



URBNSURF Sydney Sydney Olympic Park Traffic Impact Assessment Report

Prepared for:
Wave Park Group
5/06/2017

The Transport Planning Partnership
ABN 99 607 079 005

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Client: Wave Park Group

Version: V05

Date: 5/06/2017

TPP Reference: 16277

Quality Record

Version	Date	Prepared by	Reviewed by	Approved by	Signature
V01	08/03/17	Jessica Szeto	Wayne Johnson	Wayne Johnson	-
V02	04/04/17	Jessica Szeto	Jason Rudd	Jason Rudd	
V03	07/04/17	Jessica Szeto	Jason Rudd	Jason Rudd	
V04	10/04/17	Jessica Szeto	Jason Rudd	Jason Rudd	
V05	05/06/17	Jessica Szeto	Jason Rudd	Jason Rudd	

Table of Contents

1	Introduction	1
1.1	Overview	1
1.2	Proposed Site Location	1
1.3	Secretary's Environmental Assessment Requirements	2
1.4	Purpose of this Report	3
1.5	References	3
2	Strategic Context	4
2.1	Sydney Olympic Park Plans and Policies	4
2.1.1	Sydney Olympic Park Master Plan 2030 (2016 Review)	4
2.1.2	Sydney Olympic Park Parklands Plan of Management 2010	7
2.1.3	Sydney Olympic Park Access Guidelines 2015	10
2.2	NSW Long Term Transport Master Plan	10
2.2.1	Parramatta Light Rail	10
2.2.2	Sydney's Cycling and Walking Future 2013	11
3	Proposed Surf Park Development	12
3.1	Overview of Proposed Surf Park Facility	12
3.2	Vehicle Access	13
3.3	Car Parking	15
3.4	Site Operation	15
4	Existing Conditions	19
4.1	Abutting Road Network	19
4.1.1	Hill Road	19
4.1.2	Holker Street	19
4.1.3	Holker Busway	19
4.2	Surrounding Key Intersections	19
4.3	Public Transport Facilities	20
4.4	Pedestrian Facilities	22
4.5	Cycle Facilities	23
4.6	Existing Travel Behaviour	24
4.7	Car Parking	24
4.8	Traffic Volume	24

5	Assessment of Proposed Development	26
5.1	Car Parking Provisions	26
5.1.1	Car Parking Requirements	26
5.1.2	Car Parking Demand of Proposed Surf Park	27
5.1.3	Adequacy of On Site Parking Supply for Surf Park Operation	28
5.1.4	Proposed Car Park Access and Car Park Layout	28
5.1.5	Impact on Sydney Olympic Park Parking Provisions	29
5.2	Traffic Generation Implications of Proposed Surf Park (Non Event Mode)	30
5.2.1	Future Road Network Operating Conditions (Background Traffic)	30
5.2.2	Estimated Surf Park Traffic Generation	30
5.2.3	Intersection Operation Assessment	30
5.3	Traffic Implications of Surf Park During Sydney Olympic Park Event Mode ...	33
5.3.1	Managing Travel Demand in SOP	33
5.3.2	Traffic Generation of P5 Event Car Park with Surf Park	34
5.4	Car Park Site Access Arrangements	35
5.5	Service Vehicle Arrangements	35
5.6	Emergency Vehicle Access	36
5.7	Public Transport Accessibility	36
5.8	Bicycle and Cyclist Facilities	36
5.9	Construction Traffic Management	37
6	Conclusions	39

Tables

Table 2.1:	Master Plan 2030 (2016 Review) – Development Yield	5
Table 4.1:	Public Transport Serving the Proposed Surf Park Site	21
Table 4.2:	Summary of JTW Data for SOP	24
Table 5.1:	Proposed Surf Park – Worst Case ¹ Parking Demand (High Season Peak)	27
Table 5.2:	RMS Level of Service Criteria	31
Table 5.3:	Existing (Base Case) Analysis	31
Table 5.4:	Future (With Surf Park) Analysis	32

Figures

Figure 1.1:	Subject Site and Surrounding Environs.....	2
Figure 2.1:	Planned Future Road Network and Upgrades.....	6
Figure 2.2:	Proposed Future Bus Network.....	8
Figure 2.3:	Parklands Plan of Management (2010) - Precincts.....	9
Figure 2.4:	Parramatta Light Rail Route (Stage 1)	11
Figure 3.1:	Proposed URBNSURF Facility within P5 Car Park at SOP	12
Figure 3.2:	Proposed Site Layout.....	13
Figure 3.3:	Proposed Vehicle Access Arrangements	14
Figure 3.4:	Typical Site Attendance Profile (Estimated High Season).....	18
Figure 4.1:	Subject Site and Surrounding Environs.....	20
Figure 4.2:	Existing Public Transport Network.....	21
Figure 4.3:	Hill Rd, across Holker Busway	22
Figure 4.4:	Holker Busway, near Pod B P5	22
Figure 4.5:	Hill Rd, shared path	22
Figure 4.6:	Holker Busway, across Hill Rd	22
Figure 4.7:	Existing Cycle Network.....	23
Figure 4.8:	Existing Traffic Volumes – Weekday AM Peak	25
Figure 4.9:	Existing Traffic Volumes – Weekday PM Peak.....	25
Figure 4.10:	Existing Traffic Volumes – Saturday Midday Peak	25
Figure 5.1:	Emergency Vehicle (Ambulance) Standing Areas and Access.....	37

APPENDICES

- A. VEHICLE SWEPT PATH ANALYSIS
- B. SIDRA INTERSECTION ANALYSIS RESULTS

1 Introduction

1.1 Overview

In May 2016, it was announced that URBNSURF Sydney (URBNSURF) had been nominated as the preferred proponent over a 3.2ha site located at Sydney Olympic Park (SOP), Homebush.

The site is part of the P5 car park on the north west edge of SOP. The site is one of the parcels of land within the SOP that the Sydney Olympic Park Authority (SOPA) is looking to revitalise given its relative under utilisation.

The URBNSURF proposes to develop land within Sydney Olympic Park, Homebush, for the purpose of constructing and operating an open air simulated Surf Park facility with a lagoon and associated ancillary café, function room and training centre facilities.

The proposed Surf Park, to be known as URBNSURF Sydney, will be located at Pod B P5 Carpark, Hill Road, Sydney Olympic Park.

A State Significant Development (SSD) application including the Environmental Impact Statement (EIS) is currently being prepared for lodgement with the Department of Planning and Environment (DoPE) seeking approval of the proposed URBNSURF facility.

The Transport Planning Partnership (TPPP) Pty Ltd has prepared this traffic impact assessment report on behalf of URBNSURF to accompany the SSD application.

This report relates to the traffic and parking implications associated with the proposed development, and specifically the requirements set out in the Secretary's Environmental Assessment Requirements (SEARs) for this project.

1.2 Proposed Site Location

The subject site, URBNSURF Sydney, is located within the SOP precinct and falls under the jurisdiction of SOPA. The site of approximately 31,500m² currently occupies a portion of Pod C within the P5 car park on the corner of Hill Road and Holker Busway.

The P5 carpark primarily services 'event car parking' for large events at SOP. The P5 carpark is utilised as an overflow car park or vehicle layover area during large and or special events within the vicinity. However, it is noted that the site is infrequently used outside of large event modes and predominately left vacant.

The location of the subject site and surrounding environs is shown in Figure 1.1.

Land in the vicinity of the subject site include a mix of recreational / entertainment, industrial and residential land uses.

It is noted that the “Monster Mountain X” mountain biking course and BMX track is located directly adjacent to the south-east of the site.

Figure 1.1: Subject Site and Surrounding Environs



Source: Street Directory Australia

1.3 Secretary's Environmental Assessment Requirements

On 30 September 2016, SEARs were issued for the proposed URBNSURF Sydney development at Pod B P5 Car Park (corner of Hill Road and Holker Busway), Sydney Olympic Park.

Item 5 of the SEARs directly relates to Transport and Accessibility. In addressing the SEARs, this transport assessment has considered the following transport and accessibility matters of the proposed Surf Park facility:

- Potential cumulative impacts due to other developments within the facility of the site;
- Relevant planning policies and transport management objectives of both SOPA and other strategic authorities and State government agencies;
- Major Event modes of operation within SOP; and
- Construction traffic implications and management.

1.4 Purpose of this Report

The report sets out an assessment of the anticipated parking, traffic and transport implications of the proposed Surf Park development as required by the SEARs. Specifically, this includes consideration of the:

- the traffic generation impacts of the proposed Surf Park to the operation of the surrounding road network during the various operational modes of SOP;
- the adequacy of the proposed parking arrangements in terms of supply (quantum), location and layout;
- the implications of the loss of car parking for SOP activities due to construction of the Surf Park facility;
- the adequacy of the proposed pedestrian, bicycle and public transport access arrangements to the site;
- the adequacy of proposed site access arrangements for vehicles, pedestrians and cyclists; and
- the adequacy of the proposed arrangements for loading and waste collection and the acceptability of the traffic impacts of the proposed development, including the need for mitigating road works and appropriate vehicular access.

1.5 References

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

- Sydney Olympic Park Master Plan 2030
- Sydney Olympic Park Master Plan 2030 (2016 Review), Traffic and Transport Strategy (2016 Review)
- Sydney Olympic Park, Parklands Plan of Management 2010.
- Sydney Olympic Park Access Guidelines 2015
- URBNSURF Sydney (SSD 7942,) Secretary's Environmental Assessment Requirements dated 30 September 2016
- NSW Long Term Transport Master Plan 2012
- other documents as referenced in this report.

2 Strategic Context

2.1 Sydney Olympic Park Plans and Policies

2.1.1 Sydney Olympic Park Master Plan 2030 (2016 Review)

Transport Related Planning Principles of the SOP Master Plan

With regard to transport planning principles, the SOP Master Plan seeks to enable Sydney Olympic Park to continue to host large events while also accommodating new commercial and residential uses, transport and access can be improved by:

- Encouraging non – private vehicle usage for journey to work and major sporting events;
- monitoring and, if necessary, adjusting the quantity of high traffic generating land uses to match road and public transport capacities;
- strategically locating commercial and retail land uses around Olympic Park Station and close to local bus service corridors;
- limiting the provision of parking spaces for new developments to encourage public transport use;
- continuing the operation of high quality major event public transport services to sustain existing high public transport mode shares;
- maintaining regular public transport services, road access and parking supply sufficiently during major events;
- designing a street network that supports bicycles, vehicles and pedestrian use;
- building more efficient metropolitan and intercity rail and bus connections;
- integrating transport service planning with adjacent suburbs, to reduce the reliance on private vehicle use for trips under 5 km;
- spreading the commuter peak hours and promoting public and shared private commuter transport as alternatives to private motor cars;
- meeting accessibility needs across the entire local transport and street network; and
- providing for new streets within sites to facilitate vehicle access.

The proposed Surf Park facility is consistent with these objectives due in part to the type of commercial activity but also due to its location and accessibility to existing public transport and active transport (bicycle and pedestrian) services within the SOP.

Traffic Analysis of SOP Master Plan Development

Strategic traffic analysis of the existing and planned development in and around the SOP has been undertaken as part of the Sydney Olympic Park Masterplan 2030 (2016 Review).

The purpose of the traffic analysis was, in part, to identify the local traffic impacts associated with the proposed masterplan and provide any mitigation measures to manage the projected development traffic in 2030, where necessary.

Based on the indicative masterplan, the projected development yields within the Sydney Olympic Park area is summarised in Table 2.1.

Table 2.1: Master Plan 2030 (2016 Review) – Development Yield

Land Use Development	Development Yield Master Plan 20130 (2016 Review)	Vehicles
Residential	10,700 dwellings	1,330
Commercial office	412,000 m ²	6,590
Venues (additions to existing)	110,000 m ²	1,730
Education	186,000 m ²	600
Temporary accommodation	192,000 m ²	610
Transport infrastructure	51,000 m ²	
Retail	100,000 m ²	3,700
Community facilities	37,000 m ²	120
Entertainment	17,000 m ²	270
Total	1,960,000 m²	14,950

Further to this, it is envisaged that the proposed population and employment figures resulting from the proposed development yields would be in the order of:

- 23,500 residents, and
- 34,000 workers.

On this basis, a number of upgrades were proposed as part of the previous Baseline Transport Strategy prepared for the precinct area. These upgrades are currently understood to be under investigation as part of the Olympic Peninsula Regional Transport Infrastructure Investigations undertaken by Roads and Maritime Services.

However, it is noted that the Hill Road-Holker Street signalised intersection is currently under investigation by RMS for some proposed lane reconfiguration works with the purpose of increasing intersection capacity and improved operation. However, no details pertaining to such improvement works have been provided to the Wave Park Group or TTPP by RMS.

An overview of the surrounding road network and future planned intersection upgrades in accordance with the Masterplan is presented below.

Figure 2.1: Planned Future Road Network and Upgrades



Source: Sydney Olympic Park Master Plan 2030 (2016 Review)

Future Public Transport Opportunities

The SOP Master Plan 2030 envisages that the existing public transport network will be upgraded in future years, with some dramatic improvements to existing bus services in and around SOP.

At this stage, it is understood that the Holker Busway link may open to bus services to provide good connectivity to Parramatta suburbs via Holker Street.

At present, it is noted that only special event bus services are typically permitted via the Holker Busway.

The proposed future bus network surrounding the site is shown in Figure 2.2.

2.1.2 Sydney Olympic Park Parklands Plan of Management 2010

As shown in Figure 2.3, the site of the proposed Surf Park facility is located within the Sports and Recreational Parks as defined by the *Parklands Plan of Management (2010)*.

As such it is noted that the SOP Mater Plan 2030 defers to the Parklands Plan of Management (2010) with regard to the site specific objectives and controls.

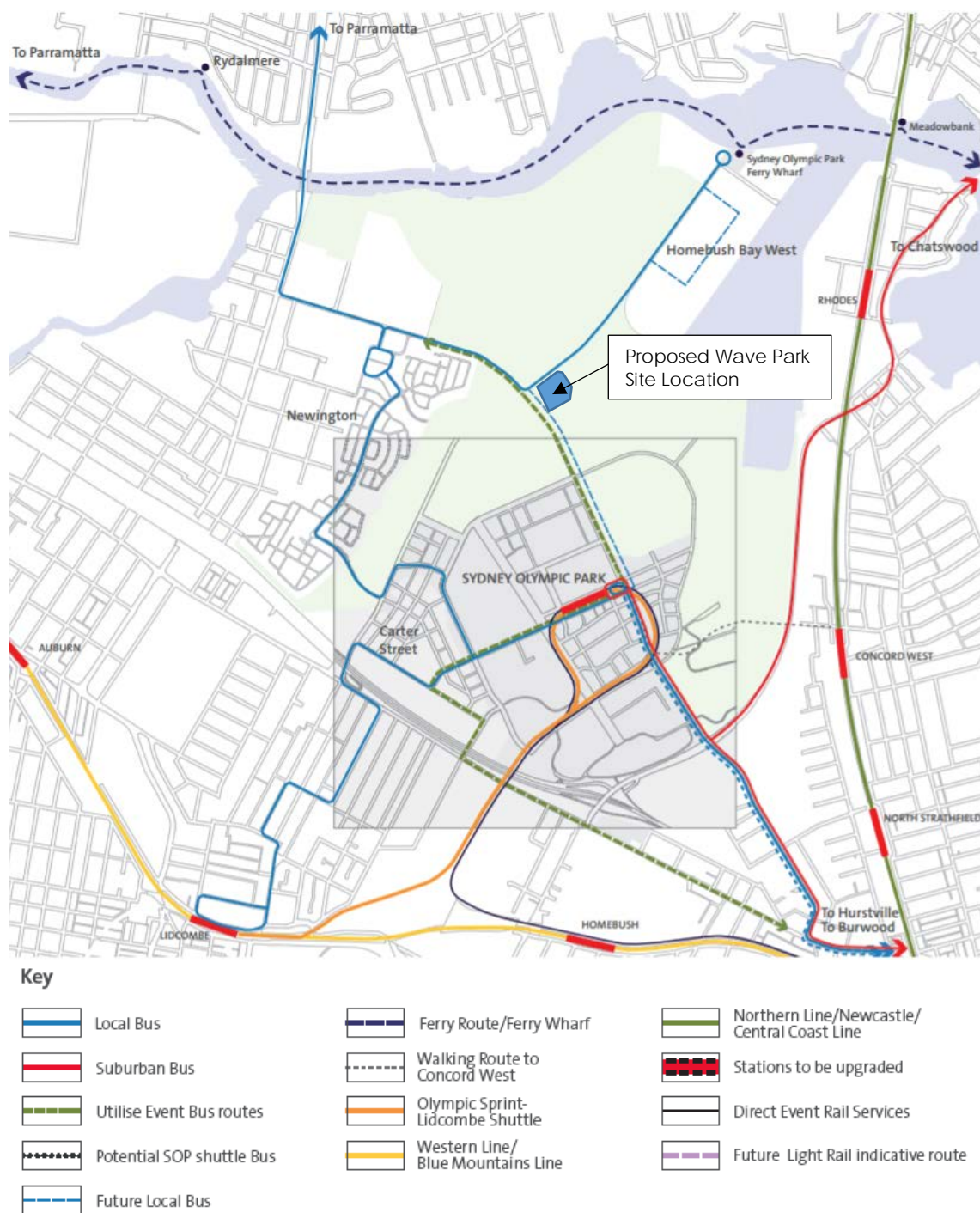
The management objectives for precincts or the parts of precincts within areas of land categorised as Sports & Recreation Parks are as follows:

- provide sporting areas that present high standards of health, safety, experience and amenity;
- improve, develop and maintain the land in ways that facilitates public use and enjoyment of the land for sporting purposes;
- promote management and use of the land in a manner that protects and enhances the sports and recreational quality of the land;
- manage uses and activities having regard to any adverse impact on other people and places, the integrity of the underlying remediated land systems and minimising conflicts between user groups and interests; and
- conserve, protect, interpret, adapt and/or enhance the significant ecological, scenic and heritage elements for present or future generations.

The proposed Surf Park facility is considered to be consistent with all of these management objectives.

Furthermore, it is noted that a Surf Park facility is a permissible use for area within the Sports and Recreational Parks.

Figure 2.2: Proposed Future Bus Network



Source: Sydney Olympic Park Master Plan 2030 (2016 Review)

2.1.3 Sydney Olympic Park Access Guidelines 2015

The purpose of the SOP Access Guidelines 2015 is to provide information concerning the requirements for an accessible built environment that enables independent, equitable and inclusive access for people with disabilities.

As will be detailed further in this assessment report and other documents, the proposed Surf Park facility has been designed and set out in accordance with Access Guidelines and the relevant Australian Standards for disabled access.

This includes the provision of accessible car parking adjacent to the Surf park facility, which has been updated to comply with current AS2890.6 design requirements.

2.2 NSW Long Term Transport Master Plan

The NSW Long Term Transport Master Plan (LTMP) was released in 2012. It sets the direction for transport planning in NSW and provides a framework for transport policy and investment decisions.

The objectives of the LTMP will be used to plan for the future and act as a guide to assessing the best available options for building a world-class transport system for NSW over the next two decades.

The LTMP is supported by a number of detailed regional transport plans, modal plans and access strategies along with specific projects such as the Parramatta Light Rail project and Sydney's walking and cycling futures.

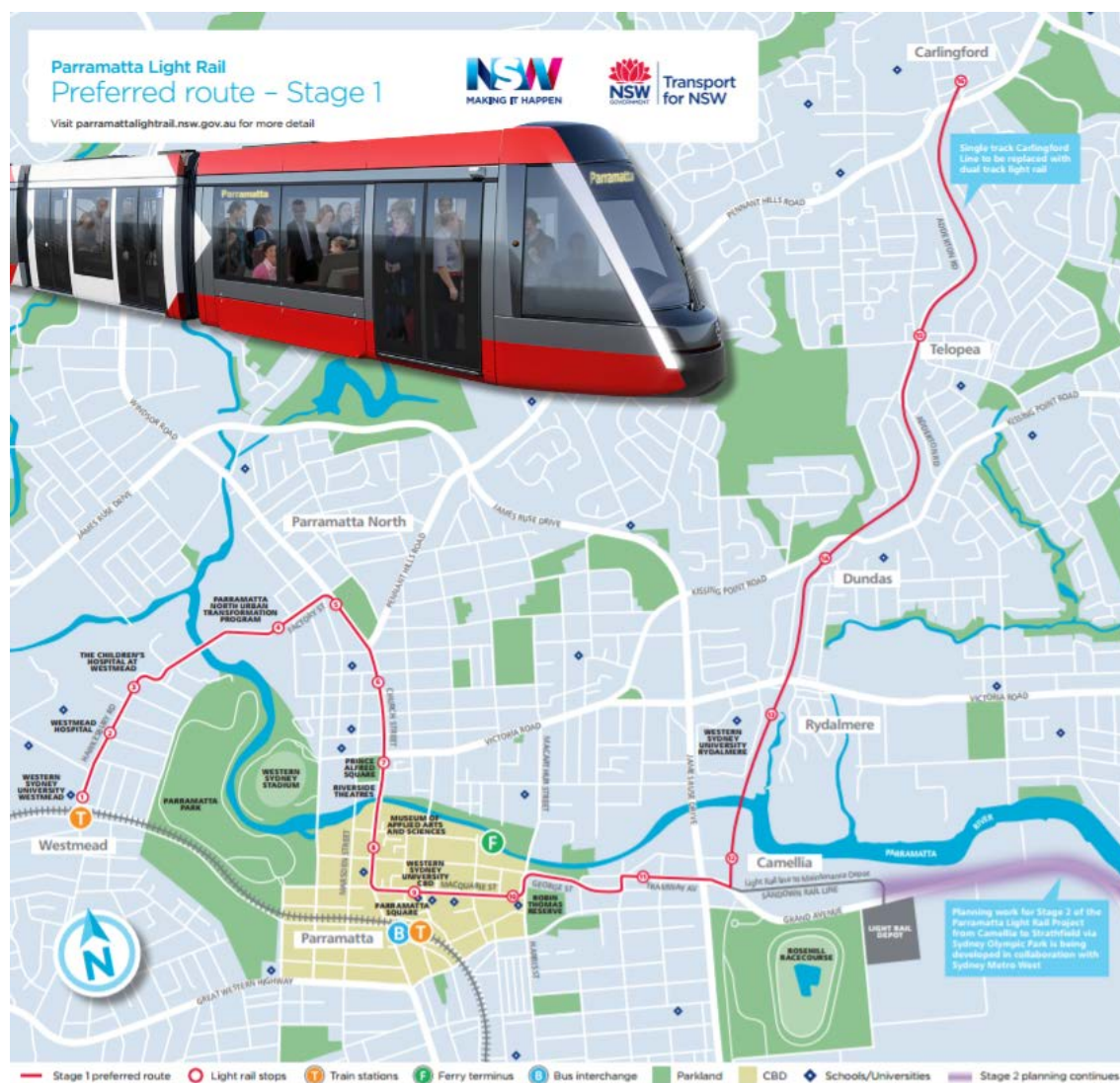
2.2.1 Parramatta Light Rail

The proposed Parramatta Light rail is set to extend for some 22-kilometers, stretching from Strathfield to Westmead, via Sydney Olympic Park. The proposed Sydney Olympic Park light rail stop forms part of the Stage 2 overarching strategy of the Parramatta Light rail, with the proposed route anticipated to be finalised in late 2017.

The proposed Stage 1 light rail route and indicative connection (Stage 2) to SOP is shown in Figure 2.4.

The proposed light rail via Sydney Olympic Park would ultimately provide improved public transport connectivity to surrounding suburbs, pertinently Parramatta and Westmead suburbs. The likely connection between Parramatta and SOP would be along a route incorporating the Holker Street busway, adjacent to the proposed Surf Park site.

Figure 2.4: Parramatta Light Rail Route (Stage 1)



Source: www.parramattalightrail.nsw.gov.au

2.2.2 Sydney's Cycling and Walking Future 2013

Sydney's Cycling Future and Walking Future both presents a new direction in the way we plan, prioritise and provide for cycling and walking across the broader Sydney region. This supports the change in culture we are seeing in Sydney with more people choosing to ride a bike and walking modes for transport.

SOP and the proposed Surf Park site are beneficiaries of the type of cycling and walking infrastructure envisaged by these State Government planning policies.

SOP is well serviced by good access to cycling and walking paths connecting SOP land uses to each other and transport nodes.

3 Proposed Surf Park Development

3.1 Overview of Proposed Surf Park Facility

URBNSURF is a surf sports, recreation and leisure facility that is built around a man-made surfing lagoon. The lagoon and the associated wave generating technology delivers high quality, authentic surfing waves and creates ideal conditions for surfing and other surf sports.

The proposal seeks approval to construct and operate a wave simulation facility (URBNSURF Sydney) within the existing P5 Carpark accessed off Hill Road at SOP as is shown in Figure 3.1.

Along with the Surf Park lagoon, URBNSURF Sydney is proposed to include a large associated ancillary café, function room and training centre facilities within the site. A portion of existing car parking adjacent to the Surf Park will be retained and utilised for Surf Park car parking.

Figure 3.1: Proposed URBNSURF Facility within P5 Car Park at SOP



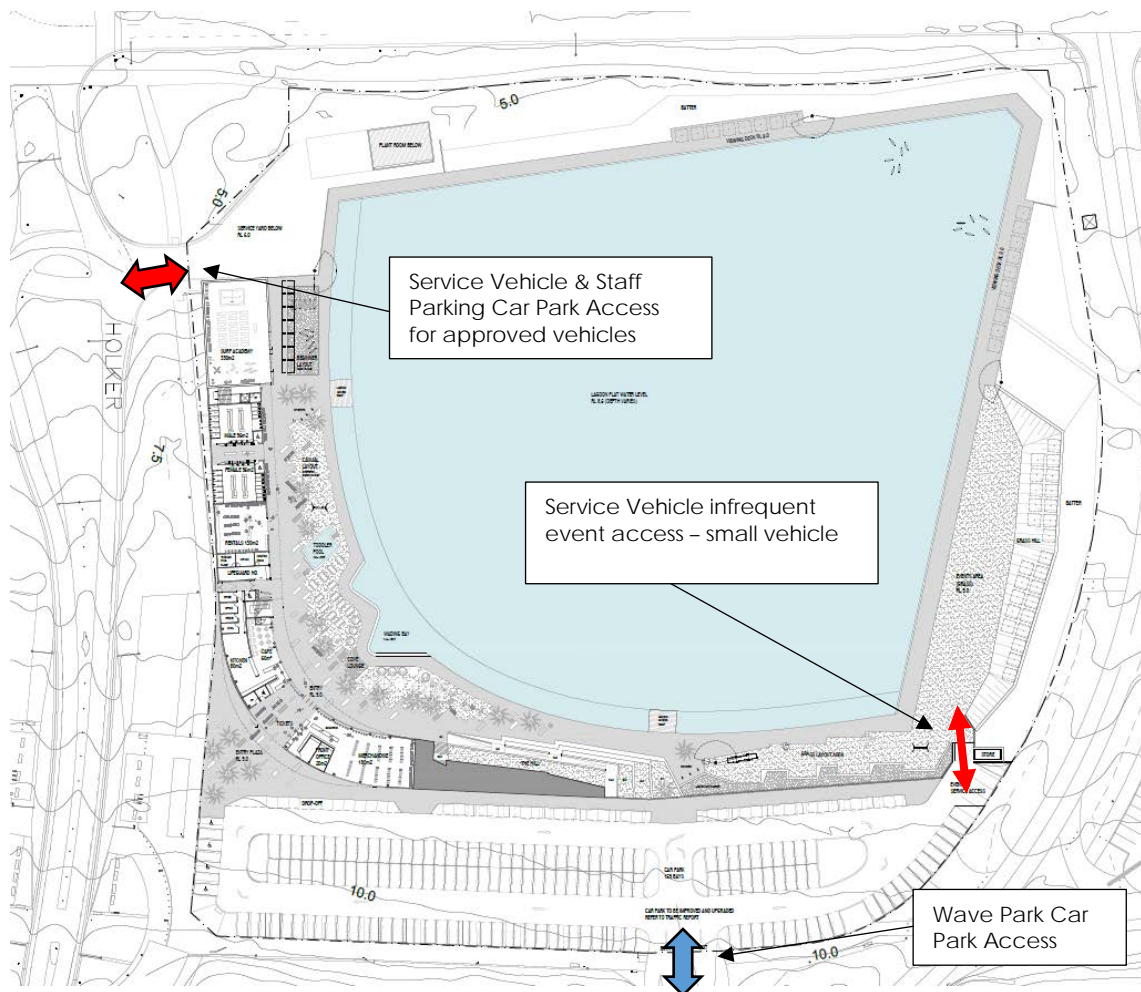
Source: www.nearmap.com.au

The P5 car park comprises of three separate areas providing in total approximately 2,550 car parking spaces (including 77 disabled parking spaces).

The proposed URBNSURF development will be located within the central P5 parking area. This area currently provides some 844 spaces (including 43 disabled spaces) and an infrequently used bus parking / layover area.

The indicative site layout plan for the proposed URBNSURF development is shown in Figure 3.2.

Figure 3.2: Proposed Site Layout



Source: URBNSURF (dated 31 March 2017)

3.2 Vehicle Access

Vehicle access to the proposed URBNSURF Sydney car park shall be provided via existing vehicle access arrangements off Hill Road.

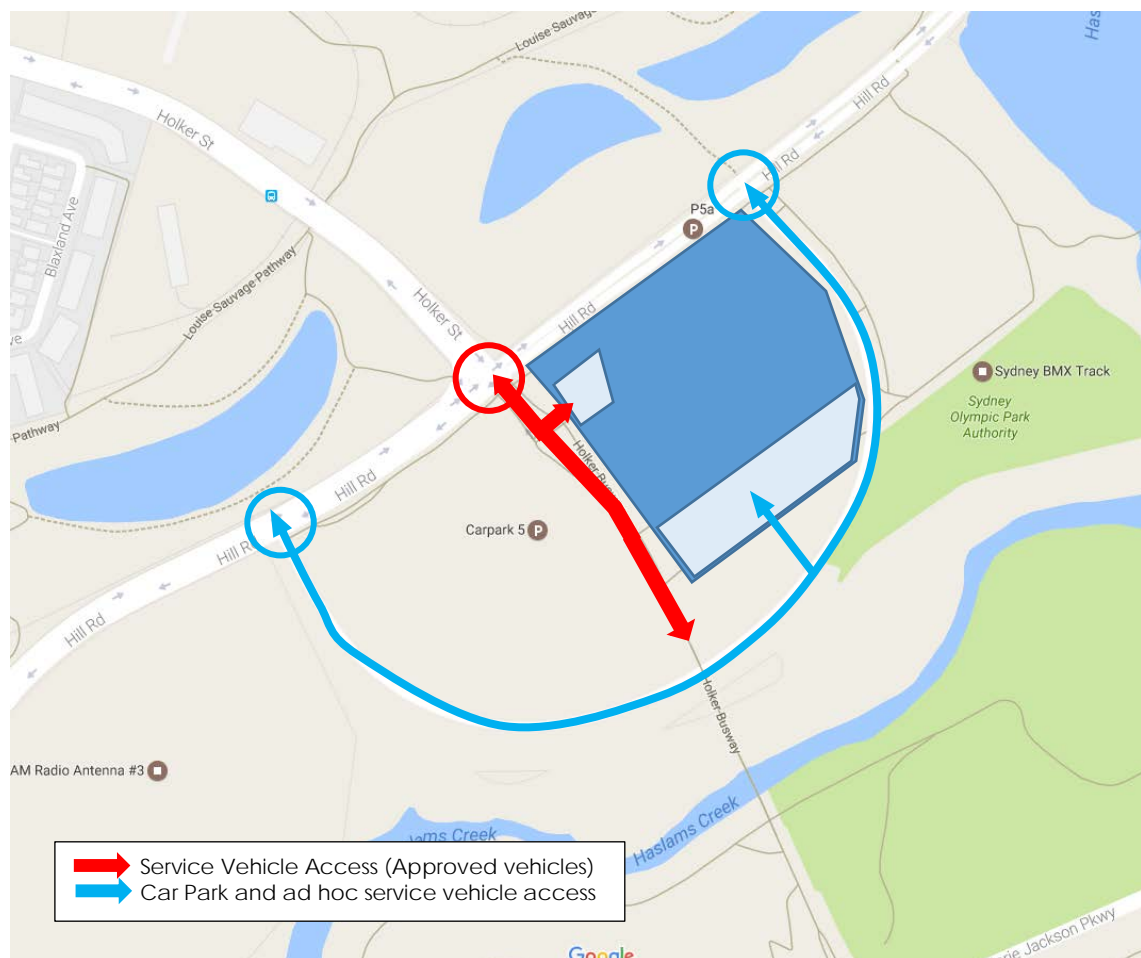
The P5 car park is serviced via a loop road which runs around the southern circumference of the car park and traverses under the Holker Street busway which runs through the P5 car park.

As detailed in Figure 3.2, vehicle access to the site is proposed via two locations, as follows:

- Service vehicle area / staff parking (accessed via Holker Street bus way) for SOPA approved vehicles only
- Car Park and ad hoc service vehicle access via the loop road.

These access arrangements are shown in Figure 3.3. The car park access would also be utilised infrequently by small vehicles undertaking deliveries to the lagoon level prior to or following events.

Figure 3.3: Proposed Vehicle Access Arrangements



As shown in Figure 3.3, approved service and staff vehicle access will be separated from general public access to public car park.

Additionally, the car park loop road will enable multiple access routes for the proposed development with vehicle access effectively distributed to three separate intersections at Hill Road.

It is noted that service vehicle access is proposed off Hill Road via the Holker Busway. Discussions with the Sydney Olympic Park Authority (SOPA) has indicated that:

"The access onto the Holker Busway can be managed with the issuing of Holker Busway permits. On application to SOPA we (SOPA) can issue these permits to key staff and regular service delivery vehicles."

(Email from SOPA, Acting Director - Major Events and Precinct to Wave Park Group 26/5/17)

It is acknowledged that the issuing of permits will need to be restricted to specific vehicles which regularly access the site such that the arrangements will be manageable.

Vehicles without a permit will need to access the site via the car park and the loop road off Hill Road.

3.3 Car Parking

Under terms of the lease for the proposed Surf Park site, the Surf Park facility will not (except for 7 staff parking spaces located in the service yard) provide dedicated Surf Park users car parking spaces within their site.

All car parking will be provided by SOPA from the balance of the remaining parking spaces in Pod B of Car Park P5. Furthermore, Pod A and Pod C of Car Park P5 will be available for Surf Park users.

It is proposed to provide a total of 159 car parking spaces (including 4 disabled spaces) within the remaining area of Pod B.

The proposed adequacy of the car parking provision is discussed in Section 5.

3.4 Site Operation

The following operational characteristics of the proposed Surf Park have been provided to TTPP by the proposed operator (URBNSURF) and is based on existing surf parks in Wales, Spain and the USA.

The site is expected to operate 7 days a week across a 15-hour day during non-winter periods and a 9-hour day (maybe less subject to demand) during the three-month winter season.

