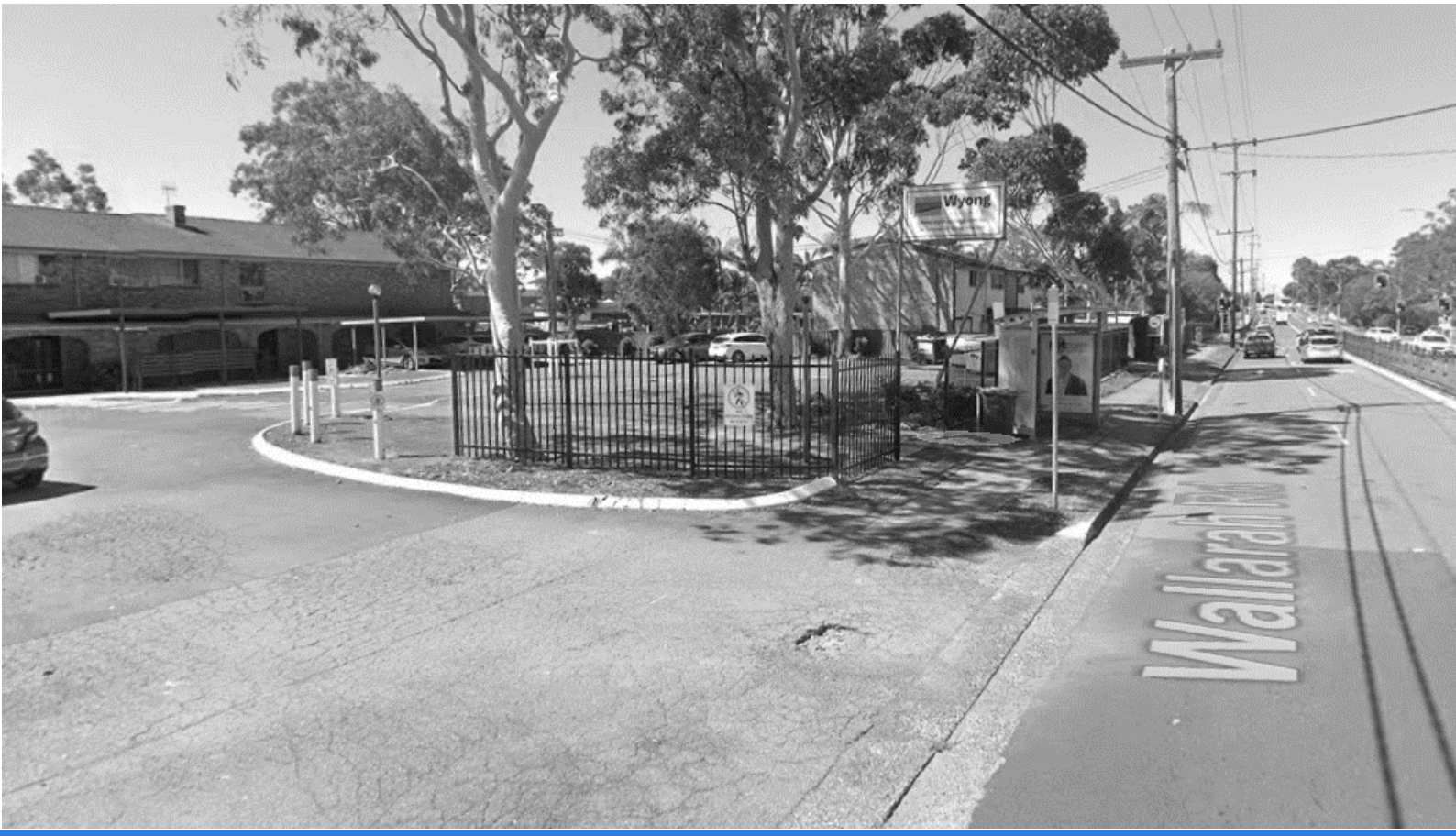

Oasis Redevelopment, Kanwal
Traffic Impact Assessment

Prepared for:

Vivacity

11 September 2023

The Transport Planning Partnership

Oasis Redevelopment, Kanwal

Traffic Impact Assessment

Client: Vivacity

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APPENDICES

1 Introduction

Vivacity is preparing a Planning Proposal to be submitted to Central Coast City Council (Council) for a mixed-use development located at 207-209 Wallarah Road and 755-757 Pacific Highway, Kanwal.

The Transport Planning Partnership (TTPP) Pty Ltd has prepared this traffic impact assessment report on behalf of Vivacity to assesses the traffic and parking implications associated with the proposed development.

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 4 assesses the proposed on-site parking provision and internal layout
- Chapter 5 examines the traffic generation and its impacts,
- Chapter 6 examines the green travel strategies, and
- Chapter 7 presents the conclusions of the assessment.

2 Existing Conditions

2.1 Site Description

The subject site is located at 207-209 Wallarah Road and 755-757 Pacific Highway, Kanwal and falls within the local government area of Central Coast Council.

The existing site known as Oasis Caratel Caravan Park is approved for 100 long-term sites and 45 short-term sites.

The location of the site and its surrounding environment are presented in Figure 2.1.

Figure 2.1: Site Location

2.2 Road Network

Pacific Highway is a two-way state road along part of the western boundary of the site, with generally one travel lane in either direction adjacent to the site. The road serves as a major north-south arterial link, providing connectivity between the Warringah Freeway and M1 Pacific Motorway. The sign-posted speed limit is 70km/h.

Wallarah Road is a two-way state road along the southern boundary of the site, generally aligned in the east to west direction. It generally has two travel lanes in either direction adjacent to the site. The sign-posted speed limit is 50km/h.

2.3 Public Transport Facilities

The proposed development is located adjacent to bus stops on Wallarah Road. The closest bus stop is directly outside the site, opposite Kanwal Village Shops. The bus routes serviced by this stop and its corresponding frequencies are shown in Table 2.1.

Table 2.1: Public Transport Facilities

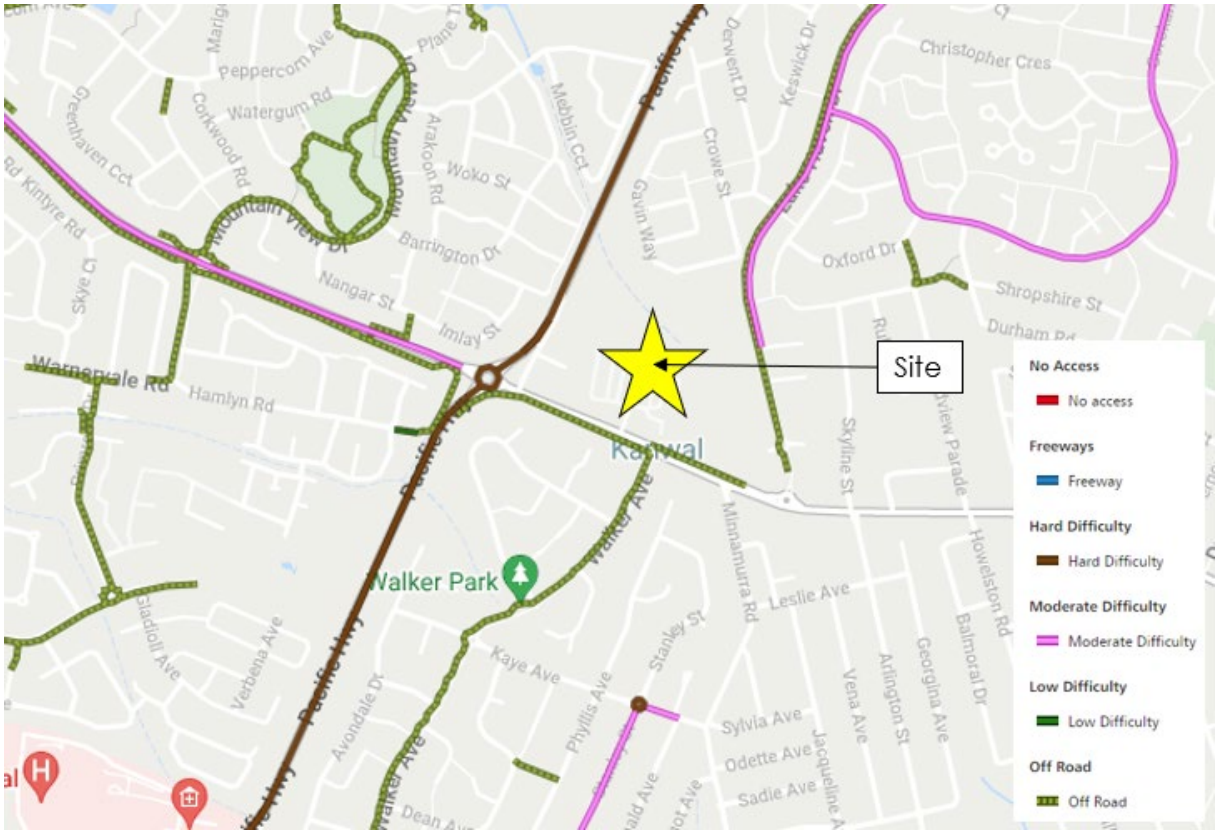
Bus Route	Description	Frequency
11	Lake Haven to Tuggerah via Warnervale	4 PM Services
21	The Entrance North to Gosford via Bateau Bay East	2 AM Services 1 PM Service
29	Bay Village to Wyong Hospital via Lake Haven	2 AM Services 4 PM Services
82	Lake Haven to Tuggerah via Wyongah, Tuggerawong & Tacoma	5 AM Services 8 PM Services
93	Noraville to Tuggerah via Wyong & Toukley	2 PM Services

2.4 Pedestrian and Cyclist Facilities

There are paved pedestrian footpaths provided on Wallarah Road adjacent to the site.

The existing cycle routes within the immediate vicinity of the site are shown in Figure 2.2.

Figure 2.2: Bicycle Route Map



2.5 Traffic Surveys

Classified turning movement surveys (including vehicles, cyclists and pedestrians) were undertaken on Thursday, 27 July 2023 during the morning and evening peak periods, and Saturday, 29 July 2023 during the midday peak period at the following intersections:

- Pacific Highway-Wallarah Road
- Wallarah Road-Walker Avenue
- Wallarah Road-Lake Haven Drive.

The road network peak hours were identified as follows:

- AM Peak – 7:30am-8:30am
- PM Peak – 4:30pm-5:30pm
- Saturday Peak – 11:30am-12:30pm.

The turning movement diagrams have been provided in Appendix A.

2.6 Crash History

Historic crash data has been obtained from Transport for NSW (TfNSW) for the most recent five-year period which data is available. This period is between 2017 to 2021.

During this period there has been 12 crashes recorded in the vicinity of the site on Wallarah Road as shown in Figure 2.3. Eight of these crashes occurred at the signalised intersection between Wallarah Road and Walker Avenue.

Figure 2.3: Crash Map

The detailed summary of these crashes is shown in Table 2.2.

Table 2.2: Crash History Summary

Crash Type	Crash Severity	Natural Lighting
Pedestrian far side (RUM Code 2)	Fatal	Darkness
Right rear (RUM Code 32)	Serious Injury	Daylight
Ped nearside (RUM Code 0)	Serious Injury	Daylight
Left near (RUM Code 16)	Serious Injury	Daylight
Lane change right (RUM Code 34)	Moderate Injury	Daylight
Right through (RUM Code 21)	Moderate Injury	Darkness
Right through (RUM Code 21)	Moderate Injury	Daylight
Rear end	Moderate Injury	Daylight

(RUM Code 30)		
Lane sideswipe (RUM Code 33)	Non-Casualty (Towaway)	Darkness
Right through (RUM Code 21)	Non-Casualty (Towaway)	Darkness
Other same direction (RUM Code 39)	Non-Casualty (Towaway)	Daylight
Lane change right (RUM Code 34)	Non-Casualty (Towaway)	Daylight

As shown in Table 2.2, one crash resulted in a fatality where a car collided with a pedestrian. However, this incident occurred during darkness and only occurred once in the last five years. Therefore, there is no indication of any pattern or evidence of safety issues.

The most common type of crash occurred at the signalised intersection between Wallarah Road and Walker Avenue which resulted from an oncoming vehicle colliding with a vehicle turning right (RUM Code 21). Two of these crashes occurred during darkness. At this intersection those turning right into Walker Avenue have good visibility of oncoming traffic. Therefore, these crashes most likely occurred due to poor gap acceptance by vehicles turning right.

3 Proposed Planning Proposal

3.1 Proposed Site Description

It is proposed to redevelop the site located at 207-209 Wallarah Road and 755-757 Pacific Highway, Kanwal into a mixed-use development. The proposed masterplan is expected to include the following development yields:

- 804 Residential Units
- 2,815m^2 GFA Supermarket
- 2,430m^2 GFA Other Retail
- 356m^2 GFA Commercial Office
- 356m^2 GFA Medical Centre.

The residential component is proposed to include 94 one-bedroom units, 543 two-bedroom units and 167 three-bedroom units.

The masterplan includes seven buildings which are to be serviced by five basement car parks. The indicative site layout is shown in Figure 3.1.

Figure 3.1: Proposed Site Layout

3.2 Proposed Vehicle Access Arrangements

The existing site has a combined entry/exit access point off Wallarah Road that permits left in/left out movements. This driveway will be retained at this location in the future and will continue to operate as a left in/ left out access point for the proposed site.

In addition, a new two-way access is proposed off Wallarah Road, at a fourth arm of the existing signalised T intersection of Wallarah Road and Walker Avenue. The new access will form the northern approach of the intersection, creating a four-leg signalised intersection. The proposed modifications to the Wallarah Road and Walker Avenue intersection is further discussed in Section 5.2.4.

As shown in Figure 3.1, the two site access points are connected via an internal road through the site which provides access to the separate basement car parks.

In addition, an emergency, albeit gated, vehicle access is to be provided off Pacific Highway.

4 Parking Assessment

4.1 Car Parking Assessment

The parking requirements for the proposed development has been assessed with reference to Central Coast Council Development Control Plan 2022 (DCP).

The DCP parking requirements for the proposed development is summarised in Table 4.1.

Table 4.1: DCP Parking Requirement

Parking Type	Net Size	Parking Requirement	Car Parking Requirement
Dwellings (resident)	804 dwellings	Not within 400m of a train station (1.5 spaces per dwelling)	1,206
Dwellings (visitor)		0.2 spaces per dwelling	161
Supermarket	2,815m²	1 space per 30m²	175
Other Retail	2,430m²		
Medical	4 Consulting Rooms	3 spaces per surgery or consulting room, plus 1 space for each professional practitioner and other staff present at any one time	12
	6 Practitioner and Staff		6
Commercial Office	356 m2	1 space per 40m2	9
Total			**1,569**

Table 4.1 shows that it is required to provide a total of 1,569 car spaces based on DCP requirements.

However, a lower parking provision may be considered as part of the travel management strategies implemented as detailed in Section 6 (Green Travel Plan).

There may be an opportunity to provide some portion of the residential component as affordable housing, in which case, a lower car parking requirement would apply for the affordable housing component as follows:

- For each dwelling containing 1 bedroom – at least 0.5 parking spaces, or
- For each dwelling containing 2 bedrooms – at least 1 parking space, or
- For each dwelling containing 3 bedrooms – at least 1.5 parking spaces.

4.2 Accessible Parking Assessment

The DCP states that accessible parking should be provided based on the National Construction Code of Australia, as detailed in the *Disability (Access to Premises — Buildings) Standards 2010*.

On this basis, the commercial facilities and retail facilities are classified as Class 5 and Class 6 developments respectively. Medical facilities are categorised as Class 9a developments. Accessible parking spaces for residential units are dependent on the number of adaptable units being provided. It is assumed that 10% of units are to be adaptable units.

The accessible parking requirements are provided in Table 4.2.

Table 4.2: Accessible Parking Requirements

Parking Type	Size	DCP Parking Requirement	Parking Requirement
Residential	80 Adaptable Units	1 space per adaptable unit	80
Retail (Class 6)	175 spaces	1 space for every 50 car parking spaces of part thereof	4
Medical (Class 9a)	18 spaces	1 space for every 50 car parking spaces or part thereof	1
Commercial (Class 5)	9 spaces	1 space for every 100 car parking spaces or part thereof	1
Total			**86**

Table 4.2 shows that a total of 86 accessible spaces are required, of which 80 spaces are related to residential use and 6 spaces are related to non-residential uses.

It is proposed to comply with these requirements.

4.3 Bicycle Parking Assessment

4.3.1 Bicycle Parking

The DCP specifies bicycle parking requirements for the proposed development as shown in Table 4.3.

Table 4.3: Bicycle Parking Requirement

Parking Type	Size	DCP Parking Requirement	Bicycle Locker Requirement	Bicycle Rack Requirement
Residential Flat Building (Short Stay)	804 Dwellings	1 space per 12 dwellings		67
Residential Flat Building (Long Stay)		1 space per 5 dwellings	161	
Shops (Short Stay)	5,245m² GFA	1 space per 150m² GFA (Minimum 2 spaces)		35
Shops (Long Stay)		1 space per 300m² GFA (Minimum 2 spaces)	18	
Medical Centre (Short Stay)	6 Practitioners	1 space per 4 practitioners		2
Medical Centre (Long Stay)		N/A	-	-
Office (Short Stay)	356m² GFA	1 space per 750m² GFA		**1**
Office (Long Stay)		1 space per 200m² GFA	2	
Total			**181**	**105**

Table 4.3 shows that 181 bicycle lockers are required for residents/staff and 105 bike racks are required for visitors.

It is proposed to comply with these requirements.

4.3.2 End-of-trip Facilities

The DCP specifies requirements for end-of-trip facilities as shown in Table 4.4.

Table 4.4: End-of-Trip Facilities

Parking Type	Size	Parking Requirement	Requirement
Shower	20 spaces	One shower for the first five bike spaces plus an additional shower for each additional 10 bike spaces	3
Change Rooms	3 showers	One change room for every shower. Where two or more changes are provided then separate male and female facilities	3

Table 4.4 shows that 3 showers and 3 change rooms are required to be provided.

It is proposed to comply with these requirements.

4.4 Motorcycle Parking Assessment

Motorcycle parking must be provided at a rate of 1 motorcycle space per 50 car spaces. Therefore, for the required 1,569 car spaces, 31 motorcycle spaces are required. It is proposed to comply with this requirement.

All motorcycle parking spaces provided would be designed in accordance with AS2890.1:2004.

4.5 Waste Collection and Service Requirement

Waste collection and loading is to occur on site. A separate loading dock is to be provided for each building containing commercial/ retail floor area, that is, within Building A, B, C, G and F. Therefore, the site accommodates five loading docks.

According to the DCP, all commercial developments have a need for access by delivery/service vehicles and as a minimum, these developments are to provide loading facilities for a small rigid vehicle (SRV).

It is expected that the supermarket would require a up to a 19m semi-trailer for deliveries. As such, the supermarket loading dock is to be designed to accommodate up to a 19m semi-trailer.

The remaining loading docks are to accommodate at least an SRV.

5 Traffic Assessment

5.1 Traffic Generation

5.1.1 Residential

The TfNSW *Guide to Traffic Generating Developments* (2002) (Guide) provides a peak hour vehicle trip rate of 0.29 trips per hour for high-density residential flat buildings in metropolitan sub-regional centres. Therefore, the proposed 806 residential dwellings are expected to generate 233 trips in each peak hour.

5.1.2 Supermarket and Retail

The *Small Suburban Shopping Centres Analysis Report* prepared by Bitzios Consulting in 2018 provides trip generation rates for shopping centres in regional areas. An average trip rate was determined for each peak period. That is, 8.48 trips per 100m^2 GLFA in the AM peak, 11.27 trips per 100m^2 GLFA in the PM peak and 10.56 trips per 100m^2 GLFA in the Saturday peak. Therefore, the proposed 5,245m^2 GFA (3,934m^2 GLFA) supermarket and retail area is expected to generate 333 trips, 443 trips and 415 trips in the AM, PM and Saturday peak periods respectively.

5.1.3 Office

The TfNSW *Technical Direction TDT 2013/04a* provides trip generation rates for offices. These rates are 1.6 trips per 100m^2 GFA in the AM peak and 1.2 trips per 100m^2 in the PM peak period. Therefore, the proposed office area with 356m^2 is expected to generate 6 trips in the AM peak and 4 trips in the PM peak period.

5.1.4 Medical

The Medical Centres Analysis Report prepared for TfNSW by TEF Consulting in 2015 provides trip generation rates for medical centres. These rates are 7.4 trips per 100m^2 GFA in the AM peak and 5.9 trips per 100m^2 GFA in the PM peak. As no trip rate is provided for the Saturday peak, the higher trip rate of the two has been adopted (i.e., 7.4 trips per 100m^2). Therefore, the proposed medical centre with an area of 356m^2 is expected 26 trips in the AM peak and Saturday peak periods and 21 trips in the PM peak.

5.1.5 Traffic Generation Summary

Based on the above estimates, the cumulative traffic generation during each peak period is summarised in Table 5.1.

However, given the extensive size of the development and complementary nature of the proposed land uses, an estimate of traffic generation for each land use as a standalone facility is unrealistic. Typically, developments of this nature generate multi-purpose and linked trips where people are visiting multiple land uses on-site in one trip or stopping by the site as part of another trip.

For the purposes of this assessment, it is assumed that 25% of trips are multi-purpose trips and 25% are passer-by traffic (i.e. existing traffic diverting past the site).

