal in the Leichhardt Precinct and Frame Area. It is envisaged that the outcomes of this Precinct wide traffic survey will most likely assist improve the intersection and network performance surrounding the subject site.
- A green travel plan should be implemented as part of the proposed development to facilitate a modal shift towards public transport usage as opposed to car usage, particularly for single-occupancy car trips. This is likely to further reduce traffic generated by the proposal.

Overall, it is concluded that the traffic and parking aspects of the proposed development would be satisfactory.

Appendix A

TfNSW Light Rail Capacity Advice

Our Ref: 00606506

Mr Jack Prail
jack@platino.com.au

Dear Mr Prail

Thank you for your correspondence to the Minister for Transport and Infrastructure about capacity on the Inner West Light Rail. I have been asked to respond to you.

I note your comments and appreciate the reasons that prompted you to write.

As you are aware, the Inner West Light Rail is very popular with customers. You may be assured Transport for NSW regularly reviews patronage, demand and anticipated growth for additional light rail services. I am advised that since July 2015, 185 additional services have been added for peak and inter-peak periods and Saturdays.

You may be interested to know, the Inner West Light Rail between Central and Dulwich Hill will receive an extra 35 services from August 2018. The increased frequency of services will assist in reducing crowding and wait times for customers during peak periods when it is needed most.

I understand that Mr Terry Brown, Director of Rail Services Contracts at Transport for NSW contacted you on 3 August 2018. He informed you that your queries about rapid bus and Parramatta road upgrades were referred to the Land Use Planning & Development area. I also understand that a meeting was arranged for 17 August 2018 with Mr Billy Yung, Senior Transport Planner, and Mr Mark Ozinga, Principal Manager of Land Use Planning & Development, to discuss your queries.

Thank you for taking the time to write.

Yours sincerely

22/8/2018

Terry McSweeney
Principal Manager, Ministerial & Government Services
Customer Relations & Government Services

George Revay

Subject: FW: Transport NSW Leichhardt Light Rail Services
Attachments: image004.jpg; image001.jpg; image004.jpg

From: Sangar, Para [mailto:Para.Sangar@transport.nsw.gov.au]
Sent: Monday, 9 July 2018 2:53 PM
To: Jack Prail <jack@platino.com.au>
Cc: Ozinga, Mark <Mark.Ozinga@transport.nsw.gov.au>; Brown, Terry <Terry.Brown@transport.nsw.gov.au>
Subject: RE: Leichhardt Light Rail Services

Hi Jack

As discussed this morning, TfNSW would constantly review the patronage for the inner west light rail services and would increase the services if required.

Should you have any further queries, please contact me.

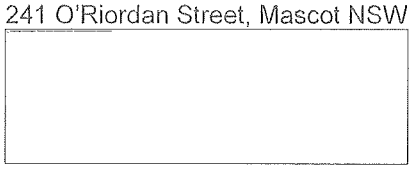
Regards

Para

Para Sangar
Senior Transport Planner
Freight, Strategy and Planning

Transport for NSW

T 0466 024 892
241 O'Riordan Street, Mascot NSW 2020



SENSITIVE: NSW GOVERNMENT

From: Jack Prail [mailto:jack@platino.com.au]
Sent: Monday, 9 July 2018 2:49 PM
To: Sangar, Para
Cc: Paula Mottek; George Revay
Subject: RE: Leichhardt Light Rail Services

Dear Para,

Thanks again for speaking with me this morning.

RE: Leichhardt Light Rail Services

I refer to the above matter and to our previous correspondence with you.

Platino Properties is currently preparing a planning proposal to rezone land within 250m of the Marion Street light rail station at 67-73 Lords Road,Leichhardt, in accordance with the Parramatta Road Corridor Urban Transformation Strategy.

One of the requirements of the planning proposal is that an "Out of Sequence Checklist" is completed to demonstrate that, among other things, appropriate services are available to accommodate the future development of the site to provide for residential apartments.

As part of the checklist, we are seeking confirmation from Transport for New South Wales (TfNSW) to the effect that:

- the Marion Street light rail will be capable of servicing the rise in passengers generated by a 230-unit apartment development; or

-that additional cars could be added to the light rail system if required.

For this purpose, can you please confirm that TfNSW undertakes annual monitoring of the light rail capacity, and is able to re-evaluate the services needed to satisfy demand, increasing the number of cars where necessary?

I thank you in advance for your assistance in this matter. Please do not hesitate to contact me if you require any further information.

Sincerely,

Regards,

Jack Prail

Assistant Development Manager

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D: 02 8968 1934

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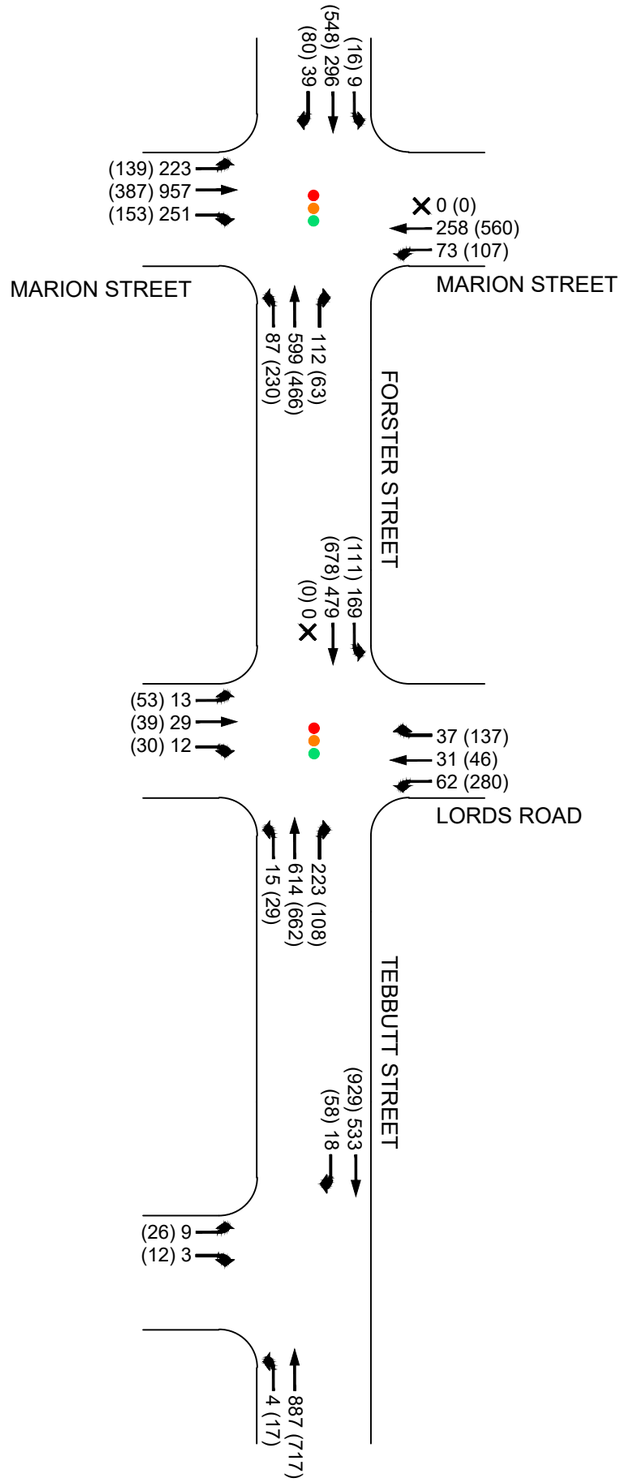
Appendix B

Traffic Flow Diagrams

2018 EXISTING BASE
ROAD NETWORK PEAK VOLUMES
10 (10) = AM (PM)



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	JS	WJ	31/08/18

The Transport Planning Partnership
Suite 604, 203 Pitt Town Street
St. Leonards NSW 2065
Tel: 02 9437 7800
Email: info@tpp.net.au

PROJECT: 67-73 LORDS ROAD, LEICHHAARDT

TITLE: TRAFFIC NETWORK DIAGRAM

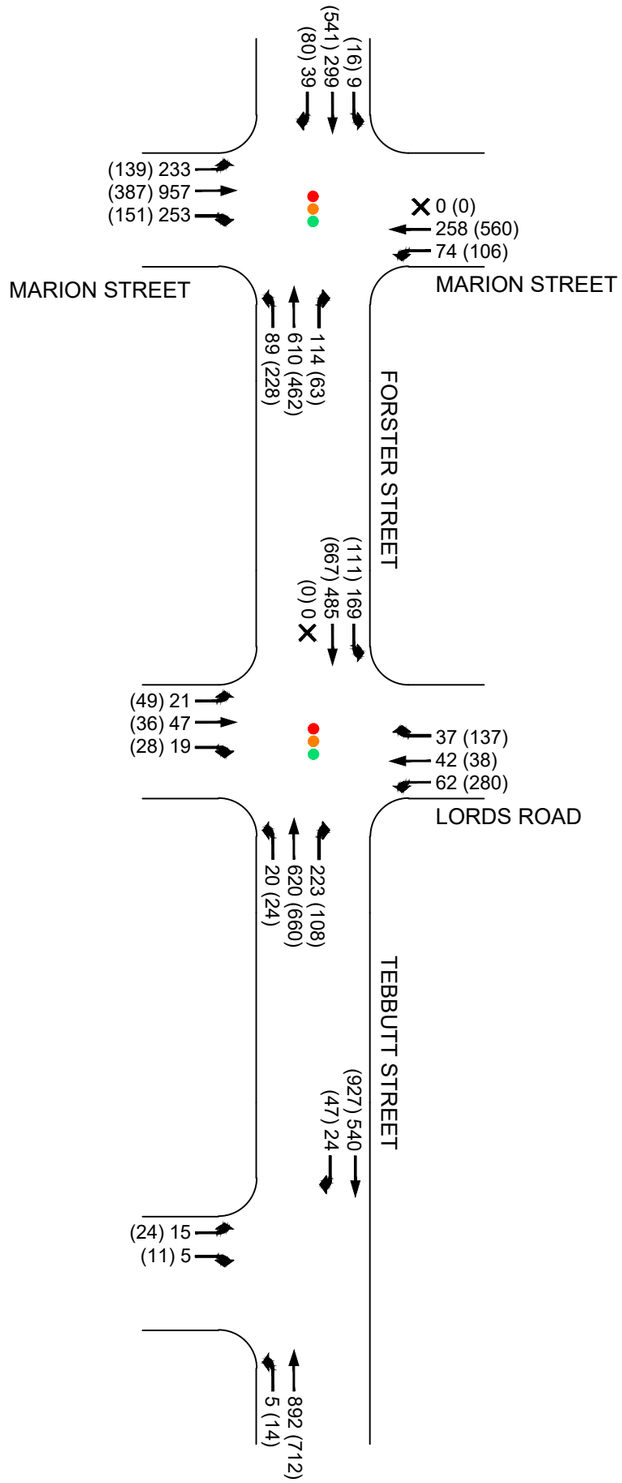
DWG No.: FIGURE 1

DATE STAMP: 31 AUGUST 2018

PROJECT No.	SCALE	REV.
18145	NTS	A

Filename: 18145CAD01-TRAFFIC NETWORK DIAGRAM-180831.dwg Date: 31 August 2018 By: Kurt magistrado

2018 FUTURE CASE
ROAD NETWORK PEAK VOLUMES
10 (10) = AM (PM)



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	JS	WJ	31/08/18

The Transport Planning Partnership
Suite 403, 203 Pitt Town Street
St. Leonards NSW 2065
Tel: 02 9437 7800
E-mail: info@tpp.net.au

PROJECT: 67-73 LORDS ROAD, LEICHHAARDT

TITLE: TRAFFIC NETWORK DIAGRAM

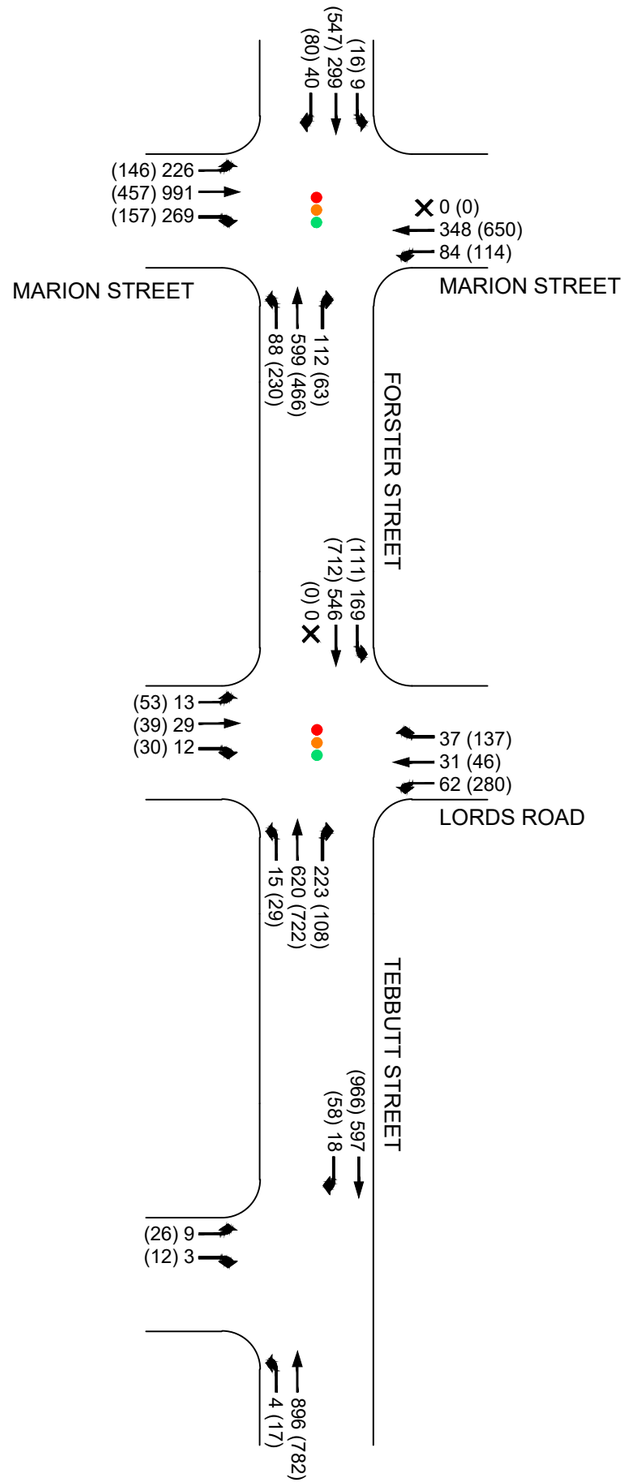
DWG No.: FIGURE 2

DATE STAMP: 31 AUGUST 2018

PROJECT No.: 18145 | SCALE: NTS | REV.: A

Filename: 18145CAD01-TRAFFIC NETWORK DIAGRAM-180831.dwg Date: 31 August 2018 By: Karl.magistrado

2028 FUTURE BASE
ROAD NETWORK PEAK VOLUMES
10 (10) = AM (PM)



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	JS	WJ	31/08/18

The Transport Planning Partnership
Suite 403, 225 Miller Street
St. Leonards NSW 2065
Tel: 02 9437 7800
Email: info@tpp.net.au

PROJECT: 67-73 LORDS ROAD, LEICHHAARDT

TITLE: TRAFFIC NETWORK DIAGRAM

DWG No.: FIGURE 3

DATE STAMP: 31 AUGUST 2018

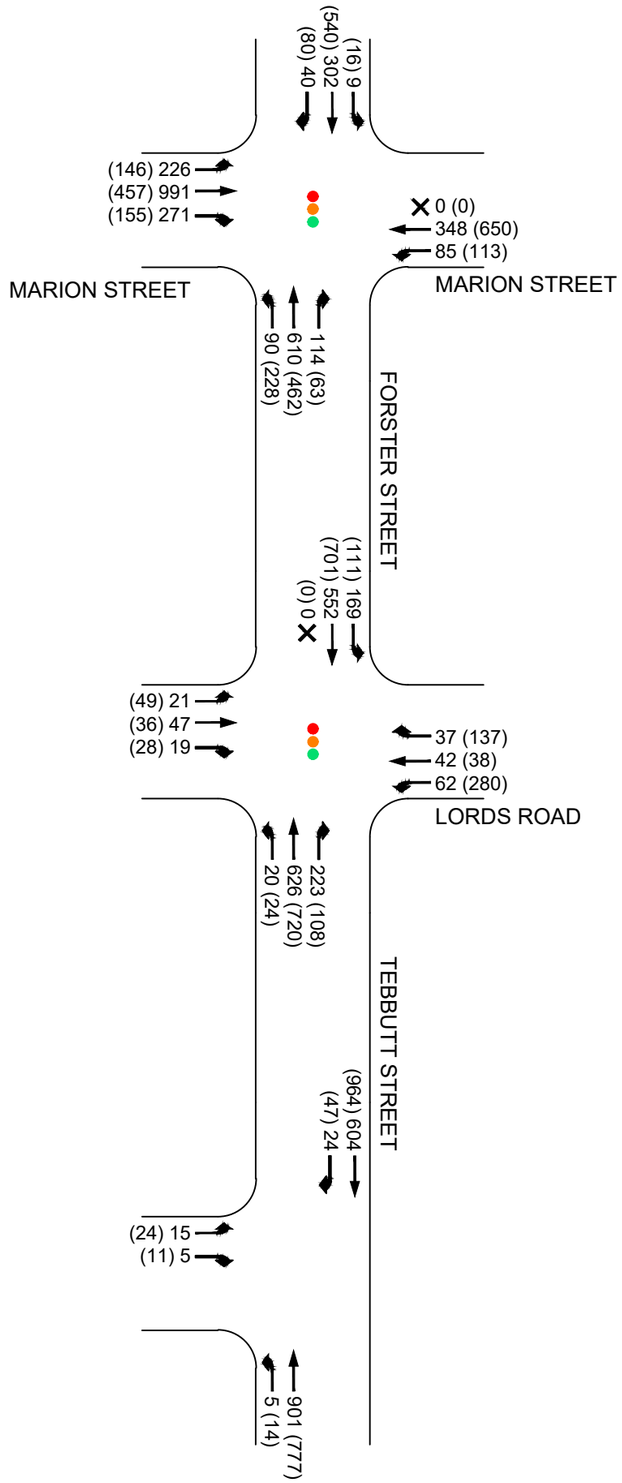
PROJECT No.: 18145

SCALE: NTS

REV.: A

Filename: 18145CAD01-TRAFFIC NETWORK DIAGRAM-180831.dwg Date: 31 August 2018 By: Karl.magistrado

2028 FUTURE CASE
ROAD NETWORK PEAK VOLUMES
10 (10) = AM (PM)



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	JS	WJ	31/08/18

The Transport Planning Partnership
Suite 403, 203 Pacific Highway
St. Leonards NSW 2065
Tel: 02 9437 7800
Email: info@tpp.net.au