The proposed operational hours are as follows:

- Peak periods (non-winter): 6am-10pm, and
- Off-peak periods (winter): 9am-6pm (subject to demand).

Due to the nature of the facility and activities provided (both organised and informal) the level of patronage for the Surf Park will vary significantly across any one day and time of year.

As the facility is a unique development it is important to understand the expected site operation and patronage forecasts when undertaking an assessment of the likely parking and traffic impacts.

Expected Surfer Patronage

It is expected that the site will operate at several different occupying levels through the year as below:

- High-Season – November to March
- Mid-Season – April to May & September to October
- Low-Season – June to August

In addition to anticipated seasonal change, the attendance will vary based on holidays and day of the week, the below attendance situation starts from the most attended day:

- Public Holiday / Weekends
- School Holiday (Weekday)
- Weekday

The lagoon (surfing patrons) has a capacity to accommodate approximately 80 participants per hour and will provide two separate surfing areas to accommodate different levels of ability. Typically the lagoon would operate with the following peak capacity:

- Beginner to novice level: up to 40 per hour
- Intermediate to advance level: up to 40 per hour

The during High Season, it is proposed that the Surf Park will operate for 15 hours a day from 6am to 9pm.

Each surfing area will have different attendance characteristics throughout the day, with experienced surfer levels typically peaking in the morning and later afternoon, while in experienced surfer levels are expected to be lower but consistent across the day reflecting the attendance in 'learn to surf' classes.

Guests (non surfing) Patrons Attendance

In additional to those people attending the facility to surf, there will be a proportion of 'general admission' guests who will not surf. It is expected that during the high season there will be up to approximately 400 general admission guest across the entire day equating to an average of 27 guests per hour.

Staff Levels

Forecasted staffing levels for the site have been provided and indicate that during the high season there will be up to a maximum 46 staff operating on site at any one time. This is expected to include a combination of shift workers (two shifts per day) and permanent full time staff who will operate during typical business hours (9am to 5pm).

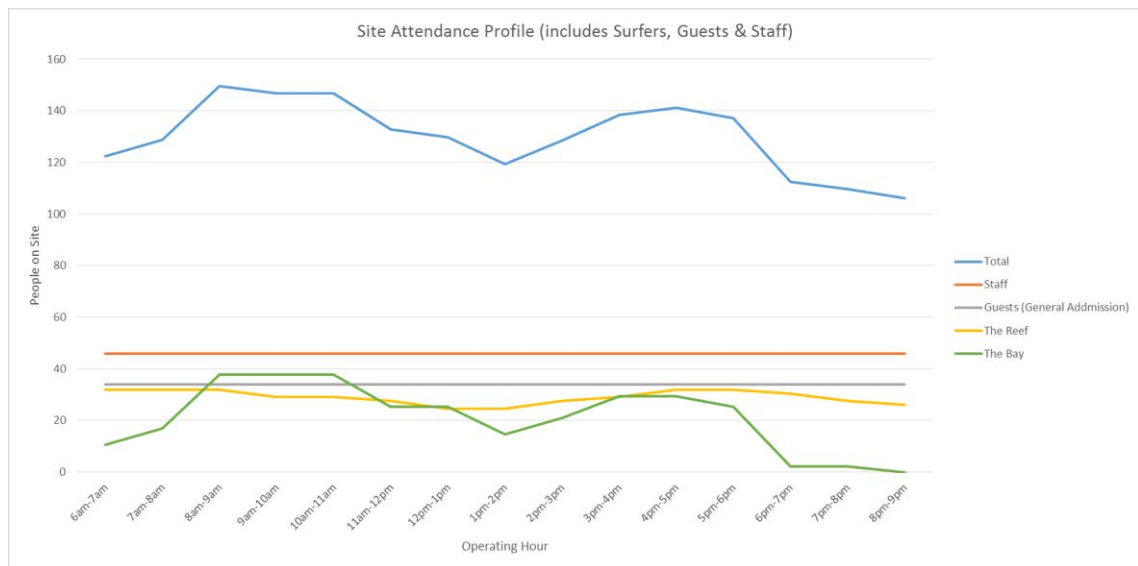
Overall Site Population Profile

Based on expected patronage and staffing numbers presented above it is possible to estimate the overall daily site attendance profile across the operating period of the site.

Figure 3.4 shows the estimated typical site attendance profile across the course of a typical high season weekend/public holiday.

Figure 3.4 indicates that the site is expected to generate a generally consistent profile across the operating hours of the day ranging from about 100 – 140 people on site at any one time.

Figure 3.4: Typical Site Attendance Profile (Estimated High Season)



Source: Wave Park Group – Melbourne Airport Traffic Impact Assessment (GTA, August 2016)

4 Existing Conditions

4.1 Abutting Road Network

The subject site is surrounded by a number of local roads, including Hill Road, Holker Busway and an internal access road to the north, south-east and west perimeters of the site, respectively. These roads are described below.

4.1.1 Hill Road

Hill Road functions as a two-way collector road, generally aligned in a north-south direction. The road travels along the northern perimeter of the site and is generally configured with four-lanes, separated by a central median, across a 17.5m road carriageway. It has a posted speed limit of 60km/h and provides good connectivity between the Western Motorway (M4) and residential/industrial uses to the north of the site.

4.1.2 Holker Street

Holker Street functions as a collector road and runs in an east-west alignment. The road provides good connectivity between Silverwater Road and Hill Road to the west and east ends, respectively. The road is generally configured with four-lanes, in addition to a dedicated bus lane on either side of the road, across a 22m road carriageway.

4.1.3 Holker Busway

Holker Busway is a bus access road only and provides direct linkage between Kevin Combs Avenue and Hill Road. This busway is generally used during special events to provide direct transportation between the P5 car parking area to the Sydney Olympic Park area.

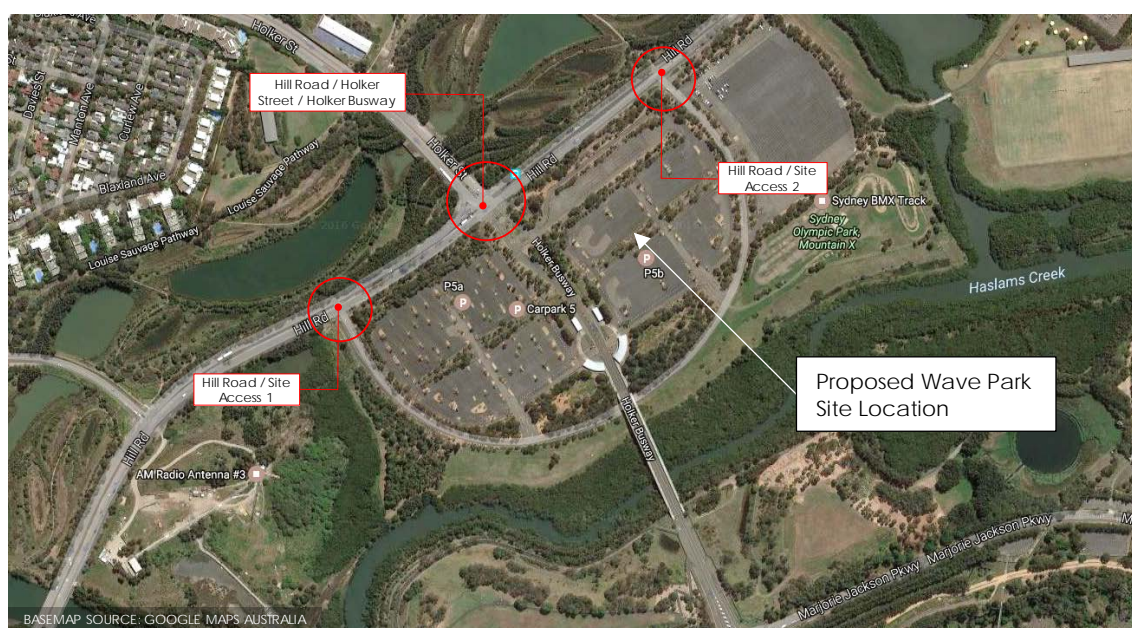
4.2 Surrounding Key Intersections

Key intersections surrounding the site include:

- Hill Road-Site Access 1;
- Hill Road-Holker Street- Holker Busway; and
- Hill Road-Site Access 2.

The location of these intersections relative to the proposed Surf Park site are shown in Figure 4.1.

Figure 4.1: Subject Site and Surrounding Environs



4.3 Public Transport Facilities

In the immediate vicinity of the site, one bus stop is located directly opposite the site on Hill Road, near Holker Road. This bus stop primarily services bus route 525, which provides connectivity between Parramatta and Burwood suburbs. This service typically operates at a frequency of one every 20 minutes during peak periods.

In addition, it is noted that the site is located within 2km from the Olympic Park railway station and Sydney Olympic Park Ferry Wharf to the south and east of the site, respectively.

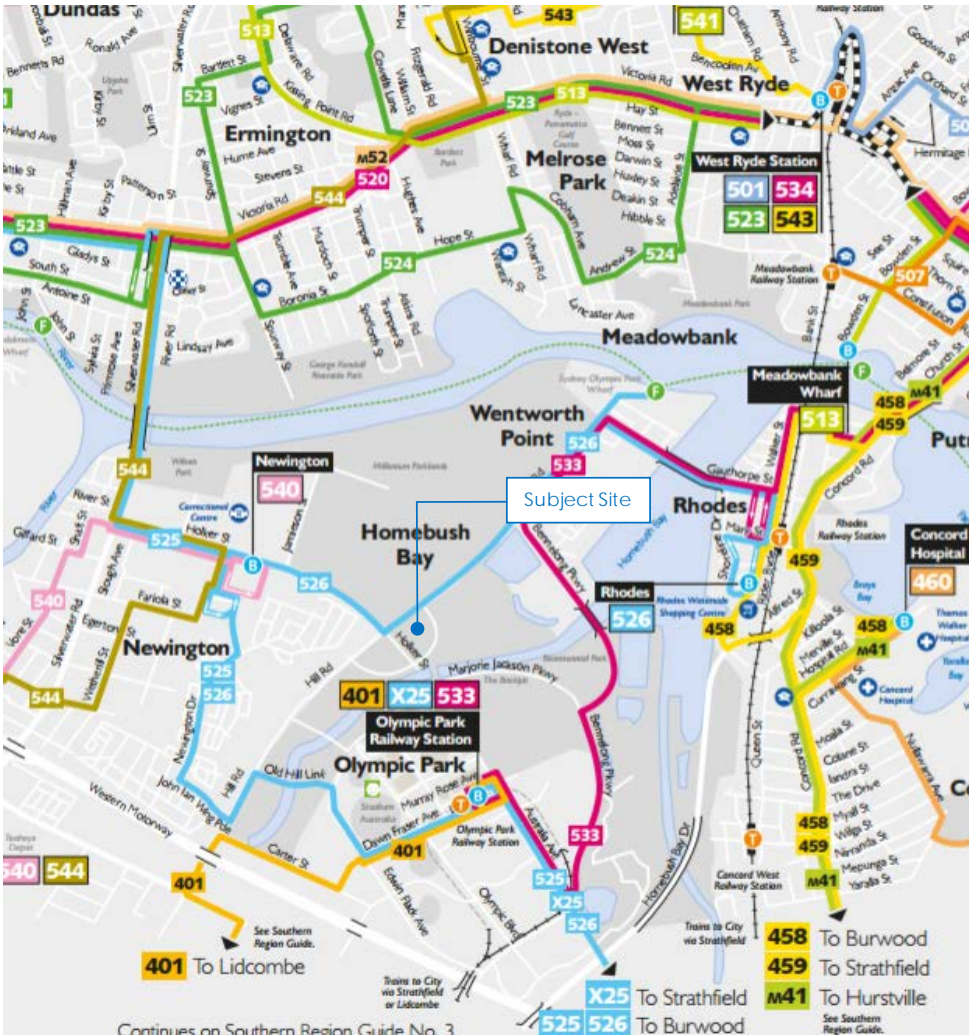
Table 4.1 summarises the existing public transport facilities within the vicinity of the site, including the Olympic Park rail and Sydney Olympic Park ferry services, and their respective frequency.

A map of the existing public transport facilities surrounding the subject site is shown in Figure 4.2.

Table 4.1: Public Transport Serving the Proposed Surf Park Site

Service	Route #	Route Description	Proximity to Site	Frequency (on-peak / off-peak)
Bus	525	Parramatta to Burwood via Sydney Olympic Park	< 100m	Every 20 minutes
	526	Sydney Olympic Park Wharf to Burwood	~ 2km	Every 20 minutes
	540	Auburn to Newington		Every 30 minutes
	544	Auburn to Macquarie centre		Every 30 minutes
Rail	T7 Olympic Park Line	Lidcombe to Olympic Park	~ 2km	Every 10 minutes
Ferry	F3 Parramatta River	Parramatta to Circular Quay via Sydney Olympic Park	~ 2km	Every 10-30 mins

Figure 4.2: Existing Public Transport Network



Source: Sydney Buses

4.4 Pedestrian Facilities

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

In the immediate vicinity, the following pedestrian facilities are provided:

- Hill Road (both sides) – 1.7m-3.0m wide pedestrian paths, providing good pedestrian access to the subject site and surrounding streets, including the Sydney Olympic Park Ferry Wharf and Millennium Parklands to the north of the site.
- Holker Street (south side) – 1.8m wide pedestrian path, providing good pedestrian access to the bus stop on Holker Street, near Hill Road and further west to the Newington and Silverwater business/industrial precincts.
- Holker Busway (both sides) – 2.3m-4.0m wide pedestrian paths, providing good pedestrian access to the Sydney Olympic Park precinct area to the south, including the Sydney Olympic Park railway station, ANZ Stadium and Sydney Showground.

Some notable pedestrian facilities are shown below.

Figure 4.3: Hill Rd, across Holker Busway



Figure 4.4: Holker Busway, near Pod B P5



Figure 4.5: Hill Rd, shared path



Figure 4.6: Holker Busway, across Hill Rd



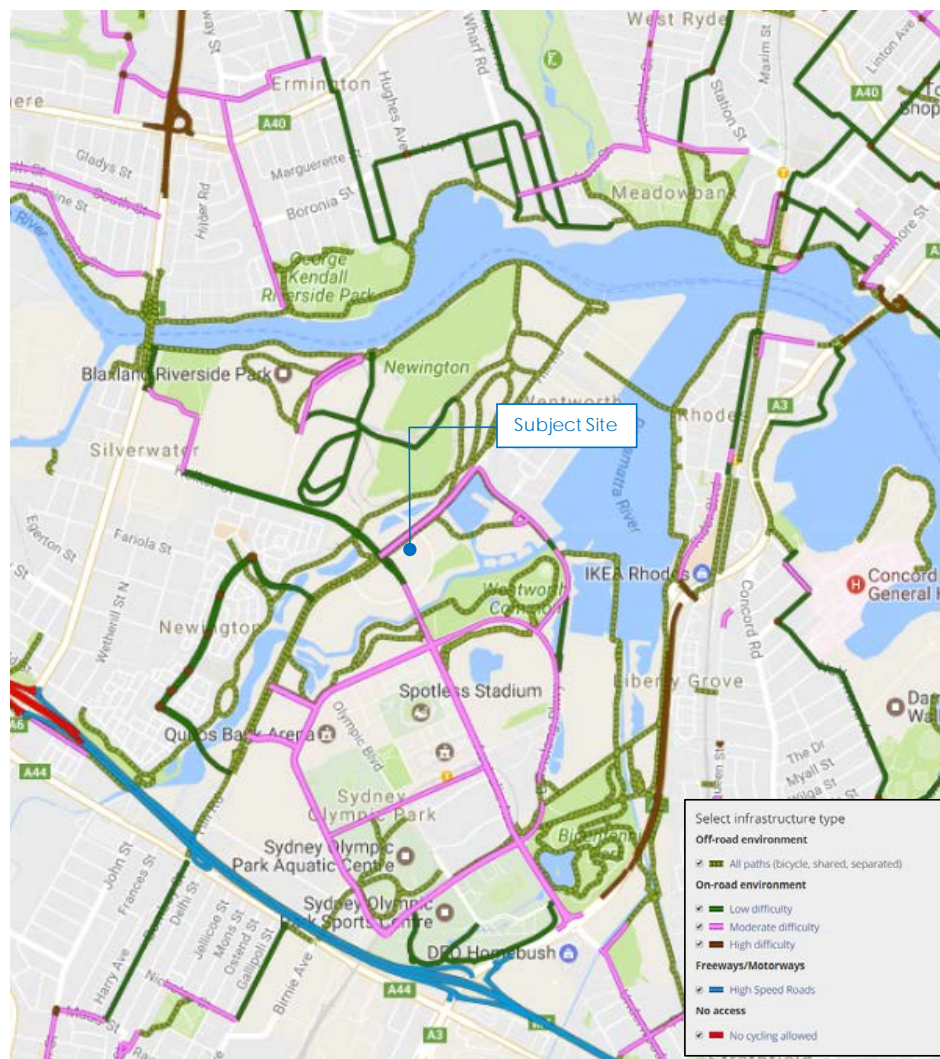
In addition to this, signalised pedestrian crossings have been incorporated along all four legs at the intersection of Hill Road and Holker Street. These crossings provide safe dedicated passage for all pedestrians crossing at this point and are also supplemented by tactile ground surface indicators (TGSIs) to assist visually impaired users.

4.5 Cycle Facilities

A well-established cycle network extending for some 35km is provided in the Sydney Olympic Park region, including on/off-road cycle lanes for leisure and race training. Notably, BMX and Mountain X offers downhill dirt skills cycle tracks between the Archery Centre and P5 Car Park on Hill Road.

The existing cycle network is shown in Figure 4.7.

Figure 4.7: Existing Cycle Network



Source: RMS Cycleway Finder

4.6 Existing Travel Behaviour

Journey to Work (JTW) data from the Bureau of Transport Statistics, derived from the 2011 Census, has been obtained to understand existing transportation modes to and from the Sydney Olympic Park area.

A summary of the findings is presented in Table 4.2.

Table 4.2: Summary of JTW Data for SOP

Mode of Travel	Proportion (%)
Vehicle driver	66%
Train	17%
Other mode / Mode not stated	10%
Vehicle passenger	4%
Bus	2%
Walked only	1%
Ferry/Tram	0%
Total	100%

Source: JTW Travel Zones 1328, 1326, 1320, 1318, 717

Table 4.2 indicates that majority of trips made by people who work within the vicinity of the site commute to the area via car-travel. Based on the above, the proportion of employees travelling via vehicle and train was found to be in the order of 70% and 17%, respectively.

4.7 Car Parking

The P5 car park provides currently provides approximately 2,550 car parking spaces. These spaces are all pay spaces with a fee of \$5 per hour with a maximum of \$25 per day, except in special event mode when a flat fee of \$25 is charged.

For major special events when the P5 Car park is used, tickets are sold via the SOPA website prior to the event, with notifications provided to the public if and when the presale of tickets has reached capacity.

4.8 Traffic Volume

Traffic surveys were undertaken at key intersections surrounding the subject site outlined in Section 4.2 on Thursday, 1 December 2016, and Saturday, 3 December 2016. It is noted

that on Saturday, the V8 Supercars Championship event was held at the Sydney Olympic Park.

Consequently, the peak hour traffic volumes along Hill Road are likely to have been higher than a typical Saturday. Regardless, the existing peak hour traffic volumes surrounding the subject site is shown below.

Figure 4.8: Existing Traffic Volumes – Weekday AM Peak

Traffic Volumes - AM Peak Hour
7:45am-8:45am

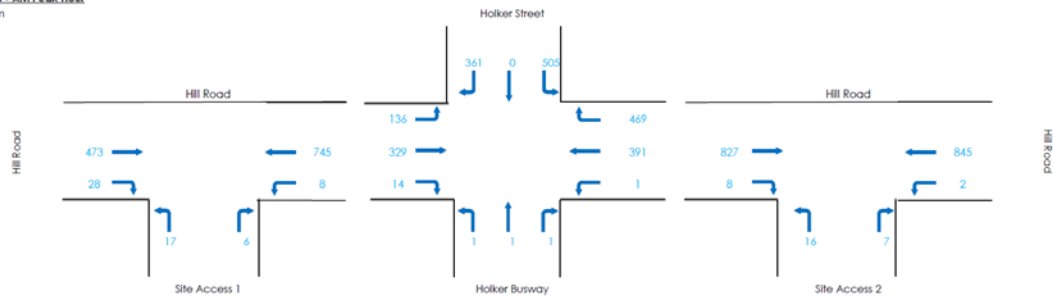


Figure 4.9: Existing Traffic Volumes – Weekday PM Peak

Traffic Volumes - PM Peak Hour
5:00pm-6:00pm

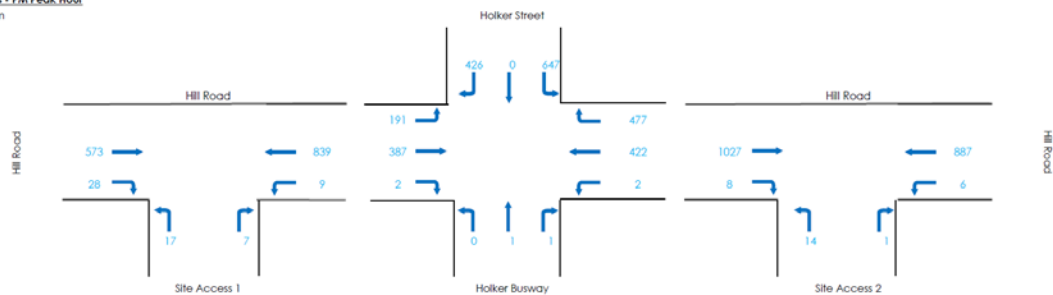
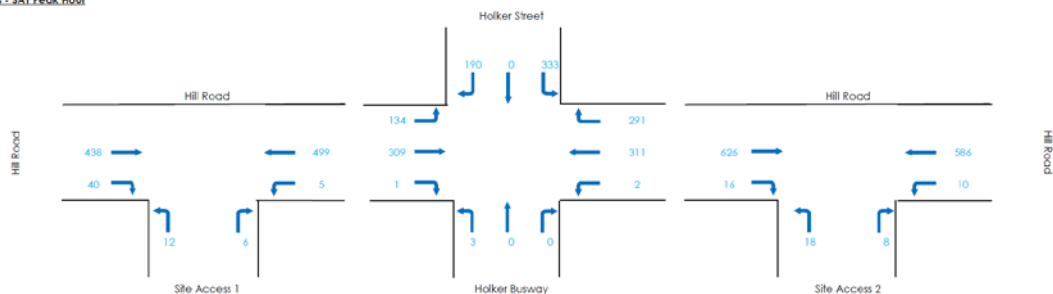


Figure 4.10: Existing Traffic Volumes – Saturday Midday Peak

Traffic Volumes - SAT Peak Hour



5 Assessment of Proposed Development

This section of the report sets out the findings of the traffic and transport assessment of the potential impact of the proposed Surf Park facility within the existing P5 Car Park.

As described in Section 3 above, the proposed Surf Park facility will experience variations in visitations due to seasonality and other factors.

For the purpose of this report, the assessment presented herein has assumed that the proposed Surf Park facility will be operating at peak "High Season" conditions.

5.1 Car Parking Provisions

5.1.1 Car Parking Requirements

The SOP Master Plan 2030 sets out on site parking requirements for various non-residential land uses within the SOP Master Plan area. It is noted that the P5 Car Park site is located outside of the SOP Master Plan 2030 area and falls within the *"Parklands Plan of Management 2010"*.

Notwithstanding the above, for Recreational Facilities (sports participation) the Master Plan indicates the following parking provisions:

- Visitors: 1 space / 100 m2 GFA
- Staff: 1 space / 2 staff
- Restaurant: 1 space / 50 m2 GFA

The application of these parking rates to the proposed Surf Park facility would require the provision of some 965 car parking spaces. This is obviously excessive for the proposed Surf Park given the estimated on site population of between 100-150 people at any one time.

Given the uniqueness of the proposed Surf Park facility and relative low site population for the area of the facility, it is considered that the general SOP Master Plan parking rates are not relevant and the parking requirements should be considered with regard to first principles and estimated parking demand.

5.1.2 Car Parking Demand of Proposed Surf Park

A first principles assessment of the predicted car parking demands has been undertaken utilising the forecast patronage demands and anticipated mode share to car during a "High Season" design scenario.

Operational information provided in Section 3 of this report indicates that the site could generate in the order of 150 people on site.

Based on travel behaviour for recreational and sporting facilities it is estimated that a car occupancy of 1.6 people per car for surfers and guests is an appropriate assumption to determine the amount of traffic and car parking generated by the proposed Surf Park development.

In addition, it is considered that the average duration of stay for surfers and guests would be around two hours. This is based off the assumption that arrival and departure times either side of the one hour suffering time would equal approximately 2 hours per guest.

For staff, Journey to Work data indicates a mode share to car (as driver) to be 66%. This mode share has been applied to staffing levels for the purpose of defining parking demand.

Based on the information and assumption outlined above, a summary of the parking demand is provided in Table 5.1 for the worst case scenario of on site population.

Table 5.1: Proposed Surf Park – Worst Case 1. Parking Demand (High Season Peak)

On Site Population Type	No. of People On Site (at anyone one time)	Parking Demand Factor	Parking Demand (Spaces)
Surfer – surfing	80	-	-
Surfer – arriving prior or departing after	80	-	-
Guests (non surfers)	27	-	-
Total Surfer + Guest	187	Car Occupancy 1.6 people / car	117
Staff	46	Mode Share to Driver 66%	30
Total			147

It is noted that Worst Case Scenario assumes that lagoon operation is continuous (ie. no breaks between sessions) and that all surfers arrive ½ hour before and stay ½ hour after each surfing session. These assumptions are somewhat unrealistic. Notwithstanding the this worst case scenario would represent a higher population than the estimated high season peak but has been used to assess the on site parking requirements.

5.1.3 Adequacy of On Site Parking Supply for Surf Park Operation

As detailed in Section 3, it is proposed to provide a total of 159 public parking spaces within Pod B.

While these spaces are not proposed to be for the exclusive use of Surf Park guests and staff, they would be provided at a discounted fee for use by Surf Park guests and staff.

An additional 7 staff parking spaces will be provided within the service area accessed of Holker Street. These spaces will be for the exclusive use of URBNSURF staff.

The proposed provision of 166 spaces (159 public + 7 staff spaces) would be adequate to meet the peak parking demand of the proposed Surf Park facility during "High Season" periods of 147 spaces.

It is noted that during typical operating periods (ie. non special event at SOP) there would be significant space capacity within the remaining P5 parking areas which could operate as an overflow car park.

The proposed parking provision includes 4 accessible (disabled) parking spaces which represents some 2-3% of the total on site parking provisions. This provision is in accordance with Australian Standards (AS2890) requirements.

5.1.4 Proposed Car Park Access and Car Park Layout

Vehicle access to the proposed Surf Park car park will utilise the existing P5(b) car park access. This access has been designed to accommodate the existing 844 car parking spaces and would be more than adequate to accommodate the 159 publicly accessible spaces proposed in the Surf Park car park.

Minor line marking changes will be made to the existing portions of the P5(b) car park to be retained as part of the Surf Park car park. This line marking changes are proposed to reflect the changed vehicle circulation within the car park and location of accessible (disabled) parking spaces.

The layout of the proposed Surf Park car park will facilitate convenient and efficient vehicle circulation with no dead end aisles.

The dimensions of the car parking spaces are set out in accordance with Australian Standard (AS2890.1) requirements. This includes the accessible spaces which have been designed to comply with current Australian Standard (AS2890.6) requirements.

In summary, the proposed car parking arrangements are considered appropriate and satisfactory for the proposed Surf Park development.

5.1.5 Impact on Sydney Olympic Park Parking Provisions

The construction and operation of the proposed Surf Park will result in the effective loss of 678 public car parking spaces, reducing the provision within the P5 car park from 2,550 spaces to 1,872 spaces. The Surf Park will also occupy an area designed for and infrequently used for bus parking.

Notwithstanding the above, the general transport aim and objectives as described in the SOP Master Plan are to encourage the use of public and active transport for travel to and from events at SOP. The reduction in available car parking spaces as a result of the proposed Surf Park is consistent with these objectives.

In addition as the Surf Park will not have dedicated parking spaces and the ownership and control of parking spaces within Car Park P5 will remain with SOPA, parking spaces in P5 can be managed and utilised for different user groups and at different times.

It is noted that to ensure the smooth running of events within the SOP precinct, consultation and co-ordination between SOPA and URBNSURF will need to occur with the recognition that the event management measures implemented may generate an inconvenience to the operation of the Surf Park.

With regard to the bus parking area, it is noted that the SOP Master Plan 2030 has identified an area adjacent to the P1 car park which, given its proximity to the stadium, is considered a more appropriate location for bus parking than the remote P5 car park.

In respect to the operation of the Holker Busway it is noted that the busway is temporarily closed during some events such as fun runs. During these periods access to the proposed Surf Park's main loading area would be restricted for short periods of time during such events. Advice from SOPA indicates that such events may occur up to 10 times a year and are generally held on weekends. During these events, deliveries (if required) would be via the car park service area.

5.2 Traffic Generation Implications of Proposed Surf Park (Non Event Mode)

5.2.1 Future Road Network Operating Conditions (Background Traffic)

The peak weekday and weekend traffic counts undertaken along Hill Road as presented in Section 3 above, were surveyed during the lead up to the V8 Super Cars event at the SOP. Thus they represent event conditions at the SOP.

Typical non event conditions would experience lower traffic flows along Hill Road.

Notwithstanding the surveys have been used in this assessment to represent busy road network base conditions and thus represent a 'worst case' scenario for non event modes of operation with respect to the additional traffic associated with the proposed Surf Park development.

5.2.2 Estimated Surf Park Traffic Generation

Peak traffic generation potential of the proposed Surf Park facility will occur during summer peak season when there is a changeover of sessions time, namely surfers and guests arriving for an allocate time overlapping with surfers / guests leaving.

For these peak periods it is estimated that the Surf Park would have up to approximately 120-140 vehicle movements per hour (60-70 inbound and 60-70 outbound trips).

Staff vehicle movements would typically occur prior to or after the peak surfer / guest vehicle movement periods.

5.2.3 Intersection Operation Assessment

The following provides a summary of the modelled intersection operation results for non development and with development scenarios each set against set criteria (Level of Service).

5.2.3.1 *Level of Service Criteria*

The intersection capacity analysis has been undertaken using SIDRA Intersection 7 modelling software to ascertain the intersection performance of the key intersections surrounding the site.

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

Table 5.2 shows the criteria that SIDRA Intersection adopts in assessing the level of service.

Table 5.2: RMS Level of Service Criteria

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

5.2.3.2 Intersection Operation Modelling Results

The surveyed intersection traffic flows have been modelled using SIDRA intersection and the results presented in Table 5.3.

Table 5.3: Existing (Base Case) Analysis

	Hill Road/ Holker Street			South Car Park Access			North Car Park Access		
	AM Peak	PM Peak	SAT	AM Peak	PM Peak	SAT	AM Peak	PM Peak	SAT
Degree of Saturation	0.8	0.7	0.4	0.3	0.3	0.2	0.2	0.1	0.1

Average Delay (sec)	28	30	25	5	6	5	112	194	36
Level of Service (LoS)	B	C	B	A	A	A	F	F	C

The results above indicate satisfactory intersection operation for the signalised southern car park access and the Holker Street intersections on Hill Road.

The northern car park access indicates a Level of Service "F" for the priority controlled intersection. This reflects the potential delay for right turn movements from the access to Hill Road. This delay effects only a few vehicles per hour. The rest of the intersection approaches operate satisfactorily. It is noted that the southern access provides a signalised right turn with acceptable delays. Vehicles wishing to travel north to Wentworth Point can use the southern access intersection.

The additional potential traffic to be generated by the proposed Surf Park facility has been added to the existing base traffic flows and reassessed. The results are presented in Table 5.4.

Table 5.4: Future (With Surf Park) Analysis

	Hill Road/ Holker Street			South Car Park Access			North Car Park Access		
	AM Peak	PM Peak	SAT	AM Peak	PM Peak	SAT	AM Peak	PM Peak	SAT
Degree of Saturation	0.8	0.8	0.5	0.3	0.3	0.2	0.3	0.5	0.1
Average Delay (sec)	28	30	25	5	6	7	120	291	38
Level of Service (LoS)	B	C	B	A	A	A	F	F	C

The results of the analysis indicate that there would be no significant effect to the existing operation of the intersections as a result of the proposed Surf Park traffic generation.

That is the existing Levels of Service would be maintained at each intersection for each of the AM, PM and weekend peak periods considered.

5.3 Traffic Implications of Surf Park During Sydney Olympic Park Event Mode

SOP is the host to a wide range of events and activities held across the whole year. The scale and type of these events changes over time and SOP evolves from a purpose built facility to accommodate the Sydney Olympic Games to vibrant town centre with employment and residential populations along with strong connections to recreational and sporting activities.

The Surf Park facility is considered by SOPA to be one of the evolving new uses of SOP, having been selected as the preferred tenant for the P5 car park development site.

Furthermore, SOP hosts some of Sydney's largest events at the Stadium which draws up tens of thousands of people into SOP.

5.3.1 Managing Travel Demand in SOP

While the road system, car parking and public transport connections within SOP have been designed to accommodate large events and the movement of people on mass simultaneously, these events along with other activities within SOP present unique and challenging travel demand characteristics.

Hence the need for a SOP wide co-ordinated management of travel demand for event modes at SOP.

The management of travel demand within SOP is the role of SOPA's Event Co-ordination Committee which has established the guiding principles¹ for the implementation of events of different sizes and within different parts of SOP and ensures that the management of travel demand occurs in a co-ordinated manner.

With regard to the proposed Surf Park facility, it is understood that the terms of lease include items which will enable SOPA to manage event modes and Surf Park operation simultaneously with measures such as:

¹ Sydney Olympic Park – Major Event Impact Assessment Guidelines (2007)

- Road closures and limited road access across SOP which may impact on access to the Surf Park site (eg. during the V8 Super Car event); and
- Utilisation of P5 car parking for major event parking.

Like other lease arrangements within SOP, SOPA would use reasonable endeavours to minimise inconveniences to the Surf Park facility and provide the Surf Park operators with reasonable prior notice such that appropriate management measures can be developed and co-ordinated through the Event Co-ordination Committee.

As noted above, SOPA will retain ownership and operational control of car parking adjacent to the Surf Park site. While for the vast majority of time, this parking will be available for Surf Park guests, there may be occasions when this parking is used for major events and even pre sold to event attendees.

During such periods, the Surf Park operators will have the ability through its pre-sale ticketing to limit the size of on site populations at the Surf Park to match the extent of likely available parking.

In summary, the Surf Park facility will operate simultaneously through a range of events at SOP. The location of the site on the perimeter of SOP will mean that for the vast majority of time, the operation of the Surf Park will not adversely impact on the operation of events in SOP and vice-versa.