Table 5.1: Trip Generation

Land Use	Size	Trip Rate per Dwelling or 100m²			Trips per Hour		
		AM Peak	PM Peak	Saturday Peak	AM Peak	PM Peak	Saturday Peak
Residential	806 Dwellings	0.29 trips per dwelling			233	233	233
Supermarket	2,815m² GFA (2,111m² GLFA)	8.48	11.27	10.56	179	238	223
Retail	2,430m² GFA (1,823m² GLFA)				154	205	192
Office	356m²	1.6	1.2	-	6	4	0
Medical	356m²	7.4	5.9	7.4	26	21	26
Total (Proposed Development Traffic)					**599**	**702**	**675**
Multi-purpose/ Linked Trips (25%)					-91	-117	-110
Net Proposed Development Traffic					**508**	**585**	**565**
Passing Traffic (25%)					-69	-88	-83
Additional Trips on to Road Network					**439**	**497**	**482**

Table 5.1 indicates that the proposed development would generate a net increase of 439 vehicle trips in the AM peak, 497 vehicle trips in the PM peak and 482 vehicle trips in the Saturday peak to the surrounding road network.

5.2 Traffic Modelling

5.2.1 Scenarios

SIDRA intersection modelling has been carried out for nominated intersections. The following four scenarios have been assessed in this regard:

- Scenario 1 – Existing Conditions 2023
- Scenario 2 – Scenario 1 plus Development Traffic (2023)
- Scenario 3 – Scenario 1 plus 10 years of traffic growth (2033)
- Scenario 4 – Scenario 3 plus Development Traffic (2033).

5.2.2 Traffic Distribution

Various factors impact the traffic distribution patterns of developments such as the location of employment and residential precincts, the layout of arterial road network, usage patterns of the subject land use, location of site access points etc.

In the case of the subject site, traffic has been distributed based upon existing traffic patterns on the road network.

The net additional two-way development traffic is expected to have the following inbound and outbound split:

- Residential land use
  - AM peak and Saturday peak - 20% inbound and 80% outbound
  - PM peak - 80% inbound and 20% outbound
- Non-residential land uses
  - 50% inbound and 50% outbound for all peak periods.

5.2.3 Background Traffic Growth

Future traffic growth has been estimated based on the Sydney's Strategic Travel Forecast Model (STFM) provided by TfNSW. The STFM is a strategic transport planning model that considers population and employment growths and is used for high level assessment of major infrastructure proposals, transport strategies and policy decision making.

The STFM provides future year traffic volumes to determine the relative traffic growth between years for application to the baseline traffic to provide estimations for future year traffic conditions. This has been used to determine the future 10-year background traffic volumes.

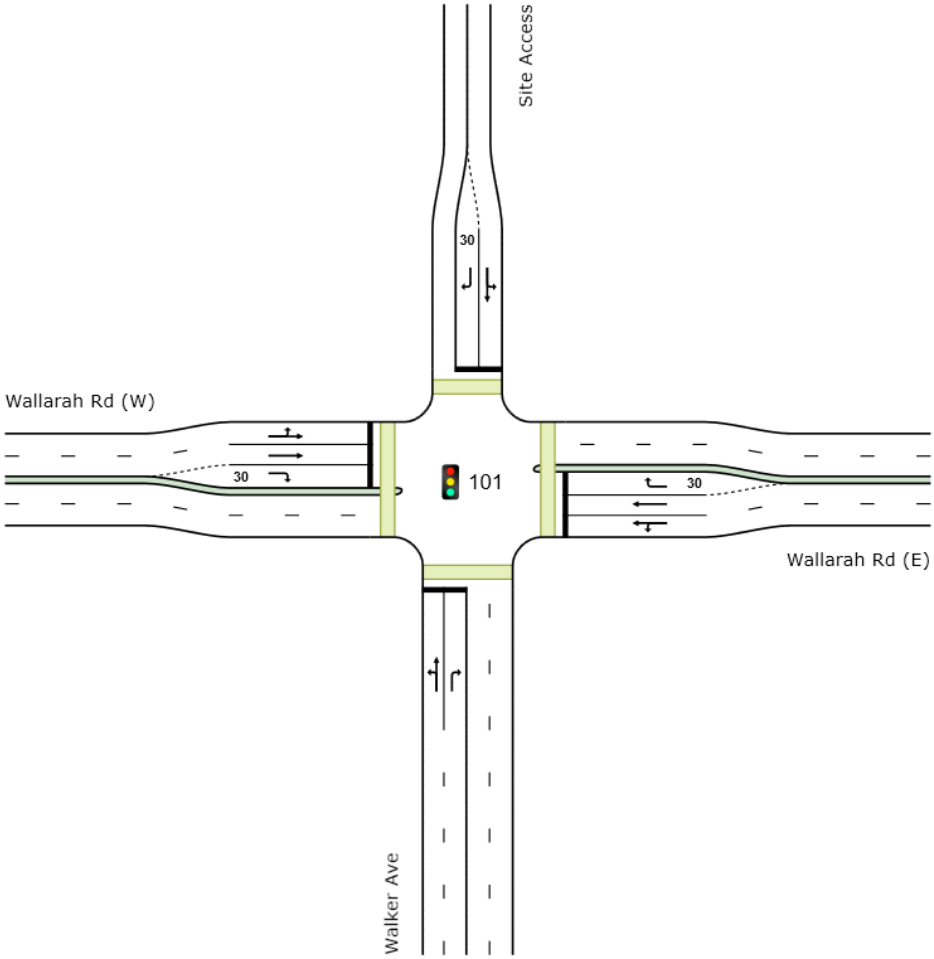
The STFM data has been attached in Appendix B.

5.2.4 Proposed Intersection Layout

The intersection between Wallarah Road and Walker Avenue is proposed to be upgraded from a T-intersection to a four-leg intersection with a new north approach, which would provide access to/from the site. It is also proposed to widen the road to accommodate short 30m right-turn bays on the east and west approaches. These turn lanes are required to allow turning traffic to moveout of the way of through traffic, otherwise turning traffic could impede the through traffic flow.

The proposed intersection layout is shown in Figure 5.1.

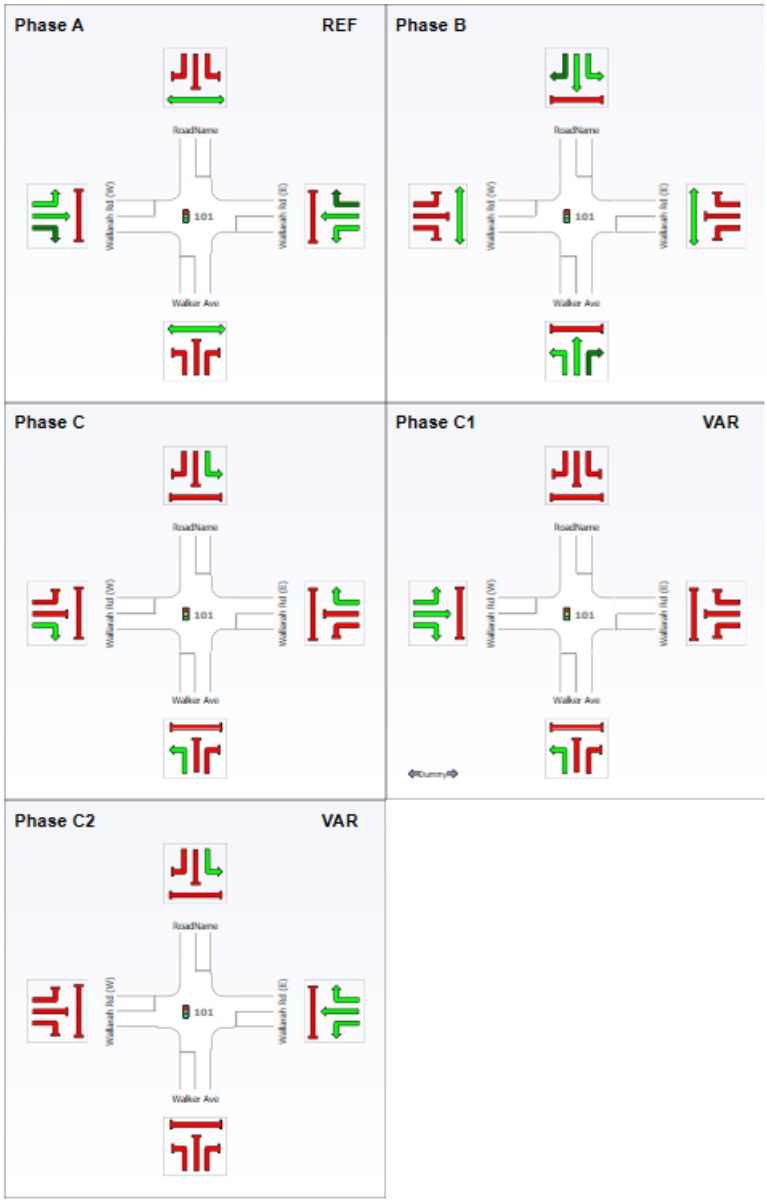
Figure 5.1: Proposed Intersection Layout



5.2.5 Future Traffic Signal Timing and Phasing

The future phase sequence for the intersection between Wallarah Road and Walker Avenue is shown in Figure 5.2.

Figure 5.2: Phase Sequence



The cycle time was adjusted accordingly to align with the changes made to the intersection layout. The cycle time for the existing intersection and future intersection layouts are shown in Table 5.2.

Table 5.2: Cycle Times

Peak	Existing (Seconds)	Future (Seconds)
AM Peak	80	95
PM Peak	80	95
Saturday Peak	60	75

5.2.6 Level of Service Criteria

TfNSW uses level of service as a performance measure to indicate the operating efficiency of a given intersection. The level of service ranges from A to F. Levels of service between A and D indicate the intersection is operating within capacity, with LoS A providing exceptionally good performance to LoS D indicating satisfactory performance. LoS E and F indicate the intersection is operating at or near capacity and generally would require intersection improvement works to maintain reasonable performance.

The level of service is directly related to the average delay experienced by vehicles travelling through the intersection. At signalised intersections, the average delay is the volume weighted average delay over all movements. For roundabouts and priority (give way and stop sign) controlled intersections, the average delay relates to the movement with the highest average delay per vehicle.

Table 5.3 shows the criteria that TfNSW adopts in assessing the level of service at intersections.

Table 5.3: Intersection Level of Service Criteria

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

5.2.7 Modelling Results

The key intersections surrounding the site have been assessed using SIDRA Intersection 9.0, a computer-based modelling package which assesses intersection performance under prevailing traffic conditions.

The SIDRA results for the AM peak, PM peak and the Saturday peak are provided in Table 5.4, Table 5.5 and Table 5.6 respectively.

Table 5.4: AM Peak

Leg	2023 Existing		2023 Existing + DA		2033 Future		2033 Future + DA	
	Average Delay (sec)	Level of Service	Average Delay (sec)	Level of Service	Average Delay (sec)	Level of Service	Average Delay (sec)	Level of Service
Pacific Highway-Wallarah Road	72	F	91	F	254	F	282	F
,Wallarah Road-Walker Avenue	21	B	28	B	27	B	29	C
Wallarah Road- Lake Haven Drive	20	B	23	B	24	B	27	B

Table 5.5: PM Peak

Leg	2023 Existing		2023 Existing + DA		2033 Future		2033 Future + DA	
	Average Delay (sec)	Level of Service	Average Delay (sec)	Level of Service	Average Delay (sec)	Level of Service	Average Delay (sec)	Level of Service
Pacific Highway-Wallarah Road	73	F	120	F	374	F	410	F
Wallarah Road-Walker Avenue	23	B	33	C	28	B	34	C
Wallarah Road- Lake Haven Drive	20	B	24	B	27	B	38	C

Table 5.6: Saturday Peak

Leg	2023 Existing		2023 Existing + DA		2033 Future		2033 Future + DA	
	Average Delay (sec)	Level of Service	Average Delay (sec)	Level of Service	Average Delay (sec)	Level of Service	Average Delay (sec)	Level of Service
Pacific Highway-Wallarah Road	66	E	96	F	276	F	309	F
Wallarah Road-Walker Avenue	19	B	27	B	26	B	34	C
Wallarah Road- Lake Haven Drive	18	B	22	B	24	B	32	C

Table 5.4 to Table 5.6 shows that the surveyed intersections operate as follows:

- Pacific Highway-Wallarah Road roundabout is operating near or at capacity in existing and post development scenarios during all peak periods with LoS E/F.
- Wallarah Road-Walker Avenue is operating well with a LoS B/C in all scenarios during all peak periods.
- Wallarah Road-Lake Haven Drive Avenue is operating well with a LoS B/C in all scenarios during all peak periods.

Therefore, the additional development-generated traffic is expected to have a minor impact on the road network.

There is clearly an existing issue with Pacific Highway-Wallarah Road roundabout and there are plans to upgrade this to a traffic signal.

The subject development would make up a very small percentage of the traffic at this intersection. However a contribution towards any such improvements may be sought via the Housing and Productivity Contribution

The Housing and Productivity Contribution (HPC) replaces the previous Special Infrastructure Contribution (SIC) in the NSW planning legislation.

The Housing and Productivity Contribution is a fair and consistent development charge that will help fund the delivery of infrastructure in high-growth areas. This new system will be simple and fair, increasing investment certainty and supporting connected communities.

The Housing and Productivity Contribution will be made through a Ministerial planning order that will set out:

- the amount of the contribution
- the area where the contributions will apply
- the types of development that the contributions will apply to
- when it needs to be paid and other details about how the contributions will be administered.

The Housing and Productivity Contribution is proposed to apply over much larger areas and set fair and consistent contributions toward the costs of infrastructure provided by the NSW Government.

Currently, SICs apply to small geographical areas that are subject to growth and change. These are a more bespoke approach which don't always provide for consistency and certainty.

When fully implemented, the Housing and Productivity Contribution is expected to collected $700 million annually across the four growth regions, to deliver the infrastructure needed to support housing and productivity.

Some types of development may be exempt from paying the contribution. This may include public housing, seniors housing (within the meaning of the Standard Local Environmental Plan), affordable housing and secondary dwellings (sometimes called 'granny flats') carried out under the Housing State Environmental Planning Policy (SEPP).

The HPC is proposed to commence on 1 October 2023.

It is anticipated that the proposed payment of the HPC would address the off-site traffic impacts on the State and Regional Roads.

6 Green Travel Plan

6.1 Role of the Travel Plan

The purpose of the Green Travel Plan (GTP) is to encapsulate a strategy for managing travel demand that embraces sustainable transport principles. In its simplest form, the Green Travel Plan will encourage use of transport modes with a low environmental impact such as public transport, carpooling, walking and cycling. A Travel Plan Coordinator or member of staff would be responsible for the management of the Plan.

6.2 On-site Parking Provision

A total of 1,569 car parking spaces are required on-site based on DCP requirements.

The green travel strategies mentioned in this section will highlight use of sustainable transport and encourage modal shift away from car usage.

6.3 Existing Transport Context

The proposed development is located adjacent to bus stops on Wallarah Road. The closest bus stop is directly outside the site, opposite Kanwal Village Shops. The bus routes serviced by this stop and its corresponding frequencies are shown in Table 2.1.

6.4 Pedestrian and Cycling Infrastructure

There are paved pedestrian footpaths provided on Wallarah Road adjacent to the site.

The existing cycle routes within the immediate vicinity of the site are shown in Figure 2.2

6.5 Methods of Encouraging Modal Shift

The following may be implemented by the Site Operator to encourage more sustainable travel to work:

- **Reduction of Car Parking Provision**
  - Reduction of car parking provision should be considered as a measure to promote sustainable travel by reducing the ease of driving, due to a constrained parking environment.

- **Public transport:**
  - Provide service timetable and route map for nearby bus services on noticeboards in the workplace where they will be visible to all employees (e.g. staff lunch room) and in apartment lobby areas for residents.
  - Consider provision of pre-loaded Opal cards during staff induction and during key hand over for residents to influence their travel pattern from day one.
- **Carpooling:**
  - Senior Management can help match employees living in the same area to travel together to/from work, encouraging carpooling.
- **Walking and cycling:**
  - A walking map showing essential amenities in the vicinity of the site will be provided on noticeboards, newsletters, websites and social media to inform residents and staff that they need not travel far to access supermarkets, restaurants, medical centres, sports facilities, etc
  - Implement a '10,000 steps per day initiative'. Employees who have achieved the 10,000 step goal over a set period could be rewarded.
  - Establish a walking and cycling group, where all staff and residents would be invited to walk and/or cycle together around the neighbourhood, followed by recreational activities/special events within the site. This initiative would help promote and encourage social inclusion, as well as promote walking and cycling as the choice of travel.
  - Provide secure bike storage facilities and end-of-trip facilities for staff and resident use.
- **On-site measures**
  - Provision of high-quality internet services will also be provided to enable residents to work and/or study on-site, rather than travelling off-site.
  - This would also be accompanied by the provision of a small café/retail shop and communal space within the site to negate the need to travel off-site.
- **Off-site measures**
  - Investigations with Council to accommodate the appropriate pedestrian and cycle facilities near the proposed development.
  - 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 with Council to facilitate car sharing facilities.
  - Introduction of flexible working hours where possible to allow staff to commute out of typical peak times to reduce overall congestion and travel time.

- **Transport Access Guide (TAG)**
  - Provision of a TAG to all staff and residents to inform them of their transport options.

6.6 Actions

A summary of the key strategy and framework action table is shown in Table 6.1. 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 from Day One upon occupation is a key factor in influencing travel patterns. The transport objectives are summarised below:

- Objective 1: Facilitate a modal shift towards more sustainable transport modes
- Objective 2: Reduce car ownership and promote car share use
- Objective 3: Reduce the need to travel off-site.

Table 6.1: Framework Action Table

Action	Objective	Responsibility	Timeline
1. Provide limited car parking	1, 2	Proponent	Prior to Occupation
2. Provide secure bicycle parking and a bicycle repair room	1	Proponent	Prior to Occupation
3. Provide a public transport noticeboard at key locations within the site in the form of a travel access guide. This will also be included as part of the welcome pack distributed to all residents and staff prior to occupation.	1, 2, 3	Proponent/ Travel Plan Coordinator	Prior to Occupation
4. Provide high quality telecommunication services and complementary uses on-site	3	Proponent	Prior to Occupation
5. Provide staff and residents with the Green Travel Plan to encourage active travel	1, 2, 3	Travel Plan Coordinator	Upon Occupation
6. Provide public transport incentives/discounts (e.g., $50 preloaded opal cards) upon initial occupation	1	Proponent	Upon Occupation
7. Provide car share spaces on site	2	Proponent/ Travel Plan Coordinator	Ongoing
8. Provide GoGet memberships for staff and residents and provide information of existing car share facilities in the area as part of the welcome pack for all residents and staff	2	Proponent/ Travel Plan Coordinator	Ongoing
9. Establish Walking Groups and Bicycle User Groups with associated online forums	1, 3	Travel Plan Coordinator	Ongoing
10. Review the GTP to introduce additional measures or modify current measures as required	1, 2, 3	Travel Plan Coordinator	Ongoing

6.7 Monitoring the Plan

Monitoring of the Green Travel Plan will be undertaken to ensure residents and staff are continually informed of sustainable transport options for travelling to/ from home and work and encouraged to adopt more sustainable methods of travel. The monitoring of the Plan will require a travel survey of residents and staff to be undertaken with a focus to establish travel patterns and mode share of trips to and from the site.

It will also be necessary to investigate feedback from residents and staff to ensure that the Green Travel Plan is achievable.

For the Plan to be successful, it is key to establish the following:

- Communication – good communications is necessary to promote health, environmental and economic benefits of sustainable transport and provide information about the alternatives to driving alone.
- Commitment – the Plan involves changing established habits or providing the motivation for people in new developments to choose a travel mode other than private car use. To achieve cooperation, incentives or rewards for changing travel behaviour may be necessary.
- Building consensus – it will be necessary to obtain broad support for the introduction of the Plan from residents and employees.

Once the Plan is adopted, it is essential to maintain interest in the scheme. Each new initiative in the Plan will need to be publicised.

At the workplace, any changes to mode shifts, and staff achievements and rewards will be recognised by the company and communicated with employees on a reoccurring basis, for example at quarterly workplace meetings. This can be communicated to residents via a newsletter or posted on noticeboards.

The GTP should be updated at regular intervals (e.g. yearly) to allow for changes to the surrounding transport infrastructure and determine new initiatives to encourage residents and staff to choose sustainable transport options.

7 Conclusion

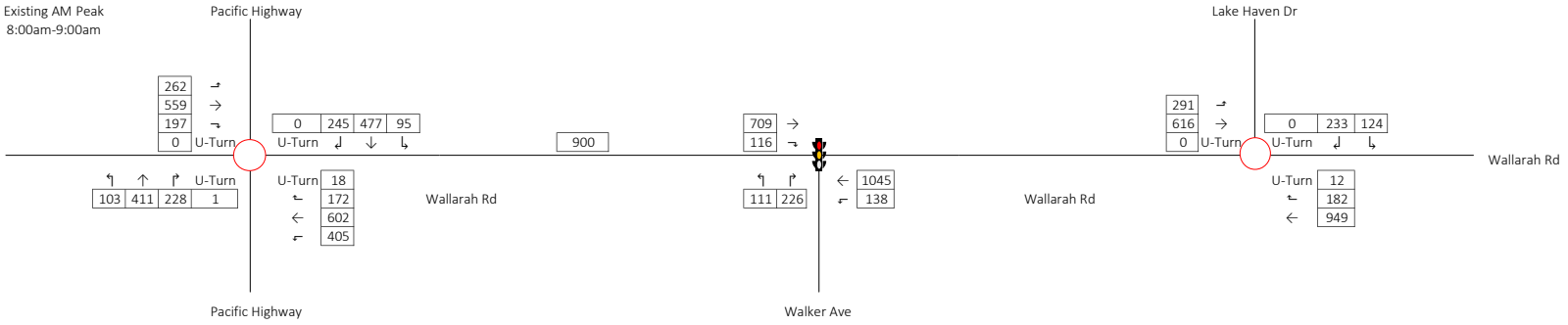
This study details our assessment of the traffic and transport implications associated with the proposed mixed-use development located at 207-209 Wallarah Road and 755-757 Pacific Highway, Kanwal.