PROJECT: 67-73 LORDS ROAD, LEICHHAARDT

TITLE: TRAFFIC NETWORK DIAGRAM

DWG No.: FIGURE 4

DATE STAMP: 31 AUGUST 2018

PROJECT No.: 18145 | SCALE: NTS | REV.: A

Filename: 18145CAD01-TRAFFIC NETWORK DIAGRAM-180831.dwg Date: 31 August 2018 By: Karl.magistrado

Appendix C

Movement Summaries

ttpp
transport planning

Year 2018 Scenario

MOVEMENT SUMMARY

Site: 1 [1. Marion St/Foster St EX AM]

Network: N100 [1A. EX - AM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2018 Existing Base
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Foster Street														
1	L2	92	3.4	92	3.4	0.972	69.4	LOS E	43.7	310.1	0.95	1.22	1.43	16.6
2	T1	631	1.2	631	1.2	0.972	65.6	LOS E	43.7	310.1	0.95	1.22	1.46	19.8
3	R2	118	0.0	118	0.0	0.972	80.2	LOS F	11.0	77.4	1.00	1.17	1.69	14.1
Approach		840	1.3	840	1.3	0.972	68.1	LOS E	43.7	310.1	0.96	1.21	1.49	18.7
East: Marion Road														
4	L2	77	6.8	77	6.8	0.117	26.8	LOS B	2.5	18.2	0.69	0.71	0.69	19.9
5	T1	272	3.1	272	3.1	0.376	20.2	LOS B	8.7	62.8	0.71	0.60	0.71	31.9
Approach		348	3.9	348	3.9	0.376	21.7	LOS B	8.7	62.8	0.70	0.63	0.70	29.7
North: Foster Street														
7	L2	9	0.0	9	0.0	0.219	24.3	LOS B	5.4	38.2	0.68	0.57	0.68	34.6
8	T1	312	1.7	312	1.7	0.671	31.3	LOS C	9.0	64.2	0.82	0.70	0.85	24.2
9	R2	41	2.6	41	2.6	0.671	48.7	LOS D	9.0	64.2	0.99	0.85	1.04	25.5
Approach		362	1.7	362	1.7	0.671	33.1	LOS C	9.0	64.2	0.84	0.72	0.87	24.7
West: Marion Road														
10	L2	235	0.0	235	0.0	0.991	64.4	LOS E	64.5	459.2	1.00	1.23	1.43	21.9
11	T1	1007	2.6	1007	2.6	0.991	64.1	LOS E	64.5	459.2	1.00	1.24	1.49	17.6
12	R2	264	1.2	264	1.2	0.991	77.3	LOS F	42.8	304.5	1.00	1.27	1.60	10.2
Approach		1506	2.0	1506	2.0	0.991	66.4	LOS E	64.5	459.2	1.00	1.24	1.50	17.1
All Vehicles		3057	2.0	3057	2.0	0.991	57.8	LOS E	64.5	459.2	0.94	1.10	1.33	19.1

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

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: 2 [2. Foster St/Lords St/Tebbutt St EX AM]

Network: N100 [1A. EX - AM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2018 Existing Base
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival 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: Tebbutt Street														
1	L2	16	0.0	16	0.0	0.293	9.5	LOS A	6.8	47.6	0.37	0.34	0.37	41.1
2	T1	646	0.3	646	0.3	1.024	43.3	LOS D	44.1	310.3	0.61	0.77	0.95	16.9
3	R2	235	0.9	235	0.9	1.024	109.0	LOS F	44.1	310.3	1.00	1.45	1.88	12.4
Approach		897	0.5	897	0.5	1.024	59.9	LOS E	44.1	310.3	0.71	0.94	1.18	15.1
East: Lords Road														
4	L2	65	3.2	65	3.2	0.156	37.9	LOS C	2.6	18.4	0.84	0.73	0.84	14.0
5	T1	33	0.0	33	0.0	0.393	41.0	LOS C	3.2	22.7	0.92	0.75	0.92	12.7
6	R2	39	0.0	39	0.0	0.393	45.5	LOS D	3.2	22.7	0.92	0.75	0.92	12.7
Approach		137	1.5	137	1.5	0.393	40.8	LOS C	3.2	22.7	0.88	0.74	0.88	13.3
North: Foster Street														
7	L2	178	4.1	178	4.1	0.286	15.1	LOS B	8.3	59.2	0.57	0.62	0.57	33.7
8	T1	504	0.8	504	0.8	0.286	8.7	LOS A	8.3	59.2	0.49	0.47	0.49	30.6
Approach		682	1.7	682	1.7	0.286	10.4	LOS A	8.3	59.2	0.51	0.51	0.51	31.8
West: Lords Road														
10	L2	14	0.0	14	0.0	0.053	45.2	LOS D	0.6	4.1	0.89	0.68	0.89	20.8
11	T1	31	0.0	31	0.0	0.139	37.8	LOS C	1.8	12.6	0.88	0.68	0.88	27.0
12	R2	13	0.0	13	0.0	0.139	42.3	LOS C	1.8	12.6	0.88	0.68	0.88	22.6
Approach		57	0.0	57	0.0	0.139	40.6	LOS C	1.8	12.6	0.88	0.68	0.88	24.7
All Vehicles		1773	1.0	1773	1.0	1.024	38.8	LOS C	44.1	310.3	0.65	0.75	0.89	18.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

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: 3 [3. Tebbutt St/Kegworth St EX AM]

Network: N100 [1A. EX - AM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2018 Existing Base
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival 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: Tebbutt Street														
1	L2	4	0.0	4	0.0	0.002	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	38.6
2	T1	934	0.3	934	0.3	0.480	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		938	0.3	938	0.3	0.480	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
North: Tebbutt Street														
8	T1	561	1.1	561	1.1	0.282	1.2	LOS A	0.8	5.7	0.13	0.02	0.15	47.9
9	R2	19	0.0	19	0.0	0.282	16.1	LOS B	0.8	5.7	0.16	0.03	0.19	45.9
Approach		580	1.1	580	1.1	0.282	1.7	NA	0.8	5.7	0.13	0.02	0.15	47.8
West: Kegworth Street														
10	L2	9	0.0	9	0.0	0.020	10.3	LOS A	0.1	0.4	0.68	0.81	0.68	37.9
12	R2	3	0.0	3	0.0	0.023	29.5	LOS C	0.1	0.4	0.89	0.95	0.89	30.3
Approach		13	0.0	13	0.0	0.023	15.1	LOS B	0.1	0.4	0.74	0.85	0.74	35.0
All Vehicles		1531	0.6	1531	0.6	0.480	0.8	NA	0.8	5.7	0.05	0.02	0.06	48.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: 1 [1. Marion St/Foster St PD AM (2018)] **Network: N101 [1B. Ex_PD - AM]**

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2018 Future Case
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival 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: Foster Street														
1	L2	94	3.4	94	3.4	0.965	66.2	LOS E	43.8	310.1	0.94	1.19	1.39	17.1
2	T1	642	1.1	642	1.1	0.965	62.6	LOS E	43.8	310.1	0.94	1.19	1.42	20.4
3	R2	120	0.0	120	0.0	0.965	77.6	LOS F	11.5	80.5	1.00	1.16	1.64	14.5
Approach		856	1.2	856	1.2	0.965	65.1	LOS E	43.8	310.1	0.95	1.18	1.45	19.2
East: Marion Road														
4	L2	78	6.8	78	6.8	0.122	27.5	LOS B	2.5	18.7	0.70	0.71	0.70	19.6
5	T1	272	3.1	272	3.1	0.387	21.0	LOS B	8.9	64.0	0.72	0.61	0.72	31.5
Approach		349	3.9	349	3.9	0.387	22.4	LOS B	8.9	64.0	0.72	0.63	0.72	29.3
North: Foster Street														
7	L2	9	0.0	9	0.0	0.212	23.6	LOS B	5.2	37.2	0.66	0.56	0.66	35.0
8	T1	315	1.7	315	1.7	0.650	30.5	LOS C	9.1	64.7	0.82	0.69	0.83	24.6
9	R2	41	2.6	41	2.6	0.650	47.4	LOS D	9.1	64.7	0.98	0.83	1.01	25.9
Approach		365	1.7	365	1.7	0.650	32.2	LOS C	9.1	64.7	0.83	0.70	0.85	25.1
West: Marion Road														
10	L2	235	0.0	235	0.0	1.017	80.1	LOS F	71.5	508.8	1.00	1.33	1.57	19.1
11	T1	1007	2.6	1007	2.6	1.017	78.8	LOS F	71.5	508.8	1.00	1.33	1.61	15.1
12	R2	266	1.2	266	1.2	1.017	90.3	LOS F	46.3	329.6	1.00	1.34	1.71	8.5
Approach		1508	2.0	1508	2.0	1.017	81.0	LOS F	71.5	508.8	1.00	1.33	1.62	14.6
All Vehicles		3079	1.9	3079	1.9	1.017	64.2	LOS E	71.5	508.8	0.93	1.14	1.38	17.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

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: 2 [2. Foster St/Lords St/Tebbutt St PD AM (2018)] **Network: N101 [1B. Ex_PD - AM]**

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2018 Future Case
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival 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: Tebbutt Street														
1	L2	21	0.0	21	0.0	0.294	9.5	LOS A	6.8	47.7	0.37	0.34	0.37	41.0
2	T1	653	0.3	653	0.3	1.028	45.3	LOS D	45.3	318.5	0.62	0.79	0.98	16.3
3	R2	235	0.9	235	0.9	1.028	110.7	LOS F	45.3	318.5	1.00	1.47	1.90	12.2
Approach		908	0.5	908	0.5	1.028	61.3	LOS E	45.3	318.5	0.71	0.96	1.20	14.8
East: Lords Road														
4	L2	65	3.2	65	3.2	0.144	36.1	LOS C	2.5	17.9	0.81	0.73	0.81	14.5
5	T1	44	0.0	44	0.0	0.430	42.0	LOS C	3.8	26.7	0.94	0.76	0.94	12.6
6	R2	39	0.0	39	0.0	0.430	46.6	LOS D	3.8	26.7	0.94	0.76	0.94	12.6
Approach		148	1.4	148	1.4	0.430	40.6	LOS C	3.8	26.7	0.88	0.75	0.88	13.4
North: Foster Street														
7	L2	178	4.1	177	4.2	0.296	16.3	LOS B	8.8	62.8	0.61	0.64	0.61	32.8
8	T1	511	0.8	507	0.8	0.296	9.8	LOS A	8.8	62.8	0.55	0.51	0.55	29.3
Approach		688	1.7	684 N1	1.7	0.296	11.5	LOS A	8.8	62.8	0.56	0.55	0.56	30.6
West: Lords Road														
10	L2	22	0.0	22	0.0	0.085	45.6	LOS D	1.0	6.7	0.90	0.70	0.90	20.7
11	T1	49	0.0	49	0.0	0.234	39.6	LOS C	3.0	21.0	0.90	0.72	0.90	26.4
12	R2	20	0.0	20	0.0	0.234	44.2	LOS D	3.0	21.0	0.90	0.72	0.90	22.0
Approach		92	0.0	91 N1	0.0	0.234	42.0	LOS C	3.0	21.0	0.90	0.71	0.90	24.2
All Vehicles		1837	1.0	1832 N1	1.0	1.028	40.1	LOS C	45.3	318.5	0.68	0.77	0.92	18.0

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

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

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	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

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.

MOVEMENT SUMMARY

Site: 3 [3. Tebbutt St/Kegworth St PD AM (2018)]

Network: N101 [1B. Ex_PD - AM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2018 Future Case
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Tebbutt Street														
1	L2	5	0.0	5	0.0	0.003	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	38.6
2	T1	939	0.3	939	0.3	0.483	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		944	0.3	944	0.3	0.483	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
North: Tebbutt Street														
8	T1	568	1.1	565	1.1	0.297	1.6	LOS A	1.1	7.5	0.16	0.03	0.20	47.2
9	R2	25	0.0	25	0.0	0.297	16.4	LOS B	1.1	7.5	0.20	0.03	0.25	44.7
Approach		594	1.1	590 N1	1.1	0.297	2.2	NA	1.1	7.5	0.16	0.03	0.20	47.2
West: Kegworth Street														
10	L2	16	0.0	16	0.0	0.033	10.4	LOS A	0.1	0.6	0.69	0.85	0.69	37.7
12	R2	5	0.0	5	0.0	0.039	30.2	LOS C	0.1	0.7	0.90	0.95	0.90	30.0
Approach		21	0.0	21	0.0	0.039	15.4	LOS B	0.1	0.7	0.74	0.88	0.74	34.8
All Vehicles		1559	0.6	1556 N1	0.6	0.483	1.1	NA	1.1	7.5	0.07	0.02	0.09	47.8

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

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

MOVEMENT SUMMARY

Site: 5 [2. Foster St/Lords St/Tebbutt St EX PM]

Network: N200 [2A. Ex - PM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2018 Existing Base
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Tebbutt Street														
1	L2	31	0.0	31	0.0	0.282	7.7	LOS A	2.9	20.6	0.16	0.18	0.16	43.4
2	T1	697	0.6	697	0.6	0.986	41.2	LOS C	36.9	259.6	0.60	0.80	0.96	17.9
3	R2	114	0.9	114	0.9	0.986	80.3	LOS F	36.9	259.6	1.00	1.36	1.69	16.2
Approach		841	0.6	841	0.6	0.986	45.3	LOS D	36.9	259.6	0.64	0.85	1.03	17.9
East: Lords Road														
4	L2	295	0.0	295	0.0	0.426	32.1	LOS C	11.8	82.3	0.79	0.79	0.79	15.8
5	T1	48	0.0	48	0.0	1.061	141.5	LOS F	19.4	135.5	1.00	1.48	2.16	4.6
6	R2	144	0.0	144	0.0	1.061	146.1	LOS F	19.4	135.5	1.00	1.48	2.16	4.6
Approach		487	0.0	487	0.0	1.061	76.7	LOS F	19.4	135.5	0.88	1.06	1.33	8.0
North: Foster Street														
7	L2	117	4.5	117	4.5	0.497	28.2	LOS B	16.8	119.1	0.85	0.76	0.85	26.3
8	T1	714	0.4	713	0.4	0.497	22.6	LOS B	17.4	122.1	0.83	0.74	0.83	19.6
Approach		831	1.0	830 N1	1.0	0.497	23.4	LOS B	17.4	122.1	0.83	0.74	0.83	20.9
West: Lords Road														
10	L2	56	0.0	56	0.0	0.184	47.9	LOS D	2.6	18.3	0.90	0.74	0.90	20.1
11	T1	41	0.0	41	0.0	0.276	42.8	LOS D	3.4	24.1	0.90	0.73	0.90	25.3
12	R2	32	0.0	32	0.0	0.276	47.3	LOS D	3.4	24.1	0.90	0.73	0.90	20.9
Approach		128	0.0	128	0.0	0.276	46.1	LOS D	3.4	24.1	0.90	0.73	0.90	22.1
All Vehicles		2287	0.6	2287	0.6	1.061	44.1	LOS D	36.9	259.6	0.78	0.85	1.02	15.9

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

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

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
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	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.

MOVEMENT SUMMARY

Site: 4 [1. Marion St/Foster St EX PM]

Network: N200 [2A. Ex - PM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2018 Existing Base
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Foster Street														
1	L2	242	0.0	241	0.0	0.980	68.4	LOS E	42.6	299.5	0.90	1.11	1.32	16.6
2	T1	491	0.6	489	0.6	0.980	67.3	LOS E	42.6	299.5	0.92	1.12	1.38	19.4
3	R2	66	0.0	66	0.0	0.980	87.4	LOS F	11.0	77.5	1.00	1.15	1.66	13.4
Approach		799	0.4	796 N1	0.4	0.980	69.3	LOS E	42.6	299.5	0.92	1.12	1.38	18.1
East: Marion Road														
4	L2	113	2.8	113	2.8	0.545	37.2	LOS C	14.6	105.1	0.87	0.77	0.87	17.1
5	T1	589	3.0	589	3.0	0.545	31.3	LOS C	15.8	113.7	0.86	0.75	0.86	26.4
Approach		702	3.0	702	3.0	0.545	32.3	LOS C	15.8	113.7	0.86	0.76	0.86	25.2
North: Foster Street														
7	L2	17	0.0	17	0.0	0.901	51.1	LOS D	34.4	241.4	0.95	1.02	1.17	24.8
8	T1	577	0.2	577	0.2	0.901	46.6	LOS D	34.4	241.4	0.95	1.02	1.17	19.5
9	R2	84	0.0	84	0.0	0.901	75.3	LOS F	5.5	38.7	1.00	1.04	1.61	19.3
Approach		678	0.2	678	0.2	0.901	50.3	LOS D	34.4	241.4	0.95	1.02	1.23	19.7
West: Marion Road														
10	L2	146	0.0	146	0.0	0.217	23.9	LOS B	5.8	41.0	0.64	0.69	0.64	33.5
11	T1	407	1.6	407	1.6	1.004	73.6	LOS F	41.4	292.7	0.97	1.26	1.56	14.2
12	R2	161	0.0	161	0.0	1.004	83.5	LOS F	41.4	292.7	1.00	1.32	1.64	8.3
Approach		715	0.9	715	0.9	1.004	65.7	LOS E	41.4	292.7	0.91	1.16	1.39	15.3
All Vehicles		2894	1.1	2891 N1	1.1	1.004	54.9	LOS D	42.6	299.5	0.91	1.02	1.22	18.8

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

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

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	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	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.