However, there will be a number of large special events when if held simultaneously with the Surf Park operation that travel demand measures will need to be implemented and co-ordinated through the Event Co-ordination Committee. This may include the requirement of the Surf Park to restrict parking, notify customers or work with SOPA to co-ordinate parking and access during these periods. It is acknowledged that the Surf Park facility would have the ability and flexibility to manage on site populations through its marketing and ticketing booking process.

5.3.2 Traffic Generation of P5 Event Car Park with Surf Park

In addition to the management measures described above, the proposed Surf Park facility will reduce the number of car parking spaces provided in the P5 car park from 2,550 to 1,872 spaces.

During special major event mode when the P5 car park is utilised and pre booked, the reduction in car parking provisions would potentially reduce the volume of traffic seeking to access and then leave the event.

The traffic level reduction could be up to 670-680 vehicle trips prior to the event and the same amount at the event's conclusions.

The reduction of car parking at P5 would encourage the use of alternate modes of transport for events such as public transport. This is consistent with the SOP Master Plan 2030 transport objections.

5.4 Car Park Site Access Arrangements

Vehicle access to Pod A, B and C car parking spaces within Car Park P5 will remain unchanged. These accesses have been designed to accommodate peak flows associated with sport event peak filling and emptying movements.

The existing access arrangements can adequately accommodate the traffic associated with the proposed Surf Park facility.

The car park layout will facilitate car, bus and emergency vehicle access from the service (loop) road into, round and out of the car park.

5.5 Service Vehicle Arrangements

It is proposed to provide a service vehicle access directly from Holker Street into a dedicated service vehicle area.

As such service vehicles will be separated from general public vehicles. This will be beneficial to site operations and minimise potential conflicts between public vehicles and trucks seeking to manoeuvre within the site.

It is understood that servicing of the site will generally be undertaken by medium rigid vehicles (MRVs) for the delivery of pool materials and cleaning equipment and the removal of waste. Waste will be collected from the Park and stored for collection from the service vehicle / loading dock accessed off Holker Street.

All deliveries and waste collection will be undertaken by contractors managed directly by the Surf Park. Vehicles accessing the loading area via the Holker Busway will pre approval by SOPA (see Section 3.2).

The onsite loading area has sufficient dimensions to allow forward entry and forward exit movements to and from the site via Holker Street. Vehicle turning paths for MRV's (and if required HRV) are provided in Appendix A.

A service vehicle / emergency vehicle access will also be provided from the public car park onto the lagoon level forecourt area via a gate located in the southern eastern corner of the site. This access would be used infrequently for service vehicle set out and pack up from events (ie. outside of park opening hours) or during an emergency situation.

5.6 Emergency Vehicle Access

It is proposed that emergency vehicles (ambulance) will access the site from the main public car park access.

As shown in Figure 5.1, ambulances will be able to utilise either the forecourt area or the "drop off" zone at the Surf Park's main entrance. Both locations will have convenient access to the first aid station.

Alternatively, ambulances can utilise the service vehicle access in the south-eastern corner of the site to access to lagoon level within the Surf Park.

5.7 Public Transport Accessibility

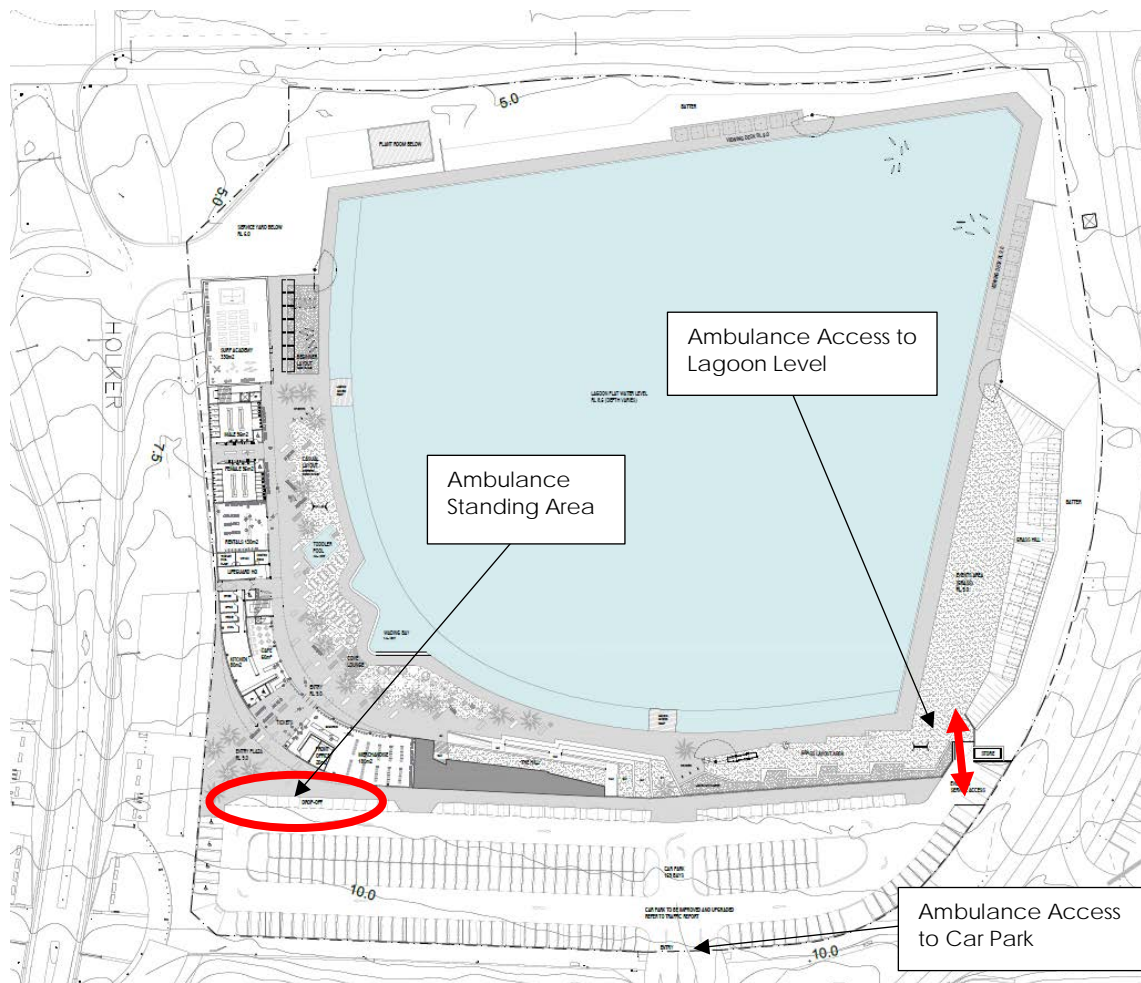
As detailed in Section 2 and 3 above, the proposed Surf Park site and SOP generally have good access to quality public transport. The Holker Street busway will continue to operate unaffected by the proposed Surf Park development. Bus service will continue to be available to guests of the Surf Park and the general public once the Surf Park is operational.

5.8 Bicycle and Cyclist Facilities

As for public transport, the proposed Surf Park site and SOP generally have exceptional access to good quality bicycle and pedestrian pathways. These will continue to be available to guests of the Surf Park and the general public once the Surf Park is operational.

It is noted that bicycle parking spaces and associated racks / rails will be provided within close proximity to the Park's entrance.

Figure 5.1: Emergency Vehicle (Ambulance) Standing Areas and Access



5.9 Construction Traffic Management

It is proposed that the duration of construction works associated with the Surf Park facility will be approximately 12 months including construction and commissioning.

Construction activities will include:

- Demolition of car park structure and service dislocation / diversion;
- Excavation of lagoon;
- Construction of lagoon, wave generating structure and on site facilities.

During the construction stage it is proposed that the residual car parking area in Pod B of Car Park P5 will be utilised as a construction area for vehicle delivery, bulk excavation material removal and construction vehicle parking.

While, a detailed Construction Traffic Management Plan (CTMP) will be prepared for the proposed construction activities following approval of the development, the ability to provide separate vehicle access via the car park road and contain loading / unloading within a designated site compound will minimise potential conflicts with surrounding SOP uses.

In preparing the CTMP the following issues should be addressed in detail:

- Proposed haulage routes and measures to ensure that prescribed routes are used;
- Duration of Works and operating hours, noting the need for flexible hours to accommodate special event periods at SOP; and
- Road network capacity and intersection operation.

Notwithstanding the need for a detailed CTMP, it is considered that construction activities associated with the proposed Surf Park facility can occur and be managed appropriately without adversely impacting the operation of the surrounding road network.

6 Conclusions

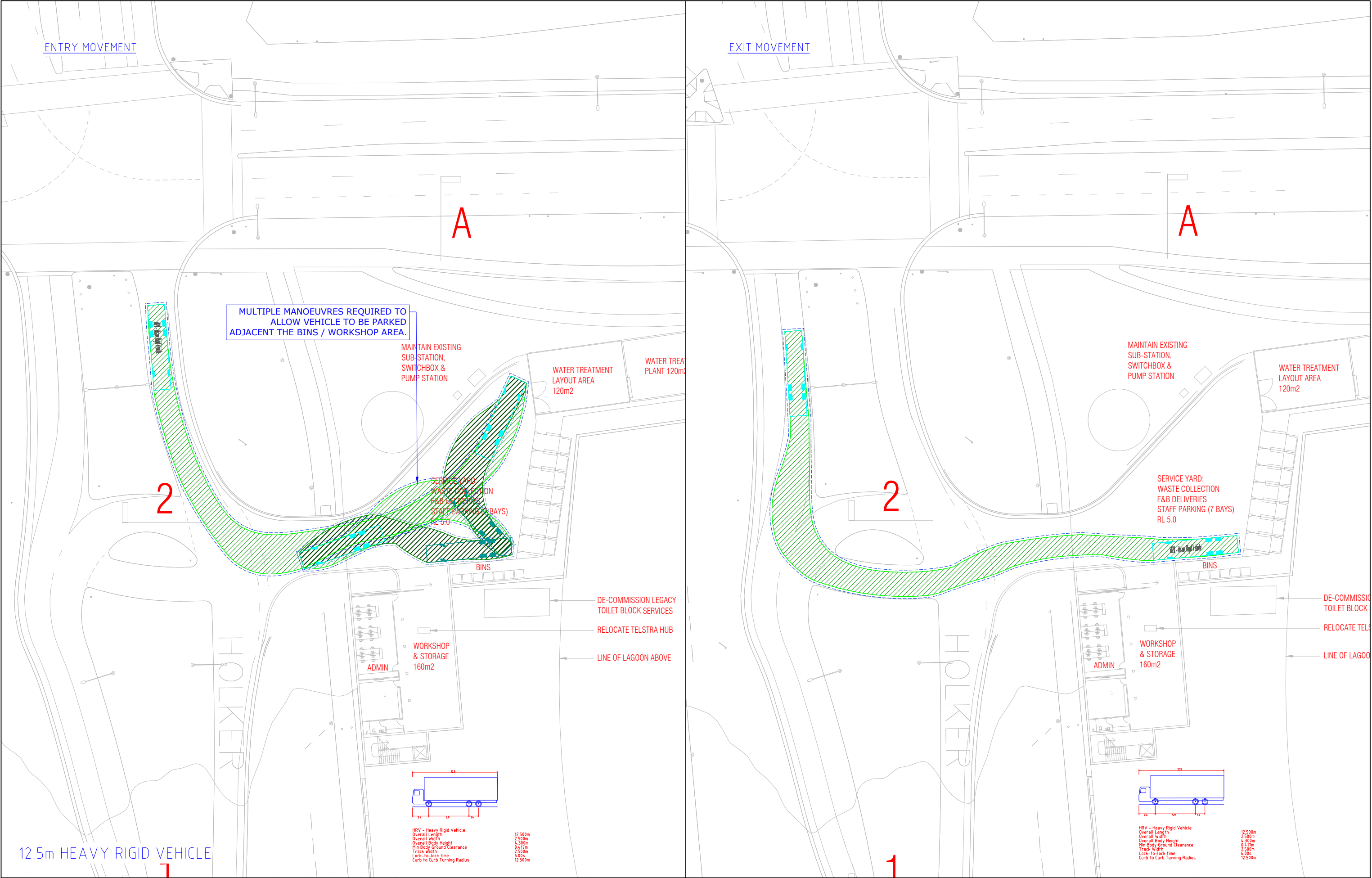
This report has been prepared to consider the traffic and transport implications associated with the proposed construction and operation of a Surf Park facility within Sydney Olympic Park at Homebush.

The assessment presented in this report has concluded that:

- The proposed Surf Park facility will be constructed within Pod B of the existing P5 Car Park resulting in the removal of some 678 existing at grade car parking spaces.
- The loss of 678 car parking spaces would not adversely impact upon existing or future car parking demands for P5 car spaces during non event periods.
- During 'major event' periods, the removal of 678 car parking spaces at Car Park P5 will encourage alternate modes of travel which is consistent with the SOP Master Plan 2030 transport objectives and reduce traffic flows for pre and post event periods in and around the P5 car park.
- The operation of the Surf Park facility can be adequately accommodated within the existing road network operation and capacity. No additional modification or upgrades are required to the road network to accommodate the estimate traffic demands of Surf Park visitors.
- As with all events within SOP, the traffic and travel demands will be managed in a co-ordinated manner through SOP's Event Co-ordination Committee. The operation of the Surf Park Facility will not impact on the ability of SOP to hold large events. Further, the Surf Park facility has the ability to be flexible with on site populations such that the travel demands of the Surf Park can be managed commensurate with the needs of SOPA during event mode at the Park.
- The construction of the Surf Park facility can be managed with the development and implementation of a CTMP for the site. The CTMP would be developed in consultation with SOPA and in particular the Event Co-ordination Committee.

Appendix A

Vehicle Swept Path Analysis



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	LM	WJ	WJ	06/04/17

The Transport
Planning Partnership

Suite 402, 22 Alchison Street
St. Leonards NSW 2065
Tel: 02 8437 7800
Email: info@tpp.net.au

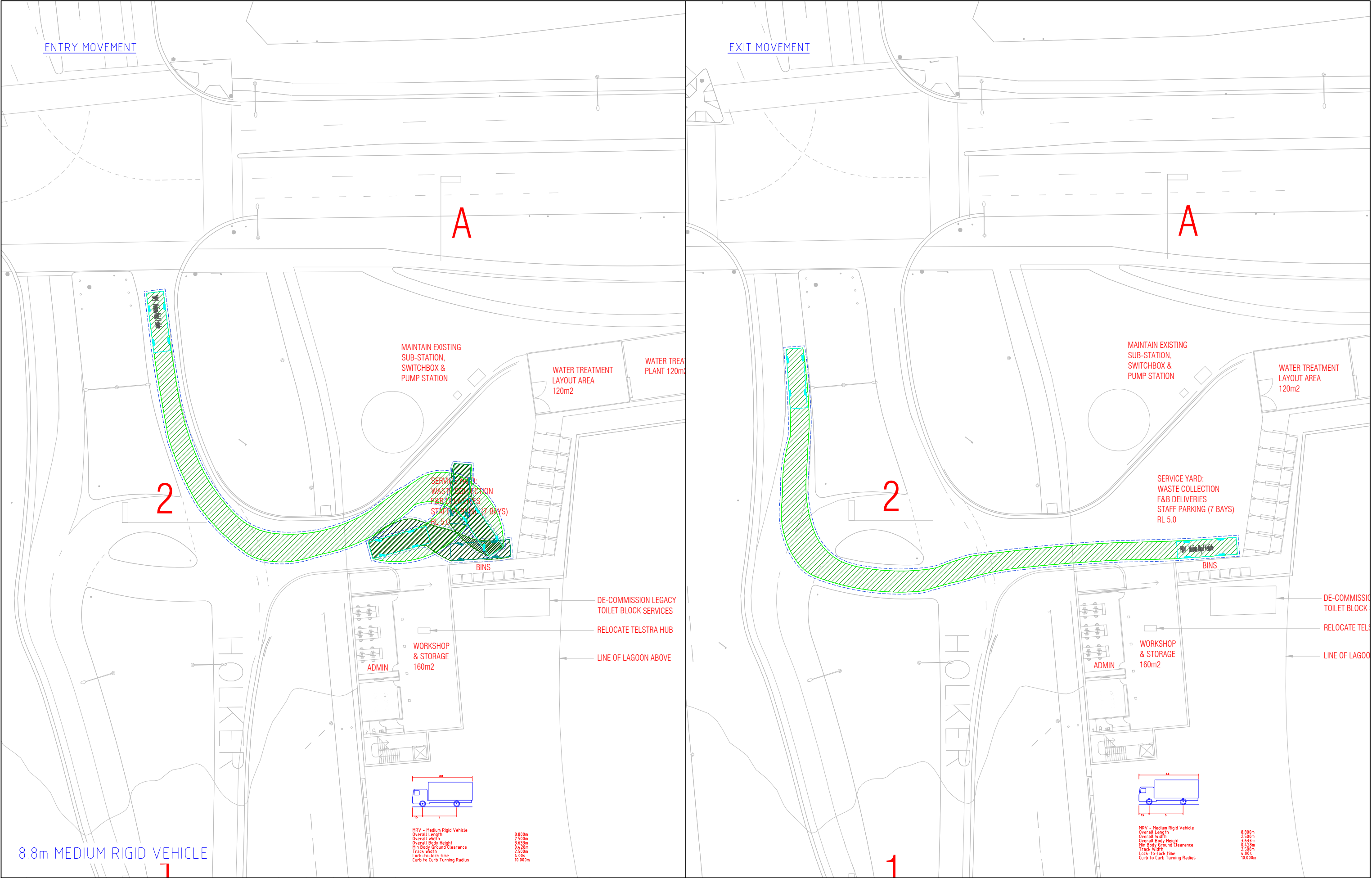
PROJECT16277 URBNSURF, SYDNEY

TITLEPRELIMINARY CAR PARK REVIEW - SERVICE YARD AREA

DWG No.FIGURE A-1

DATE STAMP06 APRIL 2017

PROJECT No.16277SCALE1:500@A3REV.A



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	LM	WJ	WJ	06/04/17

**The Transport
Planning Partnership**

Suite 402, 22 Alchison Street
St. Leonards NSW 2065
Tel: 02 8437 7800
Email: info@tpp.net.au

PROJECT	16277 URBNSURF, SYDNEY
TITLE	PRELIMINARY CAR PARK REVIEW - SERVICE YARD AREA

DWG No.	FIGURE A-2
DATE STAMP	06 APRIL 2017
PROJECT No.	16277
SCALE	1:500@A3
REV.	A

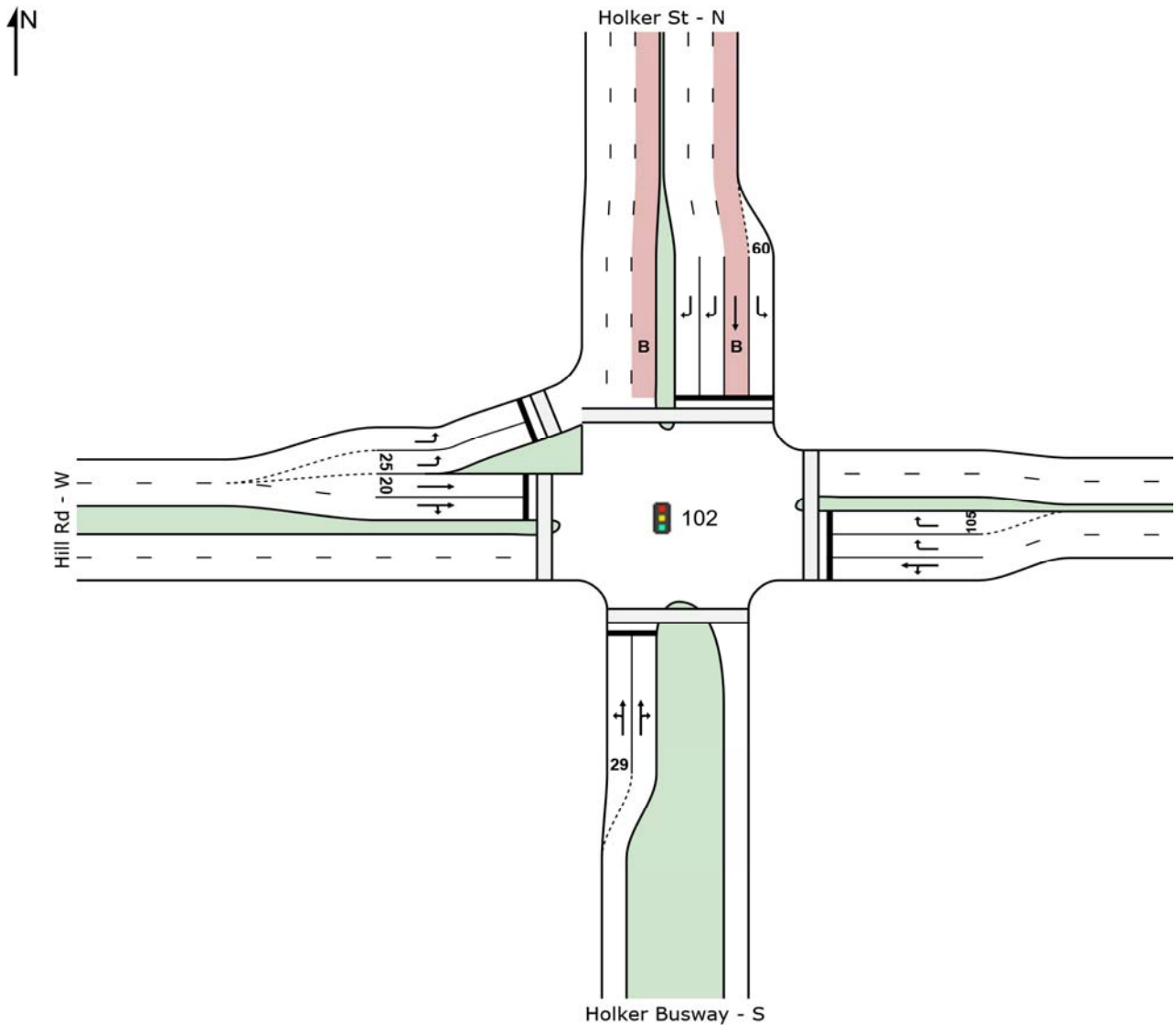
Appendix B

SIDRA Intersection Analysis Results

SITE LAYOUT

 **Site: 102 [Hill Road / Holker Street Intersection - Ex AM]**

16277 URBNSURF Sydney, Sydney Olympic Park
Signals - Fixed Time Isolated



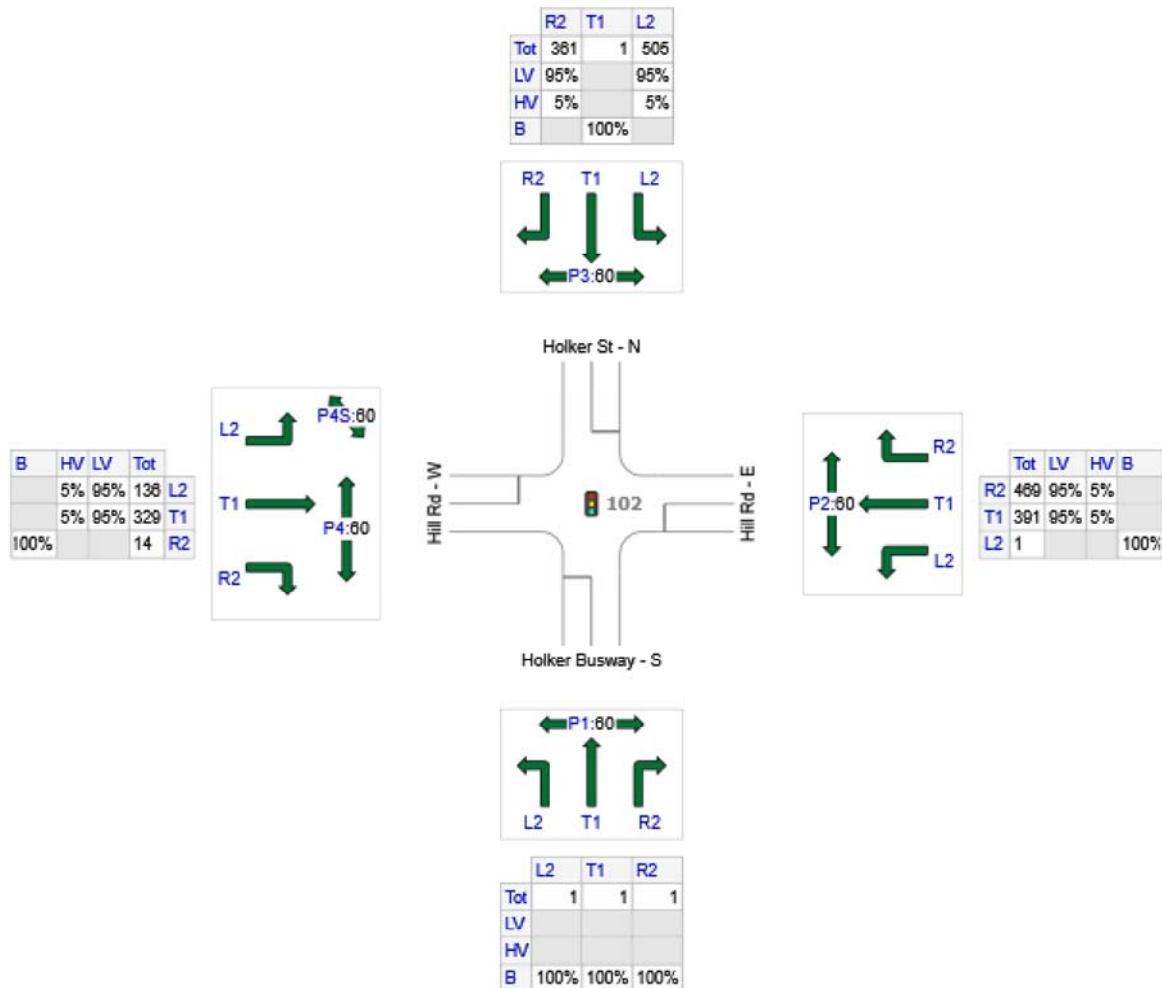
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: 102 [Hill Road / Holker Street Intersection - Ex AM]**

16277 URBNSURF Sydney, Sydney Olympic Park
Signals - Fixed Time Isolated

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Buses (B)
S: Holker Busway - S	3	3	3	3
E: Hill Rd - E	861	818	44	1
N: Holker St - N	867	824	44	1
W: Hill Rd - W	479	443	37	14
Total	2210	2081	110	19

PHASING SUMMARY

 **Site: 102 [Hill Road / Holker Street Intersection - Ex AM]**

16277 URBNSURF Sydney, Sydney Olympic Park

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Phase Times determined by the program

Sequence: Leading Right Turn

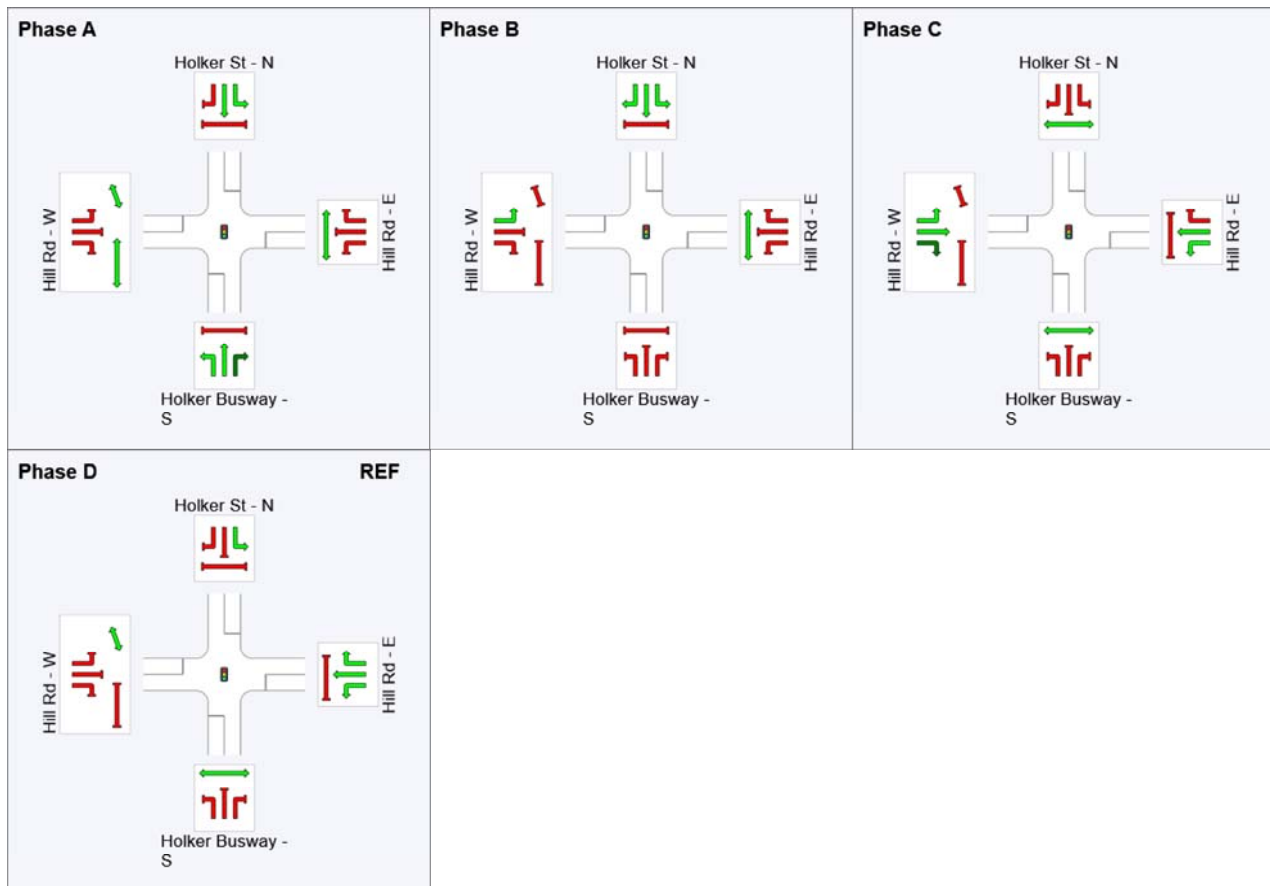
Reference Phase: Phase D

Input Sequence: A, B, C, D

Output Sequence: A, B, C, D












Phase Timing Results

Phase	A	B	C	D
Phase Change Time (sec)	21	38	55	0
Green Time (sec)	11	11	19	15
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	17	17	25	21
Phase Split	21%	21%	31%	26%



REF: Reference Phase

VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class Running		Other Movement Class Stopped
	Mixed Running & Stopped Movement Classes		Phase Transition Applied
	Undetected Movement		

MOVEMENT SUMMARY



Site: 102 [Hill Road / Holker Street Intersection - Ex AM]

16277 URBNSURF Sydney, Sydney Olympic Park

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Holker Busway - S											
1	L2	1	100.0	0.012	41.5	LOS C	0.1	0.7	0.91	0.60	30.6
2	T1	1	100.0	0.012	34.9	LOS C	0.1	0.7	0.90	0.60	36.8
3	R2	1	100.0	0.012	40.5	LOS C	0.1	0.7	0.90	0.60	36.2
Approach		3	100.0	0.012	39.0	LOS C	0.1	0.7	0.90	0.60	34.7
East: Hill Rd - E											
4	L2	1	100.0	0.438	19.9	LOS B	10.3	75.3	0.68	0.60	46.4
5	T1	412	5.0	0.438	13.8	LOS A	10.3	75.3	0.68	0.60	45.6
6	R2	494	5.0	0.734	41.8	LOS C	9.8	71.8	1.00	0.89	35.2
Approach		906	5.1	0.734	29.1	LOS C	10.3	75.3	0.85	0.76	38.5
North: Holker St - N											
7	L2	532	5.0	0.484	14.7	LOS B	11.4	83.1	0.59	0.76	47.1
8	T1	1	100.0	0.003	18.0	LOS B	0.0	0.3	0.66	0.41	46.4
9	R2	380	5.0	0.771	46.2	LOS D	7.9	58.0	1.00	0.91	28.6
Approach		913	5.1	0.771	27.9	LOS B	11.4	83.1	0.76	0.83	38.7
West: Hill Rd - W											
10	L2	143	5.0	0.089	19.1	LOS B	1.6	11.6	0.60	0.69	41.0
11	T1	346	5.0	0.471	29.5	LOS C	6.5	47.3	0.91	0.75	35.7
12	R2	15	100.0	0.471	36.7	LOS C	6.0	46.7	0.92	0.76	33.7
Approach		504	7.8	0.471	26.9	LOS B	6.5	47.3	0.82	0.73	37.0
All Vehicles		2326	5.8	0.771	28.1	LOS B	11.4	83.1	0.81	0.78	38.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back Pedestrian ped	of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	63	23.3	LOS C	0.1	0.1	0.76	0.76	
P2	East Full Crossing	63	33.4	LOS D	0.1	0.1	0.91	0.91	
P3	North Full Crossing	63	34.3	LOS D	0.1	0.1	0.93	0.93	
P4	West Full Crossing	63	34.3	LOS D	0.1	0.1	0.93	0.93	
P4S	West Slip/Bypass Lane Crossing	63	17.6	LOS B	0.1	0.1	0.66	0.66	
All Pedestrians		316	28.6	LOS C			0.84	0.84	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