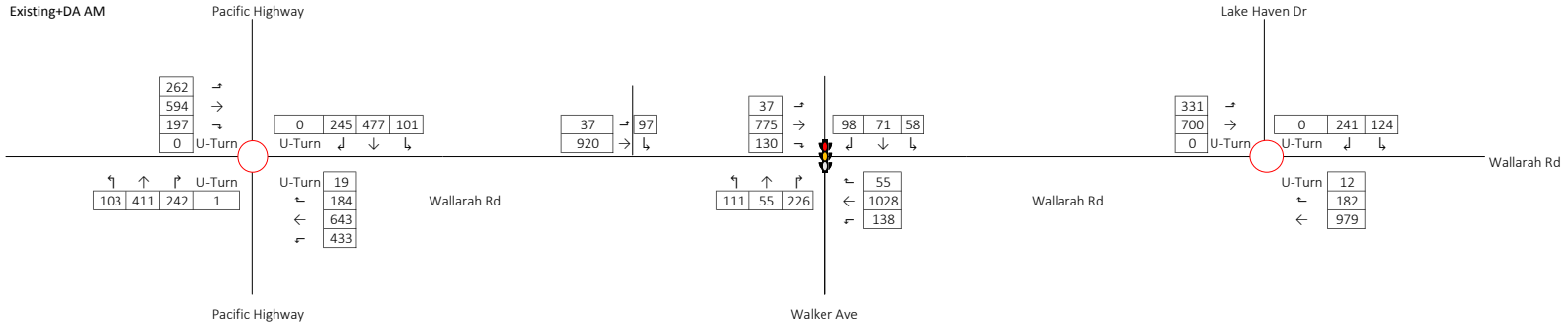
- The proposed development yields include 804 residential units, 2,815m^2 GFA supermarket, 2,430m^2 GFA other retail, 356m^2 GFA commercial office and 356m^2 GFA medical centre
- The site is to be accessed via a two access points on Wallarah Road. One access point is an existing driveway and the second access point would be at the Wallarah Road-Walker Avenue intersection. This would require an upgrade to the intersection to include an additional leg on the north side of the intersection.
- Based on an assessment of the DCP parking requirements, the site is required to provide 1,569 car spaces, of which 1,206 are residential spaces.
- The carparks are to be designed in accordance with the relevant Australian Standards.
- The proposed development is expected to generate a net increase of 439 vph, 497 vph and 482 vph in the AM peak, PM peak and Saturday peak respectively.
- SIDRA intersection modelling of key intersections indicates that the Pacific Highway-Wallarah Road intersection is already operating near or at capacity in the existing conditions with an LoS E/F. This intersection remains at an LoS F in the future scenarios. The Wallarah Road-Walker Avenue and Wallarah Road-Lake Haven Drive intersections both operate well in the existing and future scenarios with an LoS B/C.

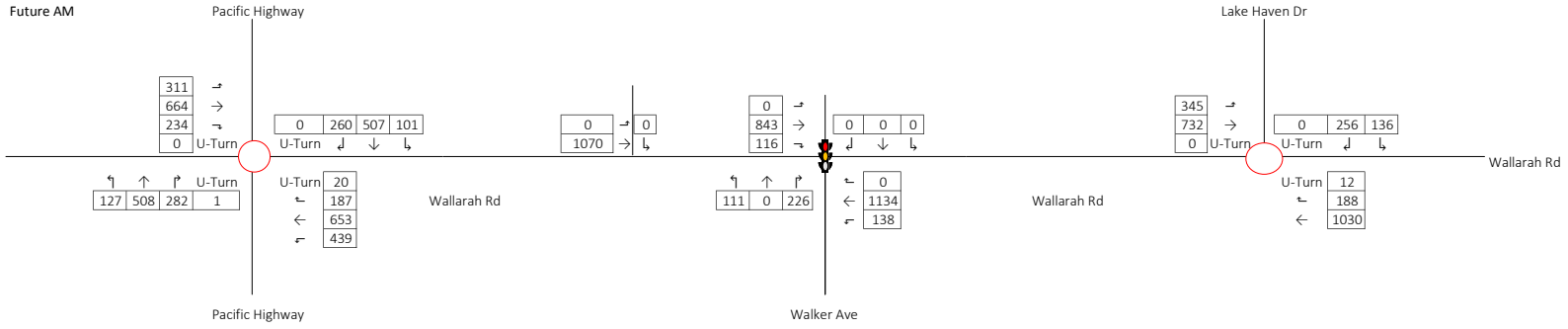
Overall, the traffic and parking aspects of the proposed development are considered to be satisfactory.

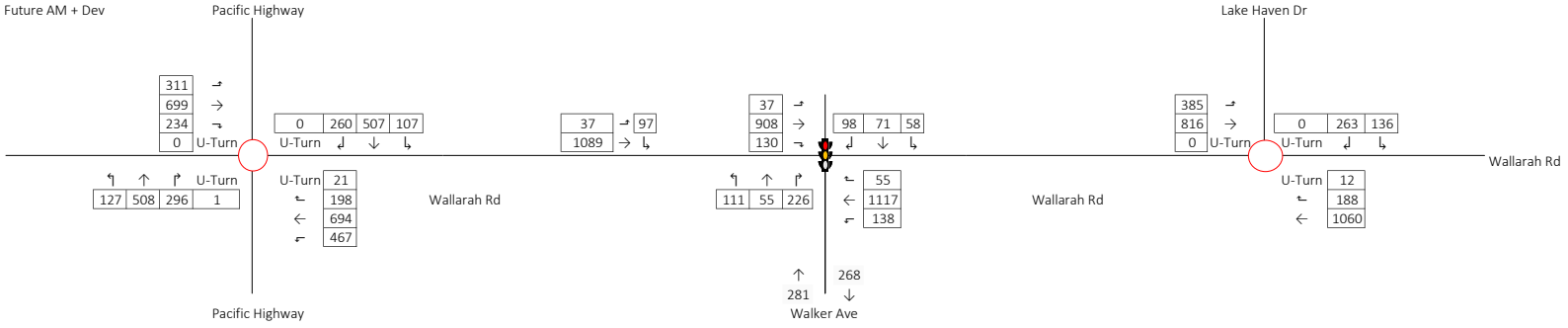
Appendix A

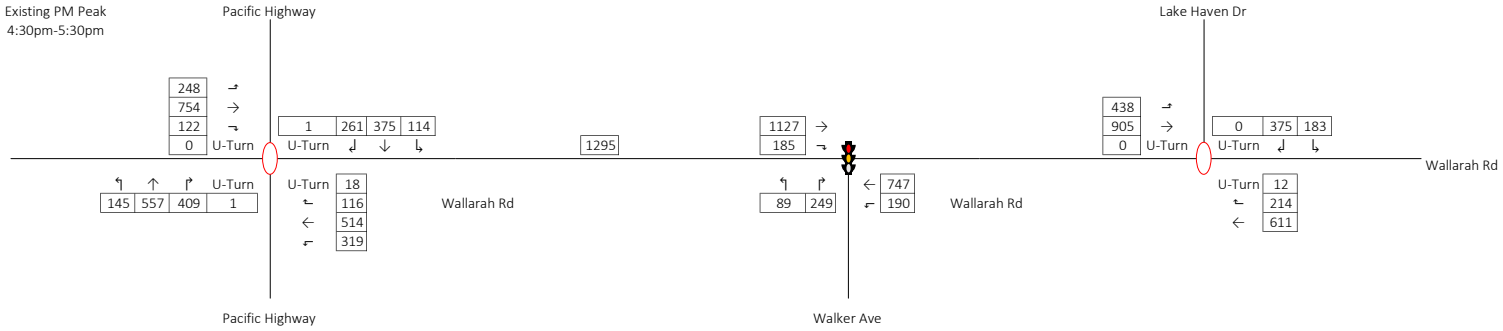
Turning Movement Diagrams

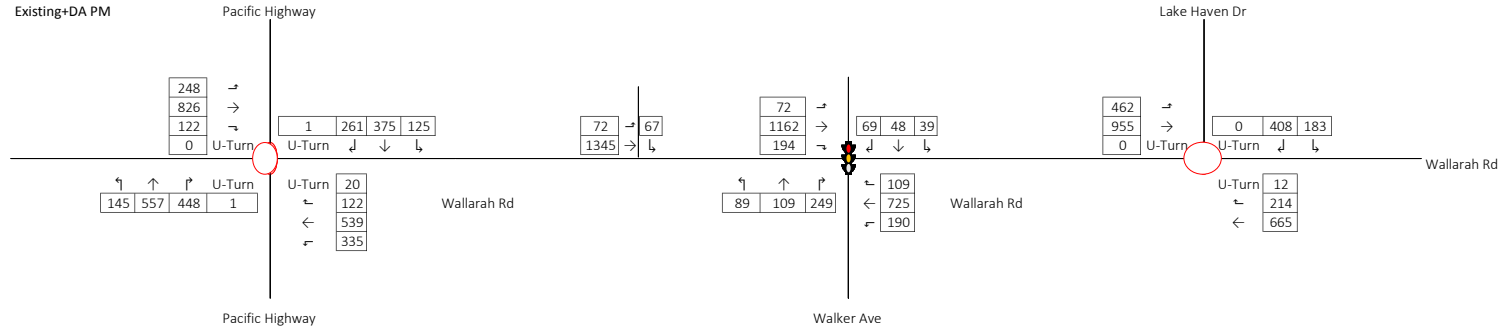

Existing AM Peak
8:00am-9:00am
Pacific Highway
Lake Haven Dr
262
559
197
0 U-Turn
0 245 477 95
U-Turn
900
709
116
291
616
0 U-Turn
0 233 124
U-Turn
Wallarah Rd
103 411 228 1
U-Turn
U-Turn 18
172
602
405
Wallarah Rd
111 226
1045
138
Wallarah Rd
U-Turn 12
182
949
Pacific Highway
Walker Ave

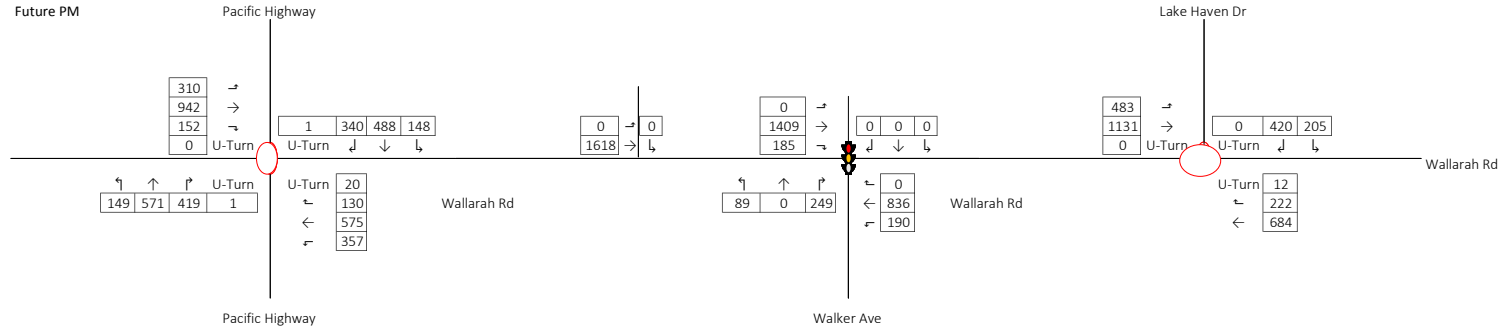

Existing+DA AM
Pacific Highway
Lake Haven Dr
262
594
197
0 U-Turn
0 245 477 101
U-Turn
37
920
97
37
775
130
98 71 58
331
700
0 U-Turn
0 241 124
U-Turn
Wallarah Rd
103 411 242 1
U-Turn
U-Turn 19
184
643
433
Wallarah Rd
111 55 226
55
1028
138
Wallarah Rd
U-Turn 12
182
979
Pacific Highway
Walker Ave

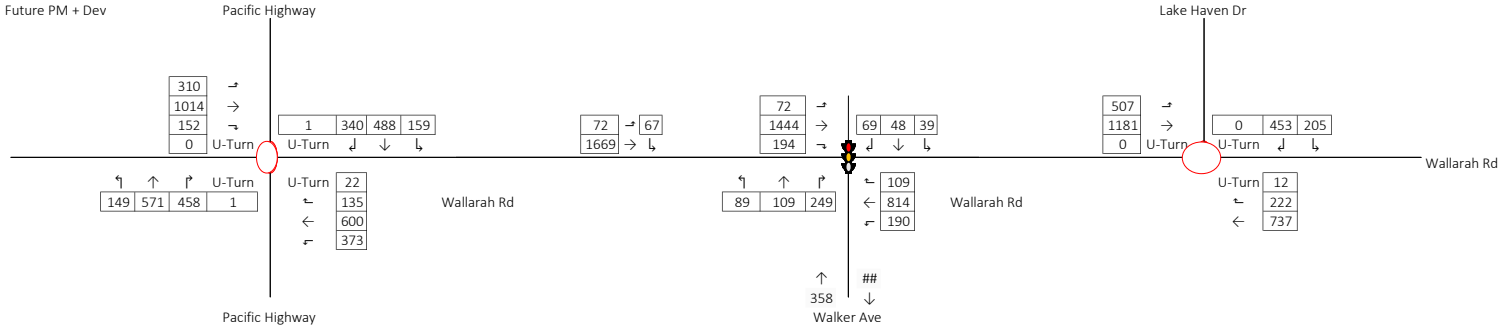

Future AM
Pacific Highway
Lake Haven Dr
311
664
234
0 U-Turn
0 260 507 101
U-Turn
0
1070
0
0
843
116
0 0 0
345
732
0 U-Turn
0 256 136
U-Turn
Wallarah Rd
127 508 282 1
U-Turn
U-Turn 20
187
653
439
Wallarah Rd
111 0 226
0
1134
138
Wallarah Rd
U-Turn 12
188
1030
Pacific Highway
Walker Ave

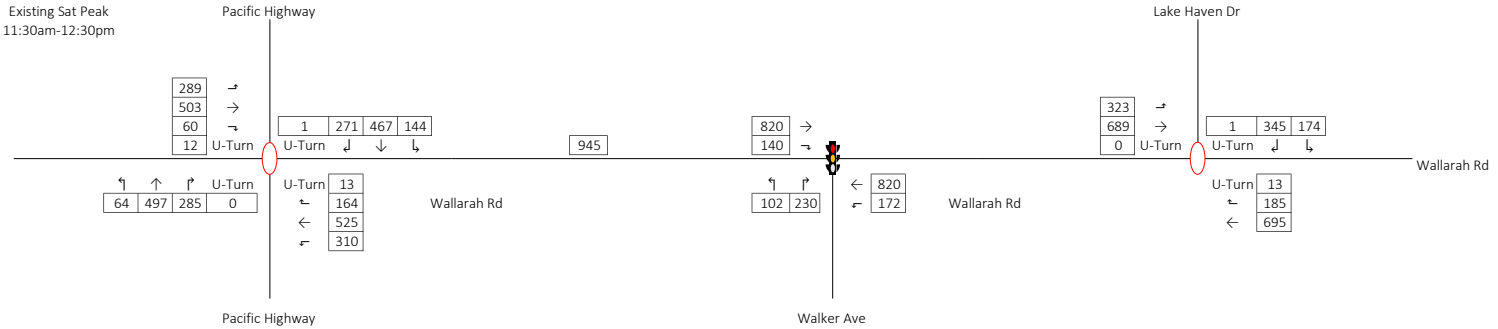

Future AM + Dev
Pacific Highway
Lake Haven Dr
311
699
234
0 U-Turn
0 260 507 107
U-Turn
37
1089
97
37
908
130
98 71 58
385
816
0 U-Turn
0 263 136
U-Turn
Wallarah Rd
127 508 296 1
U-Turn
U-Turn 21
198
694
467
Wallarah Rd
111 55 226
55
1117
138
Wallarah Rd
U-Turn 12
188
1060
281
268
Pacific Highway
Walker Ave

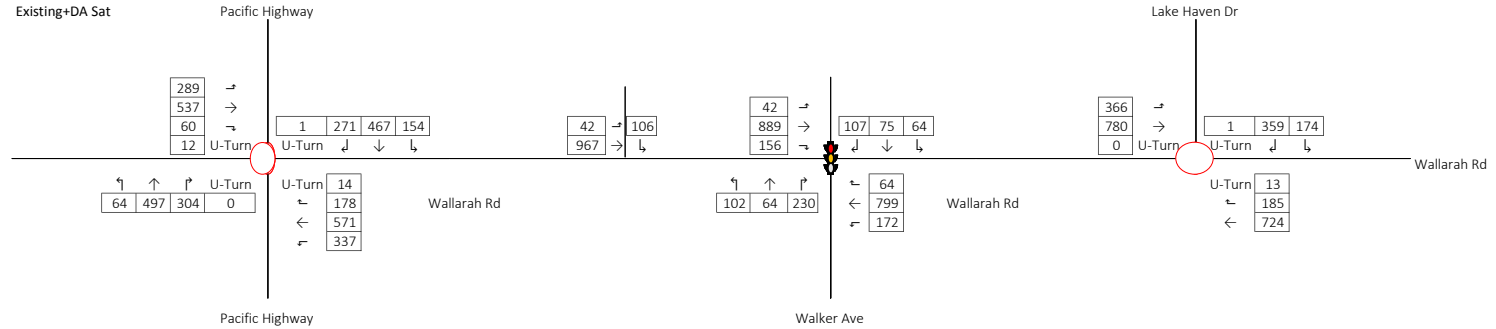

Existing PM Peak
4:30pm-5:30pm
Pacific Highway
Lake Haven Dr
248
754
122
0
U-Turn
1
261
375
114
U-Turn
1295
1127
185
438
905
0
U-Turn
0
375
183
U-Turn
Wallarah Rd
145
557
409
1
U-Turn
U-Turn
18
116
514
319
Wallarah Rd
89
249
747
190
Wallarah Rd
U-Turn
12
214
611
Pacific Highway
Walker Ave

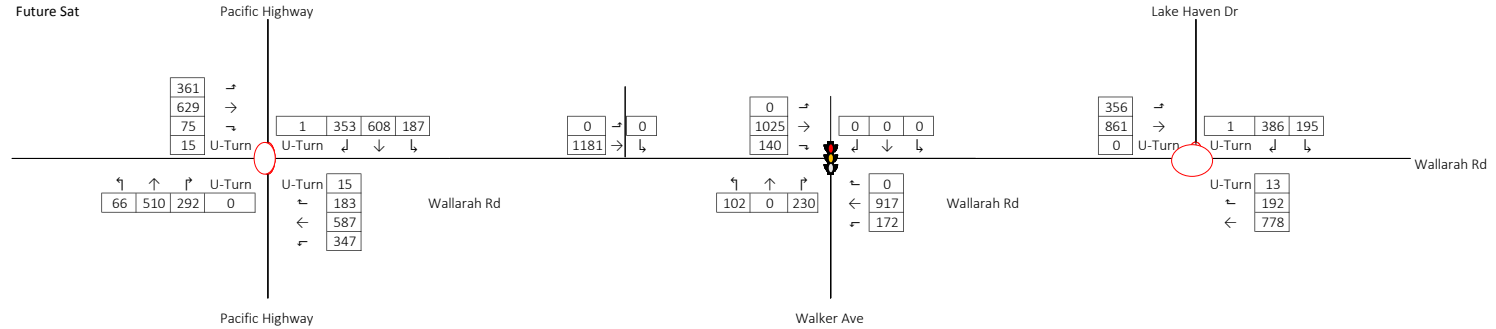

Existing+DA PM
Pacific Highway
Lake Haven Dr
248
826
122
0
U-Turn
1
261
375
125
U-Turn
72
1345
67
72
1162
194
69
48
39
462
955
0
U-Turn
0
408
183
U-Turn
Wallarah Rd
145
557
448
1
U-Turn
U-Turn
20
122
539
335
Wallarah Rd
89
109
249
109
725
190
Wallarah Rd
U-Turn
12
214
665
Pacific Highway
Walker Ave

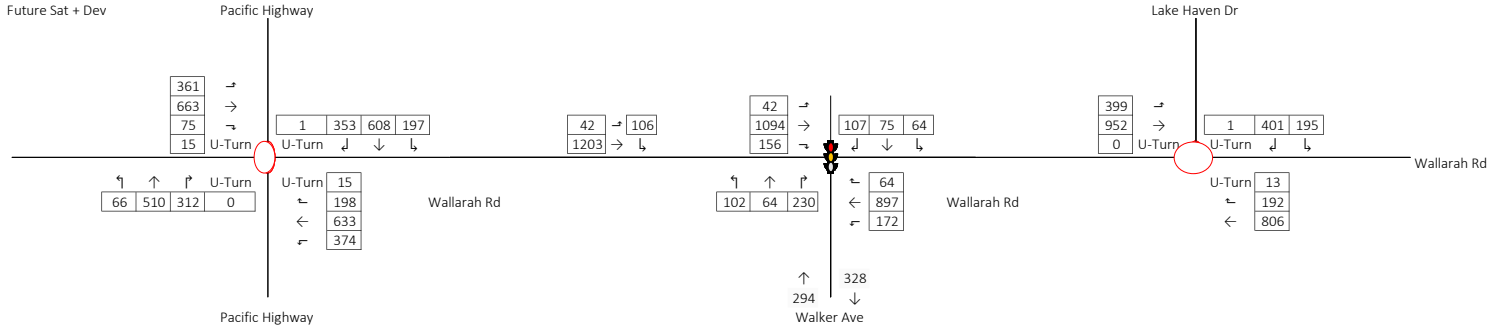

Future PM
Pacific Highway
Lake Haven Dr
310
942
152
0
U-Turn
1
340
488
148
U-Turn
0
1618
0
0
1409
185
0
0
0
483
1131
0
U-Turn
0
420
205
U-Turn
Wallarah Rd
149
571
419
1
U-Turn
U-Turn
20
130
575
357
Wallarah Rd
89
0
249
0
836
190
Wallarah Rd
U-Turn
12
222
684
Pacific Highway
Walker Ave