MOVEMENT SUMMARY

Site: 6 [3. Tebbutt St/Kegworth St EX PM]

Network: N200 [2A. Ex - PM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2018 Existing Base
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Tebbutt Street														
1	L2	18	0.0	18	0.0	0.010	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	38.6
2	T1	755	0.8	755	0.8	0.389	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		773	0.8	773	0.8	0.389	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.6
North: Tebbutt Street														
8	T1	978	0.3	977	0.3	0.512	1.7	LOS A	2.4	16.6	0.21	0.04	0.30	47.0
9	R2	61	0.0	61	0.0	0.512	14.9	LOS B	2.4	16.6	0.27	0.05	0.37	44.3
Approach		1039	0.3	1038 N1	0.3	0.512	2.4	NA	2.4	16.6	0.22	0.04	0.30	46.9
West: Kegworth Street														
10	L2	27	0.0	27	0.0	0.041	8.3	LOS A	0.1	0.8	0.58	0.76	0.58	39.7
12	R2	13	0.0	12	0.0	0.096	31.9	LOS C	0.3	1.8	0.91	0.96	0.91	29.4
Approach		40	0.0	39 N1	0.0	0.096	15.8	LOS B	0.3	1.8	0.68	0.82	0.68	34.8
All Vehicles		1852	0.5	1851 N1	0.5	0.512	1.8	NA	2.4	16.6	0.14	0.05	0.18	47.1

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

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

MOVEMENT SUMMARY

Site: 4 [1. Marion St/Foster St PD PM (2018)]

Network: N201 [2B. Ex_PD - PM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2018 Future Case
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Foster Street														
1	L2	240	0.0	238	0.0	0.967	62.5	LOS E	40.6	285.0	0.90	1.07	1.26	17.6
2	T1	486	0.6	482	0.6	0.967	61.5	LOS E	40.6	285.0	0.91	1.08	1.32	20.4
3	R2	66	0.0	66	0.0	0.967	83.3	LOS F	10.3	72.0	1.00	1.13	1.62	13.9
Approach		793	0.4	786[N1]	0.4	0.967	63.6	LOS E	40.6	285.0	0.92	1.08	1.33	19.1
East: Marion Road														
4	L2	112	2.8	112	2.8	0.544	37.2	LOS C	14.6	104.9	0.87	0.77	0.87	17.1
5	T1	589	3.0	589	3.0	0.544	31.3	LOS C	15.8	113.4	0.86	0.75	0.86	26.4
Approach		701	3.0	701	3.0	0.544	32.2	LOS C	15.8	113.4	0.86	0.76	0.86	25.2
North: Foster Street														
7	L2	17	0.0	17	0.0	0.888	48.6	LOS D	32.9	231.0	0.94	0.99	1.14	25.5
8	T1	569	0.2	569	0.2	0.888	44.1	LOS D	32.9	231.0	0.94	0.99	1.14	20.2
9	R2	84	0.0	84	0.0	0.888	74.0	LOS F	5.5	38.8	1.00	1.03	1.58	19.5
Approach		671	0.2	671	0.2	0.888	48.0	LOS D	32.9	231.0	0.95	1.00	1.19	20.2
West: Marion Road														
10	L2	146	0.0	146	0.0	0.216	23.8	LOS B	5.8	40.8	0.64	0.69	0.64	33.5
11	T1	407	1.6	407	1.6	0.998	84.4	LOS F	40.8	287.9	0.97	1.38	1.74	14.7
12	R2	159	0.0	159	0.0	0.998	95.1	LOS F	40.8	287.9	1.00	1.44	1.85	8.6
Approach		713	0.9	713	0.9	0.998	74.4	LOS F	40.8	287.9	0.91	1.25	1.54	15.8
All Vehicles		2877	1.1	2870[N1]	1.1	0.998	55.0	LOS D	40.8	287.9	0.91	1.02	1.24	19.4

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

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

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
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	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.

MOVEMENT SUMMARY

Site: 5 [2. Foster St/Lords St/Tebbutt St PD PM (2018)]

Network: N201 [2B. Ex_PD - PM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2018 Future Case
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Tebbutt Street														
1	L2	25	0.0	25	0.0	0.297	10.1	LOS A	4.3	30.4	0.25	0.25	0.25	40.1
2	T1	695	0.6	695	0.6	1.040	56.2	LOS D	42.9	302.0	0.65	0.88	1.07	13.6
3	R2	114	0.9	114	0.9	1.040	105.6	LOS F	42.9	302.0	1.00	1.43	1.81	12.3
Approach		834	0.6	834	0.6	1.040	61.5	LOS E	42.9	302.0	0.68	0.93	1.15	13.6
East: Lords Road														
4	L2	295	0.0	295	0.0	0.371	27.5	LOS B	10.7	74.8	0.73	0.77	0.73	17.5
5	T1	40	0.0	40	0.0	0.783	49.6	LOS D	10.5	73.5	0.99	0.95	1.19	10.9
6	R2	144	0.0	144	0.0	0.783	54.1	LOS D	10.5	73.5	0.99	0.95	1.19	10.9
Approach		479	0.0	479	0.0	0.783	37.3	LOS C	10.7	74.8	0.83	0.84	0.90	14.2
North: Foster Street														
7	L2	117	4.5	117	4.5	0.571	33.2	LOS C	17.5	124.3	0.90	0.80	0.90	24.1
8	T1	702	0.4	702	0.4	0.571	26.9	LOS B	18.4	129.0	0.88	0.77	0.88	17.6
Approach		819	1.0	819	1.0	0.571	27.8	LOS B	18.4	129.0	0.88	0.78	0.88	18.8
West: Lords Road														
10	L2	52	0.0	52	0.0	0.127	41.9	LOS C	2.2	15.6	0.84	0.73	0.84	21.7
11	T1	38	0.0	38	0.0	0.195	35.8	LOS C	2.9	20.3	0.83	0.69	0.83	27.4
12	R2	29	0.0	29	0.0	0.195	40.4	LOS C	2.9	20.3	0.83	0.69	0.83	23.0
Approach		119	0.0	119	0.0	0.195	39.6	LOS C	2.9	20.3	0.83	0.71	0.83	24.0
All Vehicles		2251	0.6	2251	0.6	1.040	42.9	LOS D	42.9	302.0	0.79	0.84	0.98	15.6

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	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: 6 [3. Tebbutt St/Kegworth St PD PM (2018)] **Network: N201 [2B. Ex_PD - PM]**

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2018 Future Case
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival 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: Tebbutt Street														
1	L2	15	0.0	15	0.0	0.008	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	38.6
2	T1	749	0.8	749	0.8	0.386	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		764	0.8	764	0.8	0.386	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.7
North: Tebbutt Street														
8	T1	976	0.3	976	0.3	0.493	1.3	LOS A	1.9	13.1	0.17	0.03	0.24	47.6
9	R2	49	0.0	49	0.0	0.493	14.5	LOS B	1.9	13.1	0.22	0.04	0.30	45.4
Approach		1025	0.3	1025	0.3	0.493	1.9	NA	1.9	13.1	0.18	0.03	0.24	47.5
West: Kegworth Street														
10	L2	25	0.0	25	0.0	0.038	8.3	LOS A	0.1	0.8	0.57	0.75	0.57	39.8
12	R2	12	0.0	12	0.0	0.086	30.7	LOS C	0.2	1.6	0.91	0.96	0.91	29.8
Approach		37	0.0	37	0.0	0.086	15.3	LOS B	0.2	1.6	0.68	0.82	0.68	35.1
All Vehicles		1826	0.5	1826	0.5	0.493	1.4	NA	1.9	13.1	0.11	0.04	0.15	47.5

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

ttpp transport planning

Year 2028 Scenario

MOVEMENT SUMMARY

Site: 1 [1. Marion St/Foster St FB AM] — **Network: N300 [3A. FB - AM]**

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2028 Future Base
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Foster Street														
1	L2	93	3.4	92	3.4	0.972	69.4	LOS E	43.7	310.1	0.95	1.22	1.44	16.6
2	T1	631	1.2	628	1.2	0.972	65.7	LOS E	43.7	310.1	0.95	1.22	1.46	19.8
3	R2	118	0.0	117	0.0	0.972	80.9	LOS F	10.8	75.7	1.00	1.18	1.70	14.0
Approach		841	1.3	838 N1	1.3	0.972	68.2	LOS E	43.7	310.1	0.96	1.21	1.49	18.7
East: Marion Road														
4	L2	88	6.0	88	6.0	0.134	26.9	LOS B	2.8	20.9	0.70	0.71	0.70	19.8
5	T1	366	2.3	366	2.3	0.515	21.5	LOS B	12.5	89.4	0.75	0.65	0.75	31.2
Approach		455	3.0	455	3.0	0.515	22.6	LOS B	12.5	89.4	0.74	0.66	0.74	29.4
North: Foster Street														
7	L2	9	0.0	9	0.0	0.222	24.4	LOS B	5.5	38.9	0.68	0.57	0.68	34.6
8	T1	315	1.7	315	1.7	0.682	31.3	LOS C	9.2	65.1	0.82	0.71	0.85	24.2
9	R2	42	2.5	42	2.5	0.682	49.0	LOS D	9.2	65.1	0.99	0.86	1.05	25.5
Approach		366	1.7	366	1.7	0.682	33.2	LOS C	9.2	65.1	0.84	0.72	0.87	24.7
West: Marion Road														
10	L2	238	0.0	238	0.0	1.105	143.9	LOS F	105.1	747.9	1.00	1.72	2.10	12.5
11	T1	1043	2.5	1043	2.5	1.105	142.3	LOS F	105.1	747.9	1.00	1.70	2.14	9.8
12	R2	283	1.1	283	1.1	1.105	155.7	LOS F	55.4	393.7	1.00	1.65	2.25	5.3
Approach		1564	1.9	1564	1.9	1.105	145.0	LOS F	105.1	747.9	1.00	1.70	2.15	9.4
All Vehicles		3226	1.9	3223 N1	1.9	1.105	95.0	LOS F	105.1	747.9	0.93	1.31	1.64	13.4

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

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

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
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

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.

MOVEMENT SUMMARY

Site: 2 [2. Foster St/Lords St/Tebbutt St FB AM] — **Network: N300 [3A. FB - AM]**

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2028 Future Base
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Tebbutt Street														
1	L2	16	0.0	16	0.0	0.301	9.5	LOS A	7.0	49.2	0.37	0.34	0.37	41.1
2	T1	653	0.3	653	0.3	1.051	49.3	LOS D	47.1	331.1	0.61	0.79	1.00	15.5
3	R2	235	0.9	235	0.9	1.051	127.7	LOS F	47.1	331.1	1.00	1.55	2.04	11.0
Approach		903	0.5	903	0.5	1.051	68.9	LOS E	47.1	331.1	0.71	0.98	1.25	13.7
East: Lords Road														
4	L2	65	3.2	65	3.2	0.156	37.9	LOS C	2.6	18.4	0.84	0.73	0.84	14.0
5	T1	33	0.0	33	0.0	0.393	41.0	LOS C	3.2	22.7	0.92	0.75	0.92	12.7
6	R2	39	0.0	39	0.0	0.393	45.5	LOS D	3.2	22.7	0.92	0.75	0.92	12.7
Approach		137	1.5	137	1.5	0.393	40.8	LOS C	3.2	22.7	0.88	0.74	0.88	13.3
North: Foster Street														
7	L2	178	4.1	172	4.2	0.303	15.3	LOS B	9.0	64.0	0.58	0.62	0.58	33.8
8	T1	575	0.7	554	0.7	0.303	8.9	LOS A	9.0	64.0	0.50	0.47	0.50	30.4
Approach		753	1.5	726 N1	1.6	0.303	10.4	LOS A	9.0	64.0	0.52	0.51	0.52	31.6
West: Lords Road														
10	L2	14	0.0	14	0.0	0.052	45.2	LOS D	0.6	4.1	0.89	0.68	0.89	20.8
11	T1	31	0.0	30	0.0	0.138	37.7	LOS C	1.8	12.5	0.88	0.68	0.88	27.0
12	R2	13	0.0	12	0.0	0.138	42.3	LOS C	1.8	12.5	0.88	0.68	0.88	22.6
Approach		57	0.0	56 N1	0.0	0.138	40.5	LOS C	1.8	12.5	0.88	0.68	0.88	24.7
All Vehicles		1849	1.0	1822 N1	1.0	1.051	42.6	LOS D	47.1	331.1	0.65	0.77	0.92	17.1

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

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

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
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

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.

MOVEMENT SUMMARY

Site: 3 [3. Tebbutt St/Kegworth St FB AM]

Network: N300 [3A. FB - AM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2028 Future Base
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Tebbutt Street														
1	L2	4	0.0	4	0.0	0.002	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	38.6
2	T1	943	0.3	943	0.3	0.485	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		947	0.3	947	0.3	0.485	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
North: Tebbutt Street														
8	T1	628	1.0	608	1.0	0.302	1.2	LOS A	0.8	5.9	0.12	0.02	0.14	47.9
9	R2	19	0.0	18	0.0	0.302	16.8	LOS B	0.8	5.9	0.15	0.02	0.18	46.1
Approach		647	1.0	627 N1	1.0	0.302	1.6	NA	0.8	5.9	0.12	0.02	0.15	47.9
West: Kegworth Street														
10	L2	9	0.0	9	0.0	0.020	10.4	LOS A	0.1	0.4	0.69	0.82	0.69	37.7
12	R2	3	0.0	3	0.0	0.026	32.1	LOS C	0.1	0.5	0.90	0.95	0.90	29.3
Approach		13	0.0	13	0.0	0.026	15.8	LOS B	0.1	0.5	0.74	0.85	0.74	34.5
All Vehicles		1607	0.6	1587 N1	0.6	0.485	0.8	NA	0.8	5.9	0.05	0.02	0.06	48.4

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

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

MOVEMENT SUMMARY

Site: 1 [1. Marion St/Foster St PD AM]

Network: N301 [3B. PD - AM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2028 Future Case
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Foster Street														
1	L2	95	3.3	94	3.3	1.000	87.1	LOS F	26.8	190.0	1.00	1.36	1.61	14.1
2	T1	642	1.1	639	1.2	1.000	82.6	LOS F	26.8	190.0	1.00	1.36	1.61	17.2
3	R2	120	0.0	119	0.0	1.000	92.3	LOS F	5.2	36.2	1.00	1.18	1.87	12.6
Approach		857	1.2	853 N1	1.2	1.000	84.4	LOS F	26.8	190.0	1.00	1.34	1.65	16.3
East: Marion Road														
4	L2	89	5.9	89	5.9	0.136	27.0	LOS B	1.8	13.0	0.70	0.72	0.70	19.8
5	T1	366	2.3	366	2.3	0.516	21.5	LOS B	7.7	54.8	0.75	0.65	0.75	31.2
Approach		456	3.0	456	3.0	0.516	22.6	LOS B	7.7	54.8	0.74	0.66	0.74	29.4
North: Foster Street														
7	L2	9	0.0	9	0.0	0.259	24.7	LOS B	4.0	28.3	0.69	0.59	0.69	34.4
8	T1	318	1.7	318	1.7	0.793	32.1	LOS C	5.2	37.3	0.81	0.72	0.90	23.9
9	R2	42	2.5	42	2.5	0.793	56.1	LOS D	5.2	37.3	1.00	0.94	1.24	23.6
Approach		369	1.7	369	1.7	0.793	34.6	LOS C	5.2	37.3	0.83	0.74	0.93	24.1
West: Marion Road														
10	L2	238	0.0	238	0.0	1.108	146.4	LOS F	65.1	463.5	1.00	1.74	2.12	12.4
11	T1	1043	2.5	1043	2.5	1.108	144.7	LOS F	65.1	463.5	1.00	1.72	2.16	9.6
12	R2	285	1.1	285	1.1	1.108	158.2	LOS F	34.2	242.9	1.00	1.66	2.27	5.2
Approach		1566	1.9	1566	1.9	1.108	147.4	LOS F	65.1	463.5	1.00	1.71	2.17	9.3
All Vehicles		3248	1.8	3245 N1	1.8	1.108	100.5	LOS F	65.1	463.5	0.94	1.35	1.69	12.9

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

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

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
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

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.

MOVEMENT SUMMARY

Site: 2 [2. Foster St/Lords St/Tebbutt St PD AM]

Network: N301 [3B. PD - AM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2028 Future Case
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Tebbutt Street														
1	L2	21	0.0	21	0.0	0.301	9.5	LOS A	4.3	30.1	0.37	0.35	0.37	45.1
2	T1	659	0.3	659	0.3	1.051	51.0	LOS D	29.7	209.2	0.62	0.82	1.02	15.1
3	R2	235	0.9	235	0.9	1.051	127.6	LOS F	29.7	209.2	1.00	1.55	2.03	11.0
Approach		915	0.5	915	0.5	1.051	69.7	LOS E	29.7	209.2	0.71	0.99	1.26	13.8
East: Lords Road														
4	L2	65	3.2	65	3.2	0.156	37.9	LOS C	1.6	11.3	0.84	0.73	0.84	14.0
5	T1	44	0.0	44	0.0	0.430	42.0	LOS C	2.3	16.4	0.94	0.76	0.94	25.5
6	R2	39	0.0	39	0.0	0.430	46.6	LOS D	2.3	16.4	0.94	0.76	0.94	12.6
Approach		148	1.4	148	1.4	0.430	41.4	LOS C	2.3	16.4	0.89	0.75	0.89	18.4
North: Foster Street														
7	L2	178	4.1	171	4.2	0.305	14.1	LOS A	4.7	33.7	0.49	0.57	0.49	34.7
8	T1	581	0.7	560	0.7	0.305	8.5	LOS A	4.7	33.7	0.45	0.43	0.45	30.9
Approach		759	1.5	731 N1	1.5	0.305	9.8	LOS A	4.7	33.7	0.46	0.47	0.46	32.2
West: Lords Road														
10	L2	22	0.0	22	0.0	0.085	45.6	LOS D	0.6	4.1	0.90	0.70	0.90	20.7
11	T1	49	0.0	49	0.0	0.234	39.6	LOS C	1.8	12.9	0.90	0.72	0.90	26.4
12	R2	20	0.0	20	0.0	0.234	44.2	LOS D	1.8	12.9	0.90	0.72	0.90	22.0
Approach		92	0.0	92	0.0	0.234	42.0	LOS C	1.8	12.9	0.90	0.71	0.90	24.2
All Vehicles		1914	0.9	1886 N1	0.9	1.051	42.9	LOS D	29.7	209.2	0.64	0.76	0.91	17.7

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

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

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	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

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.