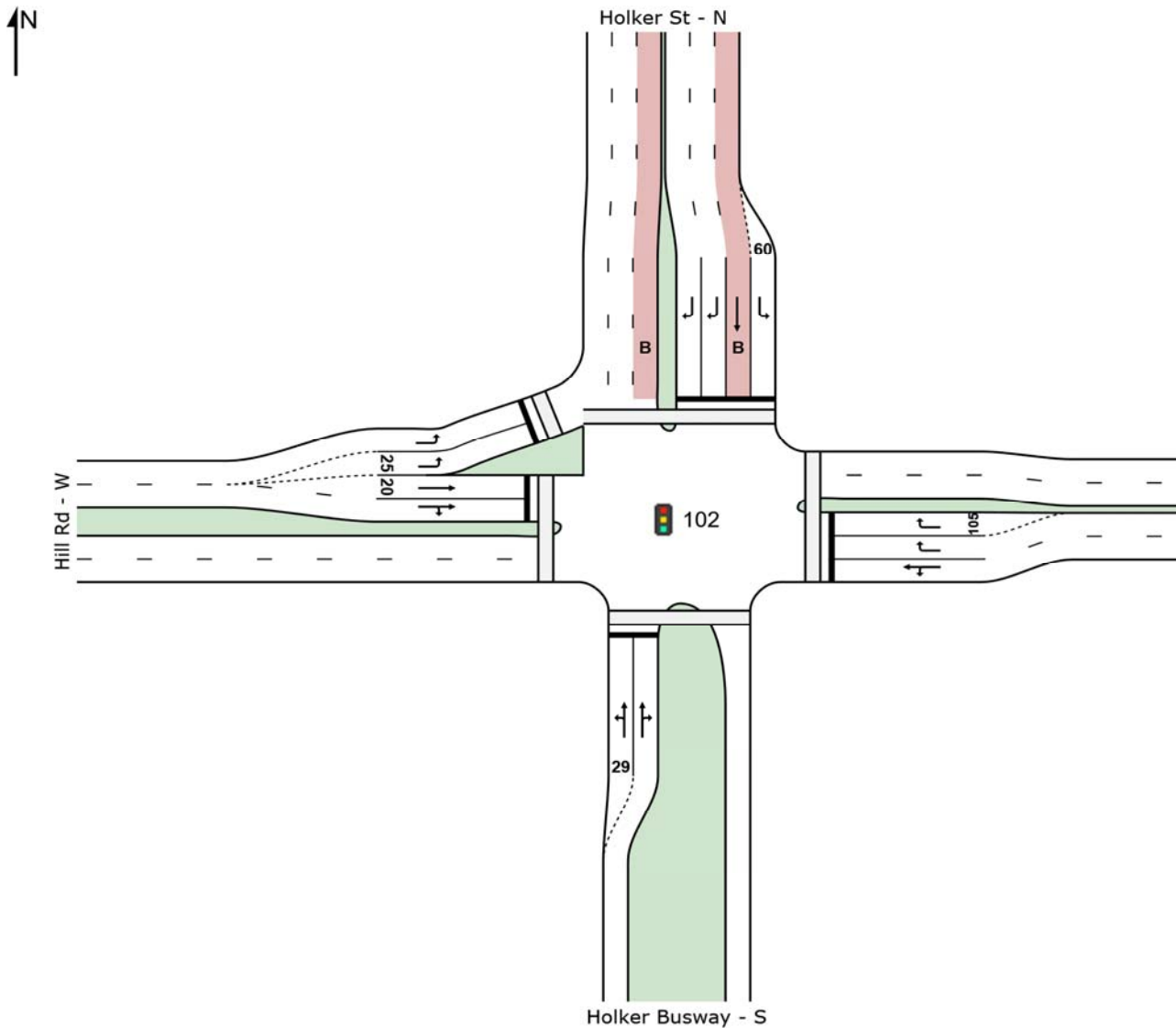
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

 **Site: 102 [Hill Road / Holker Street Intersection - Ex PM]**

16277 URBNSURF Sydney, Sydney Olympic Park
Signals - Fixed Time Isolated



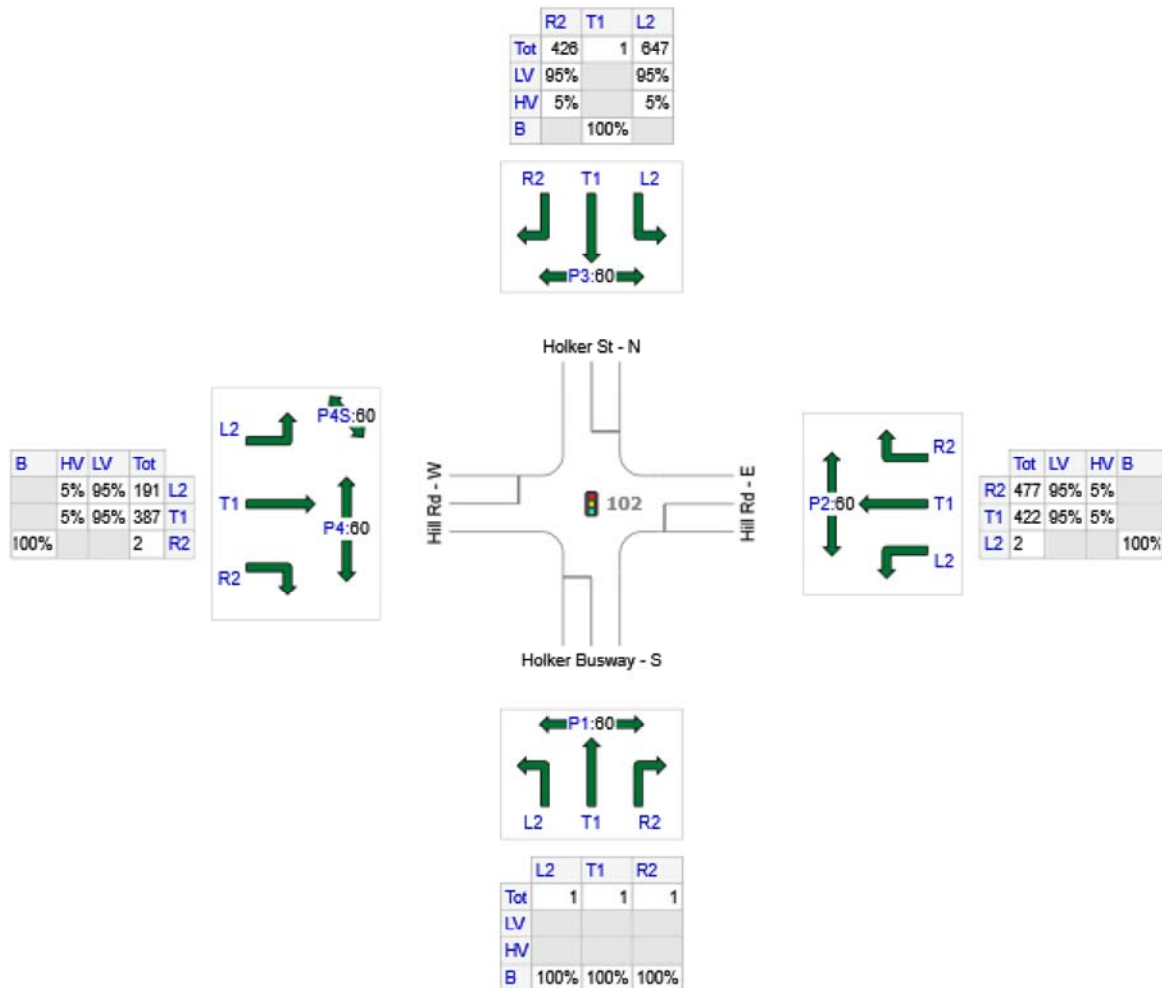
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: 102 [Hill Road / Holker Street Intersection - Ex PM]**

16277 URBNSURF Sydney, Sydney Olympic Park
Signals - Fixed Time Isolated

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Buses (B)
S: Holker Busway - S	3	3	3	3
E: Hill Rd - E	901	855	47	2
N: Holker St - N	1074	1020	55	1
W: Hill Rd - W	580	550	31	2
Total	2558	2423	128	8

PHASING SUMMARY

 **Site: 102 [Hill Road / Holker Street Intersection - Ex PM]**

16277 URBNSURF Sydney, Sydney Olympic Park

Signals - Fixed Time Isolated Cycle Time = 85 seconds (Optimum Cycle Time - Minimum Delay)

Phase Times determined by the program

Sequence: Leading Right Turn

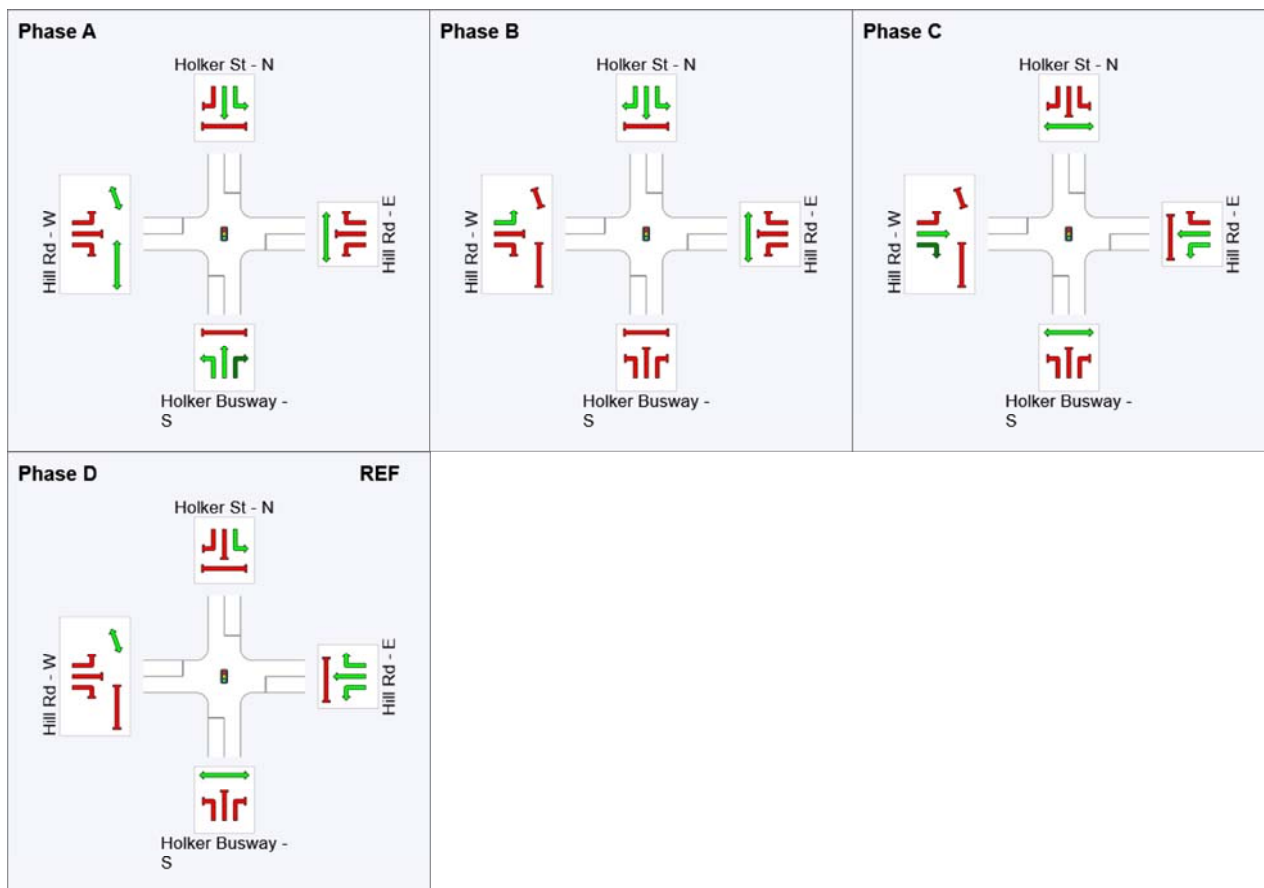
Reference Phase: Phase D

Input Sequence: A, B, C, D

Output Sequence: A, B, C, D

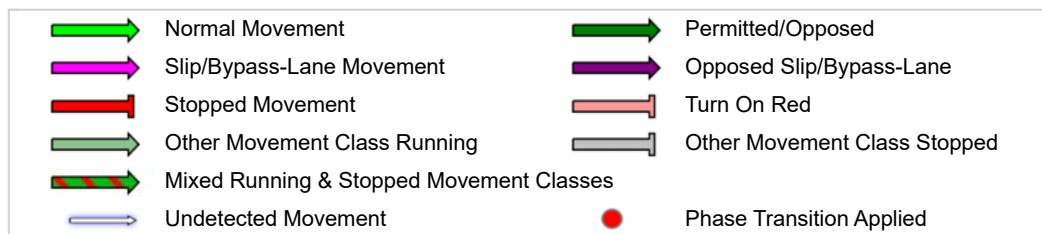
Phase Timing Results

Phase	A	B	C	D
Phase Change Time (sec)	22	39	60	0
Green Time (sec)	11	15	19	16
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	17	21	25	22
Phase Split	20%	25%	29%	26%



REF: Reference Phase

VAR: Variable Phase



MOVEMENT SUMMARY

Site: 102 [Hill Road / Holker Street Intersection - Ex PM]

16277 URBNSURF Sydney, Sydney Olympic Park

Signals - Fixed Time Isolated Cycle Time = 85 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Holker Busway - S											
1	L2	1	100.0	0.013	44.3	LOS D	0.1	0.8	0.91	0.60	29.6
2	T1	1	100.0	0.013	37.7	LOS C	0.1	0.8	0.91	0.60	35.8
3	R2	1	100.0	0.013	43.2	LOS D	0.1	0.8	0.90	0.60	35.2
Approach		3	100.0	0.013	41.7	LOS C	0.1	0.8	0.91	0.60	33.8
East: Hill Rd - E											
4	L2	2	100.0	0.492	22.2	LOS B	12.5	91.9	0.73	0.64	45.2
5	T1	444	5.0	0.492	16.0	LOS B	12.5	91.9	0.73	0.64	43.8
6	R2	502	5.0	0.744	44.1	LOS D	10.6	77.6	1.00	0.89	34.5
Approach		948	5.2	0.744	30.9	LOS C	12.5	91.9	0.87	0.77	37.6
North: Holker St - N											
7	L2	681	5.0	0.598	15.4	LOS B	16.5	120.5	0.64	0.79	46.8
8	T1	1	100.0	0.002	17.5	LOS B	0.0	0.3	0.64	0.39	46.7
9	R2	448	5.0	0.709	43.9	LOS D	9.4	68.3	0.99	0.87	29.4
Approach		1131	5.1	0.709	26.7	LOS B	16.5	120.5	0.78	0.82	39.3
West: Hill Rd - W											
10	L2	201	5.0	0.318	39.5	LOS C	3.8	27.4	0.91	0.77	31.0
11	T1	407	5.0	0.533	31.8	LOS C	8.2	60.3	0.92	0.76	34.7
12	R2	2	100.0	0.533	38.2	LOS C	8.2	60.3	0.93	0.77	32.8
Approach		611	5.3	0.533	34.4	LOS C	8.2	60.3	0.92	0.76	33.4
All Vehicles		2693	5.3	0.744	29.9	LOS C	16.5	120.5	0.84	0.79	37.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	63	24.9	LOS C	0.1	0.1	0.77	0.77	
P2	East Full Crossing	63	32.3	LOS D	0.1	0.1	0.87	0.87	
P3	North Full Crossing	63	36.8	LOS D	0.1	0.1	0.93	0.93	
P4	West Full Crossing	63	36.8	LOS D	0.1	0.1	0.93	0.93	
P4S	West Slip/Bypass Lane Crossing	63	19.2	LOS B	0.1	0.1	0.67	0.67	
All Pedestrians		316	30.0	LOS C			0.84	0.84	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

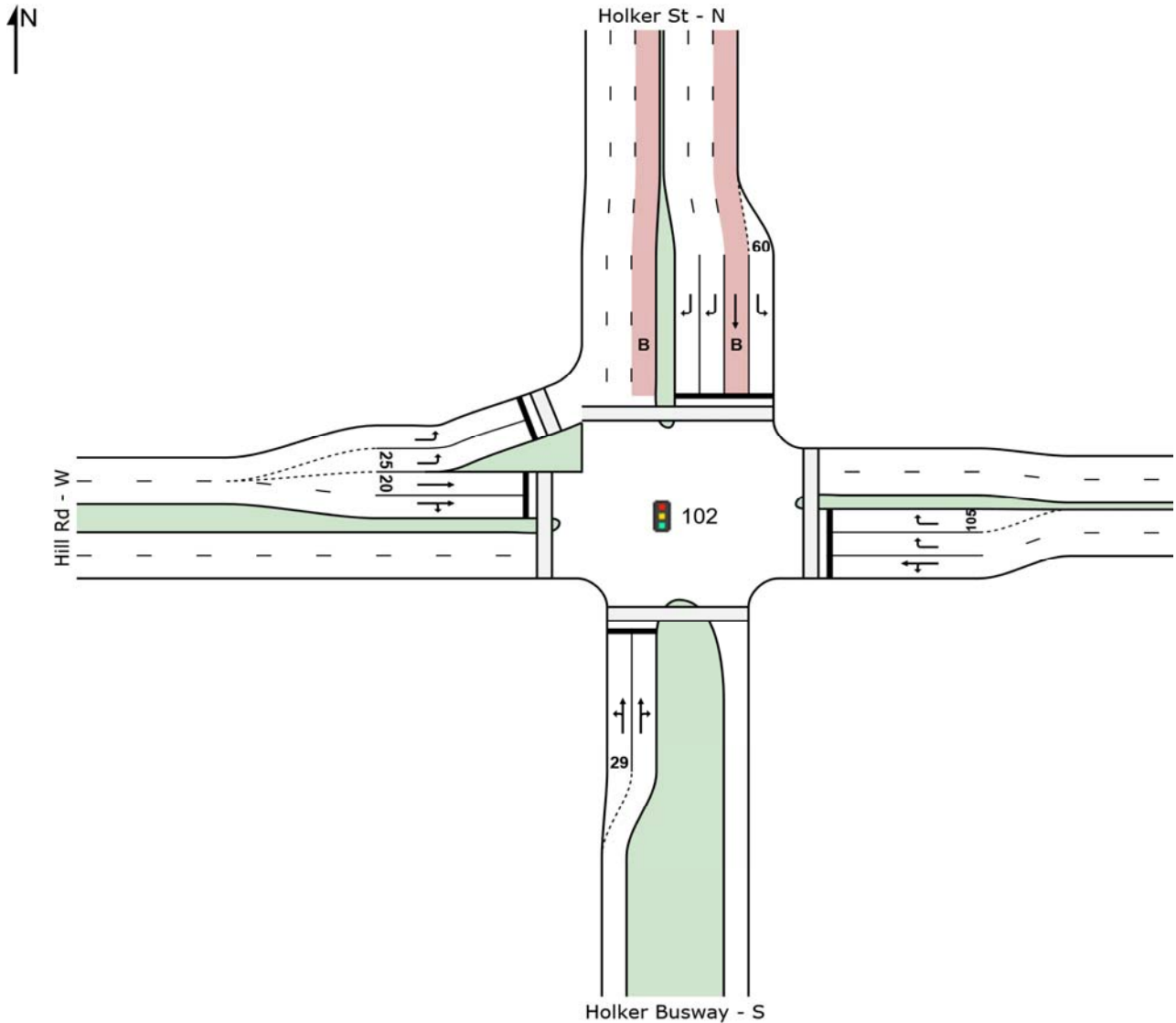
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

 **Site: 102 [Hill Road / Holker Street Intersection - Ex SAT]**

16277 URBNSURF Sydney, Sydney Olympic Park
Signals - Fixed Time Isolated



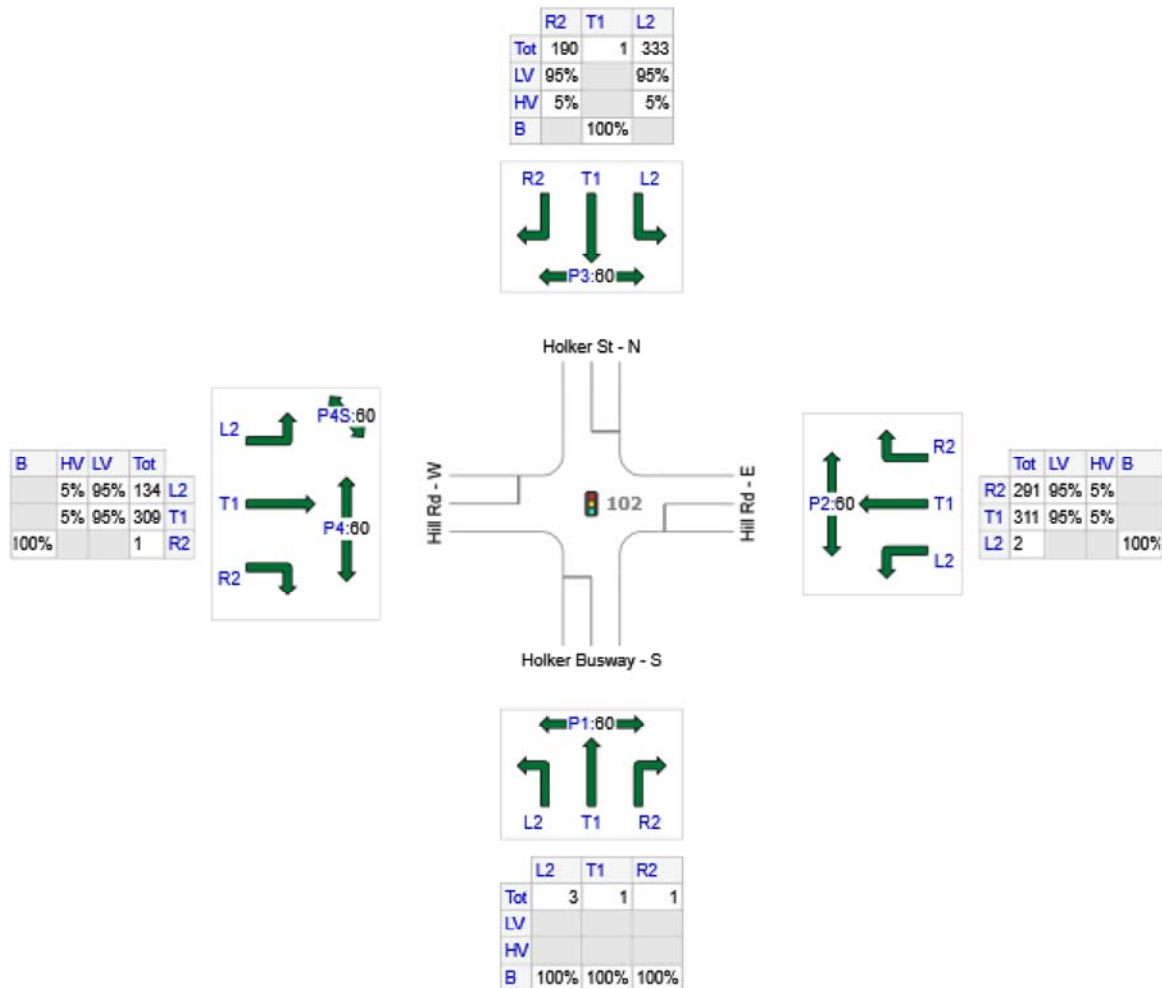
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: 102 [Hill Road / Holker Street Intersection - Ex SAT]**

16277 URBNSURF Sydney, Sydney Olympic Park
Signals - Fixed Time Isolated

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Buses (B)
S: Holker Busway - S	5	3	5	5
E: Hill Rd - E	604	573	32	2
N: Holker St - N	524	498	27	1
W: Hill Rd - W	444	422	23	2
Total	1577	1490	78	9

PHASING SUMMARY

 **Site: 102 [Hill Road / Holker Street Intersection - Ex SAT]**

16277 URBNSURF Sydney, Sydney Olympic Park

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Phase Times determined by the program

Sequence: Leading Right Turn

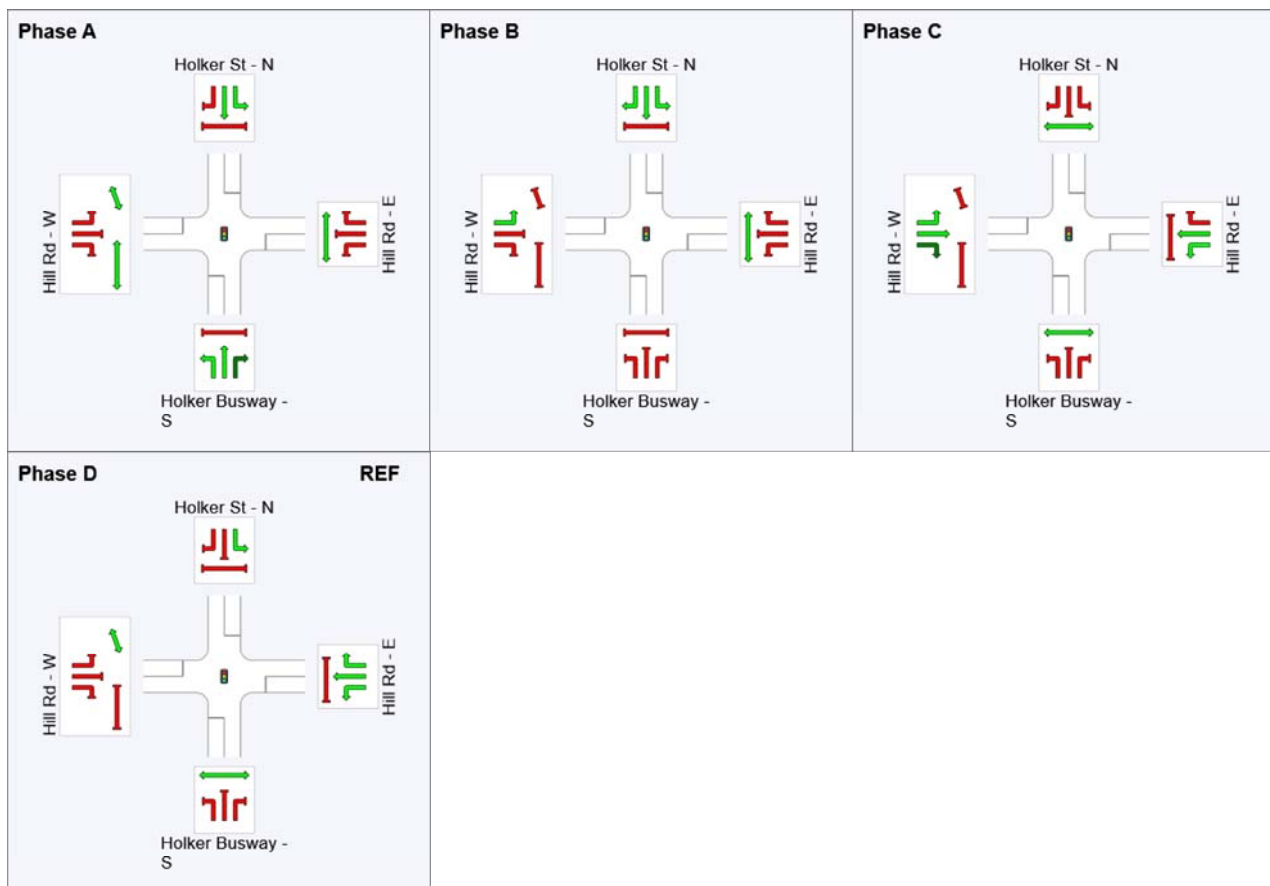
Reference Phase: Phase D

Input Sequence: A, B, C, D

Output Sequence: A, B, C, D

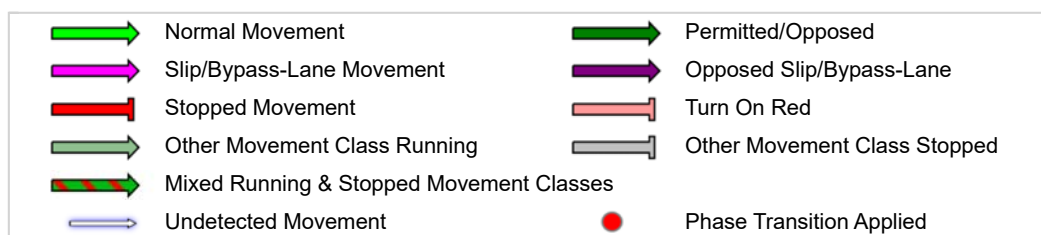
Phase Timing Results

Phase	A	B	C	D
Phase Change Time (sec)	22	39	55	0
Green Time (sec)	11	10	19	16
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	17	16	25	22
Phase Split	21%	20%	31%	28%



REF: Reference Phase

VAR: Variable Phase



MOVEMENT SUMMARY

 **Site: 102 [Hill Road / Holker Street Intersection - Ex SAT]**

16277 URBNSURF Sydney, Sydney Olympic Park

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Holker Busway - S											
1	L2	3	100.0	0.029	43.2	LOS D	0.1	1.5	0.92	0.64	29.3
2	T1	1	100.0	0.015	34.4	LOS C	0.1	1.0	0.90	0.60	37.3
3	R2	1	100.0	0.015	40.5	LOS C	0.1	1.0	0.90	0.60	36.5
Approach		5	100.0	0.029	40.9	LOS C	0.1	1.5	0.91	0.62	32.6
East: Hill Rd - E											
4	L2	2	100.0	0.342	18.5	LOS B	7.6	55.6	0.63	0.55	47.3
5	T1	327	5.0	0.342	12.4	LOS A	7.6	55.6	0.63	0.55	46.7
6	R2	306	5.0	0.427	36.7	LOS C	5.4	39.4	0.92	0.79	37.0
Approach		636	5.3	0.427	24.1	LOS B	7.6	55.6	0.77	0.66	40.7
North: Holker St - N											
7	L2	351	5.0	0.319	13.6	LOS A	6.5	47.8	0.52	0.73	47.8
8	T1	1	100.0	0.003	18.7	LOS B	0.0	0.4	0.68	0.42	46.0
9	R2	200	5.0	0.446	42.4	LOS C	3.8	27.8	0.97	0.77	29.9
Approach		552	5.2	0.446	24.1	LOS B	6.5	47.8	0.68	0.74	40.8
West: Hill Rd - W											
10	L2	141	5.1	0.090	19.7	LOS B	1.6	11.7	0.61	0.69	40.6
11	T1	325	5.0	0.375	28.0	LOS B	5.5	40.6	0.88	0.72	36.5
12	R2	1	100.0	0.375	34.2	LOS C	5.5	40.6	0.88	0.72	34.5
Approach		467	5.2	0.375	25.5	LOS B	5.5	40.6	0.80	0.71	37.6
All Vehicles		1660	5.5	0.446	24.6	LOS B	7.6	55.6	0.75	0.70	39.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	63	22.6	LOS C	0.1	0.1	0.75	0.75	
P2	East Full Crossing	63	34.3	LOS D	0.1	0.1	0.93	0.93	
P3	North Full Crossing	63	34.3	LOS D	0.1	0.1	0.93	0.93	
P4	West Full Crossing	63	34.3	LOS D	0.1	0.1	0.93	0.93	
P4S	West Slip/Bypass Lane Crossing	63	16.9	LOS B	0.1	0.1	0.65	0.65	
All Pedestrians		316	28.5	LOS C			0.84	0.84	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

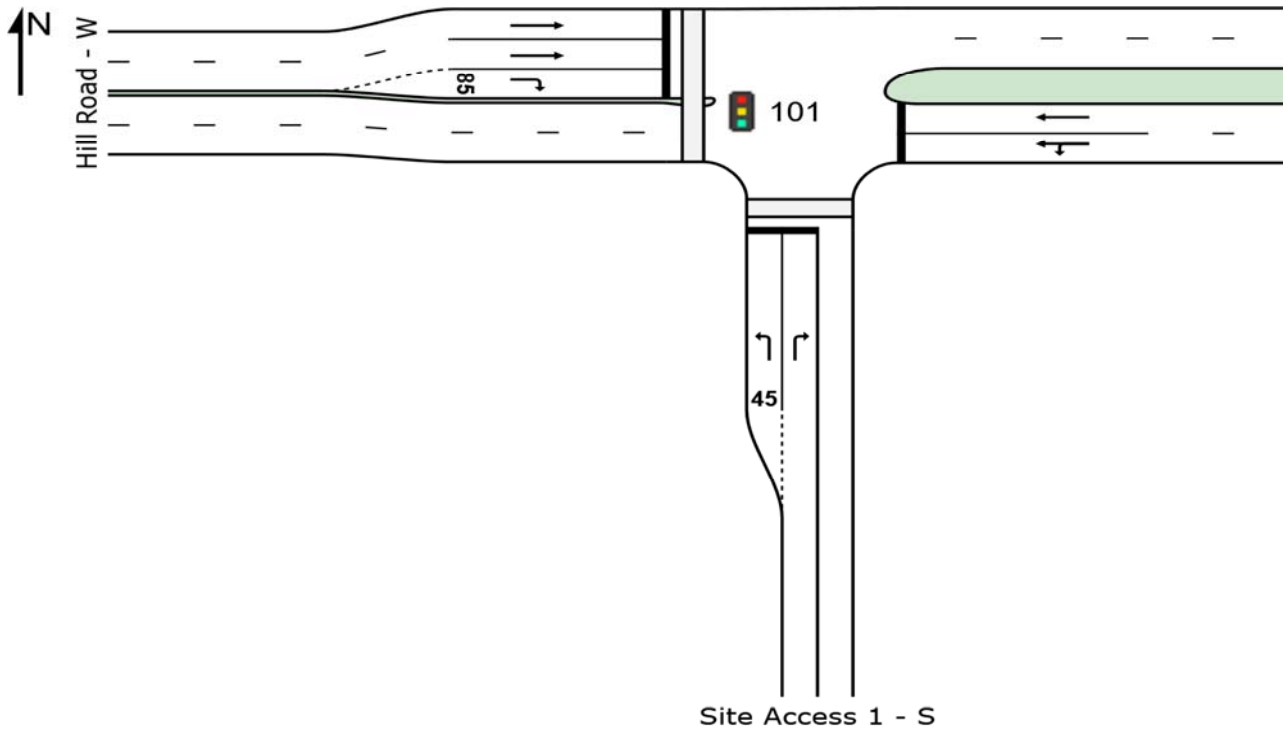
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

 **Site: 101 [Hill Road / Site Access 1 - Ex AM]**

16277

Signals - Fixed Time Isolated



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INPUT VOLUMES

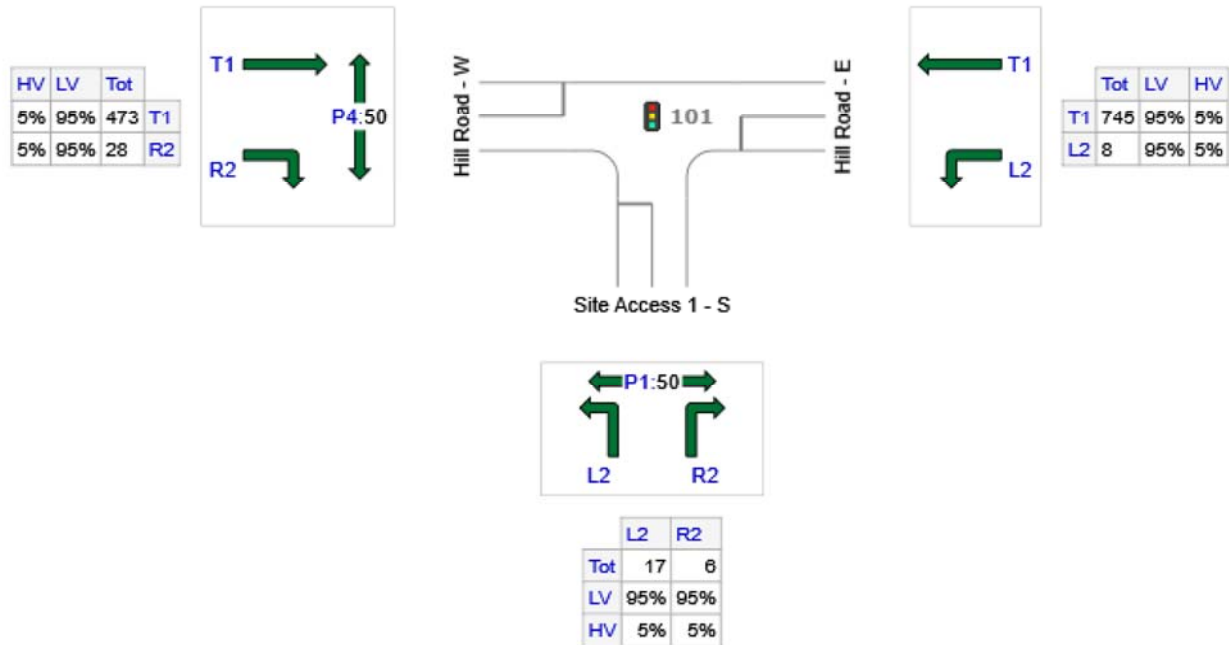
Vehicles and pedestrians per 60 minutes

 **Site: 101 [Hill Road / Site Access 1 - Ex AM]**

16277

Signals - Fixed Time Isolated

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Site Access 1 - S	23	22	1
E: Hill Road - E	753	715	38
W: Hill Road - W	501	476	25
Total	1277	1213	64

PHASING SUMMARY

 **Site: 101 [Hill Road / Site Access 1 - Ex AM]**

16277

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program

Sequence: Split Phasing

Reference Phase: Phase A

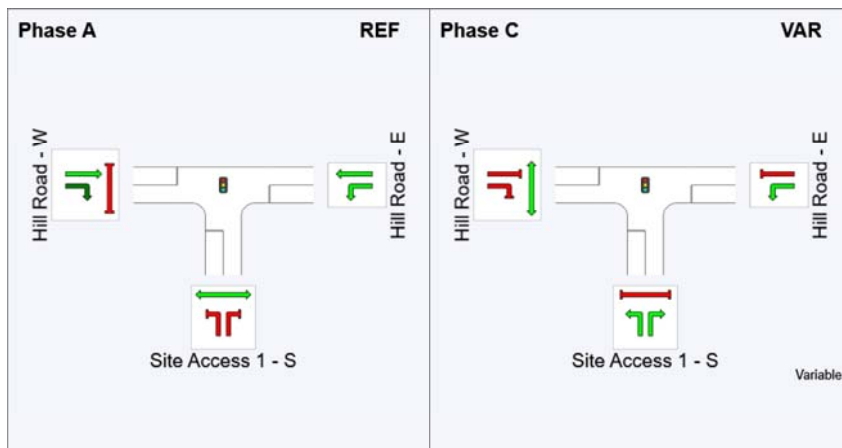
Input Sequence: A, B*, C*

Output Sequence: A, C*

(* Variable Phase)







Phase Timing Results

Phase	A	C
Phase Change Time (sec)	0	64
Green Time (sec)	58	10
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	64	16
Phase Split	80%	20%



REF: Reference Phase

VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class Running		Other Movement Class Stopped
	Mixed Running & Stopped Movement Classes		Phase Transition Applied
	Undetected Movement		

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MOVEMENT SUMMARY

 **Site: 101 [Hill Road / Site Access 1 - Ex AM]**

16277

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access 1 - S											
1	L2	18	5.0	0.100	41.5	LOS C	0.7	4.9	0.94	0.69	33.1
3	R2	6	5.0	0.028	38.5	LOS C	0.2	1.6	0.90	0.65	28.7
Approach		24	5.0	0.100	40.7	LOS C	0.7	4.9	0.93	0.68	32.1
East: Hill Road - E											
4	L2	8	5.0	0.290	9.9	LOS A	5.3	38.4	0.37	0.34	47.7
5	T1	784	5.0	0.290	4.2	LOS A	5.3	38.8	0.37	0.33	54.7
Approach		793	5.0	0.290	4.2	LOS A	5.3	38.8	0.37	0.33	54.6
West: Hill Road - W											
11	T1	498	5.0	0.182	3.7	LOS A	3.0	22.1	0.34	0.29	55.3
12	R2	29	5.0	0.069	10.8	LOS A	0.4	3.0	0.37	0.65	46.5
Approach		527	5.0	0.182	4.1	LOS A	3.0	22.1	0.34	0.31	54.5
All Vehicles		1344	5.0	0.290	4.8	LOS A	5.3	38.8	0.37	0.33	53.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back Pedestrian ped	of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	5.3	LOS A	0.0	0.0	0.36	0.36	
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93	
All Pedestrians		105	19.8	LOS B			0.65	0.65	

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.