Future PM + Dev
Pacific Highway
Lake Haven Dr
310
1014
152
0
U-Turn
1
340
488
159
U-Turn
72
1669
67
72
1444
194
69
48
39
507
1181
0
U-Turn
0
453
205
U-Turn
Wallarah Rd
149
571
458
1
U-Turn
U-Turn
22
135
600
373
Wallarah Rd
89
109
249
109
814
190
Wallarah Rd
U-Turn
12
222
737
358
##
Pacific Highway
Walker Ave


Existing Sat Peak
11:30am-12:30pm
Pacific Highway
Lake Haven Dr
289
503
60
12
U-Turn
1
271
467
144
U-Turn
945
820
140
323
689
0
1
345
174
64
497
285
0
13
164
525
310
102
230
820
172
185
695
Wallarah Rd
Pacific Highway
Walker Ave


Existing+DA Sat
Pacific Highway
Lake Haven Dr
289
537
60
12
U-Turn
1
271
467
154
42
967
106
42
889
156
107
75
64
366
780
0
1
359
174
64
497
304
0
14
178
571
337
102
64
230
64
799
172
185
724
Wallarah Rd
Pacific Highway
Walker Ave

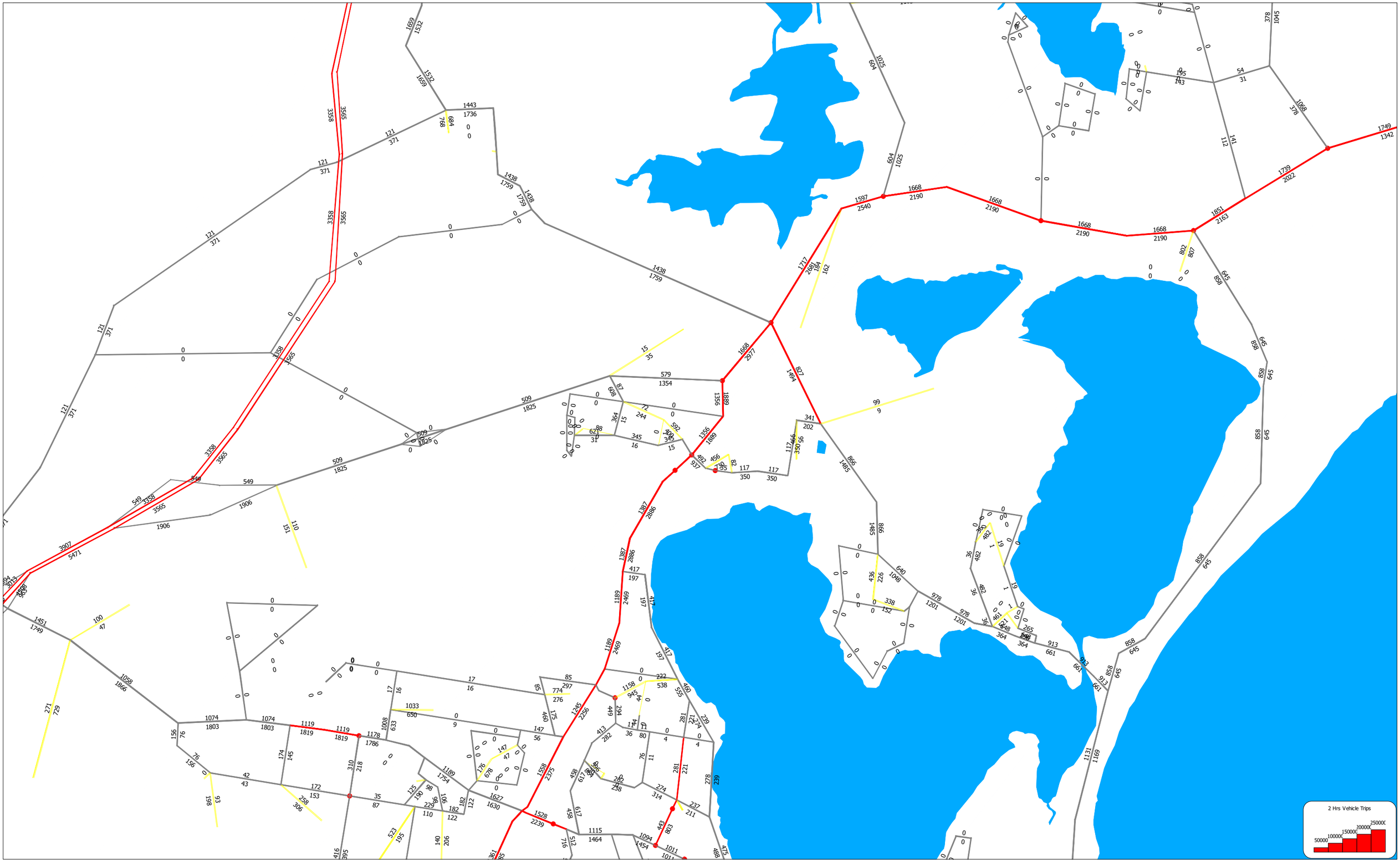

Future Sat
Pacific Highway
Lake Haven Dr
361
629
75
15
U-Turn
1
353
608
187
0
1181
0
0
1025
140
0
0
0
356
861
0
1
386
195
66
510
292
0
15
183
587
347
102
0
230
0
917
172
192
778
Wallarah Rd
Pacific Highway
Walker Ave


Future Sat + Dev
Pacific Highway
Lake Haven Dr
361
663
75
15
U-Turn
1
353
608
197
42
1203
106
42
1094
156
107
75
64
399
952
0
1
401
195
66
510
312
0
15
198
633
374
102
64
230
64
897
172
192
806
294
328
Wallarah Rd
Pacific Highway
Walker Ave

Appendix B

STFM Data

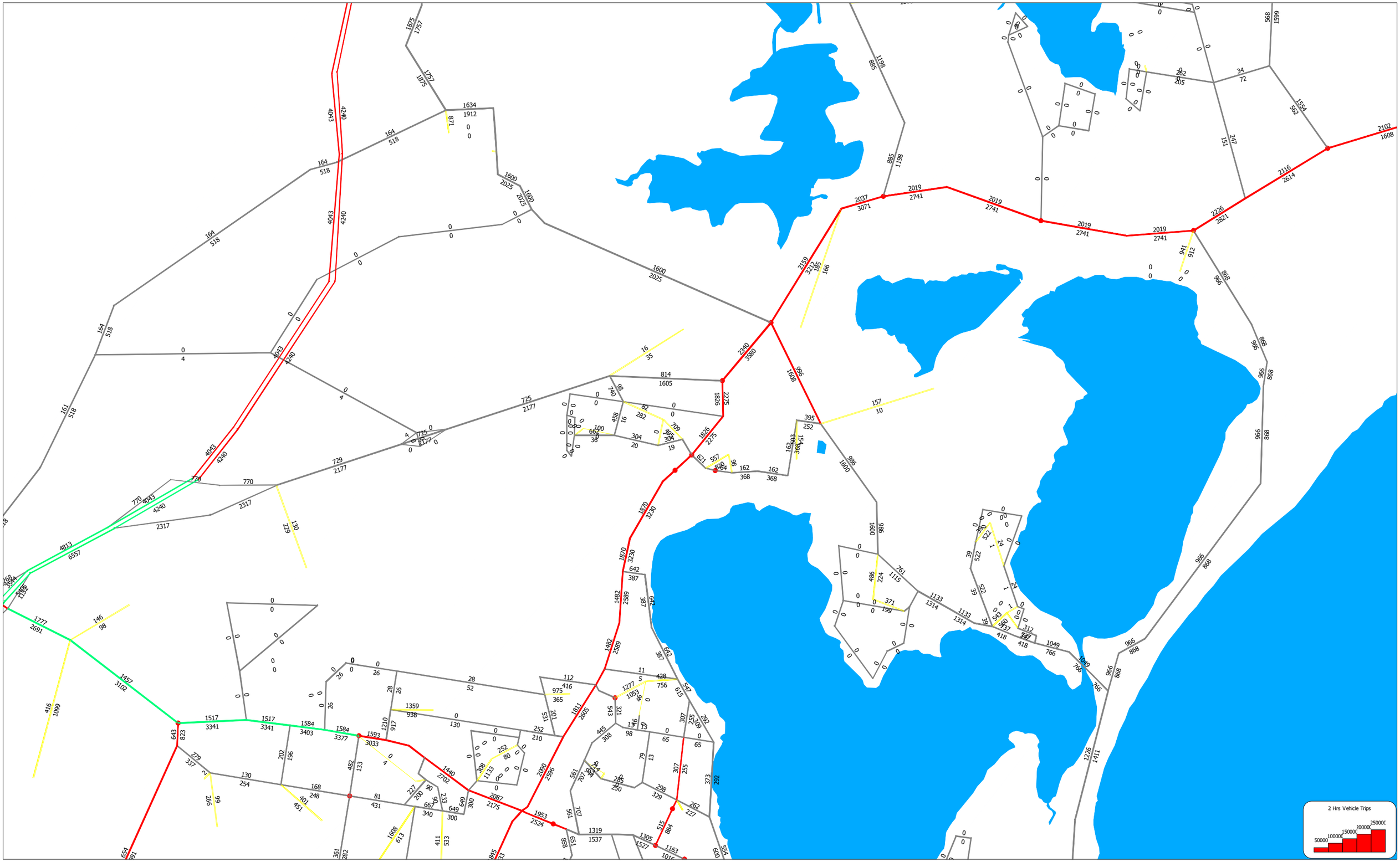
TRAFFIC VOLUMES__



2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL
Scenario 2021: 2021 SYDNEY TRAFFIC FORECASTING MODEL(LU2016V1.3)7-9AM(mf33)
2018-04-11 17:07

LANE (1WAY):
1
2
3
4
5

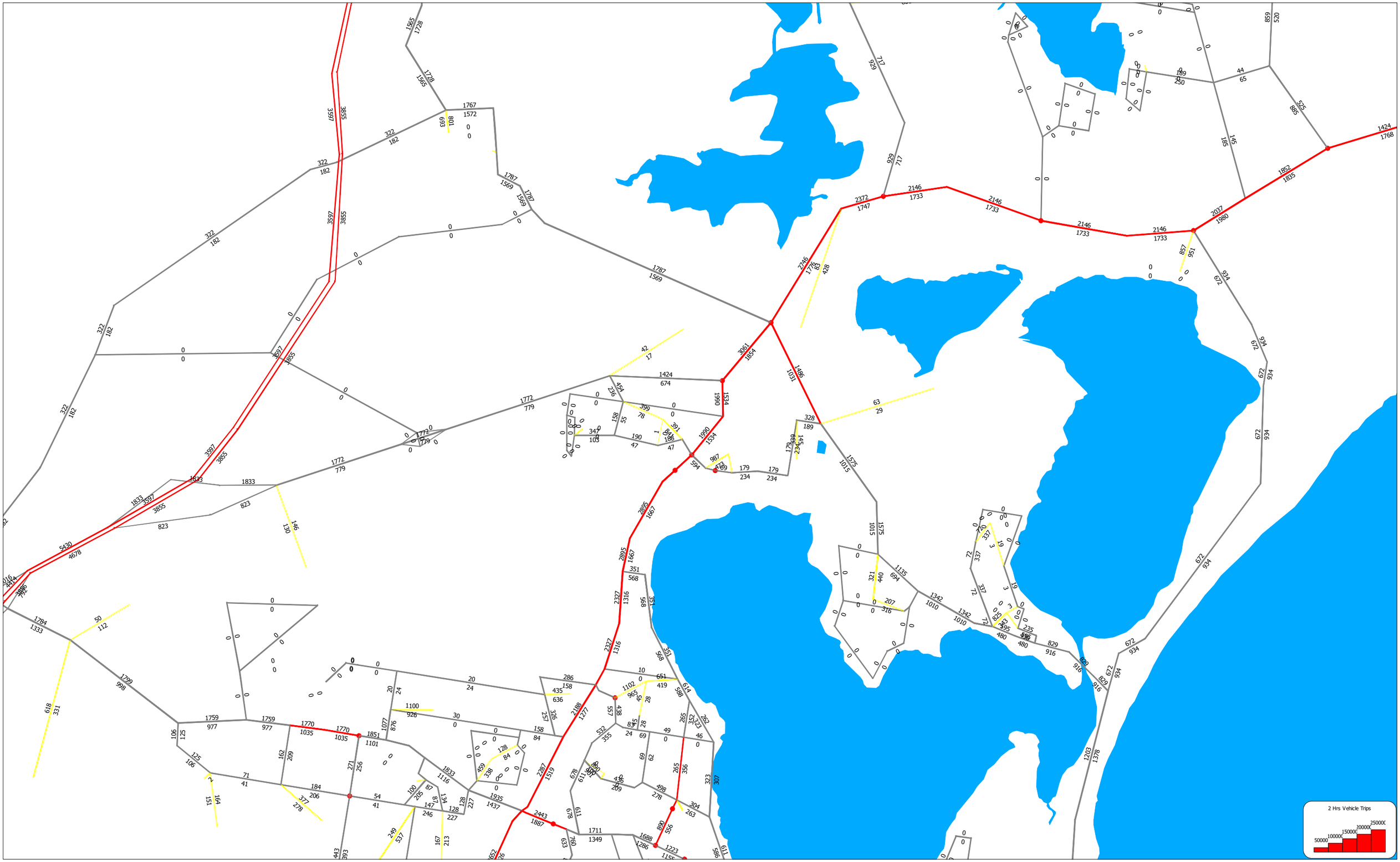
TRAFFIC VOLUMES__



2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL
Scenario 2036: 2036 SYDNEY TRAFFIC FORECASTING MODEL(LU2016V1.3)7-9AM(mf36)
2018-04-11 17:09

LANE (1WAY):
1
2
3
4
5

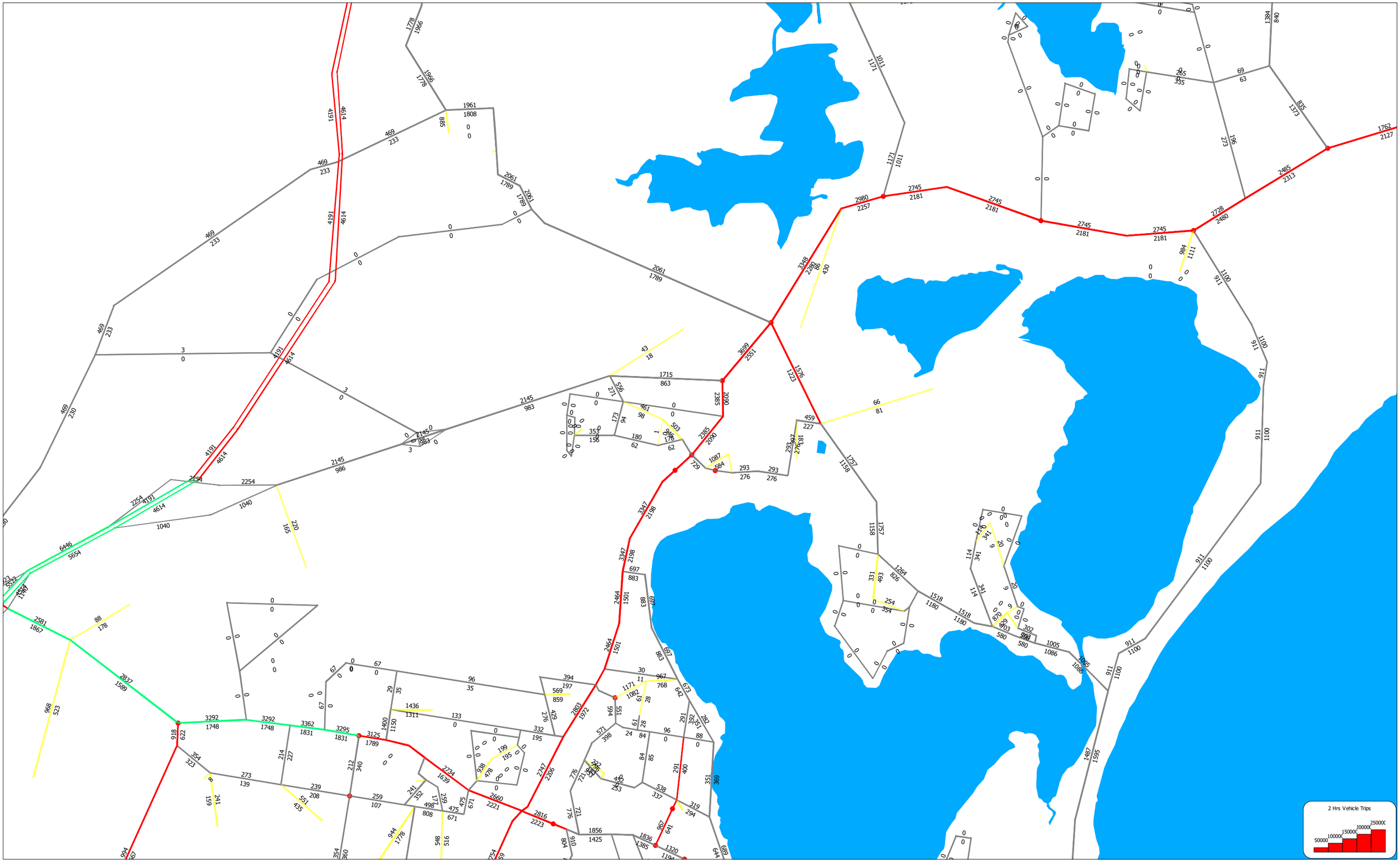
TRAFFIC VOLUMES__



2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL
Scenario 20210: 2021 SYDNEY TRAFFIC FORECASTING MODEL(LU2016V1.3)4-6PM(mf53)
2018-04-11 17:07

LANE (1WAY):
1
2
3
4
5

TRAFFIC VOLUMES__



2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL
Scenario 20360: 2036 SYDNEY TRAFFIC FORECASTING MODEL(LU2016V1.3)4-6PM(mf56)
2018-04-11 17:09

LANE (1WAY):
1
2
3
4
5

Appendix C

SIDRA Results

MOVEMENT SUMMARY

Site: 101 [PHW-Wallarah - Ex.AM (Site Folder: Existing)]

Network: N101 [Existing AM (Network Folder: Existing)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: PHW (S)														
1	L2	108	9.7	108	9.7	0.999	64.2	LOS E	7.5	56.0	1.00	1.77	3.68	29.6
2	T1	433	6.1	433	6.1	0.999	63.8	LOS E	7.6	55.6	1.00	1.77	3.69	32.1
3	R2	240	3.9	240	3.9	0.999	69.8	LOS E	7.6	55.6	1.00	1.77	3.69	21.3
3u	U	1	0.0	1	0.0	0.999	72.2	LOS F	7.6	55.6	1.00	1.77	3.69	32.4
Approach		782	5.9	782	5.9	0.999	65.7	LOS E	7.6	56.0	1.00	1.77	3.69	28.9
East: Wallarah Rd														
4	L2	426	1.5	426	1.5	0.994	36.9	LOS C	8.7	61.9	1.00	1.94	3.29	35.3
5	T1	634	2.2	634	2.2	0.994	38.2	LOS C	8.7	61.9	1.00	1.92	3.29	32.5
6	R2	181	5.8	181	5.8	0.994	45.5	LOS D	7.9	56.7	1.00	1.91	3.29	34.2
6u	U	19	11.1	19	11.1	0.994	47.9	LOS D	7.9	56.7	1.00	1.91	3.29	21.6
Approach		1260	2.6	1260	2.6	0.994	38.9	LOS C	8.7	61.9	1.00	1.93	3.29	33.5
North: PHW (N)														
7	L2	100	3.2	100	3.2	0.993	56.6	LOS E	7.7	55.8	1.00	1.75	3.60	23.2
8	T1	502	3.4	502	3.4	0.993	56.9	LOS E	7.7	55.8	1.00	1.75	3.60	34.1
9	R2	258	9.8	258	9.8	0.993	64.1	LOS E	7.6	56.5	1.00	1.76	3.59	31.6
9u	U	1	0.0	1	0.0	0.993	66.1	LOS E	7.6	56.5	1.00	1.76	3.59	34.2
Approach		861	5.3	861	5.3	0.993	59.0	LOS E	7.7	56.5	1.00	1.76	3.60	32.4
West: Sparks Rd														
10	L2	276	7.6	276	7.6	0.904	21.2	LOS B	4.8	34.7	0.99	1.44	2.09	43.2
11	T1	588	2.1	588	2.1	0.904	20.4	LOS B	4.8	34.7	0.99	1.44	2.09	32.2
12	R2	207	8.1	207	8.1	0.904	26.7	LOS B	4.7	34.4	0.99	1.44	2.09	42.7
12u	U	1	0.0	1	0.0	0.904	28.3	LOS B	4.7	34.4	0.99	1.44	2.09	41.6
Approach		1073	4.7	1073	4.7	0.904	21.8	LOS B	4.8	34.7	0.99	1.44	2.09	38.0
All Vehicles		3976	4.4	3976	4.4	0.999	43.9	LOS D	8.7	61.9	1.00	1.73	3.11	33.1

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Wallarah-Walker - Ex.AM (Site Folder: Existing)]