MOVEMENT SUMMARY

Site: 3 [3. Tebbutt St/Kegworth St PD AM]

Network: N301 [3B. PD - AM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2028 Future Case
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Tebbutt Street														
1	L2	5	0.0	5	0.0	0.003	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	44.9
2	T1	948	0.3	948	0.3	0.487	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		954	0.3	954	0.3	0.487	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
North: Tebbutt Street														
8	T1	636	1.0	615	1.0	0.318	1.6	LOS A	0.5	3.2	0.15	0.02	0.19	47.3
9	R2	25	0.0	24	0.0	0.318	17.1	LOS B	0.5	3.2	0.19	0.03	0.24	47.0
Approach		661	1.0	640 N1	1.0	0.318	2.2	NA	0.5	3.2	0.16	0.02	0.19	47.3
West: Kegworth Street														
10	L2	16	0.0	16	0.0	0.034	10.6	LOS A	0.0	0.3	0.70	0.86	0.70	37.6
12	R2	5	0.0	5	0.0	0.044	33.6	LOS C	0.1	0.4	0.91	0.96	0.91	28.8
Approach		21	0.0	21	0.0	0.044	16.3	LOS B	0.1	0.4	0.75	0.88	0.75	34.2
All Vehicles		1636	0.6	1615 N1	0.6	0.487	1.1	NA	0.5	3.2	0.07	0.02	0.09	47.9

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

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

MOVEMENT SUMMARY

Site: 4 [1. Marion St/Foster St FB PM] — **Network: N400 [4A. FB - PM]**

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2028 Future Base
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Foster Street														
1	L2	242	0.0	242	0.0	0.981	68.7	LOS E	42.8	300.4	0.90	1.11	1.32	16.5
2	T1	491	0.6	489	0.6	0.981	67.6	LOS E	42.8	300.4	0.92	1.12	1.38	19.3
3	R2	66	0.0	66	0.0	0.981	87.6	LOS F	11.1	77.7	1.00	1.16	1.67	13.4
Approach		799	0.4	797[N1]	0.4	0.981	69.6	LOS E	42.8	300.4	0.92	1.12	1.39	18.0
East: Marion Road														
4	L2	120	2.6	120	2.6	0.621	38.3	LOS C	17.4	124.2	0.90	0.80	0.90	16.8
5	T1	684	2.6	684	2.6	0.621	32.4	LOS C	18.7	134.0	0.89	0.78	0.89	26.0
Approach		804	2.6	804	2.6	0.621	33.3	LOS C	18.7	134.0	0.89	0.79	0.89	24.9
North: Foster Street														
7	L2	17	0.0	17	0.0	0.899	50.8	LOS D	34.3	240.3	0.95	1.02	1.17	24.8
8	T1	576	0.2	576	0.2	0.899	46.3	LOS D	34.3	240.3	0.95	1.02	1.17	19.6
9	R2	84	0.0	84	0.0	0.899	75.1	LOS F	5.5	38.5	1.00	1.04	1.61	19.4
Approach		677	0.2	677	0.2	0.899	50.0	LOS D	34.3	240.3	0.95	1.02	1.22	19.7
West: Marion Road														
10	L2	154	0.0	154	0.0	0.248	24.2	LOS B	6.8	48.0	0.65	0.69	0.65	33.5
11	T1	481	1.3	481	1.3	1.147	162.7	LOS F	68.3	481.7	0.96	1.67	2.18	8.2
12	R2	165	0.0	165	0.0	1.147	186.3	LOS F	68.3	481.7	1.00	1.80	2.38	4.3
Approach		800	0.8	800	0.8	1.147	141.0	LOS F	68.3	481.7	0.91	1.51	1.93	9.1
All Vehicles		3080	1.0	3078[N1]	1.0	1.147	74.4	LOS F	68.3	481.7	0.92	1.11	1.36	15.4

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

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

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
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	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.

MOVEMENT SUMMARY

Site: 5 [2. Foster St/Lords St/Tebbutt St FB PM] — **Network: N400 [4A. FB - PM]**

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2028 Future Base
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Tebbutt Street														
1	L2	31	0.0	31	0.0	0.302	7.4	LOS A	2.9	20.3	0.15	0.17	0.15	44.0
2	T1	760	0.6	760	0.6	1.056	60.8	LOS E	49.1	345.9	0.60	0.88	1.07	13.2
3	R2	114	0.9	114	0.9	1.056	116.9	LOS F	49.1	345.9	1.00	1.52	1.88	11.7
Approach		904	0.6	904	0.6	1.056	66.0	LOS E	49.1	345.9	0.64	0.94	1.14	13.2
East: Lords Road														
4	L2	295	0.0	295	0.0	0.426	32.1	LOS C	11.8	82.3	0.79	0.79	0.79	15.8
5	T1	48	0.0	48	0.0	1.064	144.2	LOS F	19.6	136.9	1.00	1.49	2.18	4.5
6	R2	144	0.0	144	0.0	1.064	148.7	LOS F	19.6	136.9	1.00	1.49	2.18	4.5
Approach		487	0.0	487	0.0	1.064	77.8	LOS F	19.6	136.9	0.88	1.07	1.34	7.9
North: Foster Street														
7	L2	117	4.5	114	4.6	0.515	28.3	LOS B	17.1	121.5	0.85	0.77	0.85	26.3
8	T1	749	0.4	731	0.4	0.515	22.7	LOS B	17.7	124.7	0.83	0.74	0.83	19.5
Approach		866	1.0	845[N1]	1.0	0.515	23.4	LOS B	17.7	124.7	0.83	0.74	0.83	20.8
West: Lords Road														
10	L2	56	0.0	55	0.0	0.182	47.9	LOS D	2.6	18.2	0.90	0.74	0.90	20.1
11	T1	41	0.0	41	0.0	0.274	42.8	LOS D	3.4	23.9	0.90	0.73	0.90	25.3
12	R2	32	0.0	31	0.0	0.274	47.3	LOS D	3.4	23.9	0.90	0.73	0.90	20.9
Approach		128	0.0	127[N1]	0.0	0.274	46.1	LOS D	3.4	23.9	0.90	0.73	0.90	22.1
All Vehicles		2386	0.6	2364[N1]	0.6	1.064	52.1	LOS D	49.1	345.9	0.77	0.88	1.06	13.8

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

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

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
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	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.

MOVEMENT SUMMARY

Site: 6 [3. Tebbutt St/Kegworth St FB PM]

Network: N400 [4A. FB - PM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2028 Future Base
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Tebbutt Street														
1	L2	18	0.0	18	0.0	0.010	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	38.6
2	T1	823	0.8	823	0.8	0.424	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		841	0.8	841	0.8	0.424	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.6
North: Tebbutt Street														
8	T1	1017	0.3	999	0.3	0.532	2.1	LOS A	2.8	19.5	0.24	0.04	0.33	46.5
9	R2	61	0.0	60	0.0	0.532	17.0	LOS B	2.8	19.5	0.30	0.05	0.42	43.3
Approach		1078	0.3	1059 N1	0.3	0.532	2.9	NA	2.8	19.5	0.24	0.04	0.34	46.4
West: Kegworth Street														
10	L2	27	0.0	27	0.0	0.047	9.0	LOS A	0.1	0.9	0.62	0.81	0.62	39.0
12	R2	13	0.0	13	0.0	0.113	36.4	LOS C	0.3	2.1	0.92	0.96	0.92	27.8
Approach		40	0.0	40	0.0	0.113	17.7	LOS B	0.3	2.1	0.72	0.86	0.72	33.6
All Vehicles		1959	0.5	1940 N1	0.5	0.532	2.0	NA	2.8	19.5	0.15	0.04	0.20	46.6

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

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

MOVEMENT SUMMARY

Site: 4 [1. Marion St/Foster St PD PM]

Network: N102 [4B. PD - PM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2028 Future Case
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Foster Street														
1	L2	240	0.0	240	0.0	0.966	62.0	LOS E	39.5	277.6	0.89	1.06	1.25	17.7
2	T1	486	0.6	486	0.6	0.966	61.5	LOS E	39.5	277.6	0.91	1.08	1.32	20.4
3	R2	66	0.0	66	0.0	0.966	82.3	LOS F	11.3	79.5	1.00	1.13	1.60	14.1
Approach		793	0.4	793	0.4	0.966	63.4	LOS E	39.5	277.6	0.91	1.08	1.32	19.1
East: Marion Road														
4	L2	119	2.7	119	2.7	0.620	38.3	LOS C	17.3	124.1	0.90	0.80	0.90	16.8
5	T1	684	2.6	684	2.6	0.620	32.4	LOS C	18.7	133.7	0.89	0.78	0.89	26.0
Approach		803	2.6	803	2.6	0.620	33.3	LOS C	18.7	133.7	0.89	0.79	0.89	24.9
North: Foster Street														
7	L2	17	0.0	17	0.0	0.891	49.2	LOS D	33.1	232.1	0.94	1.00	1.14	25.3
8	T1	568	0.2	568	0.2	0.891	44.7	LOS D	33.1	232.1	0.94	1.00	1.15	20.0
9	R2	84	0.0	84	0.0	0.891	74.0	LOS F	5.5	38.4	1.00	1.02	1.58	19.5
Approach		669	0.2	669	0.2	0.891	48.5	LOS D	33.1	232.1	0.95	1.00	1.20	20.1
West: Marion Road														
10	L2	154	0.0	154	0.0	0.246	24.2	LOS B	6.8	47.7	0.65	0.69	0.65	33.5
11	T1	481	1.3	481	1.3	1.141	158.7	LOS F	67.2	474.0	0.96	1.66	2.16	8.3
12	R2	163	0.0	163	0.0	1.141	181.3	LOS F	67.2	474.0	1.00	1.78	2.35	4.4
Approach		798	0.8	798	0.8	1.141	137.4	LOS F	67.2	474.0	0.91	1.50	1.91	9.3
All Vehicles		3063	1.0	3063	1.0	1.141	71.5	LOS F	67.2	474.0	0.91	1.09	1.33	15.8

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	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: 5 [2. Foster St/Lords St/Tebbutt St PD PM]

Network: N102 [4B. PD - PM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2028 Future Case
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Tebbutt Street														
1	L2	25	0.0	25	0.0	0.278	7.3	LOS A	2.6	18.2	0.15	0.16	0.15	46.7
2	T1	758	0.6	758	0.6	0.974	37.9	LOS C	38.8	273.4	0.63	0.80	0.95	18.9
3	R2	114	0.9	114	0.9	0.974	70.1	LOS E	38.8	273.4	1.00	1.31	1.59	17.8
Approach		897	0.6	897	0.6	0.974	41.1	LOS C	38.8	273.4	0.66	0.85	1.01	19.4
East: Lords Road														
4	L2	295	0.0	295	0.0	0.426	32.1	LOS C	11.8	82.3	0.79	0.79	0.79	15.8
5	T1	40	0.0	40	0.0	0.980	94.1	LOS F	14.7	103.1	1.00	1.27	1.78	16.0
6	R2	144	0.0	144	0.0	0.980	98.6	LOS F	14.7	103.1	1.00	1.27	1.78	6.6
Approach		479	0.0	479	0.0	0.980	57.3	LOS E	14.7	103.1	0.87	0.97	1.17	11.6
North: Foster Street														
7	L2	117	4.5	114	4.6	0.506	28.6	LOS C	17.0	121.0	0.86	0.77	0.86	26.1
8	T1	738	0.4	720	0.4	0.506	22.9	LOS B	17.7	124.1	0.84	0.74	0.84	19.4
Approach		855	1.0	835 N1	1.0	0.506	23.7	LOS B	17.7	124.1	0.84	0.75	0.84	20.6
West: Lords Road														
10	L2	52	0.0	52	0.0	0.170	47.8	LOS D	2.4	16.9	0.90	0.74	0.90	20.1
11	T1	38	0.0	38	0.0	0.247	41.6	LOS C	3.1	22.0	0.89	0.72	0.89	25.6
12	R2	29	0.0	29	0.0	0.247	46.2	LOS D	3.1	22.0	0.89	0.72	0.89	21.2
Approach		119	0.0	119	0.0	0.247	45.4	LOS D	3.1	22.0	0.89	0.73	0.89	22.3
All Vehicles		2349	0.6	2329 N1	0.6	0.980	38.4	LOS C	38.8	273.4	0.78	0.83	0.98	17.9

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

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

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	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	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.

MOVEMENT SUMMARY

Site: 6 [3. Tebbutt St/Kegworth St PD PM]

Network: N102 [4B. PD - PM]

18145 67-75 Lords Road Leichhardt Planning Proposal
AM PEAK 7am-8am; PM PEAK 5pm-6pm
(AM DEV TRAFFIC: +68vph; PM DEV TRAFFIC: +2vph)
Site Category: 2028 Future Case
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Tebbutt Street														
1	L2	15	0.0	15	0.0	0.008	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	44.9
2	T1	818	0.8	818	0.8	0.422	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		833	0.8	833	0.8	0.422	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.6
North: Tebbutt Street														
8	T1	1015	0.3	998	0.3	0.511	1.6	LOS A	2.2	15.4	0.19	0.03	0.27	47.1
9	R2	49	0.0	49	0.0	0.511	16.6	LOS B	2.2	15.4	0.24	0.04	0.34	46.9
Approach		1064	0.3	1047 N1	0.3	0.511	2.3	NA	2.2	15.4	0.20	0.03	0.27	47.1
West: Kegworth Street														
10	L2	25	0.0	25	0.0	0.043	9.0	LOS A	0.1	1.0	0.62	0.80	0.62	39.1
12	R2	12	0.0	12	0.0	0.100	35.3	LOS C	0.3	2.1	0.92	0.96	0.92	28.2
Approach		37	0.0	37	0.0	0.100	17.2	LOS B	0.3	2.1	0.71	0.85	0.71	33.8
All Vehicles		1934	0.5	1916 N1	0.5	0.511	1.7	NA	2.2	15.4	0.12	0.04	0.16	47.2

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

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

Appendix D

Green Travel Plan

67-75 Lords Road, Leichhardt

Green Travel Plan

Prepared for:

Platino Properties

27 September 2018

The Transport Planning Partnership

67-75 Lords Road, Leichhardt

Green Travel Plan

Client: Platino Properties

Version: Draft 01

Date: 27 September 2018

TTPP Reference: 18145

Quality Record

Version	Date	Prepared by	Reviewed by	Approved by	Signature
Draft	15/06/18	Jessica Szeto	Ken Hollyoak	Ken Hollyoak	
Final	27/09/18	Jessica Szeto	Ken Hollyoak	Ken Hollyoak	

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APPENDICES

1 Introduction

1.1 Preamble

TTPP has been appointed to provide a Green Travel Plan (GTP) for the subject site to assist in the management of travel demand at the above site. Ken Hollyoak, a Director of TTPP, has been involved in Green Travel Plans (also known as Workplace Travel plans) for above 25 years.

Whilst working in the UK in the 1990's, he was responsible for the formalisation of the Derriford Hospital GTP which was the first travel plan to be the subject of planning conditions. This scheme led to him recommending the use of a travel plan at Pfizer's site at Sandwich which was regarded as the "Gold Standard" of travel plans at that time.

In more recent times, he has been the Travel Plan Co-Ordinator at Harold Park for Mirvac which has resulted in car traffic generation rates being some 50% lower than were predicted in the traffic impact assessment. He has also prepared the GTP for Macquarie University and is currently working on the implementation of the GTP for Australian Catholic University at their Strathfield Campus.

1.2 The Role of Travel Plans

The purpose of a Green Travel Plan (GTP) is to encapsulate a strategy for managing travel demand that embraces the principles of sustainable transport. In its simplest form, this GTP encourages use of transport modes that have a low environmental impact, such as active transport modes – walking, cycling, public transport, and better management of car use.

Active transport presents a number of interrelated benefits including:

- improved health benefits
- reduced traffic congestion, noise and air pollution caused by cars
- greater social connections within communities
- cost savings to the economy and individual.

A GTP is a package of coordinated strategies and measures to promote and encourage active/sustainable travel. This GTP aims to influence the way people move to/from the proposed development site to deliver better environmental outcomes and provide a range of travel choices, whilst also reducing the reliance on private car usage, particularly single occupancy car trips.

The planning of the new development would need to accommodate innovative ideas to better manage the transport demand of the project. It will be necessary to introduce new measures to ensure that trips generated by the proposed development are not solely private car based, particularly single occupancy trips.

Key drivers for the GTP are detailed in Section 1.3.

In order to ensure that the GTP meets its intended objectives, a review of the 2012 GTP against '*best practice'* guidelines such as the City of Sydney '*Guide to Travel Plans*' and '*The Essential Guide to Travel Planning'* prepared by the United Kingdom Department of Transport, has been undertaken.

The key themes applicable to the GTP include:

- **Site audit and data collection:** A desktop audit has been undertaken in order to identify and document the existing issues and opportunities relevant to site and its accessibility particularly by non-car modes. Opportunities to improve amenity, incentivise non-car travel and remove barriers to use of sustainable transport modes are then dealt with under the Site-Specific Measures.
- **Audit of Policies:** An audit of key policy documents has been undertaken to assist define the direction and purpose of the GTP, aligned with the key targets and objectives from a local and regional perspective.
- **Bicycle parking and car parking management:** This GTP provides a strategy for management of both bicycle parking and car parking moving forward, and how they interact with travel choices.
- **Local alliances:** The development of relationships between the Proponent and various stakeholders (such as the Inner West Council, the Roads and Maritime Services and Transport for New South Wales) will assist the Proponent in delivering improved transport options.

1.3 Travel Plan Pyramid

The GTP will need to be tailored to the proposed development site to ensure appropriate measures are in place for the different land uses to promote a modal shift away from car usage.

The key elements of the GTP are shown in the Travel Plan Pyramid in Figure 1.1.

Figure 1.1: Travel Plan Pyramid

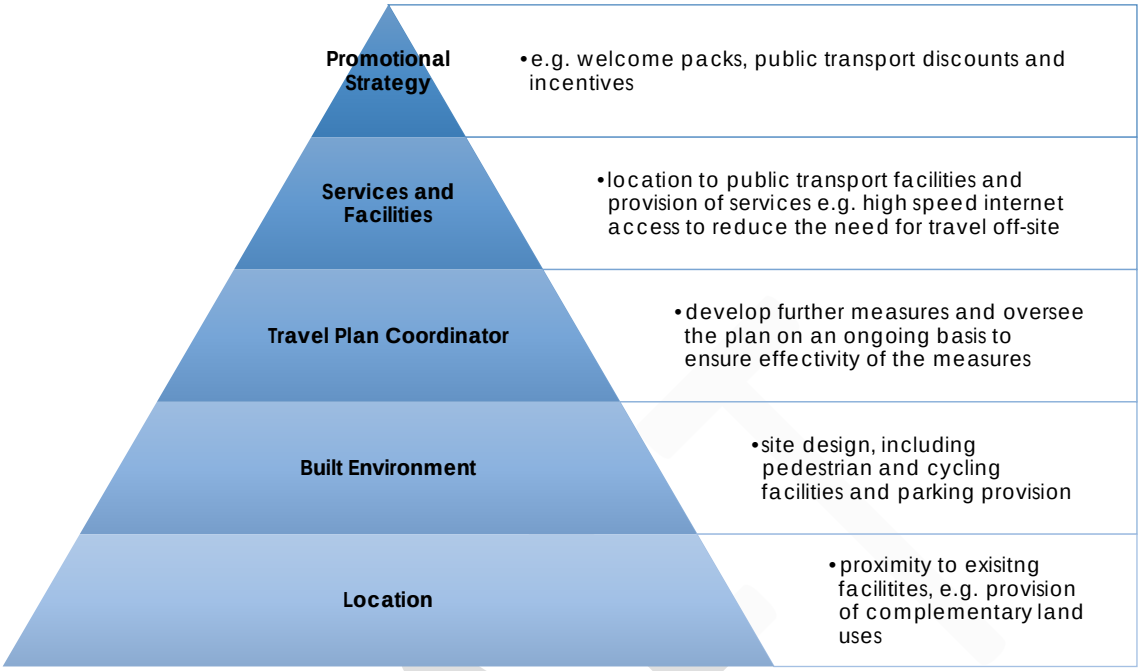


Figure 1.1 demonstrates that the key foundations to ensure the success of a GTP are:

1. **Location** – i.e. proximity to existing public transport services and proximity to mixed land uses, e.g. shops and services, such that walking or cycling becomes the natural choice
2. **Built Environment** – i.e. provision of high quality pedestrian and cycling facilities, end-of-trip facilities and reduced car parking provision to encourage sustainable transport choices.