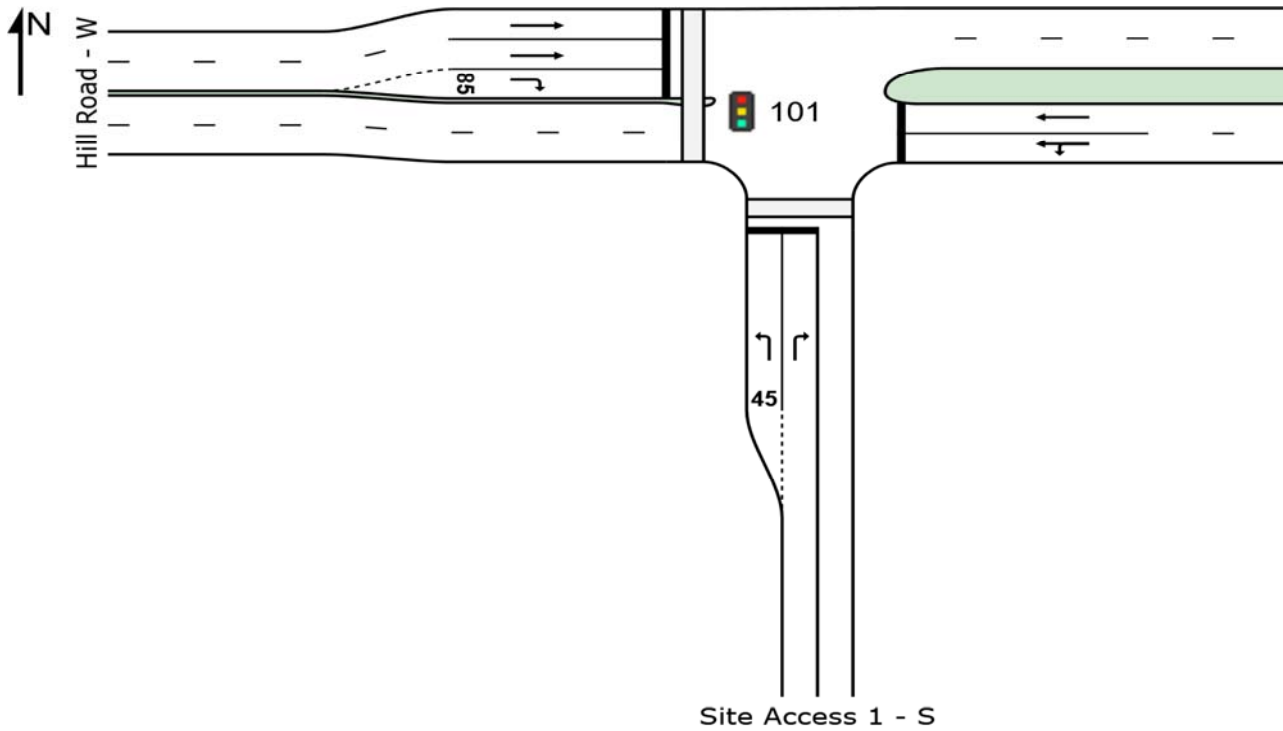
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

 **Site: 101 [Hill Road / Site Access 1 - Ex PM]**

16277

Signals - Fixed Time Isolated



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INPUT VOLUMES

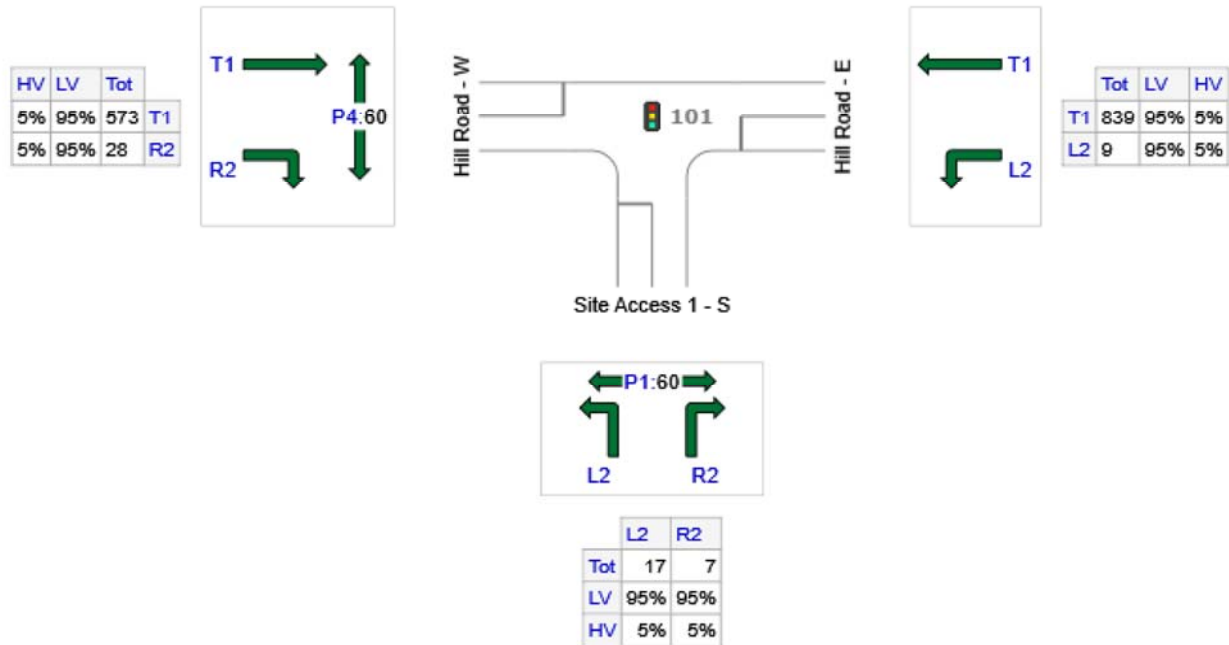
Vehicles and pedestrians per 60 minutes

 **Site: 101 [Hill Road / Site Access 1 - Ex PM]**

16277

Signals - Fixed Time Isolated

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Site Access 1 - S	24	23	1
E: Hill Road - E	848	806	42
W: Hill Road - W	601	571	30
Total	1473	1399	74

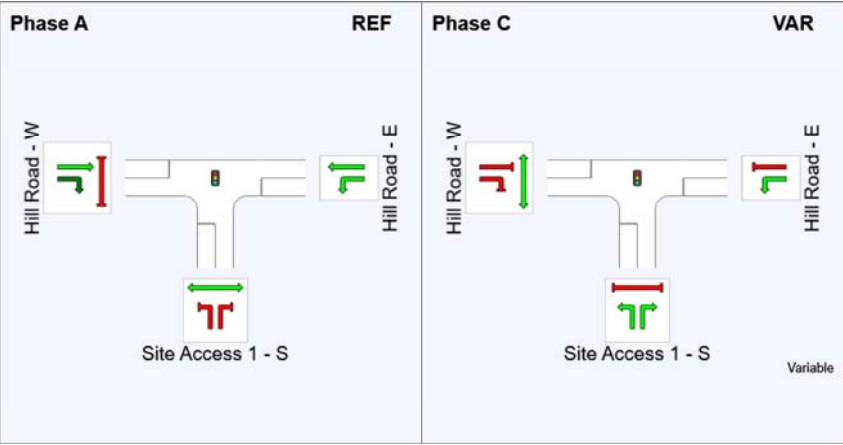
PHASING SUMMARY

 **Site: 101 [Hill Road / Site Access 1 - Ex PM]**

16277
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program
Sequence: Split Phasing
Reference Phase: Phase A
Input Sequence: A, B*, C*
Output Sequence: A, C*
(* Variable Phase)

Phase Timing Results		
Phase	A	C
Phase Change Time (sec)	0	62
Green Time (sec)	56	12
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	62	18
Phase Split	78%	23%



REF: Reference Phase
VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class Running		Other Movement Class Stopped
	Mixed Running & Stopped Movement Classes		Phase Transition Applied
	Undetected Movement		

MOVEMENT SUMMARY

 **Site: 101 [Hill Road / Site Access 1 - Ex PM]**

16277

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access 1 - S											
1	L2	18	5.0	0.089	40.2	LOS C	0.7	4.8	0.93	0.69	33.5
3	R2	7	5.0	0.027	36.4	LOS C	0.2	1.8	0.88	0.65	29.4
Approach		25	5.0	0.089	39.1	LOS C	0.7	4.8	0.91	0.68	32.4
East: Hill Road - E											
4	L2	9	5.0	0.338	10.8	LOS A	6.7	49.0	0.42	0.38	46.9
5	T1	883	5.0	0.338	5.1	LOS A	6.8	49.4	0.42	0.38	53.6
Approach		893	5.0	0.338	5.2	LOS A	6.8	49.4	0.42	0.38	53.5
West: Hill Road - W											
11	T1	603	5.0	0.228	4.5	LOS A	4.1	30.3	0.38	0.33	54.3
12	R2	29	5.0	0.081	12.6	LOS A	0.5	3.5	0.43	0.66	45.5
Approach		633	5.0	0.228	4.9	LOS A	4.1	30.3	0.38	0.34	53.6
All Vehicles		1551	5.0	0.338	5.6	LOS A	6.8	49.4	0.41	0.37	52.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back Pedestrian ped	of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	63	6.0	LOS A	0.1	0.1	0.39	0.39	
P4	West Full Crossing	63	34.3	LOS D	0.1	0.1	0.93	0.93	
All Pedestrians		126	20.2	LOS C			0.66	0.66	

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.

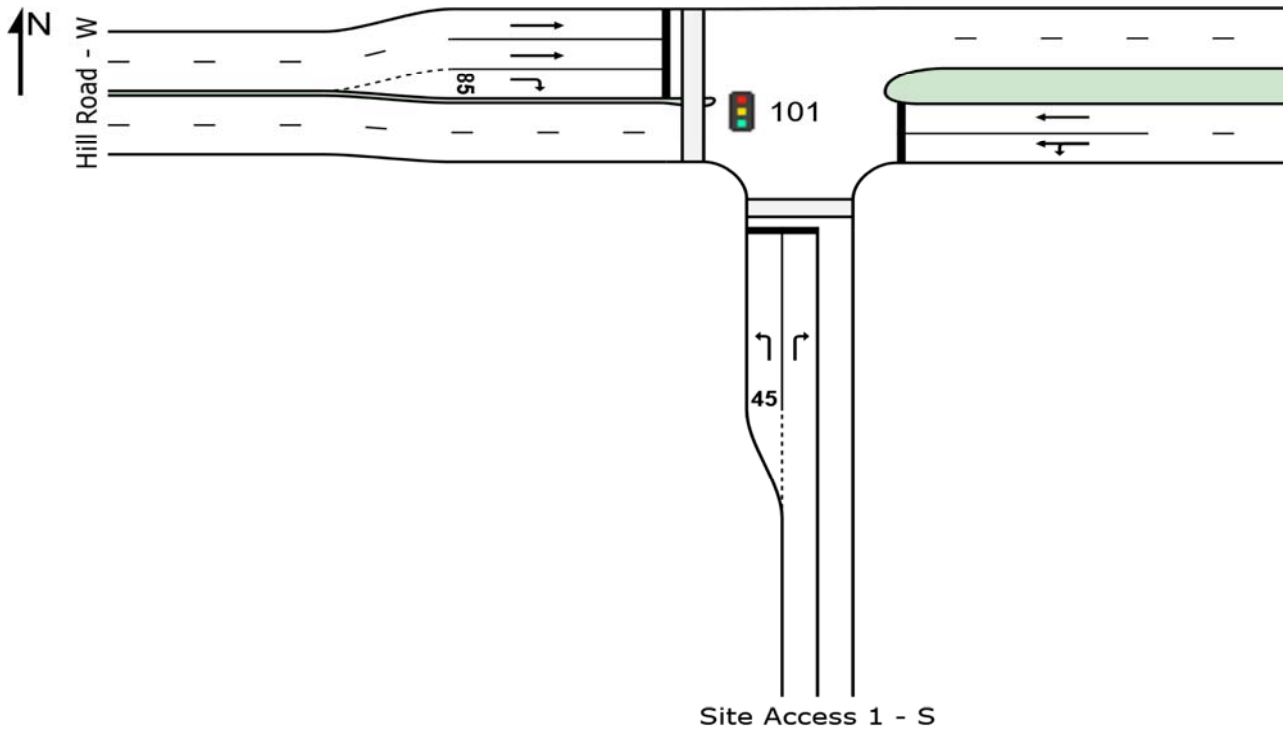
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

 **Site: 101 [Hill Road / Site Access 1 - Ex SAT]**

16277

Signals - Fixed Time Isolated



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INPUT VOLUMES

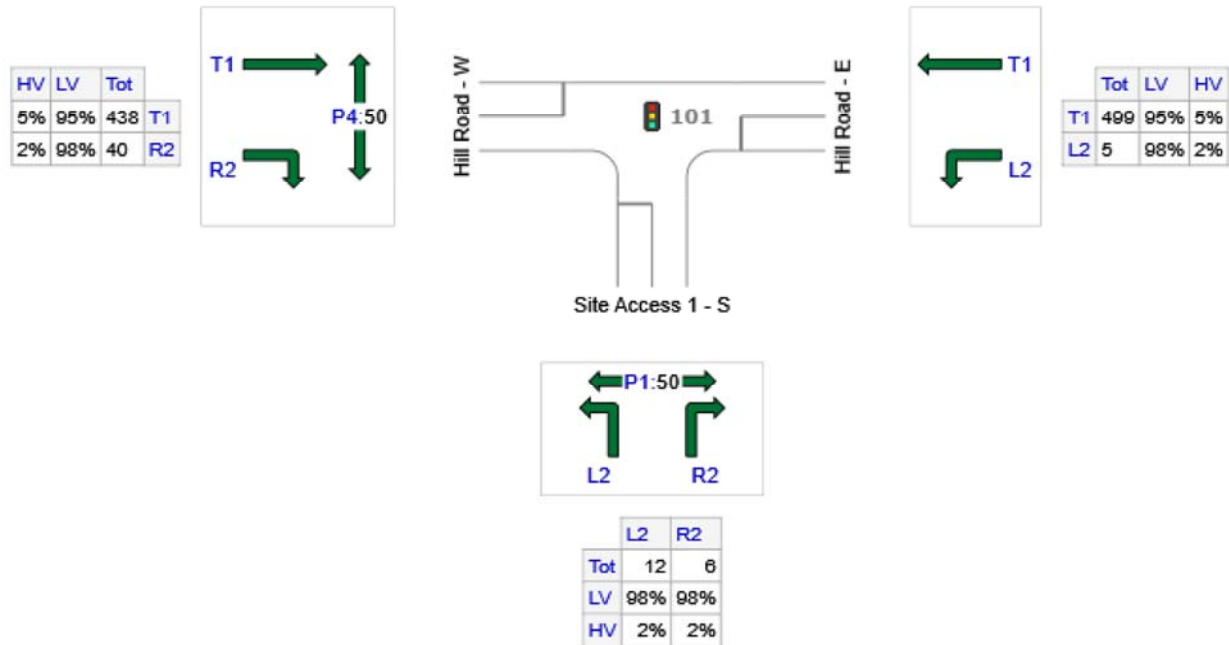
Vehicles and pedestrians per 60 minutes

 **Site: 101 [Hill Road / Site Access 1 - Ex SAT]**

16277

Signals - Fixed Time Isolated

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Site Access 1 - S	18	18	0
E: Hill Road - E	504	479	25
W: Hill Road - W	478	455	23
Total	1000	952	48

PHASING SUMMARY

 **Site: 101 [Hill Road / Site Access 1 - Ex SAT]**

16277

Signals - Fixed Time Isolated Cycle Time = 90 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program

Sequence: Split Phasing

Reference Phase: Phase A

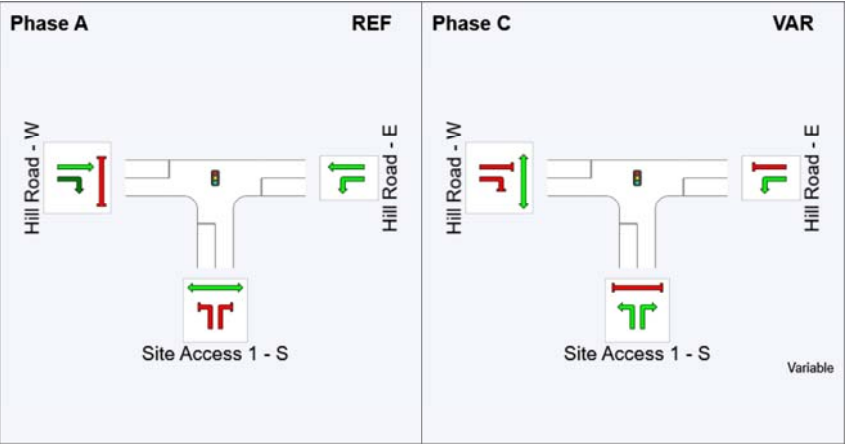
Input Sequence: A, B*, C*

Output Sequence: A, C*

(* Variable Phase)


Phase Timing Results

Phase	A	C
Phase Change Time (sec)	0	72
Green Time (sec)	66	12
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	72	18
Phase Split	80%	20%



REF: Reference Phase

VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class Running		Other Movement Class Stopped
	Mixed Running & Stopped Movement Classes		
	Undetected Movement		Phase Transition Applied

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MOVEMENT SUMMARY

 **Site: 101 [Hill Road / Site Access 1 - Ex SAT]**

16277

Signals - Fixed Time Isolated Cycle Time = 90 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access 1 - S											
1	L2	13	2.0	0.062	44.2	LOS D	0.5	3.6	0.92	0.68	32.3
3	R2	6	2.0	0.026	41.6	LOS C	0.2	1.7	0.89	0.65	27.9
Approach		19	2.0	0.062	43.4	LOS D	0.5	3.6	0.91	0.67	31.0
East: Hill Road - E											
4	L2	5	2.0	0.192	9.7	LOS A	3.5	25.6	0.33	0.29	47.9
5	T1	525	5.0	0.192	4.0	LOS A	3.5	25.9	0.33	0.29	54.9
Approach		531	5.0	0.192	4.1	LOS A	3.5	25.9	0.33	0.29	54.8
West: Hill Road - W											
11	T1	461	5.0	0.166	3.8	LOS A	3.0	22.0	0.32	0.28	55.1
12	R2	42	2.0	0.070	10.1	LOS A	0.6	4.2	0.33	0.65	47.0
Approach		503	4.7	0.166	4.4	LOS A	3.0	22.0	0.32	0.31	54.0
All Vehicles		1053	4.8	0.192	4.9	LOS A	3.5	25.9	0.34	0.30	53.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back Pedestrian ped	of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	5.4	LOS A	0.0	0.0	0.35	0.35	
P4	West Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94	
All Pedestrians		105	22.3	LOS C			0.64	0.64	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

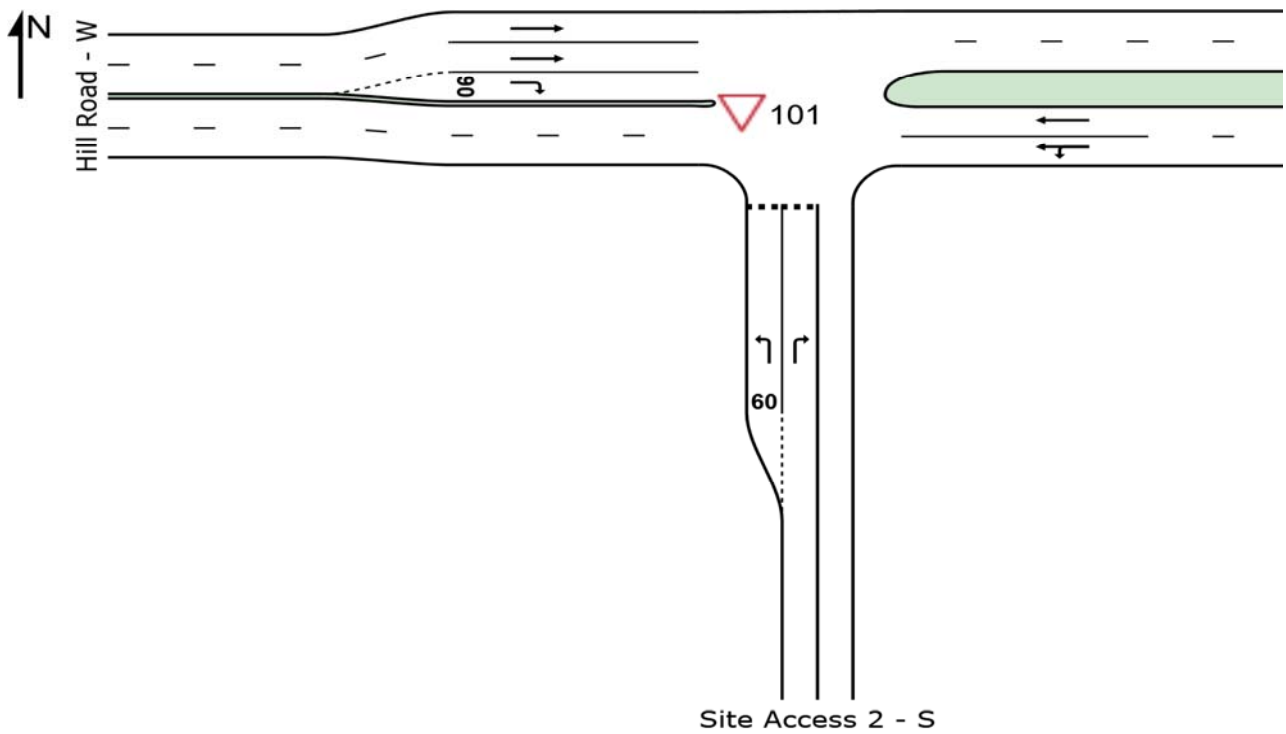
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

▽ Site: 101 [Hill Road / Site Access 2 - Ex AM]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveaway / Yield (Two-Way)



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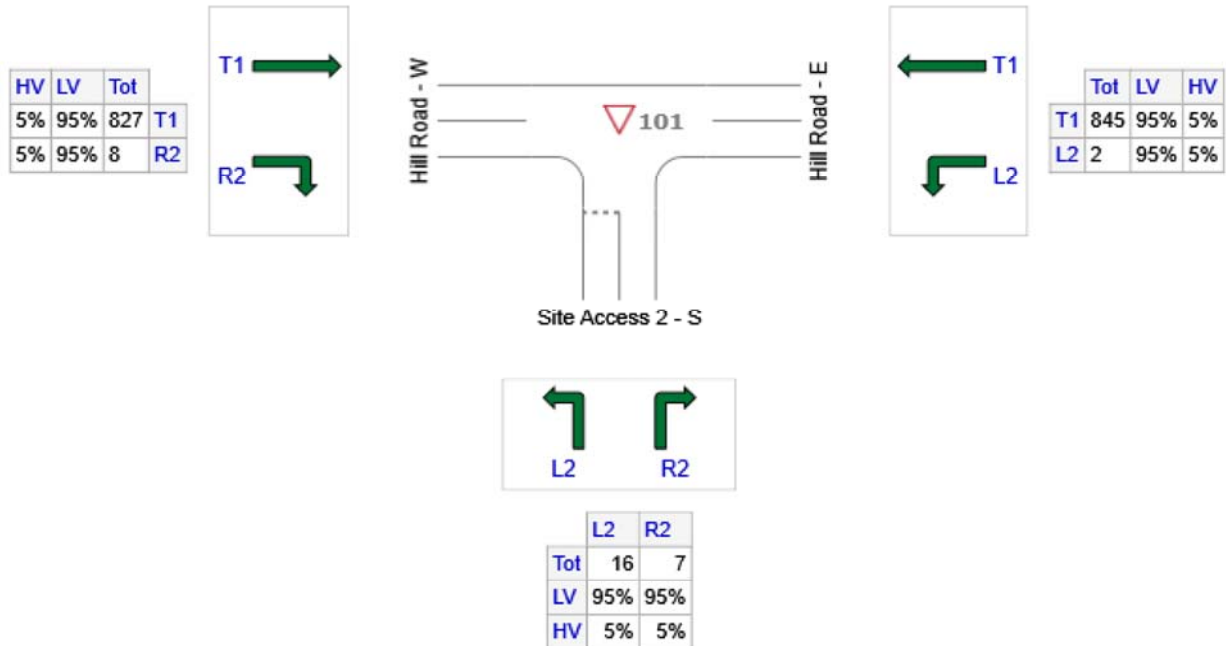
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

▽ Site: 101 [Hill Road / Site Access 2 - Ex AM]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveaway / Yield (Two-Way)

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Site Access 2 - S	23	22	1
E: Hill Road - E	847	805	42
W: Hill Road - W	835	793	42
Total	1705	1620	85

MOVEMENT SUMMARY

▽ Site: 101 [Hill Road / Site Access 2 - Ex AM]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access 2 - S											
1	L2	17	5.0	0.021	6.8	LOS A	0.1	0.5	0.45	0.62	45.0
3	R2	7	5.0	0.217	112.1	LOS F	0.6	4.2	0.97	1.00	20.1
Approach		24	5.0	0.217	38.9	LOS C	0.6	4.2	0.61	0.73	31.0
East: Hill Road - E											
4	L2	2	5.0	0.236	5.6	LOS A	0.0	0.0	0.00	0.00	58.0
5	T1	889	5.0	0.236	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		892	5.0	0.236	0.0	NA	0.0	0.0	0.00	0.00	59.9
West: Hill Road - W											
11	T1	871	5.0	0.230	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	8	5.0	0.018	11.7	LOS A	0.1	0.4	0.66	0.78	42.9
Approach		879	5.0	0.230	0.1	NA	0.1	0.4	0.01	0.01	59.7
All Vehicles		1795	5.0	0.236	0.6	NA	0.6	4.2	0.01	0.01	59.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

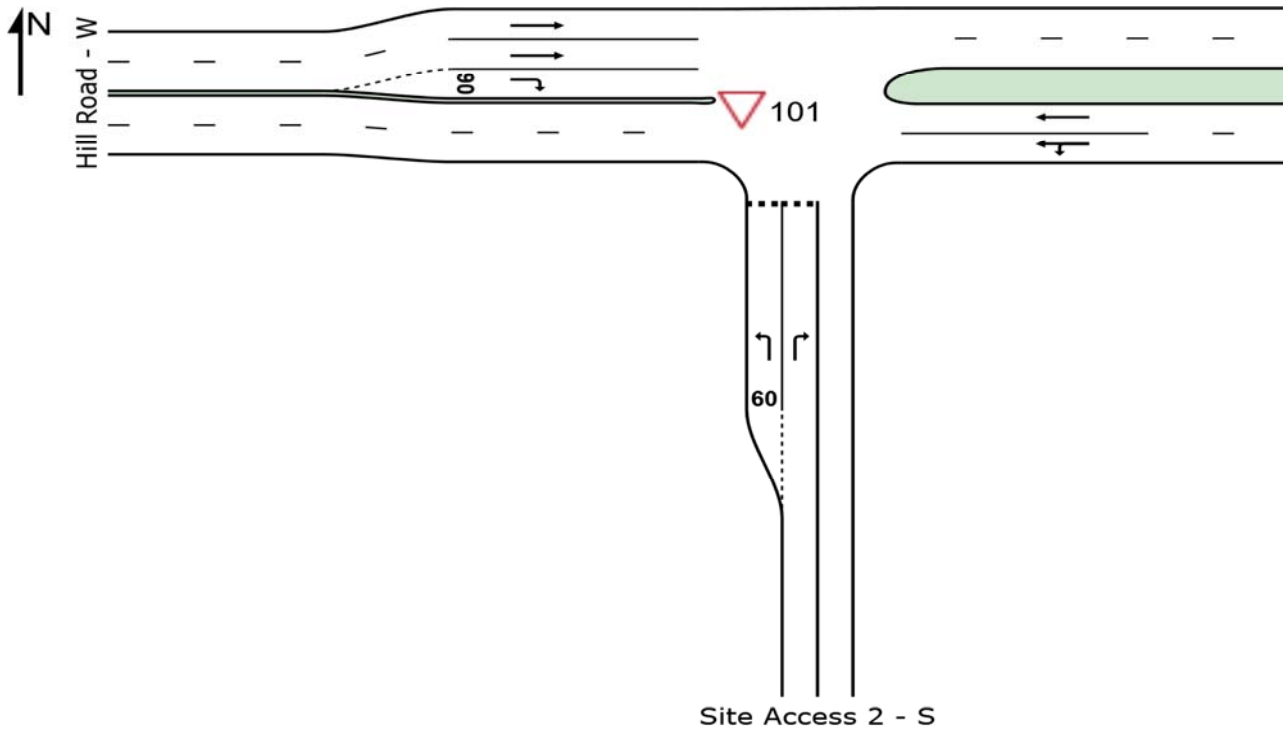
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

▽ Site: 101 [Hill Road / Site Access 2 - Ex PM]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveaway / Yield (Two-Way)



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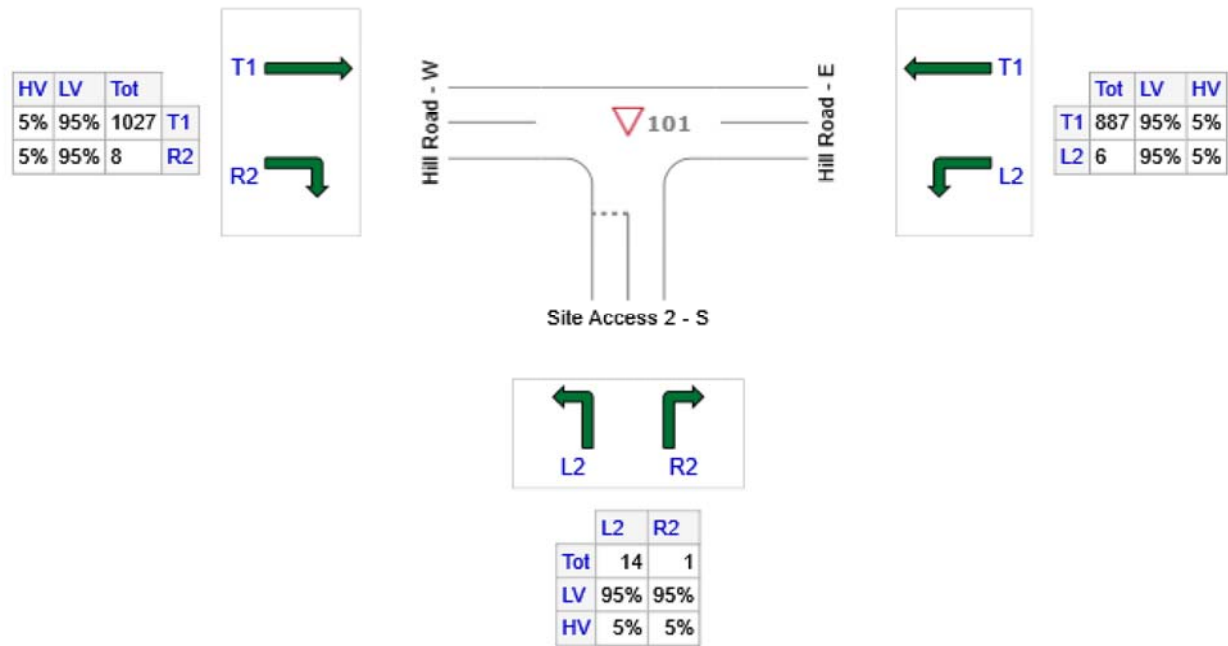
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