Network: N101 [Existing AM (Network Folder: Existing)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Walker Ave														
1	L2	117	3.6	117	3.6	0.185	23.4	LOS B	1.9	13.8	0.72	0.73	0.72	30.7
3	R2	238	2.7	238	2.7	* 0.974	71.6	LOS F	8.2	58.9	1.00	1.22	1.86	17.1
Approach		355	3.0	355	3.0	0.974	55.7	LOS D	8.2	58.9	0.91	1.06	1.48	20.0
East: Wallarah Rd (E)														
4	L2	145	2.2	145	2.2	0.681	21.3	LOS B	11.3	80.8	0.81	0.75	0.81	37.8
5	T1	1100	2.8	1100	2.8	* 0.681	16.9	LOS B	11.5	82.1	0.82	0.74	0.82	27.8
Approach		1245	2.7	1245	2.7	0.681	17.4	LOS B	11.5	82.1	0.82	0.75	0.82	29.8
West: Wallarah Rd (W)														
11	T1	746	3.1	746	3.1	0.527	9.6	LOS A	8.2	59.1	0.61	0.55	0.61	37.0
12	R2	122	1.7	122	1.7	* 0.527	25.3	LOS B	4.3	30.9	0.88	0.78	0.88	36.2
Approach		868	2.9	868	2.9	0.527	11.8	LOS A	8.2	59.1	0.65	0.58	0.65	36.8
All Vehicles		2468	2.8	2468	2.8	0.974	20.9	LOS B	11.5	82.1	0.77	0.73	0.86	29.4

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Walker Ave											
P1	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	199.5	214.8	1.08
East: Wallarah Rd (E)											
P2	Full	2	34.2	LOS D	0.0	0.0	0.93	0.93	199.7	215.1	1.08
West: Wallarah Rd (W)											
P4	Full	11	34.2	LOS D	0.0	0.0	0.93	0.93	199.7	215.1	1.08
All Pedestrians		14	34.2	LOS D	0.0	0.0	0.93	0.93	199.7	215.1	1.08

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

MOVEMENT SUMMARY

Site: 101 [Wallarah-Lake Haven - Ex.AM (Site Folder: Existing)]

Network: N101 [Existing AM (Network Folder: Existing)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Wallarah Rd (E)														
5	T1	999	2.1	999	2.1	0.467	4.3	LOS A	1.6	11.4	0.60	0.51	0.60	42.5
6	R2	192	3.3	192	3.3	0.467	8.9	LOS A	1.5	10.8	0.61	0.59	0.61	46.5
6u	U	13	0.0	13	0.0	0.467	10.7	LOS A	1.5	10.8	0.61	0.59	0.61	47.4
Approach		1203	2.3	1203	2.3	0.467	5.1	LOS A	1.6	11.4	0.60	0.53	0.60	43.6
North: Lake Haven Dr														
7	L2	131	5.6	131	5.6	0.360	11.7	LOS A	0.7	4.9	0.69	0.85	0.75	43.0
9	R2	245	5.2	245	5.2	0.591	18.3	LOS B	1.5	11.3	0.78	1.02	1.05	34.2
9u	U	1	0.0	1	0.0	0.591	19.8	LOS B	1.5	11.3	0.78	1.02	1.05	41.8
Approach		377	5.3	377	5.3	0.591	16.1	LOS B	1.5	11.3	0.75	0.96	0.95	38.1
West: Wallarah Rd (W)														
10	L2	306	3.4	306	3.4	0.418	5.0	LOS A	1.1	7.9	0.43	0.51	0.43	45.7
11	T1	648	2.8	648	2.8	0.418	4.4	LOS A	1.1	7.9	0.43	0.49	0.43	47.1
12u	U	1	0.0	1	0.0	0.418	10.5	LOS A	1.1	7.8	0.44	0.49	0.44	40.3
Approach		956	3.0	956	3.0	0.418	4.6	LOS A	1.1	7.9	0.43	0.50	0.43	46.6
All Vehicles		2536	3.0	2536	3.0	0.591	6.6	LOS A	1.6	11.4	0.56	0.58	0.59	43.9

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PHW-Wallarah - Ex.PM (Site Folder: Existing)]

Network: N101 [Existing PM (Network Folder: Existing)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: PHW (S)														
1	L2	153	0.0	153	0.0	0.998	52.5	LOS D	10.4	73.5	1.00	1.88	3.83	32.5
2	T1	586	1.3	586	1.3	0.998	53.0	LOS D	10.4	73.5	1.00	1.88	3.82	35.4
3	R2	431	2.9	431	2.9	0.998	60.6	LOS E	9.9	70.8	1.00	1.87	3.81	23.4
3u	U	1	0.0	1	0.0	0.998	63.2	LOS E	9.9	70.8	1.00	1.87	3.81	34.9
Approach		1171	1.7	1171	1.7	0.998	55.8	LOS D	10.4	73.5	1.00	1.88	3.82	31.1
East: Wallarah Rd														
4	L2	336	0.9	336	0.9	0.966	31.4	LOS C	5.9	41.6	0.98	1.62	2.61	37.5
5	T1	541	1.8	541	1.8	0.966	30.9	LOS C	5.9	41.6	0.98	1.62	2.61	35.0
6	R2	122	3.4	122	3.4	0.966	36.9	LOS C	5.9	41.8	0.98	1.62	2.61	37.9
6u	U	19	0.0	19	0.0	0.966	38.7	LOS C	5.9	41.8	0.98	1.62	2.61	24.6
Approach		1018	1.7	1018	1.7	0.966	31.9	LOS C	5.9	41.8	0.98	1.62	2.61	36.0
North: PHW (N)														
7	L2	120	4.4	120	4.4	0.994	63.3	LOS E	7.4	53.6	1.00	1.78	3.73	21.4
8	T1	395	3.2	395	3.2	0.994	63.6	LOS E	7.4	53.6	1.00	1.77	3.72	32.2
9	R2	275	0.8	275	0.8	0.994	70.6	LOS F	7.2	51.2	1.00	1.76	3.71	29.9
9u	U	1	0.0	1	0.0	0.994	73.3	LOS F	7.2	51.2	1.00	1.76	3.71	32.1
Approach		791	2.5	791	2.5	0.994	66.0	LOS E	7.4	53.6	1.00	1.77	3.72	30.0
West: Sparks Rd														
10	L2	261	2.4	261	2.4	0.945	24.8	LOS B	6.4	45.7	1.00	1.63	2.51	41.6
11	T1	794	1.9	794	1.9	0.945	26.3	LOS B	6.4	45.7	1.00	1.62	2.53	29.7
12	R2	128	7.4	128	7.4	0.945	34.7	LOS C	5.5	39.9	1.00	1.61	2.56	39.5
12u	U	1	0.0	1	0.0	0.945	36.4	LOS C	5.5	39.9	1.00	1.61	2.56	38.5
Approach		1184	2.6	1184	2.6	0.945	26.9	LOS B	6.4	45.7	1.00	1.62	2.53	34.2
All Vehicles		4163	2.1	4163	2.1	0.998	43.7	LOS D	10.4	73.5	0.99	1.72	3.14	32.7

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Wallarah-Walker - Ex.PM (Site Folder: Existing)]

Network: N101 [Existing PM (Network Folder: Existing)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Walker Ave														
1	L2	94	3.4	94	3.4	0.119	18.3	LOS B	1.3	9.3	0.61	0.69	0.61	33.5
3	R2	262	1.2	262	1.2	* 0.899	52.9	LOS D	7.6	53.9	1.00	1.06	1.49	20.6
Approach		356	1.8	356	1.8	0.899	43.8	LOS D	7.6	53.9	0.90	0.96	1.26	22.9
East: Wallarah Rd (E)														
4	L2	200	1.1	200	1.1	0.655	25.5	LOS B	9.5	67.4	0.86	0.79	0.86	35.5
5	T1	786	1.5	786	1.5	* 0.655	21.1	LOS B	9.7	68.8	0.87	0.77	0.87	24.9
Approach		986	1.4	986	1.4	0.655	22.0	LOS B	9.7	68.8	0.87	0.78	0.87	28.3
West: Wallarah Rd (W)														
11	T1	1186	2.3	1186	2.3	0.775	15.1	LOS B	16.1	115.0	0.83	0.79	0.85	32.2
12	R2	195	1.6	195	1.6	* 0.775	31.3	LOS C	9.8	69.9	0.97	1.02	1.07	34.2
Approach		1381	2.2	1381	2.2	0.775	17.4	LOS B	16.1	115.0	0.85	0.82	0.88	32.7
All Vehicles		2723	1.9	2723	1.9	0.899	22.5	LOS B	16.1	115.0	0.86	0.82	0.92	29.4

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Walker Ave											
P1	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	199.5	214.8	1.08
East: Wallarah Rd (E)											
P2	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	199.7	215.1	1.08
West: Wallarah Rd (W)											
P4	Full	28	34.3	LOS D	0.1	0.1	0.93	0.93	199.7	215.1	1.08
All Pedestrians		35	34.3	LOS D	0.1	0.1	0.93	0.93	199.7	215.1	1.08

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

MOVEMENT SUMMARY

Site: 101 [Wallarah-Lake Haven - Ex.PM (Site Folder: Existing)]

Network: N101 [Existing PM (Network Folder: Existing)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Wallarah Rd (E)														
5	T1	643	1.3	643	1.3	0.553	7.5	LOS A	2.0	13.8	0.81	0.83	0.89	41.0
6	R2	225	1.9	225	1.9	0.553	11.8	LOS A	2.0	13.8	0.81	0.85	0.89	45.2
6u	U	13	0.0	13	0.0	0.553	13.6	LOS A	2.0	13.8	0.81	0.85	0.89	46.0
Approach		881	1.4	881	1.4	0.553	8.7	LOS A	2.0	13.8	0.81	0.83	0.89	42.7
North: Lake Haven Dr														
7	L2	193	1.6	193	1.6	0.429	11.3	LOS A	1.0	7.1	0.79	0.93	0.91	43.2
9	R2	395	1.9	395	1.9	0.695	18.6	LOS B	2.5	18.1	0.91	1.14	1.32	34.0
9u	U	1	0.0	1	0.0	0.695	20.3	LOS B	2.5	18.1	0.91	1.14	1.32	41.7
Approach		588	1.8	588	1.8	0.695	16.2	LOS B	2.5	18.1	0.87	1.07	1.19	37.9
West: Wallarah Rd (W)														
10	L2	461	2.7	461	2.7	0.660	6.4	LOS A	2.6	18.2	0.57	0.61	0.59	45.2
11	T1	953	1.8	953	1.8	0.660	5.7	LOS A	2.6	18.2	0.57	0.59	0.60	46.5
12u	U	1	0.0	1	0.0	0.660	11.9	LOS A	2.5	18.1	0.57	0.59	0.60	39.2
Approach		1415	2.1	1415	2.1	0.660	6.0	LOS A	2.6	18.2	0.57	0.60	0.60	46.1
All Vehicles		2884	1.8	2884	1.8	0.695	8.9	LOS A	2.6	18.2	0.70	0.77	0.81	43.3

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PHW-Wallarah - Ex.Sat (Site Folder: Existing)]

Network: N101 [Existing Sat (Network Folder: Existing)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: PHW (S)														
1	L2	67	3.1	67	3.1	0.992	57.5	LOS E	8.0	56.7	1.00	1.76	3.62	31.3
2	T1	523	0.8	523	0.8	0.992	57.4	LOS E	8.0	56.5	1.00	1.76	3.62	34.1
3	R2	300	0.4	300	0.4	0.992	63.6	LOS E	8.0	56.5	1.00	1.76	3.62	22.7
3u	U	1	0.0	1	0.0	0.992	66.3	LOS E	8.0	56.5	1.00	1.76	3.62	34.1
Approach		892	0.8	892	0.8	0.992	59.5	LOS E	8.0	56.7	1.00	1.76	3.62	30.5
East: Wallarah Rd														
4	L2	326	1.6	326	1.6	0.979	34.2	LOS C	6.5	46.2	0.99	1.71	2.82	36.4
5	T1	553	1.3	553	1.3	0.979	33.6	LOS C	6.5	46.2	0.99	1.71	2.82	34.0
6	R2	173	1.8	173	1.8	0.979	39.4	LOS C	6.5	46.2	0.99	1.71	2.82	36.8
6u	U	14	0.0	14	0.0	0.979	41.4	LOS C	6.5	46.2	0.99	1.71	2.82	23.5
Approach		1065	1.5	1065	1.5	0.979	34.8	LOS C	6.5	46.2	0.99	1.71	2.82	35.0
North: PHW (N)														
7	L2	152	0.7	152	0.7	0.936	35.8	LOS C	5.8	40.9	1.00	1.48	2.63	30.6
8	T1	492	1.3	492	1.3	0.936	36.0	LOS C	5.8	40.9	1.00	1.48	2.63	42.1
9	R2	285	1.1	285	1.1	0.936	42.3	LOS C	5.8	40.9	1.00	1.48	2.63	38.5
9u	U	1	0.0	1	0.0	0.936	45.0	LOS D	5.8	40.9	1.00	1.48	2.63	42.2
Approach		929	1.1	929	1.1	0.936	37.9	LOS C	5.8	40.9	1.00	1.48	2.63	39.5
West: Sparks Rd														
10	L2	304	2.1	304	2.1	0.951	33.2	LOS C	5.5	39.2	0.99	1.63	2.68	38.0
11	T1	529	1.2	529	1.2	0.951	32.6	LOS C	5.5	39.2	0.99	1.63	2.68	27.1
12	R2	63	8.3	63	8.3	0.951	38.9	LOS C	5.5	39.3	0.99	1.63	2.68	38.0
12u	U	13	8.3	13	8.3	0.951	41.0	LOS C	5.5	39.3	0.99	1.63	2.68	37.1
Approach		909	2.1	909	2.1	0.951	33.3	LOS C	5.5	39.3	0.99	1.63	2.68	32.4
All Vehicles		3796	1.4	3796	1.4	0.992	41.0	LOS C	8.0	56.7	0.99	1.65	2.93	34.3

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Wallarah-Walker - Ex.Sat (Site Folder: Existing)]

Network: N101 [Existing Sat (Network Folder: Existing)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Walker Ave														
1	L2	107	1.0	107	1.0	0.139	15.7	LOS B	1.2	8.3	0.63	0.70	0.63	35.2
3	R2	242	0.4	242	0.4	* 0.894	42.7	LOS D	5.4	38.1	1.00	1.11	1.61	23.2
Approach		349	0.6	349	0.6	0.894	34.4	LOS C	5.4	38.1	0.89	0.98	1.31	25.9
East: Wallarah Rd (E)														
4	L2	181	1.7	181	1.7	0.715	21.8	LOS B	8.2	58.0	0.88	0.83	0.93	37.3
5	T1	863	1.1	863	1.1	* 0.715	17.9	LOS B	8.4	59.2	0.90	0.83	0.94	27.0
Approach		1044	1.2	1044	1.2	0.715	18.5	LOS B	8.4	59.2	0.89	0.83	0.94	30.0
West: Wallarah Rd (W)														
11	T1	863	1.0	863	1.0	0.621	10.3	LOS A	8.2	58.1	0.74	0.66	0.75	36.2
12	R2	147	0.0	147	0.0	* 0.621	20.9	LOS B	4.8	33.7	0.92	0.79	0.93	38.3
Approach		1011	0.8	1011	0.8	0.621	11.8	LOS A	8.2	58.1	0.77	0.68	0.77	36.8
All Vehicles		2404	1.0	2404	1.0	0.894	18.0	LOS B	8.4	59.2	0.84	0.79	0.92	31.7

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Walker Ave											
P1	Full	14	24.3	LOS C	0.0	0.0	0.90	0.90	189.5	214.8	1.13
East: Wallarah Rd (E)											
P2	Full	2	24.3	LOS C	0.0	0.0	0.90	0.90	189.8	215.1	1.13
West: Wallarah Rd (W)											
P4	Full	12	24.3	LOS C	0.0	0.0	0.90	0.90	189.8	215.1	1.13
All Pedestrians		27	24.3	LOS C	0.0	0.0	0.90	0.90	189.7	215.0	1.13

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

MOVEMENT SUMMARY

Site: 101 [Wallarah-Lake Haven - Ex.Sat (Site Folder: Existing)]

Network: N101 [Existing Sat (Network Folder: Existing)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Wallarah Rd (E)														
5	T1	732	1.2	732	1.2	0.531	6.4	LOS A	1.8	12.7	0.77	0.75	0.80	41.4
6	R2	195	2.7	195	2.7	0.531	10.8	LOS A	1.8	12.8	0.77	0.78	0.81	45.7
6u	U	14	0.0	14	0.0	0.531	12.5	LOS A	1.8	12.8	0.77	0.78	0.81	46.6
Approach		940	1.5	940	1.5	0.531	7.4	LOS A	1.8	12.8	0.77	0.76	0.80	42.9
North: Lake Haven Dr														
7	L2	183	1.7	183	1.7	0.411	10.7	LOS A	0.9	6.2	0.72	0.88	0.82	43.6
9	R2	363	1.4	363	1.4	0.671	17.6	LOS B	2.2	15.8	0.85	1.08	1.19	34.6
9u	U	1	0.0	1	0.0	0.671	19.3	LOS B	2.2	15.8	0.85	1.08	1.19	42.2
Approach		547	1.5	547	1.5	0.671	15.3	LOS B	2.2	15.8	0.81	1.01	1.06	38.4
West: Wallarah Rd (W)														
10	L2	340	0.9	340	0.9	0.507	5.5	LOS A	1.5	10.4	0.48	0.54	0.48	45.6
11	T1	725	1.0	725	1.0	0.507	4.7	LOS A	1.5	10.4	0.48	0.52	0.48	46.9
12u	U	1	0.0	1	0.0	0.507	10.9	LOS A	1.5	10.4	0.48	0.51	0.48	40.0
Approach		1066	1.0	1066	1.0	0.507	5.0	LOS A	1.5	10.4	0.48	0.53	0.48	46.5
All Vehicles		2554	1.3	2554	1.3	0.671	8.1	LOS A	2.2	15.8	0.65	0.72	0.72	43.4

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PHW-Wallarah - Ex+DA.AM (Site Folder: Existing +DA)]

Network: N101 [Existing+DA AM (Network Folder: Existing +DA)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: PHW (S)														
1	L2	108	9.7	108	9.7	1.033	82.4	LOS F	23.7	175.7	1.00	2.00	4.48	25.8
2	T1	433	6.1	433	6.1	1.033	82.1	LOS F	24.0	174.5	1.00	2.00	4.49	27.7
3	R2	255	3.3	255	3.3	1.033	87.9	LOS F	24.0	174.5	1.00	2.00	4.50	17.9
3u	U	1	0.0	1	0.0	1.033	90.4	LOS F	24.0	174.5	1.00	2.00	4.50	28.0
Approach		797	5.7	797	5.7	1.033	84.0	LOS F	24.0	175.7	1.00	2.00	4.49	24.7
East: Wallarah Rd														
4	L2	456	1.4	456	1.4	1.045	65.4	LOS E	36.3	258.0	1.00	2.69	5.08	26.9
5	T1	677	2.2	677	2.2	1.045	66.4	LOS E	36.3	258.0	1.00	2.62	5.00	25.4
6	R2	194	5.4	194	5.4	1.045	73.5	LOS F	32.1	231.4	1.00	2.58	4.94	26.6
6u	U	20	10.5	20	10.5	1.045	75.8	LOS F	32.1	231.4	1.00	2.58	4.94	15.6
Approach		1346	2.5	1346	2.5	1.045	67.2	LOS E	36.3	258.0	1.00	2.64	5.02	26.0
North: PHW (N)														
7	L2	106	3.0	106	3.0	1.039	81.9	LOS F	26.5	190.4	1.00	2.07	4.74	17.8
8	T1	502	3.4	502	3.4	1.039	82.3	LOS F	26.5	190.4	1.00	2.07	4.73	27.7
9	R2	258	9.8	258	9.8	1.039	89.4	LOS F	25.9	192.2	1.00	2.07	4.71	26.2
9u	U	1	0.0	1	0.0	1.039	91.4	LOS F	25.9	192.2	1.00	2.07	4.71	27.8
Approach		867	5.2	867	5.2	1.039	84.4	LOS F	26.5	192.2	1.00	2.07	4.72	26.2
West: Sparks Rd														
10	L2	276	7.6	276	7.6	0.937	26.3	LOS B	14.4	104.9	1.00	1.59	2.45	40.8
11	T1	625	1.9	625	1.9	0.937	25.5	LOS B	14.4	104.9	1.00	1.59	2.45	29.8
12	R2	207	8.1	207	8.1	0.937	31.8	LOS C	14.3	103.7	1.00	1.59	2.46	40.4
12u	U	1	0.0	1	0.0	0.937	33.4	LOS C	14.3	103.7	1.00	1.59	2.46	39.4
Approach		1109	4.5	1109	4.5	0.937	26.9	LOS B	14.4	104.9	1.00	1.59	2.45	35.4
All Vehicles		4120	4.2	4120	4.2	1.045	63.2	LOS E	36.3	258.0	1.00	2.11	4.16	27.5

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Wallarah-Walker - Ex+DA.AM (Site Folder: Existing +DA)]

Network: N101 [Existing+DA AM (Network Folder: Existing +DA)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 95 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Walker Ave														
1	L2	117	3.6	117	3.6	0.374	36.7	LOS C	6.7	47.9	0.86	0.76	0.86	28.2
2	T1	58	0.0	58	0.0	0.374	31.2	LOS C	6.7	47.9	0.86	0.76	0.86	38.2
3	R2	238	2.7	238	2.7	* 0.771	48.5	LOS D	11.4	82.0	1.00	0.91	1.16	23.4
Approach		413	2.6	413	2.6	0.771	42.8	LOS D	11.4	82.0	0.94	0.85	1.03	27.1
East: Wallarah Rd (E)														
4	L2	145	2.2	145	2.2	* 0.792	33.6	LOS C	26.2	187.5	0.93	0.88	0.98	36.4
5	T1	1082	2.7	1082	2.7	0.792	26.9	LOS B	26.2	187.5	0.91	0.86	0.96	23.8
6	R2	58	0.0	58	0.0	0.156	18.1	LOS B	1.2	8.2	0.72	0.72	0.72	42.4
Approach		1285	2.5	1285	2.5	0.792	27.3	LOS B	26.2	187.5	0.90	0.85	0.95	27.2
North: RoadName														
7	L2	61	0.0	61	0.0	0.288	36.6	LOS C	5.1	35.9	0.85	0.73	0.85	28.8
8	T1	75	0.0	75	0.0	0.288	31.1	LOS C	5.1	35.9	0.85	0.73	0.85	38.7
9	R2	103	0.0	103	0.0	0.341	41.7	LOS C	4.2	29.6	0.90	0.78	0.90	25.5
Approach		239	0.0	239	0.0	0.341	37.1	LOS C	5.1	35.9	0.87	0.75	0.87	31.3
West: Wallarah Rd (W)														
10	L2	39	0.0	38	0.0	0.576	26.9	LOS B	16.4	117.2	0.80	0.72	0.80	41.7
11	T1	816	2.8	805	2.8	0.576	20.6	LOS B	16.4	117.2	0.78	0.68	0.78	31.8
12	R2	137	1.5	135	1.5	* 0.479	24.2	LOS B	3.1	21.8	0.92	0.79	0.92	40.3
Approach		992	2.5	979 N1	2.5	0.576	21.3	LOS B	16.4	117.2	0.80	0.70	0.80	34.2
All Vehicles		2928	2.3	2916 N1	2.3	0.792	28.3	LOS B	26.2	187.5	0.87	0.79	0.90	29.7