1.4 Drivers of the Travel Plan

Further to the above, there are a number of social, environmental and economic drivers for developing and implementing a GTP for the proposed development site as detailed below.

1.4.1.1 Car Parking

Car parks utilise valuable land resources and impact amenity. If the area continues to grow and there is no modal shift towards non-car transport modes, the car parking demand could increase significantly. As such, the provision of car parking must reflect the site's proximity to public transport to influence a modal shift to sustainable transport modes. As the site is located within close proximity to high frequency public transport facilities with direct access to the Sydney CBD, there is strong justification to provide

reduced car parking compared to the maximum car parking rates as set out in Council's Development Control Plan.

Further to this, the cost of building underground parking is significant and therefore, there is strong economic imperative to reduce parking demand through supporting modal shift to sustainable transport modes (Poinsatte and Toor 1999).

1.4.1.2 Environmental Impacts

The transport sector amounts to 13.5% of greenhouse gas emissions (**GHG**) in Australia (Department of Sustainability, Environment, Water, Population and Communities 2011). Mitigating this impact is a key driver of the GTP. Within Australia, GHG emissions in the transport sector have risen by 30% in the last 20 years with the greatest emissions growth coming from the use of private vehicles (Department of Climate Change and Energy Efficiency, 2011). In comparison, travel modes such as walking and cycling have the lowest emissions while public transportation has far less impact than the private car (Dave 2011).

1.4.1.3 Health Benefits

The use of sustainable transport modes can have wide-ranging health benefits across the population (World Health Organisation, 2009). High levels of car-use and long commuting times are also associated with decreased physical activity and sedentary lifestyle diseases such as obesity, heart disease and type-2 diabetes (Wen et al.2006). Medibank Private (2007) estimates the cost of physical inactivity to the health care system to be $1.5 billion per year. Active transport modes (including public transport) also provide more sustained health benefits because physical activity becomes part of everyday routine. Sustainable transport modes also improve air quality by lowering air pollution and reducing exposure to particulates, sulphates and atmospheric ozone. A Bureau of Transport and Regional Economics (2007) report estimates that between 900 and 2,000 early deaths are caused by motor vehicle pollution in Australia each year. Reducing pollution has both environmental and health benefits.

1.4.1.4 Social Inclusion

Transport has a fundamental role in supporting social equity through providing access to essential amenities, employment opportunities and social and recreational goods (Lucas and Currie, 2011). Greater levels of walking and cycling hold significant benefits in terms of equity and community cohesion (Hart 2008). Car dependency accentuates inequalities of access amongst certain groups who are less likely to drive including the unemployed, persons on low incomes, children and young people, the aged, and persons with disabilities (Sustainable Development Commission, 2011). As such, sustainable transport modes can provide a more affordable alternative to car use.

1.4.1.5 Resident and Staff Attraction

Ease of access has a significant impact on choices of work and living. Negative experiences and costs associated with travel can reduce the competitiveness of a residential, commercial or retail precinct. High quality and efficient transport systems are key to attracting and retaining staff, visitors and residential tenants. Support for active transport modes is also highly desired by employers and employees, because it improves health and productivity (Colliers International 2011).

1.5 Case Study – Harold Park Green Travel Plan

In 2011, Ken Hollyoak, whilst at Halcrow, was commissioned by Mirvac to complete the transport assessment for the Harold Park Masterplan comprising 1,250 residential apartments, 7,300m^2 of retail floor area and 3,850m^2 of commercial floor area.

As part of the proposed Harold Park Masterplan, a Green Travel Plan was prepared to encourage and promote the future use of transport by residents in a sustainable and environmentally friendly manner. In fact, the following Green Travel Plan initiatives were implemented as part of the proposed development:

- compliance with the stringent parking controls applicable to the site
- creation of street networks and associated cycleways, footpaths and links to encourage cycling and walking
- provision of a TAG given to every new occupant of the dwelling
- public transport noticeboards within the development to notify all residents and visitors of the alternate transport options available
- provision of free yearly GoOccasional, car share membership for the initial occupation of dwellings to allow two drivers registered per membership
- provision of free weekly light rail and travel ten bus tickets for the initial occupation (N.B. this was updated to pre-loaded Opal cards for Precincts completed post-2015)
- provision of high quality telecommunication points
- provision of bicycle parking spaces for both residents and visitors in accordance with City of Sydney requirements.
- a half yearly newsletter for every household after occupation to outline the latest news on sustainable travel initiatives in the area.

The above listed measures were in place from 'Day One' to establish better transport habits at the start of occupation.

Following this, Ken Hollyoak was appointed as the Travel Plan Co-Ordinator for the Harold Park to develop, implement and monitor the effectiveness of the GTP. Surveys have since been conducted to understand the effectiveness of the Green Travel Plan initiatives.

A summary of the survey data is shown in Table 1.1.

Table 1.1: Summary of Harold Park Post-Occupation Surveys

	Initial Traffic Assessment Report Estimate (2011)	Roads and Maritime Guide TDT2013/04a	3-month Post-Occupation Survey (2015)	Latest Post-Occupation Survey (2018)
Trip Rate	0.29 trips per unit	0.19 trips per unit	0.10 trips per unit	0.12 trips per unit

Table 1.1 indicates that the Harold Park site generates a peak traffic generation rate of 0.12 trips per unit based recent post-occupation surveys. Comparably, this is more than 50% less than what was initially envisaged for the site and 40% less than current suggested traffic generation rates in the Roads and Maritime latest technical direction for Guide to Traffic Generating Developments.

Taking the above into consideration, TTPP notes that there is strong supporting evidence to suggest the effectiveness of Green Travel Plan initiatives to reduce vehicle trips from a development site. However, that being said, it should be noted that the Harold Park site is supported by high frequency public transport facilities and located near key employment areas. On this basis, a site's proximity to public transport facilities and key employment areas/attractions is considered a critical component to assess the effectiveness of Green Travel Plan initiatives.

2 Existing Transport Policy Context

2.1 Summary of Key Policy Directions

The review of existing relevant policy clearly illustrates a number of themes that should inform the approach to ongoing management of transport demand, and investment in the transport network. These themes include:

- Provision of high quality local transport infrastructure and improved bike paths and networks and improving accessibly and connectivity
- Address car parking issues in key locations, including residential and business districts and encouraging active transport
- Create connected, liveable communities where people can walk, cycle and use public transport to promote healthier, active communities.

A summary of the existing policy framework documents is provided in Table 2.1.

Table 2.1: Summary of Policy Framework

Policy/Strategy	Key Aims/Objectives/Goals
Inner West Council	
Leichardt 2025+ Community Strategy Plan	Leichhardt 2025+ is the strategic plan for the Leichhardt Local Government Area that identifies the community's main priorities and aspirations for the future and guides the delivery of Council services over the next ten years. The key goals are to create: ▪ a community that is equitable, cohesive, connected, caring, diverse, healthy, safe culturally active, creative and innovative and has a strong sense of belong and place ▪ a liveable community – socially, environmentally and economically ▪ thriving business and vibrant community ▪ accountable civic leadership that delivers services and assets to support the community and future growth.
Statement of Vision and Priorities Engagement Report	▪ Delivering the GreenWay ▪ Managing traffic congestion ▪ Provision and maintenance of local transport infrastructure e.g. roads, footpaths ▪ Improving bike paths and networks ▪ Improving accessibility and connectivity ▪ Addressing car parking issues in key locations, including residential and business districts ▪ Encouraging active transport

Policy/Strategy	Key Aims/Objectives/Goals
NSW State Government	
Parramatta Road Corridor Urban Transport Strategy	The purpose of the Strategy is to facilitate the coordinated transformation of Parramatta Road and its adjoining lands by integrated land use and development with transport initiatives and public domain improvements. The key objectives for the Corridor include to: ▪ make it easier to move to, through and within the Corridor ▪ support walking and/or cycling for local trips, bus and/or light rail for intermediate trips, rail and/or car for regional trips ▪ realise and support urban transformation and transit-oriented development ▪ facilitate additional east-west and north-south movements ▪ enhance existing or create new desirable and affordable mixed-use environments ▪ optimise the Corridor's inherent social, economic and environmental resources, including freight generating precincts ▪ utilise excess road and rail capacity and non-infrastructure initiatives and optimise public investment in transport ▪ contribute to regional resilience and sustainable communities.
New South Wales Long Term Transport Masterplan (NSW State Government, 2012)	The NSW Long Term Transport Masterplan guide the NSW Government's transport funding priorities over the next 20 years. As part of this Plan, the Inner West Light Rail extension was completed in 2014, which involved the introduction of nine new stations from Lilyfield to Dulwich Hill, including Marion Light Rail station. This light rail route has provided good connectivity to shopping and entertainment districts and better transport integration by allowing passengers to transfer between rail, bus, bike and heavy rail services.
Future Transport Strategy 2056	The Strategy aims to increase the mode share of public transport services and reduce the use of single occupant vehicles. The Proposal will look to reduce private vehicle travel and aligning with the objectives of the Strategy.
Greater Sydney Region Plan: A Metropolis of Three Cities – Connecting People	The Site is ideally located to contribute towards creating a 30-minute city. The mix of uses means residents/employees can access easily access shops and the community facilities within the immediate vicinity. The Site's links with public transport means there are numerous facilities including jobs, schools and hospitals, within a 30-minute travel time for future residents and the Site is within a 30-minute travel time for visitors. The Site thus aligns with the objects of the Plan.
Sydney's Cycling Future, Cycling for Everyday Transport (NSW State Government, 2013)	The Three Pillars of Sydney's Cycling Future: ▪ investing in separated cycleways ▪ providing connected bicycle networks to major centres and transport interchanges promoting better use of our existing network; and, ▪ engaging with our partners across government, councils, developers and bicycle users.

2.1.1 Greater Sydney Region Plans: 30-minute City

As indicated above, the Greater Sydney Commission's Greater Sydney Region Plan, the key purpose of the plan is to deliver a 30-minute city where jobs, services and quality public transport spaces are in easy reach of people's home. The Eastern City District Plan has been produced so that the Region Plan can be implemented at a district level.

However, a recent study conducted by Deloitte Access Economics found that only 75 of the 313 Sydney neighbourhoods could currently be deemed to have easy access to

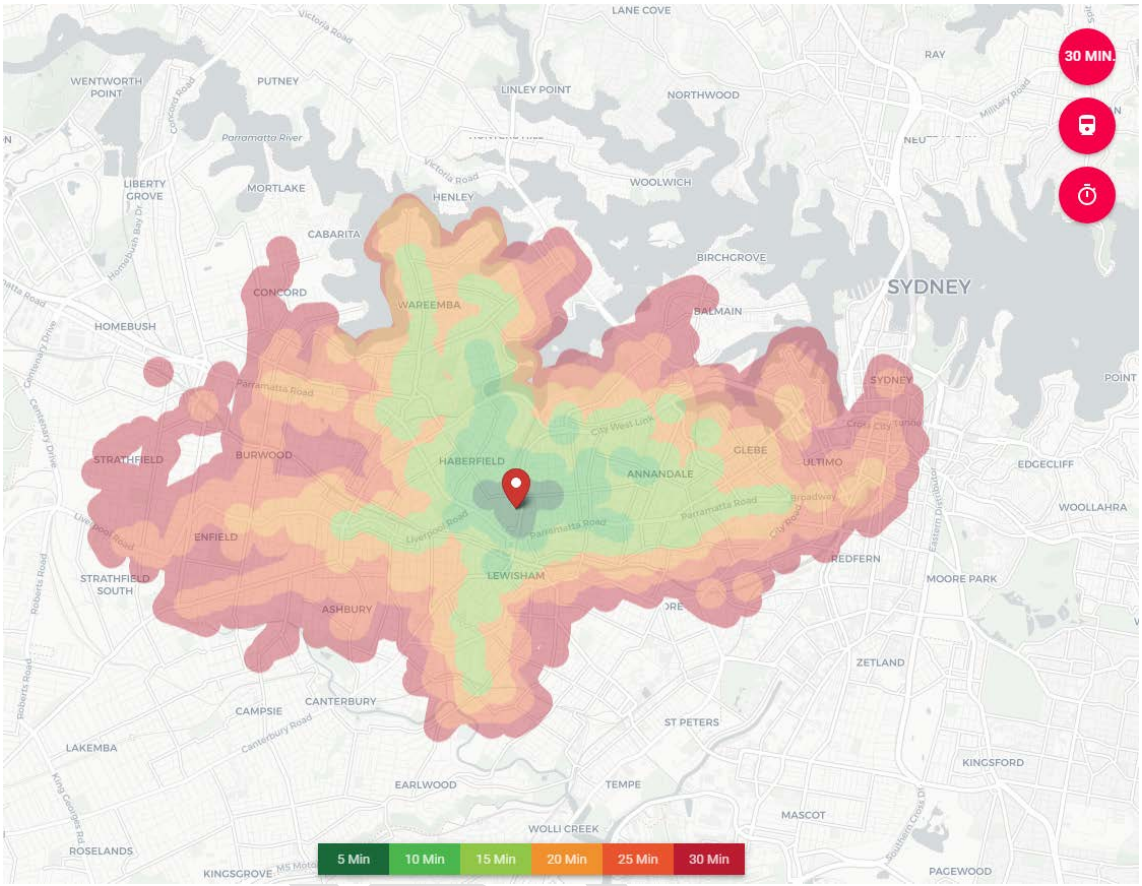
major job hubs and other key services within half an hour. Based on the findings of the Deloitte study and work undertaken by Arup, a number of key performance criteria have been identified in order to achieve a 30-minute city:

- **Access to healthcare** – hospitals provide an important facility to many people and play a role for employment, education and training facilities. Parking is often limited at hospitals and as such, access via a variety of transport modes are required.
- **Access to retail services** – access to all forms of retail (supermarkets and specialist stores) is essential to achieve a 30-minute city. There has already been an increase in the number of mixed-use developments within Sydney to create micro-communities, which provide mixed retail services, residential, commercial and community facility uses.
- **Access to schools** – access to good schools relies on housing affordability, which also shape where teachers live. In particular, many students have good access to local schools, however some have to travel outside their catchment areas for specialist and selective schools. As such, it is important to create strong transport link are required to provide good access to local schools and connect teachers with their place of residents and work.
- **Access to further education facilities** – public transport links for TAFE and universities are vital as students and teachers often travel out of the local catchment to the educational facility as they are often located in areas with high property prices.
- **Quality of public transport facilities** –Whilst Sydney is a liveable city; it is often constrained by transport issues. As such, the provision of good quality, reliable public transport facilities are essential to achieve a 30-minute city.
- **Access to jobs** – people being able to live close to their jobs is fundamental to delivering a 30-minute city. The current Sydney CBD has the highest concentration of jobs but as found by the Deloitte study, the average one-way commute for those travelling into the CBD from outside the city is 63- minutes. The locations with the best access to jobs currently are located near to railway stations, or close to major employment centres such as the Sydney CBD.
- **Access to residents** – a way of minimising travel needs is to locate jobs and services close to where residents live.

As an indication, the site's proximity to surrounding suburbs within a 30-minute commute by transit is shown in Figure 2.1.

Figure 2.1 indicates that the site is located within a 30-minute commute to the Sydney CBD by transit (e.g. Ultimo, Haymarket, Pyrmont, Sydney suburbs). Based on this, the site is considered well located to key employment hubs with good public transport connectivity and as such, is considered to align with the key objectives of the Sydney Greater Region Plan by contributing towards the creation of a 30-minute city.

Figure 2.1: 30-minute Catchment by Transit



Source: Route360 (accessed on 8/06/18)

3 Existing Transport Conditions

3.1 Rail Services

3.1.1 Train

Train services are available at Summer Hill and Lewisham Stations, which are located approximately 900m south of the site. The T2 Inner West & Leppington line and T3 Bankstown line service both these train stations. A summary of the existing train services and their associated frequencies are provided in Table 3.1.

Table 3.1: Summary of Existing Train Services and Frequencies

Rail Line	Route	AM Peak 7am-9am (no. of services)	PM Peak 4pm-6pm (no. of services)
T2 Inner West & Leppington	City Circle via Town Centre	18	8
	Parramatta	7	8
	Ashfield Only	1	-
	Leppington via Granville	-	6
T3 Bankstown	Liverpool via Regents Park	1	-

The T2 and T3 route is shown in Figure 3.1 and Figure 3.2 respectively.