▽ Site: 101 [Hill Road / Site Access 2 - Ex PM]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveaway / Yield (Two-Way)

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Site Access 2 - S	15	14	1
E: Hill Road - E	893	848	45
W: Hill Road - W	1035	983	52
Total	1943	1846	97

MOVEMENT SUMMARY

▽ Site: 101 [Hill Road / Site Access 2 - Ex PM]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access 2 - S											
1	L2	15	5.0	0.019	7.0	LOS A	0.1	0.5	0.46	0.62	44.9
3	R2	1	5.0	0.065	194.4	LOS F	0.2	1.2	0.98	0.99	13.8
Approach		16	5.0	0.065	19.5	LOS B	0.2	1.2	0.50	0.65	37.7
East: Hill Road - E											
4	L2	6	5.0	0.249	5.6	LOS A	0.0	0.0	0.00	0.01	58.0
5	T1	934	5.0	0.249	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		940	5.0	0.249	0.1	NA	0.0	0.0	0.00	0.00	59.9
West: Hill Road - W											
11	T1	1081	5.0	0.286	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
12	R2	8	5.0	0.019	12.3	LOS A	0.1	0.5	0.69	0.80	42.5
Approach		1089	5.0	0.286	0.1	NA	0.1	0.5	0.01	0.01	59.7
All Vehicles		2045	5.0	0.286	0.2	NA	0.2	1.2	0.01	0.01	59.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

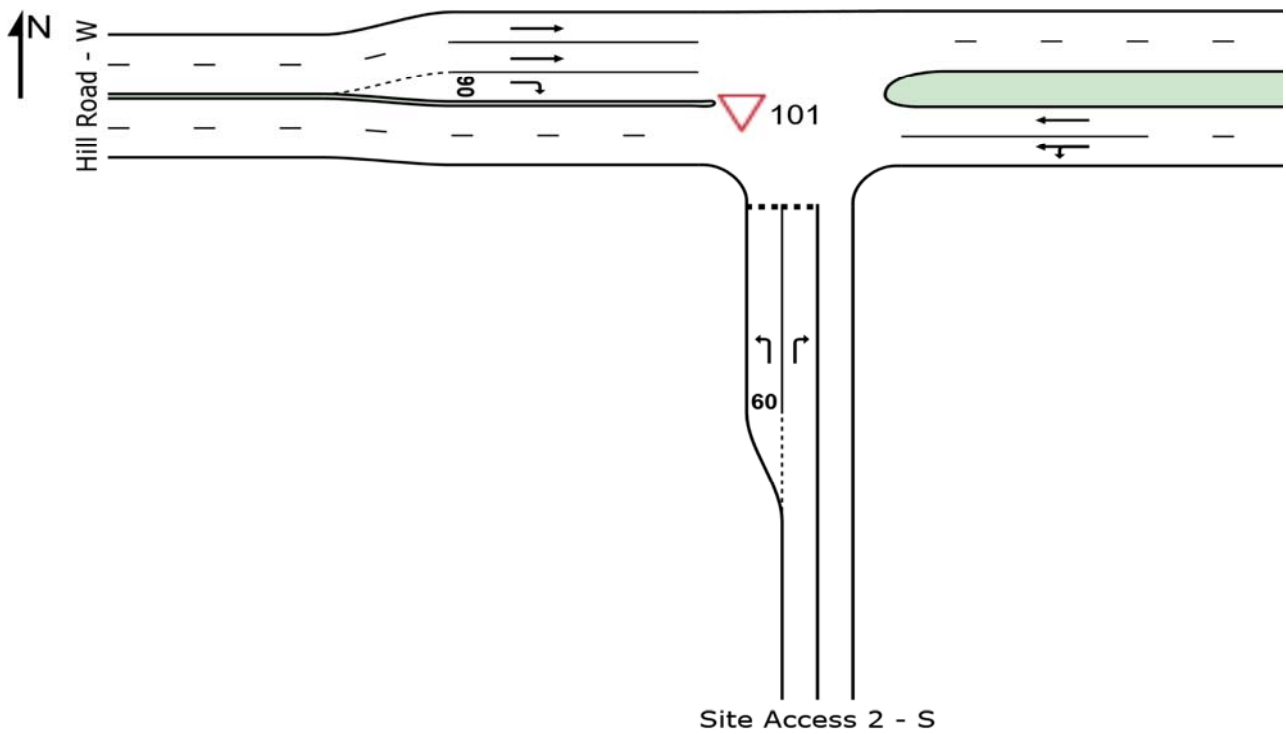
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

▽ Site: 101 [Hill Road / Site Access 2 - Ex SAT]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveaway / Yield (Two-Way)



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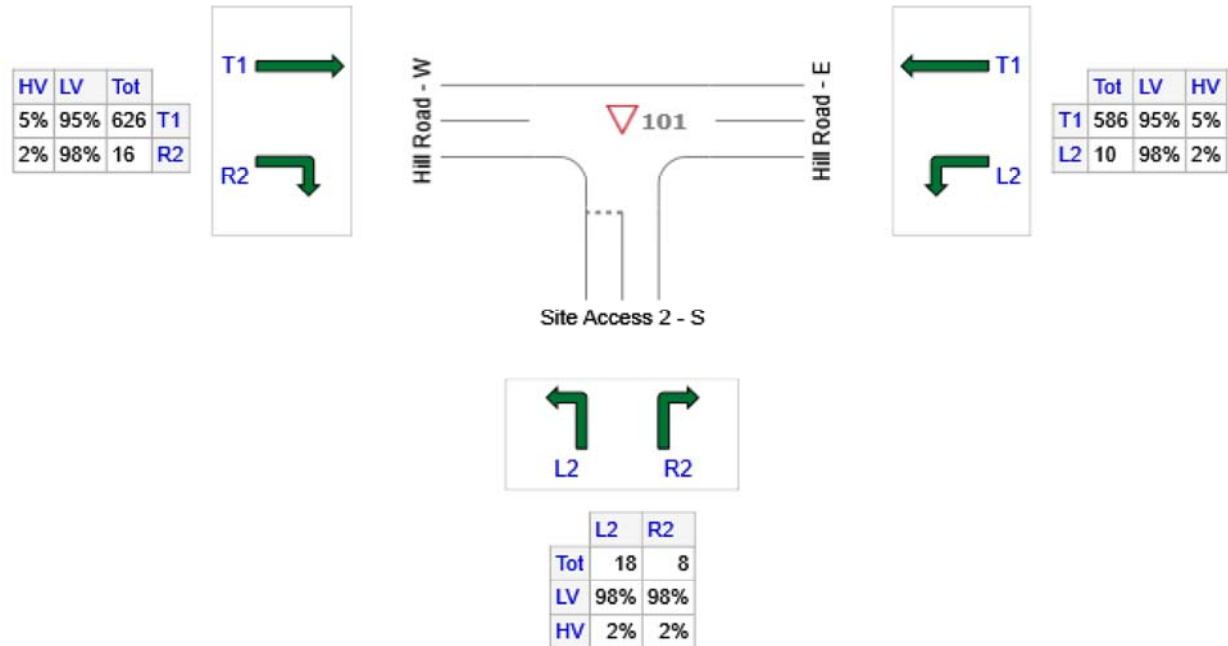
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

▽ Site: 101 [Hill Road / Site Access 2 - Ex SAT]

16277 URBNSURF Sydney, Sydney Olympic Park
 Giveaway / Yield (Two-Way)

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Site Access 2 - S	26	25	1
E: Hill Road - E	596	567	30
W: Hill Road - W	642	610	32
Total	1264	1202	62

MOVEMENT SUMMARY

▽ Site: 101 [Hill Road / Site Access 2 - Ex SAT]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access 2 - S											
1	L2	19	2.0	0.020	5.9	LOS A	0.1	0.5	0.36	0.56	45.9
3	R2	8	2.0	0.078	36.2	LOS C	0.2	1.6	0.89	0.95	34.6
Approach		27	2.0	0.078	15.2	LOS B	0.2	1.6	0.53	0.68	41.0
East: Hill Road - E											
4	L2	11	2.0	0.166	5.6	LOS A	0.0	0.0	0.00	0.02	58.1
5	T1	617	5.0	0.166	0.0	LOS A	0.0	0.0	0.00	0.01	59.8
Approach		627	4.9	0.166	0.1	NA	0.0	0.0	0.00	0.01	59.8
West: Hill Road - W											
11	T1	659	5.0	0.174	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	17	2.0	0.024	8.8	LOS A	0.1	0.6	0.54	0.69	44.9
Approach		676	4.9	0.174	0.2	NA	0.1	0.6	0.01	0.02	59.5
All Vehicles		1331	4.9	0.174	0.5	NA	0.2	1.6	0.02	0.03	59.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

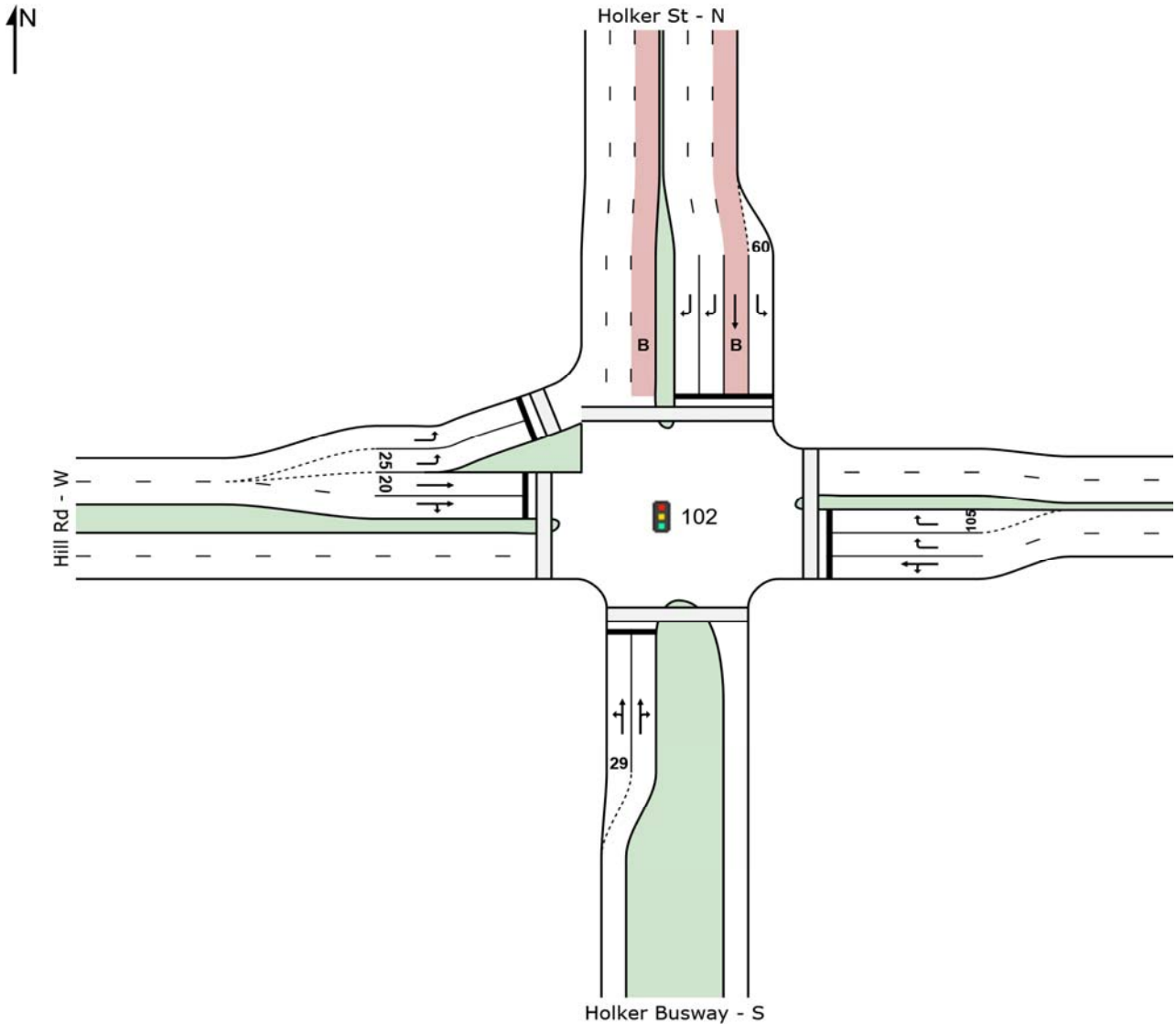
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

 **Site: 102 [Hill Road / Holker Street Intersection - Fu AM]**

16277 URBNSURF Sydney, Sydney Olympic Park
Signals - Fixed Time Isolated



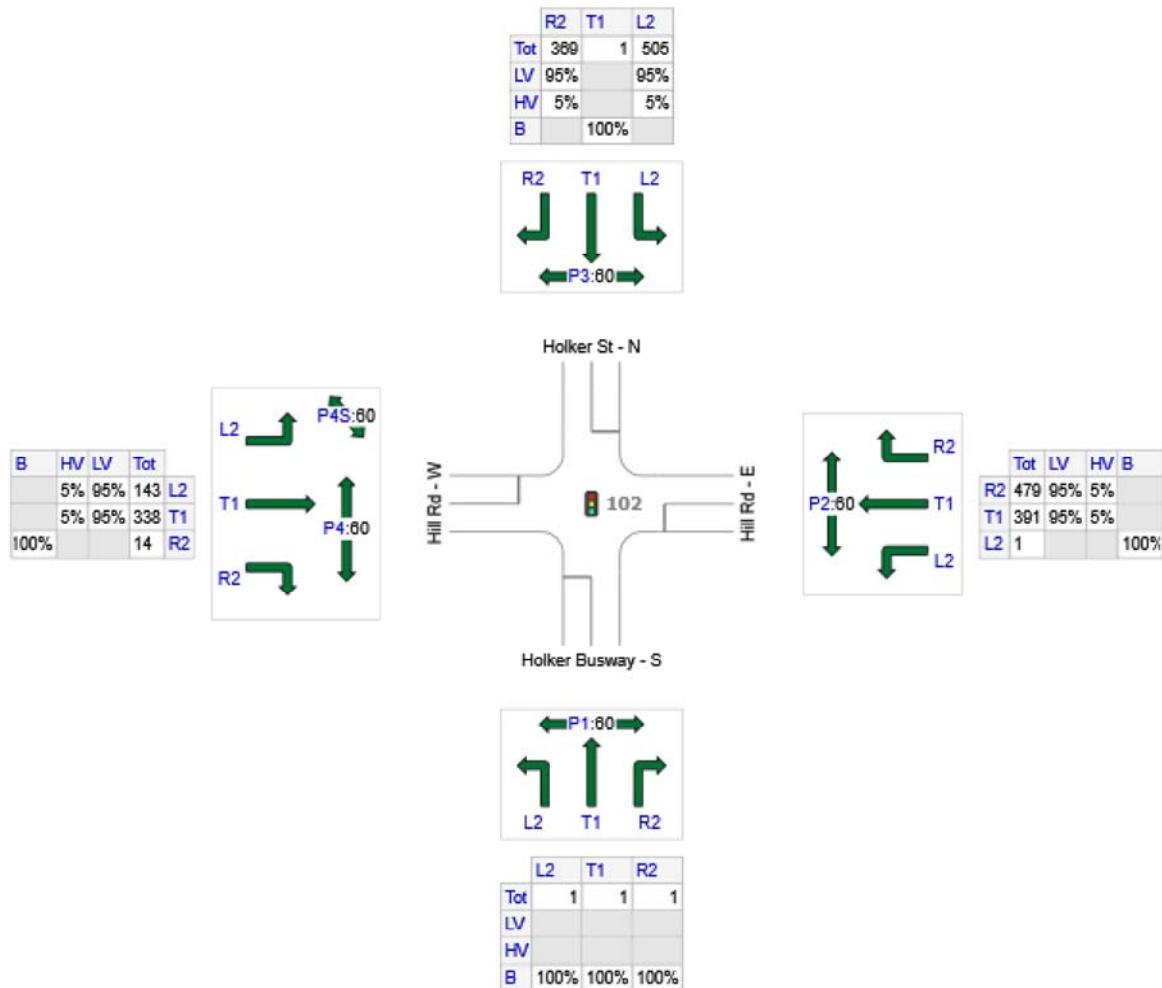
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: 102 [Hill Road / Holker Street Intersection - Fu AM]**

16277 URBNSURF Sydney, Sydney Olympic Park
Signals - Fixed Time Isolated

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Buses (B)
S: Holker Busway - S	3	3	3	3
E: Hill Rd - E	871	828	45	1
N: Holker St - N	875	831	45	1
W: Hill Rd - W	495	458	38	14
Total	2244	2114	111	19

PHASING SUMMARY

 **Site: 102 [Hill Road / Holker Street Intersection - Fu AM]**

16277 URBNSURF Sydney, Sydney Olympic Park

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Phase Times determined by the program

Sequence: Leading Right Turn

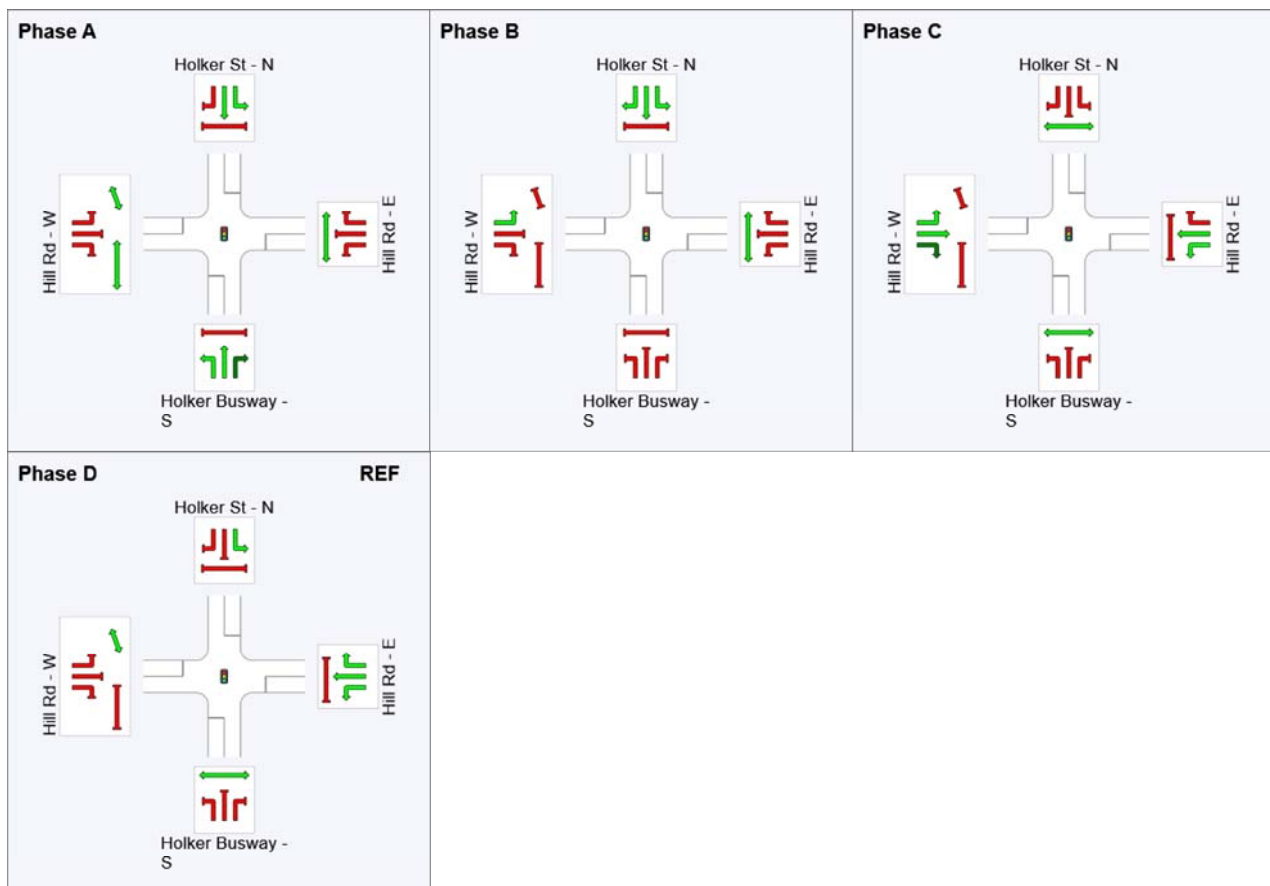
Reference Phase: Phase D

Input Sequence: A, B, C, D

Output Sequence: A, B, C, D

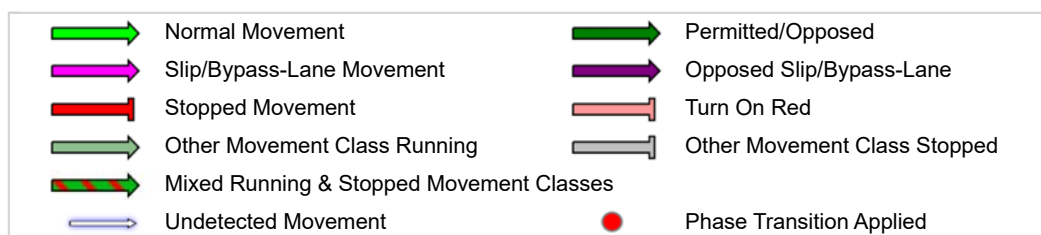
Phase Timing Results

Phase	A	B	C	D
Phase Change Time (sec)	21	38	55	0
Green Time (sec)	11	11	19	15
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	17	17	25	21
Phase Split	21%	21%	31%	26%



REF: Reference Phase

VAR: Variable Phase



MOVEMENT SUMMARY



Site: 102 [Hill Road / Holker Street Intersection - Fu AM]

16277 URBNSURF Sydney, Sydney Olympic Park

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Holker Busway - S											
1	L2	1	100.0	0.012	41.5	LOS C	0.1	0.7	0.91	0.60	30.6
2	T1	1	100.0	0.012	34.9	LOS C	0.1	0.7	0.90	0.60	36.8
3	R2	1	100.0	0.012	40.5	LOS C	0.1	0.7	0.90	0.60	36.2
Approach		3	100.0	0.012	39.0	LOS C	0.1	0.7	0.90	0.60	34.7
East: Hill Rd - E											
4	L2	1	100.0	0.438	19.9	LOS B	10.3	75.3	0.68	0.60	46.4
5	T1	412	5.0	0.438	13.8	LOS A	10.3	75.3	0.68	0.60	45.6
6	R2	504	5.0	0.750	42.3	LOS C	10.1	74.1	1.00	0.90	35.1
Approach		917	5.1	0.750	29.5	LOS C	10.3	75.3	0.86	0.76	38.3
North: Holker St - N											
7	L2	532	5.0	0.484	14.7	LOS B	11.4	83.1	0.59	0.76	47.1
8	T1	1	100.0	0.003	18.0	LOS B	0.0	0.3	0.66	0.41	46.4
9	R2	388	5.0	0.788	46.8	LOS D	8.2	59.9	1.00	0.93	28.4
Approach		921	5.1	0.788	28.3	LOS B	11.4	83.1	0.76	0.83	38.5
West: Hill Rd - W											
10	L2	151	5.0	0.093	19.2	LOS B	1.7	12.2	0.60	0.69	41.0
11	T1	356	5.0	0.484	29.5	LOS C	6.6	48.3	0.91	0.75	35.6
12	R2	15	100.0	0.484	36.8	LOS C	6.2	48.4	0.93	0.76	33.7
Approach		521	7.7	0.484	26.9	LOS B	6.6	48.4	0.82	0.73	37.0
All Vehicles		2362	5.8	0.788	28.4	LOS B	11.4	83.1	0.81	0.78	38.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	63	23.3	LOS C	0.1	0.1	0.76	0.76	
P2	East Full Crossing	63	33.4	LOS D	0.1	0.1	0.91	0.91	
P3	North Full Crossing	63	34.3	LOS D	0.1	0.1	0.93	0.93	
P4	West Full Crossing	63	34.3	LOS D	0.1	0.1	0.93	0.93	
P4S	West Slip/Bypass Lane Crossing	63	17.6	LOS B	0.1	0.1	0.66	0.66	
All Pedestrians		316	28.6	LOS C			0.84	0.84	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

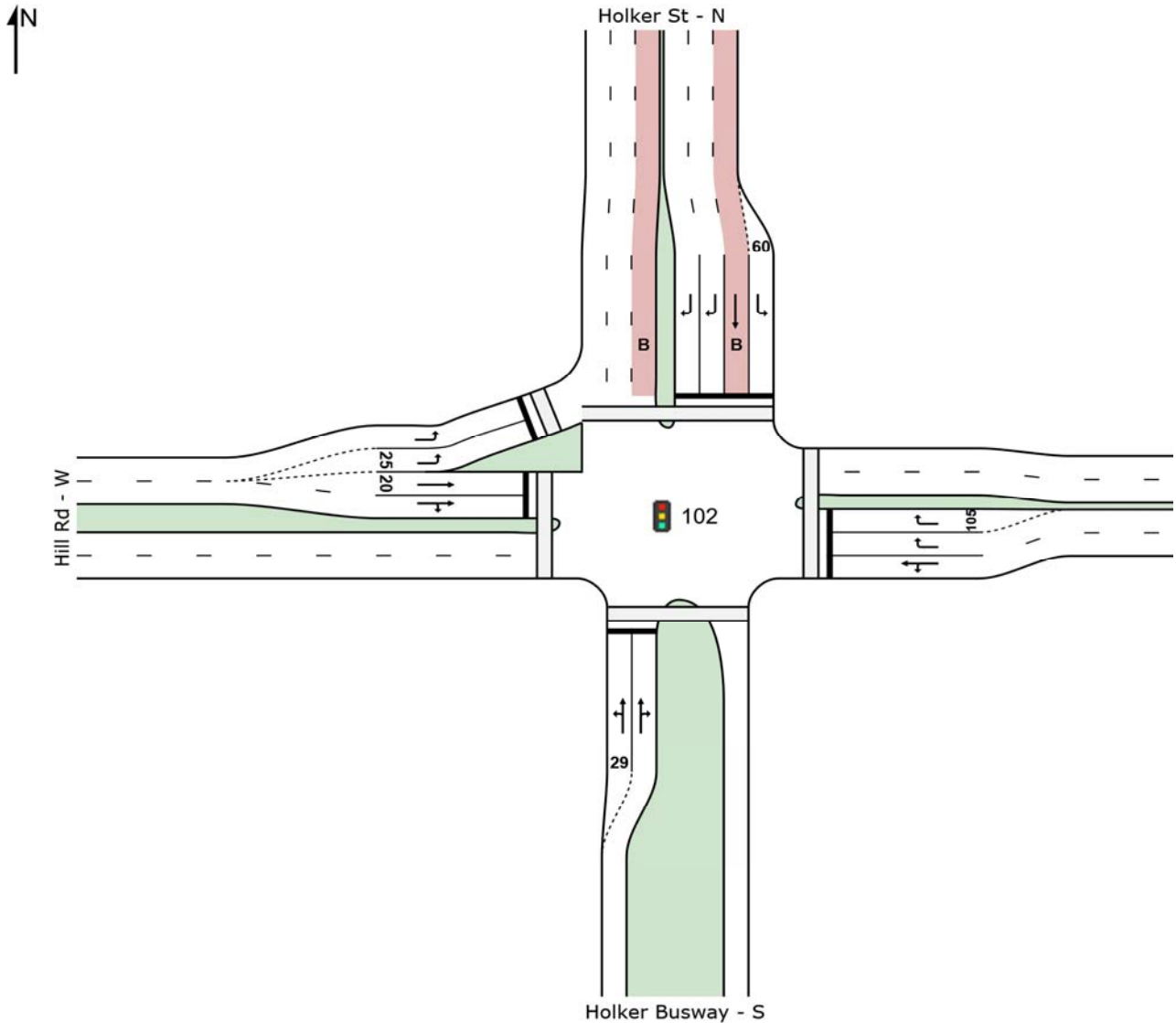
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

 **Site: 102 [Hill Road / Holker Street Intersection - Fu PM]**

16277 URBNSURF Sydney, Sydney Olympic Park
Signals - Fixed Time Isolated



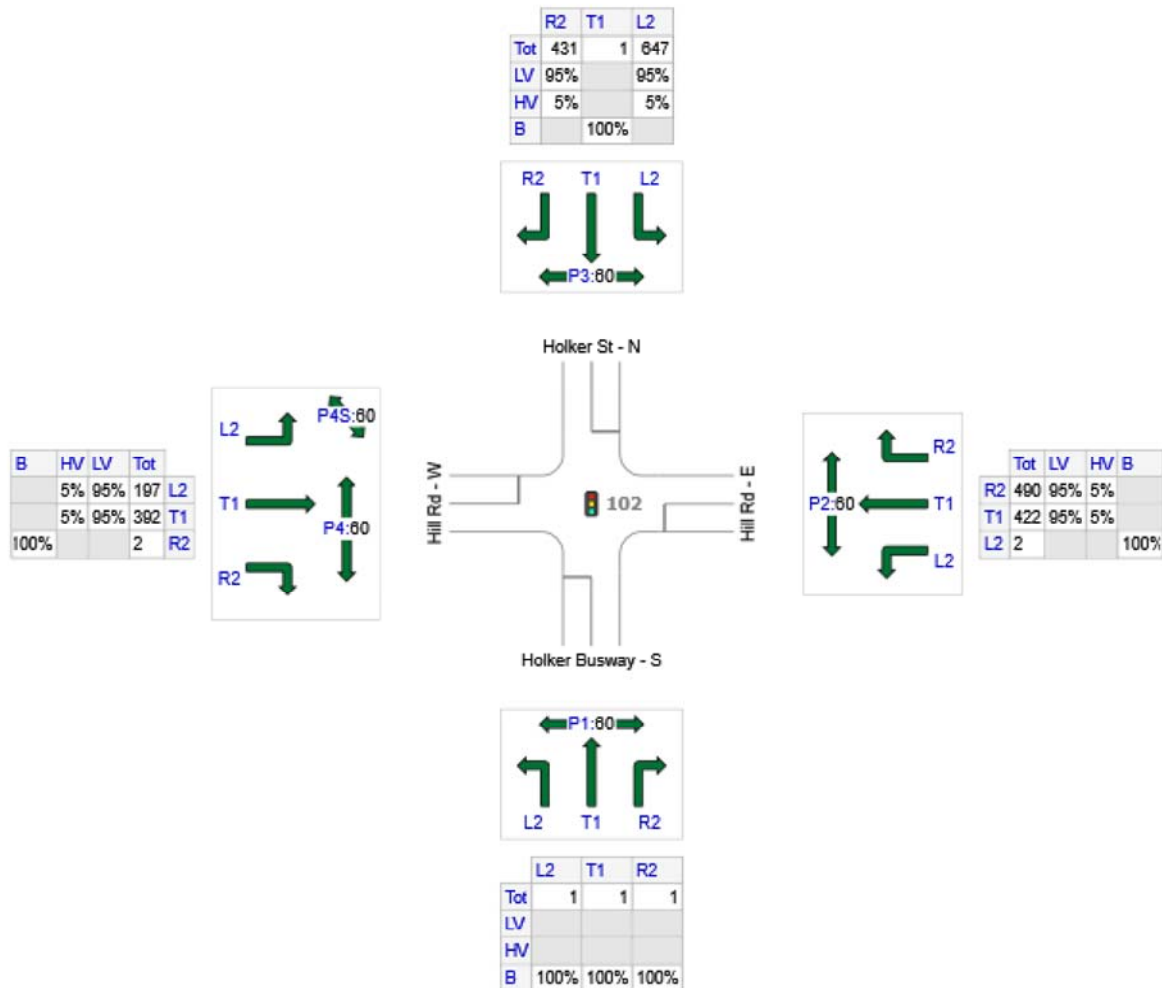
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: 102 [Hill Road / Holker Street Intersection - Fu PM]**

16277 URBNSURF Sydney, Sydney Olympic Park
Signals - Fixed Time Isolated

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Buses (B)
S: Holker Busway - S	3	3	3	3
E: Hill Rd - E	914	867	48	2
N: Holker St - N	1079	1025	55	1
W: Hill Rd - W	591	561	31	2
Total	2587	2450	129	8

PHASING SUMMARY

 **Site: 102 [Hill Road / Holker Street Intersection - Fu PM]**

16277 URBNSURF Sydney, Sydney Olympic Park

Signals - Fixed Time Isolated Cycle Time = 85 seconds (Optimum Cycle Time - Minimum Delay)