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Walker Ave											
P1	Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	207.0	214.8	1.04
East: Wallarah Rd (E)											
P2	Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	209.5	218.0	1.04
North: RoadName											

P3 Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	204.8	211.9	1.03
West: Wallarah Rd (W)										
P4 Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	209.5	218.0	1.04
All Pedestrians	211	41.8	LOS E	0.1	0.1	0.94	0.94	207.7	215.7	1.04

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

MOVEMENT SUMMARY

Site: 101 [Wallarah-Lake Haven - Ex+DA.AM (Site Folder: Existing+DA)]

Network: N101 [Existing+DA AM (Network Folder: Existing +DA)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Wallarah Rd (E)														
5	T1	1031	2.0	1031	2.0	0.485	5.8	LOS A	4.2	30.0	0.62	0.58	0.62	47.7
6	R2	192	3.3	192	3.3	0.485	10.5	LOS A	4.0	28.5	0.64	0.64	0.64	52.8
6u	U	13	0.0	13	0.0	0.485	12.5	LOS A	4.0	28.5	0.64	0.64	0.64	53.8
Approach		1235	2.2	1235	2.2	0.485	6.6	LOS A	4.2	30.0	0.62	0.59	0.62	49.0
North: Lake Haven Dr														
7	L2	131	5.6	131	5.6	0.385	14.2	LOS A	1.9	13.7	0.72	0.89	0.82	47.9
9	R2	254	5.0	254	5.0	0.636	21.8	LOS B	4.5	32.6	0.82	1.05	1.16	36.2
9u	U	1	0.0	1	0.0	0.636	23.4	LOS B	4.5	32.6	0.82	1.05	1.16	45.6
Approach		385	5.2	385	5.2	0.636	19.2	LOS B	4.5	32.6	0.79	1.00	1.04	41.1
West: Wallarah Rd (W)														
10	L2	348	3.0	345	3.0	0.470	6.2	LOS A	3.3	23.6	0.43	0.56	0.43	51.9
11	T1	737	2.6	730	2.6	0.470	5.9	LOS A	3.3	23.6	0.43	0.54	0.43	53.4
12u	U	1	0.0	1	0.0	0.470	12.3	LOS A	3.2	23.1	0.44	0.54	0.44	44.2
Approach		1086	2.7	1076 N1	2.7	0.470	6.0	LOS A	3.3	23.6	0.43	0.55	0.43	52.9
All Vehicles		2706	2.8	2696 N1	2.9	0.636	8.1	LOS A	4.5	32.6	0.57	0.63	0.61	49.3

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
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: 101 [PHW-Wallarah - Ex+DA.PM (Site Folder: Existing +DA)]

Network: N101 [Existing+DA PM (Network Folder: Existing +DA)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: PHW (S)														
1	L2	153	0.0	153	0.0	1.058	87.6	LOS F	40.5	285.6	1.00	2.45	5.68	24.9
2	T1	586	1.3	586	1.3	1.058	88.0	LOS F	40.5	285.6	1.00	2.45	5.67	26.6
3	R2	472	2.5	472	2.5	1.058	95.5	LOS F	38.2	272.2	1.00	2.41	5.59	16.7
3u	U	1	0.0	1	0.0	1.058	98.1	LOS F	38.2	272.2	1.00	2.41	5.59	26.5
Approach		1212	1.6	1212	1.6	1.058	90.9	LOS F	40.5	285.6	1.00	2.43	5.64	22.9
East: Wallarah Rd														
4	L2	353	0.9	353	0.9	0.985	36.6	LOS C	17.5	123.9	0.98	1.76	2.94	35.4
5	T1	567	1.7	567	1.7	0.985	36.1	LOS C	17.5	123.9	0.98	1.76	2.94	33.2
6	R2	128	3.3	128	3.3	0.985	42.1	LOS C	17.5	124.3	0.98	1.77	2.94	35.8
6u	U	21	0.0	21	0.0	0.985	44.0	LOS D	17.5	124.3	0.98	1.77	2.94	22.7
Approach		1069	1.6	1069	1.6	0.985	37.2	LOS C	17.5	124.3	0.98	1.76	2.94	34.0
North: PHW (N)														
7	L2	132	4.0	132	4.0	1.070	109.6	LOS F	30.7	221.6	1.00	2.31	5.64	14.1
8	T1	395	3.2	395	3.2	1.070	110.1	LOS F	30.7	221.6	1.00	2.29	5.61	23.0
9	R2	275	0.8	275	0.8	1.070	117.2	LOS F	29.4	208.1	1.00	2.26	5.54	21.9
9u	U	1	0.0	1	0.0	1.070	119.9	LOS F	29.4	208.1	1.00	2.26	5.54	23.1
Approach		802	2.5	802	2.5	1.070	112.4	LOS F	30.7	221.6	1.00	2.28	5.59	21.4
West: Sparks Rd														
10	L2	261	2.4	261	2.4	1.008	46.6	LOS D	27.6	196.2	1.00	2.25	4.01	33.5
11	T1	869	1.6	869	1.6	1.008	48.4	LOS D	27.6	196.2	1.00	2.20	3.96	22.3
12	R2	128	7.4	128	7.4	1.008	57.3	LOS E	22.9	164.2	1.00	2.14	3.92	32.1
12u	U	1	0.0	1	0.0	1.008	59.0	LOS E	22.9	164.2	1.00	2.14	3.92	31.4
Approach		1260	2.3	1260	2.3	1.008	48.9	LOS D	27.6	196.2	1.00	2.20	3.97	26.2
All Vehicles		4343	2.0	4343	2.0	1.070	69.5	LOS E	40.5	285.6	1.00	2.17	4.48	25.5

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Wallarah-Walker - Ex+DA.PM (Site Folder: Existing +DA)]

Network: N101 [Existing+DA PM (Network Folder: Existing +DA)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 95 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Walker Ave														
1	L2	94	4.5	94	4.5	0.409	34.5	LOS C	7.9	56.3	0.86	0.75	0.86	26.9
2	T1	115	0.0	115	0.0	0.409	30.0	LOS C	7.9	56.3	0.86	0.75	0.86	34.8
3	R2	262	2.4	262	2.4	* 0.741	43.8	LOS D	12.1	86.4	0.98	0.89	1.08	23.0
Approach		471	2.2	471	2.2	0.741	38.6	LOS C	12.1	86.4	0.93	0.83	0.98	27.2
East: Wallarah Rd (E)														
4	L2	200	1.6	200	1.6	0.808	39.8	LOS C	22.8	163.3	0.98	0.93	1.08	30.2
5	T1	763	3.9	763	3.9	0.808	33.3	LOS C	22.8	163.3	0.93	0.90	1.04	19.5
6	R2	115	0.0	115	0.0	* 0.525	25.5	LOS B	2.7	18.7	0.95	0.78	0.95	34.3
Approach		1078	3.0	1078	3.0	0.808	33.7	LOS C	22.8	163.3	0.94	0.90	1.04	24.3
North: RoadName														
7	L2	41	0.0	41	0.0	0.172	32.2	LOS C	3.2	22.4	0.79	0.68	0.79	27.8
8	T1	51	0.0	51	0.0	0.172	27.6	LOS B	3.2	22.4	0.79	0.68	0.79	35.6
9	R2	73	0.0	73	0.0	0.233	38.1	LOS C	2.8	19.8	0.86	0.75	0.86	24.7
Approach		164	0.0	164	0.0	0.233	33.4	LOS C	3.2	22.4	0.82	0.71	0.82	29.6
West: Wallarah Rd (W)														
10	L2	76	0.0	74	0.0	0.846	35.8	LOS C	33.0	234.1	0.96	0.95	1.07	33.2
11	T1	1223	1.9	1190	1.9	* 0.846	31.0	LOS C	33.0	234.1	0.91	0.91	1.04	23.7
12	R2	204	1.0	199	1.0	0.559	23.6	LOS B	4.7	33.0	0.94	0.81	0.94	36.2
Approach		1503	1.7	1462 N1	1.7	0.846	30.2	LOS C	33.0	234.1	0.92	0.90	1.03	26.7
All Vehicles		3216	2.1	3175 N1	2.2	0.846	32.8	LOS C	33.0	234.1	0.92	0.88	1.01	26.2

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Walker Ave											
P1	Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	207.0	214.8	1.04
East: Wallarah Rd (E)											
P2	Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	209.5	218.0	1.04
North: RoadName											

P3 Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	204.8	211.9	1.03
West: Wallarah Rd (W)										
P4 Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	209.5	218.0	1.04
All Pedestrians	211	41.8	LOS E	0.1	0.1	0.94	0.94	207.7	215.7	1.04

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

MOVEMENT SUMMARY

Site: 101 [Wallarah-Lake Haven - Ex+DA.PM (Site Folder: Existing+DA)]

Network: N101 [Existing+DA PM (Network Folder: Existing +DA)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Wallarah Rd (E)														
5	T1	700	1.2	700	1.2	0.615	9.0	LOS A	6.1	43.0	0.87	0.92	1.03	40.0
6	R2	225	1.9	225	1.9	0.615	13.3	LOS A	6.1	43.0	0.87	0.93	1.03	44.6
6u	U	13	0.0	13	0.0	0.615	15.0	LOS B	6.1	43.0	0.87	0.93	1.03	45.4
Approach		938	1.3	938	1.3	0.615	10.1	LOS A	6.1	43.0	0.87	0.92	1.03	41.7
North: Lake Haven Dr														
7	L2	193	1.6	193	1.6	0.455	12.4	LOS A	2.7	19.4	0.81	0.95	0.96	42.7
9	R2	429	1.7	429	1.7	0.766	21.9	LOS B	8.2	58.4	0.96	1.23	1.55	32.2
9u	U	1	0.0	1	0.0	0.766	23.7	LOS B	8.2	58.4	0.96	1.23	1.55	40.2
Approach		623	1.7	623	1.7	0.766	19.0	LOS B	8.2	58.4	0.91	1.14	1.36	36.2
West: Wallarah Rd (W)														
10	L2	486	2.8	476	2.8	0.683	6.1	LOS A	7.0	50.1	0.57	0.61	0.60	45.1
11	T1	1005	1.8	983	1.8	0.683	6.0	LOS A	7.0	50.1	0.57	0.60	0.61	46.5
12u	U	1	0.0	1	0.0	0.683	12.1	LOS A	7.0	49.5	0.57	0.60	0.62	39.2
Approach		1493	2.1	1460 N1	2.1	0.683	6.0	LOS A	7.0	50.1	0.57	0.61	0.61	46.0
All Vehicles		3054	1.8	3021 N1	1.8	0.766	10.0	LOS A	8.2	58.4	0.74	0.82	0.90	42.6

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
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: 101 [PHW-Wallarah - Ex+DA.Sat (Site Folder: Existing +DA)]

Network: N101 [Existing+DA Sat (Network Folder: Existing +DA)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: PHW (S)														
1	L2	67	3.1	67	3.1	1.045	87.0	LOS F	28.9	204.0	1.00	2.14	4.96	25.1
2	T1	523	0.8	523	0.8	1.045	86.9	LOS F	29.0	203.7	1.00	2.14	4.96	26.9
3	R2	320	0.3	320	0.3	1.045	93.1	LOS F	29.0	203.7	1.00	2.14	4.97	17.1
3u	U	1	0.0	1	0.0	1.045	95.9	LOS F	29.0	203.7	1.00	2.14	4.97	27.0
Approach		912	0.8	912	0.8	1.045	89.1	LOS F	29.0	204.0	1.00	2.14	4.97	23.6
East: Wallarah Rd														
4	L2	355	1.2	355	1.2	1.056	75.9	LOS F	33.1	233.8	1.00	2.62	5.13	24.8
5	T1	601	0.9	601	0.9	1.056	75.3	LOS F	33.1	233.7	1.00	2.62	5.13	23.8
6	R2	187	1.1	187	1.1	1.056	81.2	LOS F	33.1	233.7	1.00	2.62	5.13	25.3
6u	U	15	0.0	15	0.0	1.056	83.2	LOS F	33.1	233.7	1.00	2.62	5.13	14.5
Approach		1158	1.0	1158	1.0	1.056	76.6	LOS F	33.1	233.8	1.00	2.62	5.13	24.2
North: PHW (N)														
7	L2	162	0.6	162	0.6	0.980	50.2	LOS D	19.1	135.2	1.00	1.70	3.37	25.0
8	T1	492	1.3	492	1.3	0.980	50.3	LOS D	19.1	135.2	1.00	1.70	3.37	36.3
9	R2	285	1.1	285	1.1	0.980	56.6	LOS E	19.1	135.3	1.00	1.70	3.37	33.6
9u	U	1	0.0	1	0.0	0.980	59.3	LOS E	19.1	135.3	1.00	1.70	3.37	36.5
Approach		940	1.1	940	1.1	0.980	52.2	LOS D	19.1	135.3	1.00	1.70	3.37	33.9
West: Sparks Rd														
10	L2	304	2.1	304	2.1	0.992	47.2	LOS D	18.7	133.2	1.00	1.94	3.50	33.2
11	T1	565	1.1	565	1.1	0.992	46.6	LOS D	18.7	133.2	1.00	1.94	3.49	22.8
12	R2	63	8.3	63	8.3	0.992	52.9	LOS D	18.7	133.4	1.00	1.94	3.49	33.4
12u	U	13	8.3	13	8.3	0.992	55.0	LOS D	18.7	133.4	1.00	1.94	3.49	32.7
Approach		945	2.0	945	2.0	0.992	47.3	LOS D	18.7	133.4	1.00	1.94	3.49	27.6
All Vehicles		3955	1.2	3955	1.2	1.056	66.7	LOS E	33.1	233.8	1.00	2.13	4.28	26.7

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Wallarah-Walker - Ex+DA.Sat (Site Folder: Existing +DA)]

Network: N101 [Existing+DA Sat (Network Folder: Existing +DA)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 75 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Walker Ave														
1	L2	107	3.9	107	3.9	0.361	27.6	LOS B	5.2	36.9	0.83	0.74	0.83	29.5
2	T1	67	0.0	67	0.0	0.361	23.1	LOS B	5.2	36.9	0.83	0.74	0.83	37.0
3	R2	242	2.6	242	2.6	* 0.761	38.9	LOS C	9.3	66.7	0.99	0.93	1.18	24.5
Approach		417	2.5	417	2.5	0.761	33.4	LOS C	9.3	66.7	0.93	0.85	1.03	28.1
East: Wallarah Rd (E)														
4	L2	181	1.7	181	1.7	* 0.819	34.7	LOS C	19.0	136.6	0.98	0.97	1.14	31.9
5	T1	841	3.5	841	3.5	0.819	28.5	LOS C	19.1	137.8	0.95	0.96	1.11	21.3
6	R2	67	0.0	67	0.0	0.228	18.7	LOS B	1.3	8.8	0.85	0.73	0.85	37.4
Approach		1089	3.0	1089	3.0	0.819	28.9	LOS C	19.1	137.8	0.95	0.94	1.10	25.3
North: RoadName														
7	L2	67	0.0	67	0.0	0.295	28.6	LOS C	4.3	30.4	0.84	0.72	0.84	29.4
8	T1	79	0.0	79	0.0	0.295	24.0	LOS B	4.3	30.4	0.84	0.72	0.84	36.9
9	R2	113	0.0	113	0.0	0.338	32.5	LOS C	3.6	25.4	0.89	0.77	0.89	26.7
Approach		259	0.0	259	0.0	0.338	28.9	LOS C	4.3	30.4	0.86	0.74	0.86	31.3
West: Wallarah Rd (W)														
10	L2	44	0.0	44	0.0	0.737	27.1	LOS B	17.8	126.8	0.92	0.84	0.96	36.5
11	T1	936	2.5	924	2.5	0.737	22.2	LOS B	17.8	126.8	0.89	0.82	0.94	27.9
12	R2	164	1.3	162	1.3	* 0.558	21.1	LOS B	3.2	22.7	0.95	0.79	0.95	37.2
Approach		1144	2.2	1130 N1	2.2	0.737	22.2	LOS B	17.8	126.8	0.90	0.81	0.94	30.4
All Vehicles		2909	2.4	2895 N1	2.4	0.819	27.0	LOS B	19.1	137.8	0.92	0.86	1.01	28.3

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Walker Ave											
P1	Full	53	31.8	LOS D	0.1	0.1	0.92	0.92	197.0	214.8	1.09
East: Wallarah Rd (E)											
P2	Full	53	31.8	LOS D	0.1	0.1	0.92	0.92	199.5	218.0	1.09
North: RoadName											

P3 Full	53	31.8	LOS D	0.1	0.1	0.92	0.92	194.8	211.9	1.09
West: Wallarah Rd (W)										
P4 Full	53	31.8	LOS D	0.1	0.1	0.92	0.92	199.5	218.0	1.09
All Pedestrians	211	31.8	LOS D	0.1	0.1	0.92	0.92	197.7	215.7	1.09

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

MOVEMENT SUMMARY

Site: 101 [Wallarah-Lake Haven - Ex+DA.Sat (Site Folder: Existing+DA)]

Network: N101 [Existing+DA Sat (Network Folder: Existing +DA)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Wallarah Rd (E)														
5	T1	762	1.1	762	1.1	0.561	7.0	LOS A	5.0	35.6	0.80	0.80	0.87	41.2
6	R2	195	2.7	195	2.7	0.561	11.4	LOS A	5.0	35.8	0.80	0.82	0.87	45.6
6u	U	14	0.0	14	0.0	0.561	13.1	LOS A	5.0	35.8	0.80	0.82	0.87	46.4
Approach		971	1.4	971	1.4	0.561	7.9	LOS A	5.0	35.8	0.80	0.80	0.87	42.6
North: Lake Haven Dr														
7	L2	183	1.7	183	1.7	0.441	12.1	LOS A	2.5	17.7	0.76	0.91	0.89	42.8
9	R2	378	1.4	378	1.4	0.729	20.6	LOS B	6.9	48.8	0.90	1.16	1.37	32.9
9u	U	1	0.0	1	0.0	0.729	22.3	LOS B	6.9	48.8	0.90	1.16	1.37	40.8
Approach		562	1.5	562	1.5	0.729	17.8	LOS B	6.9	48.8	0.86	1.08	1.21	37.0
West: Wallarah Rd (W)														
10	L2	385	0.8	382	0.8	0.564	5.6	LOS A	4.5	31.4	0.48	0.55	0.48	45.6
11	T1	821	0.9	813	0.9	0.564	4.9	LOS A	4.5	31.4	0.48	0.53	0.48	46.9
12u	U	1	0.0	1	0.0	0.564	11.0	LOS A	4.4	31.4	0.48	0.52	0.48	39.9
Approach		1207	0.9	1196 N1	0.9	0.564	5.1	LOS A	4.5	31.4	0.48	0.53	0.48	46.5
All Vehicles		2740	1.2	2728 N1	1.2	0.729	8.7	LOS A	6.9	48.8	0.67	0.74	0.77	43.1

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
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: 101 [PHW-Wallarah - Fu.AM (Site Folder: Future Base)]

Network: N101 [Future AM (Network Folder: Future)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: PHW (S)														
1	L2	134	7.9	134	7.9	1.244	245.1	LOS F	28.0	206.0	1.00	3.71	10.48	12.1
2	T1	535	4.9	535	4.9	1.244	244.9	LOS F	28.5	205.6	1.00	3.72	10.51	12.6
3	R2	297	2.8	297	2.8	1.244	251.0	LOS F	28.5	205.6	1.00	3.73	10.56	7.4
3u	U	1	0.0	1	0.0	1.244	253.6	LOS F	28.5	205.6	1.00	3.73	10.56	12.8
Approach		966	4.7	966	4.7	1.244	246.8	LOS F	28.5	206.0	1.00	3.72	10.52	11.0
East: Wallarah Rd														
4	L2	462	1.4	462	1.4	1.059	75.4	LOS F	16.6	118.0	1.00	2.93	5.68	24.9
5	T1	687	2.1	687	2.1	1.059	76.3	LOS F	16.6	118.0	1.00	2.85	5.56	23.6
6	R2	197	5.3	197	5.3	1.059	83.4	LOS F	14.6	105.3	1.00	2.80	5.49	24.7
6u	U	21	10.0	21	10.0	1.059	85.7	LOS F	14.6	105.3	1.00	2.80	5.49	14.2
Approach		1367	2.5	1367	2.5	1.059	77.2	LOS F	16.6	118.0	1.00	2.87	5.59	24.1
North: PHW (N)														
7	L2	106	3.0	106	3.0	1.126	145.6	LOS F	18.1	129.9	1.00	2.81	7.31	11.2
8	T1	534	3.2	534	3.2	1.126	145.8	LOS F	18.1	129.9	1.00	2.80	7.29	18.9
9	R2	274	9.2	274	9.2	1.126	152.8	LOS F	17.6	130.6	1.00	2.80	7.24	18.2
9u	U	1	0.0	1	0.0	1.126	154.9	LOS F	17.6	130.6	1.00	2.80	7.24	19.0
Approach		915	4.9	915	4.9	1.126	147.9	LOS F	18.1	130.6	1.00	2.80	7.27	17.9
West: Sparks Rd														
10	L2	327	6.4	327	6.4	1.073	92.2	LOS F	17.6	127.6	1.00	3.14	6.29	23.7
11	T1	699	1.7	699	1.7	1.073	91.5	LOS F	17.6	127.6	1.00	3.13	6.28	14.9
12	R2	246	6.8	246	6.8	1.073	97.8	LOS F	17.4	125.5	1.00	3.12	6.27	23.8
12u	U	1	0.0	1	0.0	1.073	99.5	LOS F	17.4	125.5	1.00	3.12	6.27	23.4
Approach		1274	3.9	1274	3.9	1.073	92.9	LOS F	17.6	127.6	1.00	3.13	6.28	19.3
All Vehicles		4522	3.8	4522	3.8	1.244	132.2	LOS F	28.5	206.0	1.00	3.11	7.18	17.2