Figure 3.1: T2 Route

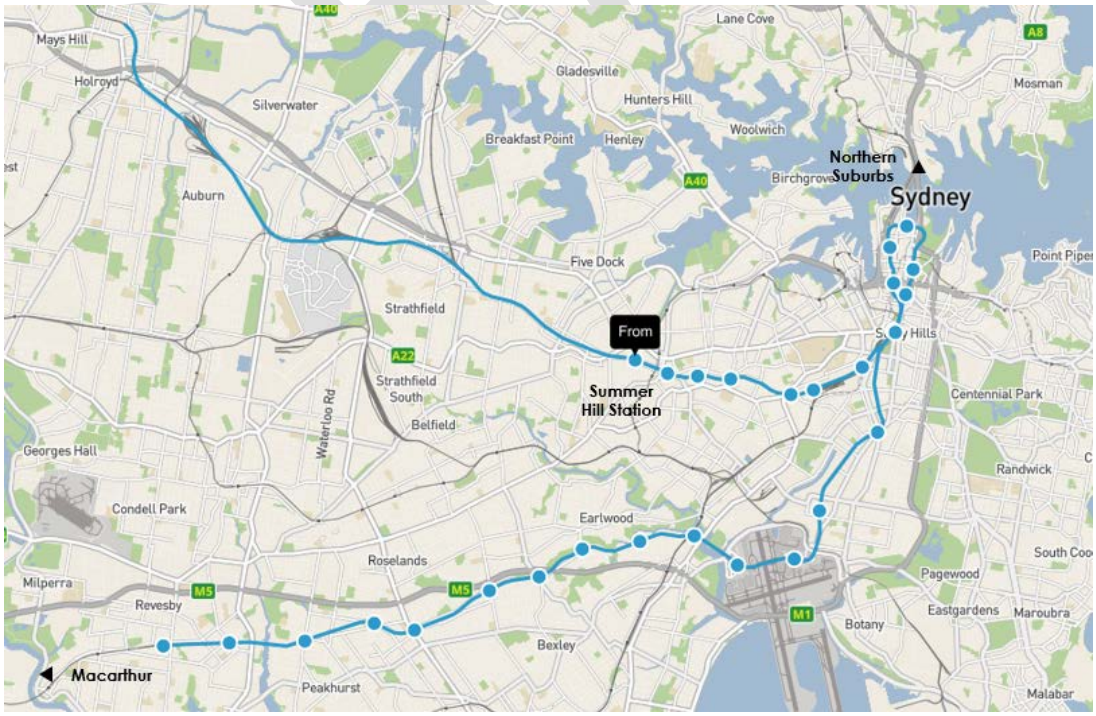
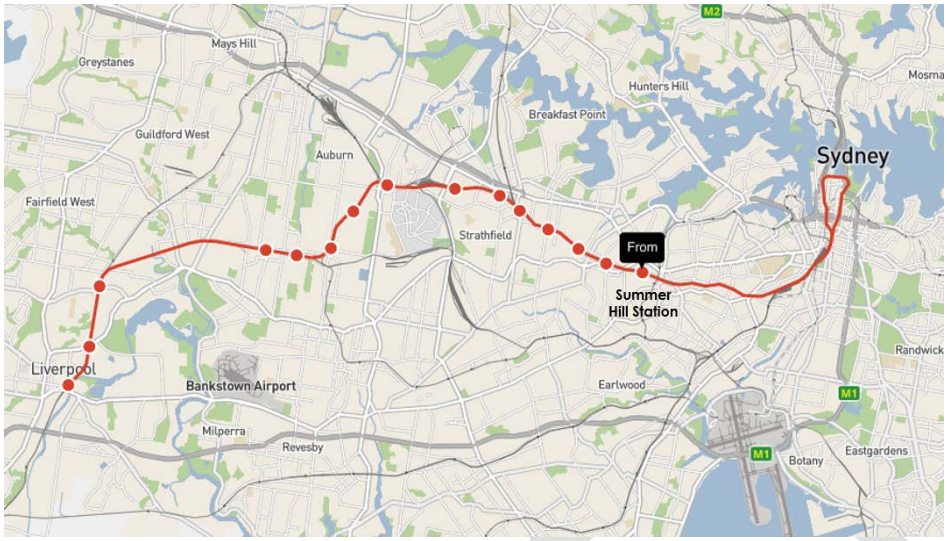


Figure 3.2: T3 Route

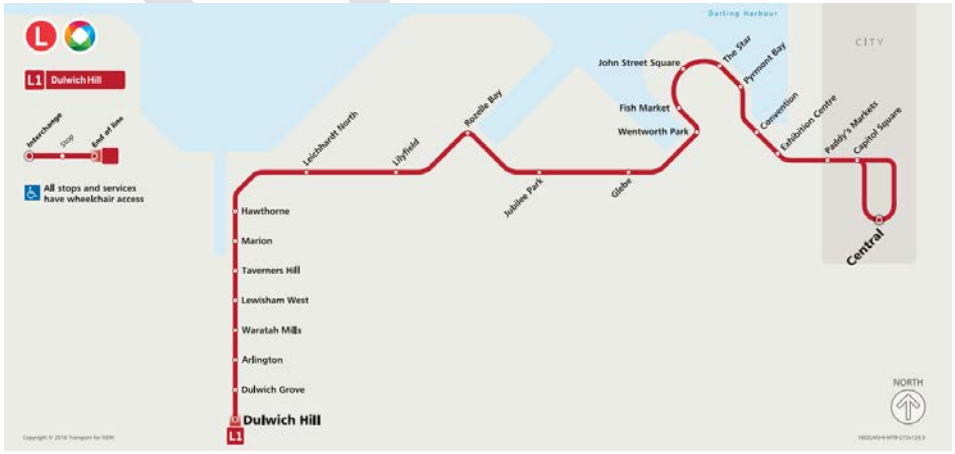


3.1.2 Light Rail

The L1 Dulwich Hill light rail runs from Dulwich Hill to Central via Rozelle Bay, Lilyfield, Leichhardt North, Hawthorne and Marion light rail stops. Services operate every 10-15 minutes between 6am and 11pm, Sunday to Thursday, and until midnight on Friday and Saturday. Bicycles are allowed on light rail spaces for free when space permits.

Further to this, advice provided to Platino from TfNSW on 9 July 2018 regarding the potential uplift in light rail demand from the proposal, notes that "TfNSW constantly review the patronage for the inner west light rail services and would increase the services if required". As such, it is envisaged that adequate public transport connections and services would be provided to cater the proposal, plus other developments within the Taverners Hill Precinct.

Figure 3.3: L1 Dulwich Hill Light Rail Route



Source: Transport for NSW https://transportnsw.info/documents/timetables/93-L1-Dulwich-Hill-Line-20170828.pdf (accessed on 15/06/18)

The Marion Light Rail station is located immediately 200m north of the site (approx. seven-minute walk or one-minute bike ride) and operates daily, every 7-8 minutes during peak periods in either direction. A picture of this station is shown in Figure 3.4.

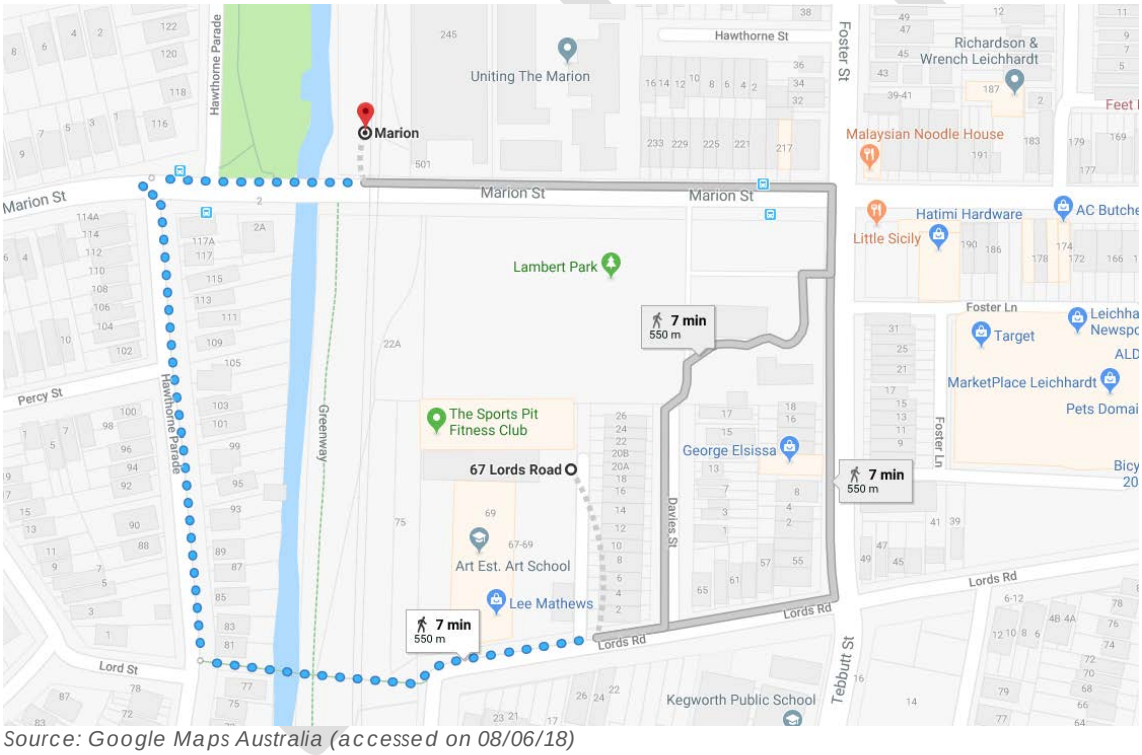
In addition to this, the Taverners Hill Light Rail station (another stop on the L1 Dulwich Hill light rail corridor) is located approximately 450m south of the site.

Figure 3.4: Marion Light Rail Station

Source: Google Images (Jensathit, T Feb 2018)

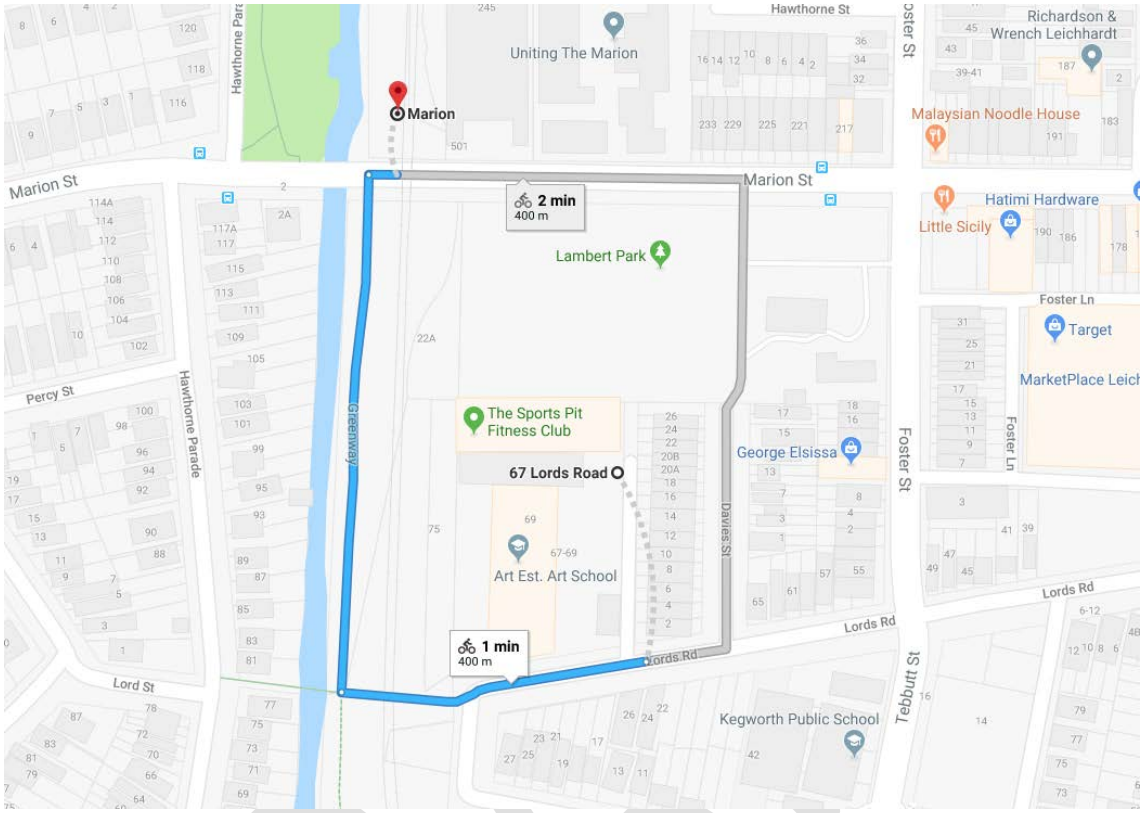
The walk and cycle travel times and routes to the Marion Light Rail station are shown in Figure 3.5 and Figure 3.6, respectively.

Figure 3.5: Walking Route to the Marion Light Rail Station



Source: Google Maps Australia (accessed on 08/06/18)

Figure 3.6: Bike Route to the Marion Light Rail Station



Source: Google Maps Australia (accessed on 08/06/18)

3.2 Existing Bus Services

The Integrated Public Transport Service Planning Guidelines state that bus services influence the travel mode choices of sites within 400 metres (approximately 5 minutes) of a bus stop. However, more recent data collected by TfNSW Transport Performance and Analytics from 2014/15 household travel surveys suggest that walking trips to a bus stop extend further than the traditional 400m distance to a bus stop, as shown in Table 3.2.

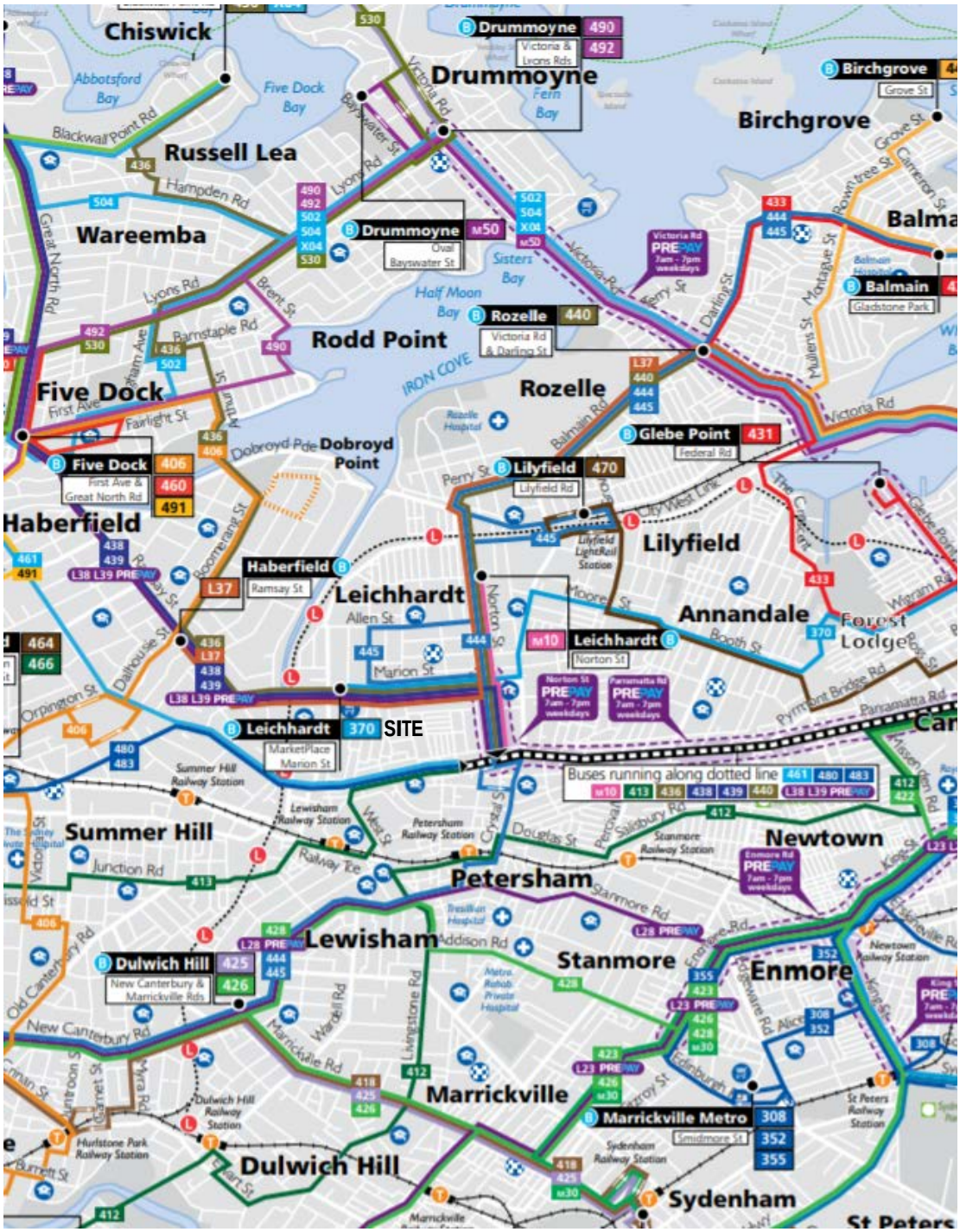
Table 3.2: Population of Walkers to a Bus Stop (Weekday Trips)

Walking Distance	Population	Percentage of Population
Up to 400m	155,948	49%
401m to 800m	91,077	28%
801m and greater	73,632	23%
Total	320,657	100%

Data Source: TfNSW Transport Performance and Analytics Household Travel Surveys 2014/2015

Notably, there are a number of bus stops located within a 400m catchment radius of the site on Marion Street, which provide good public transport access to a myriad of locations across Sydney. The existing bus network map surrounding the site is shown in Figure 3.7.

Figure 3.7: Existing Bus Network Map



Basemap Source: State Transit Inner West Network Map (accessed on 15/06/18) <http://www.sydneybuses.info/>

3.3 Existing Pedestrian Infrastructure

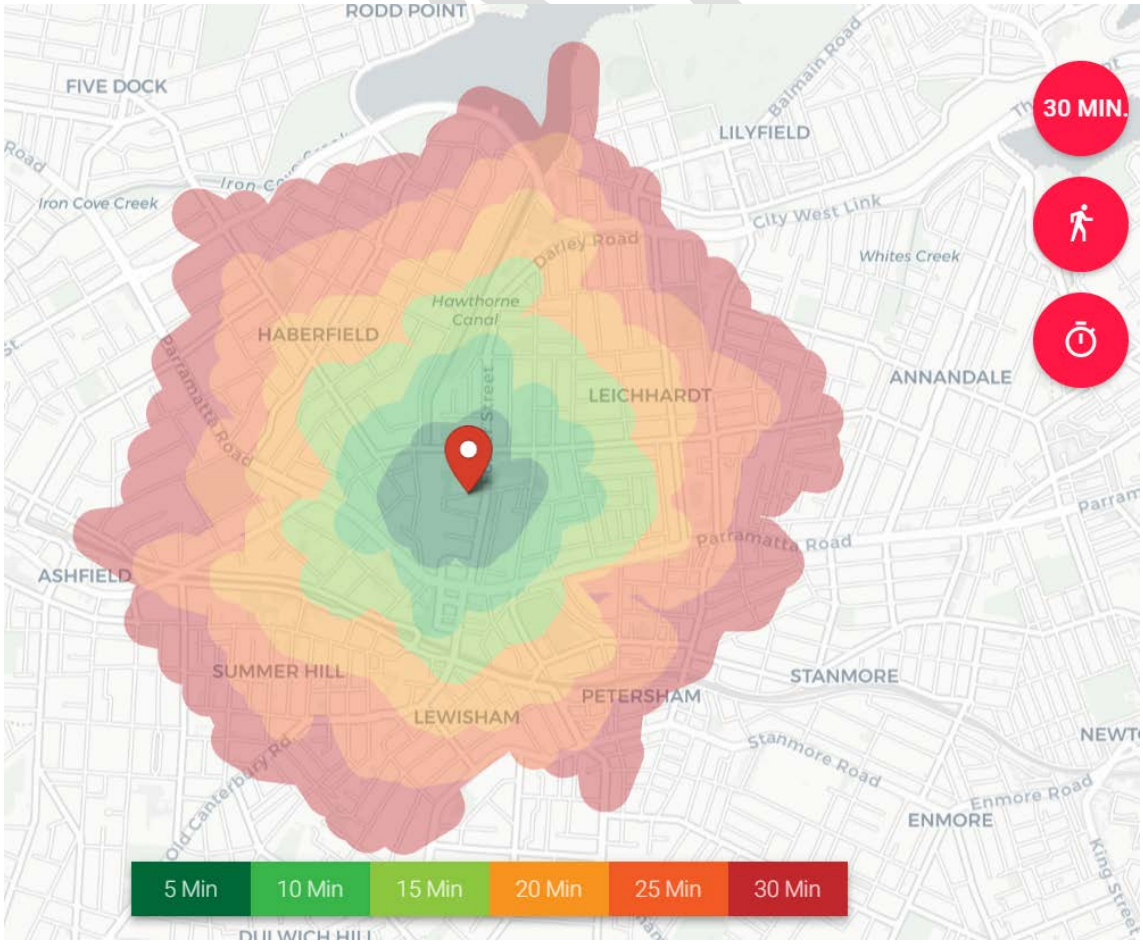
Well-established pedestrian facilities are provided within the vicinity of the site. Sealed pedestrian paths are provided on either side of Lords Road, which provide good pedestrian access to the properties along Lords Road and retail shops on Flood Street, including MarketPlace Leichhardt.