Phase Times determined by the program

Sequence: Leading Right Turn

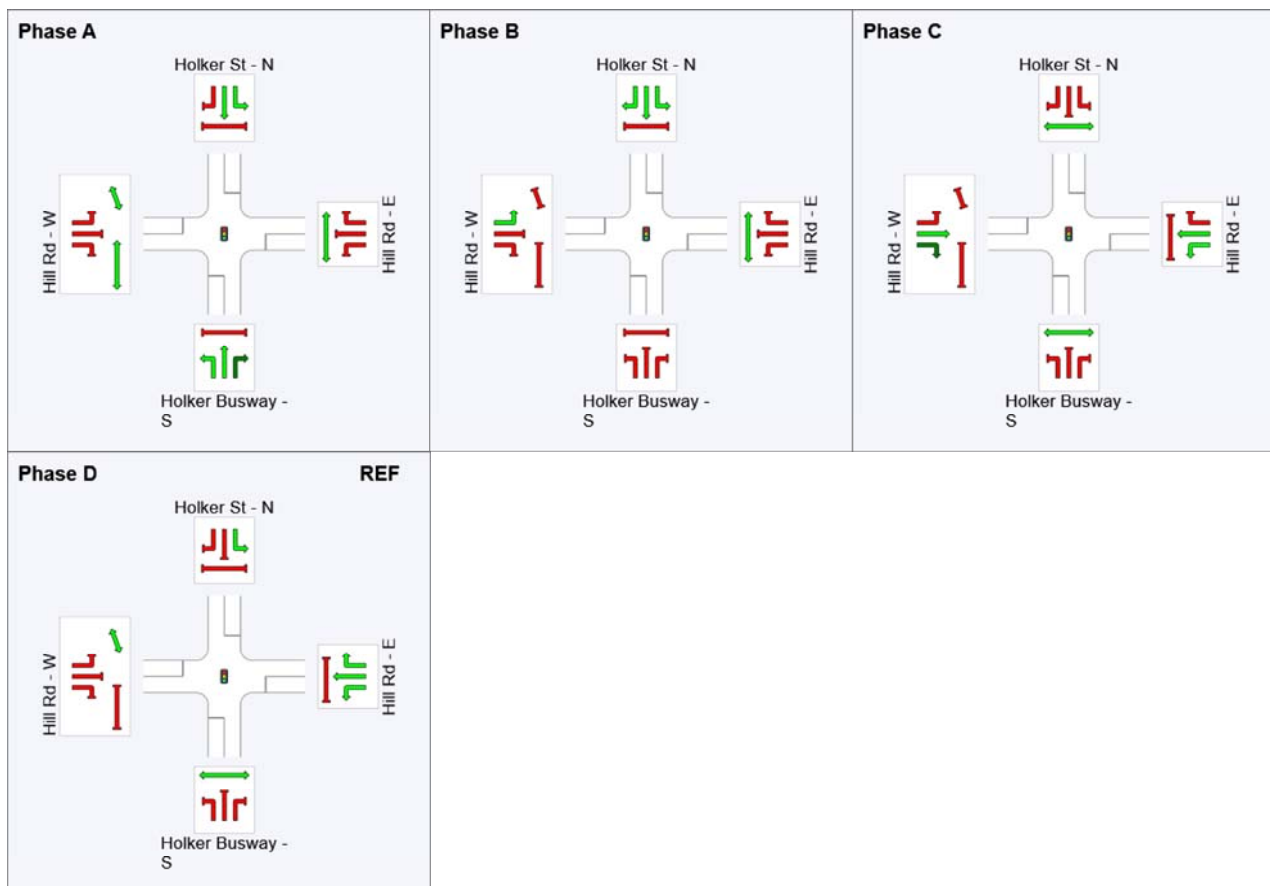
Reference Phase: Phase D

Input Sequence: A, B, C, D

Output Sequence: A, B, C, D

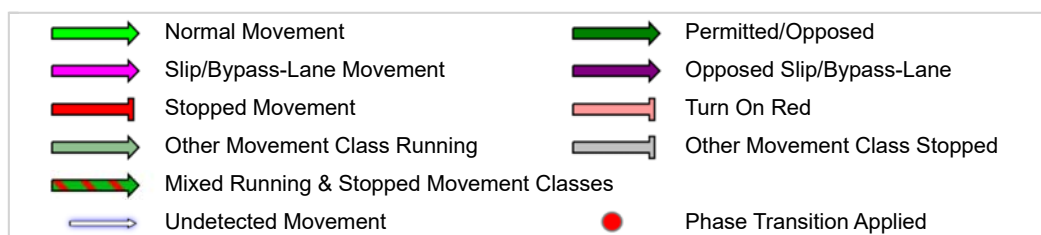
Phase Timing Results

Phase	A	B	C	D
Phase Change Time (sec)	22	39	60	0
Green Time (sec)	11	15	19	16
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	17	21	25	22
Phase Split	20%	25%	29%	26%



REF: Reference Phase

VAR: Variable Phase



MOVEMENT SUMMARY



Site: 102 [Hill Road / Holker Street Intersection - Fu PM]

16277 URBNSURF Sydney, Sydney Olympic Park

Signals - Fixed Time Isolated Cycle Time = 85 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Holker Busway - S											
1	L2	1	100.0	0.013	44.3	LOS D	0.1	0.8	0.91	0.60	29.6
2	T1	1	100.0	0.013	37.7	LOS C	0.1	0.8	0.91	0.60	35.8
3	R2	1	100.0	0.013	43.2	LOS D	0.1	0.8	0.90	0.60	35.2
Approach		3	100.0	0.013	41.7	LOS C	0.1	0.8	0.91	0.60	33.8
East: Hill Rd - E											
4	L2	2	100.0	0.492	22.2	LOS B	12.5	91.9	0.73	0.64	45.2
5	T1	444	5.0	0.492	16.0	LOS B	12.5	91.9	0.73	0.64	43.8
6	R2	516	5.0	0.764	44.8	LOS D	11.1	80.8	1.00	0.90	34.2
Approach		962	5.2	0.764	31.5	LOS C	12.5	91.9	0.87	0.78	37.4
North: Holker St - N											
7	L2	681	5.0	0.598	15.4	LOS B	16.5	120.5	0.64	0.79	46.8
8	T1	1	100.0	0.002	17.5	LOS B	0.0	0.3	0.64	0.39	46.7
9	R2	454	5.0	0.717	44.1	LOS D	9.5	69.4	1.00	0.87	29.3
Approach		1136	5.1	0.717	26.8	LOS B	16.5	120.5	0.78	0.82	39.2
West: Hill Rd - W											
10	L2	207	5.0	0.328	39.6	LOS C	3.9	28.3	0.92	0.77	31.0
11	T1	413	5.0	0.542	31.8	LOS C	8.3	61.4	0.92	0.76	34.7
12	R2	2	100.0	0.542	38.3	LOS C	8.3	61.4	0.93	0.78	32.8
Approach		622	5.3	0.542	34.5	LOS C	8.3	61.4	0.92	0.77	33.3
All Vehicles		2723	5.3	0.764	30.2	LOS C	16.5	120.5	0.85	0.79	37.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	63	24.9	LOS C	0.1	0.1	0.77	0.77	
P2	East Full Crossing	63	32.3	LOS D	0.1	0.1	0.87	0.87	
P3	North Full Crossing	63	36.8	LOS D	0.1	0.1	0.93	0.93	
P4	West Full Crossing	63	36.8	LOS D	0.1	0.1	0.93	0.93	
P4S	West Slip/Bypass Lane Crossing	63	19.2	LOS B	0.1	0.1	0.67	0.67	
All Pedestrians		316	30.0	LOS C			0.84	0.84	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

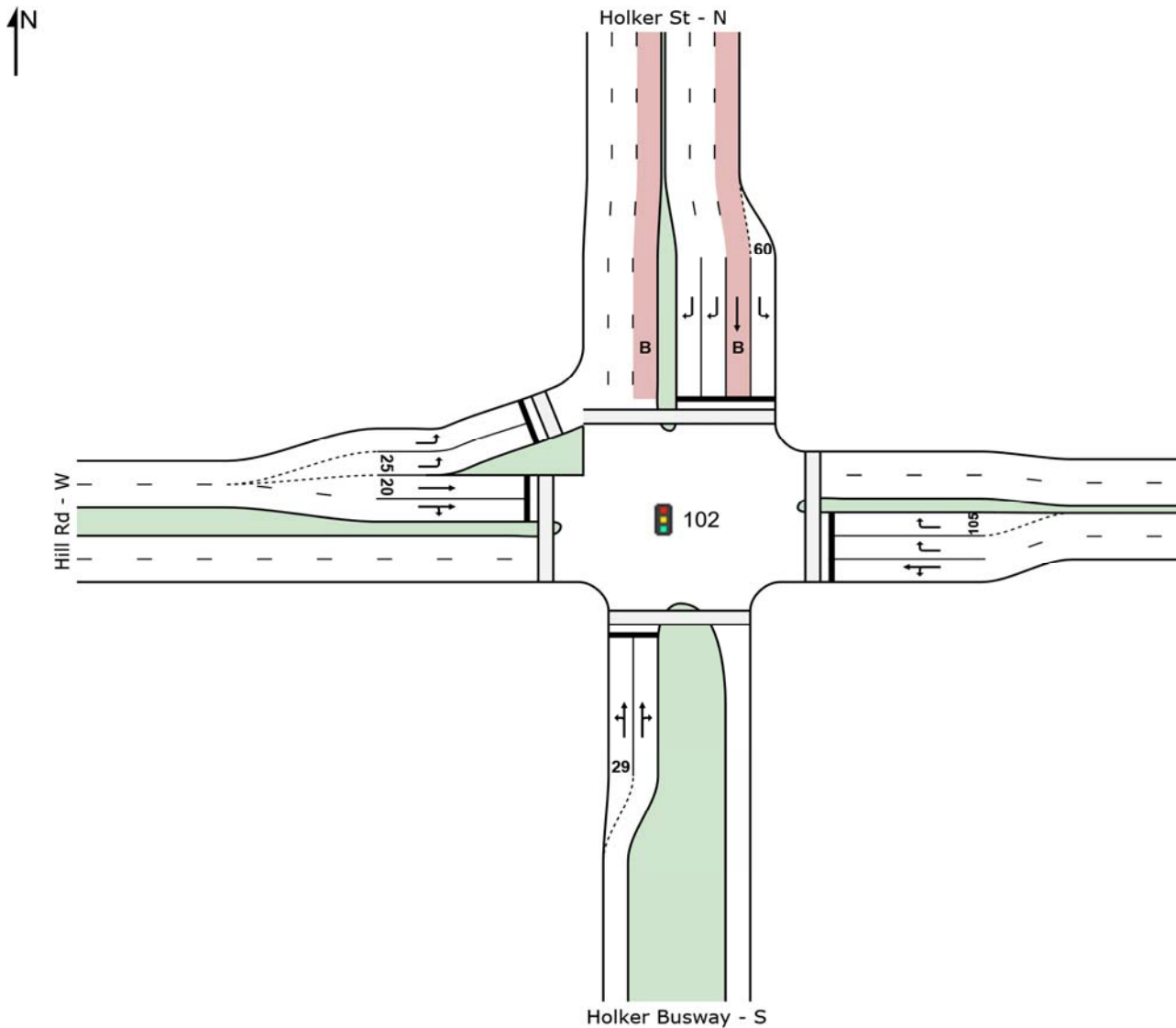
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

 **Site: 102 [Hill Road / Holker Street Intersection - Fu SAT]**

16277 URBNSURF Sydney, Sydney Olympic Park
Signals - Fixed Time Isolated



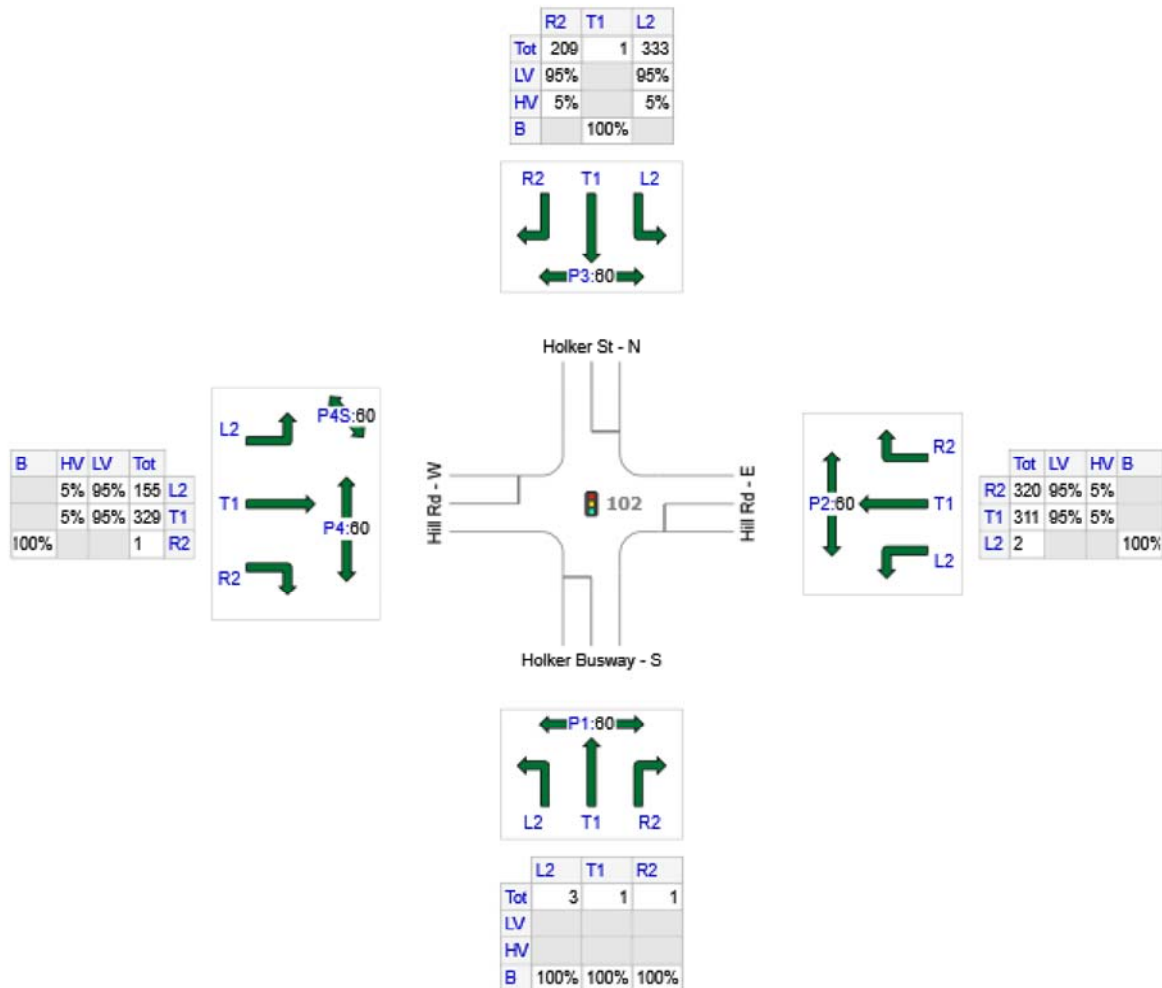
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: 102 [Hill Road / Holker Street Intersection - Fu SAT]**

16277 URBNSURF Sydney, Sydney Olympic Park
Signals - Fixed Time Isolated

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Buses (B)
S: Holker Busway - S	5	3	5	5
E: Hill Rd - E	633	600	34	2
N: Holker St - N	543	516	28	1
W: Hill Rd - W	485	461	25	2
Total	1666	1574	83	9

PHASING SUMMARY

 **Site: 102 [Hill Road / Holker Street Intersection - Fu SAT]**

16277 URBNSURF Sydney, Sydney Olympic Park

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Phase Times determined by the program

Sequence: Leading Right Turn

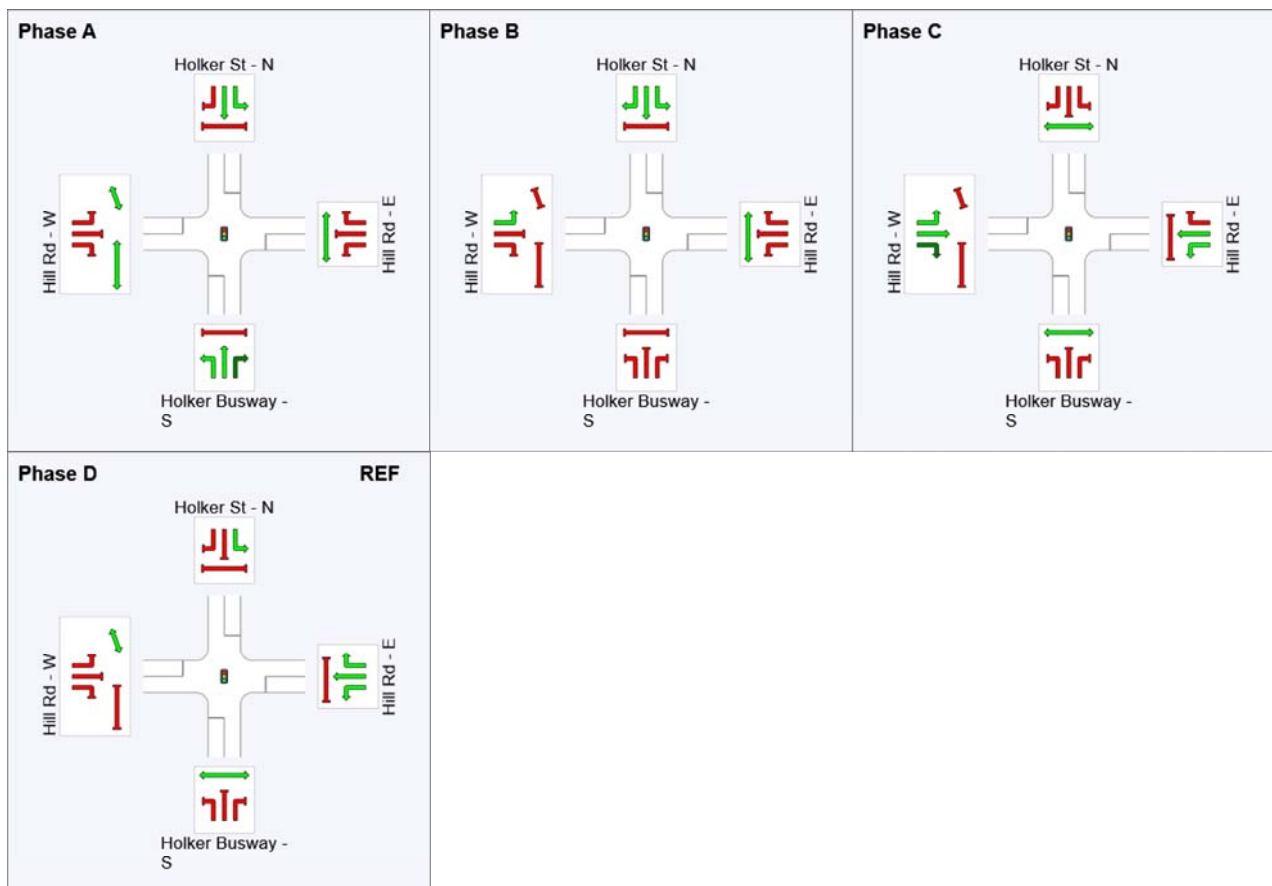
Reference Phase: Phase D

Input Sequence: A, B, C, D

Output Sequence: A, B, C, D

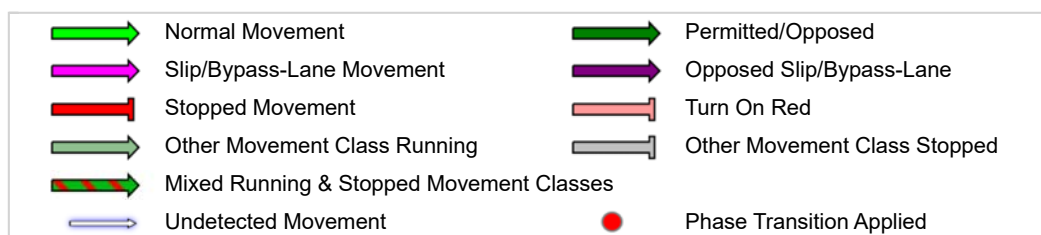
Phase Timing Results

Phase	A	B	C	D
Phase Change Time (sec)	22	39	55	0
Green Time (sec)	11	10	19	16
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	17	16	25	22
Phase Split	21%	20%	31%	28%



REF: Reference Phase

VAR: Variable Phase



MOVEMENT SUMMARY

 **Site: 102 [Hill Road / Holker Street Intersection - Fu SAT]**

16277 URBNSURF Sydney, Sydney Olympic Park

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Holker Busway - S											
1	L2	3	100.0	0.029	43.2	LOS D	0.1	1.5	0.92	0.64	29.3
2	T1	1	100.0	0.015	34.4	LOS C	0.1	1.0	0.90	0.60	37.3
3	R2	1	100.0	0.015	40.5	LOS C	0.1	1.0	0.90	0.60	36.5
Approach		5	100.0	0.029	40.9	LOS C	0.1	1.5	0.91	0.62	32.6
East: Hill Rd - E											
4	L2	2	100.0	0.342	18.5	LOS B	7.6	55.6	0.63	0.55	47.3
5	T1	327	5.0	0.342	12.4	LOS A	7.6	55.6	0.63	0.55	46.7
6	R2	337	5.0	0.470	37.1	LOS C	6.0	43.8	0.93	0.80	36.9
Approach		666	5.3	0.470	24.9	LOS B	7.6	55.6	0.78	0.67	40.4
North: Holker St - N											
7	L2	351	5.0	0.319	13.6	LOS A	6.5	47.8	0.52	0.73	47.8
8	T1	1	100.0	0.003	18.7	LOS B	0.0	0.4	0.68	0.42	46.0
9	R2	220	5.0	0.491	42.7	LOS D	4.2	30.8	0.98	0.78	29.8
Approach		572	5.2	0.491	24.8	LOS B	6.5	47.8	0.69	0.75	40.3
West: Hill Rd - W											
10	L2	163	5.1	0.104	19.9	LOS B	1.9	13.6	0.62	0.70	40.5
11	T1	346	5.0	0.404	28.2	LOS B	6.0	44.3	0.89	0.72	36.4
12	R2	1	100.0	0.404	34.4	LOS C	6.0	44.3	0.89	0.73	34.4
Approach		511	5.2	0.404	25.6	LOS B	6.0	44.3	0.80	0.72	37.6
All Vehicles		1754	5.5	0.491	25.1	LOS B	7.6	55.6	0.76	0.71	39.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	63	22.6	LOS C	0.1	0.1	0.75	0.75	
P2	East Full Crossing	63	34.3	LOS D	0.1	0.1	0.93	0.93	
P3	North Full Crossing	63	34.3	LOS D	0.1	0.1	0.93	0.93	
P4	West Full Crossing	63	34.3	LOS D	0.1	0.1	0.93	0.93	
P4S	West Slip/Bypass Lane Crossing	63	16.9	LOS B	0.1	0.1	0.65	0.65	
All Pedestrians		316	28.5	LOS C			0.84	0.84	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

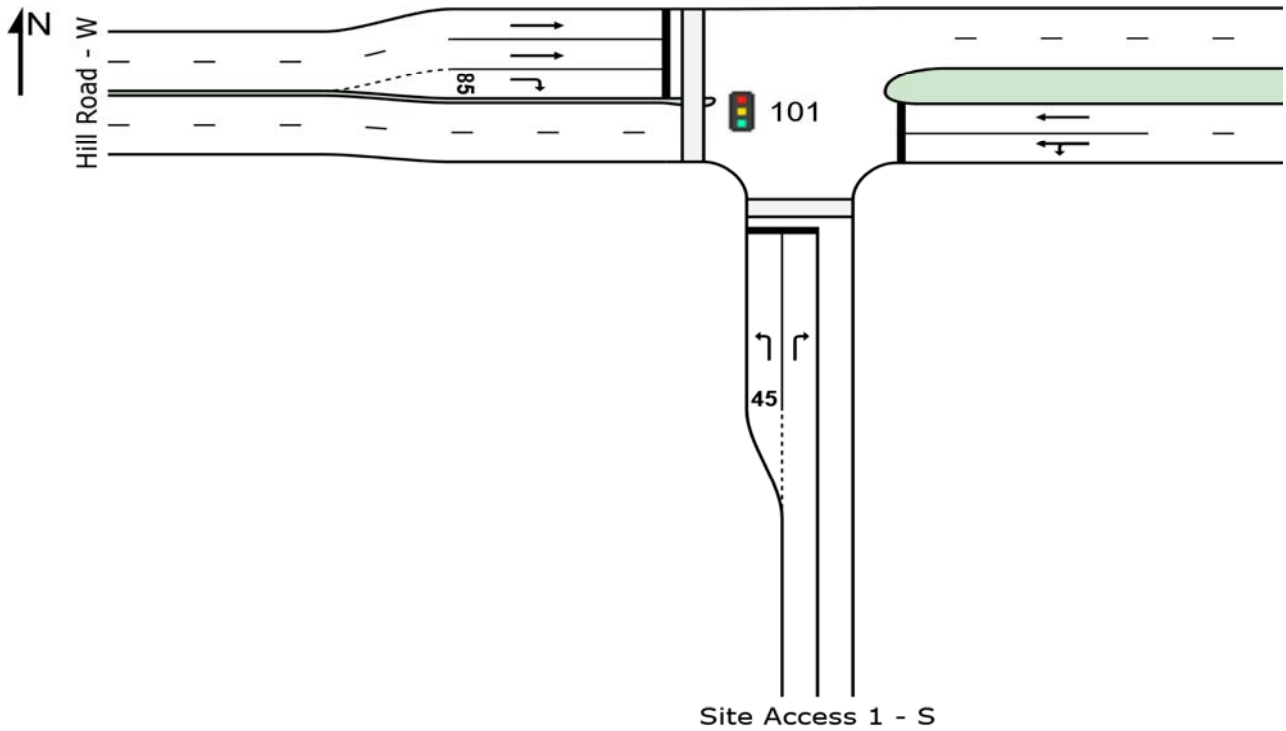
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

 **Site: 101 [Hill Road / Site Access 1 - Fu AM]**

16277

Signals - Fixed Time Isolated



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INPUT VOLUMES

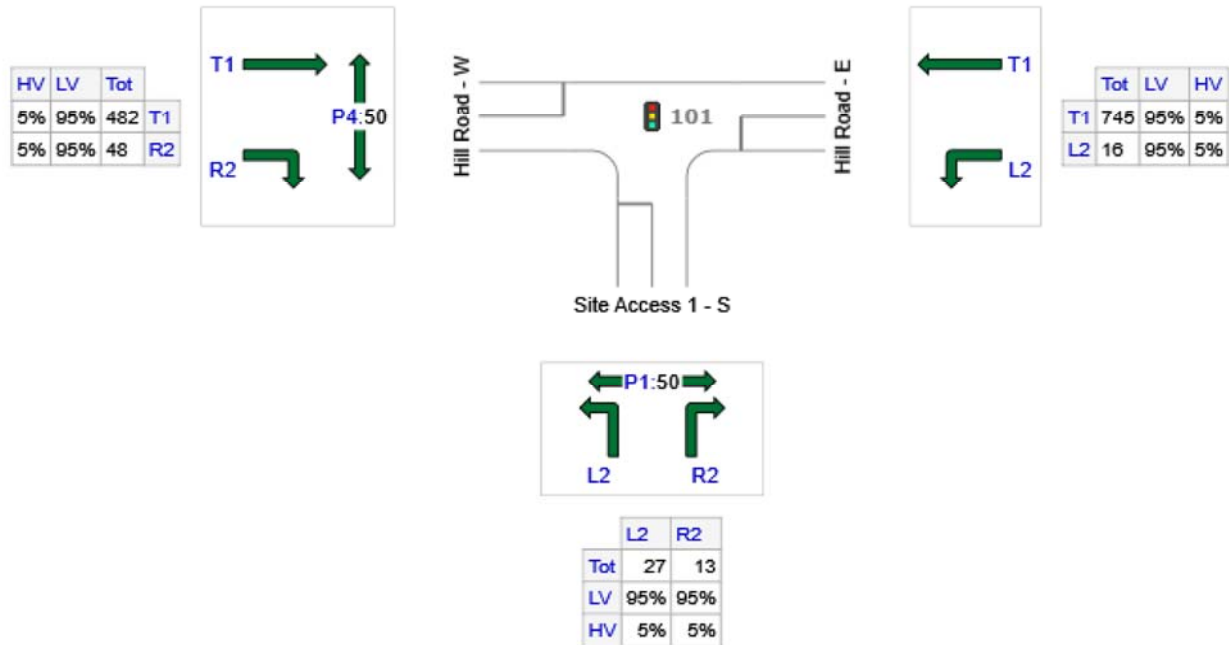
Vehicles and pedestrians per 60 minutes

 **Site: 101 [Hill Road / Site Access 1 - Fu AM]**

16277

Signals - Fixed Time Isolated

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Site Access 1 - S	40	38	2
E: Hill Road - E	761	723	38
W: Hill Road - W	530	504	27
Total	1331	1264	67

PHASING SUMMARY

 **Site: 101 [Hill Road / Site Access 1 - Fu AM]**

16277

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program

Sequence: Split Phasing

Reference Phase: Phase A

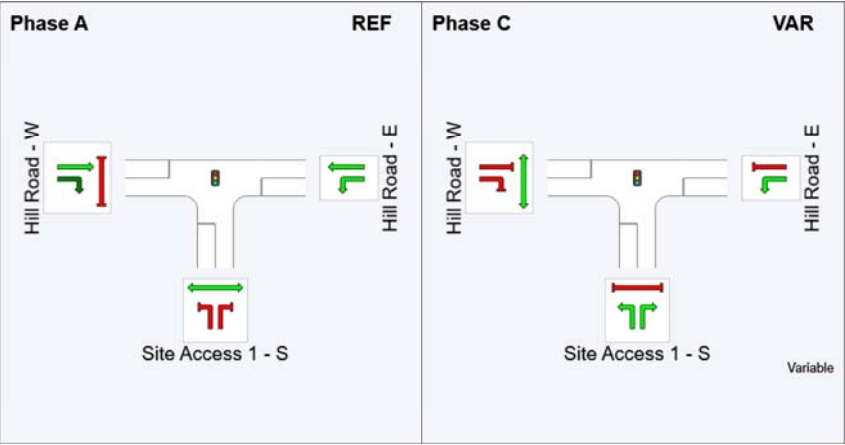
Input Sequence: A, B*, C*

Output Sequence: A, C*

(* Variable Phase)

Phase Timing Results

Phase	A	C
Phase Change Time (sec)	0	64
Green Time (sec)	58	10
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	64	16
Phase Split	80%	20%



REF: Reference Phase

VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class Running		Other Movement Class Stopped
	Mixed Running & Stopped Movement Classes		
	Undetected Movement		Phase Transition Applied

MOVEMENT SUMMARY

 **Site: 101 [Hill Road / Site Access 1 - Fu AM]**

16277

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access 1 - S											
1	L2	28	5.0	0.158	41.9	LOS C	1.1	7.8	0.95	0.71	33.0
3	R2	14	5.0	0.061	38.9	LOS C	0.5	3.5	0.91	0.68	28.6
Approach		42	5.0	0.158	40.9	LOS C	1.1	7.8	0.93	0.70	31.7
East: Hill Road - E											
4	L2	17	5.0	0.293	9.8	LOS A	5.3	38.6	0.37	0.35	47.6
5	T1	784	5.0	0.293	4.1	LOS A	5.4	39.4	0.37	0.34	54.6
Approach		801	5.0	0.293	4.3	LOS A	5.4	39.4	0.37	0.34	54.5
West: Hill Road - W											
11	T1	507	5.0	0.185	3.7	LOS A	3.1	22.6	0.34	0.29	55.3
12	R2	51	5.0	0.119	11.0	LOS A	0.7	5.4	0.39	0.67	46.4
Approach		558	5.0	0.185	4.4	LOS A	3.1	22.6	0.34	0.32	54.0
All Vehicles		1401	5.0	0.293	5.4	LOS A	5.4	39.4	0.38	0.34	52.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	5.3	LOS A	0.0	0.0	0.36	0.36	
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93	
All Pedestrians		105	19.8	LOS B			0.65	0.65	

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.

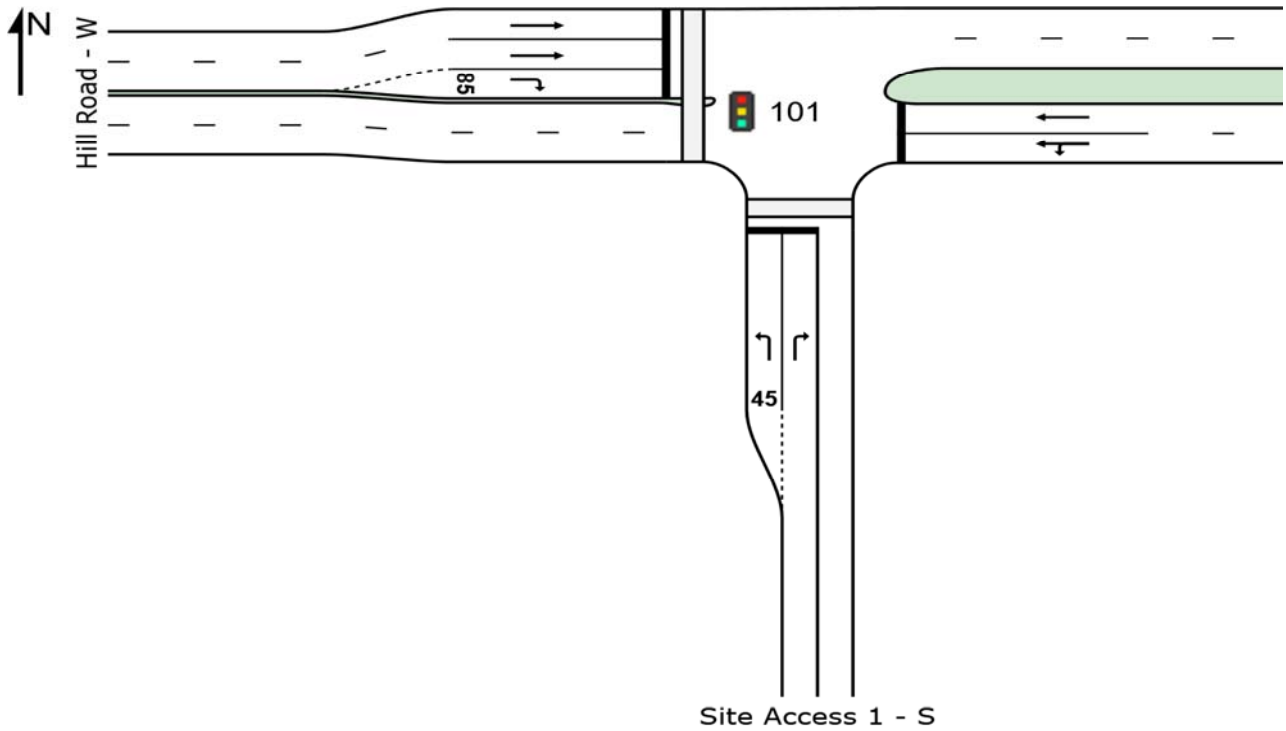
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

 **Site: 101 [Hill Road / Site Access 1 - Fu PM]**

16277

Signals - Fixed Time Isolated



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INPUT VOLUMES

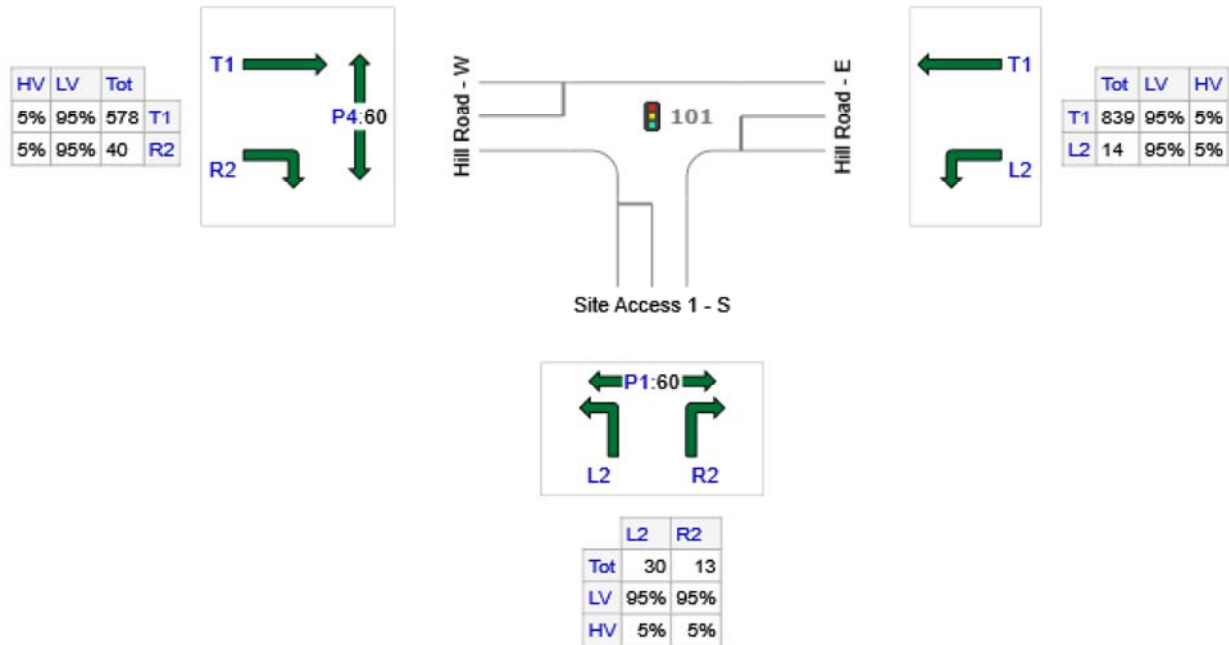
Vehicles and pedestrians per 60 minutes

 **Site: 101 [Hill Road / Site Access 1 - Fu PM]**

16277

Signals - Fixed Time Isolated

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Site Access 1 - S	43	41	2
E: Hill Road - E	853	810	43
W: Hill Road - W	618	587	31
Total	1514	1438	76

PHASING SUMMARY

 **Site: 101 [Hill Road / Site Access 1 - Fu PM]**

16277

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program

Sequence: Split Phasing

Reference Phase: Phase A

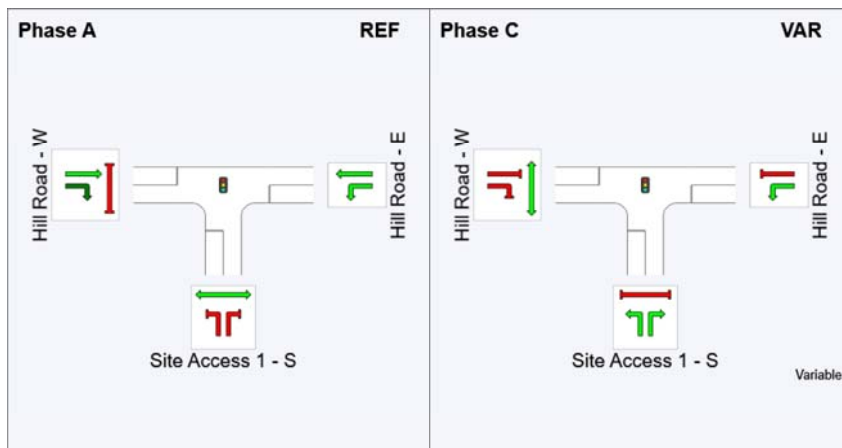
Input Sequence: A, B*, C*

Output Sequence: A, C*

(* Variable Phase)

Phase Timing Results

Phase	A	C
Phase Change Time (sec)	0	62
Green Time (sec)	56	12
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	62	18
Phase Split	78%	23%



REF: Reference Phase

VAR: Variable Phase



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MOVEMENT SUMMARY

 **Site: 101 [Hill Road / Site Access 1 - Fu PM]**

16277

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access 1 - S											
1	L2	32	5.0	0.157	40.7	LOS C	1.2	8.5	0.94	0.71	33.3
3	R2	14	5.0	0.051	36.7	LOS C	0.5	3.4	0.88	0.68	29.3
Approach		45	5.0	0.157	39.5	LOS C	1.2	8.5	0.92	0.70	32.3
East: Hill Road - E											
4	L2	15	5.0	0.340	10.8	LOS A	6.7	49.2	0.42	0.39	46.8
5	T1	883	5.0	0.340	5.1	LOS A	6.8	49.9	0.42	0.38	53.6
Approach		898	5.0	0.340	5.2	LOS A	6.8	49.9	0.42	0.38	53.5
West: Hill Road - W											
11	T1	608	5.0	0.230	4.6	LOS A	4.2	30.6	0.38	0.33	54.3
12	R2	42	5.0	0.117	12.8	LOS A	0.7	5.2	0.44	0.67	45.4
Approach		651	5.0	0.230	5.1	LOS A	4.2	30.6	0.39	0.35	53.4
All Vehicles		1594	5.0	0.340	6.1	LOS A	6.8	49.9	0.42	0.38	52.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back Pedestrian ped	of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	63	6.0	LOS A	0.1	0.1	0.39	0.39	
P4	West Full Crossing	63	34.3	LOS D	0.1	0.1	0.93	0.93	
All Pedestrians		126	20.2	LOS C			0.66	0.66	

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.