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Wallarah-Walker - Fu.AM (Site Folder: Future Base)]

Network: N101 [Future AM (Network Folder: Future)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Walker Ave														
1	L2	117	3.6	117	3.6	0.153	20.1	LOS B	1.7	12.1	0.64	0.72	0.64	36.4
3	R2	238	2.7	238	2.7	* 0.893	53.6	LOS D	6.8	49.0	1.00	1.02	1.49	21.9
Approach		355	3.0	355	3.0	0.893	42.6	LOS D	6.8	49.0	0.88	0.92	1.21	25.2
East: Wallarah Rd (E)														
4	L2	145	2.2	145	2.2	0.864	36.8	LOS C	17.2	122.7	0.97	1.01	1.16	35.0
5	T1	1194	2.5	1194	2.5	* 0.864	31.4	LOS C	17.4	124.4	0.98	1.02	1.16	21.7
Approach		1339	2.4	1339	2.4	0.864	32.0	LOS C	17.4	124.4	0.97	1.01	1.16	23.9
West: Wallarah Rd (W)														
11	T1	887	2.6	793	2.6	0.542	12.2	LOS A	8.7	62.3	0.67	0.60	0.67	39.0
12	R2	122	1.7	109	1.7	* 0.542	31.4	LOS C	5.3	37.5	0.91	0.83	0.91	38.3
Approach		1009	2.5	902 N1	2.5	0.542	14.5	LOS B	8.7	62.3	0.70	0.63	0.70	38.8
All Vehicles		2703	2.5	2596 N1	2.6	0.893	27.4	LOS B	17.4	124.4	0.87	0.87	1.01	28.3

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Walker Ave											
P1	Full	53	34.3	LOS D	0.1	0.1	0.93	0.93	199.5	214.8	1.08
East: Wallarah Rd (E)											
P2	Full	53	34.3	LOS D	0.1	0.1	0.93	0.93	199.8	215.1	1.08
West: Wallarah Rd (W)											
P4	Full	53	34.3	LOS D	0.1	0.1	0.93	0.93	199.8	215.1	1.08
All Pedestrians		158	34.3	LOS D	0.1	0.1	0.93	0.93	199.7	215.0	1.08

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

MOVEMENT SUMMARY

Site: 101 [Wallarah-Lake Haven - Fu.AM (Site Folder: Future Base)]

Network: N101 [Future AM (Network Folder: Future)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Wallarah Rd (E)														
5	T1	1084	1.9	1084	1.9	0.515	5.9	LOS A	1.9	13.2	0.65	0.59	0.65	47.5
6	R2	198	3.2	198	3.2	0.515	10.6	LOS A	1.7	12.5	0.67	0.65	0.67	52.7
6u	U	13	0.0	13	0.0	0.515	12.6	LOS A	1.7	12.5	0.67	0.65	0.67	53.7
Approach		1295	2.1	1295	2.1	0.515	6.7	LOS A	1.9	13.2	0.66	0.60	0.66	48.8
North: Lake Haven Dr														
7	L2	143	5.1	143	5.1	0.410	14.2	LOS A	0.8	6.0	0.72	0.90	0.84	47.9
9	R2	269	4.7	269	4.7	0.674	22.7	LOS B	2.0	14.4	0.84	1.08	1.23	35.6
9u	U	1	0.0	1	0.0	0.674	24.3	LOS B	2.0	14.4	0.84	1.08	1.23	45.2
Approach		414	4.8	414	4.8	0.674	19.7	LOS B	2.0	14.4	0.80	1.02	1.09	40.8
West: Wallarah Rd (W)														
10	L2	363	2.9	333	2.9	0.458	5.8	LOS A	1.3	9.1	0.45	0.56	0.45	51.8
11	T1	771	2.5	707	2.4	0.458	5.9	LOS A	1.3	9.1	0.45	0.55	0.45	53.3
12u	U	1	0.0	1	0.0	0.458	12.3	LOS A	1.3	8.9	0.46	0.55	0.46	44.0
Approach		1135	2.6	1041 N1	2.6	0.458	5.8	LOS A	1.3	9.1	0.45	0.56	0.45	52.8
All Vehicles		2843	2.7	2749 N1	2.8	0.674	8.3	LOS A	2.0	14.4	0.60	0.65	0.65	49.0

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
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: 101 [PHW-Wallarah - Fu.PM (Site Folder: Future Base)]

Network: N101 [Future PM (Network Folder: Future)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: PHW (S)														
1	L2	157	0.0	157	0.0	1.053	83.3	LOS F	15.6	110.4	1.00	2.58	5.51	25.7
2	T1	601	1.2	601	1.2	1.053	83.5	LOS F	15.6	110.4	1.00	2.57	5.49	26.0
3	R2	441	2.6	441	2.6	1.053	90.8	LOS F	14.7	105.2	1.00	2.53	5.42	16.7
3u	U	1	0.0	1	0.0	1.053	93.1	LOS F	14.7	105.2	1.00	2.53	5.42	26.0
Approach		1200	1.6	1200	1.6	1.053	86.2	LOS F	15.6	110.4	1.00	2.55	5.46	22.9
East: Wallarah Rd														
4	L2	376	0.8	376	0.8	1.052	76.8	LOS F	13.3	94.0	1.00	2.40	5.10	24.8
5	T1	605	1.6	605	1.6	1.052	76.7	LOS F	13.3	94.0	1.00	2.40	5.09	25.4
6	R2	137	3.1	137	3.1	1.052	82.9	LOS F	13.2	94.2	1.00	2.40	5.09	25.6
6u	U	21	0.0	21	0.0	1.052	85.2	LOS F	13.2	94.2	1.00	2.40	5.09	15.0
Approach		1139	1.5	1139	1.5	1.052	77.6	LOS F	13.3	94.2	1.00	2.40	5.10	25.1
North: PHW (N)														
7	L2	156	3.4	156	3.4	1.382	364.8	LOS F	41.1	294.2	1.00	5.15	14.04	4.9
8	T1	514	2.5	514	2.5	1.382	364.8	LOS F	41.1	294.2	1.00	5.10	13.94	8.8
9	R2	358	0.6	358	0.6	1.382	371.4	LOS F	38.8	274.5	1.00	4.96	13.67	8.9
9u	U	1	0.0	1	0.0	1.382	373.9	LOS F	38.8	274.5	1.00	4.96	13.67	9.0
Approach		1028	1.9	1028	1.9	1.382	367.1	LOS F	41.1	294.2	1.00	5.06	13.86	8.3
West: Sparks Rd														
10	L2	326	1.9	326	1.9	1.160	161.2	LOS F	34.7	246.5	1.00	4.42	10.52	16.7
11	T1	992	1.4	992	1.4	1.160	162.5	LOS F	34.7	246.5	1.00	4.17	10.07	10.1
12	R2	160	5.9	160	5.9	1.160	170.4	LOS F	27.3	195.6	1.00	3.90	9.59	16.8
12u	U	1	0.0	1	0.0	1.160	172.6	LOS F	27.3	195.6	1.00	3.90	9.59	17.0
Approach		1479	2.0	1479	2.0	1.160	163.0	LOS F	34.7	246.5	1.00	4.20	10.12	12.5
All Vehicles		4846	1.8	4846	1.8	1.382	167.2	LOS F	41.1	294.2	1.00	3.55	8.58	14.1

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Wallarah-Walker - Fu.PM (Site Folder: Future Base)]

Network: N101 [Future PM (Network Folder: Future)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Walker Ave														
1	L2	94	3.4	94	3.4	0.330	37.7	LOS C	2.1	14.8	0.93	0.76	0.93	24.8
3	R2	262	1.2	262	1.2	0.899	52.9	LOS D	7.6	53.9	1.00	1.06	1.49	20.6
Approach		356	1.8	356	1.8	0.899	48.9	LOS D	7.6	53.9	0.98	0.98	1.34	21.6
East: Wallarah Rd (E)														
4	L2	200	1.1	200	1.1	* 0.479	13.3	LOS A	6.5	45.9	0.61	0.63	0.61	41.9
5	T1	880	1.4	880	1.4	0.479	8.9	LOS A	7.2	51.3	0.60	0.57	0.60	34.7
Approach		1080	1.4	1080	1.4	0.479	9.7	LOS A	7.2	51.3	0.60	0.58	0.60	37.1
West: Wallarah Rd (W)														
11	T1	1483	1.8	1290	1.8	* 0.917	34.1	LOS C	30.7	218.0	0.97	1.10	1.25	22.5
12	R2	195	1.6	169	1.6	0.917	54.8	LOS D	13.1	92.9	1.00	1.24	1.53	27.3
Approach		1678	1.8	1459 N1	1.8	0.917	36.5	LOS C	30.7	218.0	0.97	1.12	1.28	23.4
All Vehicles		3114	1.7	2895 N1	1.8	0.917	28.1	LOS B	30.7	218.0	0.83	0.90	1.03	26.4

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Walker Ave											
P1	Full	53	34.3	LOS D	0.1	0.1	0.93	0.93	199.5	214.8	1.08
East: Wallarah Rd (E)											
P2	Full	53	34.3	LOS D	0.1	0.1	0.93	0.93	199.8	215.1	1.08
West: Wallarah Rd (W)											
P4	Full	53	34.3	LOS D	0.1	0.1	0.93	0.93	199.8	215.1	1.08
All Pedestrians		158	34.3	LOS D	0.1	0.1	0.93	0.93	199.7	215.0	1.08

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

MOVEMENT SUMMARY

Site: 101 [Wallarah-Lake Haven - Fu.PM (Site Folder: Future Base)]

Network: N101 [Future PM (Network Folder: Future)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Wallarah Rd (E)														
5	T1	720	1.2	720	1.2	0.646	9.7	LOS A	2.7	19.2	0.90	0.96	1.10	39.4
6	R2	234	1.8	234	1.8	0.646	14.1	LOS A	2.7	19.3	0.90	0.98	1.10	44.1
6u	U	13	0.0	13	0.0	0.646	15.8	LOS B	2.7	19.3	0.90	0.98	1.10	44.9
Approach		966	1.3	966	1.3	0.646	10.9	LOS A	2.7	19.3	0.90	0.97	1.10	41.2
North: Lake Haven Dr														
7	L2	216	1.5	216	1.5	0.506	13.4	LOS A	1.3	9.4	0.84	0.99	1.04	42.2
9	R2	442	1.7	442	1.7	0.818	26.0	LOS B	4.0	28.5	1.00	1.33	1.78	30.2
9u	U	1	0.0	1	0.0	0.818	27.7	LOS B	4.0	28.5	1.00	1.33	1.78	38.6
Approach		659	1.6	659	1.6	0.818	21.8	LOS B	4.0	28.5	0.95	1.22	1.54	34.9
West: Wallarah Rd (W)														
10	L2	508	2.7	452	2.6	0.713	6.6	LOS A	3.2	22.7	0.58	0.63	0.63	44.9
11	T1	1191	1.5	1059	1.5	0.713	6.4	LOS A	3.2	22.7	0.58	0.63	0.64	46.3
12u	U	1	0.0	1	0.0	0.713	12.6	LOS A	3.2	22.4	0.59	0.62	0.65	39.0
Approach		1700	1.9	1512 N1	1.8	0.713	6.5	LOS A	3.2	22.7	0.58	0.63	0.64	45.9
All Vehicles		3325	1.6	3137 N1	1.7	0.818	11.1	LOS A	4.0	28.5	0.76	0.86	0.97	41.9

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
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: 101 [PHW-Wallarah - Fu.Sat (Site Folder: Future Base)]

Network: N101 [Future Sat (Network Folder: Future)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: PHW (S)														
1	L2	69	3.0	69	3.0	1.030	77.0	LOS F	10.5	74.4	1.00	2.03	4.55	26.9
2	T1	537	0.8	537	0.8	1.030	76.9	LOS F	10.6	74.2	1.00	2.03	4.55	28.9
3	R2	307	0.3	307	0.3	1.030	83.1	LOS F	10.6	74.2	1.00	2.03	4.55	18.6
3u	U	1	0.0	1	0.0	1.030	85.8	LOS F	10.6	74.2	1.00	2.03	4.55	29.0
Approach		915	0.8	915	0.8	1.030	79.0	LOS F	10.6	74.4	1.00	2.03	4.55	25.7
East: Wallarah Rd														
4	L2	365	1.2	365	1.2	1.111	119.5	LOS F	19.6	138.6	1.00	3.45	7.28	18.6
5	T1	618	0.9	618	0.9	1.111	118.8	LOS F	19.6	138.6	1.00	3.45	7.28	18.1
6	R2	193	1.1	193	1.1	1.111	124.7	LOS F	19.6	138.6	1.00	3.45	7.28	19.1
6u	U	16	0.0	16	0.0	1.111	126.7	LOS F	19.6	138.6	1.00	3.45	7.28	10.3
Approach		1192	1.0	1191	1.0	1.111	120.1	LOS F	19.6	138.6	1.00	3.45	7.28	18.3
North: PHW (N)														
7	L2	197	0.5	197	0.5	1.273	266.7	LOS F	37.5	264.6	1.00	4.33	12.27	6.6
8	T1	640	1.0	640	1.0	1.273	266.9	LOS F	37.5	264.6	1.00	4.33	12.27	11.7
9	R2	372	0.8	372	0.8	1.273	273.1	LOS F	37.5	264.6	1.00	4.33	12.27	11.6
9u	U	1	0.0	1	0.0	1.273	275.9	LOS F	37.5	264.6	1.00	4.33	12.27	11.9
Approach		1209	0.9	1209	0.9	1.273	268.8	LOS F	37.5	264.6	1.00	4.33	12.27	10.9
West: Sparks Rd														
10	L2	380	1.7	380	1.7	1.181	182.3	LOS F	26.6	188.5	1.00	4.33	9.84	15.0
11	T1	662	1.0	662	1.0	1.181	181.7	LOS F	26.6	188.5	1.00	4.33	9.83	8.9
12	R2	79	6.7	79	6.7	1.181	187.9	LOS F	26.5	188.6	1.00	4.33	9.83	15.2
12u	U	16	6.7	16	6.7	1.181	190.0	LOS F	26.5	188.6	1.00	4.33	9.83	15.1
Approach		1137	1.7	1137	1.7	1.181	182.5	LOS F	26.6	188.6	1.00	4.33	9.84	11.6
All Vehicles		4453	1.1	4453	1.1	1.273	168.0	LOS F	37.5	264.6	1.00	3.62	8.73	14.4

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Wallarah-Walker - Fu.Sat (Site Folder: Future Base)]

Network: N101 [Future Sat (Network Folder: Future)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Walker Ave														
1	L2	107	1.0	107	1.0	0.265	25.6	LOS B	1.6	11.5	0.86	0.75	0.86	29.6
3	R2	242	0.4	242	0.4	0.575	27.4	LOS B	4.0	28.2	0.94	0.81	0.94	28.7
Approach		349	0.6	349	0.6	0.575	26.9	LOS B	4.0	28.2	0.91	0.79	0.91	29.0
East: Wallarah Rd (E)														
4	L2	181	1.7	181	1.7	* 0.692	18.6	LOS B	7.7	54.8	0.87	0.81	0.88	38.9
5	T1	965	1.1	965	1.1	0.692	14.0	LOS A	8.6	61.1	0.85	0.78	0.87	29.9
Approach		1146	1.2	1146	1.2	0.692	14.7	LOS B	8.6	61.1	0.86	0.78	0.87	32.4
West: Wallarah Rd (W)														
11	T1	1079	0.9	943	0.9	* 0.929	36.8	LOS C	20.9	147.6	1.00	1.26	1.50	21.6
12	R2	147	0.0	129	0.0	0.929	51.7	LOS D	6.2	43.9	1.00	1.26	1.85	28.0
Approach		1226	0.8	1072 N1	0.8	0.929	38.6	LOS C	20.9	147.6	1.00	1.26	1.54	22.8
All Vehicles		2722	0.9	2568 N1	1.0	0.929	26.4	LOS B	20.9	147.6	0.92	0.98	1.15	26.9

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Walker Ave											
P1	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.6	214.8	1.13
East: Wallarah Rd (E)											
P2	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.8	215.1	1.13
West: Wallarah Rd (W)											
P4	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.8	215.1	1.13
All Pedestrians		158	24.4	LOS C	0.1	0.1	0.90	0.90	189.7	215.0	1.13

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

MOVEMENT SUMMARY

Site: 101 [Wallarah-Lake Haven - Fu.Sat (Site Folder: Future Base)]

Network: N101 [Future Sat (Network Folder: Future)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Wallarah Rd (E)														
5	T1	819	1.0	819	1.0	0.619	8.2	LOS A	2.5	17.8	0.86	0.88	0.99	40.7
6	R2	202	2.6	202	2.6	0.619	12.6	LOS A	2.5	17.8	0.86	0.90	0.99	45.1
6u	U	14	0.0	14	0.0	0.619	14.4	LOS A	2.5	17.8	0.86	0.90	0.99	46.0
Approach		1035	1.3	1035	1.3	0.619	9.1	LOS A	2.5	17.8	0.86	0.88	0.99	42.1
North: Lake Haven Dr														
7	L2	205	1.5	205	1.5	0.471	12.1	LOS A	1.1	8.0	0.77	0.93	0.92	42.8
9	R2	406	1.3	406	1.3	0.769	22.1	LOS B	3.3	23.0	0.93	1.21	1.49	32.1
9u	U	1	0.0	1	0.0	0.769	23.8	LOS B	3.3	23.0	0.93	1.21	1.49	40.1
Approach		613	1.4	613	1.4	0.769	18.7	LOS B	3.3	23.0	0.88	1.11	1.30	36.5
West: Wallarah Rd (W)														
10	L2	375	0.8	336	0.8	0.552	5.6	LOS A	1.7	12.1	0.47	0.54	0.47	45.6
11	T1	906	0.8	813	0.8	0.552	4.9	LOS A	1.7	12.1	0.47	0.52	0.47	47.0
12u	U	1	0.0	1	0.0	0.552	11.0	LOS A	1.7	12.1	0.47	0.51	0.47	40.1
Approach		1282	0.8	1151 N1	0.8	0.552	5.1	LOS A	1.7	12.1	0.47	0.53	0.47	46.6
All Vehicles		2929	1.1	2798 N1	1.2	0.769	9.6	LOS A	3.3	23.0	0.70	0.79	0.84	42.6

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
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: 101 [PHW-Wallarah - Fu+DA.AM (Site Folder: Future +DA)]

Network: N101 [Future+DA AM (Network Folder: Future +DA)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: PHW (S)														
1	L2	134	7.9	134	7.9	1.277	273.5	LOS F	76.8	563.7	1.00	3.93	11.27	11.1
2	T1	535	4.9	535	4.9	1.277	273.3	LOS F	78.0	562.4	1.00	3.94	11.29	11.5
3	R2	312	2.7	312	2.7	1.277	279.4	LOS F	78.0	562.4	1.00	3.95	11.35	6.7
3u	U	1	0.0	1	0.0	1.277	282.0	LOS F	78.0	562.4	1.00	3.95	11.35	11.7
Approach		981	4.6	981	4.6	1.277	275.3	LOS F	78.0	563.7	1.00	3.94	11.31	10.0
East: Wallarah Rd														
4	L2	492	1.3	492	1.3	1.106	111.9	LOS F	60.1	426.6	1.00	3.81	7.78	19.4
5	T1	731	2.0	730	2.0	1.106	112.5	LOS F	60.1	426.6	1.00	3.67	7.57	18.8
6	R2	208	5.1	208	5.1	1.106	119.3	LOS F	52.6	378.3	1.00	3.58	7.43	19.5
6u	U	22	9.5	22	9.5	1.106	121.6	LOS F	52.6	378.3	1.00	3.58	7.43	10.7
Approach		1453	2.3	1453	2.3	1.106	113.4	LOS F	60.1	426.6	1.00	3.70	7.62	19.0
North: PHW (N)														
7	L2	113	2.8	113	2.8	1.145	160.5	LOS F	48.9	351.6	1.00	2.96	7.86	10.3
8	T1	534	3.2	534	3.2	1.145	160.8	LOS F	48.9	351.6	1.00	2.96	7.84	17.6
9	R2	274	9.2	274	9.2	1.145	167.7	LOS F	47.7	353.4	1.00	2.95	7.78	17.0
9u	U	1	0.0	1	0.0	1.145	169.8	LOS F	47.7	353.4	1.00	2.95	7.78	17.7
Approach		921	4.9	921	4.9	1.145	162.8	LOS F	48.9	353.4	1.00	2.95	7.82	16.6
West: Sparks Rd														
10	L2	327	6.4	327	6.4	1.103	115.4	LOS F	53.7	388.6	1.00	3.63	7.49	20.6
11	T1	736	1.6	736	1.6	1.103	114.7	LOS F	53.7	388.6	1.00	3.61	7.47	12.7
12	R2	246	6.8	246	6.8	1.103	121.0	LOS F	52.9	381.7	1.00	3.60	7.46	20.8
12u	U	1	0.0	1	0.0	1.103	122.7	LOS F	52.9	381.7	1.00	3.60	7.46	20.5
Approach		1311	3.8	1311	3.8	1.103	116.1	LOS F	53.7	388.6	1.00	3.61	7.47	16.5
All Vehicles		4665	3.7	4665	3.7	1.277	157.9	LOS F	78.0	563.7	1.00	3.58	8.39	15.1