In addition to this, within the immediate vicinity of the site, signalised pedestrian crossings are provided across Lords Road-Foster Street with zebra pedestrian crossings provided at the Lords Road-Flood Street intersection.

The site is located within a 30-minute walk distance to key destinations and attractions in the area, including MarketPlace Leichhardt, child care centres, local café and restaurants and various recreational facilities and parks.

The pedestrian catchment within a 30-minute walk distance from the site is graphically shown in Figure 3.8.

Figure 3.8: Existing Pedestrian Catchment (30-minute walk)

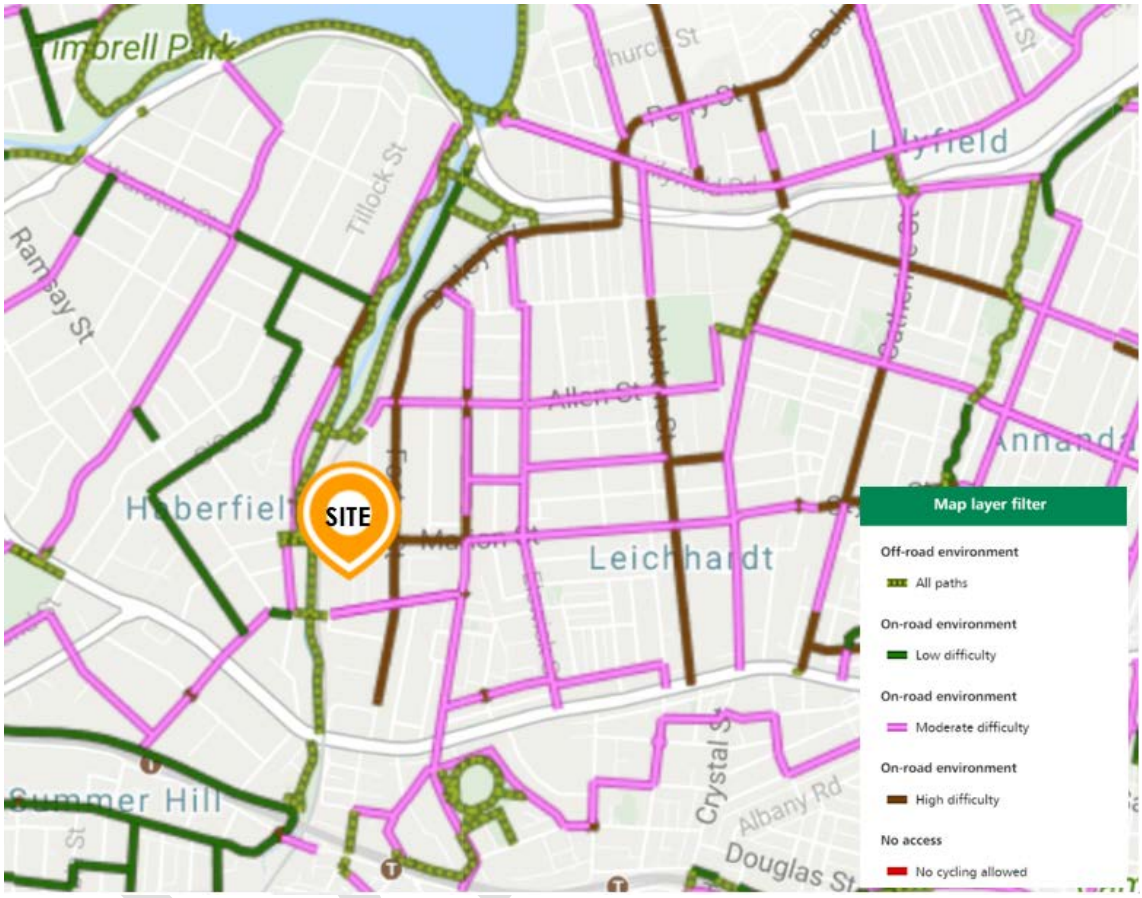


Source: Route360 (accessed on 15/06/18)

3.4 Existing Cycling Infrastructure

A number of on-road and off-road bicycle routes are provided within the immediate vicinity of the site. The existing bicycle route map surrounding the site is presented in Figure 3.9.

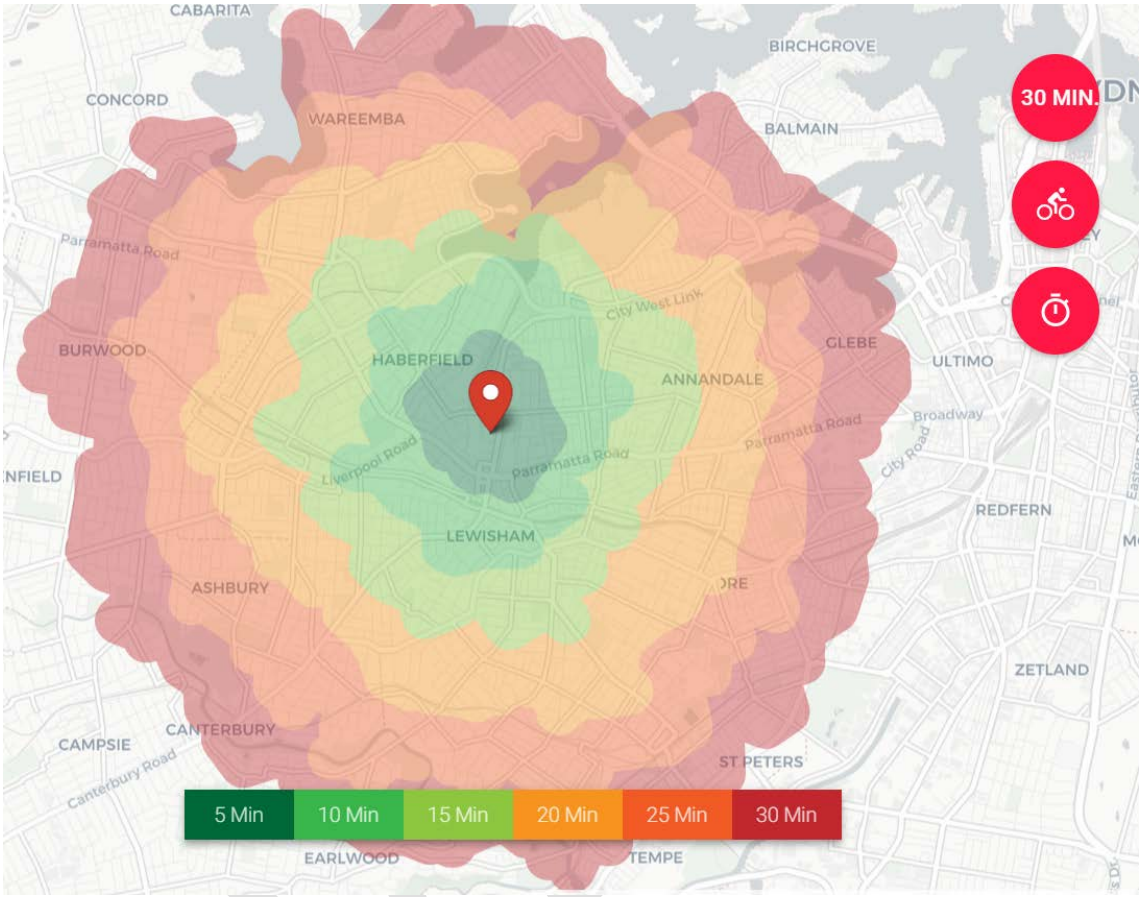
Figure 3.9: Existing Bicycle Route Map



Source: Roads and Maritime Cycleway Finder (accessed on 15/06/18)

Notably, travelling to Marrickville/Newtown suburbs by bike would take about 20 to 30 minutes from the site via existing bicycle routes. As an indication, the cycling catchment area within a 30-minute bike ride from the site is shown in Figure 3.10.

Figure 3.10: Existing Bicycle Catchment (30-minutes)



Source: Route360 (accessed on 15/06/18)

3.5 Car Share

Car sharing is a flexible, cost effective alternative to car ownership and is a convenient and reliable way for residents to use a car when they need one. GoGet is a car share company operated in Australia, with a number of vehicles positioned within the area.

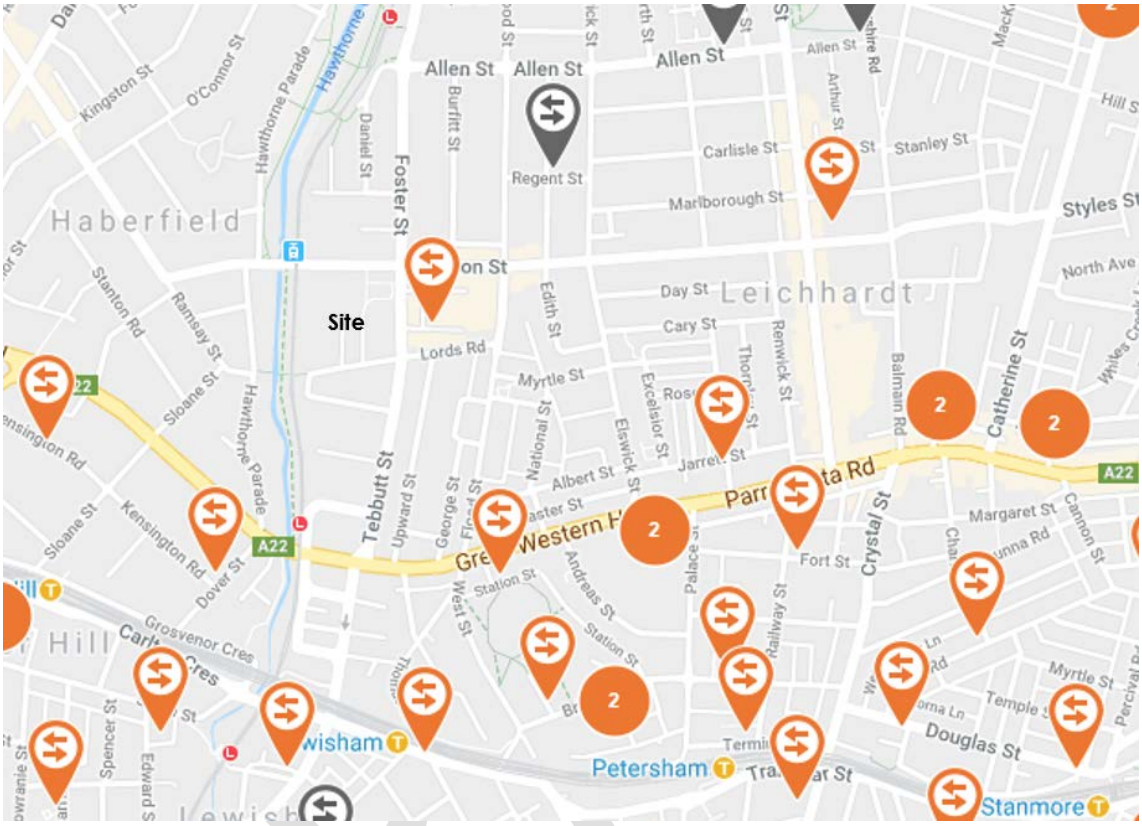
Car share is a concept by which members join a car ownership club, choose a rate plan and pay an annual fee. The fees cover fuel, insurance, maintenance, and cleaning. The vehicles are mostly sedans, but also include SUVs and station wagons. Each vehicle has a home location, referred to as a "pod", either in a parking lot or on a street, typically in a highly-populated urban neighbourhood. Members reserve a car by web or telephone and use a key card to access the vehicle.

Notably, the City of Sydney Council has reported that *"a single car share vehicle can replace up to 12 private vehicles that would otherwise compete for local parking"*.

As such, the provision of car sharing facilities should be able to reduce both the parking demand for the site and the traffic generated by it.

Figure 3.11 shows the location of the existing GoGet vehicles within the immediate vicinity of the site.

Figure 3.11: Location of Existing GoGet Vehicles



Source: GoGet Australia (accessed on14/06/18: https://www.goget.com.au/find-cars/)

In addition to those identified above, the development would consider the provision of car share spaces. This would benefit not only the occupants/residents at the site but also other employees and residents in the vicinity.

3.6 Traffic Surveys and Modal Split

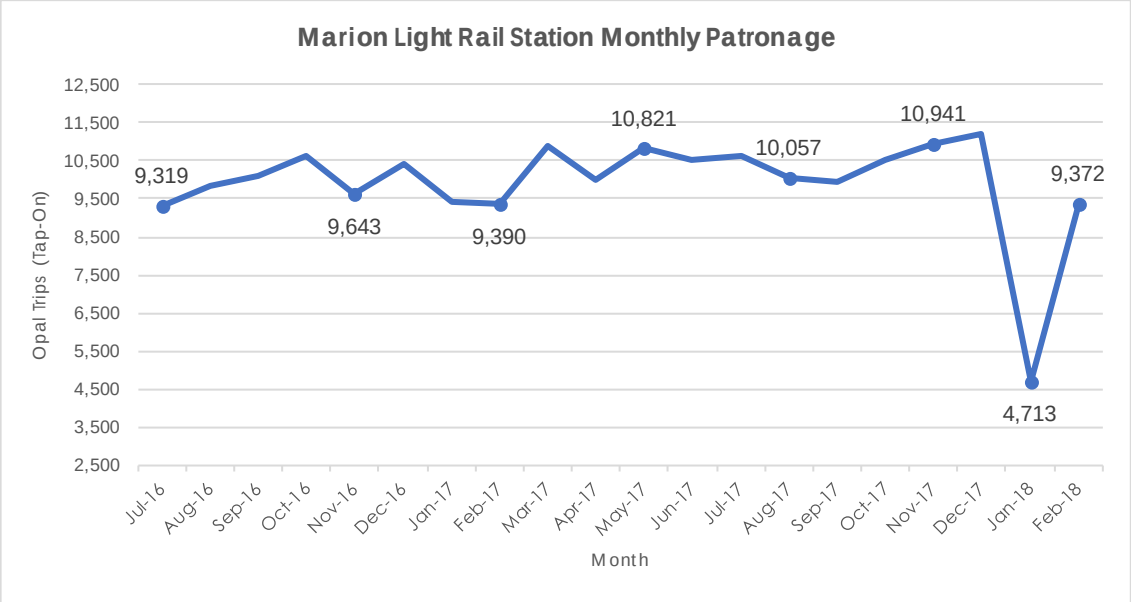
This section contains a review of historical data of existing occupancy figures on public transport facilities, including light rail, bus and ferry services, and household travel survey information obtained from Transport for NSW's Open Data website.

3.6.1 Light Rail Patronage

The Marion Light Rail station was opened in 2014 and provides good public transport connectivity between Dulwich Hill and Central. The Marion Light Rail station currently services some 10,000 patrons per month and is set to increase in the future based on future development in the area and the future connection to the CBD and South East Light Rail link.

A summary of the existing monthly patronage at the Marion Light Rail station is shown in Figure 3.12.

Figure 3.12: Marion Light Rail Monthly Patronage (July 2016 to February 2018)



Note. A significant portion of the Light Rail line was closed during the month of January to allow for construction work as part of the CBD and South East Light Rail project, resulting in lower number of trips in January.

3.6.2 Bus Patronage

Bus patronage surveys on Thursday, 24 November 2017 have been obtained to understand existing bus services, frequencies and capacity within the immediate vicinity of the site along the Marion Street corridor.

The bus patronage surveys have been derived from the following three main sources:

- PTIPS – Public Transport Information and Prioritisation System
- Opal
- Bus Fleet Capacity

A summary of the existing bus frequencies at the nearest bus stops located on Marion Street, near Lambert Park is summarised in Table 3.3.

Table 3.3: Summary of Bus Frequencies near the Site

Cordon	AM Period		PM Period	
	7am-8am	8am-9am	4pm-5pm	5pm-6pm
To City	7	12	8	7
From City	6	8	9	10

The above data excludes any other bus stops located on Parramatta Road, which service bus routes 461, 480 and 484 to the City The Domain and Central station suburbs.

Existing bus services along the Marion Road corridor can currently accommodate a total capacity of some 62-112 bus patrons (people) per bus. Based on the bus patronage surveys, existing bus loads within the immediate vicinity of the site currently operate below its capacity, generally with many seats available during peak times.

The bus patronage surveys provide the following bus capacity classifications:

- **MANY_SEATS_AVAILABLE**
  - If occupancy on the bus is less than 50% of the seating capacity (e.g. less than or equal 22 bus patrons)
- **FEW_SEATS_AVAILABLE**
  - If occupancy on the bus is more than 50% of the seating capacity (e.g. more than 22 bus patrons)
- **STANDING_ROOM_ONLY**
  - If occupancy on the bus is more than the seating capacity of the bus (e.g. more than 45 bus patrons)

With the above in mind, the existing bus loadings/capacities at the selected bus stops on Marion Street, near Lambert Park during the AM and PM peak periods are summarised in Figure 3.13 and Figure 3.14.

The following graphs show how many buses currently operate during the peak periods and their associated bus capacity classification.