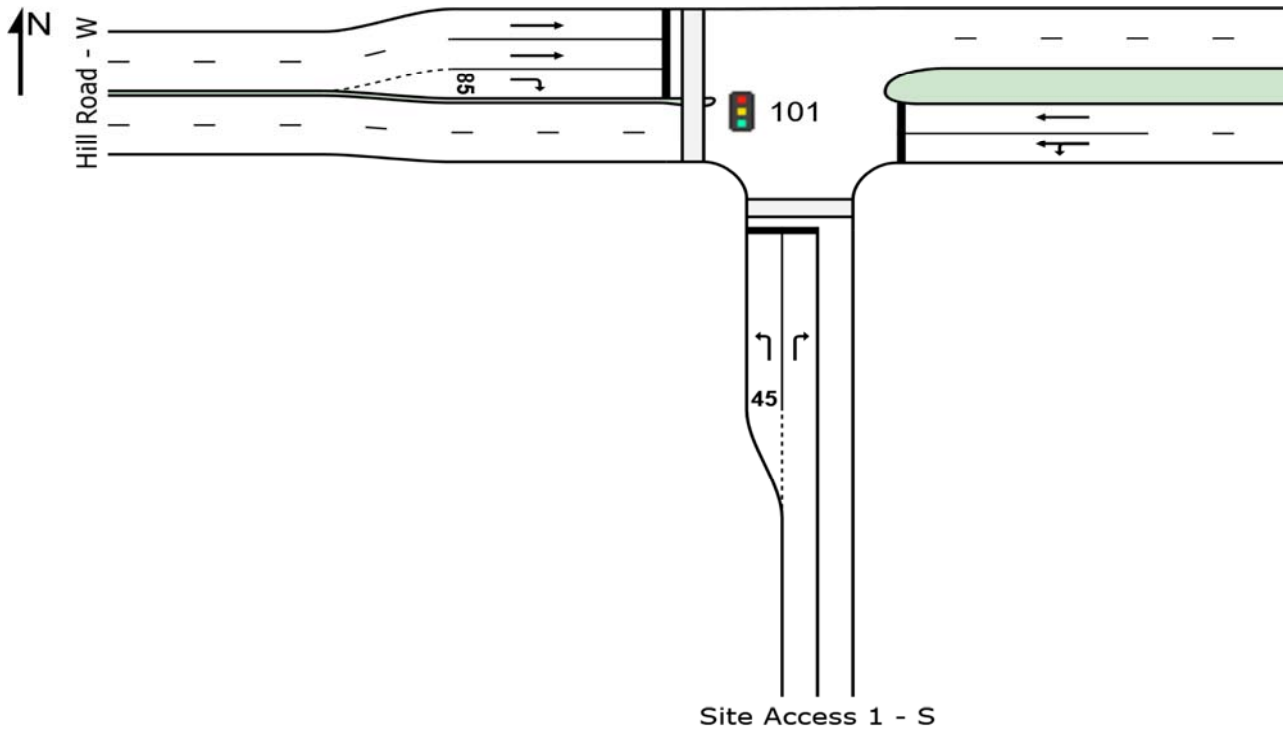
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

 **Site: 101 [Hill Road / Site Access 1 - Fu SAT]**

16277

Signals - Fixed Time Isolated



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INPUT VOLUMES

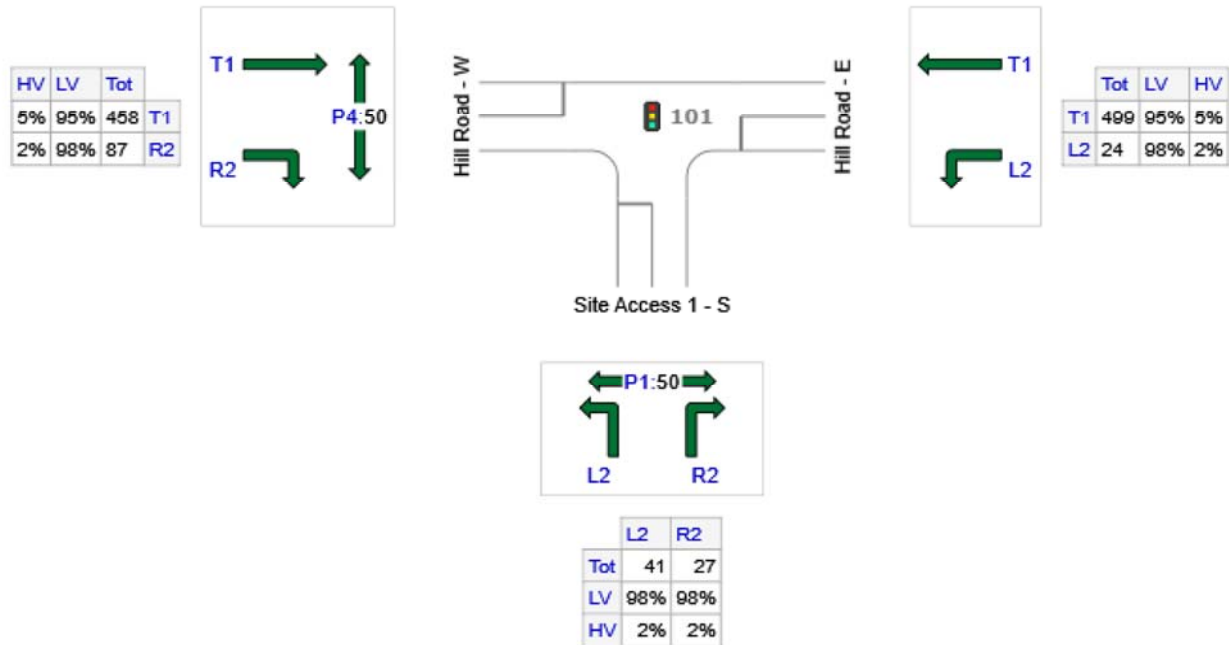
Vehicles and pedestrians per 60 minutes

 **Site: 101 [Hill Road / Site Access 1 - Fu SAT]**

16277

Signals - Fixed Time Isolated

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Site Access 1 - S	68	67	1
E: Hill Road - E	523	498	25
W: Hill Road - W	545	520	25
Total	1136	1085	51

PHASING SUMMARY

 **Site: 101 [Hill Road / Site Access 1 - Fu SAT]**

16277

Signals - Fixed Time Isolated Cycle Time = 85 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program

Sequence: Split Phasing

Reference Phase: Phase A

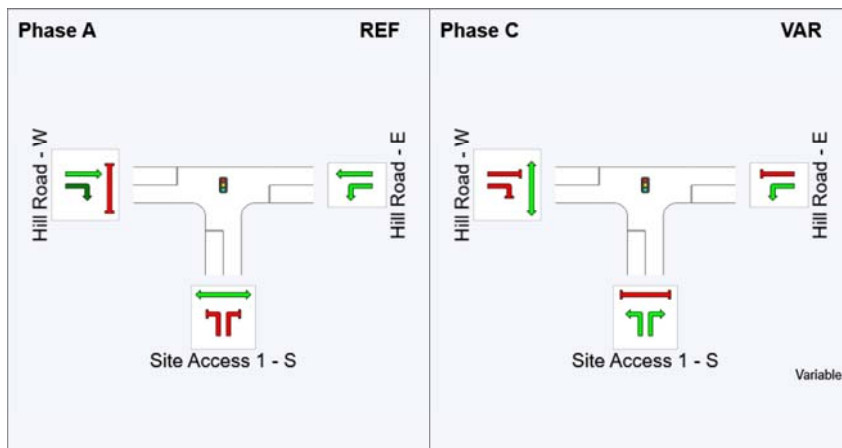
Input Sequence: A, B*, C*

Output Sequence: A, C*

(* Variable Phase)







Phase Timing Results

Phase	A	C
Phase Change Time (sec)	0	67
Green Time (sec)	61	12
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	67	18
Phase Split	79%	21%



REF: Reference Phase

VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class Running		Other Movement Class Stopped
	Mixed Running & Stopped Movement Classes		
	Undetected Movement		Phase Transition Applied

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MOVEMENT SUMMARY

Site: 101 [Hill Road / Site Access 1 - Fu SAT]

16277

Signals - Fixed Time Isolated Cycle Time = 85 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access 1 - S											
1	L2	43	2.0	0.200	42.6	LOS D	1.7	12.0	0.94	0.73	32.8
3	R2	28	2.0	0.110	39.8	LOS C	1.1	7.5	0.90	0.71	28.4
Approach		72	2.0	0.200	41.5	LOS C	1.7	12.0	0.93	0.72	31.3
East: Hill Road - E											
4	L2	25	2.0	0.203	9.6	LOS A	3.5	25.5	0.35	0.34	47.5
5	T1	525	5.0	0.203	4.1	LOS A	3.7	27.1	0.35	0.32	54.5
Approach		551	4.9	0.203	4.4	LOS A	3.7	27.1	0.35	0.32	54.1
West: Hill Road - W											
11	T1	482	5.0	0.178	4.1	LOS A	3.2	23.2	0.34	0.29	54.8
12	R2	92	2.0	0.159	11.2	LOS A	1.4	10.1	0.39	0.67	46.4
Approach		574	4.5	0.178	5.2	LOS A	3.2	23.2	0.35	0.35	52.8
All Vehicles		1196	4.5	0.203	7.0	LOS A	3.7	27.1	0.39	0.36	50.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back Pedestrian ped	of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	5.7	LOS A	0.0	0.0	0.37	0.37	
P4	West Full Crossing	53	36.8	LOS D	0.1	0.1	0.93	0.93	
All Pedestrians		105	21.2	LOS C			0.65	0.65	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

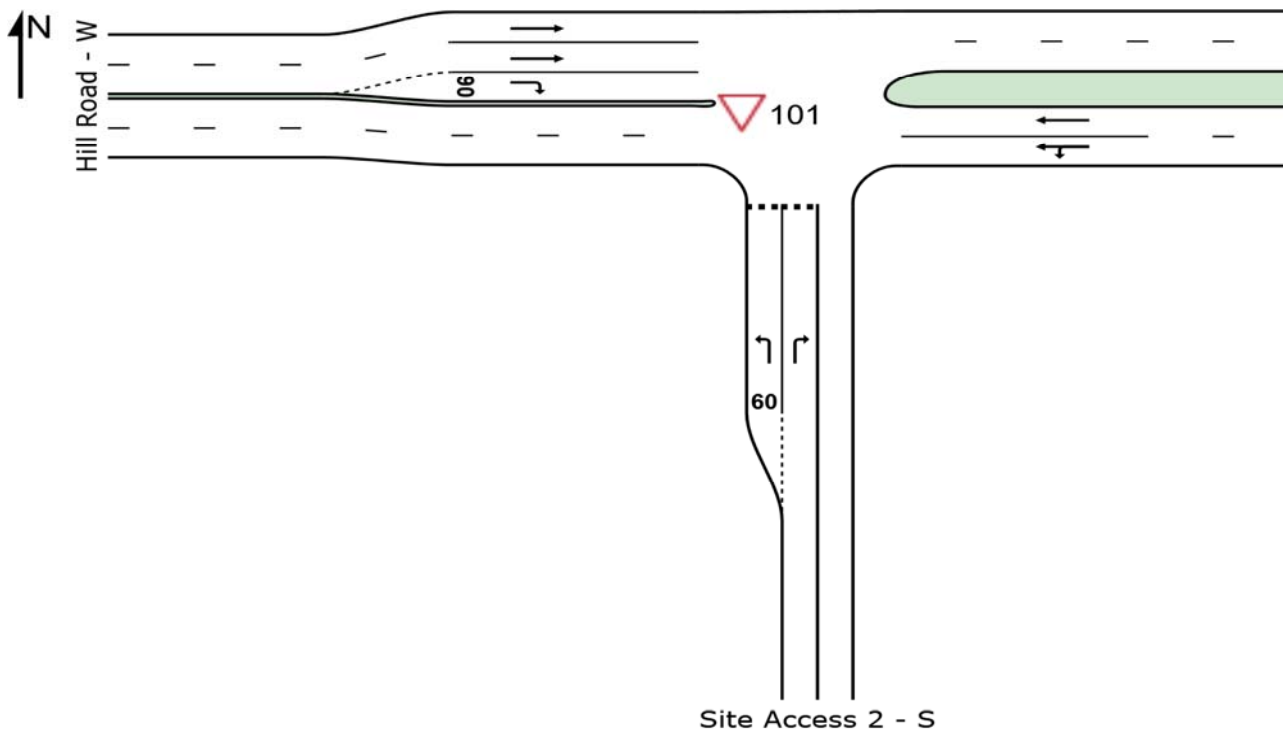
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

▽ Site: 101 [Hill Road / Site Access 2 - Fu AM]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveaway / Yield (Two-Way)



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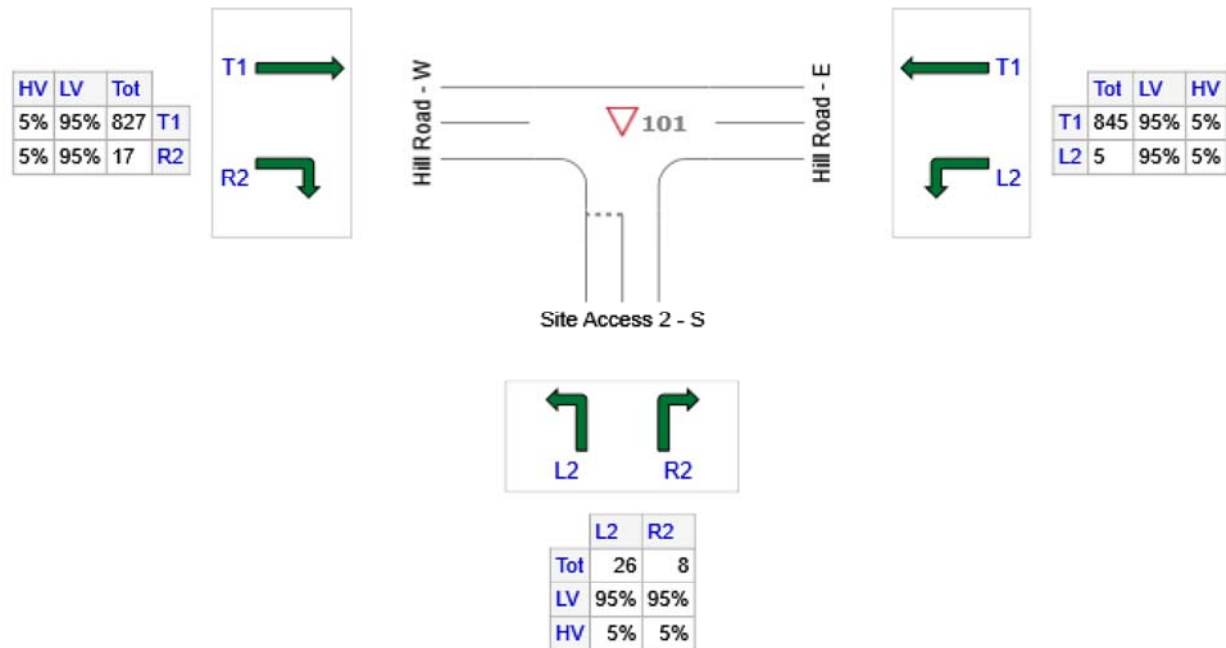
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

▽ Site: 101 [Hill Road / Site Access 2 - Fu AM]

16277 URBNSURF Sydney, Sydney Olympic Park
 Giveaway / Yield (Two-Way)

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Site Access 2 - S	34	32	2
E: Hill Road - E	850	808	43
W: Hill Road - W	844	802	42
Total	1728	1642	86

MOVEMENT SUMMARY

▽ Site: 101 [Hill Road / Site Access 2 - Fu AM]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access 2 - S											
1	L2	27	5.0	0.034	6.9	LOS A	0.1	0.9	0.45	0.64	45.0
3	R2	8	5.0	0.255	119.8	LOS F	0.7	5.0	0.97	1.00	19.3
Approach		36	5.0	0.255	33.4	LOS C	0.7	5.0	0.58	0.72	32.6
East: Hill Road - E											
4	L2	5	5.0	0.237	5.6	LOS A	0.0	0.0	0.00	0.01	58.0
5	T1	889	5.0	0.237	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		895	5.0	0.237	0.1	NA	0.0	0.0	0.00	0.00	59.9
West: Hill Road - W											
11	T1	871	5.0	0.230	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	18	5.0	0.038	11.9	LOS A	0.1	1.0	0.67	0.83	42.8
Approach		888	5.0	0.230	0.3	NA	0.1	1.0	0.01	0.02	59.5
All Vehicles		1819	5.0	0.255	0.8	NA	0.7	5.0	0.02	0.02	58.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

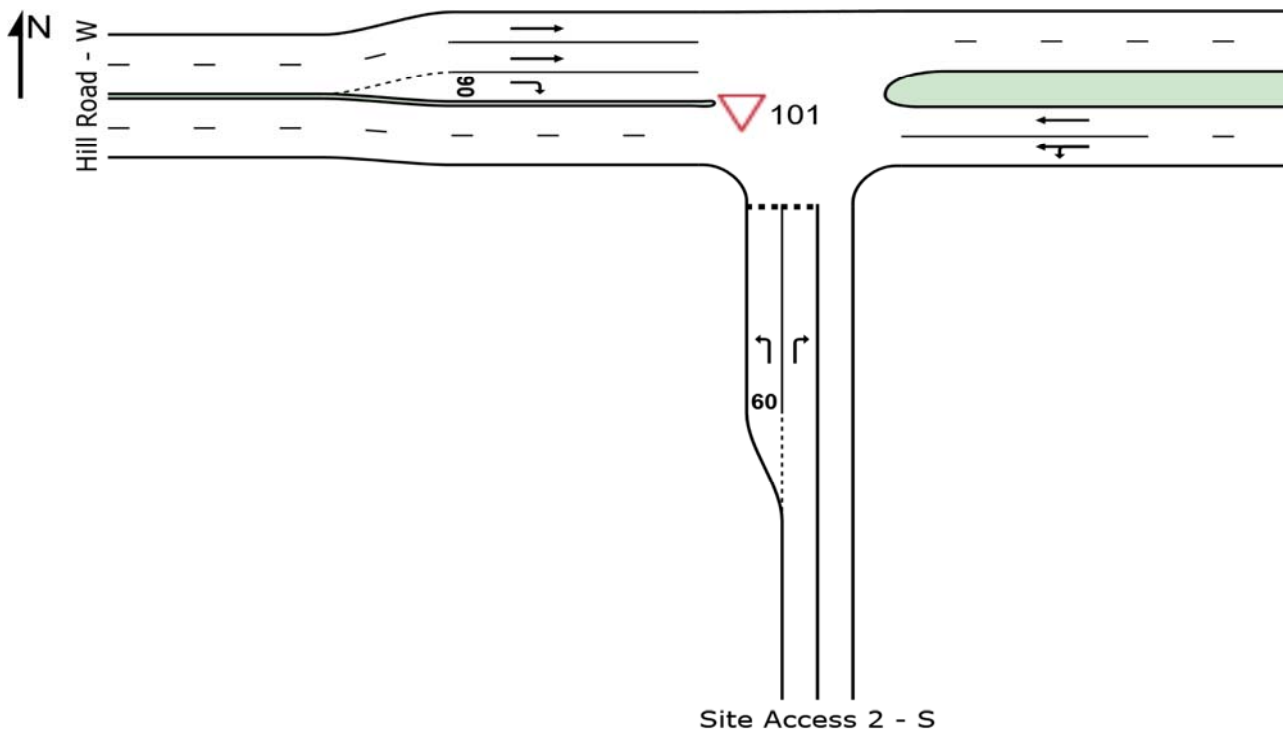
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

▽ Site: 101 [Hill Road / Site Access 2 - Fu PM]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveaway / Yield (Two-Way)



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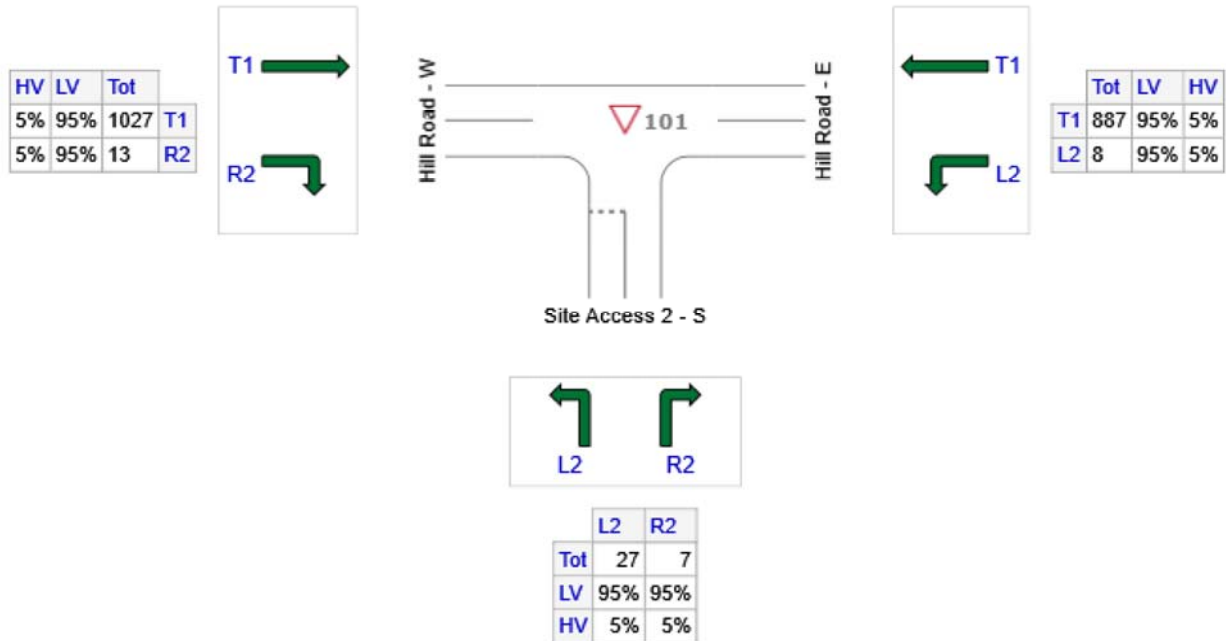
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

▽ Site: 101 [Hill Road / Site Access 2 - Fu PM]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveway / Yield (Two-Way)

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Site Access 2 - S	34	32	2
E: Hill Road - E	895	850	45
W: Hill Road - W	1040	988	52
Total	1969	1871	98

MOVEMENT SUMMARY

▽ Site: 101 [Hill Road / Site Access 2 - Fu PM]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access 2 - S											
1	L2	28	5.0	0.037	7.0	LOS A	0.1	0.9	0.47	0.65	44.9
3	R2	7	5.0	0.460	290.5	LOS F	1.2	8.6	0.99	1.02	10.1
Approach		36	5.0	0.460	65.4	LOS E	1.2	8.6	0.57	0.72	24.0
East: Hill Road - E											
4	L2	8	5.0	0.250	5.6	LOS A	0.0	0.0	0.00	0.01	58.0
5	T1	934	5.0	0.250	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
Approach		942	5.0	0.250	0.1	NA	0.0	0.0	0.00	0.01	59.9
West: Hill Road - W											
11	T1	1081	5.0	0.286	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
12	R2	14	5.0	0.031	12.5	LOS A	0.1	0.8	0.69	0.83	42.4
Approach		1095	5.0	0.286	0.2	NA	0.1	0.8	0.01	0.01	59.6
All Vehicles		2073	5.0	0.460	1.3	NA	1.2	8.6	0.01	0.02	58.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

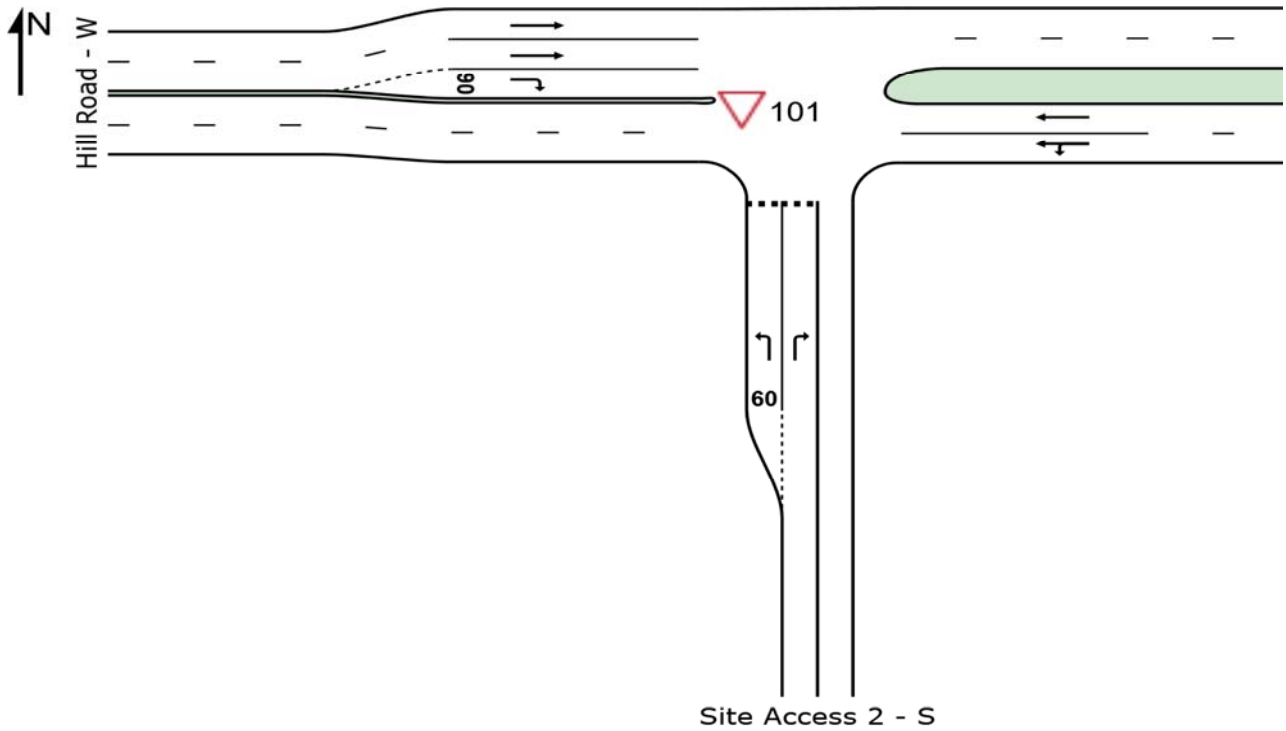
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

▽ Site: 101 [Hill Road / Site Access 2 - Fu SAT]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveaway / Yield (Two-Way)



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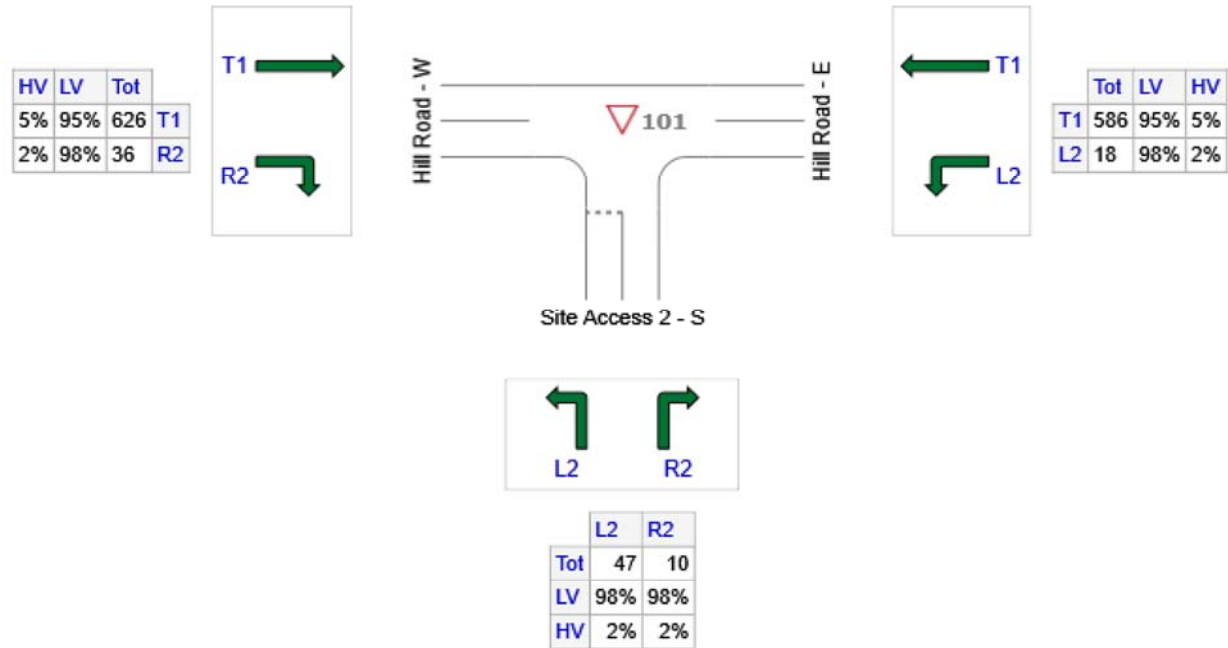
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

▽ Site: 101 [Hill Road / Site Access 2 - Fu SAT]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveaway / Yield (Two-Way)

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Site Access 2 - S	57	56	1
E: Hill Road - E	604	574	30
W: Hill Road - W	662	630	32
Total	1323	1260	63

MOVEMENT SUMMARY

▽ Site: 101 [Hill Road / Site Access 2 - Fu SAT]

16277 URBNSURF Sydney, Sydney Olympic Park
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site Access 2 - S											
1	L2	49	2.0	0.051	5.9	LOS A	0.2	1.3	0.37	0.58	45.9
3	R2	11	2.0	0.103	38.2	LOS C	0.3	2.1	0.90	0.95	34.0
Approach		60	2.0	0.103	11.6	LOS A	0.3	2.1	0.46	0.65	42.7
East: Hill Road - E											
4	L2	19	2.0	0.168	5.6	LOS A	0.0	0.0	0.00	0.04	57.9
5	T1	617	5.0	0.168	0.0	LOS A	0.0	0.0	0.00	0.02	59.8
Approach		636	4.9	0.168	0.2	NA	0.0	0.0	0.00	0.02	59.7
West: Hill Road - W											
11	T1	659	5.0	0.174	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	38	2.0	0.054	9.0	LOS A	0.2	1.4	0.55	0.74	44.8
Approach		697	4.8	0.174	0.5	NA	0.2	1.4	0.03	0.04	58.9
All Vehicles		1393	4.7	0.174	0.8	NA	0.3	2.1	0.03	0.06	58.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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