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Wallarah-Walker - Fu+DA.AM (Site Folder: Future +DA)]

Network: N101 [Future+DA AM (Network Folder: Future +DA)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 95 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Walker Ave														
1	L2	117	3.6	117	3.6	0.401	37.1	LOS C	6.8	48.5	0.87	0.77	0.87	28.1
2	T1	58	0.0	58	0.0	0.401	31.6	LOS C	6.8	48.5	0.87	0.77	0.87	38.0
3	R2	238	2.7	238	2.7	* 0.771	48.5	LOS D	11.4	82.0	1.00	0.91	1.16	23.4
Approach		413	2.6	413	2.6	0.771	42.9	LOS D	11.4	82.0	0.94	0.85	1.04	27.1
East: Wallarah Rd (E)														
4	L2	145	2.2	145	2.2	* 0.839	36.2	LOS C	30.2	215.9	0.95	0.94	1.06	35.2
5	T1	1176	2.5	1176	2.5	0.839	29.5	LOS C	30.2	215.9	0.92	0.92	1.03	22.5
6	R2	58	0.0	58	0.0	0.174	18.1	LOS B	1.2	8.4	0.71	0.71	0.71	42.5
Approach		1379	2.4	1379	2.4	0.839	29.7	LOS C	30.2	215.9	0.92	0.91	1.02	25.7
North: Site Access														
7	L2	61	0.0	61	0.0	0.288	36.6	LOS C	5.1	35.9	0.85	0.73	0.85	28.8
8	T1	75	0.0	75	0.0	0.288	31.1	LOS C	5.1	35.9	0.85	0.73	0.85	38.7
9	R2	103	0.0	103	0.0	0.369	42.9	LOS D	4.3	30.2	0.92	0.78	0.92	25.1
Approach		239	0.0	239	0.0	0.369	37.6	LOS C	5.1	35.9	0.88	0.75	0.88	31.1
West: Wallarah Rd (W)														
10	L2	39	0.0	34	0.0	0.541	24.5	LOS B	15.7	111.7	0.76	0.68	0.76	43.0
11	T1	956	2.4	832	2.4	0.541	18.4	LOS B	15.7	111.7	0.74	0.65	0.74	33.5
12	R2	137	1.5	119	1.5	* 0.543	26.3	LOS B	3.0	21.0	0.95	0.79	0.95	39.2
Approach		1132	2.2	985 N1	2.2	0.543	19.6	LOS B	15.7	111.7	0.76	0.67	0.76	35.2
All Vehicles		3162	2.2	3016 N1	2.3	0.839	28.8	LOS C	30.2	215.9	0.87	0.81	0.93	29.2

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Walker Ave											
P1	Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	207.0	214.8	1.04
East: Wallarah Rd (E)											
P2	Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	209.8	218.4	1.04
North: Site Access											

P3 Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	204.8	211.9	1.03
West: Wallarah Rd (W)										
P4 Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	209.8	218.4	1.04
All Pedestrians	211	41.8	LOS E	0.1	0.1	0.94	0.94	207.8	215.9	1.04

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

MOVEMENT SUMMARY

Site: 101 [Wallarah-Lake Haven - Fu+DA.AM (Site Folder: Future+DA)]

Network: N101 [Future+DA AM (Network Folder: Future +DA)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Wallarah Rd (E)														
5	T1	1116	1.9	1116	1.9	0.533	6.0	LOS A	4.9	34.7	0.68	0.60	0.68	47.4
6	R2	198	3.2	198	3.2	0.533	10.7	LOS A	4.6	32.8	0.69	0.66	0.69	52.6
6u	U	13	0.0	13	0.0	0.533	12.7	LOS A	4.6	32.8	0.69	0.66	0.69	53.6
Approach		1326	2.1	1326	2.1	0.533	6.7	LOS A	4.9	34.7	0.68	0.61	0.68	48.7
North: Lake Haven Dr														
7	L2	143	5.1	143	5.1	0.441	15.7	LOS B	2.3	16.5	0.75	0.92	0.91	46.9
9	R2	277	4.6	277	4.6	0.725	25.5	LOS B	5.8	41.9	0.87	1.12	1.37	33.9
9u	U	1	0.0	1	0.0	0.725	27.1	LOS B	5.8	41.9	0.87	1.12	1.37	43.7
Approach		421	4.8	421	4.8	0.725	22.2	LOS B	5.8	41.9	0.83	1.06	1.21	39.2
West: Wallarah Rd (W)														
10	L2	405	2.6	366	2.6	0.501	5.8	LOS A	3.7	26.4	0.46	0.57	0.46	51.8
11	T1	859	2.2	775	2.2	0.501	5.9	LOS A	3.7	26.4	0.46	0.56	0.46	53.3
12u	U	1	0.0	1	0.0	0.501	12.4	LOS A	3.6	25.8	0.47	0.55	0.47	43.9
Approach		1265	2.3	1142 N1	2.3	0.501	5.9	LOS A	3.7	26.4	0.46	0.56	0.46	52.8
All Vehicles		3013	2.6	2889 N1	2.7	0.725	8.7	LOS A	5.8	41.9	0.62	0.66	0.67	48.7

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
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: 101 [PHW-Wallarah - Fu+DA.PM (Site Folder: Future +DA)]

Network: N101 [Future+DA PM (Network Folder: Future +DA)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: PHW (S)														
1	L2	157	0.0	157	0.0	1.114	130.4	LOS F	57.1	402.7	1.00	3.06	7.68	19.4
2	T1	601	1.2	601	1.2	1.114	130.8	LOS F	57.1	402.7	1.00	3.05	7.65	20.4
3	R2	482	2.4	482	2.4	1.114	138.1	LOS F	53.4	380.8	1.00	2.98	7.50	12.4
3u	U	1	0.0	1	0.0	1.114	140.7	LOS F	53.4	380.8	1.00	2.98	7.50	20.5
Approach		1241	1.5	1241	1.5	1.114	133.6	LOS F	57.1	402.7	1.00	3.02	7.60	17.4
East: Wallarah Rd														
4	L2	393	0.8	393	0.8	1.065	82.8	LOS F	36.9	260.7	1.00	2.77	5.45	23.5
5	T1	632	1.5	632	1.5	1.065	82.3	LOS F	36.9	260.7	1.00	2.77	5.44	22.7
6	R2	142	3.0	142	3.0	1.065	88.2	LOS F	36.7	261.2	1.00	2.77	5.44	24.0
6u	U	23	0.0	23	0.0	1.065	90.1	LOS F	36.7	261.2	1.00	2.77	5.44	13.6
Approach		1189	1.4	1189	1.4	1.065	83.3	LOS F	36.9	261.2	1.00	2.77	5.45	23.0
North: PHW (N)														
7	L2	167	3.1	167	3.1	1.421	400.3	LOS F	110.1	788.3	1.00	4.88	14.81	4.5
8	T1	514	2.5	514	2.5	1.421	400.6	LOS F	110.1	788.3	1.00	4.83	14.69	8.3
9	R2	358	0.6	358	0.6	1.421	407.4	LOS F	103.4	730.9	1.00	4.69	14.37	8.3
9u	U	1	0.0	1	0.0	1.421	410.2	LOS F	103.4	730.9	1.00	4.69	14.37	8.4
Approach		1040	1.9	1040	1.9	1.421	402.9	LOS F	110.1	788.3	1.00	4.79	14.60	7.7
West: Sparks Rd														
10	L2	326	1.9	326	1.9	1.215	207.0	LOS F	110.8	785.5	1.00	5.95	12.90	13.7
11	T1	1067	1.3	1067	1.3	1.215	207.7	LOS F	110.8	785.5	1.00	5.58	12.32	8.0
12	R2	160	5.9	160	5.9	1.215	215.1	LOS F	86.6	618.4	1.00	5.19	11.70	13.7
12u	U	1	0.0	1	0.0	1.215	216.9	LOS F	86.6	618.4	1.00	5.19	11.70	13.6
Approach		1555	1.9	1555	1.9	1.215	208.3	LOS F	110.8	785.5	1.00	5.62	12.38	9.9
All Vehicles		5025	1.7	5025	1.7	1.421	200.6	LOS F	110.8	788.3	1.00	4.13	10.02	12.1

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Wallarah-Walker - Fu+DA.PM (Site Folder: Future +DA)]

Network: N101 [Future+DA PM (Network Folder: Future +DA)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 95 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Walker Ave														
1	L2	94	4.5	94	4.5	0.425	35.5	LOS C	8.0	57.3	0.87	0.76	0.87	26.6
2	T1	115	0.0	115	0.0	0.425	30.9	LOS C	8.0	57.3	0.87	0.76	0.87	34.5
3	R2	262	2.4	262	2.4	* 0.772	46.1	LOS D	12.5	89.3	0.99	0.92	1.14	22.4
Approach		471	2.2	471	2.2	0.772	40.3	LOS C	12.5	89.3	0.94	0.85	1.02	26.7
East: Wallarah Rd (E)														
4	L2	200	1.6	200	1.6	* 0.849	42.8	LOS D	26.4	189.5	0.99	0.99	1.15	29.3
5	T1	857	3.4	857	3.4	0.849	36.5	LOS C	26.4	189.5	0.95	0.96	1.11	18.4
6	R2	115	0.0	115	0.0	* 0.523	25.6	LOS B	2.7	19.1	0.95	0.78	0.95	34.3
Approach		1172	2.8	1171 N1	2.8	0.849	36.5	LOS C	26.4	189.5	0.96	0.95	1.11	23.0
North: RoadName														
7	L2	41	0.0	41	0.0	0.179	33.0	LOS C	3.3	22.8	0.80	0.68	0.80	27.5
8	T1	51	0.0	51	0.0	0.179	28.5	LOS B	3.3	22.8	0.80	0.68	0.80	35.3
9	R2	73	0.0	73	0.0	0.244	39.9	LOS C	2.9	20.4	0.88	0.75	0.88	24.1
Approach		164	0.0	164	0.0	0.244	34.7	LOS C	3.3	22.8	0.84	0.71	0.84	29.1
West: Wallarah Rd (W)														
10	L2	76	0.0	63	0.0	0.848	35.3	LOS C	33.9	239.8	0.96	0.95	1.06	33.4
11	T1	1520	1.5	1264	1.5	0.848	30.5	LOS C	33.9	239.8	0.91	0.92	1.04	23.9
12	R2	204	1.0	170	1.0	0.483	23.5	LOS B	3.8	26.9	0.93	0.79	0.93	36.2
Approach		1800	1.4	1497 N1	1.4	0.848	29.9	LOS C	33.9	239.8	0.92	0.90	1.02	26.5
All Vehicles		3606	1.9	3303 N1	2.1	0.849	33.9	LOS C	33.9	239.8	0.93	0.90	1.04	25.5

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Walker Ave											
P1	Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	207.0	214.8	1.04
East: Wallarah Rd (E)											
P2	Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	209.8	218.4	1.04

North: RoadName										
P3 Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	204.8	211.9	1.03
West: Wallarah Rd (W)										
P4 Full	53	41.8	LOS E	0.1	0.1	0.94	0.94	209.8	218.4	1.04
All Pedestrians	211	41.8	LOS E	0.1	0.1	0.94	0.94	207.8	215.9	1.04

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

MOVEMENT SUMMARY

Site: 101 [Wallarah-Lake Haven - Fu+DA.PM (Site Folder: Future+DA)]

Network: N101 [Future+DA PM (Network Folder: Future +DA)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Wallarah Rd (E)														
5	T1	776	1.1	776	1.1	0.712	11.9	LOS A	8.4	59.4	0.96	1.07	1.27	37.7
6	R2	234	1.8	234	1.8	0.712	16.3	LOS B	8.4	59.5	0.96	1.08	1.27	43.1
6u	U	13	0.0	13	0.0	0.712	18.0	LOS B	8.4	59.5	0.96	1.08	1.27	43.9
Approach		1022	1.2	1022	1.2	0.712	13.0	LOS A	8.4	59.5	0.96	1.07	1.27	39.6
North: Lake Haven Dr														
7	L2	216	1.5	216	1.5	0.546	14.7	LOS B	3.5	25.1	0.85	1.01	1.10	41.6
9	R2	477	1.5	477	1.5	0.909	36.3	LOS C	14.4	102.5	1.00	1.57	2.38	26.1
9u	U	1	0.0	1	0.0	0.909	38.0	LOS C	14.4	102.5	1.00	1.57	2.38	34.9
Approach		694	1.5	694	1.5	0.909	29.6	LOS C	14.4	102.5	0.95	1.39	1.98	31.4
West: Wallarah Rd (W)														
10	L2	534	2.6	459	2.6	0.724	6.7	LOS A	8.3	59.4	0.61	0.65	0.67	44.8
11	T1	1243	1.4	1069	1.4	0.724	6.6	LOS A	8.3	59.4	0.61	0.64	0.68	46.2
12u	U	1	0.0	1	0.0	0.724	12.8	LOS A	8.3	58.5	0.61	0.64	0.68	38.8
Approach		1778	1.8	1528 N1	1.8	0.724	6.6	LOS A	8.3	59.4	0.61	0.64	0.68	45.8
All Vehicles		3494	1.6	3244 N1	1.7	0.909	13.5	LOS A	14.4	102.5	0.79	0.94	1.14	40.3

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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
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: 101 [PHW-Wallarah - Fu+DA.Sat (Site Folder: Future +DA)]

Network: N101 [Future+DA Sat (Network Folder: Future +DA)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: PHW (S)														
1	L2	69	3.0	69	3.0	1.065	99.9	LOS F	33.3	235.2	1.00	2.32	5.57	23.1
2	T1	537	0.8	537	0.8	1.065	99.8	LOS F	33.4	234.9	1.00	2.32	5.57	24.6
3	R2	328	0.3	328	0.3	1.065	106.0	LOS F	33.4	234.9	1.00	2.32	5.58	15.4
3u	U	1	0.0	1	0.0	1.065	108.8	LOS F	33.4	234.9	1.00	2.32	5.58	24.7
Approach		936	0.8	936	0.8	1.065	102.0	LOS F	33.4	235.2	1.00	2.32	5.57	21.5
East: Wallarah Rd														
4	L2	394	1.1	394	1.1	1.172	170.2	LOS F	69.5	490.6	1.00	4.38	9.61	14.4
5	T1	666	0.8	666	0.8	1.172	169.5	LOS F	69.6	490.5	1.00	4.38	9.61	14.2
6	R2	208	1.0	208	1.0	1.172	175.4	LOS F	69.6	490.5	1.00	4.38	9.61	14.8
6u	U	16	0.0	16	0.0	1.172	177.4	LOS F	69.6	490.5	1.00	4.38	9.61	7.7
Approach		1284	0.9	1284	0.9	1.172	170.8	LOS F	69.6	490.6	1.00	4.38	9.61	14.3
North: PHW (N)														
7	L2	207	0.5	207	0.5	1.311	299.9	LOS F	102.4	722.0	1.00	4.60	13.27	5.9
8	T1	640	1.0	640	1.0	1.311	300.1	LOS F	102.4	722.0	1.00	4.60	13.26	10.6
9	R2	372	0.8	372	0.8	1.311	306.4	LOS F	102.4	722.1	1.00	4.60	13.26	10.5
9u	U	1	0.0	1	0.0	1.311	309.1	LOS F	102.4	722.1	1.00	4.60	13.26	10.8
Approach		1220	0.9	1220	0.9	1.311	302.0	LOS F	102.4	722.1	1.00	4.60	13.26	9.9
West: Sparks Rd														
10	L2	380	1.7	380	1.7	1.208	205.0	LOS F	74.6	528.3	1.00	4.69	10.78	13.7
11	T1	698	0.9	698	0.9	1.208	204.4	LOS F	74.6	528.3	1.00	4.69	10.77	8.1
12	R2	79	6.7	79	6.7	1.208	210.6	LOS F	74.3	528.6	1.00	4.69	10.77	14.0
12u	U	16	6.7	16	6.7	1.208	212.7	LOS F	74.3	528.6	1.00	4.69	10.77	13.8
Approach		1173	1.6	1173	1.6	1.208	205.1	LOS F	74.6	528.6	1.00	4.69	10.78	10.5
All Vehicles		4613	1.0	4613	1.0	1.311	200.3	LOS F	102.4	722.1	1.00	4.10	10.05	12.5

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Wallarah-Walker - Fu+DA.Sat (Site Folder: Future +DA)]

Network: N101 [Future+DA Sat (Network Folder: Future +DA)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 75 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Walker Ave														
1	L2	107	3.9	107	3.9	0.417	29.0	LOS C	5.4	38.4	0.86	0.76	0.86	28.9
2	T1	67	0.0	67	0.0	0.417	24.4	LOS B	5.4	38.4	0.86	0.76	0.86	36.5
3	R2	242	2.6	242	2.6	* 0.807	41.9	LOS C	9.8	69.9	1.00	0.97	1.27	23.6
Approach		417	2.5	417	2.5	0.807	35.7	LOS C	9.8	69.9	0.94	0.88	1.10	27.3
East: Wallarah Rd (E)														
4	L2	181	1.7	181	1.7	0.931	51.1	LOS D	28.0	200.7	1.00	1.21	1.47	27.1
5	T1	944	3.1	944	3.1	* 0.931	46.0	LOS D	28.0	200.7	0.99	1.24	1.47	15.9
6	R2	67	0.0	67	0.0	0.226	18.2	LOS B	1.2	8.5	0.84	0.73	0.84	37.6
Approach		1193	2.7	1193	2.7	0.931	45.2	LOS D	28.0	200.7	0.99	1.21	1.43	19.6
North: RoadName														
7	L2	67	0.0	67	0.0	0.311	29.5	LOS C	4.4	31.0	0.85	0.73	0.85	29.0
8	T1	79	0.0	79	0.0	0.311	24.9	LOS B	4.4	31.0	0.85	0.73	0.85	36.5
9	R2	113	0.0	113	0.0	0.429	35.1	LOS C	3.8	26.9	0.93	0.78	0.93	25.7
Approach		259	0.0	259	0.0	0.429	30.6	LOS C	4.4	31.0	0.89	0.75	0.89	30.6
West: Wallarah Rd (W)														
10	L2	44	0.0	38	0.0	0.734	26.4	LOS B	17.7	125.8	0.91	0.83	0.94	36.9
11	T1	1152	2.0	990	2.2	0.734	21.5	LOS B	17.7	125.8	0.89	0.81	0.93	28.3
12	R2	164	1.3	141	1.4	* 0.561	23.1	LOS B	2.7	19.1	0.98	0.78	0.99	36.4
Approach		1360	1.9	1168 N1	2.0	0.734	21.8	LOS B	17.7	125.8	0.90	0.81	0.94	30.2
All Vehicles		3228	2.1	3037 N1	2.3	0.931	33.7	LOS C	28.0	200.7	0.94	0.97	1.15	25.2

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Walker Ave											
P1	Full	53	31.8	LOS D	0.1	0.1	0.92	0.92	197.0	214.8	1.09
East: Wallarah Rd (E)											
P2	Full	53	31.8	LOS D	0.1	0.1	0.92	0.92	199.8	218.4	1.09
North: RoadName											

P3 Full	53	31.8	LOS D	0.1	0.1	0.92	0.92	194.8	211.9	1.09
West: Wallarah Rd (W)										
P4 Full	53	31.8	LOS D	0.1	0.1	0.92	0.92	199.8	218.4	1.09
All Pedestrians	211	31.8	LOS D	0.1	0.1	0.92	0.92	197.9	215.9	1.09

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

MOVEMENT SUMMARY

Site: 101 [Wallarah-Lake Haven - Fu+DA.Sat (Site Folder: Future+DA)]

Network: N101 [Future+DA Sat (Network Folder: Future +DA)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Wallarah Rd (E)														
5	T1	848	1.0	848	1.0	0.653	9.0	LOS A	7.1	49.9	0.90	0.93	1.07	40.0
6	R2	202	2.6	202	2.6	0.653	13.5	LOS A	7.0	50.0	0.90	0.94	1.08	44.7
6u	U	14	0.0	14	0.0	0.653	15.2	LOS B	7.0	50.0	0.90	0.94	1.08	45.5
Approach		1064	1.3	1064	1.3	0.653	10.0	LOS A	7.1	50.0	0.90	0.93	1.07	41.4
North: Lake Haven Dr														
7	L2	205	1.5	205	1.5	0.526	14.3	LOS A	3.2	22.9	0.80	0.98	1.03	41.7
9	R2	422	1.2	422	1.2	0.863	30.1	LOS C	11.1	78.5	0.99	1.39	1.97	28.4
9u	U	1	0.0	1	0.0	0.863	31.8	LOS C	11.1	78.5	0.99	1.39	1.97	37.0
Approach		628	1.3	628	1.3	0.863	24.9	LOS B	11.1	78.5	0.93	1.26	1.66	33.5
West: Wallarah Rd (W)														
10	L2	420	0.8	373	0.8	0.604	5.8	LOS A	5.1	35.8	0.52	0.56	0.52	45.4
11	T1	1002	0.7	890	0.8	0.604	5.0	LOS A	5.1	35.8	0.52	0.54	0.52	46.8
12u	U	1	0.0	1	0.0	0.604	11.2	LOS A	5.1	35.7	0.52	0.54	0.52	39.6
Approach		1423	0.7	1264 N1	0.8	0.604	5.3	LOS A	5.1	35.8	0.52	0.55	0.52	46.4
All Vehicles		3116	1.0	2957 N1	1.1	0.863	11.1	LOS A	11.1	78.5	0.74	0.84	0.96	41.5

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
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.

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