Figure 3.13: Existing Peak Bus Capacities (Bus Stop 204080) – To City

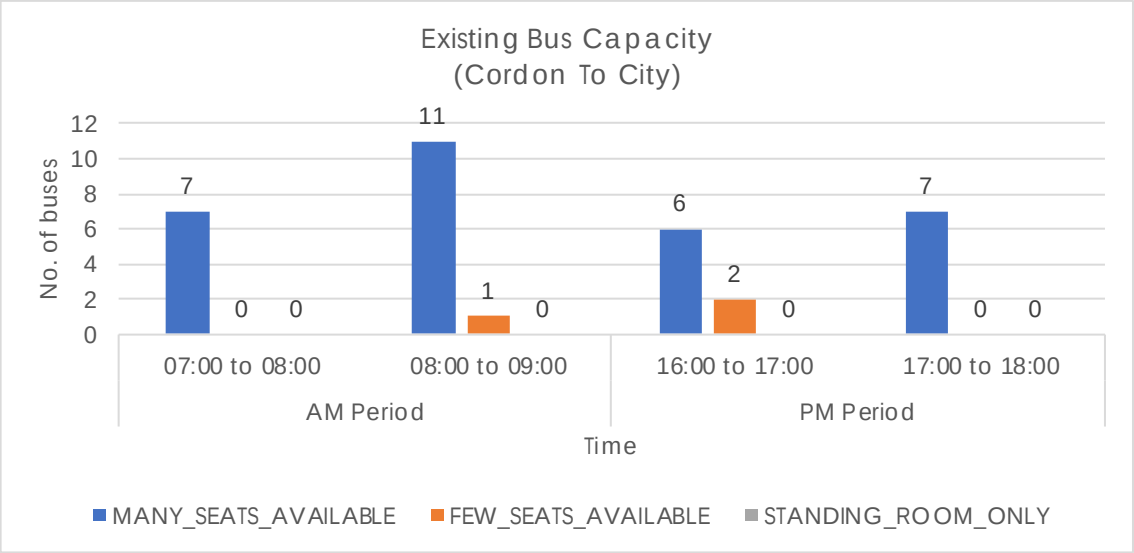
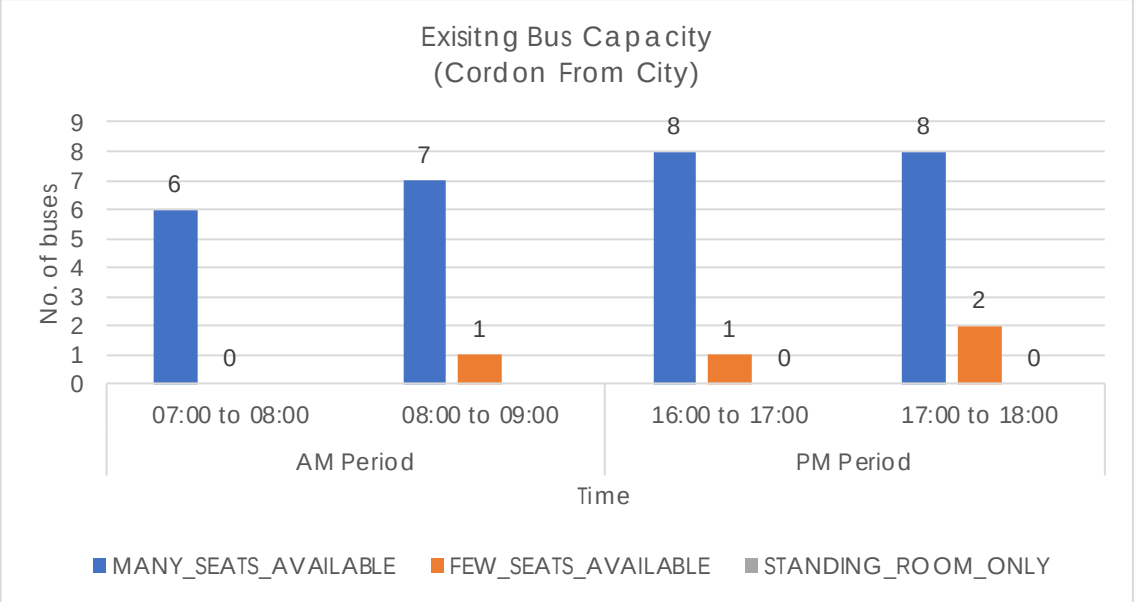


Figure 3.14: Existing Peak Bus Capacities (Bus Stop 204082) – From City



As such, the existing bus facilities within the immediate vicinity of the site currently operate well below its capacity, with spare capacity for any additional bus trips generated by the proposed development site (e.g. residents, visitors, staff etc.).

3.6.3 Existing Modal Split

Recent 2016 Census data has been obtained to understand existing journey to work trips in the Leichhardt area. Based on this data, 77.5% of working residents travel outside

of the area to work, with the majority of residents working in the Sydney CBD or within the Inner West local government area (outside of Leichhardt).

A summary of the existing modal splits in the Leichhardt area is shown in Table 3.4. As a benchmark, the modal splits in the Greater Sydney Region have also been presented in Table 3.4.

Table 3.4: Journey to Work Modal Splits (2016 Census)

Main Method of Travel	Proportion (%)	
	Leichhardt	Greater Sydney Region Benchmark
Train	12%	19%
Bus	22%	7%
Tram or Ferry	5%	0%
Car Driver	48%	62%
Car Passenger	3%	5%
Motorbike / Scooter	2%	1%
Bicycle	3%	1%
Walk	5%	5%
Total	**100%**	**100%**

Table 3.4 indicates that 39% of working residents travel to work via bus, train or tram, with 51% travelling by car (car driver and car passengers). Comparably, within the Greater Sydney region, a total of 67% of working residents travel to work by car.

Given the recent introduction of the new Marion Light Rail stop in 2014 and current journey to work trip patterns in the area, the site is considered to be well serviced by public transport facilities and shows the potential to generate a modal shift away from car modes to more sustainable transport.

4 Objectives and Targets

4.1 Future Population and Projected Mode Splits

The proposed development is envisaged to generate a net additional 46 and 74 (2-way) vehicle trips during the AM and PM peaks respectively[1]. Based on this metric, the projected modal splits for the development are shown in Table 4.1.

Table 4.1: Projected Journey to Work Modal Splits

Main method of Travel	Leichhardt (Proportion %)	Net Proposed Development Trips (No. of Trips)	
		AM Peak	PM Peak
Train	12%	11	17
Bus	22%	20	32
Tram or Ferry	5%	5	7
Car Driver	48%	46	74
Car Passenger	3%		
Motorbike / Scooter	2%	2	3
Bicycle	3%	3	4
Walk	5%	5	7
Total	**100%**	**92**	**144**

Based on this, the proposed development is expected to generate a net additional 20-34 bus trips, 5-7 ferry trips, 11-17 train trips and 8-11 walking or cycling trips during peak periods.

4.2 Objectives

The following objectives have been identified in order to achieve the vision of the GTP.

Objective 1: Facilitate a shift towards more sustainable transport modes

- Improve access, safety, amenity and convenience of sustainable transport modes for travel to and from the site
- Provide incentives for sustainable travel and establish a culture of active and public transport use.
- Continue to encourage non-car based modes by limiting the convenience of car access to the site.

[1] *Varga's Traffic & Parking Assessment Report for Planning Proposal for Residential Zoning (dated 15 May 2014)*

Objectives 2: Make the site a great place to live, work and visit

- Improve access and mobility and enhance the sense of place.
- Reduce the need to travel by co-locating of complementary land uses.

4.3 Mode Share Targets

As indicated previously, the aim of the GTP is to encourage modal shift away from cars by implementing measures that influence the travel patterns of residents, visitors and staff. To ensure that the GTP is having the desired effect, the implementation of the GTP would be regularly monitored. The success of the GTP is measured by setting modal share targets and identifying the measures and actions that have the greatest impact.

The results of the 2016 Census surveys indicate that car driver mode share is 51% in the area. Noting that a modal shift of between 3-5% would be considered to be a significant achievement (as stated by the experts in the LEC), it is considered that the mode share target for car driver should be **46%,** which represents around a 5% modal shift. On this basis, the proposed development would need to influence a modal shift for about 4-7 people per hour to achieve a modal shift of 5%.

Table 4.2: Projected Journey to Work Modal Splits

Main method of Travel	Existing Modal Split	Proposed Modal Split
Train	12%	12%
Bus	22%	22%
Tram or Ferry	5%	10%
Car Driver	48%	43%
Car Passenger	3%	3%
Motorbike / Scooter	2%	2%
Bicycle	3%	3%
Walk	5%	5%
Total	**100%**	**100%**

5 Methods of Encouraging Modal Shift

To achieve the objectives of the GTP, measures will be put in place to influence the travel patterns to/from the site, with a view to encouraging modal shift away from cars.

5.1 Site Specific Measures

The Proponent will implement the following measures to encourage more sustainable travel use.

5.1.1 Walking

Staff employed at the site will be encouraged to walk by implementing a'*10,000 steps per day initiative'*. This involves the provision of high quality pedestrian facilities, including pedestrian paths to/from key public transport hubs and bus stops. Staff members who have achieved the 10,000-step goal over a set period could be rewarded.

5.1.2 Cycling

Provision of high quality cycling infrastructure with end-of-trip facilities will be provided to encourage people to arrive by bicycle. Further to this, all staff, residents and visitors will be encouraged to travel to the site by bike through word of mouth and bicycle maps and routes posted on all noticeboards, newsletters, websites etc, to promote awareness. It is also noted that end of trip facilities are being provided in basement car park.

5.1.3 Public Transport

Public transport noticeboards will be provided in all commercial residential and retail facilities to make staff, residents and visitors more aware of the alternative transport options available. The format of the noticeboards will be based upon the travel access guide.

In addition to this, staff at the site and the initial residents would be provided with pre-loaded Opal cards during either their staff induction or when a resident occupies the site so that travel patterns can be influenced from Day 1.

5.1.4 Travel Share

There will be provision of car sharing facilities at or near the site for use by residents, visitors and staff members. The initiative is aimed at residents and staff members who drive to the site to reduce car ownership and single occupancy car trips.

In addition to this, a carpooling forum will be developed to encourage residents and/or staff to travel in groups. The forum would provide a platform for people travelling on the same route to find each other and form groups. The forum will be posted on noticeboards and in newsletters.

5.1.5 Off-site Measures

The Proponent will consult with Council with a view to implementing several off-site measures to improve the transport connections to and from the site including:

- Investigations with Council to accommodate the bus and cycle facilities within the proposed development masterplan
- Improved signage and way finding from key public transport hubs, to improve the walking and cycling experience. Signage would include wayfinding for cyclists to direct them to the best and safest route to the site and other key destinations.
- Investigations will be carried out to introduce parking stickers or other car park management solutions for residents, staff and visitors as a means of ensuring that the car parks are not utilised by external commuters for 'park and ride'.
- Compliance with the stringent parking controls applicable to the site.
- Investigations with Council to facilitate additional car sharing facilities.
- Introduction of flexible working hours in the commercial facilities to allow staff to commute out of typical peak times to reduce overall congestion and travel time.
- Provision of high quality telecommunication services (internet, phone) to enable residents to work from home, rather than travelling off-site to work.

5.2 GTP Information

The information provided within the GTP will be provided to staff, residents and visitors in the form of a package of easy to understand travel information known as a Travel Access Guide (TAG).

This will be included in the information pack provided to residents and staff on day one.

TAGs provide customised travel information for people travelling to and from a particular site using sustainable forms of transport – walking, cycling and public transport. It provides a simple quick visual look at a location making it easy to see the relationship of site to train stations, light rail stations, bus stops and walking and cycling routes.

Such TAGs encourage the use of non-vehicle mode transport and can reduce associated greenhouse gas emissions and traffic congestion while improving health through active transport choices.

They can take many forms from a map printed on the back of business cards or brochures. Best practice suggests that the information should be as concise, simple and site centred as possible and where possible provided on a single side/sheet. If instructions are too complex, people are likely to ignore them.

This TAG should be available for pick up at various locations at the site such as, at front entrances and noticeboards.

A draft TAG has been prepared for the site and is provided in **Appendix A**.

5.3 Information and Communication

Several opportunities exist to provide staff, residents and visitors with information about nearby transport options. Connecting staff, residents and visitors with information would help to facilitate journey planning and increase their awareness of convenient and inexpensive transport options which support change in travel behaviour.

Transport NSW info

- Bus, train and ferry routes, timetables and journey planning are provided by Transport for New South Wales through their Transport Info website: http://www.transportnsw.info/

Sydney Cycleways

- City of Sydney provides a number of services and a range of information to encourage people of all levels of experience to travel by bicycle. http://sydneycycleways.net/

Similarly such phone apps as TripView display Sydney public transport timetable data and shows a summary view showing current and subsequent services, as well as a full timetable viewer. This timetable data is stored on the phone, so it can be used offline.

Connecting staff, residents and visitors via social media may provide a platform to informally pilot new programs or create travel-buddy networks and communication.

The above web links and any social media platforms may be included within the GTP/TAG.

5.4 Actions

A summary of the key strategy and framework action table is shown in Table 5.1. It should be noted that this framework action table will be updated as required. However, it is stressed that the availability of the suggested strategies on opening is a key factor in influencing travel patterns.

Table 5.1: Framework Action Table

Strategy	Action	Targeted Audience	Timeline	Responsibility
Managing Car Use				
Car Sharing	Provide car sharing facilities to reduce car occupancy	Residents, staff and visitors	Prior Occupation	Proponent
Car Pooling	Establish a car pooling system to reduce single car occupancy and promote social interaction	Residents, staff and visitors	Upon Occupation	Building Manager/Travel Plan Coordinator
Promoting Public Transport				
Travel Pass	Provide a subsided Opal pass	Residents, staff and visitors	Upon Occupation	Building Manager/Travel Plan Coordinator
Promoting Cycling and Walking				
Provision of End-of-Trip Facilities	Provide bicycle parking, showers, lockers and change rooms	Residents, staff and visitors	Prior to Occupation	Proponent
Other				
Green Travel Plan	Provide residents, staff and visitors with the Green Travel Plan to encourage active travel	Residents, staff and visitors	Upon Occupation	Building Manager/Travel Plan Coordinator
Transport Access Guide	Provide residents, staff and visitors with a TAG on day one of occupation/induction and post the TAG on noticeboards, front entrances, Club's online website, etc.	Residents, staff and visitors	Upon Occupation	Building Manager/Travel Plan Coordinator
Ongoing Review	Ongoing review of the GTP to introduce additional measures as required	-	Ongoing	Travel Plan Coordinator

6 Management and Monitoring of the Plan

6.1 Management

There is no standard methodology for the implementation and management of a GTP. However, the GTP will be monitored to ensure that it is achieving the desired benefits. The mode share targets set out in Section 4.3 are used in this regard to ensure there is an overall goal in the management of the GTP.

The monitoring of the GTP would require travel surveys to be undertaken with a focus to establish travel patterns including mode share of trips to and from the Site.

The implementation of the GTP will need a formal Travel Plan Co-ordinator (**TPC**), who will have responsibility for developing, implementing and monitoring the GTP. The TPC will be an appointed staff member of the Club or an independent expert.

It will also be necessary to provide feedback to staff, residents and visitors to ensure that they can see the benefits of sustainable transport.

Indeed, there are several keys to the development and implementation of a successful GTP. These include:

- Communications – Good communications are an essential part of the GTP. It will be necessary to explain the reason for adopting the plan, promote the benefits available and provide information about the alternatives to driving alone.
- Commitment – GTPs involve changing established habits or providing the impetus for people in new developments to choose a travel mode other than private car use. To achieve co-operation, it is essential to promote positively the wider objectives and benefits of the plan. This commitment includes the provision of the necessary resources to implement the plan, beginning with the introduction of the *'carrots'* or incentives for changing travel modes upon occupation.
- Building Consensus – It will be necessary to obtain broad support for the introduction of the plan from the residents, staff and visitors.

Once the plan has been adopted, it is essential to maintain interest in the scheme. Each new initiative in the plan will need to be publicised and marketing of the project as a whole will be important.

7.2 Remedial Actions

A continuous review will take place to identify remedial actions should the modal share targets not be achieved. However, the following measures are proposed both as discrete measures (e.g. car share) and those being proposed as part of the proposed development masterplan:

- Increased cycle parking
- Increased / improved changing facilities /lockers
- Increase in shuttle bus frequency
- Increase use of car share (e.g. GoGet for staff).

Alternatively, the TPC could work with council to see how the measures might be aligned with those identified in councils Active Travel study.

7.3 Consultation

The results of the Green Travel Plan will be communicated with Council, staff, resident, visitors and to the wider community via the noticeboard and/or newsletters.

As such, it is recommended that a summary letter is produced presenting the results of the survey within one month of the undertaking of the travel surveys (say 3-months post-occupation). The letter/report may be also appended to the GTP and submitted to Council for comment. Subsequent surveys would be undertaken after 1, 3 and 5 years.

Communication to staff, residents, visitors and the wider community may be carried out in a similar form by public display of the GTP on noticeboards. Alternatively, a news article on the matter could be included on newsletters and/or an online website.

7.4 Conclusion

It is recommended that travel surveys be undertaken 3-months post-occupation of the site, with this draft GTP updated accordingly to suit the site's existing modal splits and findings of the travel surveys, including opportunities and constraints to influence a modal shift away from car usage. Subsequent surveys should be undertaken after 1, 3 and 5 years.

Appendix A

Transport Access Guide

Transport Access Guide

Use active transport and get your daily physical activity while you travel

67-73 Lords Road, Leichhardt

Proposed Rezoning

Getting Here

Train

Summer Hill Station (1.0km away)

Service Line	T2 Inner West Line
Distance	13 minute walk away
Average Frequency	Every 15 minutes
Journey Time	6 minutes to Burwood 9 minutes to Strathfield 15 minutes to Central

Lewisham Station (1.2km away)

Service Line	T2 Inner West Line
Distance	15 minute walk away
Average Frequency	Every 15 minutes
Journey Time	8 minutes to Burwood 11 minutes to Strathfield 13 minutes to Central

Adult Opal card holders get a $2 discount for every transfer between train, ferry, bus or light rail as part of one journey

Start walking today to achieve a goal of 10,000 steps per day!

Bus

Frequent bus services are available on Marion Road and Paramatta Road located within 10 minute walk from the site.

Route	Description
438	Abbotsford - City Martin Place
439	Mortlake - City Martin Place
L38 L39	PrePay Only Abbotsford - City Martin Place (Limited Stops) Mortlake - City Martin Place (Limited Stops)
436	Chiswick - Central Pitt St
L37	Haberfield - City Town Hall Limited Stop
445	Campsie - Balmain East Wharf via Leichhardt Marketplace
370	Leichhardt Marketplace - Coogee
480	Strathfield - Central Pitt St via Homebush Rd
483	Strathfield - Central Pitt St via South Strathfield
461	Burwood - City Domain
413	Campsie - City Martin Place

Public Transport Information

For detailed route maps, departure and arrival times and service information, please contact Transport Info on 131 500 or visit **transportnsw.info**

Light Rail

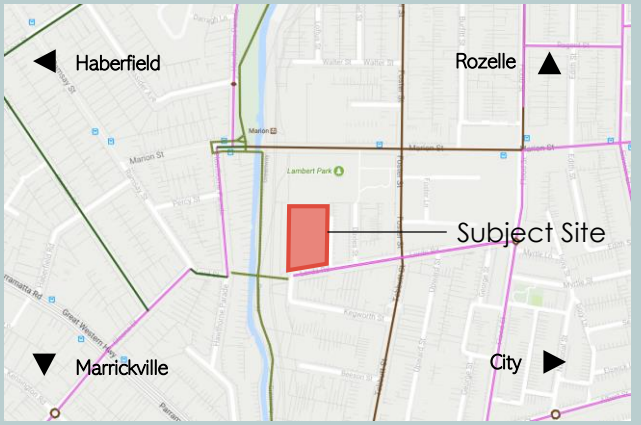
Marion Light Rail Station (500m away)

Average Frequency	Every 12 minutes
Journey Time	31 minutes to Central

Cycle

There are many cycleways of low (green), moderate (pink) and high (brown) difficulty in the proximity of the site, providing connectivity to the City, Rozelle, Haberfield and Marrickville in the east, north, west and south respectively.

Routes



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